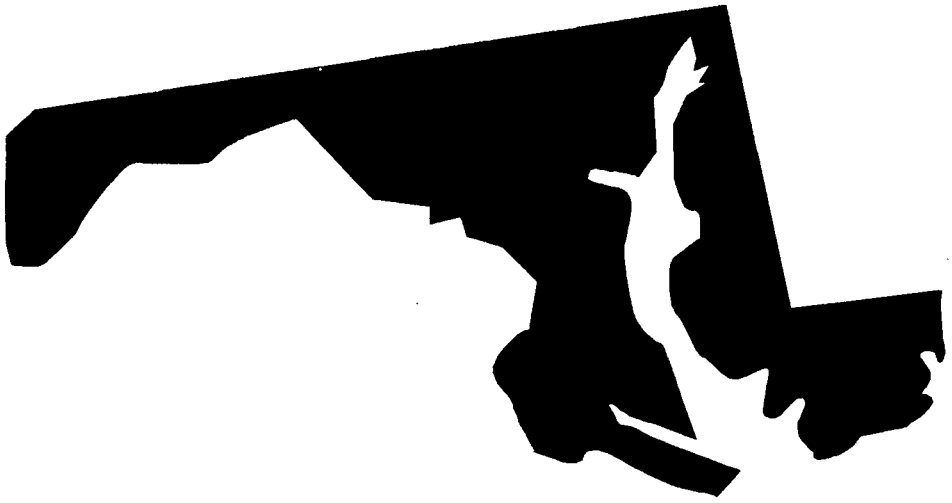
THE TASK FORCE TO STUDY THE USE OF METHYLPHENIDATE & OTHER DRUGS ON SCHOOL CHILDREN REPORT



Appendix

March 1999

APPENDIX

Maryland Task Force to Study the Use of Methylphenidate in School Children

This document is supplementary to *Maryland Task Force to Study the Use of Methylphenidate in School Children* Final Report (1999). It is provided as a source of additional information gathered and developed by the task force in the course of their work.

Maryland's Task Force to Study the Use of Methylphenidate in School Children worked diligently in researching and collecting current data regarding the issue of Attention Deficit Hyperactivity Disorder (ADHD) and its treatment. The following information contained in this document are reports and summaries of the task force members work from which the executive summary was derived. These summaries, recommendations and survey results as well as examples of "best practice" policies and procedures are separated into sections that pertain to the both the educational system and the Medical Care/Mental Health Care Provider.

Maryland's Task Force to Study the Use of Methylphenidate in School Children conducted or reviewed several surveys as part of their data collection. The full results of these surveys are included.

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TO THE FINAL REPORT OF THE
Maryland Task Force to Study the Use of Methylphenidate in School Children

MARYLAND HOUSE BILL 971

HOUSE BILL 971

Unofficial Copy 1997 Regular Session
J1 (7lr0058)

ENROLLED BILL

-- Environmental Matters/Economic and Environmental Affairs --

Introduced by **Delegates Muse, Valderrama, R. Baker, C. Davis, Howard, Patterson, C. Mitchell, Benson, Turner, Opara, Crumlin, Finifter, and Marriott**

Read and Examined by Proofreaders:

_____
Proofreader.

_____
Proofreader.

Sealed with the Great Seal and presented to the Governor, for his approval this _____ day of _____ at _____ o'clock, _____M.

_____
Speaker.

CHAPTER_____

AN ACT concerning

Task Force to Study the ~~Abuses~~ Uses of Methylphenidate and Other Drugs on School Children

FOR the purpose of establishing a Task Force to Study the ~~Abuses~~ Uses of Methylphenidate and Other Drugs on School Children; providing for the membership, duties, staffing, and termination of the Task Force; requiring a certain report; providing for the termination of this Act; and generally relating to the establishment of a certain task force.

BY adding to
Article 41 - Governor - Executive and Administrative Departments
Section 18-313
Annotated Code of Maryland
(1993 Replacement Volume and 1996 Supplement)

Preamble

WHEREAS, There are between 1.5 million to 2.5 million children in the United States under age 18 who have attention deficit hyperactivity disorder (ADHD); and

~~WHEREAS, In recent years there has been a dramatic increase in the use of the drug methylphenidate to treat ADHD in school-age children, with the number of children taking this drug doubling in the last five years; and~~

~~WHEREAS, Methylphenidate, which has a high habit forming potential, may be an effective means of treatment for ADHD in some children by enabling hyperactive children to calm down and to focus more effectively on school tasks; and~~

~~WHEREAS, For other children use of the drug may be ineffective or produce serious side effects, such as insomnia, nervousness, loss of appetite, weight loss, and palpitations and hallucinations; and~~

~~WHEREAS, There is concern that ADHD is being over diagnosed and, consequently, that methylphenidate is being over prescribed for this condition among school-age children; and~~

~~WHEREAS, There is also concern that methylphenidate may be underutilized among ADHD children whose condition requires that use of the drug should not be limited only to school settings; and~~

WHEREAS, There is a need to determine the prevalence and the effects of the use of methylphenidate among school-age children in Maryland; ~~and~~

~~WHEREAS, Issues concerning the use of methylphenidate in the State by school-age children are of concern to both the public health and educational communities;~~ now, therefore,

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That the Laws of Maryland read as follows:

Article 41 - Governor - Executive and Administrative Departments

18-313.

(A) THERE IS A TASK FORCE TO STUDY THE ~~ABUSES~~ USES OF METHYLPHENIDATE AND OTHER DRUGS ON SCHOOL CHILDREN.

(B) THE TASK FORCE SHALL BE COMPOSED OF ~~17~~ *19* MEMBERS APPOINTED AS FOLLOWS:

(1) ONE MEMBER OF THE HOUSE OF DELEGATES APPOINTED BY THE SPEAKER OF THE HOUSE;

(2) ONE MEMBER OF THE SENATE OF MARYLAND APPOINTED BY THE PRESIDENT OF THE SENATE;

(3) ONE MEMBER WHO IS A SCHOOL PSYCHOLOGIST FROM THE STATE BOARD OF EDUCATION APPOINTED BY THE GOVERNOR;

(4) ONE MEMBER OF THE MARYLAND STATE TEACHERS ASSOCIATION WHO IS A TEACHER APPOINTED BY THE GOVERNOR;

(5) SEVEN MEMBERS WHO ARE EXPERTS ON ATTENTION DEFICIT HYPERACTIVITY DISORDER FROM THE MEDICAL COMMUNITY APPOINTED BY THE GOVERNOR;

(6) TWO MEMBERS WHO ARE REGISTERED NURSES EMPLOYED AS SCHOOL NURSES APPOINTED BY THE GOVERNOR;

(7) ONE MEMBER WHO IS A LICENSED PHYSICIAN APPOINTED BY THE STATE BOARD OF PHYSICIAN QUALITY ASSURANCE;

(8) ONE MEMBER WHO IS A LICENSED PSYCHOLOGIST APPOINTED BY THE STATE BOARD OF EXAMINERS OF PSYCHOLOGISTS;

(9) ONE MEMBER WHO IS A PARENT OF A CHILD ON METHYLPHENIDATE APPOINTED BY THE GOVERNOR; ~~AND~~

(10) ONE MEMBER WHO IS A MEMBER OF CHILDREN AND ADULTS WITH ATTENTION DEFICIT DISORDER (CHADD) APPOINTED BY THE GOVERNOR~~.~~; *AND*

(11) TWO MEMBERS WHO ARE SPECIAL EDUCATION TEACHERS.

(C) THE GOVERNOR SHALL DESIGNATE THE CHAIRMAN OF THE TASK FORCE.

(D) THE DEPARTMENT OF EDUCATION AND THE DEPARTMENT OF HEALTH AND MENTAL HYGIENE JOINTLY SHALL PROVIDE STAFF FOR THE TASK FORCE.

(E) A MEMBER OF THE TASK FORCE:

(1) MAY NOT RECEIVE COMPENSATION FOR SERVING ON THE TASK FORCE; BUT

(2) IS ENTITLED TO REIMBURSEMENT FOR EXPENSES UNDER THE STANDARD STATE TRAVEL REGULATIONS, AS PROVIDED IN THE STATE BUDGET.

(F) THE TASK FORCE:

(1) SHALL DETERMINE THE PREVALENCE OF THE USE OF METHYLPHENIDATE AMONG SCHOOL-AGE CHILDREN IN THE STATE;

(2) SHALL DETERMINE THE EXTENT TO WHICH TREATMENTS FOR ATTENTION DEFICIT HYPERACTIVITY DISORDER OTHER THAN METHYLPHENIDATE ARE GENERALLY AVAILABLE OR IN USE;

(3) SHALL DETERMINE WHO PRESCRIBES METHYLPHENIDATE TO SCHOOL-AGE CHILDREN AND WHY;

~~(3)~~ (4) MAY CONSULT WITH EDUCATION AND HEALTH OFFICIALS AND EXPERTS IN THIS STATE AND IN OTHER STATES AND COUNTRIES;

~~(4)~~ (5) SHALL CONVENE A STATEWIDE CONFERENCE ON ATTENTION DEFICIT HYPERACTIVITY DISORDER THAT WOULD BE APPROPRIATE FOR PARENTS, TEACHERS, AND PRIMARY CARE PHYSICIANS TO EXAMINE THE LATEST

INFORMATION ON ATTENTION DEFICIT HYPERACTIVITY DISORDER, THE USE OF METHYLPHENIDATE, DEXTROAMPHETAMINE, MAGNESIUM PEMOLINE, AND OTHER MEDICATIONS EFFECTIVE IN THE TREATMENT OF THE DISORDER, AND NONPHARMACOLOGICAL INTERVENTIONS IN THE TREATMENT OF ATTENTION DEFICIT HYPERACTIVITY DISORDER;

~~(5)~~ (6) SHALL DEVELOP EDUCATIONAL PROGRAMS AND MATERIALS CONCERNING ATTENTION DEFICIT HYPERACTIVITY DISORDER FOR DISTRIBUTION TO PARENTS, EDUCATORS, AND PRIMARY CARE PHYSICIANS; AND

~~(6)~~ (7) MAY TAKE ANY OTHER ACTION NECESSARY AND PROPER TO CARRY OUT THE PURPOSES OF THIS SECTION.

(G) ON OR BEFORE JANUARY 1, ~~1998~~ 1999, THE TASK FORCE SHALL SUBMIT A REPORT OF ITS FINDINGS AND RECOMMENDATIONS TO THE GOVERNOR AND, SUBJECT TO § 2-1312 OF THE STATE GOVERNMENT ARTICLE, TO THE GENERAL ASSEMBLY.

~~(H) THIS SECTION SHALL TERMINATE AND BE OF NO EFFECT AFTER JANUARY 1, 1998.~~

SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall take effect ~~October~~ June 1, 1997. It shall remain effective for a period of 1 year and 6 months and, at the end of January 1, 1999, with no further action required by the General Assembly, this Act shall be abrogated and of no further force and effect.

Maryland Task Force to Study the Use of Methylphenidate in School Children

SURVEY RESULTS

MARYLAND PREVALENCE OF MEDICATION FOR THE TREATMENT OF ADHD

Maryland State Department of
EDUCATION

Schools for Success

Nancy S. Grasmick
State Superintendent of Schools

200 West Baltimore Street
Baltimore, Maryland 21201
Phone (410) 767-0100
TTY/TDD (410) 333-6442

February 11, 1998

TO: Local Superintendents of Schools
Local Health Officers

The 1997 Maryland General Assembly passed House Bill 971 establishing the Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children. Its specific charge is to: *determine the prevalence of the use of methylphenidate among school-age children in the State; determine the extent to which treatments for attention deficit hyperactivity disorder other than methylphenidate are generally available or in use; and determine who prescribes methylphenidate to school-age children and why.*

To meet this charge, the task force needs two sets of information. The first set of information is a survey of school health services staff (school nurses) to determine the prevalence of medication ordered for attention deficit hyperactivity disorder (ADHD) being given during the school day. A copy of that survey, with detailed instructions, is attached. This survey was discussed with school health supervisors in the fall and was received favorably. Please have the survey completed by the school health supervisor, and send it by April 1, 1998, to: Vicki Taliaferro, Maryland State Department of Education, 200 West Baltimore Street, Baltimore, Maryland 21201.

The second set of information is a summary of the procedures and practices that are followed in each school system when a student has, or is suspected to have, ADHD. This information is accompanied by copies of the applicable policies and related documents. A copy of the requested information is attached and has been discussed with the Directors of Pupil Services. Please have this information completed by the director of pupil services, and send it by March 15, 1998 to: Dr. William Flook, Maryland State Department of Education, 200 West Baltimore Street, Baltimore, Maryland 21201.

A statewide conference on the results of the task force's work will be held in the Fall of 1998. The final report of the task force is due to the General Assembly on January 1, 1999. Please direct any questions to Mrs. Taliaferro, Specialist, Health Services at (410) 767-0305 or to Dr. Flook, Specialist, Psychological Services at (410) 767-0307.

Thank you for your assistance and continued cooperation.

Sincerely,

Nancy S. Grasmick
State Superintendent of Schools

Martin P. Wasserman, M.D., J.D.
Secretary, Department of Health and Mental Hygiene

NSG/MPW/vt
Enclosures

c: Directors of Pupil Services/School Health Supervisors/Sidney Seidman, Task Force Chair

ADHD MEDICATION PREVALENCE SURVEY

of Maryland's Public School Children

1998

Maryland State Department of Education
Division of Compensatory Education and Support Services
Division of Planning, Results, and Information Management
200 West Baltimore Street
Baltimore, Maryland 21201

August 1998

The ADHD Medication Prevalence Survey is sponsored by Maryland State Department of Education, Maryland Department of Health and Mental Hygiene and the Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children.

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Division of Planning, Results, and Information Management

ADHD Medication Prevalence Survey of Maryland's Public School Children

Purpose of the Study

The 1997 Maryland General Assembly passed House Bill 971 establishing the *Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children.* The specific charge to the Task Force addressed by this study was to: "Determine the prevalence of the use of methylphenidate among school-age children in the State; determine the extent to which treatments for attention deficit/hyperactivity disorder other than methylphenidate are generally available or in use; and determine who prescribes methylphenidate to school-age children and why." This study represents part of the data collection done in order for the Task Force to meet its charge.

Method

Data Source

School health services staff (school nurses) in all Maryland public school systems were surveyed in April 1998 to determine the prevalence of methylphenidate (Ritalin) and other medications prescribed by physicians or other health care providers for treatment of attention deficit/hyperactivity disorder (ADHD) that were being dispensed during the school day. School health staff reviewed either student cumulative records or student health records in order to respond to the survey (Appendix A). No student was interviewed and data were reported in aggregate form at the local school system level in order to maintain confidentiality. Local school systems provided information for elementary, middle, and high school level students. Local school systems determined the grade structures of those designations.

In addition to survey data, student enrollments used in analyses were obtained from the MSDE September 30, 1997, enrollment data and December 1, 1997, Special Education Child Count data. Elementary totals were aggregated for grades pre-kindergarten, kindergarten, and grade 1 through grade 5. Middle totals were aggregated for grade 6 through grade 8 and high school totals were aggregated for grade 9 through grade 12. The resulting totals were: elementary = 410,664, middle = 183,803, high = 221,998, and total = 816,465.

Special education enrollments were similarly aggregated to the elementary level (50,955), the middle school level (27,602), the high school level (24,584), and total (103,141).

Type of Data

The survey instrument designed for this study collected information on students receiving Ritalin during school hours and also collected information on students receiving other medication during school hours for the treatment of ADHD. Students receiving medications only for conditions other than ADHD were not counted. Children with a diagnosis of ADHD but not receiving medication at school were not counted. The race/ethnicity and gender of each student receiving Ritalin and/or other medications for ADHD were reported. A student could

be reported twice if he/she were receiving both Ritalin and another medication for ADHD. The data collect methodology and the survey instrument did not permit identification of students who were receiving Ritalin a other medications. Also, school health staff reported whether a student had a Special Education Individ Education Plan (IEP), a 504 Accommodation Plan, or no formal plan addressing a disabling condition. The type of medical specialty of the prescribers of both Ritalin and other medications were reported. However, if a student were receiving both Ritalin and other medications for ADHD, then school health sta were instructed to report the specialty only in the section for Ritalin. Additionally, data were collected regarding the type of medications for treatment of ADHD other than Ritalin that were being dispensed during the school day.

Limitations

The major limitation in this study is that the data represent only children receiving medication for ADHD during school hours and not children receiving medication for ADHD at home or in other non-school settings. Thus, the estimates of children receiving medication for ADHD provided by this study are probat conservative. Additionally, there were minor differences between the total counts of students by gender, race, and special education identification for both children receiving Ritalin and those receiving other medications. These missing data have been noted in the tables that present the results.

Results

The results are presented in tabular form for the State and for each local school system (LSS). There are a total of six tables. Both state and LSS data are in Appendix B. This section will describe the contents of each table using state data. Each local school system table was created in the same way and can be read similarly.

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 12,774)	Middle (N = 5,338)	High (N = 1,938)	Total (N = 20,050)	Elementary (N = 2,246)	Middle (N = 1,044)	High (N = 431)	Total (N = 3,721)
TOTAL	3.11	2.90	0.87	2.46	0.55	0.57	0.19	0.46

*** A single student may be counted as receiving both Ritalin and Other Medications.**

Table 1 presents the percentage of enrollment receiving Ritalin and/or other medications at the elementary, middle, and high school levels. The Ns in parentheses are the actual numbers of students reported in the survey. For instance, 20,050 students statewide or 2.46% are receiving Ritalin in all Maryland public schools. Similarly, 3,721 students or 0.46% are receiving other medications. Some students may be count in both categories since they may be taking more than one medication for ADHD. However, this survey indicates that no more than 2.46%+0.46% or 2.92% of all students in Maryland public schools are receivin medications in school for ADHD. The actual percentage is between 2.46% and 2.92% but these data do nc permit a precise determination.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of Schoos			
	Elementary (N = 12,774)	Middle (N = 5,338)	High (N = 1,938)	Total (N = 20,050)	Elementary (N = 2,246)	Middle (N = 1,044)	High (N = 431)	Total (N = 3,721)
American Indian	0.18	0.17	0.15	0.17	0.63	0.1	0.47	0.46
Asian	0.82	0.96	0.77	0.85	0.45	0.38	0.7	0.46
African American	24.2	16.98	10.47	20.95	26.92	18.81	14.65	23.17
White	73.11	79.83	86.89	76.23	69.73	79.75	79.77	73.53
Hispanic	1.68	2.06	1.7	1.79	2.28	0.96	4.42	2.15
Male	77.87	81.02	81.27	79.04	78.81	85.15	74.01	79.04
Female	22.13	18.98	18.73	20.96	21.19	14.85	25.99	20.96
TOTAL	63.71	26.62	9.67		60.36	28.06	11.58	

*** A single student may be counted as receiving both Ritalin and Other Medications.**

Table 2 presents the percentage of the reported students receiving Ritalin and/or other medications at the elementary, middle, and high school levels by race/ethnicity and gender. The Ns in parentheses are the actual numbers of students reported in the survey. The majority of students (73.11%) receiving Ritalin were white and 69.73% of students receiving other medications were white. Males receiving Ritalin as well as other medications outnumber females by approximately three to one (77.87% to 22.13% and 78.81% to 21.19%, respectively). A majority of students receiving Ritalin or other medications, irrespective of race or gender, were in the elementary grades (63.71 and 60.36, respectively).

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 12,592)	Middle (N = 5,298)	High (N = 2,109)	Total (N = 19,999)	Elementary (N = 2,226)	Middle (N = 1,036)	High (N = 407)	Total (N = 3,669)
With IEP	43.33	46.17	50.69	44.86	51.53	54.63	48.65	52.09
With 504 Plan	7.24	9.55	11.52	8.31	6.33	9.75	12.78	8.01
Without IEP or 504	49.43	44.28	37.79	46.84	42.14	35.62	38.57	39.90
TOTAL	62.96	26.49	10.55		60.67	28.24	11.09	

*** A single student may be counted as receiving both Ritalin and Other Medications**

Table 3 presents the percentage of enrollment receiving Ritalin and/or other medications at the elementary, middle, and high school levels that had IEPs, 504 Plans, or neither IEPs nor 504 plans. The Ns in parentheses are the actual numbers of students reported in the survey. There were nearly equal percentages of students receiving Ritalin that had IEPs (43.33%) compared with students who had neither an IEP or 504 plan (46.84%). The differences in total row statistics between Table 2 and Table 3 are due to missing data.

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 6,456)	Middle (N = 2,446)	High (N = 1,069)	Total (N = 8,971)	Elementary (N = 1,147)	Middle (N = 566)	High (N = 198)	Total (N = 1,911)
TOTAL	10.71	8.86	4.35	8.7	2.25	2.05	0.81	1.85

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 4 presents the percentage of Special Education enrollment receiving Ritalin and/or other medications at the elementary, middle, and high school levels that had IEPs. The Ns in parentheses are the actual numbers of students reported in the survey. For instance, 10.71% of Special Education students at the elementary level are receiving Ritalin while 2.25% are receiving other medications. The counts may be duplicated and, thus the actual total count is between 10.71% and 10.96%. At the elementary level, special education students are nearly fives times more likely to receive Ritalin rather than other medications (10.71% vs. 2.25%).

Table 5

(REVISED)

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 12,706)	Middle (N = 5,316)	High (N = 1,916)	Total (N = 19,935)	Elementary (N = 2,218)	Middle (N = 1,042)	High (N = 425)	Total (N = 3,685)
Pediatrician	62.75	56.35	42.82	59.13	43.42	38.39	34.82	41.00
Family Practitioner	13.19	18.33	27.15	15.90	9.06	15.16	14.82	11.45
Behavioral Clinic	4.84	3.20	2.92	4.22	7.93	6.72	6.12	7.38
Psychiatrist	9.29	11.25	16.71	10.52	28.67	25.72	35.76	28.66
Nurse Practitioner	2.75	1.75	1.46	2.36	1.98	2.59	2.59	2.23
Not Known	5.70	7.81	7.00	6.39	7.21	9.40	4.26	7.49
Other	1.49	1.32	1.93	1.48	1.71	2.02	1.65	1.79
TOTAL	63.73	26.66	9.61		60.19	28.28	11.53	

* Providers of Ritalin and Other Medications to the same student were recorded in the Ritalin category.

Table 5 presents the percentage of prescriptions for Ritalin and/or other medications at the elementary, middle, and high school levels by type of medical specialty. The Ns in parentheses are the actual numbers of prescriptions reported in the survey. Since prescribers may have prescribed both Ritalin and other medications and were intentionally counted only with Ritalin medications, the actual number of other prescriptions may be greater than reported. Additionally, the total number of prescribers may be less than the number of children since one prescriber may treat more than one child. Pediatricians wrote the largest percentage of prescriptions in both the Ritalin and other medications categories (59.13% and 41.00%, respectively).

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 2,322)	Middle (N = 1,157)	High (N = 452)	Total (N = 3,931)
Adderall	30.45	32.41	28.10	30.76
Catapres	11.33	12.10	5.75	10.91
Cylert	2.15	3.20	4.20	2.70
Dexedrine	43.80	36.99	50.66	42.58
Norpramin	0.34	0.95	0.00	0.48
Pamelor	0.65	0.95	0.00	0.66
Torfranil	1.03	1.38	0.66	1.09
Wellbutrin	0.99	2.25	3.32	1.63
Other	9.26	9.77	7.30	9.18
TOTAL	59.07	29.43	11.50	

Table 6 presents the percentages of other medications at the elementary, middle and high school levels as well as totals. Like in the prior tables, most prescriptions (59.07%) were at the elementary level while the most frequently prescribed medication other than Ritalin was Dexedrine (42.58% overall) followed by Adderall (30.76%).

Summary

Approximately 2.5% of children in Maryland public schools receive Ritalin and/or other medications for ADHD during school hours from school health services staff. Roughly 8 out of 10 students receiving medications for ADHD at school are males. Pediatricians are most likely to be the prescribers of all medications for treating ADHD. Psychiatrists prescribed other medications most often (29.2%) after pediatricians (41.8%). Substantial percentages of students receiving both Ritalin and other medications (46.8% and 39.9%, respectively) had neither an IEP nor 504 plan. Relatively small percentages (8.7% and 1.85%, respectively) of special education students were reported to be receiving either Ritalin or other medications for ADHD.

APPENDIX A

Maryland State Department of Education Page ___ of ____

Statewide Survey

Children Receiving Medication for Attention Deficit/ Hyperactivity Disorder

SUMMARY FOR (School):_____

Student (No names)	Race					Gender		Special Ed /504			Type of Medication									Who Prescribes?							TOTALS
	American Indian or Alaskan Native	Asian-Pacific Islander	African-American (not Hispanic)	White (not Hispanic)	Hispanic	Male	Female	Has an IEP?	Has a "504" Plan?	NO IEP or "504" Plan	Adderall	Catapres (Clonidine HCl)	Cylert (Pemoline)	Dexedrine (Dextroamphetamine Sulfate)	Norpramin (Desipramine HCL)	Pamelor (Nortiptyline HCl)	Tofranil (Imipramine)	Wellbutrin (Bupropion HCl)	Other	Pediatrician	Family Practitioner	Practitioner with a Behavioral Clinic	Psychiatrist	Nurse Practitioner	Not Known	Other	
TOTALS																											

Maryland State Department of Education
Statewide Survey

Children Receiving Medication for Attention Deficit/ Hyperactivity Disorder

SUMMARY FOR (School):_____

→RITALIN (Methylphenidate) ONLY←

Student (no name)	Race					Gender		Special Ed /504			Who Prescribes?							TOTALS
	American Indian or Alaskan Native	Asian-Pacific Islander	African-American (not Hispanic)	White (not Hispanic)	Hispanic	Male	Female	Has an IEP?	Has a "504" Plan?	NO IEP or "504" Plan	Pediatrician	Family Practitioner	Practitioner with a Behavioral Clinic	Psychiatrist	Nurse Practitioner	Not Known	Other	
TOTALS																		

APPENDIX B

MARYLAND

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 12,774)	Middle (N = 5,338)	High (N = 1,938)	Total (N = 20,050)	Elementary (N = 2,246)	Middle (N = 1,044)	High (N = 431)	Total (N = 3,721)
TOTAL	3.11	2.90	0.87	2.46	0.55	0.57	0.19	0.46

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
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White	73.11	79.83	86.89	76.23	69.73	79.75	79.77	73.53
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* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 12,592)	Middle (N = 5,298)	High (N = 2,109)	Total (N = 19,999)	Elementary (N = 2,226)	Middle (N = 1,036)	High (N = 407)	Total (N = 3,669)
With IEP	43.33	46.17	50.69	44.86	51.53	54.63	48.65	52.09
With 504 Plan	7.24	9.55	11.52	8.31	6.33	9.75	12.78	8.01
Without IEP or 504	49.43	44.28	37.79	46.84	42.14	35.62	38.57	39.90
TOTAL	62.96	26.49	10.55		60.67	28.24	11.09	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	*Percent of Special Education Enrollment With IEPs Receiving Ritalin**				*Percent of Special Education Enrollment With IEPs Receiving Other Medications**			
	Elementary (N = 5,456)	Middle (N = 2,446)	High (N = 1,069)	Total (N = 8,971)	Elementary (N = 1,147)	Middle (N = 566)	High (N = 198)	Total (N = 1,911)
TOTAL	10.71	8.86	4.35	8.7	2.25	2.05	0.81	1.85

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 12,516)	Middle (N = 5,245)	High (N = 1,878)	Total (N = 19,639)	Elementary (N = 2,180)	Middle (N = 1,021)	High (N = 418)	Total (N = 3,619)
Pediatrician	63.69	57.10	43.66	60.02	44.17	39.18	35.41	41.75
Family Practitioner	13.39	18.57	27.69	16.14	9.22	15.48	15.07	11.66
Behavioral Clinic	0.00	0.00	2.98	0.29	8.07	6.86	6.22	7.52
Psychiatrist	4.91	3.24	17.04	5.63	29.17	26.25	36.36	29.18
Nurse Practitioner	9.43	11.40	1.49	9.20	2.02	2.64	2.63	2.27
Not Known	2.79	1.77	7.14	2.93	7.34	9.60	4.31	7.63
Other	5.78	7.91	1.97	5.99	1.74	2.06	1.67	1.82
TOTAL	63.73	26.71	9.56		60.24	28.21	11.55	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 2,322)	Middle (N = 1,157)	High (N = 452)	Total (N = 3,931)
Adderall	30.45	32.41	28.10	30.76
Catapres	11.33	12.10	5.75	10.91
Cylert	2.15	3.20	4.20	2.70
Dexedrine	43.80	36.99	50.66	42.58
Norpramin	0.34	0.95	0.00	0.48
Pamelor	0.65	0.95	0.00	0.66
Torfranil	1.03	1.38	0.66	1.09
Wellbutrin	0.99	2.25	3.32	1.63
Other	9.26	9.77	7.30	9.18
TOTAL	59.07	29.43	11.50	

ALLEGANY

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 408)	Middle (N = 165)	High (N = 82)	Total (N = 655)	Elementary (N = 52)	Middle (N = 21)	High (N = 5)	Total (N = 78)
TOTAL	8.35	6.56	2.36	6.02	1.06	0.84	0.14	0.72

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 408)	Middle (N = 165)	High (N = 82)	Total (N = 655)	Elementary (N = 52)	Middle (N = 21)	High (N = 5)	Total (N = 78)
American Indian	0.00	0.00	1.22	0.15	0.00	0.00	0.00	0.00
Asian	0.00	0.61	0.00	0.15	0.00	0.00	0.00	0.00
African American	4.90	6.67	8.54	5.80	11.54	0.00	0.00	7.69
White	95.10	92.73	90.24	93.89	88.46	100.00	100.00	92.31
Hispanic	0.00	0.00	0.00	0 00	0.00	0.00	0.00	0.00
Male	72.55	76.97	82.93	74.96	86.54	80.95	60.00	74.96
Female	27.45	23.03	17.07	25.04	13.46	19.05	40.00	25.04
TOTAL	62.29	25.19	12.52		66.67	26.92	6.41	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 408)	Middle (N = 165)	High (N = 82)	Total (N = 655)	Elementary (N = 52)	Middle (N = 21)	High (N = 5)	Total (N = 78)
With IEP	47.30	47.88	58.54	48.85	69.23	66.67	20.00	65.38
With 504 Plan	0.49	2.42	0.00	0.92	0.00	14.29	0.00	3.85
Without IEP or 504	52.21	49.70	41.46	50.23	30.77	19.05	80.00	30.77
TOTAL	62.29	25.19	12.52		66.67	26.92	6.41	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 193)	Middle (N = 79)	High (N = 48)	Total (N = 320)	Elementary (N = 36)	Middle (N = 14)	High (N = 1)	Total (N = 51)
TOTAL	25.36	24.46	13.04	22.04	4.73	4.33	0.27	3.51

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 408)	Middle (N = 165)	High (N = 82)	Total (N = 655)	Elementary (N = 52)	Middle (N = 21)	High (N = 5)	Total (N = 78)
Pediatrician	65.69	59.39	52.44	62.44	28.85	52.38	60.00	37.18
Family Practitioner	15.20	15.76	26.83	16.79	7.69	9.52	0.00	7.69
Behavioral Clinic	3.43	3.03	7.32	3.82	0.00	0.00	0.00	0.00
Psychiatrist	6.62	18.18	10.98	10.08	55.77	28.57	40.00	47.44
Nurse Practitioner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Not Known	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	9.07	3.64	2.44	6.87	7.69	9.52	0.00	7.69
TOTAL	62.29	25.19	12.52		66.67	26.92	6.41	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 52)	Middle (N = 21)	High (N = 5)	Total (N = 78)
Adderall	26.92	28.57	40.00	28.21
Catapres	13.46	28.57	0.00	16.67
Cylert	3.85	0.00	0.00	2.56
Dexedrine	42.31	38.10	60.00	42.31
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	4.76	0.00	1.28
Torfranil	5.77	0.00	0.00	3.85
Wellbutrin	0.00	0.00	0.00	0.00
Other	7.69	0.00	0.00	5.13
TOTAL	66.67	26.92	6.41	

ANNE ARUNDEL

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 1,351)	Middle (N = 493)	High (N = 188)	Total (N = 2,032)	Elementary (N = 227)	Middle (N = 94)	High (N = 49)	Total (N = 370)
TOTAL	3.80	2.97	0.93	2.81	0.64	0.57	0.24	0.51

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 1,351)	Middle (N = 493)	High (N = 188)	Total (N = 2,032)	Elementary (N = 227)	Middle (N = 94)	High (N = 49)	Total (N = 370)
American Indian	0.00	0.20	0.00	0.05	0.44	0.00	0.00	0.27
Asian	0.89	0.81	0.53	0.84	0.00	0.00	2.04	0.27
African American	16.65	8.52	9.04	13.98	15.86	14.89	4.08	14.05
White	80.75	88.84	90.43	83.61	81.50	85.11	93.88	84.05
Hispanic	1.70	1.62	0.00	1.53	2.20	0.00	0.00	1.35
Male	76.68	80.73	87.77	78.69	84.58	81.91	69.39	78.69
Female	23.32	19.27	12.23	21.31	15.42	18.09	30.61	21.31
TOTAL	66.49	24.26	9.25		61.35	25.41	13.24	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 1,351)	Middle (N = 493)	High (N = 188)	Total (N = 2,032)	Elementary (N = 227)	Middle (N = 94)	High (N = 49)	Total (N = 370)
With IEP	43.52	49.49	53.72	45.92	53.30	57.45	48.98	53.78
With 504 Plan	4.59	4.06	5.85	4.58	7.05	2.13	4.08	5.41
Without IEP or 504	51.89	46.45	40.43	49.51	39.65	40.43	46.94	40.81
TOTAL	66.49	24.26	9.25		61.35	25.41	13.24	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 588)	Middle (N = 244)	High (N = 101)	Total (N = 933)	Elementary (N = 121)	Middle (N = 54)	High (N = 24)	Total (N = 199)
TOTAL	13.12	8.74	3.93	9.47	2.70	1.93	0.93	2.02

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 1,351)	Middle (N = 493)	High (N = 188)	Total (N = 2,032)	Elementary (N = 227)	Middle (N = 94)	High (N = 49)	Total (N = 370)
Pediatrician	74.32	68.15	56.91	71.21	62.56	46.81	51.02	57.03
Family Practitioner	8.96	15.21	15.96	11.12	7.93	15.96	2.04	9.19
Behavioral Clinic	7.48	1.01	1.60	5.36	3.52	8.51	8.16	5.41
Psychiatrist	1.41	6.90	13.30	3.84	20.26	15.96	28.57	20.27
Nurse Practitioner	4.74	1.22	2.66	3.69	1.76	5.32	2.04	2.70
Not Known	0.30	7.10	9.04	2.76	3.08	3.19	6.12	3.51
Other	2.81	0.41	0.53	2.02	0.88	4.26	2.04	1.89
TOTAL	66.49	24.26	9.25		61.35	25.41	13.24	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 227)	Middle (N = 98)	High (N = 47)	Total (N = 372)
Adderall	36.56	50.00	42.55	40.86
Catapres	8.37	3.06	2.13	6.18
Cylert	1.32	1.02	4.26	1.61
Dexedrine	46.26	36.73	51.06	44.35
Norpramin	0.44	0.00	0.00	0.27
Pamelor	0.88	0.00	0.00	0.54
Torfranil	0.44	1.02	0.00	0.54
Wellbutrin	0.00	2.04	0.00	0.54
Other	5.73	6.12	0.00	5.11
TOTAL	61.02	26.34	12.63	

BALTIMORE CITY

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 1,073)	Middle (N = 194)	High (N = 24)	Total (N = 1,291)	Elementary (N = 203)	Middle (N = 38)	High (N = 10)	Total (N = 251)
TOTAL	1.86	0.82	0.09	1.20	0.35	0.16	0.04	0.23

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 1,073)	Middle (N = 194)	High (N = 24)	Total (N = 1,291)	Elementary (N = 203)	Middle (N = 38)	High (N = 10)	Total (N = 251)
American Indian	0.56	2.06	0.00	0.77	0.49	2.63	0.00	0.80
Asian	0.19	0.00	0.00	0.15	0.00	0.00	0.00	0.00
African American	64.59	68.56	50.00	64.91	70.44	76.32	100.00	72.51
White	33.83	27.84	50.00	33.23	28.57	21.05	0.00	26.29
Hispanic	0.84	1.55	0.00	0.93	0.49	0.00	0.00	0.40
Male	80.34	84.02	79.17	80.87	80.30	71.05	60.00	80.87
Female	19.66	15.98	20.83	19.13	19.70	28.95	40.00	19.13
TOTAL	83.11	15.03	1.86		80.88	15.14	3.98	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 1,073)	Middle (N = 194)	High (N = 24)	Total (N = 1,291)	Elementary (N = 203)	Middle (N = 38)	High (N = 10)	Total (N = 251)
With IEP	58.34	82.99	54.17	61.97	65.02	86.84	70.00	68.53
With 504 Plan	1.12	0.52	25.00	1.47	0.00	0.00	0.00	0.00
Without IEP or 504	40.54	16.49	20.83	36.56	34.98	13.16	30.00	31.47
TOTAL	83.11	15.03	1.86		80.88	15.14	3.98	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 626)	Middle (N = 161)	High (N = 13)	Total (N = 800)	Elementary (N = 132)	Middle (N = 33)	High (N = 7)	Total (N = 172)
TOTAL	6.91	3.01	0.29	4.24	1.46	0.62	0.16	0.91

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 1,073)	Middle (N = 194)	High (N = 24)	Total (N = 1,291)	Elementary (N = 203)	Middle (N = 38)	High (N = 10)	Total (N = 251)
Pediatrician	57.50	43.81	83.33	55.93	31.03	7.89	40.00	27.89
Family Practitioner	5.41	5.15	0.00	5.27	2.96	2.63	20.00	3.59
Behavioral Clinic	7.46	2.58	8.33	6.74	12.81	23.68	10.00	14.34
Psychiatrist	13.98	23.71	0.00	15.18	24.63	23.68	20.00	24.30
Nurse Practitioner	4.94	1.03	0.00	4.26	2.96	2.63	10.00	3.19
Not Known	10.62	23.20	8.33	12.47	25.62	36.84	0.00	26.29
Other	0.09	0.52	0.00	0.15	0.00	2.63	0.00	0.40
TOTAL	83.11	15.03	1.86		80.88	15.14	3.98	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 209)	Middle (N = 40)	High (N = 11)	Total (N = 260)
Adderall	10.53	12.50	9.09	10.77
Catapres	8.13	7.50	9.09	8.08
Cylert	1.44	2.50	9.09	1.92
Dexedrine	57.89	30.00	9.09	51.54
Norpramin	0.48	5.00	0.00	1.15
Pamelor	0.48	5.00	0.00	1.15
Torfranil	1.91	7.50	0.00	2.69
Wellbutrin	1.91	2.50	9.09	2.31
Other	17.22	27.50	54.55	20.38
TOTAL	80.38	15.38	4.23	

BALTIMORE

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 2,397)	Middle (N = 964)	High (N = 273)	Total (N = 3,634)	Elementary (N = 306)	Middle (N = 191)	High (N = 49)	Total (N = 546)
TOTAL	4.57	4.01	0.98	3.48	0.58	0.79	0.18	0.52

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 2,397)	Middle (N = 964)	High (N = 273)	Total (N = 3,634)	Elementary (N = 306)	Middle (N = 191)	High (N = 49)	Total (N = 546)
American Indian	0.08	0.10	0.00	0.08	0.33	0.00	0.00	0.18
Asian	0.96	0.41	0.37	0.77	0.33	0.00	0.00	0.18
African American	21.07	16.39	9.52	18.96	26.80	13.09	22.45	21.61
White	77.05	82.78	89.38	79.50	69.61	85.86	77.55	76.01
Hispanic	0.83	0.31	0.73	0.69	2.94	1.05	0.00	2.01
Male	77.81	81.22	81.32	78.98	76.47	86.91	85.71	78.98
Female	22.19	18.78	18.68	21.02	23.53	13.09	14.29	21.02
TOTAL	65.96	26.53	7.51		56.04	34.98	8.97	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 2,397)	Middle (N = 964)	High (N = 273)	Total (N = 3,634)	Elementary (N = 306)	Middle (N = 191)	High (N = 49)	Total (N = 546)
With IEP	37.88	40.46	41.39	38.83	50.00	48.17	42.86	48.72
With 504 Plan	4.55	7.37	9.16	5.64	5.23	12.57	10.20	8.24
Without IEP or 504	57.57	52.18	49.45	55.53	44.77	39.27	46.94	43.04
TOTAL	65.96	26.53	7.51		56.04	34.98	8.97	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 908)	Middle (N = 390)	High (N = 113)	Total (N = 1,411)	Elementary (N = 153)	Middle (N = 92)	High (N = 21)	Total (N = 266)
TOTAL	13.29	12.14	4.34	11.16	2.24	2.86	0.81	2.10

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 2,397)	Middle (N = 964)	High (N = 273)	Total (N = 3,634)	Elementary (N = 306)	Middle (N = 191)	High (N = 49)	Total (N = 546)
Pediatrician	74.93	60.89	59.34	70.03	44.44	50.26	40.82	46.15
Family Practitioner	5.01	13.59	22.34	8.59	3.92	6.81	24.49	6.78
Behavioral Clinic	6.76	7.88	3.66	6.82	13.73	8.38	6.12	11.17
Psychiatrist	8.59	8.30	8.42	8.50	33.01	21.99	20.41	28.02
Nurse Practitioner	1.75	2.07	3.30	1.95	1.63	3.66	2.04	2.38
Not Known	2.42	5.29	2.56	3.19	2.94	8.38	4.08	4.95
Other	0.54	1.97	0.37	0.91	0.33	0.52	2.04	0.55
TOTAL	65.96	26.53	7.51		56.04	34.98	8.97	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 318)	Middle (N = 217)	High (N = 50)	Total (N = 585)
Adderall	30.82	33.18	20.00	30.77
Catapres	13.84	7.83	2.00	10.60
Cylert	0.94	2.76	4.00	1.88
Dexedrine	49.06	41.01	72.00	48.03
Norpramin	0.00	2.76	0.00	1.03
Pamelor	1.57	0.46	0.00	1.03
Torfranil	0.63	1.38	0.00	0.85
Wellbutrin	1.26	2.30	0.00	1.54
Other	1.89	8.29	2.00	4.27
TOTAL	54.36	37.09	8.55	

CALVERT

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 197)	Middle (N = 59)	High (N = 34)	Total (N = 290)	Elementary (N = 62)	Middle (N = 26)	High (N = 6)	Total (N = 94)
TOTAL	2.77	1.71	0.84	1.98	0.87	0.75	0.15	0.64

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				*Percent of Students* Receiving Other Medication* By Type of School			
	Elementary (N = 197)	Middle (N = 59)	High (N = 34)	Total (N = 290)	Elementary (N = 62)	Middle (N = 26)	High (N = 6)	Total (N = 94)
American Indian	0.51	0.00	0.00	0.34	0.00	0.00	0.00	0.00
Asian	0.51	1.69	0.00	0.69	1.61	0.00	0.00	1.06
African American	14.72	8.47	0.00	11.72	11.29	7.69	0.00	9.57
White	84.26	89.83	100.00	87.24	87.10	92.31	100.00	89.36
Hispanic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Male	83.76	91.53	91.18	86.21	85.48	96.15	66.67	86.21
Female	16.24	8.47	8.82	13.79	14.52	3.85	33.33	13.79
TOTAL	67.93	20.34	11.72		65.96	27.66	6.38	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 197)	Middle (N = 59)	High (N = 34)	Total (N = 290)	Elementary (N = 62)	Middle (N = 26)	High (N = 6)	Total (N = 94)
With IEP	46.19	35.59	29.41	42.07	58.06	57.69	50.00	57.45
With 504 Plan	7.11	16.95	32.35	12.07	14.52	15.38	0.00	13.83
Without IEP or 504	46.70	47.46	38.24	45.86	27.42	26.92	50.00	28.72
TOTAL	67.93	20.34	11.72		65.96	27.66	6.38	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 91)	Middle (N = 21)	High (N = 10)	Total (N = 122)	Elementary (N = 36)	Middle (N = 15)	High (N = 3)	Total (N = 54)
TOTAL	9.19	4.41	3.02	6.79	3.64	3.15	0.91	3.01

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 197)	Middle (N = 59)	High (N = 34)	Total (N = 290)	Elementary (N = 62)	Middle (N = 26)	High (N = 6)	Total (N = 94)
Pediatrician	35.03	18.64	20.59	30.00	14.52	19.23	16.67	15.96
Family Practitioner	36.04	49.15	52.94	40.69	16.13	50.00	16.67	25.53
Behavioral Clinic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Psychiatrist	16.24	13.56	17.65	15.86	53.23	19.23	66.67	44.68
Nurse Practitioner	2.54	0.00	8.82	2.76	0.00	0.00	0.00	0.00
Not Known	8.63	16.95	0.00	9.31	14.52	11.54	0.00	12.77
Other	1.52	1.69	0.00	1.38	1.61	0.00	0.00	1.06
TOTAL	67.93	20.34	11.72		65.96	27.66	6.38	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 62)	Middle (N = 26)	High (N = 6)	Total (N = 94)
Adderall	50.00	30.77	33.33	43.62
Catapres	6.45	7.69	0.00	6.38
Cylert	3.23	15.38	33.33	8.51
Dexedrine	38.71	30.77	33.33	36.17
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	0.00	3.85	0.00	1.06
Other	1.61	11.54	0.00	4.26
TOTAL	65.96	27.66	6.38	

CAROLINE

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 151)	Middle (N = 48)	High (N = 11)	Total (N = 210)	Elementary (N = 41)	Middle (N = 19)	High (N = 6)	Total (N = 66)
TOTAL	5.39	3.70	0.72	3.73	1.46	1.47	0.39	1.17

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 151)	Middle (N = 48)	High (N = 11)	Total (N = 210)	Elementary (N = 41)	Middle (N = 19)	High (N = 6)	Total (N = 66)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
African American	29.80	27.08	18.18	28.57	36.59	10.53	16.67	27.27
White	70.20	70.83	81.82	70.95	63.41	89.47	83.33	72.73
Hispanic	0.00	2.08	0.00	0.48	0.00	0.00	0.00	0.00
Male	76.16	85.42	81.82	78.57	75.61	89.47	66.67	78.57
Female	23.84	14.58	18.18	21.43	24.39	10.53	33.33	21.43
TOTAL	71.90	22.86	5.24		62.12	28.79	9.09	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 153)	Middle (N = 48)	High (N = 11)	Total (N = 212)	Elementary (N = 42)	Middle (N = 20)	High (N = 6)	Total (N = 68)
With IEP	24.18	35.42	54.55	28.30	23.81	40.00	50.00	30.88
With 504 Plan	2.61	0.00	0.00	1.89	7.14	5.00	0.00	5.88
Without IEP or 504	73.20	64.58	45.45	69.81	69.05	55.00	50.00	63.24
TOTAL	72.17	22.64	5.19		61.76	29.41	8.82	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 37)	Middle (N = 17)	High (N = 6)	Total (N = 60)	Elementary (N = 10)	Middle (N = 8)	High (N = 3)	Total (N = 21)
TOTAL	8.92	8.76	3.66	7.76	2.41	4.12	1.83	2.72

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 149)	Middle (N = 48)	High (N = 11)	Total (N = 208)	Elementary (N = 40)	Middle (N = 19)	High (N = 6)	Total (N = 65)
Pediatrician	43.62	47.92	45.45	44.71	55.00	31.58	16.67	44.62
Family Practitioner	16.78	20.83	36.36	18.75	10.00	5.26	0.00	7.69
Behavioral Clinic	29.53	18.75	0.00	25.48	22.50	15.79	0.00	18.46
Psychiatrist	7.38	10.42	0.00	7.69	12.50	47.37	50.00	26.15
Nurse Practitioner	2.68	0.00	9.09	2.40	0.00	0.00	33.33	3.08
Not Known	0.00	2.08	0.00	0.48	0.00	0.00	0.00	0.00
Other	0.00	0.00	9.09	0.48	0.00	0.00	0.00	0.00
TOTAL	71.63	23.08	5.29		61.54	29.23	9.23	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 41)	Middle (N = 18)	High (N = 5)	Total (N = 64)
Adderall	48.78	16.67	0.00	35.94
Catapres	17.07	16.67	0.00	15.63
Cylert	9.76	0.00	0.00	6.25
Dexedrine	19.51	61.11	80.00	35.94
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	5.56	0.00	1.56
Wellbutrin	2.44	0.00	20.00	3.13
Other	2.44	0.00	0.00	1.56
TOTAL	64.06	28.13	7.81	

CARROLL

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 402)	Middle (N = 245)	High (N = 98)	Total (N = 745)	Elementary (N = 61)	Middle (N = 40)	High (N = 16)	Total (N = 117)
TOTAL	3.16	3.95	1.29	2.81	0.48	0.65	0.21	0.44

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 402)	Middle (N = 245)	High (N = 98)	Total (N = 745)	Elementary (N = 61)	Middle (N = 40)	High (N = 16)	Total (N = 117)
American Indian	0.25	0.00	0.00	0.13	0.00	0.00	0.00	0.00
Asian	0.00	1.22	0.00	0.40	0.00	0.00	0.00	0.00
African American	4.23	6.12	3.06	4.70	4.92	12.50	0.00	6.84
White	94.78	92.65	92.86	93.83	95.08	87.50	100.00	93.16
Hispanic	0.75	0.00	4.08	0.94	0.00	0.00	0.00	0.00
Male	77.11	81.63	87.76	80.00	80.33	82.50	75.00	80.00
Female	22.89	18.37	12.24	20.00	19.67	17.50	25.00	20.00
TOTAL	53.96	32.89	13.15		52.14	34.19	13.68	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 402)	Middle (N = 245)	High (N = 98)	Total (N = 745)	Elementary (N = 61)	Middle (N = 40)	High (N = 16)	Total (N = 117)
With IEP	41.54	44.08	47.96	43.22	54.10	52.50	43.75	52.14
With 504 Plan	10.20	4.90	6.12	7.92	9.84	2.50	25.00	9.40
Without IEP or 504	48.26	51.02	45.92	48.86	36.07	45.00	31.25	38.46
TOTAL	53.96	32.89	13.15		52.14	34.19	13.68	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 167)	Middle (N = 108)	High (N = 47)	Total (N = 322)	Elementary (N = 33)	Middle (N = 21)	High (N = 7)	Total (N = 61)
TOTAL	10.56	11.76	4.96	9.34	2.09	2.29	0.74	1.77

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 402)	Middle (N = 245)	High (N = 98)	Total (N = 745)	Elementary (N = 61)	Middle (N = 40)	High (N = 16)	Total (N = 117)
Pediatrician	61.44	48.98	26.53	52.75	42.62	32.50	25.00	36.75
Family Practitioner	27.86	36.33	32.65	31.28	27.87	45.00	6.25	30.77
Behavioral Clinic	2.99	2.45	8.16	3.49	4.92	10.00	31.25	10.26
Psychiatrist	3.73	7.76	2.04	4.83	13.11	12.50	12.50	12.82
Nurse Practitioner	0.00	0.00	0.00	0.00	1.64	0.00	0.00	0.85
Not Known	3.48	3.67	29.59	6.98	8.20	0.00	25.00	7.69
Other	0.50	0.82	1.02	0.67	1.64	0.00	0.00	0.85
TOTAL	53.96	32.89	13.15		52.14	34.19	13.68	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 74)	Middle (N = 87)	High (N = 16)	Total (N = 177)
Adderall	31.08	16.09	43.75	24.86
Catapres	13.51	50.57	0.00	30.51
Cylert	4.05	3.45	0.00	3.39
Dexedrine	39.19	16.09	43.75	28.25
Norpramin	1.35	2.30	0.00	1.69
Pamelor	0.00	0.00	0.00	0.00
Torfranil	1.35	0.00	0.00	0.56
Wellbutrin	0.00	3.45	0.00	1.69
Other	9.46	8.05	12.50	9.04
TOTAL	41.81	49.15	9.04	

CECIL

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 309)	Middle (N = 138)	High (N = 38)	Total (N = 485)	Elementary (N = 57)	Middle (N = 43)	High (N = 7)	Total (N = 107)
TOTAL	3.97	4.00	0.96	3.19	0.73	1.24	0.18	0.70

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 309)	Middle (N = 138)	High (N = 38)	Total (N = 485)	Elementary (N = 57)	Middle (N = 43)	High (N = 7)	Total (N = 107)
American Indian	0.32	0.00	0.00	0.21	0.00	0.00	0.00	0.00
Asian	0.65	0.72	0.00	0.62	0.00	0.00	0.00	0.00
African American	5.18	6.52	0.00	5.15	5.26	2.33	14.29	4.67
White	93.53	91.30	100.00	93.40	94.74	97.67	85.71	95.33
Hispanic	0.32	1.45	0.00	0.62	0.00	0.00	0.00	0.00
Male	77.99	81.88	78.95	79.18	85.96	72.09	100.00	79.18
Female	22.01	18.12	21.05	20.82	14.04	27.91	0.00	20.82
TOTAL	63.71	28.45	7.84		53.27	40.19	6.54	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 309)	Middle (N = 138)	High (N = 38)	Total (N = 485)	Elementary (N = 57)	Middle (N = 43)	High (N = 7)	Total (N = 107)
With IEP	41.10	40.58	34.21	40.41	57.89	44.19	57.14	52.34
With 504 Plan	29.13	6.52	5.26	20.82	19.30	11.63	14.29	15.89
Without IEP or 504	29.77	52.90	60.53	38.76	22.81	44.19	28.57	31.78
TOTAL	63.71	28.45	7.84		53.27	40.19	6.54	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 127)	Middle (N = 56)	High (N = 13)	Total (N = 196)	Elementary (N = 33)	Middle (N = 19)	High (N = 4)	Total (N = 56)
TOTAL	10.05	9.76	3.39	8.82	2.61	3.31	1.04	2.52

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 309)	Middle (N = 138)	High (N = 38)	Total (N = 485)	Elementary (N = 57)	Middle (N = 43)	High (N = 7)	Total (N = 107)
Pediatrician	45.95	36.96	21.05	41.44	29.82	23.26	14.29	26.17
Family Practitioner	35.92	54.35	57.89	42.89	19.30	46.51	42.86	31.78
Behavioral Clinic	1.29	0.00	0.00	0.82	5.26	4.65	0.00	4.67
Psychiatrist	11.00	7.25	18.42	10.52	38.60	23.26	42.86	32.71
Nurse Practitioner	0.32	0.72	0.00	0.41	1.75	0.00	0.00	0.93
Not Known	3.24	0.72	2.63	2.47	1.75	0.00	0.00	0.93
Other	2.27	0.00	0.00	1.44	3.51	2.33	0.00	2.80
TOTAL	63.71	28.45	7.84		53.27	40.19	6.54	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 61)	Middle (N = 44)	High (N = 8)	Total (N = 113)
Adderall	47.54	50.00	50.00	48.67
Catapres	11.48	0.00	12.50	7.08
Cylert	0.00	2.27	0.00	0.88
Dexedrine	34.43	27.27	25.00	30.97
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	2.27	0.00	0.88
Wellbutrin	0.00	2.27	12.50	1.77
Other	6.56	15.91	0.00	9.73
TOTAL	53.98	38.94	7.08	

CHARLES

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 199)	Middle (N = 109)	High (N = 38)	Total (N = 346)	Elementary (N = 75)	Middle (N = 24)	High (N = 8)	Total (N = 107)
TOTAL	2.05	2.33	0.61	1.68	0.77	0.51	0.13	0.52

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 199)	Middle (N = 109)	High (N = 38)	Total (N = 346)	Elementary (N = 75)	Middle (N = 24)	High (N = 8)	Total (N = 107)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	1.01	0.00	2.63	0.87	0.00	0.00	0.00	0.00
African American	21.61	21.10	10.53	20.23	29.33	16.67	25.00	26.17
White	76.38	78.90	84.21	78.03	69.33	83.33	75.00	72.90
Hispanic	1.01	0.00	2.63	0.87	1.33	0.00	0.00	0.93
Male	82.91	84.40	81.58	83.24	78.67	83.33	100.00	83.24
Female	17.09	15.60	18.42	16.76	21.33	16.67	0.00	16.76
TOTAL	57.51	31.50	10.98		70.09	22.43	7.48	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 199)	Middle (N = 109)	High (N = 38)	Total (N = 346)	Elementary (N = 75)	Middle (N = 24)	High (N = 8)	Total (N = 107)
With IEP	27.14	33.03	34.21	29.77	37.33	54.17	25.00	40.19
With 504 Plan	3.02	11.01	2.63	5.49	1.33	8.33	0.00	2.80
Without IEP or 504	69.85	55.96	63.16	64.74	61.33	37.50	75.00	57.01
TOTAL	57.51	31.50	10.98		70.09	22.43	7.48	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 54)	Middle (N = 36)	High (N = 13)	Total (N = 103)	Elementary (N = 28)	Middle (N = 13)	High (N = 2)	Total (N = 43)
TOTAL	4.16	4.69	1.77	3.68	2.16	1.69	0.27	1.54

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 199)	Middle (N = 109)	High (N = 38)	Total (N = 346)	Elementary (N = 75)	Middle (N = 24)	High (N = 8)	Total (N = 107)
Pediatrician	55.78	52.29	39.47	52.89	48.00	29.17	25.00	42.06
Family Practitioner	20.10	25.69	0.00	19.65	6.67	33.33	0.00	12.15
Behavioral Clinic	5.53	0.00	0.00	3.18	8.00	0.00	0.00	5.61
Psychiatrist	14.07	18.35	47.37	19.08	30.67	33.33	50.00	32.71
Nurse Practitioner	0.00	0.92	0.00	0.29	0.00	0.00	0.00	0.00
Not Known	3.02	1.83	13.16	3.76	5.33	0.00	25.00	5.61
Other	1.51	0.92	0.00	1.16	1.33	4.17	0.00	1.87
TOTAL	57.51	31.50	10.98		70.09	22.43	7.48	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 75)	Middle (N = 24)	High (N = 9)	Total (N = 108)
Adderall	21.33	33.33	33.33	25.00
Catapres	6.67	8.33	0.00	6.48
Cylert	0.00	0.00	0.00	0.00
Dexedrine	37.33	41.67	44.44	38.89
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	1.33	12.50	0.00	3.70
Wellbutrin	0.00	0.00	11.11	0.93
Other	33.33	4.17	11.11	25.00
TOTAL	69.44	22.22	8.33	

DORCHESTER

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 121)	Middle (N = 48)	High (N = 13)	Total (N = 182)	Elementary (N = 25)	Middle (N = 9)	High (N = 4)	Total (N = 38)
TOTAL	4.74	4.05	0.90	3.52	0.98	0.76	0.28	0.73

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 121)	Middle (N = 48)	High (N = 13)	Total (N = 182)	Elementary (N = 25)	Middle (N = 9)	High (N = 4)	Total (N = 38)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
African American	44.63	41.67	30.77	42.86	45.83	77.78	66.67	52.63
White	53.72	58.33	69.23	56.04	50.00	22.22	33.33	39.47
Hispanic	1.65	0.00	0.00	1.10	4.17	0.00	0.00	2.63
Male	80.17	72.92	92.31	79.12	64.00	77.78	75.00	79.12
Female	19.83	27.08	7.69	20.88	36.00	22.22	25.00	20.88
TOTAL	66.48	26.37	7.14		65.79	23.68	10.53	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 121)	Middle (N = 48)	High (N = 13)	Total (N = 182)	Elementary (N = 23)	Middle (N = 9)	High (N = 3)	Total (N = 35)
With IEP	34.71	37.50	46.15	36.26	56.52	33.33	33.33	48.57
With 504 Plan	1.65	2.08	7.69	2.20	0.00	0.00	33.33	2.86
Without IEP or 504	63.64	60.42	46.15	61.54	43.48	66.67	33.33	48.57
TOTAL	66.48	26.37	7.14		65.71	25.71	8.57	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 42)	Middle (N = 18)	High (N = 6)	Total (N = 66)	Elementary (N = 13)	Middle (N = 3)	High (N = 1)	Total (N = 17)
TOTAL	12.03	9.52	4.55	9.85	3.72	1.59	0.76	2.54

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 121)	Middle (N = 48)	High (N = 13)	Total (N = 182)	Elementary (N = 24)	Middle (N = 9)	High (N = 3)	Total (N = 36)
Pediatrician	73.55	47.92	38.46	64.29	54.17	33.33	33.33	47.22
Family Practitioner	9.92	29.17	46.15	17.58	8.33	11.11	33.33	11.11
Behavioral Clinic	4.13	0.00	0.00	2.75	12.50	0.00	0.00	8.33
Psychiatrist	10.74	22.92	15.38	14.29	16.67	55.56	33.33	27.78
Nurse Practitioner	1.65	0.00	0.00	1.10	0.00	0.00	0.00	0.00
Not Known	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	8.33	0.00	0.00	5.56
TOTAL	66.48	26.37	7.14		66.67	25.00	8.33	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 24)	Middle (N = 9)	High (N = 3)	Total (N = 36)
Adderall	25.00	22.22	0.00	22.22
Catapres	4.17	22.22	33.33	11.11
Cylert	4.17	22.22	0.00	8.33
Dexedrine	62.50	33.33	66.67	55.56
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	0.00	0.00	0.00	0.00
Other	4.17	0.00	0.00	2.78
TOTAL	66.67	25.00	8.33	

FREDERICK

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 599)	Middle (N = 289)	High (N = 120)	Total (N = 1,008)	Elementary (N = 120)	Middle (N = 61)	High (N = 36)	Total (N = 217)
TOTAL	3.57	3.71	1.27	2.97	0.72	0.78	0.38	0.64

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 599)	Middle (N = 289)	High (N = 120)	Total (N = 1,008)	Elementary (N = 120)	Middle (N = 61)	High (N = 36)	Total (N = 217)
American Indian	0.00	0.00	0.00	0.00	0.83	0.00	0.00	0.46
Asian	0.33	0.69	0.00	0.40	0.00	0.00	0.00	0.00
African American	6.68	8.30	3.33	6.75	10.83	8.20	0.00	8.29
White	92.15	90.31	96.67	92.16	85.83	91.80	100.00	89.86
Hispanic	0.83	0.69	0.00	0.69	2.50	0.00	0.00	1.38
Male	76.46	77.85	78.33	77.08	80.83	83.61	80.56	77.08
Female	23.54	22.15	21.67	22.92	19.17	16.39	19.44	22.92
TOTAL	59.42	28.67	11.90		55.30	28.11	16.59	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 599)	Middle (N = 289)	High (N = 120)	Total (N = 1,008)	Elementary (N = 120)	Middle (N = 61)	High (N = 36)	Total (N = 217)
With IEP	47.58	47.75	58.33	48.91	47.50	54.10	55.56	50.69
With 504 Plan	6.01	5.88	6.67	6.05	5.00	3.28	11.11	5.53
Without IEP or 504	46.41	46.37	35.00	45.04	47.50	42.62	33.33	43.78
TOTAL	59.42	28.67	11.90		55.30	28.11	16.59	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 285)	Middle (N = 138)	High (N = 70)	Total (N = 493)	Elementary (N = 57)	Middle (N = 33)	High (N = 20)	Total (N = 110)
TOTAL	13.65	12.38	5.97	11.27	2.73	2.96	1.71	2.51

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 599)	Middle (N = 289)	High (N = 120)	Total (N = 1,008)	Elementary (N = 120)	Middle (N = 61)	High (N = 36)	Total (N = 217)
Pediatrician	41.24	44.29	35.83	41.47	36.67	22.95	38.89	33.18
Family Practitioner	32.22	34.26	40.00	33.73	19.17	21.31	16.67	19.35
Behavioral Clinic	9.35	3.81	3.33	7.04	18.33	11.48	2.78	13.82
Psychiatrist	7.35	5.54	14.17	7.64	17.50	32.79	38.89	25.35
Nurse Practitioner	2.84	1.38	1.67	2.28	0.83	1.64	0.00	0.92
Not Known	4.84	9.69	5.00	6.25	3.33	8.20	2.78	4.61
Other	2.17	1.04	0.00	1.59	4.17	1.64	0.00	2.76
TOTAL	59.42	28.67	11.90		55.30	28.11	16.59	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 128)	Middle (N = 72)	High (N = 40)	Total (N = 240)
Adderall	21.88	22.22	15.00	20.83
Catapres	13.28	6.94	10.00	10.83
Cylert	1.56	2.78	0.00	1.67
Dexedrine	44.53	50.00	60.00	48.75
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	1.39	0.00	0.42
Torfranil	2.34	1.39	0.00	1.67
Wellbutrin	0.78	0.00	5.00	1.25
Other	15.63	15.28	10.00	14.58
TOTAL	53.33	30.00	16.67	

GARRETT

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
TOTAL	5.20	4.32	1.64	3.97	0.61	0.60	0.20	0.49

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
African American	0.00	2.00	0.00	0.50	0.00	28.57	0.00	8.00
White	100.00	96.00	100.00	99.01	100.00	71.43	100.00	92.00
Hispanic	0.00	2.00	0.00	0.50	0.00	0.00	0.00	0.00
Male	75.78	82.00	91.67	79.21	73.33	71.43	100.00	79.21
Female	24.22	18.00	8.33	20.79	26.67	28.57	0.00	20.79
TOTAL	63.37	24.75	11.88		60.00	28.00	12.00	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
With IEP	45.31	52.00	37.50	46.04	66.67	85.71	33.33	68.00
With 504 Plan	4.69	4.00	0.00	3.96	0.00	0.00	0.00	0.00
Without IEP or 504	50.00	44.00	62.50	50.00	33.33	14.29	66.67	32.00
TOTAL	63.37	24.75	11.88		60.00	28.00	12.00	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 58)	Middle (N = 26)	High (N = 9)	Total (N = 93)	Elementary (N = 10)	Middle (N = 6)	High (N = 1)	Total (N = 17)
TOTAL	13.91	13.90	6.12	12.38	2.40	3.21	0.68	2.26

* A single student may be counted as receiving both Ritalin and Other Medications.

GARRETT

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
TOTAL	5.20	4.32	1.64	3.97	0.61	0.60	0.20	0.49

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
African American	0.00	2.00	0.00	0.50	0.00	28.57	0.00	8.00
White	100.00	96.00	100.00	99.01	100.00	71.43	100.00	92.00
Hispanic	0.00	2.00	0.00	0.50	0.00	0.00	0.00	0.00
Male	75.78	82.00	91.67	79.21	73.33	71.43	100.00	79.21
Female	24.22	18.00	8.33	20.79	26.67	28.57	0.00	20.79
TOTAL	63.37	24.75	11.88		60.00	28.00	12.00	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
With IEP	45.31	52.00	37.50	46.04	66.67	85.71	33.33	68.00
With 504 Plan	4.69	4.00	0.00	3.96	0.00	0.00	0.00	0.00
Without IEP or 504	50.00	44.00	62.50	50.00	33.33	14.29	66.67	32.00
TOTAL	63.37	24.75	11.88		60.00	28.00	12.00	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 58)	Middle (N = 26)	High (N = 9)	Total (N = 93)	Elementary (N = 10)	Middle (N = 6)	High (N = 1)	Total (N = 17)
TOTAL	13.91	13.90	6.12	12.38	2.40	3.21	0.68	2.26

* A single student may be counted as receiving both Ritalin and Other Medications.

GARRETT

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
TOTAL	5.20	4.32	1.64	3.97	0.61	0.60	0.20	0.49

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
African American	0.00	2.00	0.00	0.50	0.00	28.57	0.00	8.00
White	100.00	96.00	100.00	99.01	100.00	71.43	100.00	92.00
Hispanic	0.00	2.00	0.00	0.50	0.00	0.00	0.00	0.00
Male	75.78	82.00	91.67	79.21	73.33	71.43	100.00	79.21
Female	24.22	18.00	8.33	20.79	26.67	28.57	0.00	20.79
TOTAL	63.37	24.75	11.88		60.00	28.00	12.00	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
With IEP	45.31	52.00	37.50	46.04	66.67	85.71	33.33	68.00
With 504 Plan	4.69	4.00	0.00	3.96	0.00	0.00	0.00	0.00
Without IEP or 504	50.00	44.00	62.50	50.00	33.33	14.29	66.67	32.00
TOTAL	63.37	24.75	11.88		60.00	28.00	12.00	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 58)	Middle (N = 26)	High (N = 9)	Total (N = 93)	Elementary (N = 10)	Middle (N = 6)	High (N = 1)	Total (N = 17)
TOTAL	13.91	13.90	6.12	12.38	2.40	3.21	0.68	2.26

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
Pediatrician	16.41	12.00	8.33	14.36	6.67	0.00	0.00	4.00
Family Practitioner	64.06	64.00	79.17	65.84	33.33	28.57	66.67	36.00
Behavioral Clinic	0.78	6.00	4.17	2.48	0.00	0.00	33.33	4.00
Psychiatrist	16.41	14.00	4.17	14.36	40.00	42.86	0.00	36.00
Nurse Practitioner	1.56	4.00	0.00	1.98	13.33	0.00	0.00	8.00
Not Known	0.78	0.00	4.17	0.99	6.67	28.57	0.00	12.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	63.37	24.75	11.88		60.00	28.00	12.00	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 17)	Middle (N = 8)	High (N = 3)	Total (N = 28)
Adderall	11.76	0.00	33.33	10.71
Catapres	11.76	25.00	0.00	14.29
Cylert	0.00	0.00	0.00	0.00
Dexedrine	58.82	75.00	66.67	64.29
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	0.00	0.00	0.00	0.00
Other	17.65	0.00	0.00	10.71
TOTAL	60.71	28.57	10.71	

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
Pediatrician	16.41	12.00	8.33	14.36	6.67	0.00	0.00	4.00
Family Practitioner	64.06	64.00	79.17	65.84	33.33	28.57	66.67	36.00
Behavioral Clinic	0.78	6.00	4.17	2.48	0.00	0.00	33.33	4.00
Psychiatrist	16.41	14.00	4.17	14.36	40.00	42.86	0.00	36.00
Nurse Practitioner	1.56	4.00	0.00	1.98	13.33	0.00	0.00	8.00
Not Known	0.78	0.00	4.17	0.99	6.67	28.57	0.00	12.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	63.37	24.75	11.88		60.00	28.00	12.00	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 17)	Middle (N = 8)	High (N = 3)	Total (N = 28)
Adderall	11.76	0.00	33.33	10.71
Catapres	11.76	25.00	0.00	14.29
Cylert	0.00	0.00	0.00	0.00
Dexedrine	58.82	75.00	66.67	64.29
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	0.00	0.00	0.00	0.00
Other	17.65	0.00	0.00	10.71
TOTAL	60.71	28.57	10.71	

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 128)	Middle (N = 50)	High (N = 24)	Total (N = 202)	Elementary (N = 15)	Middle (N = 7)	High (N = 3)	Total (N = 25)
Pediatrician	16.41	12.00	8.33	14.36	6.67	0.00	0.00	4.00
Family Practitioner	64.06	64.00	79.17	65.84	33.33	28.57	66.67	36.00
Behavioral Clinic	0.78	6.00	4.17	2.48	0.00	0.00	33.33	4.00
Psychiatrist	16.41	14.00	4.17	14.36	40.00	42.86	0.00	36.00
Nurse Practitioner	1.56	4.00	0.00	1.98	13.33	0.00	0.00	8.00
Not Known	0.78	0.00	4.17	0.99	6.67	28.57	0.00	12.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	63.37	24.75	11.88		60.00	28.00	12.00	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 17)	Middle (N = 8)	High (N = 3)	Total (N = 28)
Adderall	11.76	0.00	33.33	10.71
Catapres	11.76	25.00	0.00	14.29
Cylert	0.00	0.00	0.00	0.00
Dexedrine	58.82	75.00	66.67	64.29
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	0.00	0.00	0.00	0.00
Other	17.65	0.00	0.00	10.71
TOTAL	60.71	28.57	10.71	

HARFORD

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 876)	Middle (N = 367)	High (N = 101)	Total (N = 1,344)	Elementary (N = 184)	Middle (N = 78)	High (N = 29)	Total (N = 291)
TOTAL	4.59	4.11	0.97	3.50	0.96	0.87	0.28	0.76

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 876)	Middle (N = 367)	High (N = 101)	Total (N = 1,344)	Elementary (N = 184)	Middle (N = 78)	High (N = 29)	Total (N = 291)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	3.45	0.34
Asian	0.91	1.09	0.00	0.89	0.00	1.32	0.00	0.34
African American	9.36	8.72	5.94	8.93	10.11	10.53	6.90	9.62
White	88.36	87.47	94.06	88.54	87.08	86.84	58.62	81.79
Hispanic	1.37	2.72	0.00	1.64	2.81	1.32	31.03	5.15
Male	76.83	79.02	78.22	77.53	76.09	79.49	82.76	77.53
Female	23.17	20.98	21.78	22.47	23.91	20.51	17.24	22.47
TOTAL	65.18	27.31	7.51		63.23	26.80	9.97	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 788)	Middle (N = 364)	High (N = 75)	Total (N = 1,227)	Elementary (N = 190)	Middle (N = 75)	High (N = 20)	Total (N = 285)
With IEP	48.10	50.82	64.00	49.88	53.68	65.33	95.00	59.65
With 504 Plan	2.41	4.12	13.33	3.59	2.11	4.00	0.00	2.46
Without IEP or 504	49.49	45.05	22.67	46.54	44.21	30.67	5.00	37.89
TOTAL	64.22	29.67	6.11		66.67	26.32	7.02	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 379)	Middle (N = 185)	High (N = 48)	Total (N = 612)	Elementary (N = 102)	Middle (N = 49)	High (N = 19)	Total (N = 170)
TOTAL	15.04	14.66	4.74	12.77	4.05	3.88	1.88	3.55

* A single student may be counted as receiving both Ritalin and Other Medications.

HARFORD

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 876)	Middle (N = 367)	High (N = 101)	Total (N = 1,344)	Elementary (N = 184)	Middle (N = 78)	High (N = 29)	Total (N = 291)
TOTAL	4.59	4.11	0.97	3.50	0.96	0.87	0.28	0.76

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 876)	Middle (N = 367)	High (N = 101)	Total (N = 1,344)	Elementary (N = 184)	Middle (N = 78)	High (N = 29)	Total (N = 291)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	3.45	0.34
Asian	0.91	1.09	0.00	0.89	0.00	1.32	0.00	0.34
African American	9.36	8.72	5.94	8.93	10.11	10.53	6.90	9.62
White	88.36	87.47	94.06	88.54	87.08	86.84	58.62	81.79
Hispanic	1.37	2.72	0.00	1.64	2.81	1.32	31.03	5.15
Male	76.83	79.02	78.22	77.53	76.09	79.49	82.76	77.53
Female	23.17	20.98	21.78	22.47	23.91	20.51	17.24	22.47
TOTAL	65.18	27.31	7.51		63.23	26.80	9.97	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 788)	Middle (N = 364)	High (N = 75)	Total (N = 1,227)	Elementary (N = 190)	Middle (N = 75)	High (N = 20)	Total (N = 285)
With IEP	48.10	50.82	64.00	49.88	53.68	65.33	95.00	59.65
With 504 Plan	2.41	4.12	13.33	3.59	2.11	4.00	0.00	2.46
Without IEP or 504	49.49	45.05	22.67	46.54	44.21	30.67	5.00	37.89
TOTAL	64.22	29.67	6.11		66.67	26.32	7.02	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 379)	Middle (N = 185)	High (N = 48)	Total (N = 612)	Elementary (N = 102)	Middle (N = 49)	High (N = 19)	Total (N = 170)
TOTAL	15.04	14.66	4.74	12.77	4.05	3.88	1.88	3.55

* A single student may be counted as receiving both Ritalin and Other Medications.

HARFORD

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 876)	Middle (N = 367)	High (N = 101)	Total (N = 1,344)	Elementary (N = 184)	Middle (N = 78)	High (N = 29)	Total (N = 291)
TOTAL	4.59	4.11	0.97	3.50	0.96	0.87	0.28	0.76

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 876)	Middle (N = 367)	High (N = 101)	Total (N = 1,344)	Elementary (N = 184)	Middle (N = 78)	High (N = 29)	Total (N = 291)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	3.45	0.34
Asian	0.91	1.09	0.00	0.89	0.00	1.32	0.00	0.34
African American	9.36	8.72	5.94	8.93	10.11	10.53	6.90	9.62
White	88.36	87.47	94.06	88.54	87.08	86.84	58.62	81.79
Hispanic	1.37	2.72	0.00	1.64	2.81	1.32	31.03	5.15
Male	76.83	79.02	78.22	77.53	76.09	79.49	82.76	77.53
Female	23.17	20.98	21.78	22.47	23.91	20.51	17.24	22.47
TOTAL	65.18	27.31	7.51		63.23	26.80	9.97	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 788)	Middle (N = 364)	High (N = 75)	Total (N = 1,227)	Elementary (N = 190)	Middle (N = 75)	High (N = 20)	Total (N = 285)
With IEP	48.10	50.82	64.00	49.88	53.68	65.33	95.00	59.65
With 504 Plan	2.41	4.12	13.33	3.59	2.11	4.00	0.00	2.46
Without IEP or 504	49.49	45.05	22.67	46.54	44.21	30.67	5.00	37.89
TOTAL	64.22	29.67	6.11		66.67	26.32	7.02	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 379)	Middle (N = 185)	High (N = 48)	Total (N = 612)	Elementary (N = 102)	Middle (N = 49)	High (N = 19)	Total (N = 170)
TOTAL	15.04	14.66	4.74	12.77	4.05	3.88	1.88	3.55

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 874)	Middle (N = 368)	High (N = 97)	Total (N = 1,339)	Elementary (N = 180)	Middle (N = 69)	High (N = 31)	Total (N = 280)
Pediatrician	71.62	56.79	13.40	63.33	49.44	33.33	22.58	42.50
Family Practitioner	11.10	19.84	38.14	15.46	5.56	18.84	16.13	10.00
Behavioral Clinic	2.97	2.99	3.09	2.99	8.33	5.80	16.13	8.57
Psychiatrist	3.89	7.88	24.74	6.50	28.33	24.64	41.94	28.93
Nurse Practitioner	2.97	5.16	4.12	3.66	0.56	4.35	0.00	1.43
Not Known	5.95	7.34	5.15	6.27	3.89	13.04	0.00	5.71
Other	1.49	0.00	11.34	1.79	3.89	0.00	3.23	2.86
TOTAL	65.27	27.48	7.24		64.29	24.64	11.07	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 206)	Middle (N = 74)	High (N = 35)	Total (N = 315)
Adderall	38.83	51.35	34.29	41.27
Catapres	8.74	4.05	5.71	7.30
Cylert	1.94	5.41	5.71	3.17
Dexedrine	38.83	31.08	37.14	36.83
Norpramin	0.49	0.00	0.00	0.32
Pamelor	1.94	0.00	0.00	1.27
Torfranil	0.49	1.35	0.00	0.63
Wellbutrin	0.00	0.00	5.71	0.63
Other	8.74	6.76	11.43	8.57
TOTAL	65.40	23.49	11.11	

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 874)	Middle (N = 368)	High (N = 97)	Total (N = 1,339)	Elementary (N = 180)	Middle (N = 69)	High (N = 31)	Total (N = 280)
Pediatrician	71.62	56.79	13.40	63.33	49.44	33.33	22.58	42.50
Family Practitioner	11.10	19.84	38.14	15.46	5.56	18.84	16.13	10.00
Behavioral Clinic	2.97	2.99	3.09	2.99	8.33	5.80	16.13	8.57
Psychiatrist	3.89	7.88	24.74	6.50	28.33	24.64	41.94	28.93
Nurse Practitioner	2.97	5.16	4.12	3.66	0.56	4.35	0.00	1.43
Not Known	5.95	7.34	5.15	6.27	3.89	13.04	0.00	5.71
Other	1.49	0.00	11.34	1.79	3.89	0.00	3.23	2.86
TOTAL	65.27	27.48	7.24		64.29	24.64	11.07	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 206)	Middle (N = 74)	High (N = 35)	Total (N = 315)
Adderall	38.83	51.35	34.29	41.27
Catapres	8.74	4.05	5.71	7.30
Cylert	1.94	5.41	5.71	3.17
Dexedrine	38.83	31.08	37.14	36.83
Norpramin	0.49	0.00	0.00	0.32
Pamelor	1.94	0.00	0.00	1.27
Torfranil	0.49	1.35	0.00	0.63
Wellbutrin	0.00	0.00	5.71	0.63
Other	8.74	6.76	11.43	8.57
TOTAL	65.40	23.49	11.11	

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 874)	Middle (N = 368)	High (N = 97)	Total (N = 1,339)	Elementary (N = 180)	Middle (N = 69)	High (N = 31)	Total (N = 280)
Pediatrician	71.62	56.79	13.40	63.33	49.44	33.33	22.58	42.50
Family Practitioner	11.10	19.84	38.14	15.46	5.56	18.84	16.13	10.00
Behavioral Clinic	2.97	2.99	3.09	2.99	8.33	5.80	16.13	8.57
Psychiatrist	3.89	7.88	24.74	6.50	28.33	24.64	41.94	28.93
Nurse Practitioner	2.97	5.16	4.12	3.66	0.56	4.35	0.00	1.43
Not Known	5.95	7.34	5.15	6.27	3.89	13.04	0.00	5.71
Other	1.49	0.00	11.34	1.79	3.89	0.00	3.23	2.86
TOTAL	65.27	27.48	7.24		64.29	24.64	11.07	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 206)	Middle (N = 74)	High (N = 35)	Total (N = 315)
Adderall	38.83	51.35	34.29	41.27
Catapres	8.74	4.05	5.71	7.30
Cylert	1.94	5.41	5.71	3.17
Dexedrine	38.83	31.08	37.14	36.83
Norpramin	0.49	0.00	0.00	0.32
Pamelor	1.94	0.00	0.00	1.27
Torfranil	0.49	1.35	0.00	0.63
Wellbutrin	0.00	0.00	5.71	0.63
Other	8.74	6.76	11.43	8.57
TOTAL	65.40	23.49	11.11	

HOWARD

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 551)	Middle (N = 354)	High (N = 168)	Total (N = 1,073)	Elementary (N = 62)	Middle (N = 38)	High (N = 33)	Total (N = 133)
TOTAL	2.82	3.81	1.47	2.67	0.32	0.41	0.29	0.33

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 551)	Middle (N = 354)	High (N = 168)	Total (N = 1,073)	Elementary (N = 62)	Middle (N = 38)	High (N = 33)	Total (N = 133)
American Indian	0.18	0.28	0.00	0.19	0.00	0.00	0.00	0.00
Asian	2.18	1.42	1.19	1.77	3.17	0.00	0.00	1.50
African American	12.52	10.80	7.14	11.09	14.29	13.16	12.12	13.53
White	83.85	86.08	90.48	85.46	82.54	86.84	81.82	84.21
Hispanic	1.27	1.42	1.19	1.30	0.00	0.00	6.06	1.50
Male	80.22	81.36	79.76	80.52	79.03	92.11	75.76	80.52
Female	19.78	18.64	20.24	19.48	20.97	7.89	24.24	19.48
TOTAL	51.35	32.99	15.66		46.62	28.57	24.81	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 557)	Middle (N = 354)	High (N = 160)	Total (N = 1,071)	Elementary (N = 60)	Middle (N = 37)	High (N = 32)	Total (N = 129)
With IEP	41.29	44.07	28.13	40.24	43.33	48.65	50.00	46.51
With 504 Plan	11.13	14.12	20.63	13.54	6.67	10.81	31.25	13.95
Without IEP or 504	47.58	41.81	51.25	46.22	50.00	40.54	18.75	39.53
TOTAL	52.01	33.05	14.94		46.51	28.68	24.81	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 230)	Middle (N = 156)	High (N = 45)	Total (N = 431)	Elementary (N = 26)	Middle (N = 18)	High (N = 16)	Total (N = 60)
TOTAL	11.52	15.16	4.38	10.63	1.30	1.75	1.56	1.48

* A single student may be counted as receiving both Ritalin and Other Medications.

HOWARD

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 551)	Middle (N = 354)	High (N = 168)	Total (N = 1,073)	Elementary (N = 62)	Middle (N = 38)	High (N = 33)	Total (N = 133)
TOTAL	2.82	3.81	1.47	2.67	0.32	0.41	0.29	0.33

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 551)	Middle (N = 354)	High (N = 168)	Total (N = 1,073)	Elementary (N = 62)	Middle (N = 38)	High (N = 33)	Total (N = 133)
American Indian	0.18	0.28	0.00	0.19	0.00	0.00	0.00	0.00
Asian	2.18	1.42	1.19	1.77	3.17	0.00	0.00	1.50
African American	12.52	10.80	7.14	11.09	14.29	13.16	12.12	13.53
White	83.85	86.08	90.48	85.46	82.54	86.84	81.82	84.21
Hispanic	1.27	1.42	1.19	1.30	0.00	0.00	6.06	1.50
Male	80.22	81.36	79.76	80.52	79.03	92.11	75.76	80.52
Female	19.78	18.64	20.24	19.48	20.97	7.89	24.24	19.48
TOTAL	51.35	32.99	15.66		46.62	28.57	24.81	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 557)	Middle (N = 354)	High (N = 160)	Total (N = 1,071)	Elementary (N = 60)	Middle (N = 37)	High (N = 32)	Total (N = 129)
With IEP	41.29	44.07	28.13	40.24	43.33	48.65	50.00	46.51
With 504 Plan	11.13	14.12	20.63	13.54	6.67	10.81	31.25	13.95
Without IEP or 504	47.58	41.81	51.25	46.22	50.00	40.54	18.75	39.53
TOTAL	52.01	33.05	14.94		46.51	28.68	24.81	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 230)	Middle (N = 156)	High (N = 45)	Total (N = 431)	Elementary (N = 26)	Middle (N = 18)	High (N = 16)	Total (N = 60)
TOTAL	11.52	15.16	4.38	10.63	1.30	1.75	1.56	1.48

* A single student may be counted as receiving both Ritalin and Other Medications.

HOWARD

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 551)	Middle (N = 354)	High (N = 168)	Total (N = 1,073)	Elementary (N = 62)	Middle (N = 38)	High (N = 33)	Total (N = 133)
TOTAL	2.82	3.81	1.47	2.67	0.32	0.41	0.29	0.33

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 551)	Middle (N = 354)	High (N = 168)	Total (N = 1,073)	Elementary (N = 62)	Middle (N = 38)	High (N = 33)	Total (N = 133)
American Indian	0.18	0.28	0.00	0.19	0.00	0.00	0.00	0.00
Asian	2.18	1.42	1.19	1.77	3.17	0.00	0.00	1.50
African American	12.52	10.80	7.14	11.09	14.29	13.16	12.12	13.53
White	83.85	86.08	90.48	85.46	82.54	86.84	81.82	84.21
Hispanic	1.27	1.42	1.19	1.30	0.00	0.00	6.06	1.50
Male	80.22	81.36	79.76	80.52	79.03	92.11	75.76	80.52
Female	19.78	18.64	20.24	19.48	20.97	7.89	24.24	19.48
TOTAL	51.35	32.99	15.66		46.62	28.57	24.81	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 557)	Middle (N = 354)	High (N = 160)	Total (N = 1,071)	Elementary (N = 60)	Middle (N = 37)	High (N = 32)	Total (N = 129)
With IEP	41.29	44.07	28.13	40.24	43.33	48.65	50.00	46.51
With 504 Plan	11.13	14.12	20.63	13.54	6.67	10.81	31.25	13.95
Without IEP or 504	47.58	41.81	51.25	46.22	50.00	40.54	18.75	39.53
TOTAL	52.01	33.05	14.94		46.51	28.68	24.81	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 230)	Middle (N = 156)	High (N = 45)	Total (N = 431)	Elementary (N = 26)	Middle (N = 18)	High (N = 16)	Total (N = 60)
TOTAL	11.52	15.16	4.38	10.63	1.30	1.75	1.56	1.48

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 552)	Middle (N = 353)	High (N = 172)	Total (N = 1,077)	Elementary (N = 63)	Middle (N = 38)	High (N = 33)	Total (N = 134)
Pediatrician	70.47	68.56	29.07	63.23	39.68	42.11	30.30	38.06
Family Practitioner	6.16	9.35	48.84	14.02	0.00	7.89	15.15	5.97
Behavioral Clinic	1.63	1.70	0.58	1.49	1.59	7.89	6.06	4.48
Psychiatrist	10.33	13.31	20.93	13.00	46.03	31.58	48.48	42.54
Nurse Practitioner	1.27	0.57	0.00	0.84	6.35	0.00	0.00	2.99
Not Known	8.15	5.95	0.00	6.13	6.35	7.89	0.00	5.22
Other	1.99	0.57	0.58	1.30	0.00	2.63	0.00	0.75
TOTAL	51.25	32.78	15.97		47.01	28.36	24.63	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 62)	Middle (N = 39)	High (N = 35)	Total (N = 136)
Adderall	24.19	33.33	17.14	25.00
Catapres	9.68	7.69	5.71	8.09
Cylert	3.23	5.13	2.86	3.68
Dexedrine	48.39	48.72	60.00	51.47
Norpramin	0.00	0.00	0.00	0.00
Pamelor	1.61	0.00	0.00	0.74
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	3.23	0.00	5.71	2.94
Other	9.68	5.13	8.57	8.09
TOTAL	45.59	28.68	25.74	

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 552)	Middle (N = 353)	High (N = 172)	Total (N = 1,077)	Elementary (N = 63)	Middle (N = 38)	High (N = 33)	Total (N = 134)
Pediatrician	70.47	68.56	29.07	63.23	39.68	42.11	30.30	38.06
Family Practitioner	6.16	9.35	48.84	14.02	0.00	7.89	15.15	5.97
Behavioral Clinic	1.63	1.70	0.58	1.49	1.59	7.89	6.06	4.48
Psychiatrist	10.33	13.31	20.93	13.00	46.03	31.58	48.48	42.54
Nurse Practitioner	1.27	0.57	0.00	0.84	6.35	0.00	0.00	2.99
Not Known	8.15	5.95	0.00	6.13	6.35	7.89	0.00	5.22
Other	1.99	0.57	0.58	1.30	0.00	2.63	0.00	0.75
TOTAL	51.25	32.78	15.97		47.01	28.36	24.63	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 62)	Middle (N = 39)	High (N = 35)	Total (N = 136)
Adderall	24.19	33.33	17.14	25.00
Catapres	9.68	7.69	5.71	8.09
Cylert	3.23	5.13	2.86	3.68
Dexedrine	48.39	48.72	60.00	51.47
Norpramin	0.00	0.00	0.00	0.00
Pamelor	1.61	0.00	0.00	0.74
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	3.23	0.00	5.71	2.94
Other	9.68	5.13	8.57	8.09
TOTAL	45.59	28.68	25.74	

KENT

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 27)	Middle (N = 30)	High (N = 7)	Total (N = 64)	Elementary (N = 10)	Middle (N = 5)	High (N = 0)	Total (N = 15)
TOTAL	1.86	4.35	0.94	2.22	0.69	0.72	0.00	0.52

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 27)	Middle (N = 30)	High (N = 7)	Total (N = 64)	Elementary (N = 10)	Middle (N = 5)	High (N = 0)	Total (N = 15)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00
African American	51.85	26.67	0.00	34.38	40.00	40.00	.	40.00
White	48.15	73.33	100.00	65.63	60.00	60.00	.	60.00
Hispanic	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00
Male	77.78	90.00	100.00	85.94	80.00	100.00	.	85.94
Female	22.22	10.00	0.00	14.06	20.00	0.00	.	14.06
TOTAL	42.19	46.88	10.94		66.67	33.33	0.00	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 27)	Middle (N = 30)	High (N = 7)	Total (N = 64)	Elementary (N = 10)	Middle (N = 5)	High (N = 0)	Total (N = 15)
With IEP	48.15	46.67	57.14	48.44	60.00	60.00	.	60.00
With 504 Plan	7.41	3.33	0.00	4.69	0.00	0.00	.	0.00
Without IEP or 504	44.44	50.00	42.86	46.88	40.00	40.00	.	40.00
TOTAL	42.19	46.88	10.94		66.67	33.33	0.00	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 13)	Middle (N = 14)	High (N = 4)	Total (N = 31)	Elementary (N = 6)	Middle (N = 3)	High (N = 0)	Total (N = 9)
TOTAL	7.43	16.47	5.13	9.17	3.43	3.53	0.00	2.66

* A single student may be counted as receiving both Ritalin and Other Medications.

KENT

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 27)	Middle (N = 30)	High (N = 7)	Total (N = 64)	Elementary (N = 10)	Middle (N = 5)	High (N = 0)	Total (N = 15)
TOTAL	1.86	4.35	0.94	2.22	0.69	0.72	0.00	0.52

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 27)	Middle (N = 30)	High (N = 7)	Total (N = 64)	Elementary (N = 10)	Middle (N = 5)	High (N = 0)	Total (N = 15)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00
African American	51.85	26.67	0.00	34.38	40.00	40.00	.	40.00
White	48.15	73.33	100.00	65.63	60.00	60.00	.	60.00
Hispanic	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00
Male	77.78	90.00	100.00	85.94	80.00	100.00	.	85.94
Female	22.22	10.00	0.00	14.06	20.00	0.00	.	14.06
TOTAL	42.19	46.88	10.94		66.67	33.33	0.00	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 27)	Middle (N = 30)	High (N = 7)	Total (N = 64)	Elementary (N = 10)	Middle (N = 5)	High (N = 0)	Total (N = 15)
With IEP	48.15	46.67	57.14	48.44	60.00	60.00	.	60.00
With 504 Plan	7.41	3.33	0.00	4.69	0.00	0.00	.	0.00
Without IEP or 504	44.44	50.00	42.86	46.88	40.00	40.00	.	40.00
TOTAL	42.19	46.88	10.94		66.67	33.33	0.00	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 13)	Middle (N = 14)	High (N = 4)	Total (N = 31)	Elementary (N = 6)	Middle (N = 3)	High (N = 0)	Total (N = 9)
TOTAL	7.43	16.47	5.13	9.17	3.43	3.53	0.00	2.66

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 27)	Middle (N = 30)	High (N = 7)	Total (N = 64)	Elementary (N = 10)	Middle (N = 5)	High (N = 0)	Total (N = 15)
Pediatrician	33.33	26.67	42.86	31.25	10.00	40.00	.	20.00
Family Practitioner	29.63	43.33	28.57	35.94	0.00	20.00	.	6.67
Behavioral Clinic	11.11	13.33	0.00	10.94	40.00	40.00	.	40.00
Psychiatrist	22.22	10.00	28.57	17.19	50.00	0.00	.	33.33
Nurse Practitioner	3.70	3.33	0.00	3.13	0.00	0.00	.	0.00
Not Known	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00
Other	0.00	3.33	0.00	1.56	0.00	0.00	.	0.00
TOTAL	42.19	46.88	10.94		66.67	33.33	0.00	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 11)	Middle (N = 5)	High (N = 0)	Total (N = 16)
Adderall	45.45	40.00	.	43.75
Catapres	54.55	20.00	.	43.75
Cylert	0.00	0.00	.	0.00
Dexedrine	0.00	20.00	.	6.25
Norpramin	0.00	0.00	.	0.00
Pamelor	0.00	0.00	.	0.00
Torfranil	0.00	0.00	.	0.00
Wellbutrin	0.00	0.00	.	0.00
Other	0.00	20.00	.	6.25
TOTAL	68.75	31.25	0.00	

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 27)	Middle (N = 30)	High (N = 7)	Total (N = 64)	Elementary (N = 10)	Middle (N = 5)	High (N = 0)	Total (N = 15)
Pediatrician	33.33	26.67	42.86	31.25	10.00	40.00	.	20.00
Family Practitioner	29.63	43.33	28.57	35.94	0.00	20.00	.	6.67
Behavioral Clinic	11.11	13.33	0.00	10.94	40.00	40.00	.	40.00
Psychiatrist	22.22	10.00	28.57	17.19	50.00	0.00	.	33.33
Nurse Practitioner	3.70	3.33	0.00	3.13	0.00	0.00	.	0.00
Not Known	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00
Other	0.00	3.33	0.00	1.56	0.00	0.00	.	0.00
TOTAL	42.19	46.88	10.94		66.67	33.33	0.00	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 11)	Middle (N = 5)	High (N = 0)	Total (N = 16)
Adderall	45.45	40.00	.	43.75
Catapres	54.55	20.00	.	43.75
Cylert	0.00	0.00	.	0.00
Dexedrine	0.00	20.00	.	6.25
Norpramin	0.00	0.00	.	0.00
Pamelor	0.00	0.00	.	0.00
Torfranil	0.00	0.00	.	0.00
Wellbutrin	0.00	0.00	.	0.00
Other	0.00	20.00	.	6.25
TOTAL	68.75	31.25	0.00	

MONTGOMERY

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 1,622)	Middle (N = 939)	High (N = 421)	Total (N = 2,982)	Elementary (N = 260)	Middle (N = 148)	High (N = 106)	Total (N = 514)
TOTAL	2.69	3.58	1.29	2.50	0.43	0.56	0.33	0.43

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 1,622)	Middle (N = 939)	High (N = 421)	Total (N = 2,982)	Elementary (N = 260)	Middle (N = 148)	High (N = 106)	Total (N = 514)
American Indian	0.12	0.11	0.00	0.10	0.38	0.00	0.94	0.39
Asian	2.22	2.24	2.38	2.25	1.54	2.03	1.89	1.75
African American	16.58	14.70	10.93	15.19	15.38	16.22	16.04	15.76
White	74.78	75.83	81.71	76.09	75.00	78.38	75.47	76.07
Hispanic	6.29	7.14	4.99	6.37	7.69	3.38	5.66	6.03
Male	77.74	79.66	76.72	78.20	75.00	87.16	69.81	78.20
Female	22.26	20.34	23.28	21.80	25.00	12.84	30.19	21.80
TOTAL	54.39	31.49	14.12		50.58	28.79	20.62	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 1,536)	Middle (N = 911)	High (N = 368)	Total (N = 2,815)	Elementary (N = 248)	Middle (N = 142)	High (N = 95)	Total (N = 485)
With IEP	42.97	45.33	38.86	43.20	50.00	59.86	44.21	51.75
With 504 Plan	17.97	24.70	26.90	21.31	16.94	17.61	18.95	17.53
Without IEP or 504	39.06	29.97	34.24	35.49	33.06	22.54	36.84	30.72
TOTAL	54.56	32.36	13.07		51.13	29.28	19.59	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 660)	Middle (N = 413)	High (N = 143)	Total (N = 1,216)	Elementary (N = 124)	Middle (N = 85)	High (N = 42)	Total (N = 251)
TOTAL	10.00	11.40	3.91	8.76	1.88	2.35	1.15	1.81

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 1,582)	Middle (N = 917)	High (N = 404)	Total (N = 2,903)	Elementary (N = 244)	Middle (N = 160)	High (N = 99)	Total (N = 503)
Pediatrician	66.25	61.72	48.76	62.38	47.95	42.50	42.42	45.13
Family Practitioner	4.30	6.22	14.36	6.30	4.92	3.13	6.06	4.57
Behavioral Clinic	1.45	1.42	2.72	1.62	0.41	0.00	2.02	0.60
Psychiatrist	14.35	14.83	22.77	15.67	31.56	30.63	43.43	33.60
Nurse Practitioner	0.76	0.55	0.25	0.62	0.41	0.00	2.02	0.60
Not Known	11.57	13.96	9.16	11.99	13.52	22.50	4.04	14.51
Other	1.33	1.31	1.98	1.41	1.23	1.25	0.00	0.99
TOTAL	54.50	31.59	13.92		48.51	31.81	19.68	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 261)	Middle (N = 158)	High (N = 111)	Total (N = 530)
Adderall	26.82	25.95	26.13	26.42
Catapres	10.34	10.76	5.41	9.43
Cylert	0.00	3.16	1.80	1.32
Dexedrine	52.11	49.37	53.15	51.51
Norpramin	1.15	0.00	0.00	0.57
Pamelor	0.77	1.27	0.00	0.75
Torfranil	1.53	0.63	1.80	1.32
Wellbutrin	1.15	4.43	4.50	2.83
Other	6.13	4.43	7.21	5.85
TOTAL	49.25	29.81	20.94	

PRINCE GEORGE'S

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 1,092)	Middle (N = 284)	High (N = 87)	Total (N = 1,463)	Elementary (N = 191)	Middle (N = 66)	High (N = 15)	Total (N = 272)
TOTAL	1.74	1.05	0.25	1.18	0.30	0.24	0.04	0.22

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 1,092)	Middle (N = 284)	High (N = 87)	Total (N = 1,463)	Elementary (N = 191)	Middle (N = 66)	High (N = 15)	Total (N = 272)
American Indian	0.73	0.35	2.30	0.75	4.19	0.00	0.00	2.94
Asian	0.27	1.76	0.00	0.55	0.00	0.00	0.00	0.00
African American	65.05	57.75	40.23	62.20	67.02	53.03	33.33	61.76
White	31.93	38.38	55.17	34.59	26.70	43.94	53.33	32.35
Hispanic	2.01	1.76	2.30	1.98	2.09	3.03	13.33	2.94
Male	81.41	84.51	81.61	82.02	80.10	87.88	66.67	82.02
Female	18.59	15.49	18.39	17.98	19.90	12.12	33.33	17.98
TOTAL	74.64	19.41	5.95		70.22	24.26	5.51	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 1,092)	Middle (N = 284)	High (N = 87)	Total (N = 1,463)	Elementary (N = 191)	Middle (N = 66)	High (N = 15)	Total (N = 272)
With IEP	45.15	42.96	27.59	43.68	41.88	39.39	40.00	41.18
With 504 Plan	10.81	8.80	11.49	10.46	2.62	15.15	6.67	5.88
Without IEP or 504	44.05	48.24	60.92	45.86	55.50	45.45	53.33	52.94
TOTAL	74.64	19.41	5.95		70.22	24.26	5.51	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 493)	Middle (N = 122)	High (N = 24)	Total (N = 639)	Elementary (N = 80)	Middle (N = 26)	High (N = 6)	Total (N = 112)
TOTAL	8.70	3.65	0.81	5.34	1.41	0.78	0.20	0.94

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 1,092)	Middle (N = 284)	High (N = 87)	Total (N = 1,463)	Elementary (N = 191)	Middle (N = 66)	High (N = 15)	Total (N = 272)
Pediatrician	44.05	35.56	26.44	41.35	36.13	37.88	20.00	35.66
Family Practitioner	23.35	25.70	28.74	24.13	17.80	22.73	46.67	20.59
Behavioral Clinic	2.11	1.06	4.60	2.05	4.71	0.00	6.67	3.68
Psychiatrist	13.64	11.62	9.20	12.99	25.65	18.18	13.33	23.16
Nurse Practitioner	0.82	2.11	0.00	1.03	1.05	3.03	0.00	1.47
Not Known	15.02	18.66	19.54	15.99	10.99	7.58	6.67	9.93
Other	1.01	5.28	11.49	2.46	3.66	10.61	6.67	5.51
TOTAL	74.64	19.41	5.95		70.22	24.26	5.51	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 191)	Middle (N = 67)	High (N = 15)	Total (N = 273)
Adderall	17.28	16.42	6.67	16.48
Catapres	7.33	4.48	0.00	6.23
Cylert	1.05	2.99	33.33	3.30
Dexedrine	53.40	40.30	46.67	49.82
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	1.05	1.49	0.00	1.10
Wellbutrin	0.00	1.49	0.00	0.37
Other	19.90	32.84	13.33	22.71
TOTAL	69.96	24.54	5.49	

QUEEN ANNE'S

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 93)	Middle (N = 63)	High (N = 14)	Total (N = 170)	Elementary (N = 21)	Middle (N = 9)	High (N = 1)	Total (N = 31)
TOTAL	2.75	4.22	0.81	2.57	0.62	0.60	0.06	0.47

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 93)	Middle (N = 63)	High (N = 14)	Total (N = 170)	Elementary (N = 21)	Middle (N = 9)	High (N = 1)	Total (N = 31)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
African American	9.68	9.52	7.14	9.41	14.29	11.11	100.00	16.13
White	89.25	90.48	92.86	90.00	85.71	88.89	0.00	83.87
Hispanic	1.08	0.00	0.00	0.59	0.00	0.00	0.00	0.00
Male	75.27	76.19	64.29	74.71	85.71	88.89	100.00	74.71
Female	24.73	23.81	35.71	25.29	14.29	11.11	0.00	25.29
TOTAL	54.71	37.06	8.24		67.74	29.03	3.23	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 93)	Middle (N = 63)	High (N = 14)	Total (N = 170)	Elementary (N = 21)	Middle (N = 9)	High (N = 1)	Total (N = 31)
With IEP	38.71	58.73	57.14	47.65	52.38	88.89	0.00	61.29
With 504 Plan	0.00	1.59	0.00	0.59	0.00	0.00	0.00	0.00
Without IEP or 504	61.29	39.68	42.86	51.76	47.62	11.11	100.00	38.71
TOTAL	54.71	37.06	8.24		67.74	29.03	3.23	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 36)	Middle (N = 37)	High (N = 8)	Total (N = 81)	Elementary (N = 11)	Middle (N = 8)	High (N = 0)	Total (N = 19)
TOTAL	8.35	16.09	3.72	9.25	2.55	3.48	0.00	2.17

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 93)	Middle (N = 63)	High (N = 14)	Total (N = 170)	Elementary (N = 21)	Middle (N = 9)	High (N = 1)	Total (N = 31)
Pediatrician	66.67	55.56	28.57	59.41	57.14	77.78	0.00	61.29
Family Practitioner	22.58	34.92	35.71	28.24	28.57	11.11	0.00	22.58
Behavioral Clinic	3.23	0.00	0.00	1.76	4.76	0.00	0.00	3.23
Psychiatrist	3.23	9.52	35.71	8.24	9.52	11.11	100.00	12.90
Nurse Practitioner	2.15	0.00	0.00	1.18	0.00	0.00	0.00	0.00
Not Known	2.15	0.00	0.00	1.18	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	54.71	37.06	8.24		67.74	29.03	3.23	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 22)	Middle (N = 9)	High (N = 2)	Total (N = 33)
Adderall	36.36	44.44	0.00	36.36
Catapres	31.82	11.11	50.00	27.27
Cylert	0.00	0.00	0.00	0.00
Dexedrine	22.73	33.33	50.00	27.27
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	0.00	0.00	0.00	0.00
Other	9.09	11.11	0.00	9.09
TOTAL	66.67	27.27	6.06	

SOMERSET

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 53)	Middle (N = 31)	High (N = 6)	Total (N = 90)	Elementary (N = 11)	Middle (N = 9)	High (N = 2)	Total (N = 22)
TOTAL	3.45	4.53	0.67	2.88	0.72	1.31	0.22	0.70

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 53)	Middle (N = 31)	High (N = 6)	Total (N = 90)	Elementary (N = 11)	Middle (N = 9)	High (N = 2)	Total (N = 22)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
African American	57.41	43.33	66.67	53.33	45.45	55.56	50.00	50.00
White	40.74	56.67	33.33	45.56	54.55	44.44	50.00	50.00
Hispanic	1.85	0.00	0.00	1.11	0.00	0.00	0.00	0.00
Male	77.36	83.87	83.33	80.00	63.64	88.89	0.00	80.00
Female	22.64	16.13	16.67	20.00	36.36	11.11	100.00	20.00
TOTAL	58.89	34.44	6.67		50.00	40.91	9.09	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 53)	Middle (N = 30)	High (N = 6)	Total (N = 89)	Elementary (N = 11)	Middle (N = 9)	High (N = 2)	Total (N = 22)
With IEP	47.17	56.67	50.00	50.56	54.55	0.00	0.00	27.27
With 504 Plan	0.00	0.00	0.00	0.00	0.00	66.67	0.00	27.27
Without IEP or 504	52.83	43.33	50.00	49.44	45.45	33.33	100.00	45.45
TOTAL	59.55	33.71	6.74		50.00	40.91	9.09	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 25)	Middle (N = 17)	High (N = 3)	Total (N = 45)	Elementary (N = 6)	Middle (N = 0)	High (N = 0)	Total (N = 6)
TOTAL	16.23	17.17	2.88	12.61	3.90	0.00	0.00	1.68

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 53)	Middle (N = 31)	High (N = 6)	Total (N = 90)	Elementary (N = 11)	Middle (N = 9)	High (N = 2)	Total (N = 22)
Pediatrician	79.25	80.65	33.33	76.67	63.64	77.78	50.00	68.18
Family Practitioner	7.55	9.68	16.67	8.89	0.00	0.00	50.00	4.55
Behavioral Clinic	5.66	6.45	16.67	6.67	36.36	22.22	0.00	27.27
Psychiatrist	3.77	0.00	33.33	4.44	0.00	0.00	0.00	0.00
Nurse Practitioner	3.77	3.23	0.00	3.33	0.00	0.00	0.00	0.00
Not Known	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	58.89	34.44	6.67		50.00	40.91	9.09	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 11)	Middle (N = 10)	High (N = 2)	Total (N = 23)
Adderall	81.82	60.00	50.00	69.57
Catapres	0.00	10.00	50.00	8.70
Cylert	0.00	0.00	0.00	0.00
Dexedrine	18.18	30.00	0.00	21.74
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00
TOTAL	47.83	43.48	8.70	

ST. MARY'S

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 181)	Middle (N = 89)	High (N = 23)	Total (N = 293)	Elementary (N = 45)	Middle (N = 23)	High (N = 2)	Total (N = 70)
TOTAL	2.51	2.77	0.55	2.01	0.62	0.72	0.05	0.48

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 181)	Middle (N = 89)	High (N = 23)	Total (N = 293)	Elementary (N = 45)	Middle (N = 23)	High (N = 2)	Total (N = 70)
American Indian	0.55	0.00	0.00	0.34	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	2.22	0.00	0.00	1.43
African American	17.13	8.99	4.35	13.65	20.00	8.70	0.00	15.71
White	81.22	91.01	91.30	84.98	77.78	91.30	100.00	82.86
Hispanic	1.10	0.00	4.35	1.02	0.00	0.00	0.00	0.00
Male	79.01	84.27	78.26	80.55	77.78	100.00	50.00	80.55
Female	20.99	15.73	21.74	19.45	22.22	0.00	50.00	19.45
TOTAL	61.77	30.38	7.85		64.29	32.86	2.86	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 180)	Middle (N = 90	High (N = 23)	Total (N = 293)	Elementary (N = 35)	Middle (N = 23)	High (N = 2)	Total (N = 60)
With IEP	28.33	56.67	34.78	37.54	54.29	60.87	50.00	56.67
With 504 Plan	7.78	7.78	8.70	7.85	2.86	17.39	0.00	8.33
Without IEP or 504	63.89	35.56	56.52	54.61	42.86	21.74	50.00	35.00
TOTAL	61.43	30.72	7.85		58.33	38.33	3.33	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 51)	Middle (N = 51)	High (N = 8)	Total (N = 110)	Elementary (N = 19)	Middle (N = 14)	High (N = 1)	Total (N = 34)
TOTAL	4.69	11.18	1.94	5.62	1.75	3.07	0.24	1.74

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 157)	Middle (N = 89)	High (N = 18)	Total (N = 264)	Elementary (N = 37)	Middle (N = 20)	High (N = 2)	Total (N = 59)
Pediatrician	56.69	44.94	44.44	51.89	40.54	25.00	0.00	33.90
Family Practitioner	19.11	30.34	22.22	23.11	13.51	30.00	50.00	20.34
Behavioral Clinic	5.10	8.99	0.00	6.06	13.51	0.00	0.00	8.47
Psychiatrist	11.46	13.48	33.33	13.64	32.43	40.00	0.00	33.90
Nurse Practitioner	2.55	2.25	0.00	2.27	0.00	5.00	0.00	1.69
Not Known	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	5.10	0.00	0.00	3.03	0.00	0.00	50.00	1.69
TOTAL	59.47	33.71	6.82		62.71	33.90	3.39	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 54)	Middle (N = 26)	High (N = 2)	Total (N = 82)
Adderall	20.37	19.23	0.00	19.51
Catapres	20.37	15.38	0.00	18.29
Cylert	12.96	3.85	0.00	9.76
Dexedrine	24.07	15.38	100.00	23.17
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	11.54	0.00	3.66
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	5.56	0.00	0.00	3.66
Other	16.67	34.62	0.00	21.95
TOTAL	65.85	31.71	2.44	

TALBOT

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 88)	Middle (N = 32)	High (N = 19)	Total (N = 139)	Elementary (N = 33)	Middle (N = 10)	High (N = 7)	Total (N = 50)
TOTAL	3.91	3.09	1.50	3.05	1.47	0.97	0.55	1.10

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 88)	Middle (N = 32)	High (N = 19)	Total (N = 139)	Elementary (N = 33)	Middle (N = 10)	High (N = 7)	Total (N = 50)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
African American	36.36	15.63	26.32	30.22	42.42	30.00	28.57	38.00
White	62.50	84.38	73.68	69.06	57.58	70.00	71.43	62.00
Hispanic	1.14	0.00	0.00	0.72	0.00	0.00	0.00	0.00
Male	73.86	65.63	89.47	74.10	75.76	100.00	71.43	74.10
Female	26.14	34.38	10.53	25.90	24.24	0.00	28.57	25.90
TOTAL	63.31	23.02	13.67		66.00	20.00	14.00	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 81)	Middle (N = 31)	High (N = 19)	Total (N = 131)	Elementary (N = 32)	Middle (N = 10)	High (N = 7)	Total (N = 49)
With IEP	50.62	22.58	36.84	41.98	53.13	40.00	28.57	46.94
With 504 Plan	11.11	3.23	26.32	11.45	9.38	0.00	28.57	10.20
Without IEP or 504	38.27	74.19	36.84	46.56	37.50	60.00	42.86	42.86
TOTAL	61.83	23.66	14.50		65.31	20.41	14.29	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 41)	Middle (N = 7)	High (N = 7)	Total (N = 55)	Elementary (N = 17)	Middle (N = 4)	High (N = 2)	Total (N = 23)
TOTAL	13.90	4.38	7.07	9.93	5.76	2.50	2.02	4.15

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 86)	Middle (N = 32)	High (N = 18)	Total (N = 136)	Elementary (N = 32)	Middle (N = 10)	High (N = 7)	Total (N = 49)
Pediatrician	65.12	59.38	55.56	62.50	40.63	30.00	28.57	36.73
Family Practitioner	13.95	25.00	11.11	16.18	3.13	10.00	14.29	6.12
Behavioral Clinic	9.30	0.00	0.00	5.88	37.50	0.00	0.00	24.49
Psychiatrist	9.30	9.38	33.33	12.50	18.75	60.00	57.14	32.65
Nurse Practitioner	0.00	3.13	0.00	0.74	0.00	0.00	0.00	0.00
Not Known	2.33	0.00	0.00	1.47	0.00	0.00	0.00	0.00
Other	0.00	3.13	0.00	0.74	0.00	0.00	0.00	0.00
TOTAL	63.24	23.53	13.24		65.31	20.41	14.29	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 33)	Middle (N = 10)	High (N = 7)	Total (N = 50)
Adderall	30.30	20.00	57.14	32.00
Catapres	6.06	0.00	0.00	4.00
Cylert	3.03	0.00	0.00	2.00
Dexedrine	54.55	80.00	42.86	58.00
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	0.00	0.00	0.00	0.00
Other	6.06	0.00	0.00	4.00
TOTAL	66.00	20.00	14.00	

WORCESTER

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 84)	Middle (N = 78)	High (N = 28)	Total (N = 190)	Elementary (N = 26)	Middle (N = 12)	High (N = 5)	Total (N = 43)
TOTAL	2.51	5.11	1.47	2.80	0.78	0.79	0.26	0.63

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 84)	Middle (N = 78)	High (N = 28)	Total (N = 190)	Elementary (N = 26)	Middle (N = 12)	High (N = 5)	Total (N = 43)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
African American	27.38	26.92	17.86	25.79	38.46	50.00	0.00	37.21
White	72.62	73.08	82.14	74.21	57.69	50.00	100.00	60.47
Hispanic	0.00	0.00	0.00	0.00	3.85	0.00	0.00	2.33
Male	77.38	79.49	96.43	81.05	80.77	91.67	100.00	81.05
Female	22.62	20.51	3.57	18.95	19.23	8.33	0.00	18.95
TOTAL	44.21	41.05	14.74		60.47	27.91	11.63	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 76)	Middle (N = 70)	High (N = 15)	Total (N = 161)	Elementary (N = 26)	Middle (N = 11)	High (N = 4)	Total (N = 41)
With IEP	44.74	47.14	66.67	47.83	57.69	54.55	50.00	56.10
With 504 Plan	0.00	0.00	0.00	0.00	0.00	9.09	0.00	2.44
Without IEP or 504	55.26	52.86	33.33	52.17	42.31	36.36	50.00	41.46
TOTAL	47.20	43.48	9.32		63.41	26.83	9.76	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 34)	Middle (N = 33)	High (N = 10)	Total (N = 77)	Elementary (N = 15)	Middle (N = 6)	High (N = 2)	Total (N = 23)
TOTAL	8.88	18.03	6.94	10.85	3.92	3.28	1.39	3.24

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 84)	Middle (N = 77)	High (N = 28)	Total (N = 189)	Elementary (N = 28)	Middle (N = 10)	High (N = 5)	Total (N = 43)
Pediatrician	22.62	64.94	21.43	39.68	28.57	30.00	20.00	27.91
Family Practitioner	26.19	16.88	32.14	23.28	28.57	10.00	20.00	23.26
Behavioral Clinic	3.57	2.60	7.14	3.70	7.14	30.00	20.00	13.95
Psychiatrist	20.24	6.49	35.71	16.93	14.29	20.00	40.00	18.60
Nurse Practitioner	26.19	9.09	3.57	15.87	17.86	10.00	0.00	13.95
Not Known	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	1.19	0.00	0.00	0.53	3.57	0.00	0.00	2.33
TOTAL	44.44	40.74	14.81		65.12	23.26	11.63	

* Providers of Ritalin and Other Medications to the same student were recorded in the Ritalin category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 14)	Middle (N = 13)	High (N = 6)	Total (N = 33)
Adderall	28.57	30.77	50.00	33.33
Catapres	21.43	30.77	16.67	24.24
Cylert	0.00	0.00	16.67	3.03
Dexedrine	50.00	30.77	16.67	36.36
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.00	0.00	0.00	0.00
Wellbutrin	0.00	7.69	0.00	3.03
Other	0.00	0.00	0.00	0.00
TOTAL	42.42	39.39	18.18	

WICOMICO

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 359)	Middle (N = 46)	High (N = 33)	Total (N = 438)	Elementary (N = 54)	Middle (N = 14)	High (N = 13)	Total (N = 81)
TOTAL	5.02	1.44	0.88	3.11	0.76	0.44	0.35	0.58

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 359)	Middle (N = 46)	High (N = 33)	Total (N = 438)	Elementary (N = 54)	Middle (N = 14)	High (N = 13)	Total (N = 81)
American Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asian	0.28	0.00	0.00	0.23	0.00	0.00	0.00	0.00
African American	27.86	17.39	24.24	26.48	24.07	35.71	7.69	23.46
White	71.59	80.43	75.76	72.83	75.93	64.29	92.31	76.54
Hispanic	0.28	2.17	0.00	0.46	0.00	0.00	0.00	0.00
Male	76.88	84.78	78.79	77.85	77.78	100.00	76.92	77.85
Female	23.12	15.22	21.21	22.15	22.22	0.00	23.08	22.15
TOTAL	81.96	10.50	7.53		66.67	17.28	16.05	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 359)	Middle (N = 46)	High (N = 33)	Total (N = 438)	Elementary (N = 54)	Middle (N = 14)	High (N = 13)	Total (N = 81)
With IEP	39.28	52.17	33.33	40.18	48.15	85.71	53.85	55.56
With 504 Plan	0.28	0.00	3.03	0.46	1.85	0.00	7.69	2.47
Without IEP or 504	60.45	47.83	63.64	59.36	50.00	14.29	38.46	41.98
TOTAL	81.96	10.50	7.53		66.67	17.28	16.05	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 141)	Middle (N = 24)	High (N = 11)	Total (N = 176)	Elementary (N = 26)	Middle (N = 12)	High (N = 7)	Total (N = 45)
TOTAL	17.00	8.33	3.82	12.24	3.25	3.44	2.43	3.13

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 359)	Middle (N = 46)	High (N = 33)	Total (N = 438)	Elementary (N = 54)	Middle (N = 14)	High (N = 13)	Total (N = 81)
Pediatrician	64.62	56.52	45.45	62.33	57.41	7.14	15.38	41.98
Family Practitioner	11.70	6.52	18.18	11.64	5.56	21.43	23.08	11.11
Behavioral Clinic	2.23	0.00	0.00	1.83	0.00	50.00	0.00	8.64
Psychiatrist	6.69	26.09	21.21	9.82	25.93	21.43	38.46	27.16
Nurse Practitioner	8.64	10.87	0.00	8.22	7.41	0.00	0.00	4.94
Not Known	5.01	0.00	15.15	5.25	3.70	0.00	7.69	3.70
Other	1.11	0.00	0.00	0.91	0.00	0.00	15.38	2.47
TOTAL	81.96	10.50	7.53		66.67	17.28	16.05	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 54)	Middle (N = 14)	High (N = 13)	Total (N = 81)
Adderall	53.70	14.29	30.77	43.21
Catapres	22.22	21.43	15.38	20.99
Cylert	0.00	0.00	0.00	0.00
Dexedrine	20.37	35.71	30.77	24.69
Norpramin	0.00	0.00	0.00	0.00
Pamelor	0.00	7.14	0.00	1.23
Torfranil	1.85	0.00	7.69	2.47
Wellbutrin	1.85	21.43	0.00	4.94
Other	0.00	0.00	15.38	2.47
TOTAL	66.67	17.28	16.05	

WASHINGTON

Table 1

	Percent of Enrollment Receiving Ritalin*				Percent of Enrollment Receiving Other Medications*			
	Elementary (N = 413)	Middle (N = 223)	High (N = 88)	Total (N = 724)	Elementary (N = 105)	Middle (N = 59)	High (N = 19)	Total (N = 183)
TOTAL	4.17	4.82	1.65	3.64	1.06	1.27	0.36	0.92

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 2

	Percent of Students Receiving Ritalin* By Type of School				Percent of Students Receiving Other Medication* By Type of School			
	Elementary (N = 413)	Middle (N = 223)	High (N = 88)	Total (N = 724)	Elementary (N = 105)	Middle (N = 59)	High (N = 19)	Total (N = 183)
American Indian	0.00	0.00	0.00	0.00	0.95	0.00	0.00	0.55
Asian	0.24	0.00	0.00	0.14	0.95	0.00	0.00	0.55
African American	8.23	4.93	1.14	6.35	8.57	6.78	5.26	7.65
White	91.28	94.17	98.86	93.09	88.57	93.22	94.74	90.71
Hispanic	0.24	0.90	0.00	0.41	0.95	0.00	0.00	0.55
Male	71.19	84.75	79.55	76.38	74.29	84.75	47.37	76.38
Female	28.81	15.25	20.45	23.62	25.71	15.25	52.63	23.62
TOTAL	57.04	30.80	12.15		57.38	32.24	10.38	

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 3

	Percent of Students With and Without IEPs/504 Plans Receiving Ritalin*				Percent of Students With and Without IEPs/504 Plans Receiving Other Medications*			
	Elementary (N = 413)	Middle (N = 223)	High (N = 89)	Total (N = 725)	Elementary (N = 105)	Middle (N = 59)	High (N = 19)	Total (N = 183)
With IEP	42.86	41.70	43.82	42.62	50.48	47.46	52.63	49.73
With 504 Plan	6.54	9.87	13.48	8.41	12.38	6.78	15.79	10.93
Without IEP or 504	50.61	48.43	42.70	48.97	37.14	45.76	31.58	39.34
TOTAL	56.97	30.76	12.28		57.38	32.24	10.38	

* A single student may be counted as receiving both Ritalin and Other Medications

Table 4

	Percent of Special Education Enrollment With IEPs Receiving Ritalin*				Percent of Special Education Enrollment With IEPs Receiving Other Medications*			
	Elementary (N = 177)	Middle (N = 93)	High (N = 39)	Total (N = 309)	Elementary (N = 53)	Middle (N = 28)	High (N = 10)	Total (N = 91)
TOTAL	13.49	13.60	6.52	11.91	4.04	4.09	1.67	3.51

* A single student may be counted as receiving both Ritalin and Other Medications.

Table 5

	Percent of Prescriptions by Provider* for Ritalin				Percent of Prescriptions by Provider* for Other Medications			
	Elementary (N = 413)	Middle (N = 223)	High (N = 88)	Total (N = 724)	Elementary (N = 105)	Middle (N = 59)	High (N = 19)	Total (N = 183)
Pediatrician	58.84	66.82	52.27	60.50	49.52	47.46	21.05	45.90
Family Practitioner	18.40	13.90	28.41	18.23	4.76	3.39	21.05	6.01
Behavioral Clinic	1.94	0.45	0.00	1.24	0.00	0.00	0.00	0.00
Psychiatrist	8.47	11.66	13.64	10.08	37.14	35.59	36.84	36.61
Nurse Practitioner	10.41	3.59	2.27	7.32	6.67	10.17	21.05	9.29
Not Known	1.21	1.79	2.27	1.52	0.95	3.39	0.00	1.64
Other	0.73	1.79	1.14	1.10	0.95	0.00	0.00	0.55
TOTAL	57.04	30.80	12.15		57.38	32.24	10.38	

* Providers of Ritalin and Other Medications to the same student were recorded in the other medication category.

Table 6

	Percent of Other Prescriptions by Medication			
	Elementary (N = 115)	Middle (N = 68)	High (N = 21)	Total (N = 204)
Adderall	53.04	61.76	52.38	55.88
Catapres	14.78	16.18	9.52	14.71
Cylert	9.57	4.41	4.76	7.35
Dexedrine	14.78	11.76	33.33	15.69
Norpramin	0.87	1.47	0.00	0.98
Pamelor	0.00	0.00	0.00	0.00
Torfranil	0.87	0.00	0.00	0.49
Wellbutrin	3.48	1.47	0.00	2.45
Other	2.61	2.94	0.00	2.45
TOTAL	56.37	33.33	10.29	

Maryland Task Force to Study the Use of Methylphenidate in School Children

SURVEY RESULTS

PARENT FORUMS

REPORT OF FINDINGS OF FOCUS GROUP MEETINGS

Task Force To Study the Uses of Methylphenidate and Other Drugs on School Children

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REPORT OF FINDINGS OF FOCUS GROUP MEETINGS

BACKGROUND

The Task Force requested that the Maryland Centers for Attention and Developmental Disorders carry out a series of focus group discussions with parents around the State of Maryland to sample caretaker views on topics related to the referral, diagnosis, and intervention for ADHD as well as the economic and social burdens placed on families. The focus group discussion is a qualitative approach to learning about the feelings and opinions of small groups of participants about a given problem, experience, service, or other phenomenon.

DESIGN

I. Sample

The population sampled were parents with at least one child who had been diagnosed with ADHD and who was enrolled in kindergarten through 12th grade. Parents contacted the MCADD in response to flyers announcing the focus groups appearing in local newspapers throughout the state. Local boards of education, health, and mental health were also notified as well as radio stations and television stations. Groups were held in four distinct geographical areas of the state (East-Talbott County, West-Allegheny County, North-Baltimore City, South-Prince Georges County) to attract parents who may have experienced differences in assessment and treatment because of variations in accessibility and quality of services. Parents who called to express their interest were notified of the time and place of the groups, asked which group they were interested in attending, the age of their child, the type of practitioner who primarily treats their child, and their address and telephone number. To select parents for the groups, a non-probability, purposive sampling plan was used to provide a range of participants based on demographic characteristics of the target population: age of the child (elementary school, middle school, high school) and type of provider for the care of the child's ADHD (primary care/ pediatrician, mental health providers). In the selection process, an attempt was made to achieve a group size of 10. Selected parents were called to confirm their desire to attend and invitation letters and directions were sent out. Numbers of parents who responded to the recruitment efforts, who were chosen to attend, and who actually attended the groups is presented in Table 1. After the initial group in which only 5 of the 11 selected parents attended the session, a somewhat larger sample was accepted. Although roughly equivalent numbers of parents were contacted for the last three groups, varying numbers attended. The Northern group was held in Baltimore City and some parents expressed worries about coming into the city in the evening. Some parents than who were not contacted attended the Western and Southern region group, drawn by word of mouth.

This research was conducted after review by institutional review boards of the University of Maryland School of Medicine and the State of Maryland Department of Health and Mental Hygiene. Parents who attended the groups read and signed consent forms which included permission to audio-tape the sessions. They were also asked to fill out a brief, anonymous

questionnaire (included in Appendix 1), covering demographic information concerning themselves and other family members and the ADHD children in the family. These data are presented in Tables 1 and 2, respectively.

Table 1: Characteristics of Parents Attending Focus Groups

	Eastern	Northern	Western	Southern	Total
Number of parents who called	13	28	26	21	88
Number of families selected	11	15	16	17	59
Number of parents attending	6	5	20	13	42
Number of mothers attending	5	4	13	10	32
Average age of parents	42.4	44.7	43.8	38.6	42.1
Age range of parents	36-45	38-54	34-57	26-55	26-57

About 75% of the parents attending the groups were female, with the percentage ranging between 65 and 83. The average age of parents and their range of ages for each group was quite similar, although the Southern group tended to be somewhat younger.

Table 2: Characteristics of ADHD Children of Parents Attending Focus Groups

	Eastern	Northern	Western	Southern	Total
Number of children	6	6	14	12	38
Mean age (years)	11.3	11.7	12.8	10.0	11.4
Age range (years)	7-17	10-13	6-16	4-16	4-17
Mean age of diagnosis (years)	7.5	6.0	6.3	6.3	6.4
Age range at time of diagnosis (years)	5-12	5-7	3-14	3-13	3-14
Ratio of males/females	6/0	6/0	8/6	10/2	30/8
Ratio of Caucasian/African American/Other ethnicities	4/1/1	2/2/0	12/1/1	5/1/3	23/5/5
Percent of immediate family members with ADHD	27	46	5	24	19.4

Table 2 presents characteristics of the ADHD children of parents who attended each group. The results were similar across groups and are representative of the characteristics of the ADHD population. Except for one younger child in the Southern group, the age range spanned the elementary, middle, and high school years. The average age of diagnosis of 6.4 years fits with a variety of previous studies. Similarly, the male to female ratio of 3.75:1 is clearly in the range of epidemiological studies which report prevalences ranging from 2.5:1 to 5.1: 1 (Szatmari, Offord, & Boyle, 1989). Rates of ADHD in family members of ADHD children have been found to range between 10% and 35% (Biederman et al., 1992). Immediate family members of children in the present sample had an ADHD rate well within this range (19.4%).

Table 3: Percent of ADHD Children Receiving Services from Different Types of Providers.

	Eastern	Northern	Western	Southern	Total
Pediatricians	50	66	64	58	61
Psychiatrists	33	33	29	25	29
Therapists	33	50	7	25	24
School	66	66	36	58	53
Other types of services.	0	16	7	8	8
No services	0	0	7	8	5

Table 3 presents the percentage of children in our sample receiving treatment from different providers. The pattern is consistent with usual findings for ADHD (Kwasman, Tinsley, & Lepper, 1995). More than 60% of children were being seen by pediatricians for their ADHD and approximately 30% were treated by psychiatrists with little difference in these rates across groups. There was a greater disparity in rates of children being seen by therapists, possibly related to access. Only 7% of children of parents from Western Maryland were in counseling with a therapist. Similarly, only 36% of children in Western Maryland currently were receiving interventions for their ADHD in the school setting compared to close to or more than 60% of children in other groups. Only 2 out of the total sample of 38 children were not receiving services of any kind.

II. Setting:

Each group was conducted in large and comfortable rooms at local community colleges. Parents and moderators sat around a table large enough to seat most participants. In one case, some parents had to sit outside the table. Refreshments were provided to make the experience as pleasant as possible. The rooms were free from interruptions. Written informed consent for tape recording were obtained. Microphones were clearly visible and their purpose was explained.

Each group lasted about two hours.

III. Moderators

Drs. Anthony and Foster (Director and Associate Director of the MCADD) facilitated each focus group with the following goals in mind: (1) to create a non-threatening supportive climate, encouraging all members to share their views; (2) to facilitate interaction among group members–drawing out "shy" members and directing attention away from dominating members; (3) to move the discussion along with comments, transitional questions, and summaries without interfering with dialogue among participants; (4) to flexibly cover important topics and questions in the prepared outline (see below); (5) to present questions in an unbiased way; (6) to remain nonjudgmental to participants' responses; and (7) to determine how group members feel about ideas or feelings that are expressed by others.

IV. Outline

The discussion generally followed an outline of open ended questions tapping parents' feelings concerning the diagnostic process (e.g., why did you become concerned, who made the diagnosis, how was the evaluation conducted), treatment (e.g., forms of treatment, school involvement, the coordination of services), with particular emphasis on medication (e.g., making the decision to try medicine, success, side effects), the effects of having an ADHD child on family life, and interventions that have been most helpful. The outline was a flexible guide, not a rigid protocol.

V. Analysis

A full and accurate transcription of the audio tapes for each group was prepared from which a list of content categories was derived, to organize the ideas and concerns of the participants. We then examined the contents of each category to search for subtopics and to select the most useful quotes and substantiation for the various ideas. Finally, we clustered the categories containing the various ideas and quotations into themes. These themes provide the major headings for the following results section. Care was taken to incorporate comments and concerns of views that may not fit general themes or directions but still represent important input, possibly from segments of the population with special needs or unique points of view.

RESULTS

I. Overall impressions

The focus group methodology forced the moderators to remove the filters of researcher, clinician, and "expert" which are usually adopted to screen information received from parents to fit with the purpose of the interaction. This experience of "unfiltered" listening was quite different. We simply listened and in that way, we were able to understand more fully the

experience of families with ADHD children. As a result, we learned valuable lessons that reoriented our thinking about this complex disorder. We learned about the burden placed on families with an ADHD child, stemming from a variety of sources and likely to have profound effects on outcomes. Moreover, we learned that the burden also is felt by others who deal directly with the child--pediatricians and teachers. This burden wears some parents down, causing adverse responses; others seem to develop into "super advocates." We heard most clearly about the trials and tribulations of the ADHD family. Parents imparted how hard it is to simply maintain the energy to keep fighting for their child. We were struck by the "roller-coaster" nature of the task; experiences of frustration and failure mixed with positive progress. Parents of children with ADHD felt their life was a constant repetition of onerous tasks: "Asking, asking" for help and appropriate services, "pushing, pushing" or "begging, begging" when this help was withheld or non-existent; and, often, these efforts resulted in "weeping" or "gnashing of teeth" to be heard.

The issues raised by group participants and the feelings they engendered were quite consistent across groups. Parents emphasized again and again the stress involved in parenting an ADHD child. However, we were struck by the eloquence and humor they used in describing their experience. They needed little prompting to speak; the words poured out, varying in the elegance of their delivery but packing force, passion, and persuasiveness. Also, like soldiers in battle, it seemed to help many to maintain humor, often with a "black" quality to it. These qualities are evident in the quotes presented below. Participants and moderators felt that the time went very quickly. The power of this forum, in which feelings and opinions were released and were validated by others in the same position, was captured in the frequent question asked after the session ended: "When is the next group?"

II. Themes

Discussion of the results are organized under five general themes and their natural divisions that best captured the various content categories that were identified from the transcripts. Description of the main thrust of each section are illustrated with exact comments from participants always indicated by quotation marks.

A. Responses to Medication: "It made a huge difference."

Most parents who participated in the groups had some experience with medication, although it varied widely. The nature of their experience seemed to depend on their feelings about the physician providing the medication and their children's comorbidity. The more complicated the medication regimen, the less satisfied and optimistic were the parents. Many parents simultaneously reported several feelings about medication. That is, although their child responded well to it, parents were anxious about using it or they felt uncomfortable about the prescription process.

1. Positive Responses. "The change in the children is absolutely remarkable ."

Almost universally, parents reported many positive effects of medication on their child's and family's life.

a. Symptom relief.

Parents reported quick relief of many of the core symptoms of ADHD. For instance, after taking medication, children were able to sit still in school or read for extended periods for the first time. Here is one parent's description:

> "We had a problem with just sitting. He wouldn't sit still long enough to stay focused on the first sentence on the board. He would not sit still long enough. So the Ritalin did help in that way. It helped him stay still long enough to pay attention at school."

For some parents, medication produced a sense of discovery.

> "You can't instill any kind of principles or values when they are all over the place, when they can't calm down long enough to focus on what you're saying. You can tell them stealing is wrong 900 times when they're unmedicated. Is it going in? You can tell them one time when they are medicated. They absorb it and you get a chance to see the true child... This is what (child's name) would be like if he was not hyperactive. And he's wonderful."

b. School performance improvement.

Parents felt that the medication had a large impact on the child's ability to learn and follow directions in school:

> "...and after his medication, I noticed his reading, he (unintelligible) books and he started reading and reading and reading. (Laughter) And I attributed it to his medication. Well, by the time he got into second grade, in second grade, he was reading at a 3rd grade level and he was just unreal with his reading, not getting into fights at school and stuff. It worked really well."

> "On Ritalin, was a total, total change... His grades went from a C- to A- in the school year. He liked to read all of a sudden."

c. Family stress relief

Parents reported that having the child with ADHD on medication had a positive effect on the family environment. Some parents reported less conflict and less need for discipline when the child was on medication. One mother's comments catches the relief that is often felt within the family.

> "He (referring to husband) got near tears the first time after she took the pill because she sat still, she (unintelligible), it was like a different child. We weren't screaming, we weren't yelling.....Well, this is what we say, when we know we're starting to yell, it's time

for a pill (laughs)."

Echoing the sense of tension reduction, one parent laughed and said, "Medicate him or medicate me."

2. Adverse Responses: "We've tried everything."

Parents' experiences with medication weren't always altogether positive, though. Some parents reported that initial optimistic responses disappeared or that the effects of medication were unpredictable or disappointing. As a result, they felt frustrated that they had to search for the right medicine or combination of medicines.

a. Lack of response.

Several parents expressed disappointment over the amount of response or the uneven effects of medication for their children. Sometimes parents were afraid to change medications, even if their child has side effects.

> "It's scary to go through the trial and error thing. When you find something that works you want to stick with it."

Some parents were dismayed by the uneven effects of medication on their children's symptoms, and the difficulties in titrating dosages. Two examples of these feelings follow:

> "Good and bad. All of this medication is good and bad. Ritalin goes like this and then you've got your plateau. You know it's supposed to last 3-6 hours, well 4-6 hours, we were lucky if we got 3 ½, 3, 3 ½ hours out of it."

> "And it is very choppy. And he was on the slow release and the regular formula. He was taking both of them in conjunction, he was on 40 mg of the slow release and he took 10 of regular. And 10 of regular at noon. And he was still up and down, up and down, up and down."

b. Confusion over changes in medication.

Parents found it difficult and confusing when a medication lost its effectiveness with their child. Their unhappiness was increased their physician then tried medications without helping the parents understand the purpose or why it would work. One parent, after taking the group through a lengthy history of medication changes, threw up her hands and said, "Oh, right now they have him on a rack of it." Other parents' comments addressed the same points.

> "So we are constantly juggling the medication around. What targets the ADHD, exacerbates the tics. What controls the tics, does nothing for the ADHD. So its Ritalin for 6 months, and then go try Dexedrine for 6 months, and then its back to Ritalin. Let's increase the Clonidine to control the tics more. Add some Respiradol in there. He's taken 10 different medications, he's taking 3 now."

> (Moderator: "Why would...do you know why they put him on Prozac?") Parent: "They were really reaching and there was a point where the school was upsetting (child's name) when he was in second grade. Oh it was pathetic. And it was a nightmare. An absolute nightmare. They were ready to put him on anti-psychotic medications. I don't know what happened. I don't know how things turned around."

Some parents also felt frustrated or confused by the notion of "medication holidays." It was unclear to them why, if a child needs the medication to adjust a "chemical imbalance" in order function well during the week at school, the same child would not also need the medication to function well at home and on the weekends. One father put it this way:

> "What bothers me is that these doctors say these children need Ritalin or Dexedrine in order for their brains to work right. Normal people...you know it's like an ignition in a car. You turn the key on and it hits this and then it's supposed to go this distance and then this. For these children it's skipping. OK? How can we or how can they say that these children should not be on this medication on weekends? This child is no different on the weekend than he is during the week. The two days they're still going through the things that they were for five days. Are we doing it as parents because we feel that we want these children on these medications?"

3. Ambivalence Around Medication. "I don't want him on medicine really, but it helps him."

Many parents, even if they felt that medication was really helpful in controlling the child's ADHD symptoms, simultaneously wished that their child did not need the medication. There were several factors underlying this ambivalence.

a. Fears about use

Some parents were afraid that medicine would "change" their children in negative ways. From his experience with an employee with serious mental illness who took medicine, one father was concerned that his son would end up the same way. He remembers thinking,

> "He's going to be some kind of weirdo or something like that."

Some parents were concerned about the safety or the long-term effects of the medications.

> "My fear though is that, you know, there is going to be some study 20 years from now and, you know, they'll find something that they didn't know today about Ritalin. But I just, you know, I mean they could be wrong..."

b. Uncertainty about medication

Parents reported struggling over the decision to put their child on medication. For many of these parents, the initial choice was difficult and had important implications for them, although it was sometimes difficult for them to express these feelings.

"It's just the fact that I'm going to put him on medicine"

"So anyway, we went to a neurologist, to (physician's name), and he was placed on Ritalin immediately and oh, it was a struggle. We struggled terribly before making that decision. When you talk about it'll tear you apart..."

Many parents reported heightened concern over beginning medication because physicians failed to inform them of a drug's mechanism of action or termed the intervention a "medication trial," which sounded ominous to many parents. Such equivocal communications from physicians reduced the confidence of parents and gave the impression, as one mother put it, that her child was "..going to be a guinea pig." Other comments reflect parents' worries about the "unknown" aspects of using medication.

"He basically told me "well, you know, we don't know how these medications work. Let's try him on this." So they tried him on the Adderall."

"I didn't want to put him on medicine because...I just didn't want to do that. She said, just try it at home a couple of times and see if it will calm him down. So I took the medicine, I said I would give it to him, but I just couldn't do it....I just don't want to put him on medicine, I just want to find out what is going on, you know and if there is any other way I can do it."

Parents also worried about the long-term use of medication. Some were hopeful that, in the future, their child could function well without medication. However, others felt that their child will be taking the medication for the rest of their lives. Several parents responded in the following way to the moderator's question, " As you look down the road, with your children and medication, what's your goal?"

Parent 1: "Continue."
Parent 2: "Oh, I'd like him to be off."
Parent 3: "I would like my child not to be on."
Parent 4: "So would I."
Parent:5 "I would like to know that he can function without the..."

c. Side effects.

Parents' ambivalent feelings about medication also derived from their concern about side effects which included appetite suppression, mood changes, somatic complaints, and tics. Several participants reported that they were not prepared for potential adverse effects by their child's physician. The intensity of the side effects were frightening to some parents. One parent described her son's behavior after his last dose of stimulant medication had worn off in the following way:

"Coming off that Ritalin, it's rough...worse than PMS"

Some parents felt unsupported by the physician in dealing with these side effects, as exemplified by the following experiences described by two parents.

> "Just try him out (unintelligible) and just see how I like it. See how he acts with it. She didn't tell me anything about side effects, I just heard about them."

> "In a month, he lost a quarter of his body weight. He would not eat. And I kept telling them, 'Look, you're going to do something. You can't have this child not eating and constantly losing this weight like this.' I said, 'It's not good. What do you think it's doing to his body?' And, "Oh it will level out, it will level out." Finally, I flushed it. Basically, kicked (name of hospital) to the curb and went in the other direction. Now they refused to work with me or lower the dose, changing it, modifying it, working with someone else or whatever."

Parents reported that when a physician took the time to explain all of the side effects and how the medications worked, they felt much less anxious about starting the medication and much more in control.

> "And he (the physician) went through every little medication and what they did and how some of them helped treat depression and different stuff. And really explained the rebound effect like Ritalin and that."

d. Trying alternatives to traditional medication.

Searching for alternatives to traditional pharmacological treatment for ADHD also reflected parents' ambivalence about medication. Some in our groups reported using alternative substances prior to trying traditional drugs. As one parent said, "I wasn't ready for it, so I tried all the natural things." Another parent detailed their attempts to avoid traditional medication.

> "And I was a non-medication, non-medicated-oriented person, so we went through behavior modification, we did stars on the refrigerator, we did (unintelligible). We did the Feingold diet. My husband said, if you don't stop and give us real food, I'll..."

Other parents turned to alternatives after they or their child felt that the traditional medicine fell short in some way or as an adjunct to traditional medication.

> "Well first of all, my son was on Ritalin for 8 years. And, recently we've gone to some alternatives, which I'm excited about. The true test of them is when he starts school. Cause he's away for the summer. (Moderator: "Alternatives like?...) He's taking...we've been going to a herbalist and chiropractor."

Some parents, though were suspicious of alternative medicine, fearing that they may be taken advantage of in some way:

"One therapist that we saw suggested that my son get allergy testing. And, when I discussed it with the pediatrician, her opinion was that usually wasn't what was the problem. So I did not pursue that. But yeah, I guess that would have got into dietary kinds of things. I really didn't feel that whether he had sugar or not made a difference....It just seems too easy. I think they sound a little too easy to be true. Sounds more like they are selling something to me."

e. Medicine as a crutch.

A few parents felt afraid that their children would learn to depend on medication instead of taking responsibility for their own actions:

"So my husband's like, 'I don't like that. I don't want him getting the idea that oh this pill is going to do it. You know, you have to take a pill is what you need. It's not you, its not your... It's the pill that what's helping you.'"

f. Children's reluctance to take medication.

Parents also appeared to possess uncertain attitudes about drug therapy because of their children's resistance to taking medication. Judging from comments made by the group, this resistance stemmed from the children's idea that taking medication meant that they were different and because of adverse side effects or because of the way it tasted. Lack of compliance by one boy put a severe strain on the family as reported by his mother.

"It would get to the point that if he didn't like it, if his stomach hurt, he would hide it, not take it, lie, say he took it. So you couldn't believe him. And you can't believe anything he says."

Parents sometimes had to resort to extreme methods to get their children to take their medicine. One parent used the following pressure tactic every morning to ensure compliance.

"I threatened to take his shoes, and hold his shoes hostage."

4. Medication, though helpful, is not the whole answer.

It is very important to note that most of the parents agreed that no matter how successful medication was in reducing their children's symptoms, it was not the whole answer to treating the disorder. As one parent put it, "It closes the gap a little." However, in order to adequately treat a child with ADHD, they felt that they needed much more than medication alone. Here are two quotes emphasizing the need for multi-modal approaches to treating ADHD.

"Because the pill is just a very minute part of the treatment of these children. You need a complete support system: Counseling, diet, school, everything."

"I think the medicine is really a start. I mean there's a lot of work, a long way to go with... The medicine is a good start. It gives him the ability or the realization that he can

do the work."

B. Stigma of ADHD: "ADHD just has such negativity just trailing along behind it. And if we could change the public, the teachers, their perception of it, we could make it a long way."

Parents felt that ADHD is a disorder with a serious stigma attached to it in the community due to lack of understanding of the nature of the problems. Parents believe that others view the difficulties as one of lack of discipline or as a "behavior problem" which often leaves them feeling blamed for their children's problems. As a result, parents can feel alone in dealing with their children's problems and believe that no one else is able to understand what they and their children are going through.

1. In the community: "ADHD has such a negative perception"

Parents felt pressure from a variety of sources within the community. They felt the need to be on guard and to defend themselves and their child.

a. An "invisible" problem.

Again and again, parents stated that because their child with ADHD looks "normal," people are often less understanding than they would be if the child had some sort of physically apparent disability. Several parents called ADHD an "invisible disability," which resulted in a negative view by the community.

> "If my child could not walk, if my child was on oxygen. Right, mentally retarded–something visually wrong, they wouldn't resist it as much."

A particular concern for parents was the misunderstanding that others have about the variation in behavior that characterizes the ADHD child. They hear the next comment in many settings.

> "You see, he can do it today, and tomorrow he doesn't do it. Clearly, he's just not trying."

b. Unsupported negative statements.

A feeling of stigma also derived from unfair reporting about ADHD in the media. Parents often felt frustrated or victimized by these representations of ADHD or stimulant medication as illustrated in the following statement.

> "Every seven years somebody will come out with, you know, first it was the Church of Scientology. Somebody comes out with a huge negative about drugging children for behavior. It does make you think...right, that's what we're doing, we're drugging our children for behavior. But it just doesn't sound good on a headline"

2. In the family: "He's just a little whacked."

Negative reactions to their ADHD child and their parenting skills by family members also

contributed to parents' feelings of stigma. The brother of one child with ADHD used the phrase "He's just a little whacked" to describe his brother. This lack of support was experienced as extremely stressful.

a. Blame by family members.

Parents felt stung when met with criticism instead of support from family members. It was not uncommon for participants to report that grandparents and other extended family would blame them for not being a good enough parent, not disciplining well enough, or not accepting their children for whom they were.

> "I kept telling my Dad that he's got problems, "Oh no, you're crazy, you need *your* head checked."

b. Family members challenging need for medication

Parents sometimes reported that the decision to use medication met with opposition from family members. This experience of disapproval and reproach was quite painful because parents felt that they had struggled with the decision to begin using medication. For some, family relations were strained by these disagreements. One parent expressed her anger in this way.

> "To family members that have got into one of these rages about how horrible Ritalin is I've begun to say, "He's got a medical disorder. If he was a diabetic, you wouldn't think anything if I told you I put him on insulin. So, they shut up. He needs it, he has to have it to function. If he was diabetic, he would need insulin as much."

3. From professionals: "Marching to the beat of a different drummer."

For parents in the focus groups, stigma derived not only from the community and from their extended families, but, at times, from the professionals that they turned to for help with their child. This stigma seemed to be particularly frustrating and hurtful to parents, since they felt that professionals should "know better." In general, parents experienced the attitude of some professionals as implying that their children's behavior did not represent a significant problem but rather, as one pediatrician put it, merely "Marching to the beat of a different drummer." This attitude also conveyed criticism of the parent in at least two ways: parents are either overly concerned or lacking in parenting skills.

a. Parents are overly concerned.

Many parents reported asking for help from professionals and having their concerns dismissed. They were told that their child would "grow out" of the difficulty or that they were just overly concerned.

> "My son, he wasn't diagnosed until he was 14. When he was just little, I was taking him in and the doctor was there and I asked him, "Is he hyper?" "No, he's just a normal boy, normal boy."

b. Parents possess inadequate skills

Professionals' responses to parents' concerns often suggested that children's problems were a result of lack of adequate parenting skills. Parents felt demeaned when offered parenting skills classes or advice in response to requests to investigate what was wrong with their child. Some parents felt that this attitude had to do with their young age or their socio-economic status. Parents felt dismissed when professionals did not address the difficulties they were experiencing and often felt that they were being blamed for their child's problems.

> "They say, want to say that he is just an active boy. I'm just a young parent who maybe doesn't know how to deal with him. They sent me to a parenting school. I've been to school, I have a degree. I've taken a lot of behavior classes, I know... But they don't want to hear that."

The negative stigma and reactions from professionals appeared particularly damaging to parents, reducing trust in providers and making them more wary about seeking treatment.

4. In School. "Bad children."

Negative perceptions of ADHD were felt most strongly by many parents in dealings with school personnel. Rather than viewing a child with ADHD as in need of extra help and support, parents often felt that teachers often dismissed the child as "bad" or as a "behavior problem" and/or blamed the parents for the child's difficulties. Members of the focus groups mainly complained about two general misperceptions expressed by school staff.

a. Misunderstanding ADHD and its treatment.

Parents often described teachers who labeled a child's difficulties in the classroom as behavior problems, unrelated to ADHD symptoms. As a result, they were shown less tolerance and given less assistance than other children. One parent described the long term effects of this labeling.

> "And once they label it's behavior, they go through the rest of the year, it's a behavior problem. Bad children. They can't be taught. Labeled....And then they go to the next year, same thing. He was a behavior in the 6th grade, so in the 8th grade, he's still a behavior problem. Anything that goes down, they're blamed for it."

Another parent's comments show the frustration that derived from the immediate negative response that she believes ADHD elicits in the school system.

> "It's a medical problem and a lot of the people in the school system do not understand that it is a medical problem. They automatically go, "ADD, this child is going to give us a lot of problems, etc., etc."

Many of the parents had experience with teachers who did not "believe in" ADHD, feeling that it was not a valid entity. This lack of acknowledgment felt discouraging and stigmatizing to one parent.

> "She (a teacher) didn't believe in ADHD. Here's the woman working with children with special needs who would actually articulate to other parents that ADHD doesn't exist."

Some parents found that the use of Ritalin led teachers to assume that the child has behavior problems:

> "They have become so stereotyped that Ritalin...your child has Ritalin, it's a behavior problem"

b. Blaming the parent.

Parents described feeling that school staff blamed them for their children's difficulties in the classroom. Messages from teachers implied the need to change things at home in order to improve performance at school. Parents were frustrated because they felt changes needed to be made to help their child adjust to the school environment. Parents sometimes felt that it must be easier for teachers to blame the parents than to make adjustments in their classrooms to accommodate a child with ADHD or to investigate what is underlying the child's behavioral difficulties.

> "But I think if they are having discipline problems with kids, they ought to have to check that kid out to see if something is going on beside the behavior problems. Because that should be the red flag. Say, 'What's going on? Let's not just blame the parent.'"

C. Burden of ADHD: "People don't realize how little quiet ADHD parents get."

One of the most potent messages to emerge from the focus group discussions was the staggering costs, in terms of emotional well-being, stress, time commitment, energy and effort of ADHD for the child, family, providers, and community.

1. Parent Burden: "We need a camp for ADHD parents"

The burden that parents carry invades and dominates every part of their life– relationships with family and friends, work, their interaction with the community, and their own emotional state. The sense of carrying a weight was captured by one parent's response to a discussion of the lack of resources for their children. She blurted out, "We need a camp for ADHD parents!" Several aspects of day-to-day demands of child-rearing appeared more arduous with an ADHD child. These included role strains on the family resulting from demands of the child, interruptions in the family's normal routine, and the need for closer than normal supervision of the child.

a. Living with an ADHD child:

At times, parents just felt overloaded. They are devoted to their children but the demands could engender a feeling of helplessness. Parents talked of the feeling of just wanting to hide. One parent commented,

> "But you know what it's like. He's just angry, he's just frustrated and he says that. He doesn't say it to anyone other than me. And so, I have a tendency to lock myself in the bathroom just to get away from him."

Another parent summed up the conflicting feelings of living with an ADHD child.

> "He's the joy of my life, but there's a love-hate relationship going on almost daily. You know you love them but you could just slam dunk them sometimes"

In perhaps the funniest statement of all, a mother responded to a question about the strains that ADHD children put on marriages with the following quote,

> "My husband and I are together because neither one of us wants custody of the kids."

b. Dangerousness

Parents emphasized the need for supervision to avoid possible physical and emotional harm deriving from the impulsiveness of the ADHD child. This unpredictable behavior kept them on edge, and the watchfulness was sometimes misunderstood as overprotectiveness. After describing an incident in which her daughter stuck an electric toothbrush in a Nintendo machine to "clean it", a mother continued,

> "..I said, as parents, we would never forgive ourselves if something else had been attempted because she's putting her life in danger. And we can't get there, and (physician's name) had written, he gives you a copy of his, uh, assessment, that said about the mother being anxious. Yes, I'm anxious, when you live around her and see the things that she's done it's a wonder she's still living. You know? (Laughs)"

In a similar fashion, a father remembered that it was often necessary to physically restrain his 5-year-old in a store,

> "So I had a hold on him all the time so he wouldn't be all over the place, whereas (mother's name) couldn't, so he was more out of control for her. We even had feedback from a store that I went to often with him, and later on when I was walking around with him, they told me that they thought he was handicapped in some way because I carried him for so long." (Laughter).

c. Vigilance.

Although monitoring of the ADHD child's behavior to avoid injury was stressful, parents also reported the need for a vigilant stance in order to carry out every-day tasks. Getting the child ready for school in the morning, for after school activities and for bedtime as well as supervising homework and peer interactions required constant attention, interfering with other necessary family activities. One mother's description of the beginning of her day struck a chord with many.

> "And these kids need, well, I'll speak for ours, he needs structure, when he used to wake up at 5:00 in the morning you could hear his feet hit the floor, and I can remember the feeling like (gasp), here I go. I'm on duty. And until he lays down at night, you needed to structure, just, OK (child's name), we're gonna do this for 5 minutes. I was *always* giving him 10 or 15 minutes planned. I mean, all his waking hours."

Monitoring homework can be a nightmare but needs to be done. One mother was filled with dread as the time to help with homework approached:

> "And I can just feel myself get tighter and tighter the closer that I'm getting to the dishes done, I'm like dragging my feet, thinking one more cup of coffee type thing, and I *hate* helping her! I don't know any other way to say it, I hate it. Because before we're done, I am..I"m really thinking I could use a beer or something (laughter), Prozac, something for Mom, because you're crazy!"

Again, parents met criticism for their vigilant attitude, but they felt that others did not understand the needs of their children. They believe that without this attitude, their children's lives will suffer.

> "A lot of times, my friends and relatives accuse me of being to rigid or too stern. I have to expect 100%, if I get 75%, I'm happy. If I set it at 50% and get 25%, I've really failed. I want him every single minute. Sometimes I feel bad for him, "You must feel I'm the mother from hell, sometimes." We have to teach them to live in our world. We love them, the world doesn't really care about them. Because we've had to fight for every single thing, no matter how minute."

d. Isolation

The sense of fighting a lonely battle permeated the comments of parents in all the groups. Their greater need for oversight, their children's difficulties navigating social situations, their inability to find suitable child care lead to feelings of isolation. This idea of parents and ADHD child against the world comes out in the next two quotes.

> "These children don't sleep real well, not good sleepers, so the parents...they're pretty much up with you and in bed the same time as you so actually, even as a couple you have no alone time. You feel guilty asking someone to babysit, you know they're gonna have

their hands full. You know, you wanna get out, but it's like... (laughs)"

"...you know when you go out to eat, you can't give them their pill because then they won't eat and they're hungry so then they're wild at the table, and people are looking at you like why can't you control your child and they are giving you dirty looks because they don't understand. Makes you... you don't want to go out in public unless they have their medicine."

2. Teacher Burden: "...its the ADHD kid that breaks the straw. That's the one that does them in."

We did not conduct focus groups for teachers who deal with ADHD children. However, it was apparent from the parents' comments that they were aware of the burden that teachers are under when their classroom contains children with ADHD and other disabilities. Parents did not feel that this burden reduced the responsibility of the school system to educate their children in appropriate ways. However, they communicated that they felt that teachers were operating under a disadvantage because of lack of knowledge and support.

a. Teaching the ADHD child

Parents felt that, with a few exceptions, teachers tended to see an ADHD child as a problem rather than as a challenge to be met. From their experience with the school system, participants tended to agree with a parent who stated,

"Teachers do not want to be bothered with kids that are not normal kids."

Many in the focus groups reported that schools tended to appeal to the fact that their teachers cannot provide the interventions that parents feel are needed for their children because of their responsibilities to the other children in their classrooms. Here is an example of the kind of response that parents reported getting reflecting the teacher's burden:

"It really is, it's a constant battle. It's like the anxiety shifts now that school's starting. I'm already thinking about the meeting that I have to go in and face all these teachers again, and sit there and have one tell me, 'well, I'm sorry, but I have 120 kids that I am responsible for.' And it's just like sitting there and talking to a deaf wall."

The message that teachers are overburdened is understood by parents of ADHD children. Although often upset at the lack of follow-though on plans (e.g., homework checklists), parents still recognize the tough job that teachers face. Note this exchange.

"(Parent 1) And the truth is, is that the teachers are underpaid and overworked.. (Parent 2) They're frustrated. And they don't feel like... (Parent 3) And I agree. There should be a minimum class size and they should make more money."

Parents see the burden on teachers as a systemic problem. As one parent said,

> "Schools, especially public schools, are so overburdened right now and that was my opinion, they are just gonna shove them off and that's going to be the end of it."

b. Lack of knowledge and training

Besides large class sizes, parents feel that the burden teachers feel from ADHD children reflects a lack of knowing what to do. They reported often that teachers seemed to know little about ADHD and had received little formal training to acquaint themselves with the characteristics of and problems associated with this disorder.

> "But, they (teachers) are not required to take it (training sessions of ADHD). They don't and they don't find out about it and it perpetuates all that bad stereotype and that's the way that they've dealt with it."

More importantly to parents, teachers do not seem to be aware of techniques to help children with ADHD in the classroom. A teacher possessing practical knowledge of ADHD and support from the school in applying it was an unusual circumstance in the experience of parents in the focus groups.

> "Teachers want to help, but I don't believe, this might help you, I don't believe that they actually know how to help."

> "I think some of the training that is necessary is not just to be aware of it, but how to adapt a ADHD child to your classroom. A specific, not just be aware that they exist, and say 'now they're trained,' but training that is going to show them how to integrate that kind of a special ed problem into a classroom without disrupting the whole day. It is possible. And we've mentioned, every now and then you run across and teacher who can do it. Maybe they should be singled out and teach some of these classes on what techniques work for them."

Some parents felt, however, that the teachers' burden was increased by a reluctance to put forth the effort to implement classroom interventions. One parent said,

> "They don't want to change their style of teaching."

> "Teachers are the first professionals to diagnose and the last to treat them."

> "...It's only here that the teachers don't work with you at all. ...Yea, because here, they act like it's the kids fault that they can't learn. "

c. ADHD kids mean extra work

Besides the extra effort needed to manage ADHD children in the classroom, teachers are also burdened by the out-of-class work that accompanies children with special needs, including a great deal of contact with parents.

> "I called the principal finally one day and I said, ' how do I get a teacher to help? What do I do? What am I saying wrong?' And he admitted, he said, 'It's not you, it's them. They want parent-teacher participation, but they don't want to do anything.' So I had one teacher finally called, and she yelled at me for a while and I just let her yell. And I finally said, 'you know, my daughter has one chance at an education, and this is the place that I have to send her.' So, I didn't have a lot of choices."

> "But it takes a parent to be a tyrant, on their rear ends constantly"

3. Professional Burden: "I had gone through many pediatricians till I found one who would listen..."

The ADHD children in this sample were most frequently treated by pediatricians. In a busy practice, such children are often considered "high maintenance" patients because of the need for regular monitoring, contact with teachers and other providers, and the presence of associated symptoms which complicate treatment. Parents felt it was important to find a pediatrician who was willing to spend more time with them. However, to provide needed services for an ADHD patient sometimes demands time commitments and a level of involvement that goes beyond the bounds of the pediatric practice increasing the sense of burden. However, it is clear from the two quotes below that physicians who went the "extra mile" were appreciated a great deal.

> "Well, I have a friend who is a pediatrician and I was talking to him about it and he said, 'well, I'll just go in and sit and see what he is doing.' So he went in and sat with my son in second grade, and he came out and said, 'I have no idea how he's getting As and Bs. He never sit still for 5 seconds.' He timed him."

> "I told the pediatrician about the outcome of the last ARD meeting and he went ballistic. He said, "tell me next time. This is my day off, and he told me what day of the week he was off and make all of your meetings on that day. I will be there." He said "your child, they've got to help him, they've got to accommodate." Because, you know, they just, they have to."

D. Parent as Advocate And Expert: "You need to stay on top of these teachers, these professionals, you need to be educated, you need to know what's going on and you need to know your rights."

Parents in our groups felt that ADHD is often misunderstood and that others who deal with their children are often under- or misinformed. As a result, many stated that they believe it

falls on them to carry out a "crusade" for their child. They feel that they know their children's problems best because they have been dealing with them for a long time. This "expert" status is not always recognized or appreciated.

1. Need to be on top of things. "I'm majoring in ADHD."

Many have taken it upon themselves to investigate as much as they can about the disorder in order to help their children. One parent said, "You have to like major in it. What are you majoring in? ADD, I'm majoring in ADHD." Therefore, they feel that they should be taken seriously in dealings with physicians, teachers, and counselors. The need to be "on top of things" was evident in several ways.

a. Latest information

Parents who attended the focus groups varied in their level of expertise concerning ADHD. For some, often those whose child was only recently diagnosed, the experience was a learning one. Other parents in the group possessed a large amount of information gained from a variety of sources and gladly transmitted it. One of the latter group detailed her search.

> "I go to all the PTA meetings. I couldn't go to the last CHADD meeting that I wanted to, a speaker, I couldn't get there. My husband is bringing stuff home for the Internet. I go to the library. I have three milk crates at home full of files and charts, articles, and everything."

Although consumer groups such as CHADD can provide a wealth of material, parents appeared to obtain their information more from their own research and word of mouth.

> "One of the things that we've found locally that has been the most helpful is we've really sought out our own training. Done alot of reading on our own...You know we have the benefit of access to some things just resources to learn it. I don't even know how you would learn this stuff. There is nowhere that is really teaching people how to structure their kids' lives."

b. Diagnostic thoroughness

The process of finding out what was "going on" with their child was often a frustrating experience for parents for several reasons: (1) difficulties in distinguishing normal developmental variation from significant problems; (2) different opinions from different providers; (3) confusion with learning disorders; and (4) a reluctance to admit that a problem existed. These difficulties were the trigger for many parents to begin their own education surrounding ADHD. One parent described this process as "...trying to cover every base." The uncertainty surrounding the diagnosis also prompted a wider search and more opinions.

> "I wanted confirmation from everybody. If one person said 'try a dead chicken routine," I would have tried it. I've gone the homeopathic route. You name it. Take him anywhere,

> I'm going to do it. If there is a glimmer of hope. So I just wanted to make sure that I was leaving no stone unturned."

> "I had done an awful lot of reading, and, from the time he was a toddler, I knew, even though his pediatrician would say, "Oh he just marches to the beat of a different drummer." I'd say "Oh no, no. There's more to it than that."

Often, parents who had done a lot of background reading objected to diagnostic decisions that were made without proper assessment and without consideration of their input.

> "Then, during first grade, when we had (child's name) teamed at the school, I met with the school psychologist who had never met my child, and he said the reason your son is having behavioral difficulties in the classroom is... I said, 'excuse me, the teacher just spoke and said, in first grade he is not having any behavioral difficulties. Have you ever met my child?' And he said, 'No, but children with ADHD...' And I said 'No, (child's name) is not children with ADHD, he's (child's name).' And I wouldn't have him test him. So I had outside, psychoeducational testing done, and they agreed with the pediatrician and with myself that is was most likely ADHD."

c. Therapy

The necessity of gathering as much information as possible spread to the search for appropriate therapeutic interventions as well. Only a small minority of parents had sought counseling (e.g., individual therapy, family therapy, child groups for social skills); however, they tended to be "informed consumers" and were vocal in their opinions as to what they felt was needed. One parent who was a mental health professional said,

> "I'm an advocate for shopping around until you find the right person that you feel clicks with you and understands you"

Another parent was disillusioned with therapy because the focus was on informing he and his wife. He felt strongly that they were knowledgeable advocates.

> "...the way I look at it, I read a lot; I knew already anyway. The fact was that he needed more time than they were spending with us. This was like over a year period of time, not talking about one appointment. It's like this all the time. Every appointment. And he wasn't getting anything out of it. He was sitting there listening at the door.

Sometimes, parents, like the mother quoted below, felt that they were the ones who could provide help because the were the most knowledgeable.

> I guess with the ADHD, there still weren't enough people around who really understood it or knew it. So, it sort of had to come from home. Educated myself, so I could help my

kids through that....I think trust was an issue after getting burnt by the system. I wasn't going to put it in someone else's hands

d. Medication

Most of our parents were very involved in medication management. One father stated, "Me and my wife are very active watching him and watching his medications." There was a sense that their input should be critical in determining modification of protocols. They appreciated physicians who respected their judgement.

> "It was fine, Dr.xx is real good, I mean he is so attentive to it. If I tell him that the dosage isn't quite right, you know he listens to me, he understands I know what I'm talking about."

> "So I constantly ask their opinion. I kind of do sidewalk consults with all these docs that I work with. And you know, "This is what Xxxx's doing now, anything new?" "Well try Clonidine." I go back to the pediatrician. "Well, somebody suggested we put him on Clonidine." "Well, I'm not comfortable doing that." So, off we go to a psychiatrist, and the psychiatrist does that."

At the same time, parents also voiced some mistrust of physicians, exemplified by the following quotes. This feeling seemed to stem from a lack of confidence in their expertise and their thoroughness.

> "Well, I don't trust the doctors. I've learned...I've been to enough of them over the years. When they say, "Here, experiment with this and what time, you know, how much you take, well try this, you know."....They have no experience. They don't have children that are ADHD that have these problems."

> "You have to watch, they changed my daughter from Ritalin to Cylert, somehow, they didn't even write it on the chart, so when I went back up, you know you have to go get it every month, they can't call it, you know, it's a specific drug, they, I said, well, you didn't change this. I mean that kind of concerned me, they didn't even change that on her chart. So you kind of have to watch over your shoulder all the time."

e. School Interventions

Parents felt most strongly about their need to be a tenacious advocate for their children in the school system. At the same time, this was the arena where they felt they received the least amount of respect for their efforts. The kind of effort and investment that parents expend is exemplified by the following quote.

> "I do think it would be great if between the teachers and the parents there was more educational, continuing educational things for them to work together, like how I said, if

> you're lost, you better find your own help because that's the structure, the organization, the behavior plans, teaching the child to be organized, double checking them, no body tells you that, it's just, you have to figure it out. And I think all those things keep your child from being so miserable day in and day out."

Parents made it clear, however, that the school often did not appreciate their efforts or that they felt that parents were overstepping their bounds. This lengthy episode shows the frustration that parents often feel as their advocacy is belittled.

> "1st day of 1st grade, she came home with um, spelling words, and there was gonna be a test on Friday. And, so now I um, lets see, I guess I would have been 40, and so I called the school because I knew the teachers would still be there and I said, (teacher's name), spelling test? (Child's name) doesn't even know the alphabet. I said, let me tell you I'm not, I didn't know this teacher, she was new, I said, I'm not a 21 year old mom. I've been there before. I said I just can't see me working with this kid and teaching her these words because it's not gonna happen and I know it. She said, oh mom, don't overreact here. A lot of kids can learn to read and spell and they don't even need to know the alphabet. I said, well, I am not overreacting, I am just asking you, I know something is not right with my child. Please don't wait until the first 9 weeks and then call me in. Please don't do that. So, 2 weeks went by and she called and she said you're right, I'm wrong, can you come see me?"

Some parents also report feeling that the school is not doing their part in carrying out the interventions, instead putting the responsibility back on the child or the parent.

> "She wasn't bringing papers home, we found out about her major report she had to do, what, a month before she had to do it, the rest of the kids had it for 3 months. I had even asked the teacher, I gave her a folder, I said this is what her papers go in, she puts (the child) in charge of it. And the whole ideal of it was for the teacher to put (the child's) handouts in that, (the child) would get it at the end of the day and bring it home."

E. Need For Compassionate Cooperation: "Because it's just like anything, if they understand what's going on at the beginning, you've got a much better chance of your kid not getting scapegoated."

The diagnosis of ADHD requires that key symptoms must cause impairment in functioning in two or more settings. The implication of this "pervasiveness criterion" is that an effective program must intervene in several areas of the child's environment. Many parents felt that their burden was increased by the need to initiate and coordinate the different aspects of their children's treatment themselves. They needed to push different professionals to communicate with them and with each other to pass along information. Parents reported that the need for understanding professionals and treatment that was better coordinated among the key aspects of their children's

life.

1. Cooperation with school: "But all's I want is a compassionate teacher."

Judging from the amount of time spent on school issues in the focus groups, problems with academic progress and behavior management dominate the lives of parents with school-age ADHD children. The need for increased coordination and compassion seemed most vital in this arena, and is reflected by this parent's eloquent plea:

> "Well it seems to me that what we have here is an epidemic and very widespread and it needs to gain local, national, attention with school, administrators, teachers, parents, and so everyone's on the same even keel, and education may be the key here.

a. Need for coordination

As exemplified by the preceding quote, parents viewed school as the most important site of intervention for their children since so many of the child's difficulties occurred in the school setting. When the school would not work with them in coordinating services, parents felt frustrated or angry. One mother reported, when talking about her child's school:

> "They have a way of making you feel like a bad parent....Well, I think that you have to realize that you're not a bad parent. And you go in there, your child is not a bad child, and there's definitely something going on. And you have to go, "Whoa, you're teachers. I'm a parent. Let's get together on this." That's what we had to do."

Another mother reported that she had tried to set up meetings with her child's teachers during the summer so that they could have a proactive, cooperative plan in place to manage the child's difficulties. She found the school was unresponsive to her attempts and instead took a more crisis oriented approach, calling her in when they were having difficulty with the child:

> "I went to school and I guess I was scared, I was upset, and I just went in wild and I said "Hey, I tried, we tried all summer! Don't be calling me from work and telling me that you can't put up with this child's behavior. I wanted to have a plan so we could *know together* how to deal with this behavior!!!!"

Some parents just wanted information from the school and guidance in navigating the diagnostic and treatment process.

> "At school they recognize it (ADHD) and I think they should help parents, along with the pediatrician, find the resources they need to get this kid diagnosed properly and treated immediately."

When parents found a school setting that would actively coordinate the child's education and

treatment, they seemed to feel a deep sense of relief and appreciation. One parent reported that her child's school keeps her totally informed or her child's progress and expectations:

> "They'll call me at home and say he seemed a little bit odd about this kind of thing. Or something happened. They just keep right on top of everything. They seemed to really...they jump in. They took the initiative rather than me having to go to them and say, "Oh, how about this, or can we try, what about this? What do you think we should do. Should we do this and this and this" They'll come to me and say, "We're going to be having this, we're going to be having that. Your grades going to be a part of that."

Another parent found relief in the automatic coordination that comes along with having a child in a Level V, non-public placement with intensive, coordinated services all under one roof:

> "Everything is contained within the school setting. You have your family therapy, you have the psychiatrist, social worker, and he had seven kids in his class, 8 including himself with a teacher and a full time aide. And his class is large. You can't beat it."

b. Need for compassion

Parents agreed that a compassionate teacher could make all of the difference in their children's lives. One mother went to the school before she enrolled her son and asked them for help from the beginning:

> "And I told them, "Look, I'm really (unintelligible)...single, you know, trying to do the best I can. I really need some help. Help guide me." And they said, "Oh we'll take him with open arms." I haven't had a problem."

Parents report that particular teachers can really have a huge impact on their and their children's lives, as this father points out:

> "What happens is, every once in a while there's a gem, a teacher is there and knows how to do it and you just say, "wow, we're going to have a good year." And then the next year if you get somebody who doesn't want to do those things or doesn't know how intuitively to do it, you just pay the price, and the kid pays the price. Our son paid a heck of a price. In our experience you just hope that you'll make it through that year without too much damage."

Parents also report feeling that they need to have a teacher or someone "on their side" that is willing to work with the child and the parent:

> "When you are an ADHD kid, they are so sensitive, they want somebody who's really gonna to know them, not just tell me what to do.... (Facilitator): When you have a teacher or somebody... (Parent): ...On your side. Even if it is just one, even if you can just get

one. I got my younger son early enough that every year I've got one teacher on his side that we can work through it."

"But that teacher, working with me, really helped turn it around. There are some very exceptional teachers."

2. Cooperation with therapists

Some parents found support and compassion through a therapist to help them and their children. However, this was rare in our sample of parents. In fact, non-pharmaceutical interventions often seemed an alternative rather than an adjunct to medication. One parent reported enlisting the help of a therapist because of the amount of attention a child with ADHD needs and the amount of energy that the parent must expend in getting the child services. She said, "You need someone else to parent your child." Another parent also reported a great relief in finding a therapist who understood what kind of help she needed with her child:

"Dr. (a psychologist) had a child like (child's name) and he knew what I was going through. I mean, I could have kissed the man!! I found somebody that understands!"

Sometimes parents felt like a therapist was their only source of support:

"In my situation, I'm a single mom also. And my family is not supportive at all. Never has been. The only person I could turn to and talk to is the therapist. And coworkers, people I work with at work have been great."

3. Cooperation with the community: "We are left dangling in the wind a lot"

Parents also felt a need for more activities outside of the child's school or therapy appointments. They often felt that their children were excluded from the "normal" activities available in their communities:

"That there are people out there just like you with the same hopes and, you know, wanting, the same thing for their children. We want for our children, what all the quote-unquote normal children have that we just don't have access to. Even regular little summer camps, a lot of them will not take kids who take medication. So we are just left dangling in the wind a lot. Having to come up with resources on our own, through hit and miss. And it's not fair."

Some parents felt that excluding the child from outside activities such as sports was having a negative impact on the child's development of appropriate social skills:

"(Child's name) was into sports, but in school, if you weren't doing well in school, you weren't able to participate in other things so he wasn't getting out his anger and

aggression and the rest."

Another father agreed:

> "Some ADHD kids are good enough to make the team, but some of them are not or they get held back. When you're trying to build a kid's self esteem and skills, they've got to go hand in hand. These kids start on a deficit model because they're getting held back in school or they're not right, they're already singled out but then they can't even play. And they don't learn how to play. They don't learn social skills."

Some parents found the only support they felt in their community to be through organizations like CHADD, which is and advocacy, information, and support group for parents of children with ADHD. This mother, when asked what has been to most helpful to her, replied:

> I guess I'd have to say CHADD. Valuable information. When those meetings (unintelligible) like, I can't wait for the next one. You come away with a whole months-worth of headaches, I shouldn't say headaches, problems in the month, and you realize that everybody else is just (unintelligible). It's just not you. Makes you feel better.

SUMMARY - LESSONS FROM LISTENING

The focus groups met their stated purpose which was to provide a way to tap the opinions and feelings of parents of ADHD children. By listening, we heard several important messages, quite consistently across groups, that reoriented our thinking about this complex disorder. First, parents viewed medication in generally positive terms but clearly communicated ambivalent feelings about its use. Second, in statement after statement, parents communicated to us the weight of the burden that their ADHD children confer, not only on them, but on others who care for and teach them. Third, shouldering this burden demands vigilance and a position of advocacy; to function best for their children, parents feel the need to carefully monitor all aspects of their children's life and to be informed, pushy, and persevering in the face of numerous obstacles and frustrations. Finally, the burden is reduced for parents when they sense that others appreciate their level of suffering and when they join with others who work with their children in a spirit of cooperation.

I. Opinions concerning medication

Parents almost universally viewed medication as an important tool in the treatment of ADHD, although many wished that they did not have to use it. Most hoped that their children would be able to discontinue its use by developing skills to compensate for their difficulties. Some parents expressed ambivalent feelings concerning the use of medication, resulting from fears of untoward effects, stigma, worries that children would use it as a crutch, and a desire to us more "natural" treatments. There was no sense from these parents that stimulants or other drugs were

overprescribed. Instead, concerns were expressed over specific drawbacks of medication (e.g., uneven course of effects), seemingly random changes in dosage and medication type, negative side effects, and lack of communication with the prescribing physician. A resounding message was also that medication was not the total answer to the ADHD child's problems. Rather, it was seen as an important tool but only when used in conjunction with other interventions to lower the burden of the disorder on the child, family, schools, and providers.

II. Burdens of ADHD

The sense of burden permeated the comments of the four groups of parents. This is in keeping with other findings (Beichtman, Inglis, & Schachter, 1992a, 1992b) that externalizing disorders, ADHD along with other Disruptive Behavior Disorders (Oppositional Defiant Disorder, Conduct Disorder), produce the greatest burden based on their prevalence, severity, stability, and impact on individual, family, and community. From the comments of parents, the burden of ADHD results from a variety of sources including community stigma, stresses of being on guard because of the impulsiveness of the child, the need to monitor social and academic activities, lack of community and family support, family conflict, and enforced isolation. Judging from our experience, the level of burden and the response of parents and caretakers to the burden may have major significance for outcomes of ADHD children. Although little research exists in this area, recent studies have shown that increased levels of family-environment adversity, particularly family conflict, was associated with impaired psycho social functioning in ADHD children (Biederman et al., 1995).

Although parents were the sole voice in these focus groups, their comments also reflected the wider burden of ADHD. Teachers are confronted with a variety of challenges including engaging children with less ability to be engaged and directing children with greater tendency to resist direction. These challenges are complicated by a higher prevalence of learning disabilities and other behavioral and emotional problems. They also demand a greater degree of out-of-class time and activities, greater contact with parents, and alterations in their usual way of teaching. Parents are frustrated with the lack of response of teachers but also realize the weight of the teachers' burdens and the lack of training and support available to meet these demands.

Judging from the parents experiences with prescribing physicians, treating the ADHD child involves significant demands which their practice style has difficulty accommodating. Parents want their physician to hear their concerns and confusion about the diagnostic process, to conduct comprehensive evaluations, to provide advice on behavior management, school issues, family conflict, as well as to carefully monitor medication. Two recent surveys of physicians who treat ADHD children noted that the poor rate of reimbursement is a deterrent to taking requisite time to care for patients with ADHD (Kwasman et al., 1995; Moser & Kallail, 1995).

Comments by parents also implied the sense of burden that their ADHD child carries above and beyond dealing with the core symptoms and associated problems. They often are shut

out of activities such as boy scouts and sports teams. Their lives are restricted by the increased need for structure and their parents vigilant attitude. They carry labels like "bad kid" and often engender negative comments from adults and peers.

III. Need for advocacy

A significant aspect of the burden that parents carry is the need to be an advocate for their child. It was clear to nearly all the participants that they needed to develop a "siege" mentality to get needed help for their child. Our sense was that there was a developmental progression towards advocacy that was similar to stages identified in families dealing with members with severe mental illness. There is first a stage that could be called "*What's wrong*?" This occurs prior to diagnosis and involves rationalizing ("he's only a boy"), anger and stress over the symptoms, and finally a search for information and support. Once a diagnosis is achieved, a stage of *Recognition* occurs when the behaviors can be finally labeled. A range of emotions can occur at this time, including relief at finding an "answer" and guilt over prior responses to the child's problems. A critical stage then ensues that can be labeled *Coping* and involves adjusting to frequent crises and disruptions as well as the development of despair and pessimism as the chronic nature of the disorder becomes evident. The family's response at this stage appears critical in adapting to the burden of ADHD. Parents who are most successful seem to move into a stage of *Advocacy* which involves increased assertiveness, decreased self-blame, and efforts to change the system at all levels. As we note in the Recommendation section below, helping parents move toward such an advocacy position may have important effects on outcomes for ADHD children. Although these stages appear to represent a developmental progression, it was our feeling that parents often shift back and forth between different stages depending on external events and as their ADHD child met new challenges at different developmental and academic stages.

IV. Needs for Acknowledgment and Cooperation

Strength, self-confidence and a sense of mastery derive from an advocates stance. However, it was clear from out parents that their crusade for their children is helped markedly by an acknowledgment of their burden by others coupled with a desire to collaborate and cooperate. The message was simple and direct. The genuine feelings conveyed by teachers, therapists, providers, and other in the community was just as important as the content of the interventions.

The need for interventions aimed at different aspects of ADHD children's life (e.g., school performance, family life, community activities) and the coordination of these interventions was a strong message that emerged from the focus groups. Parents understanding of the comprehensive type of treatment strategies needed to make effective progress with ADHD children is in keeping with an emerging literature indicating that single treatments alone are unlikely to yield long-term, clinically-significant gains (Satterfield, Satterfield, & Schell, 1987)

RECOMMENDATIONS

Listening to parents participating in our focus groups allowed us to recognize that we may need a *shift of emphasis* in the way that we approach the diagnosis and treatment of ADHD in school age children. There is more research by far conducted on ADHD than any other disorder affecting children and adolescents, concentrating on topics such as diagnostic reliability and validity, neuropsychological and neurobiological etiologies, medication effects, and specific therapeutic interventions. However, according to our parents, these topics do not have as much relevance to the day-to-day functioning of ADHD children as the stresses and burdens that accrue to their families, teachers, and providers. What we heard from parents and evidence from recent surveys (e.g., Hoagwood, 1998) reveals a disturbing trend in the treatment of ADHD that suggests *less* rather then more effective interventions. Although the amount of medication dispensed has increased over the last 8 years, the provision of psycho social interventions and support services has generally declined.

Oddly, this change in care has occurred amidst calls for a broader model of intervention for childhood disorders (Hoagwood, Jensen, Petti, & Burns, 1996), moving away from a major emphasis on symptom reduction to including general adaptation, consumer perspectives (e.g., quality of life, satisfaction with care, family strain), environments (aspects of home, classroom, neighborhood, availability of social support), and systems (use of services, accessability, coordination, and costs). The focus group findings point to the need to develop interventions that directly address these broader outcomes. We need to expand our focus to a more systemic level, particularly within the Health and Education realms, to have impact on this major public health problem. Care has tended to be in pieces, concentrating on symptom management. We have neglected the pain and management needs of families. We feel that there is a strong need for support and cooperation to reduce the burden on all involved in the ADHD child's life. Maryland has the opportunity to be a leader in this effort. Recommendations to begin to reduce stigma and the burden of ADHD on parents, teachers, and professionals as well a to develop coordinated, compassionate interventions to benefit ADHD children in this State.

RECOMMENDATIONS

A. System Level Recommendations

Evidence from a variety of sources suggests that ADHD and its associated problems represent a major public health problem. It is one of the most common disorders of childhood and adolescence and it creates significant burdens on individuals, families, and systems of care. Yet, there are few examples of system-wide initiatives to address this problem. We need to take a cue from one of our parents and begin to design more comprehensive responses to this problem.

> "Well it seems to me that what we have here is an epidemic and very widespread and it needs to gain local, national, attention with school, administrators, teachers, parents, and

so everyone's on the same even keel, and education may be the key here.

1. Develop consistent guidelines for assessment and intervention of ADHD within the public school system.

Parents were frustrated and confused by the response of school systems to the difficulties that their ADHD children present academically and behaviorally. Factors which lead to this frustration included (1) the wide variations in knowledge base concerning ADHD among school staff; (2) lack of adequate assessment and referral procedures; (3) confusion as to how to address the difficulties that ADHD children possess within current IDEA (Individuals with Disabilities Act) guidelines; (4) lack of effective classroom interventions and/or difficulties in implementing such interventions by teachers; (5) lack of consistent monitoring of the implementation plans developed for ADHD children; and (6) lack of involvement of parents in the decision-making and intervention process. Recently, the State Department of Education revised their Learning Disabilities Handbook. Although ADHD issues were considered, they dealt mainly with the overlap with specific learning disabilities. Given the high prevalence of ADHD and the burden it places on teachers, administrators, and parents, a Task Force to develop specific guidelines and best practices for assessment and treatment needs to be established along with a dissemination plan. Based on the process used to revise the Learning Disabilities Handbook, the Task Force should develop procedures in the following areas:

- Appropriate and operationalized assessment, evaluation, and diagnostic procedures
- Effective team processes
- Effective Individualized Education Programs (IEP)
- Monitoring the implementation of the IEP goals
- Specific classroom intervention and adaptation strategies
- Classroom management procedures
- Alternative or altered methods for evaluating student performance
- Family involvement and coordination between home interventions and school interventions
- Increased sensitivity to the parent's and children's struggles with ADHD (reduction of stigma)
- Interventions at individual, family, classroom, school levels and incorporate behavioral, academic, and socio-emotional functioning
- Teacher and staff education about ADHD on an ongoing basis
- Formal teacher training in ADHD as part of their core educational curriculum
- The impact of ADHD on the learning environment
- Establishing and maintaining effective collegial and collaborative relationships with outside professionals involved in the care of the ADHD child

2. Mount a public awareness campaign

The sense of stigma that parents expressed resulted, in part, from misperceptions and misinformation from the media and from word of mouth. Negative perceptions would be helped by a coordinated, accurate campaign to provide balanced information about ADHD and its treatment. In addition, parents' reports and other surveys indicate that lack of information represents a major barrier to care. This campaign should also work to increase the availability of community activities for ADHD children and their families.

3. Prioritize the development and dissemination of "best practices" information for ADHD and encourage innovative interventions.

There are great costs and burdens felt by families, teachers and others involved in the care of children with ADHD, yet parents felt somewhat pessimistic about the range of treatment options available to them. Therefore, new initiatives are needed, developed though collaboration of the Departments of Education and Health and Mental Hygiene and the resource center (see below), to increase awareness of ADHD and to provide innovative, effective treatments.

- Parents reported wide variation among providers in the knowledge base concerning ADHD, diagnostic sophistication, and treatment options. There is a need to increase the knowledge base of providers in regards to diagnostic and treatment options in light of new studies and "best practices" guidelines..
- Develop methods to ease families' path to diagnosis and treatment
- Set practical, relevant, research priorities
- Launch the public awareness campaign, designed to reduce the stigma of ADHD and increase access to appropriate services.
- Develop respite programs for families
- Develop innovative community resources such as camps for children with ADHD, after school homework and tutoring programs, etc.
- Develop an advocacy and case management system that can aid families in obtaining appropriate services until they are able to advocate for themselves. These advocates need not be professionals, but could be other knowledgeable parents who understand and have successfully navigated the "system" themselves.

4. Identify and support a resource center

These recommendations would benefit from input and coordination from a resource center on ADHD. This center would perform a number of functions to aid in improving the lot of ADHD children.

- In collaboration with consumer groups like CHADD, it would take the lead in designing and implementing the public awareness campaign to reduce

misperceptions of ADHD, encourage the development of new community resources, and provide a central source of diagnostic and treatment information.

- Provide resources to collaborate with schools and school mental health programs in designing and implementing school-based interventions, like the support groups outlined above. The center should develop close ties to the active school mental health programs.
- Help develop material covering "best practices."
- Provide a sophisticated, multi-disciplinary program to evaluate children who present with particularly difficult or hard to manage ADHD symptoms and/or associated problems.
- Provide the research expertise to evaluate the efficacy of new programs and interventions targeting ADHD children.

B. Provider-Level Recommendations

1. Intervene to reduce burden of ADHD on families

The feelings conveyed by the parents in the focus groups suggest practices which would help reduce family burden and improve cooperation and thus the care of ADHD children. We feel that reducing the family's burden will result in improved outcomes for both the children and their families.

- Recognize and acknowledge the stress and burden that an ADHD child brings to a family.
- Reduce tendency to blame the parents for their child's behavior
- Challenge the view that ADHD children are "bad" or "behavior problems.
- Decrease sense of isolation by increasing access to family members and community resources
- Develop ongoing support groups
- Help to spread parenting responsibilities within families and in the outside community
- Assess need for parents to be vigilant and modify accordingly
- Expand family therapy from an emphasis on parent training to a systems approach, concentrating on reducing burden by enhancing system coordination.

2. Intervene to reduce burden of ADHD on child

When working directly with the child, goals of reducing the strains associated with the disorder should be considered part of the treatment plan along with symptom reduction.

- Concentrate on school issues where greatest burden and greatest source of distress is felt.
- Deal with child's sense of being different
- Develop group/community activities, perhaps through county recreation centers,

which are accepting of ADHD children. Such efforts could be modeled on successful summer and follow-up programs already in operation around the country

- Develop support groups for ADHD children, ideally linked to schools, which address issues of school and family pressures and social rejection.

3. Help parents move toward an advocacy position

It seemed from our focus groups that the families that were most successful in adapting to the burdens placed on them by having a child with ADHD were the parents who adopted an advocacy approach. The parents in our groups felt that this position had been forced on them by a lack of alternatives, and they repeatedly wished for help in adopting this position. Nonetheless, the parents who were strong advocates for their children seemed to have a better outcome in terms of their own stress levels and obtaining their children needed services. Therefore, individual practitioners should aid parents in developing an advocacy position.

- Empower parents by allowing them to be the primary decision-maker for their children's services (rather than a professional)
- Provide psycho-educational services, helping parents become experts in ADHD
- Allow parents to ask questions, to bring in information that they have found on their own, and adopt an open and collaborative stance to their ideas
- Recommend that parents become involved in support and advocacy programs in their community (e.g., CHADD, Learning Disabilities Association)
- Help parents find outside advocates when needed

C. School-level Recommendations

1. Intervene to reduce teacher burden and increase school-home cooperation

Parents acknowledged the burden that an ADHD child brings to the classroom teacher and school environment. The recommendations outlined below address increasing teacher expertise and skill level to provide solid tools to work with ADHD children in the classroom.

- Increase awareness of important aspects of ADHD (e.g., biological basis, problems are treatable but not curable, problems rest in performance not knowledge, the most effective interventions for the ADHD child's school problems are school-based)
- Increase communication process between parents and teachers through developing trust, reducing emphasis on "family problems" as causal, increasing mutual awareness of the difficult challenges of dealing with an ADHD child.
- Developing a cadre of "master teachers" to provide advise and support.
- Ongoing collaborative consultation for teachers to work on engagement children in the classroom, identifying problems, and developing and monitoring individualized programs.

2. Develop integrated, school-based child, family, and teacher support groups

Parents felt that listening to other parents and gaining information and insight was a particularly important and useful enterprise. At the same time, they felt that their children also carried a sizable burden and would benefit from peer support. Parents also believed that teachers often were operating without sufficient knowledge of ADHD and without ongoing support. Joint child, parent, and teacher support groups, occurring within the school context, appear an ideal forum to facilitate support and coordination among the different participants. The goal would be to address similar issues concerning ADHD, stressing understanding of the core and associated problems, the burdens carried by each partner, the development of appropriate interventions, and support in implementing the programs. The structure of these groups would incorporate well-developed components of existing family programs (e.g., Cunningham, Bremner, & Secord-Gilbert, 1997) such as the following:

- Defining ADHD and the different types of outcomes
- Encouraging positive behavior and improving adult-child relationships
- Balancing relationships at home and in the classroom
- Avoiding conflicts
- Improving self-regulation
- Dealing with serious problems
- Problem solving
- Appreciation of burdens carried by child, parent, and teacher

Each group would also have specific, tailored objectives. For children, components would include dealing with the sense of being different, the uniqueness of ADHD, social skills training, managing transitions, and taking responsibility. Parent groups will emphasize developing the role of an advocate, parent-child relationship problems, communication, and home-based contingencies. Teacher groups will involve more specific assessment and intervention information, ways to improve communication with parents and students, stress management, and how to access consultative services.

D. Research Efforts

Reports from our parents are consistent with other research showing that most children with ADHD receive some type of services at some point. However, it is not clear whether these services are appropriate, consistent, or meet standards of quality. In this vein, research should be supported aimed at treatment studies carried out in service delivery settings where broad notions of effectiveness can be evaluated. Specific recommendations include:

- Expand the range of outcome measures to include assessments of burden and adversity.
- Evaluate interventions specifically targeting reduction in the burden (such as those outlined above) of ADHD on children, parents, and teachers.

- Investigate more formally barriers to care and methods to remove such barriers. Studies of how to best engage families in treatment, improve cooperation, and avoid mistrust are greatly needed.
- Research is needed to study the adequacy of the match between services for ADHD children, both pharmacological and psycho-social, and treatment needs in community settings.
- Evaluation of school- and community-based interventions
- Our parents acknowledged the burdens that ADHD puts on professionals, particularly pediatricians and family practice physicians who manage the majority of ADHD children. More formal studies of these burdens and the barriers to adequate care that they impose need to initiated.

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Appendix I
Discussion Outline

A. Demographics:

Obtained from each participant through a questionnaire format.

1. Age of diagnosed target child
2. How many children in family and ages
3. Age when diagnosed
4. Age of parents
5. Others in family diagnosed with ADHD
6. Others in family diagnosed with learning/psychiatric/problems

B. Diagnosis:

1. How did you feel about how you and your child were treated during the diagnostic process? (i.e., Did you feel listened to, understood, did you feel that the process was thorough, etc.)
2. Who first became concerned about your child: you, spouse, relative, teacher, pediatrician, etc.?
3. Who specifically told you that your child had ADHD?
4. When you first became concerned about your child, what professional did you go to first?
5. How did you locate the professional that you went to first?
6. How was the diagnostic process completed?

    - Teacher consultation
    - Testing
    - Checklists
    - Parent checklists
    - Ask about other problems that may lead to attention problems
    - Health Questionnaire
    - Classroom observation
    - School-based team

C. Treatment

1. How did you feel about the treatment that you and your child received? (i.e., Did you feel listened to, understood, did you feel that the process was thorough, etc.)
2. What forms of treatment have you tried in lieu of or in addition to medication?

- Therapy
- Behavioral interventions
- Parent training
- School accommodations/special education
- Support groups
- Advocacy services
- Alternative treatments

3. How has your child's school been involved in the evaluation and treatment process?
4. How have you felt in general about the use of medication in the treatment of your child?

    - How long has your child been on medication?
    - How did you come to decide to try medication? Was this a difficult decision for you?
      Who prescribes the medicine for you?
    - How many medications has your child been on?
    - Has your child had any side effects on the medication?
    - What do you feel the medication helps the most with?
    - Have you been happy with the results of medication?
5. How well were the different components (e.g., school intervention, therapy, medication) of the treatment plan coordinated?

D. General

1. Overall, how has having a child with ADHD changed your life?

    - How has your child's diagnosis/disorder affected your family?
    - What is the hardest part about having a child with ADHD?
    - What or whom do you feel has been the most helpful to you and your child?
2. What other information, support, interventions would be helpful in dealing with and ADHD child?

Appendix II
Demographics form

Today's Date: 7/16/98 7/20/98 7/23/98 7/27/98
Focus Group Location: Eastern Shore Baltimore City Western Maryland
Southern Maryland

Please take a moment to fill out the following questions about your family. This information will not be reported or released individually, but rather will be reported as summary data only.

1. Please fill in the age and sex information for your family:

Family member:	Sex	Age
Child diagnosed with ADHD		
Yourself		
Spouse		
Other children:		
Other family members living at home:		

2. How would you describe the child with ADHD's race?_____

3. How old was your child when he or she was *first* diagnosed with ADHD?

_____

4. Please circle all of the ADHD child's relatives that have also been diagnosed with ADHD:

MotherFather Brother Sister Aunt Uncle

Grandmother Grandfather Cousin Other None

5. Please circle all of the ADHD child's relatives that have also been diagnosed with learning or psychiatric problems other than ADHD:

MotherFather Brother Sister Aunt Uncle

Grandmother Grandfather Cousin Other None

6. Child currently treated for ADHD by (check all that apply):

___ Pediatrician

___ Psychiatrist

___ Mental health professional other than psychiatrist (psychologist, social worker, etc.)

___ Services at school

___ Alternative medicine (homeopathy, acupuncture)

Maryland Task Force to Study the Use of Methylphenidate in School Children

SURVEY RESULTS

MARYLAND STATE SCHOOL SYSTEM SURVEY ON POLICIES & PROCEDURES RE ADHD STUDENTS

Maryland State Department of
EDUCATION

Schools for Success

Nancy S. Grasmick
State Superintendent of Schools

200 West Baltimore Street
Baltimore, Maryland 21201
Phone (410) 767-0100
TTY/TDD (410) 333-6442

February 11, 1998

TO: Local Superintendents of Schools
Local Health Officers

The 1997 Maryland General Assembly passed House Bill 971 establishing the Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children. Its specific charge is to: *determine the prevalence of the use of methylphenidate among school-age children in the State; determine the extent to which treatments for attention deficit hyperactivity disorder other than methylphenidate are generally available or in use; and determine who prescribes methylphenidate to school-age children and why.*

To meet this charge, the task force needs two sets of information. The first set of information is a survey of school health services staff (school nurses) to determine the prevalence of medication ordered for attention deficit hyperactivity disorder (ADHD) being given during the school day. A copy of that survey, with detailed instructions, is attached. This survey was discussed with school health supervisors in the fall and was received favorably. Please have the survey completed by the school health supervisor, and send it by April 1, 1998, to: Vicki Taliaferro, Maryland State Department of Education, 200 West Baltimore Street, Baltimore, Maryland 21201.

The second set of information is a summary of the procedures and practices that are followed in each school system when a student has, or is suspected to have, ADHD. This information is accompanied by copies of the applicable policies and related documents. A copy of the requested information is attached and has been discussed with the Directors of Pupil Services. Please have this information completed by the director of pupil services, and send it by March 15, 1998 to: Dr. William Flook, Maryland State Department of Education, 200 West Baltimore Street, Baltimore, Maryland 21201.

A statewide conference on the results of the task force's work will be held in the Fall of 1998. The final report of the task force is due to the General Assembly on January 1, 1999. Please direct any questions to Mrs. Taliaferro, Specialist, Health Services at (410) 767-0305 or to Dr. Flook, Specialist, Psychological Services at (410) 767-0307.

Thank you for your assistance and continued cooperation.

Sincerely,

Nancy S. Grasmick
State Superintendent of Schools

Martin P. Wasserman, M.D., J.D.
Secretary, Department of Health and Mental Hygiene

NSG/MPW/vt
Enclosures

c: Directors of Pupil Services/School Health Supervisors/Sidney Seidman, Task Force Chair

Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children

Survey of Local School System ADHD Policies, Procedures & Practices

The Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children has been charged by the General Assembly with examining how children with Attention Deficit Hyperactivity Disorder (ADHD) are identified and receive services. The Task Force needs certain information from each local school system (LSS) to help it accomplish this work.

Please provide a copy of documents covering the LSS's policies, procedures and practices for students who have or are suspected of having ADHD. If available, send materials which cover the following areas as they pertain to these students:

- The definition of ADHD used by this LSS
- Identification, evaluation, and communication of evaluation results for these students
- Planning and delivering services for identified students
- Referral to and ongoing communication with outside agencies and providers
- Teacher/staff development and in-service activities
- Parent/family communication, education and training
- Teacher/staff orientation regarding these policies and procedures
- Monitoring of implementation of these policies and procedures

In addition, please provide information which highlights promising practices in selected schools in your system on the subject of students with ADHD.

Please complete the attached questionnaire and send it with the above information by March 15, 1998, to Dr. William Flook, Specialist, Psychological Services, Maryland State Department of Education, 200 West Baltimore Street, Baltimore, MD 21201. Contact Dr. Flook (410-767-0307) if you have any questions or concerns about this request. Thank you very much for your assistance with this important work.

Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children

Survey of Local School Systems: ADHD Policies, Procedures & Practices

Local School System: _____

Name of person completing this form: _____

Title: _____ Telephone: _____

1. What issues and barriers to good practice have you identified in this area?

2. How could the Task Force address these concerns?

3. How can MSDE assist in this area?

4. What else would you like the Task Force to know about?

Please use the back of this sheet or attach additional pages with your responses to these questions. Return all materials by March 15, 1998, to: Dr. William Flook, Maryland State Department of Education, 200 West Baltimore Street, Baltimore, MD 21201.

Survey of Maryland Local School Systems

PART I.
CURRENT POLICIES & PRACTICES

March 1998

Number of Systems	1. ADHD Definition
12	DSM-IV
11	None cited
1	"Assume the physician uses DSM diagnosis"

Number of Systems	2. Identification, Evaluation & Communication of Results
14	ARD process (IDEA)
5	If not qualify under IDEA, consider eligibility under "Section 504"
13	"504" process
9	General "team-based assessment" process
3	Specific process for ADHD cited
5	"No specific procedures for ADHD"
5	Diagnosis is made by physician only (or only by outside provider)
2	Dx by physician/psychiatrist, or by licensed/school psychologist
9	Cite special role in process for school psychologist
1	None cited

Number of Systems	3. Explicit Policy Against Staff Recommending Medication
4	In writing
10	Oral/informal policy only
10	No/none cited

Number of Systems	4. Planning/Delivering Services
17	ARD Process (IDEA)
17	(&/or) "Section 504"
9	"AIS" (Alternative Instructional Strategies) or other team-developed intervention plan if not eligible under IDEA or 504
7	Cite role for one or more specialists (nurse/counselor/school psychologist/ Health clinic/physician/"facilitator")
1	Coordination with parent
1	None cited

Number of Systems	**5. Referral & Communication**
10	"No explicit policy for ADHD", or only vague reference to procedures
2	Explicit reference to policy but not ADHD-specific
4	Close relationship with local Health Dept. cited
3	Home-school communication cited (give report to parent to take to physician)
3	Physician's role cited
2	Nurse's role
2	Relationship with CHADD cited
1	Use of report/rating/behavior form
1	Initiated by outside provider
1	Ongoing input with signed release
8	None cited

Number of Systems	**6. Teacher/Staff Development**
2	Cite numerous activities
2	Conducted annually/periodically
7	Cite specific program/materials (CHADD, "STAR" Program, etc.)
5	Cite specific outside provider (P. Quinn, L. Johnson, U. Ulgur, CHADD)
2	School psychologist provides
2	Training for special education staff only
2	Specific support staff receive training (nurses)
1	Provided on 504 plans and accommodations
1	Elementary teachers only
1	Provided for new teachers
1	"Don't know"
1	"We need more"
1	No special emphasis on ADHD
7	None cited

Number of Systems	**7. Parent/Family Communication**
5	Specific flyers/handouts and/or lending library provided
4	Parent workshops or support groups offered (one or more schools)
4	Cite availability of local family resource/parent involvement/Parent Information & Training Centers
3	Case-by-case/on request/provided through ARD/school team process
2	Parents referred to physician for information and/or support
1	Information published in school newsletter or by PTA
1	Presentation on local public TV on management
1	School psychologists provide training/parent meetings
1	Cite a specific program ("Circles")
12	None cited

Number of Systems	**8. Monitor Implementation**
5	Role of special education (ARD)/"504" Team/Pupil Services Team (school level monitoring)
3	Role of special education (ARD)/"504" Team/Pupil Services Team (case level monitoring)
3	General policy review cited/"ongoing"/vague general statement
3	Principal/designee
2	Central Office role cited
1	Policy & Procedures Manual cited
1	Data collection cited
9	None cited

Survey of Maryland Local School Systems

PART II.

ISSUES/COMMENTS/CONCERNS

March 1998

Number of Systems	1. What issues and barriers to good practice have you identified in this area?
	a) Assessment/Diagnosis
5	Lack of agreement on how to assess and diagnose; no consensus on assessment measures and procedures
3	Over-identification and increasing numbers (and lack of knowledge of what "base-rate" is in population)
3	Not able to recommend medical evaluation without obligating the school system to pay for the evaluation
2	Who is a "qualified examiner"? Can the school psychologist diagnose?
2	How to address private evaluations (including outside reports that do not appear to reflect best practice)
2	Failure to consider classroom functioning in assessment/diagnosis
2	Problem of differential diagnosis (including adolescent substance abuse)
1	Parents who appear to want their kids to have a "label"
1	Lack of knowledge about various subtypes of ADHD
1	Excessive assessment time expended on cases with relatively minor concerns (rigid procedures drive the process)
	b) Service Delivery & Coordination
7	Lack of coordination/communication with physician (including two-way feedback and information exchange)
4	Lack of communication from parent about outside services, diagnosis, and treatment (including medication)
4	Lack of knowledge in the home & community (including the physician)
3	Teachers &/or administrators resistant to intervention plan or to making accommodations; failure to implement agreed-upon plan
3	Confusion and lack of clear guidelines for determining if case is special education vs. "504" vs. general education with an "AIS" plan; to what extent should the regular classroom accommodate?
2	Excessive class size precludes effective intervention
2	Immediate referral for/prescription of medication instead of trying other interventions
1	Teacher communicating with parents about (or even recommending) outside services without involving specialist or team
1	Lack of consultation services for these students
1	Concern about side-effects of newer medications
1	School staff dispensing medication without a nurse
1	Lack of structure and/or follow-through at home
1	Inadequate testing accommodations (including MSPAP)
1	Physician has sole responsibility for writing treatment plan

Number of Systems	**1. What issues and barriers to good practice have you identified in this area?** (cont.)
	c) Resource Issues
4	Need for more support staff (nurse/psychologist/PPW/counselor/behavior specialist)
4	Lack of training/staff development (particularly for teachers) (ongoing)
3	Lack of parent/family resources (including transportation) and access to adequate medical care (cite restrictions imposed by managed care)
3	Teachers lack good behavior management and instructional strategies to meet individual needs
3	Teachers lack awareness of impact of ADHD
1	Lack of funds for programs and services
	d) Accountability
2	Lack of agreement on what is needed for data collection to monitor progress: standard forms; frequency of data collection; types of data (behavioral and achievement); differences across elem./middle/high sch.
1	Failure to monitor progress at all
	e) Other
4	Strong parental resistance to any thought of medical intervention
3	ADHD used as an excuse, reflecting attribution of all "bad" behavior to a disability
2	Parental negligence in providing prescribed medication
1	Belief by some that medication is all that's needed
1	Pressure from MSPAP
1	Media "sensationalism" about Ritalin
1	Discipline issues interfere with diagnosis and treatment
1	Health providers who view the school as the problem
1	Ethical concerns (medicating without evaluation; labeling before trying any interventions)
1	The school can't "do it all" – we're dependent on the family and on outside providers – the school cannot assume responsibility for a comprehensive treatment program
2	No response
1	No barriers identified

Number of Systems	**2. How could the Task Force address these concerns?** [Provide or recommend:]
14	"Best Practice" statements regarding a) Assessment and diagnosis (including role of school psychologist) b) Treatment and monitoring (forms and procedures) c) Service coordination and communication/information exchange
8	Staff development and materials (incl.: ongoing; jointly with medical providers; develop video; "bring in Conners")
6	Parent education, information, materials
6	Information & training for private providers/medical community
4	Funds for the above and for direct services
2	Information on different school system practices and procedures
2	Media information, "PR"
2	Review literature; provide annotated bibliography
1	Comprehensive statewide action plan
1	Model demonstration projects in assessment and intervention
1	Coordinate with professional groups (Academy of Pediatrics)
5	No response/"NA"

Number of Systems	**3. How can MSDE assist?** [Provide, sponsor, or coordinate:]
11	Staff development conferences and workshops, statewide and locally (including training for teachers and specialists; observation skills)
9	"Best Practices"/Guidelines/Standards/Manual addressing: a) Assessment and diagnosis (school psychologist can make diagnosis) b) Treatment and monitoring (nurses dispense medication) (modifications for testing) c) Service coordination and communication
4	Collect and disseminate current information on an ongoing basis on: a) Research (successful models; use of technology) b) Medication issues c) Legal issues d) Local system practices e) Local and statewide data on medication prevalence, discipline, special education, "504", student performance and attainment, etc.
4	Information for private practitioners/medical community (including joint training with specialists)
3	Technical assistance in implementing the above
3	Funds (for staff, aides, converting open-space schools)
3	Parent education (and support for PITCs)
2	Disseminate and support the implementation of Task Force information and recommendations
1	Work with universities and training programs
8	No response/"NA"

4. What else would you like the Task Force to know?
Inaccurate and/or negative information interferes with the school's ability to help students
Provide information to help parents make informed choices
Emphasize the need for parents and school to work together
Emphasize importance of medical providers and school to work together
Funding increases would make a positive difference in services and in student success
Some HMOs are saying the general practitioners are not qualified to diagnose ADHD
Many outside providers fail to conduct follow-up and consultation; wide apparent variance in knowledge levels of outside professionals
Requests for evaluations are increasing
There is a growing number of "504" cases
Significant cultural differences are evident in parent attitudes toward medication (some push for its use, some actively resist)
Cite the importance of the school psychologist in the process
If teacher makes a comment to the parent, the child is immediately entitled to services as "disabled" – this creates serious problems
ADHD is used as an excuse
Why is the legislature interested in this issue?
This is an important area for the Task Force to examine
(11 systems had no response to this item)

Maryland Local School Systems

Subject/info Survey of LSS ADHD Policies, Procedures & Practices - March, 1998

LSS	ADHD Defin	Identification, Eval & Communic of Eval Results	*	Planning & Delivering Services	Referral & Communic	Teacher/ Staff Dev	Parent/Family Communication	Monitor Implementation
Allegany	DSM-IV	Handled through ARD process, if not qualify under IDEA, committee considers eligibility under Section 504	?	ARD or 504 process	Agencies & providers encouraged to be part of process	Conducted annually on subject of ADHD	Information provided on request and at meetings at Parent Center	Policies reviewed and monitored at bi-weekly staff meetings
Anne Arundel	DSM-IV	IDEA or 504, based on definition and policy - individualized per student needs	yes	IEP &/or 504 plans as appropriate, use "Alternative Intervention Strategies" Plans if student not eligible	Carried out by various staff	Numerous activities for teachers psychs, other staff	ADHD Brochure, NASP handouts, Family Involvement Ctr	IEP/504/AIS plans monitored on indiv basis by case managers
Balt. City	none	ARD process, IDEA disability identified when appropriate	?	IEP or 504 plan	No special provision for ADHD Communication, staff development and monitoring of implementation are consistent with IDEA and 504 for all disabilities			
Balt. Co. (materials provided highlight-ing effective local practices)	DSM-IV	Diagnosed by physician or licensed or certified psychologist (provided copies of forms, letters, and procedural documents), IDEA and 504 process if appropriate	yes	*ADHD School Health Action Plan* (nurses) - in-school support coordinated with school counselor	school nurse role	numerous activities for schools and support staff, Dr Pat Quinn curriculum, lending library	Student services staff programs, Channel 36 program on management in school, lending library	ongoing

* LSS has explicit written policy forbidding teachers to recommend medication to parents

LSS	ADHD Defin.	Identification, Eval. & Communic. of Eval. Results	*	Planning & Delivering Services	Referral & Communic.	Teacher/ Staff Dev.	Parent/Family Communication	Monitor Implementation
Calvert (additional info. cites effective local practices)	none cited	504 process (provided copy of 504 procedural manual)	?	504 process	none cited	none cited	none cited	504 procedural manual
Caroline	assume physic. use DSM dx	Only doctors diagnose ADHD in Caroline Co.; we work with parents and their youngsters who exhibit symptoms of ADHD, describe options available, including being evaluated by a doctor (provided copy of Pupil Services Handbook on 504 & ADHD)	?	(described in handbook)	Cites close working relationship with Health Dept. and its ADHD Clinic	"We haven't had enough!"	Very little, except with individual families/parents whose children have been identified	Principal's responsibility
Carroll	DSM-IV	Detailed procedural guidelines established (copy provided)	yes	(described in procedural guidelines)	Medication Effective-ness Follow-Up Form	none cited	none cited	Principal appoints school-based manager
Cecil	none cited	General procedural guidelines for team-based assessment; not specific for ADHD (Copy of "Student Due Process Rights" provided)	?	IDEA, 504 or (described in "Due Process" document)	none cited	none cited	none cited	none cited
Charles	DSM-IV	Identified by letter from treating physician or psychiatrist, or evaluated by school psychologist using rating scales, observation, parent and teacher report	?	IEP (OHI), 504 Plan, or modifications made to program through consultation	Team refers parents to physician, provide report & rating forms	School psych provides in-services to teachers	Parent workshops offered on request; schools have resource files	504 Team and Pupil Study Team

* LSS has explicit written policy forbidding teachers to recommend medication to parents.

LSS	ADHD Defin.	Identification, Eval. & Communic. of Eval. Results	*	Planning & Delivering Services	Referral & Communic.	Teacher/ Staff Dev.	Parent/Family Communication	Monitor Implementation
Dorches-ter	DSM-IV	Child Study/504/Special Education Team Process utilized; no separate policies and procedures for ADHD	?	Child Study/504 Team, or IDEA process if qualified; (copy of medication policy provided)	none cited	(Materials provided from Dr. Leigh Johnson, U.MD)	none cited	none cited
Frederick	"dev. disab." (DSM-IV)	Special education process as defined in regulations; if no serious educational impact, child may qualify under Section 504	?	IEP/504 Plan; facilitators work with schools as needed	Cites an excellent working relationship with CHADD	Substantial orientation/ training for special education (materials provided); many resources dissemina-ted (books, videos etc.), many from CHADD; school psychs offer training to school staffs	Parent/Educator Information & Training Center maintains wealth of material on ADHD; parent information meetings conducted by psychologists	Central staff works with schools to ensure implementation
Garrett	DSM-IV	The only evaluation we do is a brief psychological eval., provided to the physician prior to final diagnosis; no specific formal policies and procedures for ADHD	?	Nurses have plans as far as distribution of medication; teams work with 504 Plans which provide organizational skills, extended time, skills training	Regular home-school communic.; ongoing with physic., Health & MH, CHADD	Substantial staff training at elem. level only – "STAR" Program is effective	Local support group; some parenting at elem. level in "Circles" Program	Data collection from STAR Program, office referrals, and suspension data

* LSS has explicit written policy forbidding teachers to recommend medication to parents.

LSS	ADHD Defin.	Identification, Eval. & Communic. of Eval. Results	*	Planning & Delivering Services	Referral & Communic.	Teacher/ Staff Dev.	Parent/Family Communication	Monitor Implementation
Harford	DSM-IV	Diagnosis must come from physician; cites IDEA criteria for OHI; psychological assessment also required (copies of procedural guidelines & information on psychologists role provided)	?	Cites IDEA/IEP services as OHI	none cited	(copies of staff develop-ment materials provided)	none cited	IEP process
Howard	DSM-IV	Consistent team-based model is in place in each school in district, utilizes school psychologist's assessment	yes	Student may have 504 Plan or IEP; if not eligible School Support Team (SST) (&/or "IC" Team) will develop an intervention plan addressing needs identified in eval.	Psych 7/or counselor maintain communic.; have Dr. Ulgur on retainer, work with team of psychiatrists	Dr. Ulgur has offered workshops for specialists; some teachers are trained in SST process; not clear what others get	Families are referred to outside resources; "Child & Youth Services" provides low-cost group work	SST
Kent	none cited	No specific ADHD policies and/or procedures; define ADHD as disability only when there is adverse impact on education; use 504 more than IDEA (OHI)	?	In most cases teachers provide needed accommodations without formalizing the process through 504 or IDEA	none cited	none cited	none cited	none cited
Mont-gomery	none cited	Team-based process involving Educational Management Team (EMT), (Provided "Section 504 Guidelines for the Identification of Students with Attention Deficit Disorders or Significant Attentional Problems")	?	Plan developed by EMT, or IEP if appropriate	Referral would occur after EMT review	none cited	none cited	none cited

* LSS has explicit written policy forbidding teachers to recommend medication to parents.

LSS	ADHD Defin.	Identification, Eval. & Communic. of Eval. Results	*	Planning & Delivering Services	Referral & Communic.	Teacher/ Staff Dev.	Parent/Family Communication	Monitor Implementation
Prince George's (materials provided highlight-ing effective local practices)	DSM-IV	County procedures (cited, some documents provided) for students with disabilities – IDEA or 504. Screening and assessment instruments cited. Assessment determined by SST (multi-disciplinary school-based team) with input from school psychologist	?	Determined at SST and using IDEA or 504 process if applicable.	Reports given to parents to share with pediatrician; with release, ongoing input given to outside providers	Workshops on ADHD for new teachers; staff dev. on 504 Plans & accommod.; in-svc. on referral process; handouts & info. from psychs.; present. to principals; booklets for school staffs, more	Consultation and written info. provided by SST; Parent Support group at one site; literature provided; info. provided in school newspapers, PTA presenta-tions, workshops for parents	Principal; oversight by Admin & Supts; also 504 Coordinator, Special Education Dept., school psychs, SST, and School Improvement teams
Queen Anne's	DSM-IV	If students are evaluated for ADHD, results are shared with schools by local health dept. or private provider (forms cited and provided)	?	Health Care Plans; Physician Medication Orders; Diagnostic & Advisory Clinic, other forms	As initiated by outside providers; nurses continually communic. with parents and providers	Periodic in-service for school nurses and interested staff	Information provided via Physician's Med. Order; local Health Dept. and private providers offer information and education for families	Review of medication orders and documentation by school nurse
St. Mary's	none cited	School Team-based screening and evaluation, procedures documented for 504 and for ADHD screening. School psych. provides summary.	?	504 Plan or IEP, or Pupil Services Team develops intervention strategies	(process cited in documents provided)	none cited	none cited	Pupil Services Team or ARD

* LSS has explicit written policy forbidding teachers to recommend medication to parents.

LSS	ADHD Defin.	Identification, Eval. & Communic. of Eval. Results	*	Planning & Delivering Services	Referral & Communic.	Teacher/ Staff Dev.	Parent/Family Communication	Monitor Implementation
Somerset	none cited	No specific policies for ADHD. Diagnosis is by physicians.	?	Pupil Services Teams meet with parents to develop strategies.	none cited	Inservice for teachers (copies of various materials for staff provided)	(copies of various materials for parents provided)	none cited
Talbot	none cited	Students are referred to Student Support Teams (SST) to identify needs and develop interventions. Conners scales are employed.	?	SST develops and monitors interventions, with yearly review meetings.	Close work with physicians and MH; school psych. is liaison with community services	CHADD group presents to school faculties	none cited	SST
Washing-ton	none cited	IDEA or 504 procedures	?	IEP or 504 Plan	none cited	Teachers and admin. In-svcs. – Pat Quinn (samples provided)	Parent Information Center Programs and materials	none cited
Wicomico	none cited	none cited	?	none cited	none cited	none cited	none cited	none cited
Worces-ter	none cited	Pupil Services Team or ARD process; work with Health Dept. and private physicians	no	504 Plan or IEP	Work with Health Dept. and private physicians	Staff dev. for special education	none cited	none cited

Maryland Local School Systems

Subject/info.: Survey of LSS ADHD Policies, Procedures & Practices - March, 1998 - Part 2

LSS	Issues & Barriers to Good Practice	How could the Task Force address these concerns?	How can MSDE assist in this area?	What else would you like the Task Force to know?
Allegany	need a partnership of school, home and physician; student progress must be monitored with a formalized format; school-based personnel need training and the ability to apply best practices	recommend additional training for school-based staff and for physicians on forming partnerships and on best practices; conduct staff development activities in conjunction with medical community	sponsor staff development as indicated in previous response; offer training for parent coordinators of the Parent Information and Training Centers	Inaccurate or negative information about ADHD interferes with schools' ability to help students. Need a statewide effort to release truthful information that respects variety of viewpoints and enables parents to make informed choices. Public information should emphasize need for parents to work with schools
Anne Arundel	(attached)	(attached)	(attached)	(attached)
Baltimore City	Over identification by physicians; using ADHD as an excuse for inappropriate behavior; need for dispensing medication in schools without a school nurse.	Public education to identify strategies to use with students as ADHD, and development of guidelines for parents	Develop state ;eval. guidelines for local system to use; examine issue of nurses in school/medication dispensing	(no response)
Baltimore Co.	(attached)	(attached)	(attached)	(attached)

LSS	Issues & Barriers to Good Practice	How could the Task Force address these concerns?	How can MSDE assist in this area?	What else would you like the Task Force to know?
Calvert	Lack of funding to provide programs for identified students; lack of general knowledge on management and treatment in home and community; schools/parents insisting on medication first rather than trying other interventions	Provide funding for ADHD management, to assist with remedial education, cognitive treatment, problem-solving skills, self-control skills, parent classes, structure of classroom environment, staff development, assistance from medical community, improving child's understanding of problem, etc.	Assist our teachers with the support they need; provide means to obtain funding	"We could do a great job with this if we had a much lower student/staff ratio for ADHD, and the funding to program for these students, parents and professionals/staff development."
Caroline	(no response)	(no response)	(no response)	(no response)
Carroll	Lack of communication and feedback from physicians	Establish a best practices procedure whereby schools not only communicate with physicians, but physicians communicate with the school	(no response)	(attached)
Cecil	(no response)	(no response)	(no response)	(no response)
Charles	Differing opinions regarding whether school psychologists can make statements regarding identification of ADHD; policies which prevent us from recommending a medical eval. without fear of having to pay for treatment	Address these concerns by developing a position paper which identifies school psychologists as qualified examiners for ADHD	Routinely send out information regarding research, medication issues, court cases, and how other counties are addressing this population	There is currently significant information regarding the misidentification of ADHD students and the over-medication of students in general. Task force should provide an annotated bibliography of this info.

LSS	Issues & Barriers to Good Practice	How could the Task Force address these concerns?	How can MSDE assist in this area?	What else would you like the Task Force to know?
Dorchester	none	N/A	N/A	N/A
Frederick	(attached)	(attached)	(attached)	(attached)
Garrett	Some physicians rely solely on parental request for medication; need for staff training at secondary level; some staff still believe medication should cure problem, with no residual behavior	It will take a massive educational blitz to change the common misperceptions that lead to an over diagnosis of the condition and an over reliance on medication	If we have to have formal policies and procedures, we would request technical assistance	The Health Dept. has indicated that they plan to close the Neurology clinics. HMOs are indicating that general practitioners are not qualified to diagnose the condition
Harford	(attached)	(attached)	(no response)	(no response)
Howard	While our counselors and psychologists are very knowledgeable, teachers and parents are not – many are misinformed, and think every child with any ADHD characteristic needs medication. The focus is sometimes on classroom control instead of teaching. Many parents are highly stressed, kids are not getting adequate structure at home. Need to recognize psychosocial factors as well as biological ones	Review the literature, NIMH, psychology and medicine, bring in Conners as consult.; in report, look at practice vs. ideal, delineate "Best Practices" for identification and treatment, for parents and professionals. Look at barriers to good practice; develop factual 30-minute video on ADHD, require teachers and staff to view it. Develop a statewide Action Plan	Support implementation of task force recommendations; work with psychologists and empower to make diagnosis of ADHD; offer training and staff development for specialists and all teaching staff. Trained observers are critically important. Asserts properly trained school psychologists are competent to make the diagnosis	Agrees with the task force examining this area; feels it's an important area which requires more attention

LSS	Issues & Barriers to Good Practice	How could the Task Force address these concerns?	How can MSDE assist in this area?	What else would you like the Task Force to know?
Kent	The major issue is identification. There need to be clear guidelines as to who is ADHD, ands how best to serve this population. Parents want kids to have the label. Help understand various types of ADHD.	Provide strict guidelines as to identification.	Training on ADHD and its various problems.	This is a growing problem and education and the medical field need to come together to help best identify and program for the specific ADHD population.
Montgomery	(attached)	(attached)	(attached)	(no response)
Prince George's	Systematic staff development is an ongoing issue. School teams need to be in-serviced almost annually on identification and services for students with ADD/ADHD characteristics.	Recommend that MSDE require local systems to conduct annual in-services for teachers regarding modifications, accommodations and interventions for students with ADD/ADHD characteristics.	Provide technical assistance and/or staff to assist with staff development; conduct workshops throughout the state on best practices for interventions with ADD/ADHD students.	No other issues at this time.
Queen Anne's	None of any real significnace. There are occasions when parents initiate this diagnosis without the school's knowledge; we learn of it "after the fact."	(no response)	(no response)	What is the legislature's interest in this issue? Diagnosis and prescription are made by the physician.
St. Mary's	(see attached)	(see attached)	(see attached)	(see attached)
Somerset	More children are being diagnosed by doctors as having ADHD.	(no response)	(no response)	(no response)

LSS	Issues & Barriers to Good Practice	How could the Task Force address these concerns?	How can MSDE assist in this area?	What else would you like the Task Force to know?
Talbot	Teachers do not have a clear understanding of the impact of ADHD on a child's learning. It is sometimes perceived as a child's "choice" to misbehave. Teachers need strategies to help students in being successful.	Develop training material for staff regarding identification and treatment of ADHD.	Develop teacher in-services on good teaching practices and strategies.	(no response)
Washington	Staff development is still needed for educators, parents and medical professionals. Support staff (psychologists, counselors, behavior teachers) needed for planning and intervention, support groups.	Provide information to medical community; provide best practice resource material to school systems and professionals	Support providing information & best practices; support conferences and provide technical assistance	Interagency system including health and mental health need to be expanded to support parent and provide training as early as possible
Wicomico	(see attached)	(see attached)	(see attached)	"ADHD has become a socially accepted rationale for excusing many inappropriate behaviors and poor academic performances manifested by students." (and see attached)
Worcester	Lack of resources. Many children are identified by physicians, and we only find out if the parent brings medication to school.. Need better communication – someone to monitor progress; this is not done by the physician. Physicians rarely if ever obtain student functioning information form school, often relying solely on parent report	The key is communication and sharing of information. Many children are on medication but are not monitored. We only know about them if there is overt acting out or problem behavior.	In-service presentations, staff development, and education.	Once the teacher makes the comment to the parent, the child IS covered, entitled to services – this creates a problem for us.

Maryland Task Force to Study the Use of Methylphenidate in School Children

SURVEY RESULTS

Results of CHADD Parent Survey re Medication Given Outside of School

SCHOOL OF PHARMACY

DEPARTMENT OF PHARMACY
PRACTICE AND SCIENCE

UNIVERSITY OF MARYLAND

June 17, 1998

Cheryl Duncan, MD, Staff Member
Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children
Office of Children's Health
Department of Health and Mental Hygiene
210 West Preston Street
Baltimore, MD 21203
Fax: 410-767-5595

Dear Dr. Duncan:

RE: Medication administration pattern for methylphenidate

The attached information has been developed in response to your request for epidemiologic data on the utilization of methylphenidate among school age youngsters. The Task Force members are interested in knowing what proportion of methylphenidate-treated children might be missed in the school surveys because of having no need to receive treatment during the school day.

The data we have selected to answer this question are derived from the parent survey developed by Susan DosReis, BS Pharm, doctoral candidate in the Pharmacy Practice and Science Department. The survey instrument was pilot tested and assessed for reliability and validity. Results of the pilot work affirm its reliability and the results will be presented at the Association for Health Services Research in Washington, DC, a national organization of health services researchers on June 21, 1998.

The attached data on the frequency of medication administration should be viewed as reassuring in regard to the school nursing personnel's awareness of student medication patterns. They suggest that most (75%) children receiving methylphenidate are likely to need a dose during the course of the school day. Based on this sample, probably less than 20% of methylphenidate treated children receive medication without school personnel being aware of it. Of course, among middle school and high school youths there may be greater student demand for confidentiality which might make the proportion higher.

Please do not hesitate to call if you wish to discuss this further. A larger study is underway and results may be available for inclusion in the report at a later time. Susan DosReis should be acknowledged appropriately in the final report.

Sincerely,

Julie Magno Zito, PhD
Associate Professor of Pharmacy and Medicine

cc: S. Seidman, MD, Chairman
M. Shore, PhD, and M. Riddle, MD, Subcommittee Chairs

Pilot Survey of Methylphenidate Frequency of Administration

The following data are derived from a survey of the knowledge, attitudes and satisfaction expressed by parents in regard to their children's treatment for Attention Deficit Hyperactivity Disorder. The study received approval from the University of Maryland Institutional Review Board (No. 0987107) in October 1997.

Sample:

The pilot study was conducted in two groups of parents with children receiving drug therapy for Attention Deficit Hyperactivity Disorder. Approximately equal samples were obtained from each group. The first group consisted of members of a Maryland chapter of Children and Adults with Attention Deficit Disorder (CHADD) and the second group were patients in treatment at a Baltimore area public clinic for both underinsured and medicaid patients.

Results:

Nr Doses per Day	*N*	*%*
One	14	19
Two	36	49
Three	16	22
Four	3	4
Missing frequency	4	6
Total	73	100

For further information contact the Principal Investigator:

Susan DosReis, BS Pharm
Pharmacy Practice and Science Department
University of Maryland, Baltimore
100 Penn Street, Suite 240
410-706-4369
sdosreis@pharmacy2.ab.umd.edu

RESOURCES from:

ADD/ADHD Behavior Change Kit
Ready-to-Use Strategies & Activities for
Helping Children with Attention Deficit Disorder

Grad L. Flick, Ph.D.

The Center for Applied Research in Education
Prentice Hall Career & Personal Development
240 Frisch Court
Paramus, NJ 07652

Maryland Task Force to Study the Use of Methylphenidate in School Children

SURVEY RESULTS

American Academy of Pediatrics Survey of Physicians re ADHD

ACQIP Ambulatory Care Quality Improvement Program — American Academy of Pediatrics

SUMMARY REPORT

Exercise 4: Monitoring Children with Attention-Deficit Hyperactivity Disorder

=996=

Page 1

	Percent of [illegible]		
	[illegible]	[illegible]	[illegible]
1. When presented with a patient with a potential ADHD diagnosis, which of the following do you do? *(Check one)*			
a). Act as primary physician yourself	77.47	72.22	85.19
b). Refer within your practice to another physician	3.87	7.26	3.70
c). Refer outside your practice to another physician	1.22	0.85	1.85
d). Refer to a pediatric subspecialist, please specify***	*24.68%*	***Neurologist***	
e). Refer to a subspecialist, please specify***	31.49%	***Psychologist***	
f). Refer to other, please specify***	*8.49%*	***Developmental Pediatrician***	
	7.66%	***Psychiatrist***	
2. What percentage of your patients are diagnosed with ADHD?			
0% - 5%	80.35	81.08	78.00
6% - 10%	14.33	13.96	18.00
≥ 11%	5.32	4.95	4.00
3. Upon what basis do you make your diagnosis? *(Check all that apply)*			
a). Parent report	96.48	94.54	98.18
b). Teacher report	95.48	94.12	98.18
c). Psychologist report	86.33	83.19	81.82
d). DSM	46.83	45.38	54.55
e). Computerized diagnostic tool, please specify***			
Conners' Rating Scales	*43.20%*		
T.O.V.A.	*14.50%*		
f). Other, please specify***			
Conners' Rating Scales	*29.30%*		
Physician Review *(ie, physical exam, history and/or office observation)*	*23.38%*		
4a. Do you routinely monitor these patients by:			
a). In-person interview with parent			
NOT TREATED with medication	72.39	72.38	60.00
TREATED with medication	91.06	89.33	86.54
b). Telephone interview with parent			
NOT TREATED with medication	33.63	38.08	45.45
TREATED with medication	47.89	48.12	63.64
c). Telephone interview with patient			
NOT TREATED with medication	6.73	54.44	7.27
TREATED with medication	9.54	8.79	16.36
d). Written report from parents			
NOT TREATED with medication	33.33	35.98	29.09
TREATED with medication	42.17	42.68	34.55
e). Written report from school teachers			
NOT TREATED with medication	61.95	60.25	58.18
TREATED with medication	80.22	76.99	78.18
f). Written report from school specialists, (ie, reading)			
NOT TREATED with medication	45.58	48.95	49.09
TREATED with medication	59.84	61.51	60.00

	[illegible]		
	[illegible]	[illegible]	[illegible]
g). Rating scales from parents			
NOT TREATED with medication	48.59	48.95	49.09
TREATED with medication	61.75	59.00	63.64
h). Rating scales from school teachers			
NOT TREATED with medication	51.41	52.30	56.36
TREATED with medication	68.57	67.78	78.18
i). Psychological testing			
NOT TREATED with medication	40.60	38.08	30.91
TREATED with medication	48.69	46.44	45.45
j). Physical exam			
NOT TREATED with medication	69.28	67.36	58.18
TREATED with medication	89.66	86.19	83.64
k). Neurological exam			
NOT TREATED with medication	55.72	51.46	43.64
TREATED with medication	71.79	62.34	60.00
l). Blood tests to monitor medications (CBC, blood chemistry, etc.)			
NOT TREATED with medication	9.94	10.46	9.09
TREATED with medication	43.57	38.08	30.91
m). Report from mental health professional			
NOT TREATED with medication	41.57	45.19	43.64
TREATED with medication	57.33	55.23	52.73
n). Other, please specify***			
NOT TREATED with medication			
Report cards	*40.00%*		
TREATED with medication			
In-person interview with patient	*5.00%*		
o). Not necessary to monitor this patient			
NOT TREATED with medication	4.62	3.11	1.92
TREATED with medication	3.0	0.00	0.00

5a. Do you schedule follow-up office visits to monitor these patients?			
Yes			
NOT TREATED with medication	69.00	68.27	62.79
TREATED with medication	97.05	96.30	97.92
5b. If *YES*, how frequently do you monitor these patients?			
(Check one)			
NOT TREATED with medication			
i) Weekly	0.12	0.00	0.00
ii). Monthly	2.37	4.00	4.88
iii). Bi-monthly	2.20	2.50	0.00
iv) Every 3 months	10.04	14.00	9.76
v). Every 4 to 6 months	26.68	21.50	17.07
vi). Annually	23.13	22.50	26.83
vii). Do not schedule office visit for patient	0.37	0.50	0.00
TREATED with medication			
i) Weekly	0.48	0.00	0.00
ii). Monthly	6.51	8.46	4.88
iii). Bi-monthly	3.86	4.98	2.44
iv). Every 3 months	29.40	27.36	13.71
v). Every 4 to 6 months	45.30	40.30	34.15
vi). Annually	8.80	11.94	14.63
vii). Do not schedule office visit for patient	0.24	0.00	0.00
viii). Other, please specify***			
NOT TREATED with medication			
At parent/patient request	*2.90%*		
TREATED with medication			
More frequently until medication is regulated	*7.94%*		

	[redacted]		
6. When follow-up consists of office visits, what length of time is scheduled? *(Check one)*			
NOT TREATED with medication			
i). Same time as a check-up	69.08	67.18	65.85
ii). Double the time of a check-up	26.01	29.23	26.83
iii). Triple the time of a check-up	2.33	1.54	4.88
TREATED with medication			
i). Same times as a check-up	57.75	59.09	58.33
ii). Double the time of a check-up	33.76	34.09	31.25
iii). Triple the time of a check-up	3.01	2.73	4.17
iv). Other, please specify***			
NOT TREATED with medication			
15-30 minutes	2.58%		
TREATED with medication			
1½ times	5.01%		

7. When conducting a follow-up visit with these patients, which of the following aspects of emotion or behavior do you always (A), sometimes (S) or never (N) include? *(Check all that apply)*			
a). *Family satisfaction or well-being*			
NOT TREATED with medication			
Always	91.16	91.08	92.00
Sometimes	8.14	8.45	8.00
Never	0.70	0.47	0.00
TREATED with medication			
Always	93.07	93.72	90.38
Sometimes	6.41	6.28	9.62
Never	0.53	0.00	0.00
b). *Patient's emotional well-being*			
NOT TREATED with medication			
Always	92.32	94.31	98.00
Sometimes	7.22	5.69	2.00
Never	0.47	0.00	0.00
TREATED with medication			
Always	94.22	95.05	98.08
Sometimes	5.15	4.95	1.92
Never	0.63	0.00	0.00
c). *Patient's relationship with peers*			
NOT TREATED with medication			
Always	80.21	81.43	79.59
Sometimes	19.09	18.57	20.41
Never	0.70	0.00	0.00
TREATED with medication			
Always	81.47	82.43	78.85
Sometimes	17.58	17.57	21.15
Never	0.95	0.00	0.00
d). *Substance abuse*			
NOT TREATED with medication			
Always	32.27	33.01	37.50
Sometimes	59.81	59.71	62.50
Never	7.92	7.28	0.00
Substance abuse			
TREATED with medication			
Always	31.67	33.48	32.69
Sometimes	60.59	61.09	63.46
Never	7.73	5.43	3.85

e). *School behavior (suspensions, warnings, fighting)*			
NOT TREATED with medication			
Always	90.78	91.08	97.96
Sometimes	8.17	8.02	2.04
Never	1.05	0.94	0.00
TREATED with medication			
Always	92.74	92.79	98.08
Sometimes	6.31	6.31	1.92
Never	0.95	0.90	0.00
f). *Illegal activities (stealing, lying, fire setting)*			
NOT TREATED with medication			
Always	42.14	35.85	30.73
Sometimes	50.82	56.13	63.27
Never	7.04	8.02	0.00
TREATED with medication			
Always	41.88	34.53	32.69
Sometimes	51.27	58.74	65.38
Never	6.86	6.73	1.92
g). *Gang activities*			
NOT TREATED with medication			
Always	18.31	16.67	14.29
Sometimes	44.98	44.29	48.98
Never	36.48	39.05	36.73
TREATED with medication			
Always	18.40	14.93	11.54
Sometimes	43.30	43.89	48.08
Never	38.30	41.18	40.38
h). *Presence of co-morbid symptoms (depression, anxiety)*			
NOT TREATED with medication			
Always	65.81	67.30	85.71
Sometimes	32.67	30.81	14.29
Never	1.52	1.90	0.00
TREATED with medication			
Always	65.51	66.22	41.00
Sometimes	32.81	31.98	21.15
Never	1.69	1.80	0.00
i). *Other, please specify****			
Physical well-being (ie, side effects and/or patient Satisfaction with medication, sleep and appetite habits, etc.)	42.68%		
School performance	19.51%		

8. When conducting a follow-up visit with these patients, which of the following school related aspects do you always (A), sometimes (S) or never (N) include? *(Check all that apply)*			
a). *Academic progress (report cards, grades)*			
NOT TREATED with medication			
Always	90.65	95.28	100.00
Sometimes	8.55	4.25	0.00
Never	0.81	0.47	0.00
TREATED with medication			
Always	92.26	95.98	100.00
Sometimes	7.01	4.02	0.00
Never	0.73	0.00	0.00
b). *Teacher/school feedback (rating scales)*			
NOT TREATED with medication			
Always	54.77	62.44	60.42
Sometimes	40.70	30.99	37.50
Never	4.53	6.57	2.08
TREATED with medication			
Always	60.52	69.51	66.67
Sometimes	36.65	27.35	31.37
Never	2.83	3.14	1.96

	[redacted]	[redacted]	[redacted]
c). *Compliance with homework*			
NOT TREATED with medication			
Always	69.34	72.64	83.33
Sometimes	29.04	25.94	16.67
Never	1.63	1.42	0.00
TREATED with medication			
Always	73.38	75.89	84.62
Sometimes	25.37	23.21	15.38
Never	1.25	0.89	0.00
d). *Non-medical treatments (educational interventions, classroom accommodations)*			
NOT TREATED with medication			
Always	65.06	63.16	79.17
Sometimes	33.18	34.93	20.83
Never	1.76	1.91	0.00
TREATED with medication			
Always	66.98	67.57	78.85
Sometimes	31.01	31.08	21.15
Never	2.01	1.35	0.00
e). *Other, please specify***			
Therapy, counseling	27.50%		
Extracurricular activities	20.00%		

9. **What form of input on a patient's progress do you require from the patient's school (ie. teachers, learning specialist)?** ***(Check all that apply)***			
a). Rating Scale	65.86	66.96	75.00
b). Written report or evaluation from school teacher	63.46	57.27	55.77
c). Written report or evaluation from counselor or psychologist	50.99	49.78	44.23
d). Verbal report from school teacher	31.41	28.63	30.77
e) Verbal report from counselor or psychologist	22.09	20.70	17.31
f). Second hand report from parents	63.23	60.79	55.85
g). None	1.57	0.88	0.00
h). Other, please specify***			
Patient interview	18.87%		
School report card	5.66%		

10. **What methods do you use to encourage patients or parents to adhere to your recommended follow-up schedule?** ***(Check all that apply)***			
a). Verbally stress the necessity of follow-up	87.89	87.56	92.16
b). Refuse to refill prescriptions if appointments are missed	79.16	72.44	78.43
c). Have a nurse or office staff consult patient's file when parent calls	54.74	50.22	47.06
d). Postcard/written reminder	19.37	21.33	15.69
e). Other, please specify***			
Phone reminder	30.70%		
Monitor compliance as refills are called in	11.27%		
Call school/ school nurse/case worker	8.45%		

11. **Do you have a specific routine for follow-up on the progress of your patient with ADHD?**			
a). Yes	69.78	64.44	70.91
If *YES*, please answer the questions below:			
i). Is your staff (ie, nurse, medical assistant) aware of this management plan?	61.13	57.08	60.78
ii). Does your staff assist you in carrying out steps to monitor patients with ADHD?	55.59	50.44	52.94

	[illegible]	[illegible]	[illegible]
12. Do you have a tracking system to follow-up patients with ADHD?			
a). Yes	33.43	32.64	27.27
If YES, what methods do you use to track patients with ADHD (Check all that apply)			
i). Visit schedule or medication card	21.47	20.95	13.04
ii) Consult computerized patient file	5.31	5.24	2.17
iii). Consult patient file (hard copy)	21.69	22.86	17.39
iv). Other, please specify***			
Review chart at time of medication refill	*52.34%*		
Separate notebook	*18.04%*		
13. Does your practice have a multi-disciplinary component? Include both in-office and services coordinated out of the office? (Check all that apply)			
a). Education specialist	34.73	28.30	33.33
b). Development specialist	40.59	51.89	42.86
c). Nutrition specialist	28.24	30.19	28.57
d). Psychologist	74.48	66.04	61.90
e). Social worker	33.68	18.87	23.81
f). Ophthalmologist	27.82	20.75	28.57
g). Neurologist	45.61	34.91	23.81
h). Audiologist	35.36	24.53	23.81
i). Case manager	10.88	8.49	14.29
14. When conducting a follow-up visit with a patient who is treated with medications, which of the following do you always (A), sometimes (S) or never (N) include? (Check all that apply)			
a). *Measurement of height*			
Always	87.41	83.04	84.91
Sometimes	11.89	16.52	15.09
Never	0.61	0.43	0.00
b). *Measurement of weight*			
Always	96.42	94.37	94.34
Sometimes	3.10	5.63	5.66
Never	0.41	0.00	0.00
c). *Blood pressure*			
Always	88.63	88.36	79.63
Sometimes	10.25	11.21	18.52
Never	1.13	0.43	1.85
d). *Evaluate for side effects (tics, insomnia, loss of appetite, headaches, stomach aches)*			
Always	94.39	94.40	96.30
Sometimes	5.10	5.17	3.70
Never	0.51	0.43	0.00
e). *EKG*			
Always	1.16	0.97	0.00
Sometimes	46.10	43.00	52.17
Never	52.47	56.04	47.83
f). *CBC*			
Always	11.58	8.33	6.25
Sometimes	62.81	62.04	70.83
Never	25.61	29.63	22.92

g). *Liver function test*			
Always	7.87	7.37	4.08
Sometimes	64.83	61.29	69.39
Never	27.30	31.34	26.53
h). *Blood levels*			
Always	3.39	4.39	4.44
Sometimes	38.08	39.02	48.98
Never	58.53	56.59	46.67
i). *Review of report cards/grades*			
Always	74.27	80.09	90.57
Sometimes	24.27	18.58	7.55
Never	1.45	1.33	1.89
j). *Evaluate for compliance with medication regimen*			
Always	86.25	85.15	92.59
Sometimes	12.31	13.97	7.41
Never	1.45	0.87	0.00
k). *Evaluate for effectiveness of medications*			
Always	96.45	95.50	100.00
Sometimes	3.03	4.50	0.00
Never	0.52	0.00	0.00
l). *Other, please specify****			
Patient satisfaction (ie, self-control, perceived side effects, etc.)	***22.22 %***		

15. **Which of the following medications have you ever prescribed for the treatment of ADHD? *(Check all that apply)***			
a). Short acting stimulants (Ritalin, Dexedrine, Dextrostat, Adderall, etc)	99.59	99.14	100.00
b). Long acting stimulants (Ritalin S-R, Dexedrine spansules, etc.)	93.33	91.81	96.30
c). Cylert	64.72	53.45	68.52
d). Clonidine/Catapres	47.90	46.98	50.00
e). Wellbutrin	13.30	14.22	5.56
f). Desipramine, Imipramine	39.18	23.00	29.63
g). Placebo controlled multi-dose trials	12.41	7.33	3.70
Other, please specify***			
Tenex	***21.52%***		
Prozac	***24.05%***		
Selected Serotonin Reuptake Inhibitors (SSRI's)	***16.45%***		

16. **Which of the following medications is your first choice when prescribing medication for the treatment of ADHD? *(Check all that apply)***			
a). Short acting stimulants (Ritalin, Dexedrine, Dextrostat, Adderall, etc)	98.64	98.25	100.00
b). Long acting stimulants (Ritalin S-R, Dexedrine spansules, etc.)	24.03	23.58	18.87
c). Cylert	4.70	1.75	0.00
d). Clonidine/Catapres	1.67	1.75	0.00
e). Wellbutrin	0.21	0.44	0.00
f). Desipramine, Imipramine	1.57	0.00	0.00
g). Placebo controlled multi-dose trials	0.99	0.87	0.00
h). Other, please specify***			
Neurologist decides	***10.00%***		
Depends on patient	***10.00%***		

	Percent of Participants who answered "Yes"		
	[redacted]	District	State
17. How often do you repeat blood work on a patient whose condition is stable when prescribing medications such as Imipramine or Cylert? (Check one)			
a). Monthly, or more frequently	4.56	2.56	2.44
b). Approximately every six months	69.17	72.44	78.05
c). Once per year	15.01	14.74	9.76
d). Never, unless indicated by changes in patient's condition	10.86	9.62	9.76
18. Do parent's ask you about alternative treatments for ADHD? Yes	92.80	91.59	98.11
18a. Which of the following alternative treatment plans have been recommended to your patients for the treatment of ADHD? *(Check all that apply)*			
i). Vitamin therapy	44.55	45.77	45.16
ii). Antioxidants	16.34	16.90	19.35
iii) Elimination of food additives	76.90	77.46	77.42
iv). Elimination of food preservatives	67.49	70.42	77.42
v). Visual training	42.24	45.77	58.06
vi). Plant extracts	20.79	13.38	9.68
vii). Other, please specify***			
Behavior modification	*35.33%*		
Counseling	*7.33%*		
Elimination of sugar	*6.00%*		
19. Do you have patients on alternative treatments for ADHD? Yes	37.79	40.45	37.25
20. What percentage of your patients with ADHD are on psychopharmacological medications? ‡	72.19	73.22	77.54
21. What percentage of your patients with ADHD receive formal behavioral interventions, social skills training, formal educational interventions, emotional counseling, or family therapy? ‡	58.05	58.82	58.11
22. What percentage of your patients with ADHD have co-morbid diagnoses? ‡	30.51	30.51	30.87

* The number of valid records is 996. This analyses includes all returned exercises to date. The analysis was completed by DataHarbor, Inc., May 1998.

* The AAP District data presented represents District III Mid Atlantic (n=257). District III includes the state of: Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania, and West Virginia.

** The state data presented represents the state Maryland (n=36).

*** All "Other, please specify" responses were read and summarized; only the top three responses are reported in summary report. District and State responses were not summarized due to small sample size.

↔ Response was invalid

‡ The percents represented are an average of the responding population.

SUMMARY OF PUBLIC HEARINGS

Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children

SUMMARY OF PUBLIC HEARINGS
MARCH - MAY 1998

#	Hearing Date	Location	Number of Speakers*	Number of Speakers Submitting Written Material	
				Testimony*	Other*
1	March 26, 1998	Baltimore	5	1	2
2	April 16, 1998	Cambridge	0	-	-
3	April 30, 1998	Hagerstown	5	3	1
4	May 14, 1998	Largo	6	1	0
5	May 20, 1998	Pikesville	13	1	1

*Summaries of oral testimony and submitted copies of written testimony are included in the Appendix. Copies of other written material submitted to the Task Force are available for review upon request.

Public Participation

With the exception of the final hearing, attendance at most of the five public hearings was sparse. A total of 26 different individuals addressed the Task Force through these hearings (one person attended and spoke at four of the five hearings). Public notice of the hearings may not have been optimal. Nonetheless the views expressed appeared to reflect a similar range of concerns to those shared with the General Assembly prior to the passage of the legislation that established the Task Force in the first place.

Persons who identified themselves during their testimony indicated the following information (some stated more than one affiliation or identity):

- Parent of a child with ADHD (or has family member with ADHD) 14
- Professional in education or human services 9
  (pediatric nurse practitioner, psychiatrist, social worker, school health administrator, school nurses, nutrition consultant, "medical/legal/social science researcher")
- Member of advocacy/parent support group 3
  (CHADD, Feingold Association)
- Other (State Delegate, adult with ADHD, concerned citizen) 4
- No identifying information 2

SUMMARY OF TASK FORCE SUBCOMMITTEE FINDINGS
GENERAL

Non-Pharmacological Treatments for Attention Deficit Hyperactivity Disorder (ADHD)

"Non-pharmacological treatment modalities are well accepted by parents and probably significantly underused...." (JAMA, April 8, 1998 -Vol 279, no. 14, p. 1106).

I. Non-pharmacological interventions are an important and essential component of the treatment of the child with ADHD.

II. The importance of an adequate diagnosis cannot be overemphasized, particularly with children with suspected ADHD who show a very high incidence of co-morbidity. The diagnosis often necessitates multi-modal, multi-dimensional procedures so that many aspects of the child's functioning can be addressed.

III. Non-pharmacological treatments take five forms:
(1) interventions that supplement the effect of the pharmacological treatment,
(2) interventions that can be used in place of pharmacological treatment,
(3) interventions that address the secondary emotional, social or family problems associated with ADHD,
(4) interventions that facilitate the school professionals in their efforts to help the child with ADHD, and
(5) interventions that can be used to address one or more of the co-morbid conditions often associated with ADHD.

IV Types of traditional non-pharmacological treatments:

A. Individual psycho therapy/counseling

Particularly useful in treating co-morbid conditions such as anxiety and depression.

Aim: to increase self-esteem, effect lasting behavioral change, increase self-management, educate the child regarding his or her condition and decrease anxiety and depressive symptoms.

Examples: cognitive-behavioral, psycho dynamic, psycho educational and adjustment counseling.

B. Group psychotherapy/counseling

Aim: to foster pro-social behaviors, develop social skills, improve social relationships, encourage social problem solving skills and enhance awareness.

Examples: social skills groups, activity groups, recreational groups and psychodynamic groups.

C. Parent counseling/parent training

Particularly useful in dealing with the real challenges children with ADHD present to parents.

Aim: to reach an understanding of the special needs of a child with ADHD and how to meet them, to reduce inaccurate perceptions of the child, to prepare and assist parents in implementing specific behavior management techniques, developing a structured environment, well-organized routines and consistency.

Examples: parent guidance sessions, parent support groups, psycho educational groups and parent training (in behavior modification principles). There are a number of books for parents that can help them learn to handle the child with ADHD.

D. Family Therapy/counseling

Occasionally more family issues need to be addressed.

Aim: to bring about improvement in family functioning that will be helpful to all its members, to develop problem solving skills for parents and children.

Examples: a variety of family therapy approaches

E. System and environmental changes

Children with ADHD are at greater risk in school for academic failure, dropping out, social rejection and antisocial behavior. School is a major area of a child's life. Therefore, changes in the classroom and curriculum are of high priority for consideration. Similar techniques, however, are also appropriate and valuable for other systems and aspects of the child's environment such as camps, social groups and athletic activities.

Aim: to affect changes in the responses of the environment and the way it is structured, and modify the system to help the child who has ADHD so he can do better in school.

Examples: school consultation, behavior management programs (contingency management), academic interventions, increased structure and reduced sensory stimulation. The availability of consultation from mental health providers for schools and other settings is essential in developing these interventions. There are a number of publications that describe environmental and systemic changes that can help children with ADHD.

V. There is more and more evidence that a multi-modal interdisciplinary multidimensional approach is most successful in treating children with the diagnosis of ADHD. There is general agreement that each child needs to be carefully diagnosed and a wide range of carefully monitored treatments undertaken according to a clearly outlined, individualized treatment plan. Such an approach requires close collaboration, coordination and communication among all those involved with the child and the family.

VI. As yet, there remain many questions about the effectiveness of long term treatment, pharmacological and/or non-pharmacological. Indeed there are many questions that remain to be answered regarding the causes, diagnosis and treatment of ADHD. Only careful research over an extended period of time will be able to answer these questions.

Diagnosis of Attention Deficit Hyperactivity Disorder (ADHD)

Purpose: One of the major purposes of a diagnosis is to make decisions especially with regard to any interventions that are needed. What information is needed to arrive at a diagnosis so that appropriate decisions can be made? For example, what data do schools need in order to determine what interventions should be implemented to assist a child with ADHD in a classroom?

1. ADHD is defined as a behavioral disorder in the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM IV).

2. This behavioral disorder manifests itself along three dimensions: **attention** (short attention spans, inattention), **action** (hyperactivity, jumpiness), and **control** (impulsivity, lack of delay). In later life (from early adolescence on), it may manifest itself in problems in attention, organization and planning.

3. ADHD is a clinical diagnosis, that is, there are no specific tests (behavioral or physiological) for ADHD. Despite the belief that ADHD is a neuropsychiatric disorder and biological and origin, there are no EEG, neurological or pathophysiological measurements or laboratory tests to diagnose it. No objective disease process has been found. No blood test or physical markers have been found.

4. As a collection of behavioral symptoms, the determination of ADHD is subject to judgment and interpretation.

5. Many physical or mental conditions can produce behaviors described in the DSM-IV manual as characteristic of those with ADHD such as depression, anxiety, metabolic disorders and bipolar disorder.

6. The DSM-IV manual is only a guide for clinical determination. In order to assess the intensity and adverse impact, clinical judgment is required.

7. In addition, ADHD can manifest itself differently at different ages and in different settings.

8. The behavior characteristics of ADHD can vary according to the response of the setting to the behaviors. Individuals working with children who have ADHD may have varied response thresholds in dealing with the behaviors manifested by the children.

9. Developmental and individual differences must be considered (diagnosis is discouraged at very early ages), length of time the behaviors have been manifested, as well as the setting where the behaviors have occurred.

10. Assessment and diagnosis should be done by a qualified person who has expertise and experience with ADHD children

11. Assessment needs to be done by an interdisciplinary team that may include physicians, psychologists, teachers, guidance counselors, parents, social workers, nurses, as well as the child and the family.

12. Because there is an estimated co-morbidity rate of 60 to 65 % with ADHD, occurring together with disorders such as developmental delays, learning disability, conduct disorder, or oppositional disorder, it is essential that there be careful diagnosis describing the overlap and the differential diagnostic features that take into account the many dimensions, degrees of the disorder and their variability as well as the strength of the child.

13. Multidimensional assessment and material from multiple sources are required. All major domains on the child's functioning need to be considered in an assessment: behavioral, social, cognitive, physical, emotional and academic. Information should be gathered in all these areas with selection of procedures based on what is needed for making an accurate diagnosis in order to make certain decisions. The selection should be tailored to the needs, settings and circumstances in each case depending the decision which is to be made:

- **Family history** (medical as well as social)
- **Developmental history** (critically important) with description of what has been tried and what has or has not been successful
- **Descriptions of the behavior from different settings** (e.g., recreational as well as school) in reports or in files (school records)
- **Testing**:

  Although tests may have validity and reliability, they do have limitations. No single test should be used alone in the making a differential diagnosis.

  - Behavior rating scales (the Achenbach, Behavior Assessment Scale for Children (BASC), Connors, or other scales from teachers and parents, or other (e.g., peers and the students themselves)
  - Personality tests, cognitive tests, achievement tests, etc. to rule out such disorders as anxiety, depression, neurological disorders, post traumatic stress disorder, learning disabilities, psychoses, when they are suspected.
  - Continuous performance tests
  - Students' self report

- **A thorough physical examination** with laboratory tests, etc.
- **Psychological and/or a psychiatric interview** with the child, preferably over several visits
- **An interview with the parents**
- **An evaluation of the environmental and community settings** where the child functions

- **Observations by skilled observers of the child in the classroom and other settings** (observations in a one to one office setting have, for the most part, been found to be unreliable for making the diagnosis of ADHD)

14. All of the data must be synthesized, identifying whether the condition exists and whether it requires intervention. This preferably should be done by an interdisciplinary team which has been responsible for planning the diagnostic evaluation and collecting the data.

15. The educational implications of the child's behaviors should be addressed by those familiar with and trained in educational settings.

16. The focus should be on developing in an individualized plan for each child, the family and setting since the behaviors can vary greatly depending on the setting.

17. The response to medication should not, in itself, be seen as diagnostic of the condition of ADHD since many children without that condition respond positively to the medication.

Research and Evaluation

The purpose of research is to develop knowledge that can lead to appropriate action. The purpose of evaluation is determining whether certain goals have been met and how. Sometimes the two are closely intertwined. Great effort is made to use a scientific method with both research and evaluation to obtain objective, valid and reliable information through various methodologies. This information is ideally uninfluenced by personal beliefs, fads and fashions, political, social or economic forces or biases. Unfortunately resources needed to do research, and areas for such research activities, are sometimes determined and limited by those forces. At times, these forces also operate to influence the research process itself or the dissemination of findings. It is important that, in choosing a treatment for any disorder, one be aware of the findings from peer-reviewed research and evaluation as to what works, how well it works and what problems may arise. With this information on non-pharmacological treatments, one will then be able to make a rational decision, and will not fall prey to untested, unproven and inadequately developed techniques.

SUMMARY INFORMATION
and RECOMMENDATIONS

FOR THE EDUCATIONAL SYSTEM

LEGALLY MANDATED SERVICES
for STUDENTS with ADHD and OTHER DISABILITIES

Students with disabilities may be eligible for educational services through two federal laws: Section 504 of The Rehabilitation Act of 1973, and the Individuals With Disabilities Education Act (IDEA). In both cases an evaluation of the student is required to determine the need for services. Not all students with diagnosed with ADHD are necessarily or automatically eligible for these services. The degree to which the student's ADHD impairs his or her learning is the major criterion for establishing a need for these legally mandated services.

1. "Section 504"

Section 504 of the Rehabilitation Act of 1973 requires school systems to ensure that "no qualified person with a disability shall, on the basis of disability, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity which receives or benefits from federal financial assistance."

A student becomes eligible for 504 services when she/he is identified as a person with a disability that substantially limits one or more major life activities, (i.e., learning). It is usually the classroom teacher or parent who will request that a student be screened and/or assessed for possible assistance.

Decisions about 504 services are made by a school-based team of professionals, with parent participation. This committee will determine the presence or absence of a disability that substantially limits learning or access to the learning environment. The committee may review outside evaluation reports and/or conduct its own evaluation in making this determination. The committee then establishes the services needed by the student. An individual written "504 Plan" will be developed that specifies the services and instructional accommodations and modifications that are necessary for the student to benefit from general education. Many students with ADHD may benefit from a 504 Plan.

2. Special Education Services

Students from birth to age 21, with disabilities that negatively impact their education, are eligible for special education and related services (such as speech therapy, counseling, or psychological services). All Maryland public schools provide these services.

A student may be considered to have a special education disability if she/he is having trouble learning in school because of mental and/or physical and/or emotional problems. A student may have a medical or other disability qualifying for "504" services, but is eligible under IDEA only if the disability adversely affects the student's ability to learn in school to such a severe degree that special education is required.

Students with disabilities include those students who have been identified as having one or more of the following categorical disabilities:

Deafness
Hearing Impairment
Multiple Disabilities
Orthopedic Impairment
Emotional Disturbance
Speech/Language Impairment
Traumatic Brain Injury
Deafness/Blindness
Mental Retardation
Visual Impairment
Other Health Impairment
Specific Learning Disability
Autism

A student becomes eligible for special education when she/he is identified as having a disability that adversely affects education and is not correctable without special education and related services. It is usually the classroom teacher or parent who will request that a student be screened and/or assessed for possible identification.

All decisions about special education are made by the Admissions, Review, and Dismissal (ARD) Committee. Every school has an ARD Committee for identifying students potentially in need of special education and related services. Parents serve as members.

The identification process requires a series of committee meetings that are guided by specific procedures and timelines required by federal law. If the committee determines it to be necessary, a comprehensive evaluation of the student is conducted. The ARD Committee must consider information from outside health and mental health care providers when it is submitted to the ARD Committee by the parent.

Following the evaluation, the ARD Committee determines whether the student has a disability that requires special education. If that is the case, it then decides what program the student should be placed in, what related services the student should receive, and approves the student's individual education program or IEP.

The IEP is a document that specifies the special education and related services the student is to receive. An IEP meeting is held annually to review the student's progress. In addition, each student's disability and placement is re-evaluated at least every three years.

ADHD is not a separate eligibility category under IDEA. Students with ADHD may sometimes be identified under another category, such as Learning Disabled or Emotionally Disturbed, due to a co-existing condition. In some severe cases students with ADHD may be found eligible as Other Health Impaired however, in Maryland this category requires a medical assessment. Many students diagnosed with ADHD do not require special education, and mild cases may not even require a 504 Plan. With appropriate in-school accommodations and with a well designed treatment program coordinated between home, school, and outside service providers, most students with ADHD can make reasonable progress in the regular classroom setting.

SCHOOL-BASED STUDENT SUPPORT TEAMS IN MARYLAND PUBLIC SCHOOLS

Background Paper prepared for the
Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children

The primary objective of school-based teams is to engage in a collaborative problem-solving process designed to bring planned, timely, and effective interventions to student learning and behavior problems, in a coordinated manner, with meaningful follow-up.

Definitions

Pre-Referral implies there will be a referral later – a better term might be "Early Intervention" or even "Referral Prevention"

Referral indicates that a school-based team must consider whether the student needs an evaluation due to the suspicion that the student has an educationally relevant disability. Referral is commonly a special education process, but may also involve consideration of a "Section 504" disability. *["Referral" is also a term used when the parent is given the suggestion that seeking outside services may be appropriate but not educationally necessary. The term must be used carefully in that context. The school cannot send the parent to an outside provider in order to obtain a service that the school itself is obligated to provide. The school cannot require the parent to obtain any outside services. Parents must not be told that their child requires medication for ADHD.]*

Educationally Relevant Disability means an identified or diagnosed condition that has a significant adverse impact on the student's educational performance. The term is meaningful in that some students may have diagnosed conditions that do not exert such adverse impact. ADHD may or may not be an educationally relevant disability

Evaluation is the process of planning, conducting, and reviewing results of assessments of the student in order to determine if an educationally relevant disability exists. Evaluation is designed to determine whether the student has such a disability, and to produce information that will assist in planning appropriate interventions to address the student's educational needs.

Special Education means providing the disabled student with the planned instructional and related services that are necessary as a result of the student's disability. The process is governed by federal law (recently revised): "The Individuals with Disabilities Education Act of 1997" (IDEA). While services are not necessarily "disability-specific", eligibility is determined by the existence of a disability in one or more of 12 categories. Common categories are specific learning disability, mental retardation, speech/language impairment, and emotional disturbance. Following formal evaluation and eligibility determination, an Individual Education Plan (IEP) is prepared that delineates the required services. *[Note: Special educational terminology and procedural*

requirements can be quite daunting to parents and others, presenting barriers to communication and to effective collaboration both in the school and with parents and outside professionals.]

Related Services are those that are provided in order that the student may benefit from special education. Examples could include counseling, behavior management, consultation, certain medical services, crisis intervention, and even transportation.

"Section 504" refers to a section of the federal "Rehabilitation Act of 1973." It is primarily a civil rights law, stating that government may not discriminate against an individual on the basis of disability. For the purposes of this law, disability means a condition that "substantially limits a major life function." Learning is considered a major life function. If the student has a disability that is educationally relevant but does not require special education, a "504 Plan" is developed that delineates the "reasonable" school accommodations and modifications necessary for the student to receive an education.

Examples of School-Based Student Support Teams

1. Educational Management Team (EMT) – school-based personnel (may include classroom teachers, counselor, reading specialist, special education teacher, administrator, others) meet regularly for low-level problem-solving, primarily instructional focus. May have other names, including "Grade-Level Team."

2. Pupil Services Team (PST) – specialists (may include school psychologist, nurse, counselor, pupil personnel worker, social worker, speech therapist, etc.) meet with regular school staff to consider cases for intervention or formal evaluation. While the PST may serve as a screener for special education referrals, it can also develop intervention plans for students before special education is considered, in lieu of special education, or when the student is not eligible for special education. May have other names, such as "Regular School Team" or "Student Support Team."

3. Student Assistance Team (SAT) – school-based staff and specialists meet, primarily to consider a student's need for referral due to suspicion of a substance abuse problem. In some school systems this process may become the primary referral-management instrument in a school, handling student problems of all types.

4. Instructional Consultation (IC) – in effect in some schools in Howard County, Baltimore City, and a few other systems. "Front-loaded" team process involving substantial staff development and additional support-staff resources, designed to bring skilled problem-solving consultation to student problems. Primarily deals with instructional issues but has been expanded to cover behavioral and social-emotional concerns as well.

5. Instructional Support Team (IST) – Pennsylvania-developed model now in effect in some Baltimore County schools. Provides similar "front-loaded" supports for student concerns of all kinds.

Both the IC and IST programs are examples of problem-solving models for student support services that have demonstrated effectiveness in reducing referrals to and placement in special education, improving academic performance, and reducing disciplinary referrals and suspensions. These models are based on the assumption that most student learning and behavior problems (often including many of the symptoms of ADHD) can be addressed effectively through early identification and intervention. IC and IST have proven most effective at the elementary school level, with some success reported in some middle schools.

6. Admission, Review & Dismissal (ARD) Committee – This is the formal special education committee that manages the entire process of a student's special education.

7. "504" Team or Committee – Manages the "504" process in the school.

The contents of this paper were derived in part from information provided to the Task Force by Local School System Directors of Pupil Services and Directors of Special Education, in a survey conducted in the spring of 1998. For additional information contact William Flook, Ph.D., School Psychologist, Anne Arundel County Public Schools, 1681 Millersville Rd., Millersville, MD 21108; telephone 410-923-0770.

SERVICE COORDINATION for STUDENTS WITH ADHD

Background Paper prepared for the
Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children

Increasing numbers of students diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) require collaboration among health providers, school personnel, and parents. This is true whether the condition was first identified in school or at home. Open, ongoing communication among these groups assists the ADHD student in performing closer to his/her potential.

The diagnosis of a condition such as ADHD may not necessarily qualify the student for special education; a process of school screening and evaluation would determine a student's special education status. Often students with ADHD can benefit from classroom modifications without formal "labeling" for special education. A school-based student support team will review input from teachers, family, and outside health care providers, and then decide appropriate modifications, services, or needed assessments. If routine reasonable modifications are not effective, a students may qualify for more formal "504" modifications. In severe or co-morbid cases special education services may be required.

If school professionals refer the student and parent to an outside provider due to concerns regarding ADHD, they should prepare a letter or other document to accompany the referral that summarizes pertinent school-related information for outside providers. If formal assessment reports from the school are available, these should be provided. Any exchange of information about the student will require informed parental consent, involving parent signature on the proper form. A copy of this signed form should also accompany the referral.

It will be helpful for outside provider to keep the school team informed of the ADHD student's current treatment status and needs, and the student will also benefit if the outside health care provider receives information on a regular basis on the student's school progress and functioning. Some school systems have developed forms that facilitate this two-way exchange of information, enabling coordination of services for these challenging students. In any case, a "case manager" for the student should be identified at the school as a primary point of contact for the outside provider.

The contents of this paper were derived in part from information provided to the Task Force by Local School System Directors of Pupil Services and Directors of Special Education, in a survey conducted in the spring of 1998. For additional information contact William Flook, Ph.D., School Psychologist, Anne Arundel County Public Schools, 1681 Millersville Rd., Millersville, MD 21108; telephone 410-923-0770.

Guidelines for Appropriate Referral by Local School System Personnel for Students Suspected of Having ADHD

In some cases it is appropriate for school system personnel to refer the parent to an outside medical or mental health provider, for evaluation and appropriate treatment beyond that which the school system is obligated to provide. One circumstance where such referral may be appropriate is when a student is suspected of having ADHD. Local School System (LSS) personnel should take note of the following principles in considering such referral:

- Referral by the school for a child suspected of having ADHD should be made through a team-based process of screening and case review. Individual school personnel, including teachers, should not refer parents to physicians without consultation by the school support team.

- When the school team determines that a referral to an outside medical or mental health provider is appropriate, the team should prepare a written summary of findings and concerns, describing the reasoning behind the referral and identifying a school staff member who will serve as a follow-up contact person.

- School staff should never recommend medication treatment for students suspected of or known to have ADHD. Preferable wording might be as follows: "We are concerned about your child's problems with attention, concentration, and activity level. These behaviors may represent ADHD. You may wish to talk with your child's physician about what further evaluation or treatment might be appropriate. If your child has behavioral or academic difficulties at home you wish to consider assistance with behavior management or counseling as well. We are going to provide educational interventions for your child's school problems whether you get outside treatment or not."

- Parents have a right to choose not to pursue the referral. No school services may be made contingent upon the parent pursuing the referral or obtaining evaluation or treatment from an outside provider. Services that a school is obligated to provide, such as testing or intervention for a student with a suspected or known disability, must be offered by the school regardless of whether the parent follows the referral. If the school needs an evaluation from an outside provider in order to plan services for a child with a suspected disability, the school is obligated to conduct that evaluation at no cost to the parent.

- When referring parents to outside medical or mental health care providers other than the child's physician, school personnel should attempt to offer the names of at least three qualified professionals who can provide services in the area of concern.

Ritalin Task Force – Final Report
Non-Pharmacological Treatments Committee

Education Recommendations

For the General Assembly

- Provide funds to the 24 Local School Systems (LSSs) to reduce class size and to support the following recommendations.

- No new laws specific to Ritalin or ADHD are necessary at this time.

For the Maryland State Department of Education (MSDE)

Teaming

- Support a school-team-based approach for youths with ADHD for screening, diagnosis, treatment planning, and referral as needed; MSDE's Coordinated Pupil Services program offers a model for this process.
- Consider assisting LSSs to develop more staff-intensive team processes such as Instructional Consultation Teams (Howard County, Baltimore City) and Instructional Support Teams (Baltimore County).

Staff Development

- Offer statewide programs and conferences for LSS personnel on the subject of working with ADHD students.
- Work with institutions of higher education to enhance pre-service training of teachers and support staff in this area.
- In conjunction with outside provider groups, develop training opportunities and informational materials for medical and mental health professionals outside the school system.

Technical Assistance

- Offer assistance to local school systems on both compliance with federal mandates, and on best practices for working with students with ADHD. This will require the availability of MSDE staff with expertise in ADHD for consultation with LSS personnel.
- Develop and disseminate "Best Practice" technical assistance papers on topics such as the following:
  - "Educational Diagnosis" of ADHD
  - Educational Strategies for Intervention with Students with ADHD
  - Procedural Guidelines for Application of IDEA and Section 504 to Students with ADHD (including decision trees and flow charts)
  - Guidelines for Transition (Grade and School) of Students with ADHD
  - Guidelines for Appropriate Referral by LSS Personnel (see Appendix)
  - Summaries of Current Research (*e.g.*: recent NIH Consensus Conference) and of Legal Issues and Cases.

Staff Development

- Offer regular inservice training on students with ADHD to teachers, administrators, and support staff at all grade levels, in both general and special education.

Class Size

- Seek to reduce class size so that all students may receive more individualized attention to their unique learning needs.

For Individual Schools

Team Approach

- Establish consistent team-based procedures for screening, evaluating, planning and implementing interventions, and follow-up and referral for students suspected of having ADHD.
- Interface with and ensure coordination with support systems for students with disabilities (IDEA, 504) within the school.
- Provide for early intervention and data-based problem-solving for students exhibiting ADHD-like behaviors, prior to formal referral, evaluation and diagnosis.

Case Coordination

- Within the framework of the school team, a case manager should be identified for each student identified as having ADHD. Duties should include consultation with teachers and administrators, coordination of interventions in the school and with community-based providers, and ongoing liaison with parents as needed.

School Improvement

- Conduct data-based needs assessment on the subject of students with ADHD in the school, to develop appropriate goals and activities in the School Improvement Plan, including staff development.

Resource Staff

- There should be at least one mental health professional (school psychologist, nurse, guidance counselor) in each school who is knowledgeable about ADHD, its educational implications, and LSS policies and procedures, available to consult on cases and to the school staff and School Improvement Team.

Parent Support

- Schools should offer parent support groups, or assist parents in connecting to appropriate supports in the community.

severe and/or persistent problems. Depending on the specific problems, a significant number of the children ADHD may need some of the following:

1. For those having difficulties with completing work, modification in educational program may be appropriate including giving consideration to decreasing the period of concentration necessary, increasing the salience, increasing the opportunities for movement or the multi sensory aspects of the instruction, and/or breaking the tasks into smaller units which are easier for the child to complete.

2. For those with more severe learning problems, modification of the educational program to address associated learning disabilities.

3. For those unable to function in the regular class, a smaller class or the higher amount of direct teacher attention afforded by a class with a lower teacher/student ratio.

4. For those with significant peer interaction problems, intensive assistance with developing social skills and improving peer interactions.

5. For children with more severe behavioral problems which fail to respond to usual good classroom management techniques, a formal functional behavioral assessment. Based on the results of this assessment, an specific plan should be developed to address that child's individual needs. Depending on the particular needs, strategies which might be used include reducing the task demands, altering the instructional method, ignoring off task or minor misbehaviors, time out for inappropriate behaviors, use of group contingencies, giving attention contingent upon task completion, response cost (taking away rewards which previously were earned), tangible rewards for on-task behavior, and token economies. In addition, the child may need some in-school counseling with a guidance counselor, social worker, or the school psychologist.

6. For many, school based efforts to improve their self esteem - though opportunities to contribute positively to the school, counseling to understand their problem better, and success in the classroom and in interactions with peers.

Communication among School Personnel, Parents, and Health Care Providers

Sharing of information and concerns as well as mutual respect among school personnel, parents, and health care personnel are crucial in providing optimal care for children with behavioral and academic problems such as ADHD. The best care comes from good communication, skillful problem solving, and consistent efforts to work together. All three groups should make a consistent effort to keep the others informed about the degree of progress, any new or worsening problems, and changes in management.

SAMPLE REFERRAL/ASSESSMENT FORMS

FOR THE ADHD STUDENT

BALTIMORE COUNTY PUBLIC SCHOOLS
Towson, Maryland 21204

BALTIMORE COUNTY DEPARTMENT OF HEALTH
Towson, Maryland 21204

CLASSROOM TEACHER'S CHECKLIST OF STUDENTS' BEHAVIOR

Name of Student _____ Date _____

Date of Birth _____ Name of School _____

Grade and/or Subject _____ Initial Observation _____ Follow-up _____

Teacher's Name _____ Teacher's Estimate of Student Achievement:

How many hours per day do you see student? _____
Time of Day _____

A. Reading _____ Grade Level _____
B. Mathematics _____ Grade Level _____
C. Other Subject _____

I. ACTIVITY	Not At All	Seldom	Moderately	Often	Very Often
1. Makes disruptive noise (e.g., taps, hums)					
2. Is overactive (leaves seat unexcused)					
3. Speaks out of turn					
4. Fidgets constantly					
5. Disturbs others nearby					
II. ATTENTION					
1. Does not attend to classroom instructions					
2. Does not complete classroom work					
3. Has short attention span					
4. Needs instructions					
III. CONDUCT					
1. Loses temper easily					
2. Provokes quarrels/fights					
3. Openly defies authority					
4. Influences others to misbehave					
5. Is passively uncooperative					
IV. SOCIAL/EMOTIONAL					
1. Is sad or sullen					
2. Is fearful/avoidant					
3. Is self isolated from other students					
4. Is unaccepted by the group					
5. Is easily led					
6. Is easily frustrated					

V. OTHER BEHAVIORS (Circle appropriate ones) cries tics poorly organized pouts/sulks daydreams tense overly sensitive clumsy poor fine motor coordination destructive to property

VI. ADDITIONAL TEACHER COMMENTS _____

ADHD RATING SCALE: INITIAL REFERRAL DATA

Initial Referral Data

Student:		**Ref. Date:**		**School:**	
Sex:		**D.O.B.:**			
		Age:			
Phone #:		**Grade:**			

Respondent (Include both name and relationship): _____

Directions:

The ADHD Rating Scale can be administered by anyone who has good knowledge of the student's history or behavior. Typically, this would be the parent(s) and teacher(s). It is recommended that the rating scales be completed in an interview setting. Comments regarding any item are requested to clarify behaviors observed. PLEASE fill out both sides.

Has the student had any of the following problems for at least the past six months? To what extent have you observed them? [CIRCLE THE APPROPRIATE NUMBER]

1. INATTENTION	**Almost Never**			**Almost Always**
1a. Fails to pay close attention to details, or makes careless mistakes in school or other daily activities.	**0**	**1**	**2**	**3**
1b. Has trouble keeping attention on tasks or play activities.	**0**	**1**	**2**	**3**
1c. Has trouble listening when spoken to.	**0**	**1**	**2**	**3**
1d. Has difficulty following through on directions and fails to complete schoolwork, cores or other responsibilities.	**0**	**1**	**2**	**3**
1e. Has difficulty organizing tasks or activities.	**0**	**1**	**2**	**3**
1f. Dislikes, avoids, or does not want to engage in activities that require sustained concentration.	**0**	**1**	**2**	**3**
1g. Loses things required for schoolwork or other activities.	**0**	**1**	**2**	**3**
1h. Is easily distracted from tasks.	**0**	**1**	**2**	**3**
1i Is typically forgetful in daily activities.	**0**	**1**	**2**	**3**

Please place any comments you have on items 1a. to 1i. above in this space.

2. HYPERACTIVITY

		Almost Never			Almost Always
2a.	Often squirms in his/her seat or fidgets.	0	1	2	3
2b.	Frequently is out of his/her seat at school or in other situations where he is expected to remain seated.	0	1	2	3
2c.	Runs about or climbs excessively when he/she is not supposed to.	0	1	2	3
2d.	Seems to have trouble working or playing quietly.	0	1	2	3
2e.	Can be described as "always on the go" or as if "driven by a motor."	0	1	2	3
2f.	Seems to talk excessively.	0	1	2	3

Please place any comments you have on items 2a. to 2f. above in this space.

3. IMPULSIVITY

		Almost Never			Almost Always
3a.	Frequently blurts out the answer to a question.	0	1	2	3
3b.	Typically has difficulty waiting for his/her turn.	0	1	2	3
3c.	Frequently interrupts others or intrudes on others.	0	1	2	3

Please place any comments you have on items 3a. to 3c. above in this space.

4. EXCLUSION / INCLUSION FACTORS

		Circle One	
4a.	Symptoms reported were present before age 7 years.	YES	NO
4b.	Symptoms are present in 2 or more settings.	YES	NO
4c.	Clear evidence exists that these symptoms cause difficulty in school, work, or in social situations.	YES	NO

Please place any comments you have on items 4a. to 4c. above in this space.

Place "X" in the time blocks that you have observed the student.

AM	7	8	9	10	11
PM	12	1	2	3	4
PM	5	6	7	8	9

5. ACADEMIC / SCHOOL FUNCTIONING

		Positive		Average		Negative
5a.	OVERALL ATTITUDE	5	4	3	2	1
		Yes		Sometimes		No
5b.	EFFORT	5	4	3	2	1
5c.	BRINGS AND/OR HAS REQUIRED MATERIALS	5	4	3	2	1
5d.	COMPLETES IN-CLASS PROJECTS OR WRITTEN WORK	5	4	3	2	1
5e.	COMPLETES REQUIRED MAKE-UP WORK WHEN NEEDED	5	4	3	2	1
5f.	TURNS IN COMPLETED HOMEWORK	5	4	3	2	1
5g.	CURRENT GRADE or GRADE AVERAGE: (Middle School & High School),	A	B	C	D	F

ADHD RATING SCALE: Monitoring Form

(Monitoring Data)

Student:		Ref. Date:		School:	
Sex:		D.O.B.:			
		Age:			
Phone #:		Grade:			

Respondent (Include both name and relationship): _____

Directions: RATE **THE STUDENT AS S/HE IS *CURRENTLY* FUNCTIONING**
To what extent ARE you OBSERVING the following NOW? [CIRCLE THE APPROPRIATE NUMBER]

INATTENTION	Almost Never			Almost Always
1a. Fails to pay close attention to details, or makes careless mistakes in school / daily activities.	0	1	2	3
1b. **Has trouble keeping attention on tasks or play activities.**	0	1	2	3
1c. **Has trouble listening when spoken to.**	0	1	2	3
1d. Has difficulty following through on directions and fails to complete schoolwork, chores, etc.	0	1	2	3
1e. **Has difficulty organizing tasks or activities.**	0	1	2	3
1f. **Dislikes, avoids, or does not want to engage in activities that require sustained concentration.**	0	1	2	3
1g. **Loses things required for schoolwork or other activities.**	0	1	2	3
1h. **Is easily distracted from tasks.**	0	1	2	3
1i. **Is typically forgetful in daily activities.**	0	1	2	3

HYPERACTIVITY	Almost Never			Almost Always
2a. **Often squirms in his/her seat or fidgets.**	0	1	2	3
2b. Frequently is out of seat at school or in other situations where remaining seated is expected.	0	1	2	3
2c. **Runs about or climbs excessively when he/she is not supposed to.**	0	1	2	3
2d. **Seems to have trouble working or playing quietly.**	0	1	2	3
2e. **Can be described as "always on the go" or as if "driven by a motor."**	0	1	2	3
2f. **Seems to talk excessively.**	0	1	2	3

IMPULSIVITY	Almost Never			Almost Always
3a. **Frequently blurts out the answer to a question.**	0	1	2	3
3b. **Typically has difficulty waiting for his/her turn.**	0	1	2	3
3c. **Frequently interrupts others or intrudes on others.**	0	1	2	3

ACADEMIC / SCHOOL FUNCTIONING

	Positive		Average		Negative
5a. **OVERALL ATTITUDE**	5	4	3	2	1
	Yes		Sometimes		No
5b. **EFFORT**	5	4	3	2	1
5c. **BRINGS AND/OR HAS REQUIRED MATERIALS**	5	4	3	2	1
5d. **COMPLETES IN-CLASS PROJECTS OR WRITTEN WORK**	5	4	3	2	1
5e. **COMPLETES REQUIRED MAKE-UP WORK WHEN NEEDED**	5	4	3	2	1
5f. **TURNS IN COMPLETED HOMEWORK**	5	4	3	2	1
5g. **CURRENT GRADE or GRADE AVERAGE: (Middle School & High School)**	A	B	C	D	F

TIME PERIODS WHEN RESPONDENTS USUALLY ARE WITH THE STUDENT DURING THE WEEK.

(Mark appropriate boxes:) →

AM	7	8	9	10	11	PM	12	1	2	3	4	5	6	7	8

Mark any of the side effects which you have noticed or which your student has mentioned.

POSSIBLE SIDE EFFECTS	COMMENTS
☐ Appetite loss	
☐ Insomnia	
☐ Headaches	
☐ Stomach aches	
☐ Seems tired	
☐ Stares often	
☐ Irritability	
☐ Excessive crying	
☐ Nervousness	
☐ Sadness	
☐ Withdrawn	

Page 1 COMMENTS

Respondent Signature

ANNE ARUNDEL COUNTY PUBLIC SCHOOLS
Department of Student Services

PUPIL SERVICES CONSULTATION NOTE

(Not to replace Special Education forms. To be used to provide collaborative information to professionals outside the school system.)

Name: _____ **School:** _____

DOB: _____ **Age:** _____ **Grade:** _____

Parent: _____ **Date of Note:** _____

Address: _____

This student has been screened by this school's

____ Educational Management Team (EMT)

____ Regular School Team (RST)

____ Admission, Review & Dismissal (ARD) Committee

This student was referred by _____

due to concerns regarding _____

SCREENING RESULTS:

a. Achievement: _____

_____

_____

b. Cognitive: _____

_____

_____

c. Observation: _____

_____

_____

d. Teacher Report: _____

_____

_____

e. Parent Report: _____

_____

_____

f. Nursing/Medical: _____

_____

_____

g. Other: _____

_____

_____

Pupil Services Consultation Note : _____
(name)

The EMT/RST/ARD Committee has determined the following, based on screening data:

____ a. There is reason to suspect an educational disability; formal assessment procedures will be pursued, as follows:

____ Psychological; ___ Educational; __ Speech & Language

____ other (_____)

____ b. At this time screening information does not give reason to suspect that this student has an educational disability, and consequently further assessment is not being considered.

____ c. Other: _____

_____

_____

RECOMMENDATIONS:

_____

_____

_____

_____

_____

_____

Position: _____

Anne Arundel County Public Schools

RELEASE

Release to: _____

Address: _____

My signature below indicates my agreement that this Consultation Note may become a part of this studer educational record, and that this Note may be released to the above-named individual or agency.

_____

Parent/Guardian Date

Original: Outside Professional
cc: School
Parent

Carroll County Public Schools
Westminster, Maryland 21157
410-751-3000

Date_____
Time _____

ADHD MEDICATION EFFECTIVENESS FOLLOW UP

Name of Student:			
School:		Subject:	
Grade:			
Requested By:			
Completed By:		Position:	
Date of Last Effectiveness Follow Up		Medication Dosage:	

	Never	Occasionally	Often	Very Often
1. Often fidgets with hand or feet or squirms in seat.	☐	☐	☐	☐
2. Often has difficulty remaining seated.	☐	☐	☐	☐
3. Often is easily distracted by extraneous stimuli.	☐	☐	☐	☐
4. Often has difficulty awaiting turn in groups.	☐	☐	☐	☐
5. Often blurts out answers to questions before questions have been completed.	☐	☐	☐	☐
6. Often has difficulty following instructions and fails to finish school work.	☐	☐	☐	☐
7. Often has difficulty sustaining attention to tasks.	☐	☐	☐	☐
8. Often has difficulty playing or engaging in leisure activities quietly	☐	☐	☐	☐
9. Often talks excessively.	☐	☐	☐	☐
10. Often interrupts or intrudes on others.	☐	☐	☐	☐
11. Often loses things necessary for task.	☐	☐	☐	☐
12. Often fails to give close attention to details or makes careless mistakes.	☐	☐	☐	☐
13. Often does not seem to listen when spoken to directly.	☐	☐	☐	☐
14. Often has difficulty organizing tasks and activities.	☐	☐	☐	☐
15. Often forgetful in daily activities.	☐	☐	☐	☐
16. Often runs about or climbs excessively in situations in which it is inappropriate.	☐	☐	☐	☐
17. Often is "on the go" or often acts as if "driven by a motor".	☐	☐	☐	☐

WDH/nc

H:\NINE\WDH\ADHD Medication Effectiveness Follow Up.wpd

NOTE: Please use back of this form for comments.

EXECUTIVE SUMMARY
ADHD: PROCEDURAL GUIDELINES

Carroll County Public Schools
Westminster, Maryland 21157

STAGE I:

- Child is referred
- Principal appoints a school-based case manager
- Initial screening meeting scheduled with parent(s)
- Screening Rating Scale (DuPaul) completed by parent(s) and teacher(s)
- Determine if child meets ADHD (DuPaul) criteria
- If criteria are met, parent signs permission form and physician's release form
- Reach consensus as to what mainstream strategies will be tried
- Evaluate effectiveness of these strategies
- Proceed to Stage II if little or no improvement is noted

NOTE: If at any time during Stage I a special education disability (e.g., SLD, etc.) is suspected, the studen should be referred immediately to the school ARD committee.

STAGE II:

- Case manager consults with principal or principal's administrative designee and school psychologist. This team determines specific checklists/rating scales to be completed by parent(s) and teacher(s).
- Parent questionnaire is completed
- Parent checklist/rating scales completed
- Teacher checklist/rating scales completed
- Review and copy pertinent data, e.g., report cards, portfolio assessment material, group and individual test scores, anecdotal records, etc.
- Observation of child's behavior
- Case manager submits all generated data from Stage I and Stage II attached to referral form to the School Psychologist's secretary.

STAGE III:

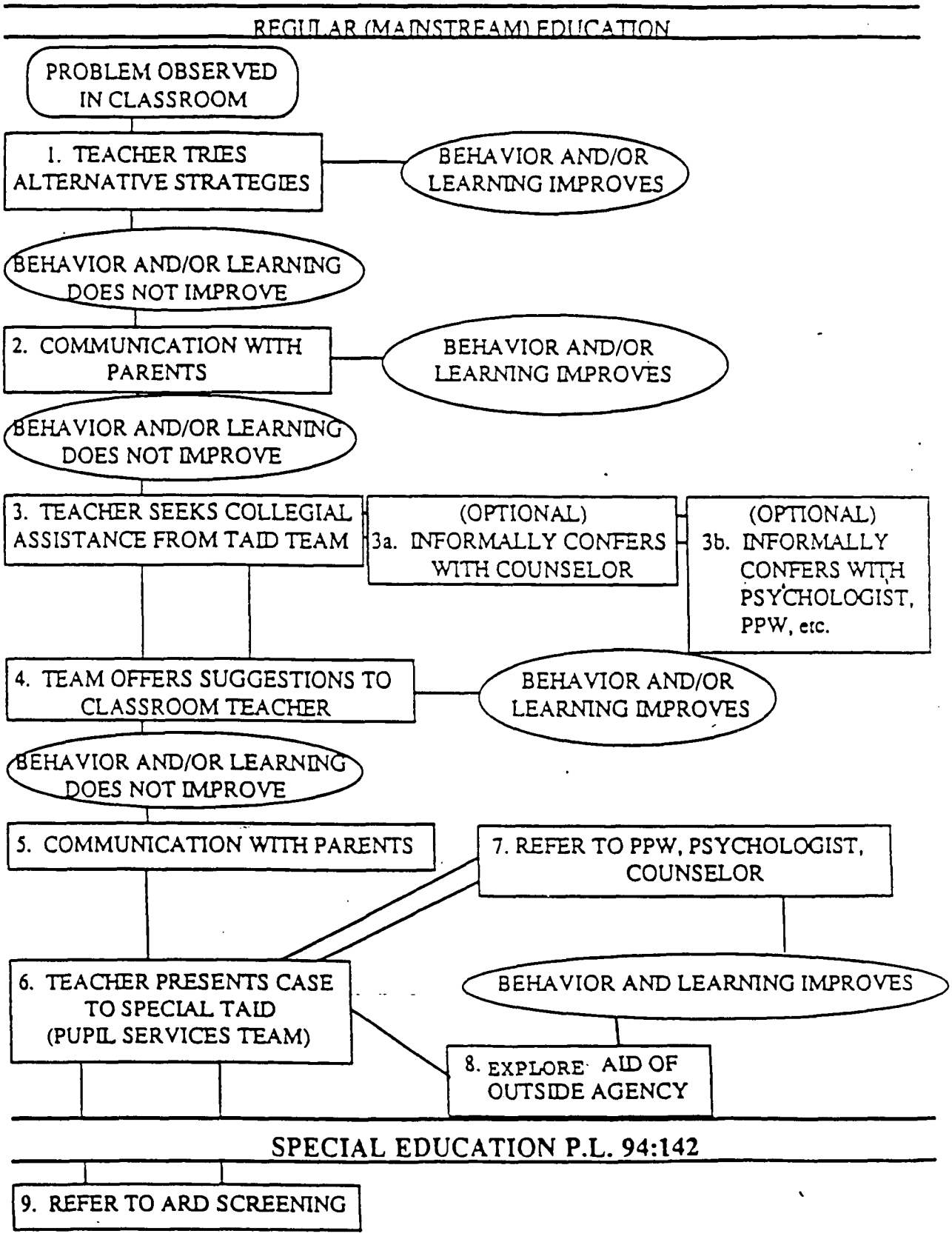
- School psychologist reviews data submitted
- School psychologist writes an ADHD Summary Report using standardized format that parallels the data generated in Stages I and II.
- Copies of all generated data will be attached to this report
- Two packets will be submitted to school, one for the parent, the other for the school file.
- Original copy will be filed in the Pupil Services Department

STAGE IV:

- Case manager schedules conference with parents,etc., when school psychologist's report is received
- Results are summarized for parent, etc., by school psychologist, or designee.
- Treatment strategies are discussed. Parents may, at this time, decide to take the report packet to their physician for review.
- Suggestions are made relative to behavioral treatment strategies

TAID FLOW CHART

(TAID = Teacher Assisted Instructional Decision)



SUMMARY INFORMATION
and RECOMMENDATIONS

for the
MEDICAL CARE/MENTAL HEALTH PROVIDER

Summary of Other Medications Used for Treatment of Attention Deficit Hyperactivity Disorder (ADHD)

Adderall, is a combination of neutral sulfate salts of dextroamphetamine and amphetamine and the dextro isomer of amphetamine saccarate and d, l-amphetamine aspartate. As with other amphetamines, **Adderall** is a non-catecholamine which acts by releasing dopamine and blocking re-uptake at the presynaptic site. Indications for use and reported adverse side effects are, as reported in the 1997 Physician's Desk Reference, identical to Dextroamphetamine. Data from the clinical **Adderall**, including a double blind, placebo and active controlled dose and time course study in children, are in preparation (unpublished).

Adderall is formulated in five milligrams, 10 milligrams, 20 milligrams and 30 milligrams double-scored tablets, allowing the possibility of many dose variations. Daily or twice daily doses are recommended.

A preliminary unpublished study on twenty-five children by Ahmann et al.[1] from Mashfield Clinic and Marshfield Medical Research Foundation and Richwood Pharmaceutical demonstrated a positive response rate of 58 %, with 16 % of the children discontinuing the study due to side effects. Twenty-five percent of the children were non-responders. A1976 study[2] comparing Levoamphetamine with Dextroamphetamine, found both medications to be effective. While not statistically significant, Dextroamphetamine demonstrated slightly more effectiveness and the levo isomer. Notably, Levoamphetamine produces less euphoria[3] and may be abused in patients who are higher risk for substance abuse

Clonidine (Catapres) and **Guanfacine** (Tenex) centrally acting alpha adrenergic agonists whose principal use is as anti-hypertensive agents. **Clonidine** stimulates the alpha-adrenoreceptors in the brain stem, reducing sympathetic discharges to the central nervous system. **Guanfacine** binds to postsynaptic alpha adrenergic receptors in the prefrontal cortex[4]. In addition to their anti-hypertensive effects, these agents have been found to be effective in the treatment of ADHD[5], tic disorders[6], sleep disorders and conduct disorders. Thus the alpha adrenergic agonists agents may be very useful in children with comorbid ADHD and tic or other behavior disorders. Both medications come in tablet form, **Clonidine** is also formulated in a transdermal patch that is

Large randomized placebo trials studying the efficacy of **Clonidine** and **Guanfacine** for treatment of ADHD without comorbid conduct disorder or tic syndrome are few. Clinically, **Guanfacine** appears to be less the sedating and less hypotensive than **Clonidine**. A small of double-blind placebo-crossover **Clonidine** trial by Hunt et al. demonstrated improved overall teacher and parent behavior ratings on **Clonidine** . The major side effect of **Clonidine** in Hunt's study was sedation, which diminished in most children by the third week of treatment.

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3. Yokel RA, Pickens R. (1974) Drug level of d- and l- amphetamine during intravenous self-administration. *Psychopharmacologia.* 34:255 – 264.

4. Aoki C, Go CG, Venkatesan C, Kurose H. (1994) Perikaryal and synaptic localization of alpha-2A-adrengeric receptor-like immunoreactivity. *Brain Research.* 306:9 -18.

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6. Chappell PB, Riddle MA, Scahill L, Lynch KA, Schultz F, Arnsten A., Leckman JF, Cohen DJ. (1995). Guanfacine Treatment of Comorbid Attention Deficit Hyperactivity Disorder and Tourette's Syndrome: Preliminary Clinical Experience. *Journal of the American Academy and Child and Adolescent Psychiatry.* 34:1140-1146.

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SCHOOL BASED INTERVENTIONS

School Based Procedures Prior to Diagnosis

Each school should have a set of procedures developed for teachers to follow when they are concerned about a child's difficulties with paying attention, being overactive and being impulsive. Ideally this should include sharing the concerns with parents, discussing and implementing classroom based strategies to help improve the problem, and then meeting again with parents to share progress. If initial efforts are not successful, a school-based team ought to review the child's problems and/or a school based resource who is knowledgeable regarding ADHD might be consulted. As a result of this, additional school based interventions should be initiated and the parents might be referred to their physician for evaluation of the specific problems. If the suggestion is made for the parents to see their physician, school staff should offer, with the parents' permission, to supply written information to the physician regarding the child's academic, behavioral and social performance in school. If there are continued concerns about academic skills or progress, the school team also ought to begin the assessments to determine whether academic difficulties may be contributing to the child's difficulties. Clearly, school personnel should not wait for a medical assessment or intervention before initiating school based intervention efforts.

School Based Interventions

For a child with ADHD, school based interventions are critical for him to have emotional, social and academic growth. However, the interventions for a specific child need to be tailored to that child and his unique needs. Attention Deficit Hyperactivity Disorder represents a common cluster of behavioral and learning difficulties but the degree to which a given child has each of the problems varies tremendously. In addition, there are many other disorders which commonly co-exist with ADHD (including, but not limited to, peer problems, self esteem problems, specific learning disabilities, oppositional defiant disorders, depression, and anxiety) and interventions need to address these as well if they are part of the individual child's problems.

Most children with ADHD benefit from the following school based interventions:

1. Education of teachers, administrators, and staff regarding ADHD and what expectations are reasonable for the specific child given his disorder.

2. Close communication and cooperation between parents and teachers regarding the child's educational program and his performance - academically, behaviorally and socially - in school.

3. Clear, consistent expectations regarding behavior at school which take into account the unique difficulties created by the child's symptoms. Consequences should be modified based on the child's degree of control, but rules should be consistently enforced with predictable consequences.

4. Use of positive systems of behavior control whenever possible - ie "catch 'em being good", shaping of behavior, and avoidance of public humiliation.

5. Increased structure and predictability within the classroom and within the school environment so the child is not confused by changing rules and does not get "out of control" due to lack of structure.

6. Increased use of routines so it becomes less important for the child to have "heard" specific directions or tuned into subtle changes.

7. Increased use of visual and nonverbal cues.

8. Formal teaching of organizational strategies and extra support regarding organization.

9. Advance notice for changes in routines and alerting of impending transitions.

10. Increased use of multi-sensory modalities in instruction, increased opportunities for active learning, and sensitivity to the length of attention span of the child.

11. Reduction of distractors based on what is distracting to a particular child including preferential seating, special work stations, etc.

12. Modifications in academic expectations or other adjustments based on the unique needs of the particular child (e.g. altering assignment length, having a duplicate set of textbooks at home, having the option of dictating rather than writing the answers to some assignments, etc.)

13. Use of problem solving to teach the student to identify his problems and to address those problems with socially acceptable solutions.

14. Addition of good behavioral techniques to address inappropriate behavior or lack of social skills including quietly correcting the child in private, making positive suggestions for addressing the specific problems, and publically reinforcing efforts to improve.

A wide range of school resources should be available to help the child with ADHD and his teacher. These resources might include administrators, guidance counselors, nurses, psychologists, special educators, and social workers as well as

teachers with particular skills or teachers who had taught the child in previous years. These resources should be helpful both with the usual child with ADHD and those with more severe and/or persistent problems. Depending on the specific problems, a significant number of the children ADHD may need some of the following:

1. For those having difficulties with completing work, modification in educational program may be appropriate including giving consideration to decreasing the period of concentration necessary, increasing the salience, increasing the opportunities for movement or the multi sensory aspects of the instruction, and/or breaking the tasks into smaller units which are easier for the child to complete.

2. For those with more severe learning problems, modification of the educational program to address associated learning disabilities.

3. For those unable to function in the regular class, a smaller class or the higher amount of direct teacher attention afforded by a class with a lower teacher/student ratio.

4. For those with significant peer interaction problems, intensive assistance with developing social skills and improving peer interactions.

5. For children with more severe behavioral problems which fail to respond to usual good classroom management techniques, a formal functional behavioral assessment. Based on the results of this assessment, an specific plan should be developed to address that child's individual needs. Depending on the particular needs, strategies which might be used include reducing the task demands, altering the instructional method, ignoring off task or minor misbehaviors, time out for inappropriate behaviors, use of group contingencies, giving attention contingent upon task completion, response cost (taking away rewards which previously were earned), tangible rewards for on-task behavior, and token economies. In addition, the child may need some in-school counseling with a guidance counselor, social worker, or the school psychologist.

6. For many, school based efforts to improve their self esteem - though opportunities to contribute positively to the school, counseling to understand their problem better, and success in the classroom and in interactions with peers.

Communication among School Personnel, Parents, and Health Care Providers

Sharing of information and concerns as well as mutual respect among school personnel, parents, and health care personnel are crucial in providing optimal care for children with behavioral and academic problems such as ADHD. The best care comes from good communication, skillful problem solving, and consistent efforts to work together. All three groups should make a consistent effort to keep the others informed

about the degree of progress, any new or worsening problems, and changes in management.

ALTERNATIVE THERAPIES

When considering any therapy, families and their health care providers should carefully consider whether there is scientific evidence available to support efficacy of a particular therapy and whether the product has been demonstrated to be safe in the recommended dose or amount, as well as what side effects or other effects might result and whether the potential gains are worth the potential risks. Families should be particularly skeptical of treatments recommended when testimonials are the primary justification offered and when the advocate of the treatment says that no scientific study is necessary. Specific commonly proposed "alternative therapies" are discussed below. It clearly is possible that some newly proposed treatments outside the usual drug development mechanism may prove to be safe and efficacious. However, families should be cautious about using them with their child outside a formal research protocol until safety and efficacy have been determined. Some common alternative treatments are briefly discussed below.

Elimination diets for allergies :

Safety - Safe if diet is balanced to compensate for foods eliminated.
Efficacy - Most likely to be useful for children with true allergies to specific foods.
Recommendation - May be worth trying for a limited trial if parent feels certain foods make child's symptoms worse or if child has a strong allergic history in general.

Decreasing sugar consumption :

Safety - Processed sugar has little nutritional value for a child. Decreasing intake probably would be good for everyone. No anticipated negative side effects.
Efficacy - No evidence in multiple studies that single large dose of sugar causes hyperactive behavior. However, no studies have been done on the effects of chronic high doses of sugar on children's behavior.
Recommendation - Decreasing sugar consumption is a reasonable and safe course of action, though most parents probably will not see dramatic improvement in their child's behavior as a result.

Elimination of artificial food dyes and salicylates:

Safety - Can be safely done without significant harmful side effects. Care must be taken to create a balanced diet given the restrictions.
Efficacy - Multiple rigorous scientific studies suggest that less than 5% of children with ADHD-like symptoms will respond to this diet.
Recommendation - Most families find this dietary modification difficult to do and the success rate has been found to be very low. However, families can try this safely if they wish. Those inclined to pursue this option need to set a reasonable interval over which they will try it and then seek other interventions if it is not successful for their particular child.

Herbal and/or "natural treatments":

Safety - Very few studies have been done on the various "natural" treatments sometimes

used for ADHD. There are no oversight controls evaluating either safety or purity of these substances so there may be a significant risk of harm either from the substance itself or from contaminants. Families need to remember that many natural things are quite toxic - either at any dose or in high doses. Examples include certain mushrooms, various berries etc.

Efficacy - No scientifically rigorous studies have established the usefulness of any of the touted "natural" treatments.

Recommendations - "Natural" does not mean safe or useful. At this time, few health care professionals would recommend any "natural" treatments for ADHD, given the significant risk and the low rate of improvement. Parents who wish to pursue this option should inform their physician so that he or she can monitor the child for any untoward effects.

Megavitamins and "trace" mineral treatments:

Safety - Both vitamins and minerals usually can safely be given in the recommended daily amounts. However, large doses of vitamins or minerals often have unintended unpleasant or even very dangerous side effects (for example iron is often given to babies and small children to help prevent anemia but is very toxic in high doses).

Efficacy - To date, no megavitamin treatments or mineral supplement treatments have been demonstrated to be effective in treating ADHD-like symptoms in a scientifically sound study. While there are some scientific theories about the basis of ADHD-like symptoms which suggest that this may be an avenue worth pursuing scientifically, to date these studies have not been done.

Recommendations - While it is possible that vitamin or mineral supplements will prove useful in the long run, until safety and efficacy can be demonstrated through rigorous scientific study, families should avoid this option.

Non-biochemical alternative treatments:

These options include biofeedback, acupuncture, sensory integration therapy, visual training, controlled visual stimulation, marital arts training (tai kwon do etc.) and yoga.

Safety - Most of these would be considered "safe", that is, unlikely to cause substantial harm to the child. However, they often are very expensive and involve substantial investment of not only money but also time (both for the child and for the parent).

Efficacy - To date, few studies have been done to evaluate these interventions using scientifically rigorous design. Limited studies of biofeedback suggest that extensive interventions can improve concentration in the short term to a limited extent. It is not clear how long this effect will last. Biofeedback has not been proven to alter impulsivity or hyperactivity. The limited studies of sensory integration therapy and visual retraining have shown no effect on ADHD symptoms. Studies have not been done to evaluate the other options listed. There is some anecdotal support for the value of martial arts training though it is not clear whether the improvement is related to improved self esteem or to training in self discipline.

Recommendation - Families should consider carefully whether investment (both in terms of money and substantial time) might not be better spent pursuing the nonpharmacologic interventions which have been found to be efficacious addressing pertinent components of this disorder for the particular family - that is parent and child education regarding

disorder, behavior management, counseling and activities to address self esteem issues, individual tutoring for academic subjects and to develop organizational skills, and therapy to address co-existing disorders.

Methylphenidate Abuse

The increased use of methylphenidate in the United States has been reported in current research literature and by the media. The U.S. Department of Justice, Drug Enforcement Administration (DEA), compiled a report in entitled *Methylphenidate* , which indicated that from 1990 to 1995 the use of methylphenidate in the U.S. increased six-fold. Also, that "the U.S. produces and consumes five times more methylphenidate that the rest of the world combined" (DEA, *Methylphenidate* , 1995, p. 1). The *Maryland Adolescent Survey* (MSDE, 1997) indicates that the range of ever having been on methylphenidate as reported by 12th graders was 0.8% to 11.6%.

The same sources report that methylphenidate is also being abused at an increasing rate. The DEA report draws a correlation between the increased use of methylphenidate and an increase in its abuse. Further, it is indicated that methylphenidate has the same potential as other Schedule II stimulants (i.e amphetamines, methamphetamine). The abuse of methylphenidate is characterized by increased doses, binge use followed by severe depression and a desire to continues its use regardless of medical and social consequences. Abuse can lead to tolerance and psychic dependency. Rather than take methylphenidate by oral administration, abusers may snort or inject the drug intravenously to enhance its effects. As with other central nervous system stimulants, the effects include agitation, tremors, euphoria, tachycardia, palpitations and hypertension. Also, psychotic episodes, paranoid delusions, hallucinations, bizarre behavior and death have been associated with the abuse of methylphenidate . In March, 1995, two deaths were attributed to methylphenidate abuse. Methylphenidate may be abused alone, or in combination with narcotics and alcohol. According to the DEA, there is documentation of parents abusing their child's medication, children selling or giving it to peers and thefts of school supplies of the drug. The drug finds its way to abusers through illegal sales, over prescribing and pharmaceutical thefts. It is associated with drug trafficking activities.

The DEA concludes that the "recent trend in the abuse of methylphenidate among adolescents is particularly alarming because this is the group that has the greatest access to methylphenidate for legitimate prescriptions" (DEA, *Methylphenidate* , 1995, p. 5). It has been suggested by one researcher that the use of sustained release methylphenidate , if it meets the child's needs, may be one approach to control abuse. This eliminates the need for multiple doses, maintaining a supply in school, or carrying on the person. However, it also appears that part of the problem is one of awareness. It appears that most parents are not aware of methylphenidate 's abuse potential.

AGENDA OF THE
MARYLAND INTERDISCIPLINARY CONFERENCE
ON ADHD

The Maryland Interdisciplinary Conference on Attention Deficit Hyperactivity Disorder

AGENDA - DAY ONE
FRIDAY, NOVEMBER 13, 1998

TIME	DESCRIPTION	LOCATION
7:30 - 8:30 am	**Registration and Continental Breakfast**	**Main Concourse**
8:30 - 8:45 am	**Welcome and Opening Remarks** - *Sidney Seidman, M.D., Chair, Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children; Assistant Professor, Johns Hopkins University; Vice Chair of the Board of Physicians Quality Assurance*	**Auditorium**
8:45 - 9:45 am	**"Recognition, Diagnosis, and Treatment of Attention Deficit Hyperactivity Disorder: A Presentation for Parents and Classroom Teachers,"** *Larry B. Silver, M.D., Child and Adolescent Psychiatrist; Clinical Professor of Psychiatry, Georgetown University Medical Center* Dr. Silver will review the basic behaviors that would suggest that an individual might have ADHD, and discuss the diagnostic process and how a final diagnosis is made. Related to the diagnosis, he will address other disorders often found with individuals who have ADHD. Finally, he will review the medication and non-medication approaches to treatment.	**Auditorium**
9:45-10:45 am	**"What Works in Treatment Studies for ADHD: Comparisons and Combinations,"** *Peter S. Jensen, M.D., Associate Director, Child and Health; Chief, Developmental Psychopathology Research Branch, National Institute of Mental Health* Dr. Jensen will review the results of multi-modal treatment studies for ADHD which have compared psychosocial and medical treatments alone and in combination.	**Auditorium**
10:45-11:00 am	**Break**	
11:00-12:00 pm	**"Comorbidity in ADHD,"** *Barbara D. Ingersoll, Ph.D., Clinical Psychologist; Clinical Director, Montgomery Child and Family Health Services; Clinical Associate Professor, Department of Behavioral Medicine and Psychiatry, West Virginia University School of Medicine* Co-existing psychiatric and learning disorders, present in as many as two thirds of clinic-referred ADHD conditions include Oppositional Defiant Disorder, Conduct Disorder, mood and anxiety disorders, speech/language disorders, and learning disabilities. In this discussion, Dr. Ingersoll will identify these disorders and their implications for treatment. Participants will learn to identify co-existing conditions as they complicate treatment in ADHD children.	**Auditorium**
12:00-1:15 pm	**LUNCH**	**Founders Room**
	1½ HOUR WORKSHOPS (1:30-3:00 pm) -11/13/98	
1:30-3:00 pm	**WORKSHOP #1** **Roundtable Discussion with the Experts - "Treatments of ADHD"** *Larry B. Silver, M.D., Child and Adolescent Psychiatrist; Clinical Professor of Psychiatry, Georgetown University Medical Center* *Peter S. Jensen, M.D., Associate Director, Child and Adolescent Research, National Institute of Mental Health*	**Room 2110**

11/13/98 TIME	1½ HOUR WORKSHOPS (1:30-3:00 pm) DESCRIPTION	LOCATION
1:30-3:00 pm	**WORKSHOP #2** **"Executive Function and School Performance"** *Antoinette DeFazio, Ph.D., Office of Psychological Services, Baltimore County Public Schools* In this workshop participants will learn the basic concept of executive function covering assessment, intervention and educational implications. **(This workshop will be repeated on Saturday, November 14, Workshop#20)**	Room 2117
1:30-3:00 pm	**WORKSHOP #3** **"Lessons From Listening to Parents: Information for Those Working with ADHD Families"** *Bruno Anthony, Ph.D., Associate Professor, Director, Maryland Centers for Attention and Developmental Disorders, Department of Psychiatry, Division of Child and Adolescent Psychiatry, University of Maryland at Baltimore* *Laura G. Foster, Ph.D., Assistant Professor, Department of Psychiatry, Division of Child and Adolescent Psychiatry, University of Maryland at Baltimore*	Room 2129
	3-HOUR WORKSHOPS (1:30 - 4:30 pm) -11/13/98	
1:30-4:30 pm	**WORKSHOP #4** **"Office Management of Children with ADHD for the Primary Care Practitioner"** *David Bromberg, M.D.,Clinical Associate Professor of Pediatrics, University of Maryland School of Medicine; Robin Chernoff, M.D., Assistant Professor of Pediatrics, Johns Hopkins School of Medicine; Linda Grossman, M.D., Associate Professor of Pediatrics, University of Maryland School of Medicine; Kenneth Tellerman, M.D., Chairman, Committee on Emotional Health for the Maryland Chapter, American Academy of Pediatrics* This workshop will provide primary care practitioners with an approach to conducting an office-based diagnostic evaluation of ADHD, the differential diagnosis and comorbid conditions to consider when evaluating for ADHD, methods of presenting an ADHD diagnosis to parents and children/adolescents, pharmacologic management, nonpharmacologic interventions, and when to refer to a mental health consultant. **(This workshop will be repeated on 11/14/98, Workshop #17.)**	Room 2109
1:30-4:30 pm	**WORKSHOP #5** **"School-Based Support Services for Students with ADHD"** *William Flook, Ph.D., (Panel Moderator), School Psychologist, Anne Arundel Co. Public Schools; Mildred Beall, M.A., School Counselor, Anne Arundel Co. Public Schools; Gail Dunlap, M.Ed., Assistant Principal, Harford Co. Public Schools; Todd Gravois, Ph.D., School Psychologist, Howard Co. Public Schools; David Humbert, M.A., School Psychologist, Carroll Co. Public Schools; Pamela Lewis, R.N., School Nurse, Prince George's Co. Public Schools; Melissa Leahy, Ph.D., School Psychologist, Carroll Co. Public Schools; and Vicki Taliaferro, R.N., B.S.N., C.S.N., School Nurse Consultant, Maryland State Department of Education.* This session offers a panel presentation covering school-based support services including "pre-referral" supports and interventions, the team process of assessment and program planning, direct and consultative student services, as well as describing pertinent laws and regulations, and the roles of teachers, administrators, support staff and parents in the process. **(This workshop will be repeated on 11/14/98, Workshop #19.)**	Room 2112
1:30-4:30 pm	**WORKSHOP #6** **"Advocating for Children with ADHD in Special Education Proceedings"** *Susan Leviton, Esquire, Law School Professor, University of Maryland School of Law, Founder and Chair, Public Policy, Advocates for Children and Youth* In this discussion, Professor Leviton will identify the legal requirements of the Special Education Law and §504, and discuss ways to help ADHD children receive appropriate school and medical services.	Room 0115

11/13/98 TIME	3-HOUR WORKSHOPS - 1:30-4:30 pm (Continued) DESCRIPTION	LOCATION
1:30-4:30 pm	**WORKSHOP #7** **"Attention Deficit Hyperactivity Disorder and the Family: Building Successes from the Struggles"** *P. Gayle O'Callaghan, Psy.D., Clinical Assistant Professor in Child Psychiatry, University of Maryland Medical School* This workshop will review issues of temperament, development, self-esteem and family systems in relation to the experience of families with ADHD members. Techniques of working with families around attentional issues will be discussed. **(This workshop will be repeated on 11/14/98, Workshop #16.)**	Room 0101
1:30-4:30 pm	**WORKSHOP #8** **"Treatment Modalities and the Use of Alternative Therapies"** *William Pelham, Jr., Ph.D., Professor of Psychology and Director of Clinical Training, State University of New York, Buffalo, New York* *C. Keith Conners, Ph.D., Professor of Psychiatry and Psychology, Duke University Medical Center, Durham, North Carolina* *L. Eugene Arnold, M.Ed., M.D., Sunbury, Ohio* *William Walsh, Ph.D., Pfeiffer Treatment Center, Naperville, Illinois* This roundtable discussion will focus on treatment alternatives to stimulant drugs, the efficacy of these alternatives, safety issues, and limitations. Some of the alternatives include: behavioral treatments, special diets, nutritional supplements, biofeedback, meditation, perceptual stimulation/training, herbal and homeopathic remedies, acupuncture, and desensitization. **(This workshop will be repeated on 11/14/98, Workshop #15.)**	Room 2119
1:30-4:30 pm	**WORKSHOP #9** **"Classroom Strategies to Help Channel our Gifts and Energy"** *Sara Egorin-Hooper, M.S., Special Education Specialist, Baltimore County Public Schools* In this session participants will learn to capitalize on the gifts of students with ADHD. Learn and engage in specific strategies that will support student achievement and success, look at building the bodily-kinesthetic intelligence into instruction consistently and purposefully. **(This workshop will be repeated on 11/14/98, Workshop #18.)**	Room 1101
1:30-4:30 pm	**WORKSHOP #10** **"Overview of Learning Disabilities and Attention Deficit Disorder"** *Gail M. Liss, Ed.D., Private Practice Psychoeducational Specialist* Dr. Liss will present an overview and understanding of the characteristics of learning disabilities and Attention Deficit Disorder, the areas that may be affected and strategies (academic, social/emotional, behavioral, and organizational) for coping.	Ft. McHenry Room
1:30-4:30 pm	**WORKSHOP #11** **"ADHD: How the School Health Nurse Can Help"** *Rebecca Colt-Ferguson, R.N., B.S.N., Baltimore County Public Schools* *Katherine F. Scheulen, R.N., B.S.N., Baltimore County Public Schools* *Alison M. Wallick, R.N., B.S.N., Baltimore County Public Schools* This workshop will enhance the school health nurse's skills as case manager and educator while providing strategies to promote success for this group of at-risk children and youth.	Room 1115
1:30-4:30 pm	**WORKSHOP #12** **"ADHD in Families of Adoption, Divorce and Step-Families"** *Barbara D. Ingersoll, Ph.D., Clinical Psychologist; Clinical Director, Montgomery Child and Family Health Services; Clinical Associate Professor, Department of Behavioral Medicine and Psychiatry, West Virginia University School of Medicine* ADHD children in families of adoption, separation/divorce, and step-families deal with a "double dose of difference." Dr. Ingersoll will discuss the special needs of ADHD children in alternative family settings and address ways in which parents can help these children cope and thrive. Participants will learn to recognize special needs of ADHD children in alternative families, identify specific problems, and implement interventions.	Rooms 1109 and 1111
4:45-5:45 pm	**General Body Meeting of the Maryland State School Health Council**	Founders Room

The Maryland Interdisciplinary Conference on Attention Deficit Hyperactivity Disorder

AGENDA - DAY TWO
SATURDAY, NOVEMBER 14, 1998

TIME	DESCRIPTION	LOCATION
7:30 - 8:30 am	**Registration and Continental Breakfast**	**Main Concourse**
8:30 - 9:00 am	**Welcome and Opening Remarks** *Martin Wasserman, M.D., J.D., Secretary, Maryland Department of Health and Mental Hygiene*	**Founders Room**
9:00 - 9:30 am	**"The Critical Role of Schools as a Comprehensive Support System for Children with ADHD"** *Richard Steinke, Deputy State Superintendent, School Improvement Services Office, Maryland State Department of Education*	**Founders Room**
9:30 - 10:15 am	**"Children with ADHD - Understanding the Problem, Finding the ` Solution"** *Patricia O. Quinn, M.D., Developmental Pediatrician, Washington, D.C.* In this lecture by Dr. Quinn, participants will learn to better understand the presenting symptomatology of children with ADHD, discuss gender differences in presentation and list presentation of a student with good self esteem.	**Founders Room**
10:15-10:30 am	**Break**	
10:30 -11:15 am	**" A School District's Role in Working with Children with ADHD"** *Kathryn Coleman, Director of Pupil Services and Special Education, Calvert County Public Schools* This presentation will give an introductory overview of §504 of the Rehabilitation Act of 1973 prohibiting discrimination against persons with disabilities in public school programs with emphasis on the school district's responsibility to identify and provide educational accommodations and services to students identified as having attention deficit disorders. Also learn the definition of attention deficit, a clarification of the U.S. Department of Education's policy regarding the needs of children with ADHD, eligibility criteria and procedures for providing educational modifications.	**Founders Room**
11:15 -11:45 am	**"Presentation on Task Force Findings"** *Sidney Seidman, M.D., Chair, Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children; Assistant Professor of Pediatrics, Johns Hopkins University* Dr. Seidman, appointed by the Governor as Chair, will present the findings of the Task Force to Study the Uses of Methylphenidate and Other Drugs on School Children. This 19-member task force was established by Maryland legislation and mandated to convene a statewide conference to provide up-to-date information and educational materials to professionals and parents about ADHD, the use of methylphenidate, dextroampheta-mine, magnesium pemoline and other medications for its treatment, as well as nonpharmacological treatment alternatives.	**Founders Room**
11:45 -12:30 pm	**Break and Exhibits**	**Main Concourse**
12:30 -1:15 pm	**LUNCH**	**Founders Room**

11/14/98 **3-HOUR WORKSHOPS (1:30 - 4:30 pm)**

TIME	DESCRIPTION	LOCATION
1:30-4:30 pm	**WORKSHOP #13** **"The Adolescent with ADHD"** Patricia O. Quinn, M.D., Developmental Pediatrician, Washington, D.C. In this workshop participants will get a better understanding in the areas of continued disturbance of ADHD in adolescents, discuss comprehensive treatment programs, and become familiar with medications used to treat ADHD and possible side effects of each.	**Room 1101**
1:30-4:30 pm	**WORKSHOP #14** **"Legal Advocacy - Discipline, §504 & Special Education"** *Lina Ayers, Esquire, Director, School House Legal Services (legal services for Advocates for Children and Youth, Inc.)* In this workshop find out about the new discipline rules under the 1997 IDEA re-authorization, how to communicate with school personnel to be an effective advocate for your child, what your rights are as the parent of a special needs child, what you should do if your child is suspended or expelled, and how to avoid suspension and expulsion.	**Room 1115**
1:30-4:30 pm	**WORKSHOP #15** **"Treatment Modalities and the Use of Alternative Medications Therapies"** *William Pelham, Jr., Ph.D., Professor of Psychology and Director of Clinical Training, State University of New York, Buffalo, New York* *C. Keith Conners, Ph.D., Professor of Psychiatry and Psychology, Duke University Medical Center, Durham, North Carolina* *L. Eugene Arnold, M.Ed., M.D., Sunbury, Ohio* *William Walsh, Ph.D., Pfeiffer Treatment Center, Naperville, Illinois* This roundtable discussion will focus on treatment alternatives to stimulant drugs, the efficacy of these alternatives, safety issues, and limitations. Some of the alternatives include: behavioral treatments, special diets, nutritional supplements, biofeedback, meditation, perceptual stimulation/training, herbal and homeopathic remedies, acupuncture, and desensitization. **(This is a repeat workshop. See 11/13/98, Workshop #8 for description.)**	**Room 2100**
1:30-4:30 pm	**WORKSHOP #16** **"Attention Deficit Hyperactivity Disorder and the Family: Building Successes from the Struggles"** *P. Gayle O'Callaghan, Psy.D., Clinical Assistant Professor in Child Psychiatry, University of Maryland Medical School.* **(This is a repeat workshop. See 11/13/98, Workshop #7 for description.)**	**Room 0101**
1:30-4:30 pm	**WORKSHOP #17** **"Office Management of Children with ADHD for the Primary Care Practitioner" Panel** *David Bromberg, M.D., Clinical Associate Professor of Pediatrics, University of Maryland School of Medicine; Robin Chernoff, M.D., Assistant Professor of Pediatrics, Johns Hopkins School of Medicine; Linda Grossman, M.D., Associate Professor of Pediatrics, University of Maryland School of Medicine; and Kenneth Tellerman, M.D., Chairman, Committee on Emotional Health for the Maryland Chapter, American Academy of Pediatrics* **(This is a repeat workshop. See 11/13/98, Workshop #4 for description.)**	**Room 0109**
1:30-4:30 pm	**WORKSHOP #18** **"Classroom Strategies to Help Channel our Gifts and Energy"** *Sara Egorin-Hooper, M.S., Special Education Specialist, Baltimore County Public Schools.* **(This is a repeat workshop. See 11/13/98, Workshop #9 for description.)**	**Room 2112**

3-HOUR WORKSHOPS (Continued)

TIME	DESCRIPTION	LOCATION
1:30-4:30 pm	**WORKSHOP #19** **"School-Based Support Services for Students with ADHD" Panel** *William Flook, Ph.D., (Moderator), School Psychologist, Anne Arundel Co. Public Schools; Gail Dunlap, M.A., Assistant Principal, Harford Co. Public Schools; Karl Fleischer, Ph.D., School Psychologist, Baltimore Co. Public Schools; Lynn Foley, M.A., School Counselor, Anne Arundel Co. Public Schools; Pauline Prince, Ph.D., School Psychologist, Anne Arundel Co. Public Schools; Vicki Taliaferro, R.N., B.S.N., C.S.N., School Nurse Consultant, Maryland State Department of Education.* **(This is a repeat workshop. See 11/13/98, Workshop #5 for description.)**	**Room 1123A**

1½-HOUR WORKSHOP *NOT* REPEATED (1:30-3:00 pm)

1:30-3:00 pm	**WORKSHOP #20** **Executive Function and School Performance"** *Antoinette DeFazio, Ph.D., Office of Psychological Services, Baltimore County Public Schools* In this workshop participants will learn the basic concept of executive function covering assessment, intervention and educational implications. **(This workshop also given on 11/13/98, Workshop #2.)**	**Room 2114**

1½ HOUR PRESENTATIONS REPEATED (1:30-3:00 &3:00-4:30)

1:30 - 3:00 and 3:00- 4:30 pm	**WORKSHOP #21** **"The Experiences of Families with ADHD Children"** *Bruno Anthony, Ph.D., Associate Professor, Director, Maryland Centers for Attention and Developmental Disorders, Department of Psychiatry, Division of Child and Adolescent Psychiatry, University of Maryland at Baltimore* *Laura G. Foster, Ph.D.,* Assistant *Professor, Department of Psychiatry, Division of Child and Adolescent Psychiatry, University of Maryland at Baltimore* Presentation will review findings from parent focus groups held aroudn the state as part of the Task Force to Study the Use of Methylphenidate and Other Drugs on School Children.	**Room 2119**
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP #22** **"Negotiating the School System"** *Josie Thomas, Director, Parents' Place of Maryland* Participants will discuss working with school systems to develop appropriate educational programs for their children. Breakdowns in communication will be explored as well as strategies for increasing effective parent/professional communication. Ideas for increasing parent effectiveness in IEP meetings will also be discussed in this workshop.	**Room 1123B**
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP #23** **Pediatric Psychopharmacology: Problems and Prospects"** *Mark Riddle, M.D., Director, Division of Child and Adolescent Psychiatry, Department of Psychiatry and Behavioral Science, The Johns Hopkins Medical Institutions; Associate Professor, Departments of Psychiatry and Pediatrics, The Johns Hopkins University School of Medicine* In this workshop, the presentation will include a description of major problems in pediatric psychopharmacology. The discussion will focus on prospects for change that can improve the lives of children with ADHD and their families. Stimulants and ADHD will be emphasized. Recent changes in federal regulations will be included in this presentation.	**Room 2109**

11/14/98 **1½ HOUR PRESENTATIONS REPEATED (1:30-3:00 &3:00-4:30)**

TIME	DESCRIPTION	LOCATION
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP #24** **"Services and Support Groups for ADHD and Related Disorders"** *Tish Michel (Moderator), Co-Coordinator of CH.A.D.D. Baltimore County; Alyssa R. Fieo, Maryland Disability Law Center; John Heavener, Executive Director, CH.A.D.D.; Mark Howard, President of Learning Disabilities Association of Baltimore; Deborah C. Janis, Training Coordinator, The Parents' Place of Maryland; Cheryl Lisker, President of Tourettes Syndrome Association of Baltimore; Mary Richardson, CH.A.D.D. National President.* This panel will describe local services and support groups available in Maryland. In addition this workshop will help promote understanding and acceptance of ADHD.	Room 2117
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP #25** **"Empowering Your Child's Social Skills"** *Sharyn R. Stein, M.S., Play Therapist affiliated with Plotkin, Sack and Karlen, P.A., Baltimore County.* This workshop will help parents as well as professionals learn skills such as cues and cognitive restructuring to help children better interact with peers. Participants will learn to recognize characteristics which cause children to have difficulty making and maintaining friends and learn skills to empower these challenging areas.	Room 2110
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP #26** **"ADHD and Language Processing"** *Linda E. Spencer, Ph.D., Speech-Language Pathologist, Certified, American Speech-Language-Hearing Association* This workshop will present the status of current research into causes of language processing disorders among children with ADHD, what formal and informal assessment instruments currently are being used, and the way these test instruments are interpreted.	Room 2102
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP #27** **"Overview of Learning Disabilities and Attention Deficit Disorder"** *Gail M. Liss, Ed.D., Private Practice Psychoeducational Specialist* This workshop will present an overview and understanding of the characteristics of learning disabilities (LD) and Attention Deficit Hyperactivity Disorder (ADHD), the areas that may be affected (reading math, writing, organization, etc.) and strategies (academic, social/emotional, behavioral, and organizational) to help cope with LD and ADHD.	Room 2129
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP #28** **"ADHD and Self-Regulation: A New Piece of the Puzzle"** *Karen R. Harris, Ed.D., Distinguished Scholar-Teacher/Professor, Department of Special Education, University of Maryland* In this presentation participants will explore the relationship between ADHD and self-regulation/self-control, including how and why the development of self-regulation appears to differ among children with special needs. Dr. Harris will provide the participants with an overview of the four cornerstones of self-regulation and how their development can be enhanced.	Room 0105
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP #29** **"ADHD: An Overview for Parents"** *Brian Michael Siegel, M.D., P.A., Medical Director, Siegel & Thomas HealthCare Group; Alice Heisler, M.D., University of Maryland School of Medicine* *Robert Canosa, Ph.D., Director of Child and Family Outpatient Counseling, Villa Maria Treatment Center*	Room 2104

11/14/98 **1½ HOUR PRESENTATIONS REPEATED (1:30-3:00 &3:00-4:30)**

TIME	DESCRIPTION	LOCATION
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP#29** (Continued) This workshop will be an interdisciplinary discussion of ADHD including the parents' perspective. Identification, evaluation, treatment approaches and secondary effects will also be discussed. Short term and longer term issues will be included.	**Room 2104**
1:30 - 3:00 and 3:00 - 4:30 pm	**WORKSHOP #30** **"An Overview of Attention Deficit Hyperactivity Disorder for School Nurses"** *Judith A. Vessey, Ph.D., R.N., F.A.A.N., Professor, Johns Hopkins University School of Nursing* Dr. Vessey will present the incident/prevalence and diagnostic distinctions among ADHD and its various subgroups, learning disorders and related co-morbidities. Participants will be able to: identify key features of ADHD including definitions, etiology and diagnostic criteria; interpret information about ADHD and its diagnosis and management to students, families and educators; and help implement appropriate pharmacologic and nonpharmacologic management.	**Room 1123F**

REFERENCE ARTICLES/DOCUMENTS

As *Maryland's Task Force to Student the Use of Methylphenidate in School Children* researched current literature the following selections were chosen as good sources of information regarding the issue of ADHD and its treatment.

REFERENCE ARTICLES/DOCUMENTS

As *Maryland's Task Force to Student the Use of Methylphenidate in School Children* researched current literature the following selections were chosen as good sources of information regarding the issue of ADHD and its treatment.

Diagnosis and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents

Larry S. Goldman, MD; Myron Genel, MD; Rebecca J. Bezman, MD; Priscilla J. Slanetz, MD, MPH; for the Council on Scientific Affairs, American Medical Association

Objective.—To deal with public and professional concern regarding possible overprescription of attention-deficit/hyperactivity disorder (ADHD) medications, particularly methylphenidate, by reviewing issues related to the diagnosis, optimal treatment, and actual care of ADHD patients and of evidence of patient misuse of ADHD medications.

Data Sources.—Literature review using a National Library of Medicine database search for 1975 through March 1997 on the terms *attention deficit disorder with hyperactivity, methylphenidate, stimulants,* and *stimulant abuse and dependence.* Relevant documents from the Drug Enforcement Administration were also reviewed.

Study Selection.—All English-language studies dealing with children of elementary school through high school age were included.

Data Extraction.—All searched articles were selected and were made available to coauthors for review. Additional articles known to coauthors were added to the initial list, and a consensus was developed among the coauthors regarding the articles most pertinent to the issues requested in the resolution calling for this report. Relevant information from these articles was included in the report.

Data Synthesis.—Diagnostic criteria for ADHD are based on extensive empirical research and, if applied appropriately, lead to the diagnosis of a syndrome with high interrater reliability, good face validity, and high predictability of course and medication responsiveness. The criteria of what constitutes ADHD in children have broadened, and there is a growing appreciation of the persistence of ADHD into adolescence and adulthood. As a result, more children (especially girls), adolescents, and adults are being diagnosed and treated with stimulant medication, and children are being treated for longer periods of time. Epidemiologic studies using standardized diagnostic criteria suggest that 3% to 6% of the school-aged population (elementary through high school) may suffer from ADHD, although the percentage of US youth being treated for ADHD is at most at the lower end of this prevalence range. Pharmacotherapy, particularly use of stimulants, has been extensively studied and generally provides significant short-term symptomatic and academic improvement. There is little evidence that stimulant abuse or diversion is currently a major problem, particularly among those with ADHD, although recent trends suggest that this could increase with the expanding production and use of stimulants.

Conclusions.—Although some children are being diagnosed as having ADHD with insufficient evaluation and in some cases stimulant medication is prescribed when treatment alternatives exist, there is little evidence of widespread overdiagnosis or misdiagnosis of ADHD or of widespread overprescription of methylphenidate by physicians.

JAMA. 1998;279:1100-1107

ATTENTION-DEFICIT/hyperactivity disorder (ADHD) is a common neuropsychiatric syndrome with onset in childhood, most commonly becoming apparent (and thus coming to medical attention) during the first few years of grade school. ADHD may be associated with a number of comorbid psychiatric conditions as well as with impaired academic performance and with both patient and family emotional distress. While it was previously thought that the disorder remitted before or during adolescence, it has become well established that many patients will have an illness course that persists well into adulthood. Pharmacological treatment, particularly with stimulant medication, is the most-studied aspect of management, although other forms of treatment (eg, behavior therapy, parent training) are important parts of good clinical care.

Despite an enormous body of research into this disorder, various aspects of ADHD have generated controversy over the years. Three features of ADHD in particular seem to have contributed to the controversy: (1) like most mental disorders, its diagnostic criteria involve patient history and behavioral assessment without the availability of laboratory or radiologic confirmation; (2) like many chronic illnesses of childhood, it has an early onset and extended course, thus requiring at times treatment of children and adolescents over many years; and (3) its treatment often includes stimulant medications that have abuse or diversion potential.

From the Council on Scientific Affairs, American Medical Association, Chicago, Ill.

This report was presented at the 1997 House of Delegates Annual Meeting as Report 5 of the Council on Scientific Affairs. The recommendations were adopted, and the remainder of the report was filed.

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all the facts and circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and patterns of practice evolve. This report reflects the scientific literature as of March 1997.

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Debate has centered on the appropriate assessment and "labeling" of children: there have been allegations that the diagnosis is merely applied to control children who exhibit unwanted behaviors in the classroom or elsewhere and that medication is simply used to control such behavior. Along similar lines, concerns have been expressed about whether thorough enough evaluations are being performed by physicians prior to prescribing medication. Apart from diagnostic issues, concerns have been raised about young children taking medications for lengthy periods of time. In addition, some critics have complained that overemphasis on psychopharmacological treatment has led to neglect of other treatment modalities or served as a distraction from family problems or school shortcomings. It should be stressed that these issues have been raised polemically or theoretically, rather than on the basis of particular scientific findings.

Another concern has been raised by the dramatic increase in methylphenidate (Ritalin) hydrochloride production and use in the United States in the past decade. This has raised questions about whether there has been a true increase in the prevalence of ADHD in this time period; a change in diagnostic criteria affecting practice; improved physician recognition of the disorder; a broadened spectrum of indications for use of stimulants; and an increase in stimulant abuse, diversion, and prescription for profit.

Debate over ADHD within the research and medical communities has been mild and mostly concerned with nuances in the diagnostic and treatment paradigms.[1] By contrast, highly inflammatory public relations campaigns and pitched legal battles have been waged (particularly by groups such as the Church of Scientology) that seek to label the whole idea of ADHD as an illness a "myth" and to brand the use of stimulants in children as a form of "mind control."[2,3] These efforts, which have been widely reported in the news media, have created a climate of fear among physicians, parents, and educators and have sown anxiety and confusion among the general public.[4,5] It is thus most important to separate legitimate concerns raised by scientific studies from abstract, distorted, or mendacious information from other sources.

There are 6 main questions that underlie this professional and public concern and that this report will address by reviewing the pertinent research:

1. Is there an agreed-on set of diagnostic criteria for ADHD that reflects sufficient reliability and validity so as to delineate a clinically meaningful syndrome?

2. What is the epidemiology of ADHD, and how can the apparent disparities in prevalence in different populations be explained?

3. What is the course of the illness, and what are the adverse consequences of the illness that would justify treatment?

4. What constitutes optimal treatment for ADHD, and how do stimulants fit into it?

5. What are the adverse consequences of using stimulants, and in particular, what is known about the risks of abuse and diversion?

6. Are children being appropriately assessed and treated in clinical settings to ensure that diagnostic criteria are being used appropriately; ie, is there evidence of underdiagnosis, overdiagnosis, or misdiagnosis?

METHODS

The National Library of Medicine database was searched for 1975 through March 1997 for English-language articles covering school-aged children. Search terms were *attention deficit disorder with hyperactivity*, *methylphenidate*, *stimulants*, and *stimulant abuse and dependence*. Articles concerned with diagnostic and outcomes issues were used. Drug Enforcement Administration (DEA) data also were incorporated.

DIAGNOSIS OF ADHD

Hyperactivity in children was first described clinically in 1902, and the first report of stimulant use to treat hyperactivity in that condition was in 1937.[6] The high frequency of "soft" neurologic findings led to designating the condition "minimal brain dysfunction," with the expectation that a consistent neurologic lesion or set of lesions would eventually be found.[7]

The first empirically based official set of diagnostic criteria for what is now referred to as ADHD was delineated in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-III*) in 1980.[8] Early focus on the centrality of hyperactivity shifted toward giving weight to attentional problems and impulsivity as well, which was later reflected in the 1987 revision (*Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition [DSM-III-R]*).[9] The current classification (*Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition [DSM-IV]*) of the disorder now allows subtyping as predominantly inattentive type, predominantly hyperactive type, or combined type.[10] These successive changes in diagnostic criteria reflect a combination of empirical research findings and expert committee consensus. The complete *DSM-IV* criteria can be found in Table 1.

The *DSM-IV* criteria emphasize several factors:

The symptoms specified in the criteria must be present for at least 6 months, ensuring that persistent rather than transient symptoms will be included.

The symptoms must be "maladaptive and inconsistent with developmental level." This ensures that the symptoms are of sufficient severity to cause problems and that the child's age and neurodevelopment are considered in evaluating symptoms.

The symptoms must be present across 2 or more settings, ie, school problems alone do not meet criteria for the diagnosis.

The symptoms are not better explained by another disorder, such as mood disorder, psychosis, or pervasive developmental disorder (autism).

Taken as a whole, these criteria require an illness pattern that is enduring and has led to impairment. To make this diagnosis appropriately, the clinician must be familiar with normal development and behavior, gather information from several sources to evaluate the child's symptoms in different settings, and construct an appropriate differential diagnosis for the presenting complaints. This helps, for example, to distinguish children with ADHD from unaffected children whose parents or teachers are mislabeling normal behavior as pathological. The diagnostic criteria as used by appropriate examiners demonstrate high interrater reliability of individual items and of overall diagnosis.[11]

A number of other psychiatric, medical, and neurologic disorders (eg, traumatic brain injury, epilepsy, depression) can lead to disturbances in attention and/or activity level.[12] Thus, the diagnosis of "primary" ADHD is made when there is no evidence from the history, physical examination, or laboratory findings of another condition producing the clinical picture.

The goals of the actual examination of the child are to determine whether he or she meets diagnostic criteria and to look for conditions other than ADHD that might simulate it. Too much focus on a child's behavior in the physician's office or the child's own observations may lead to a missed diagnosis, while overreliance on parental reports of abnormal behavior alone may lead to overdiagnosis.[13]

A number of rating scales and psychological testing instruments may be used in the assessment of suspected ADHD, but none of these should be used in isolation to make or refute the diagnosis. Scales such as the Conners, SNAP-IV,

Table 1.—Diagnostic Criteria for Attention-Deficit Hyperactivity Disorder*

A. Either (1) or (2):
   (1) inattention: 6 (or more) of the following symptoms of inattention have persisted for at least 6 mo to a degree that is maladaptive and inconsistent with developmental level:
      (a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
      (b) often has difficulty sustaining attention in tasks or play activities
      (c) often does not seem to listen when spoken to directly
      (d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
      (e) often has difficulty organizing tasks and activities
      (f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
      (g) often loses things necessary for tasks or activities (eg, toys, school assignments, pencils, books, or tools)
      (h) is often easily distracted by extraneous stimuli
      (i) is often forgetful in daily activities
   (2) hyperactivity-impulsivity: 6 (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 mo to a degree that is maladaptive and inconsistent with developmental level:
      (a) often fidgets with hands or feet or squirms in seat
      (b) often leaves seat in classroom or in other situations in which remaining seated is expected
      (c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
      (d) often has difficulty playing or engaging in leisure activities quietly
      (e) is often "on the go" or often acts as if "driven by a motor"
      (f) often talks excessively
      (g) often blurts out answers before questions have been completed
      (h) often has difficulty awaiting turn
      (i) often interrupts or intrudes on others (eg, butts into conversations or games)
B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 y
C. Some impairment from the symptoms is present in 2 or more settings (eg, at school [or work] and at home)
D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning
E. The symptoms do not occur exclusively during the course of a pervasive developmental disorder, schizophrenia, or other psychotic disorder and are not better accounted for by another mental disorder (eg, mood disorder, anxiety disorder, dissociative disorder, or a personality disorder)

*_Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition_,[19] code based on type: 314.01 Attention-Deficit/Hyperactivity Disorder, Combined Type: if both criteria A(1) and A(2) are met for the past 6 months; 314.00 Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type: if criterion A(1) is met but criterion A(2) is not met for the past 6 months; 314.01 Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type: if criterion A(2) is met but Criterion A(1) is not met for the past 6 months. Coding note: For individuals (especially adolescents and adults) who currently have symptoms that no longer meet full criteria, "In Partial Remission" should be specified.

and Disruptive Behavior Disorder Scale are more helpful in assessing and monitoring response to treatment than in making a diagnosis. Neuropsychological tests that focus on sustained attention such as the Continuous Performance Task, the Wisconsin Card-Sorting Test, Test of Variables of Attention, the Matching Familiar Figures Test, and the Wechsler Intelligence Scale for Children–Revised are similarly not diagnostic.[1]

Thus, the overall approach to diagnosis may involve (1) a comprehensive interview with the child's adult caregivers; (2) a mental status examination of the child; (3) a medical evaluation for general health and neurologic status; (4) a cognitive assessment of ability and achievement; (5) use of ADHD-focused parent and teacher rating scales; and (6) school reports and other adjunctive evaluations if necessary (speech, language assessment, etc) depending on clinical findings.[1,14,15] An evaluation can be performed by a clinician with the skills and knowledge to carry out those components.

Attempts to clarify the pathophysiology of ADHD have been made on several fronts. Genetic studies have revealed up to 92% concordance in monozygotic twins and 33% in dizygotics.[16-18] Abnormalities have been noted in magnetic resonance imaging studies of the brains of those with ADHD,[19] single photon emission computed tomography,[20,21] and neurophysiological studies (heart rate deceleration, electroencephalogram amplitude of response to stimulation, habituation on evoked responses).[1] These findings and others, when taken together, provide increasing support for the concept of ADHD as a neuropsychiatric condition or set of conditions.

Even with the use of carefully applied diagnostic criteria, there remains the issue of the validity of ADHD as a discrete condition.[22] With regard to unitary etiology, many medical conditions (eg, heart failure, seizures) are syndromes representing a final common presentation of a number of pathophysiological disturbances. Thus, the absence of a single cause would be a weak argument against the validity of ADHD as a discrete syndrome. The familial, genetic, neuroanatomical, and neurophysiological studies are mounting evidence to date for postdictive validity. Findings with regard to concurrent validity are mixed: there is clearly a great deal of overlap between ADHD and a number of learning conditions and conduct disorder, among other conditions. The strongest evidence of validity has been for course prediction and treatment response. Overall, ADHD is one of the best-researched disorders in medicine, and the overall data on its validity are far more compelling than for many medical conditions.[15,23,24]

EPIDEMIOLOGY OF ADHD

A number of studies have examined the prevalence of ADHD in various populations. The patient sample used is critical because of variations in different settings: at least 10% of behavior problems seen in general pediatrics settings are due to ADHD, while children with ADHD make up to 50% of some child psychiatric populations.[15] In general, most ADHD patients in the United States are cared for by pediatricians and family practitioners, while child psychiatrists, neurologists, and behavioral pediatricians tend to see refractory patients and those with significant comorbidity. Community studies have yielded prevalences between 1.7% and 16%, depending on the population and the diagnostic methods. These studies are summarized in Table 2.

These results suggest that across fairly diverse populations (geographically, racially, socioeconomically) there exists a sizable percentage of school-aged children with ADHD. The evolution of criteria from *DSM-III* to *DSM-IV*, although based on a progressively larger empirical base,[36] has broadened the case definition, so that more children appear to be affected. This is largely a function of the increased emphasis on attentional problems as opposed to a more narrow focus on hyperactivity in earlier diagnostic sets. As a result, girls have been diagnosed as having ADHD more frequently than they were in the past.[37]

ILLNESS COURSE AND COMORBIDITY OF ADHD

Longer-term follow-up studies of children with ADHD as well as "lookback" studies of symptomatic adults who can be retrospectively diagnosed as having had childhood ADHD show that there is symptomatic persistence into adulthood in many cases. On average, symptoms diminish by about 50% every 5 years between the ages of 10 and 25 years. Hyperactivity itself declines more quickly than impulsivity or inattentiveness.[38,39]

A number of psychiatric conditions co-occur with ADHD. Between 10% and 20% of children with ADHD in both community and clinical samples have mood disorders, 20% have conduct disorders, and up to 40% may have oppositional defiant disorder.[40] Bipolar disorder is being increasingly recognized.[41] Only about 7% of those with ADHD have tics or Tourette syndrome, but 60% of those with Tourette syndrome have ADHD,

raising questions about common etiologic mechanisms. Learning disorders (especially reading disorder) and subnormal intelligence also are increased in the total population of those with ADHD and vice versa.[42,43] Overall, perhaps as many as 65% of children with ADHD will have 1 or more comorbid conditions, although their presence will not be recognized without appropriate questioning and evaluation.[44] In general, when ADHD is untreated there is a gradual accumulation of adverse processes and events that increase the risk of serious psychopathology later in life.[45] Whether this can be reversed by long-term treatment remains unknown.

The relationship between substance use disorders and ADHD is complex. Children with ADHD who do not have comorbid conditions have a risk of substance use disorders that is no different from children without ADHD up to the age of about 14 years. The risk of developing substance use disorders in those with ADHD is increased in adolescents, and the risk ratio increases further in adulthood, regardless of whether there is comorbidity. Persistence of ADHD symptoms and family history of both ADHD and substance use disorders are risk factors for their development. Highly potent risk factors are the presence of comorbid conduct disorder or bipolar disorder. There is debate about whether long-term treatment of ADHD may decrease the risk of subsequent development of substance use disorders.[46]

One prospective study, which followed an ADHD cohort over an average of 16 years along with a matched control group, found an 11-fold increase in ongoing ADHD symptoms (11% vs 1%), a 9-fold increase in antisocial personality disorder (18% vs 2%), and a 4-fold higher rate of drug use disorder (16% vs 4%).[47] The strongest predictors of persistence of psychopathology are psychiatric comorbidity and family history of ADHD.[48]

TREATMENT OF ADHD

Methylphenidate, created in 1955, now accounts for more than 90% of the stimulant use in ADHD in the United States. A racemic mixture of amphetamines (Adderall), dextroamphetamine sulfate (Dexedrine and others), and pemoline (Cylert) are also used. Methylphenidate is strongly favored by US physicians, perhaps because the overuse of amphetamines for treatment of obesity and their misuse in the 1960s gave that class of drugs a reputation as more problematic than methylphenidate.

There have been more than 170 studies involving more than 6000 school-aged children using stimulant medication for ADHD. The response rate for any single stimulant drug in ADHD is approximately 70%, and up to 90% of children will respond to at least 1 stimulant without major adverse events if drug titration is done carefully. A "response" in this context means a statistically or clinically significant reduction in hyperactivity or increase in attention as rated by parents, teachers, and/or research raters. There have been only about a half-dozen studies in adolescents.[49,50]

Table 2.—Prevalence Studies of Attention-Deficit/Hyperactivity Disorder

Site	Source, y	Criteria*	Prevalence, %
New Zealand	Anderson et al,[25] 1987	*DSM-III*	6.7
New York, NY	Cohen,[26] 1988	*DSM-III*	3-6
Ontario	Szatmari et al,[27] 1989	*DSM-III*	6.3
Puerto Rico	Bird et al,[28] 1988	*DSM-III*	9.5-16.1
US inner city	Newcorn et al,[29] 1989	*DSM-III*†	12.3
Pittsburgh, Pa	Costello et al,[30] 1988	*DSM-III-R*	2.5
Iowa	Lindgren et al,[31] 1990	*DSM-III*‡	2.8
Germany	Baumgaertel et al,[32] 1995	*DSM-III*§	9.5
London, England	Esser et al,[33] 1990	*DSM-III-R*	1.7
Mannheim, Germany	Esser et al,[33] 1990	*DSM-III-R*	4.2
United States	Pelham et al,[34] 1992	*DSM-III-R*	2.5-4.0
Tennessee	Wolraich et al,[35] 1996	*DSM-III-R*‖	7.3
United States	Shaffer et al,[11] 1996	*DSM-III-R*	4.1

*DSM-III indicates *Diagnostic and Statistical Manual of Mental Disorders, Third Edition*[9]; *DSM-III-R*, *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition*[9]; and *DSM-IV*, *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.[10]

†Prevalence of 18.9% using *DSM-III-R*.

‡Prevalence of 6.1% using *DSM-III-R*.

§Prevalence of 9.0% primarily inattentive, 3.9% primarily hyperactive, 4.8% combined (17.8% total) using *DSM-IV*, 10.9% using *DSM-III-R*.

‖Prevalence of 5.4% primarily inattentive, 2.4% primarily hyperactive, 3.6% combined (total 11.4%) using *DSM-IV*.

Medications have been unequivocally shown (ie, by double-blind, placebo-controlled studies) to reduce core symptoms of hyperactivity, impulsivity, and inattentiveness. They improve classroom behavior and academic performance; diminish oppositional and aggressive behaviors; promote increased interaction with teachers, family, and others; and increase participation in leisure time activities. Finally, stimulants have demonstrated improvement in irritability, anxiety, and nail biting.[51] A recent meta-analysis found that the effect of stimulants on behavior and cognition may be severalfold greater than the effects on academic achievement.[52]

Contrary to earlier assertions, the response to stimulant medications in those with ADHD is not "paradoxical": the direction of changes in behavioral measures in those with ADHD, those with conditions other than ADHD (eg, learning disabilities, depression), and normal controls is the same. Thus, a favorable response to stimulants does not confirm a diagnosis of ADHD (nor, of course, does a nonresponse refute the diagnosis). A nonspecific performance-enhancing effect may mask other problems and delay use of other interventions.[53,54]

In addition to their value in childhood and adult ADHD, methylphenidate and other stimulants may play a role in the treatment of other medical conditions, including narcolepsy, as a short-term treatment for depression in the medically ill, as potentiating agents with conventional antidepressants for major depressive disorder, as potentiating agents with opiates for pain control, and to reduce apathy in dementia and some other brain diseases.[55-57] The number of patients receiving these drugs for these indications probably represents no more than a small percentage of all stimulant use in the United States.

For patients with ADHD who are intolerant of or unresponsive to stimulants, a number of other drugs have proven useful in clinical practice, including tricyclic antidepressants[50] and bupropion hydrochloride, a newer antidepressant that blocks the reuptake of norepinephrine and dopamine.[58] Serotonin-specific reuptake inhibitors have not been effective to date.[50] Centrally acting α-blocking drugs (clonidine, guanfacine hydrochloride) have been helpful in some children, but data are still limited.[59,60] Subsets of children seem to have some response to lithium carbonate.[61] Neuroleptic medication is occasionally effective, but the risk of tardive dyskinesia makes this a problematic long-term approach.[14] By contrast, some 20 studies have refuted the efficacy of dietary manipulations (eg, the Feingold diet) in ADHD.[62]

It is important to emphasize that pharmacotherapy alone, while highly effective for short-term symptomatic improvement, has not yet been shown to improve the long-term outcome for any domain of functioning (classroom behavior, learning, impulsivity, etc). This may be a function of several factors: most studies have been carried out only for a short term, there may have been inadequate dosage titration to maximize the number of responders, and dose-re-

sponse relationships may be different for different domains.[63-65]

Swanson[62] published a careful review of all review studies of stimulant use in children in 1993. He found overwhelming evidence for temporary improvement of core symptoms (hyperactivity, inattention, and impulsivity) as well as the associated features of defiance, aggression, and negative social skills. On the other hand, changes that point toward longer-term improvement (eg, in academic outcome, antisocial behavior, or arrest rate) were not found, and only small effects were observed on learning and achievement.

Children should be reevaluated periodically while not taking medications to see if the medications are still appropriate and necessary.

Multimodal therapy, ie, integrating pharmacotherapy with a number of environmental, educational, psychotherapeutic, and school-based approaches, is a tailored approach that seems intuitively powerful, matching the child's particular problems to selections from a menu of focused treatment interventions. In a few studies, multimodal therapy has affected long-term results, although how applicable these findings are beyond research settings remains unclear.[65,66] While three quarters of treatment review articles assert that multimodal therapy is superior to medication or psychosocial interventions separately, there is in fact little empirical evidence to support such a conclusion.[52]

Nonmedication approaches include parent education; parent management training (contingency management in individual or group setting; this technique decreases disruptive behavior, increases parents' self-confidence, and decreases family stress); classroom environmental manipulations (special class, seating in class, etc); contingency management and daily report cards by teacher; individual psychotherapy for depression, anxiety, and low self-esteem; impulse and social skills control training; support groups such as Children and Adults With Attention Deficit Disorder and Attention Deficit Disorder Association for families; and summer treatment programs.[15,67]

Some experts feel that stimulants alone may be adequate for cases of ADHD without comorbidity, but that additional treatments are necessary where there are co-occurring conditions. Behavioral therapy has not proved effective alone, although it has been when combined with pharmacotherapy.[1] Since psychosocial treatments may be labor intensive and expensive, it is important to establish when and which treatments are indicated. A large multisite study is currently being carried out by the National Institute of Mental Health to clarify the role of multimodal treatment: carefully evaluated children will be randomized to receive standard community care, medication alone, psychosocial treatments alone, or multimodal therapy (medication and psychosocial treatments together).[65,68]

A number of textbooks[1,14] and many review articles[50,62,70] are available to practitioners. The Academy of Child and Adolescent Psychiatry's practice parameters[71] have recently been released. A recent American Academy of Pediatrics position paper emphasizes the need for careful evaluation and monitoring of children with ADHD, and it stresses that drugs be used as part of an overall care plan.[72]

ADVERSE EFFECTS OF STIMULANTS

Adverse effects from stimulants are generally mild, short lived, and responsive to dosing or timing adjustments. The most common effects are insomnia, decreased appetite, stomach ache, headache, and jitteriness. Some children will exhibit motor tics while on stimulants: whether this reflects a true drug effect or an "unmasking" of a latent tic disorder is unknown. A small percentage of children experience cognitive impairment that responds to dosage reduction or drug cessation. Rare cases of psychosis have occurred. Pemoline has been infrequently associated with hepatic toxic effects, so periodic monitoring of liver enzymes is necessary.[14,49]

Concerns had been raised about the effects of chronic stimulant ingestion on growth and development. It is unclear whether children's heights are affected by long-term use of these medications.[73-75]

A great deal of concern has been raised by the DEA and others about the potential for abuse or diversion of stimulant medication: production (and use) of methylphenidate in the United States has risen from less than 2000 kg in 1986 to 9000 kg in 1995, with a tripling between 1990 and 1995 alone. By contrast, amphetamine production rose from 400 to 1000 kg in the same period. More than 90% of US-produced methylphenidate is used in the United States.

The reasoning for the concern about possible overproduction of methylphenidate has been expressed as follows: Stimulants at times are abused by adolescents and adults; those with ADHD are at increased risk of developing a substance use disorder; methylphenidate and other stimulants may either become the drug abused by those with ADHD, or they may serve as a "gateway" to other drug use; and even if they do not abuse their medication themselves, children and adolescents with access to stimulants will be under pressure to divert their medication to those who will.

There is little disagreement that stimulants as a class have marked abuse potential, and their misuse can have severe adverse medical and social consequences. However, stimulants differ in their ability to induce euphoria and thus liability to abuse. Almost all of the reports of abuse of methylphenidate itself have been of polysubstance-abusing adults who have tried to solubilize the tablets and inject them (with disastrous results from talc granulomatosis in some cases).[70] This last problem in particular led Sweden to withdraw methylphenidate from the market in that country entirely in 1968.[76]

It is clear that there is a fair amount of use of stimulants by adolescents. The annual school survey of drug use conducted by the University of Michigan has shown an increase from 6.2% to 9.9% of eighth-graders reporting nonmedical stimulant use in the preceding year between 1991 and 1994. However, lifetime nonmedical methylphenidate use has remained essentially constant around 1% during the same period. Sixty percent of students who used any stimulants reported using them fewer than 6 times in their lifetime, and 80%, fewer than 20 times. Only 4% reported any injection use of stimulants.[77] Thus, while nonmedical stimulant use may be somewhat more common among adolescents in recent years, little use is of methylphenidate itself, and the pattern of use for the vast majority appears to be experimental and not of the type (regular, heavy, injecting, etc) likely to lead to serious adverse consequences.

Drug Abuse Warning Network data on emergency department visit monitoring show a 6-fold increase between 1990 and 1995 in mentions of methylphenidate. A "mention" simply indicates that the patient listed the drug as one taken: it is not necessarily the drug leading to the emergency department visit, nor is there any medical confirmation. The rate of cocaine mentions, by contrast, is 40 to 50 times higher. The methylphenidate cases are overwhelmingly young women, not the population (ie, male adolescents) felt to be at highest risk for abusing prescription methylphenidate. The DEA has had reports of thefts of methylphenidate, street sales, drug rings, illegal importation from outside the United States, and illegal sales by health professionals. There have also been reports of theft of school supplies of methylphenidate.[77]

On the other hand, abuse of methylphenidate by patients with ADHD or

their family members has been reported rarely. Only 2 cases of methylphenidate abuse by adolescents with ADHD have been described,[78,79] and only 2 cases of methylphenidate abuse by parents of children taking it for ADHD have been reported.[80] While there is no way to know how many cases may have been unrecognized or unreported, such a minimal published experience is quite remarkable in light of the population exposed.

Under Section 306(a) of the Controlled Substances Act, production limitations of methylphenidate, a Schedule II drug, are established by the attorney general (using information developed by the DEA). The attorney general also receives input from the secretary of health and human services (using information provided by the Food and Drug Administration [FDA]). In 1988 a DEA administrative law judge ruled that the method used by the DEA in 1986 to calculate methylphenidate production quotas failed to provide for legitimate medical need, leading to several policy changes. In 1993 there were some methylphenidate shortages because of a delay in publishing proposed quotas in the *Federal Register*, leading to a streamlining of the procedures for final quota notice approval.[77] American Medical Association (AMA) policy was adopted at the 1993 Interim Meeting (100.975, AMA *Policy Compendium*) calling on the AMA to work with the DEA and the FDA to ensure adequate supplies of methylphenidate and other Schedule II drugs.[81]

CURRENT PRACTICE

It is clear from the discussion of diagnostic assessment that ADHD simply cannot be diagnosed in a typical 15-minute primary care office visit. Taking the necessary multiple histories, performing a careful examination, and obtaining appropriate testing will require several visits and may require a multidisciplinary team approach, specialty consultation, or both in some cases. Nonetheless, there have been descriptions of such assessments in typical pediatric settings.[12,82] Few data exist on actual practice habits in terms of what diagnostic criteria (if any) are used by clinicians, how they are applied, or exactly what a minimally satisfactory level of investigation entails.

A national survey of physicians[83] found that 5.3% of elementary school children in pediatrics practices were diagnosed as having ADHD, and 4.2% were diagnosed by family practitioners. When explicit *DSM-III-R* criteria were used, however, only 72% of those assigned a diagnosis of ADHD by their physicians would have received the diagnosis based on a structured interview. Only 53% of the physician diagnoses included teachers' reports. Eighty-eight percent of the physician-diagnosed children were prescribed methylphenidate, and 85% of the parents reported that the medication was helpful. Only 22% of the parents reported treatment with behavioral modification, and in 70% of those cases that modality was recommended by someone other than the treating physician. Eleven percent received counseling from the physician, and no parents queried judged it effective. The authors of this survey drew attention to the mismatch between physician diagnosis from a single source, often an unreliable one, and the use of stimulant medication. They also stressed the low rates of use of nonpharmacological treatment by their physician sample.

Safer and Krager[84] conducted regular surveys of school nurses in Baltimore County, Maryland, to look for methylphenidate prescribing. They found that 6% of the school-aged children received this treatment and that methylphenidate accounted for over 90% of the pharmacological treatment provided for ADHD.

There is evidence to suggest that stimulants in ADHD populations are simply being used more broadly, for longer periods, and without interruptions in recent years than was done previously. Overall, there has been a 2.5-fold increase in the prevalence of child and adolescent methylphenidate treatment from 1990 to 1995, so that some 2.8% of US youth between the ages of 5 and 18 years were taking this medication in mid 1995. A recent national study found no evidence of overdiagnosis of ADHD or overprescription of methylphenidate.[35]

Several of the community studies cited in Table 2 also looked at which children diagnosed as having ADHD by researchers had been so diagnosed by clinicians or were receiving treatment. In the New Zealand sample, 43% of the children found to have ADHD by the researchers had been referred for medical care for this problem.[25] In the Tennessee study, only 15% to 40% of the children diagnosed by researchers with ADHD had been so diagnosed clinically, and only 21% to 32% were receiving pharmacotherapy.[35]

Swanson et al[86] addressed the increase in US methylphenidate usage by showing that from 1990 to 1993 the number of patients diagnosed as having ADHD increased from 900 000 to 2 million, and the number of outpatient visits for the condition rose from 1.7 million to 4.2 million. The percentage of patients given methylphenidate remained around 70%. Thus, the amount of methylphenidate produced per 1 million patients increased from 1.98 g to 2.53 g, a 27% increase.

There are several important clinical reasons for the increased diagnosis and stimulant treatment of ADHD. These include increased public and physician awareness and acceptance of the condition; acceptance of a broader case definition as appropriate; greater knowledge of the illness course, justifying lengthier treatment (eg, of adolescents); fewer interruptions in treatment because of diminished concerns about growth retardation; and increased treatment of adults.

Finally, with regard to cross-national data, there is some consensus that most non-US clinicians are more likely to rely on older, more stringent diagnostic criteria, reserve the diagnosis for only the most obvious or severe cases, or even be reluctant to diagnose ADHD at all. Physicians from countries with strong psychoanalytic traditions may be particularly reluctant to use discrete diagnostic criteria at all. Physicians in the United Kingdom, for example, tend to use a *DSM-II* approach, so they place more emphasis on hyperactivity and therefore diagnose ADHD far less frequently than their US counterparts. When physicians in the United Kingdom are instructed in applying US criteria, however, they diagnose ADHD as often as their US counterparts do in US children. Thus, the apparent discrepancy is more a matter of case recognition than actual prevalence. Canadian physicians, who tend to use later *DSM* criteria, diagnose and treat children at rates similar to those seen in the United States.[40]

CONCLUSIONS

1. ADHD is a childhood neuropsychiatric syndrome that has been studied thoroughly over the past 40 years. Available diagnostic criteria for ADHD are based on extensive empirical research and, if applied appropriately, lead to the diagnosis of a syndrome with high interrater reliability, good face validity, and high predictability of course and medication responsiveness. ADHD is one of the best-researched disorders in medicine, and the overall data on its validity are far more compelling than for most mental disorders and even for many medical conditions. Nonetheless, the pathophysiology of ADHD remains unknown, although a number of neurophysiological theories are under investigation. ADHD demonstrates a very high heritability.

2. The diagnostic criteria for ADHD are designed to be used by a clinician familiar with childhood development and behavioral disorders. Application of

the diagnostic criteria requires time and effort to obtain a careful history from parents, teachers, and the child. As with almost all mental disorders, there is as yet no confirmatory genetic, radiologic, biochemical, neurophysiological, or neuropsychological test for ADHD, but such examinations may be helpful at times in evaluating presenting complaints suggestive of ADHD.

3. ADHD is associated with significant potential comorbidity and functional impairment, and its presence at any age increases the risk of behavioral and emotional problems at subsequent stages of life. It is thus a chronic illness with persistence common into adolescence and beyond.

4. Epidemiologic studies using standardized diagnostic criteria suggest that 3% to 6% of the school-aged population may have ADHD. A few studies have suggested a somewhat lower prevalence, but others, particularly those using newer, broader criteria, yield prevalences well above 6%. These studies have been conducted in a number of different countries and encompass a range of racial and socioeconomic backgrounds in the populations examined.

5. The percentage of US youth being treated for ADHD is at most at the lower end of this prevalence range. More cases of ADHD are being recognized and treated, and the duration of treatment is increasing. However, ADHD is also diagnosed inappropriately at times because of failure to do a thorough enough evaluation or to use established diagnostic criteria.

6. Pharmacotherapy, particularly stimulants, has been extensively studied. Medication alone generally provides significant short-term symptomatic and academic improvement, but response to stimulant medication is not specific to ADHD, and it is currently unknown whether long-term outcomes will be altered. The risk-benefit ratio of stimulant treatment in ADHD must be evaluated and monitored on an ongoing basis in each case, but in general is highly favorable.

7. Optimal treatment of ADHD involves an individualized plan based on any comorbidity as well as child and family preferences. This treatment generally will include pharmacotherapy (usually with stimulant medication) along with adjunctive psychoeducation, behavioral therapy, environmental changes, and, at times, supportive psychotherapy of the child, the family, or both. Nonpharmacological treatment modalities are well accepted by parents and probably significantly underused in primary care settings.

8. There should be documentation in the medical record showing evidence that appropriate diagnostic criteria for ADHD have been met, that common comorbid conditions have been assessed, that there is a clear treatment plan, and that there is appropriate follow-up, including medication monitoring for efficacy, adverse effects, and ongoing need.

9. There is little evidence to suggest that stimulant abuse or diversion is currently a major problem, particularly among those with ADHD, although recent trends suggest that this could increase with the expanding production and use of stimulants. Clinicians need to be mindful of the risk of abuse and diversion: in addition to keeping careful records of medication prescribed, they may consider alternatives to stimulant use in patients at high risk (eg, patient or family members with substance use disorders or bipolar or conduct disorder co-occurrent in the patient).

RECOMMENDATIONS

The following statements, recommended by the Council on Scientific Affairs, were adopted as AMA policy at the 1997 Annual AMA Meeting.

1. The AMA encourages physicians to use standardized diagnostic criteria in making the diagnosis of ADHD, such as the American Psychiatric Association's *DSM-IV*, as part of a comprehensive evaluation of children and adolescents presenting with attentional or hyperactivity complaints.

2. The AMA encourages the creation and dissemination of practice guidelines for ADHD by appropriate specialty societies and their use by practicing physicians and will assist in making physicians aware of their availability.

3. The AMA encourages efforts by medical schools, residency programs, medical societies, and continuing medical education programs to increase physician knowledge about ADHD and its treatment.

4. The AMA encourages the use of individualized therapeutic approaches for children diagnosed as having ADHD, which may include pharmacotherapy, psychoeducation, behavioral therapy, school-based and other environmental interventions, and psychotherapy as indicated by clinical circumstances and family preferences.

5. The AMA encourages physicians and medical groups to work with schools to improve teachers' abilities to recognize ADHD and appropriately recommend that parents seek medical evaluation of potentially affected children.

6. The AMA reaffirms Policy 100.975, to work with the FDA and the DEA to help ensure that appropriate amounts of methylphenidate and other Schedule II drugs are available for clinically warranted patient use.

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Treatment Alternatives for Attention Deficit Hyperactivity Disorder

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Alternate treatments (Tx) are defined for this conference as any treatment other than prescription drugs or standard behavioral treatments. In contrast with those two established general treatments, many alternate treatments are etiologically targeted (see Table 1) and consequently applicable to a smaller subpopulation of patients with attention deficit hyperactivity disorder (ADHD). Therefore, scientific evaluation and clinical use of such treatments require a deeper level of diagnosis than the phenomenological criteria of DSM-IV.

Elimination Diets (Oligoantigenic or Few-Food Diets)

The 1982 consensus development conference on defined diets in hyperactivity (NIH, 1982) called for more controlled research. Since then, at least seven controlled studies (Breakey, 1997) have demonstrated either significant improvement compared with a placebo condition (disguised full diet) (Kaplan, McNicol, Conte, et al., 1989) or deterioration on a placebo-controlled challenge of offending substances after an open diet trial and open challenge to identify the substance (Egger, Carter, Graham, et al., 1985; Pollock, Warner, 1990; Carter, Urbanowicz, Hemsley, et al., 1993; Rowe, Rowe, 1994; Boris, Mandel, 1994; Schmidt, Mocks, Lay, et al., 1997). The finding of scientifically acceptable documentation of efficacy since 1982 appears associated with broadening the range of suspected food items, selecting subjects more carefully (e.g., for allergic diathesis), and allowing for the timing peculiarities of food sensitivities. A related Tx possibility arises from the documentation of successful desensitization to the offending food by enzyme-potentiated desensitization (Egger, Stolla, McEwen, 1992). The main scientific task is to refine the diagnostic characteristics of diet responders and delineate what percentage they constitute of the ADHD population. Preliminary evidence suggests that the profile of a probable responder is a middle- or upper-class preschooler with atopy and prominent irritability and sleep disturbance, with physical as well as behavioral symptoms.

A related dietary strategy, simple elimination of sugar or candy, has not garnered convincing scientific support from repeated placebo-controlled challenge studies (Krummel, Seligson, Guthrie, 1996) despite a few encouraging reports (e.g., Goldman, Lerman, Contois, et al., 1986).

Nutritional Supplements. Both macronutrients (amino acids, lipids, carbohydrates) and micronutrients (vitamins and minerals) have been proposed as Tx for ADHD.

Table 1. Scientific status of alternate treatments for ADHD

Treatment	Etiology or Mechanism	Type of Data	ES or *p*	Rating* (0-6); Recommendation	Risks
Few-foods diet (oligoantigenic)	Food or additive sensitivity	Controlled trial; placebo challenges	ES 0.5-1.5 *p*..05-.001	5; Define subgroup (profile; % ADHD)	Nuisance, expense, nutrition
Enzyme-potentiated desensitization	Food or additive sensitivity	Controlled comparison with placebo injections	*p*,.001	4; Replication Define subgroup	Injection
Sugar elimination	Sugar malaise	Placebo-controlled challenges	*p*>.1	0 for acute; Take FH of DM	Delay std Tx
Amino acid supplementation	Precursors of catecholamines	Placebo-controlled comparisons	ES up to 0.6, *p*,.01	0 despite short-lived effect of little utility	Eosinophilia, neurotoxicity
Essential fatty acid supplementation	Prostaglandins neur. membrane	Serum level cf. cntrl plac-contr. trials	ES 0.5 .1>*p*>.05	3; trials of n-3	Upsetting balance
Glyconutritional supplementation	Need for glycoconjugates	Open trials, SNAP-IV, blind teachers	*p*,.05-.002	3; placebo trials	Upsetting balance
Vitamins	Deficiency vs. Idiopathic need for higher dose	Placebo-controlled trials megavitamin cocktails, not RDA	Megadose cocktail no benefit	0 for megacocktail; 1 for RDA, specific megavit; pilot trials	Hepatotoxicity, neuropathy in megadose
Iron supplementation	Co-factor make catecholamines	Open trial supplementation	ES 1.0 *p*<.05	3†; controlled trials	Hemochromatosis
Zinc supplementation	Co-factor for many enzymes	Comparison Zn lvl of ADHD with control	ES 2.4 *p*<.001	2†; controlled trials	Excess
Magnesium supplementation	Deficiency cf. to controls	Open trial with control group	ES 1.2-1.4 *p*<.05	3†; placebo trials	Aggression from excess
Chinese herbals	Clinical exper.	Open trials, one with MPH control	*p*<.05; no diff. MPH	3; placebo trials	Delay of other Tx
Other herbals	Clinical exper.	No data	N.A.	1; pilot trials	Delay Tx
Homeopathic prep	Clinical exper.	No data	N.A.	1; pilot trials	Delay Tx
Laser acupuncture	Stimulate foci for calming	Open trial	ES 1.0	2; controlled trial	Delay other Tx, burn

Essential Fatty Acid Supplementation. Neuronal membranes are composed of phospholipids containing large amounts of polyunsaturated fatty acids, especially the n-3 and n-6 acids, which humans cannot manufacture de novo and hence are essential in the diet. Essential fatty acids (EFA) are also metabolized to prostaglandins, which modify many metabolic processes. Both the n-3 series (progenitor alpha-linolenic acid) and the n-6 series (progenitor linoleic acid) have been reported to be significantly lower in children with ADHD than in comparison controls (Mitchell, Lewis, Cutler, 1983; Mitchell, Aman, Turbott, et al., 1987; Stevens, Zentall, Deck, et al., 1995). Even total serum-free fatty acids were lower in ADHD, with ES = 2.4; $p<.001$ (Bekaroglu, Yakup, Yusof, et al., 1996). Aggression has been significantly inhibited in young adults by docosohexaenoic acid of the n-3 series (Hamazaki, Sawazaki, Itomura, et al., 1996). Two double-blind placebo-controlled trials of gamma-linolenic acid (n-6 series) supplementation yielded equivocal results from ADHD subjects not selected for low n-6 acids (Aman, Mitchell, Turbott, 1987; Arnold, Kleykamp, Votolato, et al., 1989); in one, the serum triglyceride gamma-linolenic acid correlated inversely with Conners scale scores (Arnold, Kleykamp, Votolato, et al., 1994). A controlled pilot trial of n-3 supplementation in ADHD subjects selected for symptoms of EFA deficiency showed a trend of advantage for the supplement despite a huge placebo effect (pre-post ES 1.8 vs. 1.4), and changes in serum phospholipid n-3 acids correlated negatively with changes in Conners scores (Burgess, Stevens, 1998). The data suggest further controlled trials in subjects selected for low serum levels.

Glyconutritional Supplements. Glyconutritional supplement contains basic saccharides necessary for cell communication and formation of glycoproteins and glycolipids: glucose, galactose, mannose, N-acetylneuraminic acid, fucose, N-acetylgalactosamine, and xylose. Only the first two are abundant in the ordinary diet. Dykman and Dykman (1998) found in an open trial of glyconutritional and phytonutritional (flash freeze-dried fruits and vegetables) supplements with 17 ADHD subjects a significant ($p<.01$) reduction in parent and teacher SNAP-IV ratings. Dykman and McKinley (1997) found in a second open trial with the same supplements in 18 children reductions in parent inattention ratings from 2.47 to 2.05 ($p<.05$) and hyperactivity-impulsivity ratings from 2.23 to 1.54 ($p<.002$), sustained for 6 weeks. Placebo-controlled trials are needed.

Vitamin Supplementation. Three strategies for vitamin supplementation are (1) RDA multivitamin preparations, (2) megavitamin cocktails, and (3) megadoses of specific vitamins. The first is noncontroversial, but no research has been done on its effects in diagnosed ADHD, even though some reports suggest mild deficiencies in diet and blood levels that might be addressed. However, in a randomly assigned double-blind placebo-controlled trial of RDA vitamin and mineral supplementation in 47 6-year-old children not selected for ADHD, Benton and Cook (1991) found an 8.3 point IQ advantage ($p<.001$), mainly in nonverbal ability, an increase in concentration and decreased fidgeting on a frustrating task ($p<.05$), and advantage on a reaction time task assessing sustained attention (ES = 1.3; $p<.05$). The second strategy has been found ineffective in double-blind placebo-controlled short (2 weeks) and longer (up to 6 months) trials in ADHD and the related comorbidity of learning disorder (Arnold, 1978; Haslam, Dalby, Rademaker, 1984; Kershner, Hawke, 1979). Further, megadosage carries risks, including hepatotoxicity (Haslam, Dalby, Rademaker, 1984; Shaywitz, Siegel, Pearson, 1977). Therefore, megavitamin cocktails are not worth pursuing. The third possibility, judicious use of single vitamins in megadosage to alter neural metabolism in specific ways, is actually more like

Table 1. Scientific status of alternate treatments for ADHD (continued)

Treatment	Etiology or Mechanism	Type of Data	ES or *p*	Rating* (0-6); Recommendation	Risks
EEG biofeedback	Suppress theta, increase beta	Open & randomized wait list ctrl trials	$p<0.05$	3; sham-controlled trial	Expense, time
EMG biofeedbck, relaxatn, hypnosis	Lower arousal, muscle tone	Randomized trials with controls	ES 1.0-1.3 $p<0.01$	0 for hypnosis; 4 for EMG/relaxn; cf. med	Delay other Tx
Meditation	Autonomic effect focused attn	Cf. relaxation, wait list ctrl, med	$p<.05$	3; rigorous replication, sham ctrl	Delay other Tx
Channel-specific perceptual training	Basic readiness skills, focus	Randmzd prev trial with 2 control grps	ES 0.9 $p<0.01$	3; controlled Tx trials	Delay other Tx
Vestibular stimulation	Modulate behav attn, perception	Open and single-blind trials	ES 0.4-1.2 *p* ns-0.001	3; randomized sham-controlled trials	Nausea, accident
Antifungal Tx	GI yeast	No systematic data	N.A.	1; pilot trials	Med risk
Thyroid Tx	Thyroid Fx affects AD Sx	Placebo trial: 5/8 GRTH, 1/9 other	ns if thyr not abnrml	0 if thyroid nl; 6 if thyroid abnl	Thyroid toxicity
Deleading	Lead toxicity causes AD Sx	Placebo-ctrl trial of chelation (=MPH)	ES 0.7-1.6 *p*..05-.001	4 if blood Pb>20; 2 if Pb<20; ctrl trial	Toxicity of chelator

* Ratings: 0 = not worth considering further (despite, in the case of amino acids, some evidence of short-lived effect); 1 = credible hypothesis or collateral support or wide clinical experience, needs pilot data; 2 = promising systematic data, but not prospective trial; 3 = promising prospective data (perhaps with random assignment to control or objective/blind measures) lacking some important control -OR- controlled trial(s) with trends suggesting further exploration; 4 = one significant double-blind controlled trial needing replication -OR- multiple positive controlled trials in a treatment not easily blinded; 5 = convincing double-blind controlled evidence but needs further refinement (e.g., define target subgroup) for clinical application; 6 = should be considered established Tx for the appropriate subgroup.

† The rating would be 6 for patients showing frank deficiency of vitamins, iron, zinc, or other nutrients.

Amino Acid Supplementation. Amino acid supplementation is theoretically supported by reports of low levels of amino acids in ADHD, including the precursors of catecholamines and serotonin (Bornstein, Baker, Carroll, et al., 1990; Baker, Bornstein, Rouget, et al., 1991). Several open and controlled studies reported a short-term benefit from tryptophan, tyrosine, or phenylalanine supplementation (Nemzer, Arnold, Votolato, et al., 1986; Reimherr, Wender, Wood, et al., 1987; Wood, Reimherr, Wender, et al., 1985a). However, no lasting benefit beyond 2 to 3 months has been demonstrated (tolerance develops) (Wood, Reimherr, Wender, et al., 1985b), and even short-term benefit was not found in some studies (Eisenberg, Asnis, van Praag, et al., 1988; Zametkin, Karoum, Rapoport, 1987; Ghose, 1983). Further, such supplementation, while originally considered benign, may carry real dangers beyond that of eosinophilia. Therefore, amino acid supplementation does not appear a promising area to explore further.

psychopharmacology and has not been adequately explored despite some encouraging early reports (e.g., Coleman, Steinberg, Tippett, et al., 1979; Brenner, 1982).

Mineral Supplements. The main mineral candidates for supplementation are iron, zinc, magnesium, and calcium, all of which have been reported deficient in ADHD compared with matched controls (e.g., Kozielec, Starobrat-Hermelin, Kotkowiak, 1994).

1. **Iron Supplementation.** Iron is a co-enzyme in anabolism of catecholamines. In an open 30-day supplementation trial with 17 nonanemic boys ages 7 to 11 with ADHD, Sever and colleagues (1997) found improvement in Conners parents' scores from 17.6 to 12.7 (ES = 1.0), but not in teacher ratings. In a double-blind placebo-controlled trial in 73 teenage nonanemic but iron-deficient girls, Bruner and colleagues (1996) found improvements in verbal learning and memory. In a trial of gastroprotected ferritin in 33 iron-deficient children, Burattini and colleagues (1990) reported a decrease of hyperactivity. Iron supplementation merits further study, with focus on whether any benefit found is confined to those with laboratory evidence of iron deficiency and with due concern for possibly toxicity of excess iron.

2. **Zinc Supplementation.** Animal data suggest involvement of zinc deficiency in hyperactivity (e.g., Halas, Sandstead, 1975; Sandstead, Fosmire, Halas, et al., 1977), and human deficiency syndrome includes impairment of concentration and jitters (Aggett, Harries, 1979). Zinc has been reported deficient in ADHD compared with controls, with ES up to 2.4 ($p<.001$) (Bekaroglu, Yakup, Yusof, et al., 1996; Toren, Sofia, Sela, et al., 1996). However, McGee and colleagues (1990) did not find a significant correlation of parent and teacher hyperactivity ratings with hair or serum zinc in the epidemiologic Dunedin sample. Arnold and colleagues (1990) reported data suggesting that stimulant response may depend on adequate zinc nutriture. Despite clinical advocacy of zinc supplementation, no systematic prospective trials could be found. The obvious need is a placebo-controlled double-blind trial of RDA zinc supplementation with pretreatment assessment of zinc status to determine whether zinc deficiency is a prerequisite for any benefit found.

3. **Magnesium Supplementation.** Kozielec and Starobrat-Hermelin (1997) found 95 percent of 116 children ages 9 to 12 with ADHD deficient in magnesium (34 percent by serum alone). They assigned 50 children ages 7 to 12 with DSM-IV ADHD and magnesium deficiency to 6 months open supplementation with 200 mg/day and 30 similar controls to usual treatment without magnesium; the supplemented group significantly decreased their Conners ratings compared with the control group (Starobrat-Hermelin, Kozielec, 1997). Thus, magnesium supplementation merits a placebo-controlled double-blind trial and replication by other investigators. Dosage of supplementation may be important, because animal work suggests a U-shaped behavioral dose-response curve (Izenwasser, Garcia-Valdez, Kantak, 1986).

Herbal and Homeopathic Treatments. In a randomly assigned open trial, Zhang and Huang (1990) compared a Chinese herbal cocktail (80 Ss) with methylphenidate 5-15 mg b.i.d. (20 Ss) for 1 to 3 months; 23 of 80 herbal cocktail cases were "cured" (disappearance of all

clinical symptoms and no recurrence for 6 months) compared with 6 of 20 taking methylphenidate. Including improved cases, the effectiveness rates were 86 percent versus 90 percent; the groups did not differ except for lower side effects and greater IQ rise in the herbal group. In an open trial with 100 hyperkinetic children, Wang and colleagues (1995) found an effectiveness rate of 94 percent, including reduction of hyperactivity, improved attention, and improved academics from the herbal Tiaoshen Liquor. In another open trial in 66 hyperkinetic children, Sun and colleagues (1994) found an effectiveness rate of 85 percent with Yizhi wit-increasing syrup, including significant improvement in behavior, school records, and soft neurological signs. Thus the open pilot data warrant placebo-controlled double-blind trials of Chinese herbals. No systematic data in ADHD could be found for Calmplex, Defendol, Gingko biloba, hypericum, or pycnogenol, but the first few listed may be worth pilot trials based on clinical experience.

Acupuncture. Despite the popularity of acupuncture, no published systematic data in ADHD could be found. Loo (1998), in unpublished preliminary pre-post single-blind data from students in grades K to 3, found improvements in Conners 10-item scores by teachers (n = 7) from 17.0 to 12.0 and in analogous parent scores (n = 6) from 23.1 to 15.5. She noted that children with the most severe ADHD could not cooperate with the Tx.

EEG Biofeedback. Electroencephalographic (EEG) biofeedback involves induction of sensorimotor or higher beta band EEG rhythms (12-18 Hertz) and suppression of theta rhythms by visual and auditory feedback. It arose from the observation that some children with ADHD have more theta and less beta rhythm than controls and animal work demonstrating reduction of motor activity associated with sensorimotor rhythm (Shouse, Lubar, 1978; Mann, Lubar, Zimmerman, 1992). There are several promising pilot trials. Lubar (1991) and Lubar and Shouse (1977) reported that in a single-subject ABA design four hyperactive children selected for low arousal showed better behavior and work habits without stimulant at the end of all treatment (ABA) than at the beginning with or without stimulant, and their unmedicated level of undesirable behaviors dropped by over half to the level of the normal controls; three of them showed synchrony of behavior with the ABA shifts. An uncontrolled open trial with 37 hyperactive children yielded significant grade point and achievement score improvements (Lubar, 1991). In an intensive summer treatment regimen, 12 children who showed EEG changes also improved on significantly more TOVA scales than did 7 who failed to show EEG changes (Lubar, Swartwood, Swartwood, et al., 1995). Linden and colleagues (1996) randomly assigned 18 children with DSM-III-R ADD/ADHD to either a wait list (n = 9) or 40 EEG biofeedback sessions over a 40-week period. The treated group showed a 9 point IQ rise compared with the wait list rise of less than 1 point ($p<.05$) and a 28 percent reduction in the SNAP inattention score compared with a 4 percent increase in the wait list group ($p<.05$). Thus, this treatment merits a sham-controlled randomized trial.

EMG Biofeedback, Relaxation Training, and Hypnosis. These three related Tx modalities are typically used in some combination. The few published data on hypnotherapy or breathing control alone for ADHD are discouraging (e.g., Calhoun, Bolton, 1986; Simpson, Nelson, 1974). However, the hypnotic techniques of imagery and progressive relaxation have often been incorporated into successful EMG biofeedback protocols. There are more literature citations for EMG than for EEG biofeedback (Lee, 1991). Denkowski and colleagues (1983)

randomly assigned hyperactive junior high boys to six 25-minute EMG-assisted relaxation training sessions (n = 24) or a control condition (n = 24); the treated group attained significantly higher reading and language performance and made a significant internal shift in locus of control. In 10 hyperactive boys ages 6 to 12, Dunn and Howell (1982) found significant improvement in behavior observations, parent ratings, and psychological tests after 10 relaxation training sessions but none after 10 neutral sessions. Omizo and Michael (1982) randomly assigned hyperactive boys ages 10 to 12 to either four sessions of EMG biofeedback-induced relaxation (n = 16) or sham treatment of equal length; compared with the sham, the relaxation induced significant improvements in attention and impulsivity on the Matching Familiar Figures test (ES = 1.0 to 1.3; $p<.01$). Krieger (1985) found in 27 children ages 7 to 11 with DSM-III ADHD significant improvement on Conners parent and teacher scales compared with an equal-n matched wait list control group. Success is largely moderated by baseline locus of control (Denkowski, Denkowski, Omizo, 1984). Despite recent neglect, the data suggest that EMG biofeedback-facilitated relaxation training merits further study.

Meditation. Meditation, though resulting in relaxation, is different from the preceding treatments in not directly targeting relaxation but achieving it indirectly. Kratter (1983) randomly assigned 24 children ages 7 to 12 with DSM-III ADD-H to either meditation training, progressive relaxation, or wait-list control, with 4 weeks of twice-weekly sessions; both active treatments, but not wait list, reduced impulsivity and improved scores on parent behavior scales but not teacher scales; only meditation training showed significant improvement on a test assessing selective attention. Moretti-Altuna (1987) randomly assigned 23 boys ages 6 to 12 with ADD-H to meditation training, medication, or standard therapy; meditation showed significant advantage in classroom behavior but not in parent ratings or psychological tests.

Perceptual Stimulation/Training. Perceptual and sensory stimulation and training include a wide variety of modalities, some with few or no data. The literature search found no systematic data on sensorimotor integration or optometric training for ADHD despite their widespread use. Neither were studies in ADHD found for massage, which has documented efficacy in other applications. The Interactive Metronome provides perceptual-motor concentration training with biofeedback about accuracy from motion sensors as the child taps to the beat provided by the program; open trials show improvements in timing that correlate at 0.2-0.4 with teacher ratings of attention, but there are no controlled data (Synaptec, 1998). In a single-blind prevention paradigm, Arnold and colleagues (1977) randomly assigned matched triplets and quads of first-graders selected for vulnerability on a perceptual screening battery to either 6 months of channel-specific perceptual training (n = 23), the same length of regular academic tutoring (n = 23), or no-contact control (n = 40); at 1-year followup, the trained group surpassed both control groups in blind teacher Conners ratings ($p<.01$), WRAT reading achievement, and Wechsler IQ ($p<.05$), although baseline measures were not different.

Mulligan (1996) reported significant impairment of vestibular processing in 309 children with ADHD compared with 309 matched children without ADHD ($p<.01$). In a single-blind crossover in 18 children with DSM-II hyperkinetic reaction, Bhatara and colleagues (1981) found improvement in Conners teacher ratings from rotational vestibular stimulation compared with a sham condition ($p<.05$), with benefit mainly confined to the 14 children younger than age 10 and those without comorbid conduct disorder. In another single-blind crossover with 12 children

identified through teacher scale screening, Arnold and colleagues (1985) found an ES of 0.5 between vestibular rotational stimulation alone and two control conditions (missing significance at the sample size), compared with an ES of 0.2 between visual rotational stimulation alone and the same control conditions in a similar group of 18 children. The Comprehensive Motion Apparatus provides vestibular stimulation in all vectors through complex motion; an open trial in 14 dyslexic children (mean age, 12 ± 2.6 years) showed pre-post improvement in parent rating of attention (ES = 1.5; $p<.003$) and objective cognitive/achievement tests (ES = 0.4–1.2; $p = .05–.001$) (Stillman, 1998). Thus, stimulation and/or training of specific perceptual channels merit further research in controlled trials, especially targeting subgroups that test deficient in the particular perceptual modality.

Antifungal Treatment. Treatment with antifungal agents such as nystatin (in combination with sugar restriction and other measures) is advocated by Crook (1985, 1989, 1991) and others on the hypothesis that repeated antibiotic use for otitis media changes intestinal flora, allowing yeast overgrowth, which compromises immune function and changes the gut mucosal barrier to allow absorption of food antigens. Several components of this hypothesis are supported by collateral documentation from other fields, and the hypothesis would make sense of the reported association of chronic high sugar intake with ADHD symptoms (e.g., Prinz, Riddle, 1986) without acute effects, in that sugar could promote yeast overgrowth chronically without showing acute effects on behavior. However, this hypothesis is not supported by any systematic prospective trial data in ADHD, and a trial of nystatin alone for another syndrome (fatigue, premenstrual tension, gastrointestinal symptoms, and depression) was negative (Dismukes, Wade, Lee, et al., 1990). A systematic randomly assigned trial in ADHD should be carried out, preferably double-blind placebo-controlled and accompanied by the sugar restriction and other supportive measures recommended by the advocates of this treatment.

Thyroid Treatment. Despite initial enthusiasm about resistance to thyroid hormone as a key to a large proportion of ADHD, this genetic syndrome appears extremely rare in ADHD samples. The same studies, however, reveal a rate of other thyroid dysfunction ranging from 2 percent to 5 percent (e.g., Weiss, Stein, Trommer, et al., 1993; Valentine, Rossi, O'Leary, et al., 1997), and the rate may be higher in those with comorbid mood disorder (West, Sax, Stanton, et al., 1996). In children with thyroid dysfunction, it seems related to attentional and hyperactive-impulsive symptoms (Rovet, Alvarez, 1996; Hauser, Soler, Brucker-Davis, et al., 1997). In a double-blind placebo crossover trial of thyroid supplementation, only one of nine children with ADHD and normal thyroid function improved compared with five of eight with ADHD and resistance to thyroid hormone (Weiss, Stein, Refetoff, 1997). Thus, thyroid treatment does not seem promising in children with ADHD with normal thyroid function but would seem the treatment of choice for those with thyroid dysfunction. Therefore, all children with ADHD should be screened for historical and physical exam signs of possible thyroid dysfunction (Weiss, Stein, in press).

Deleading. Animal data (e.g., Silbergeld, Goldberg, 1975) document hyperactivity as one symptom of chronic lead poisoning and suggest that lead-induced hyperactivity depends on blood lead levels and can be reversed by chelation (Gong, Evans, 1997). In humans, the level considered toxic for subtle neuropsychiatric symptoms has declined with increasing knowledge, with some authors placing it as low as single digits (Kahn, Kelly, Walker, 1995) and many

recommending 10 mcg/dL as the threshold. Whether such lead levels correlate with behavioral and cognitive measures is the subject of some controversy, partly depending on the sample size and consequent power. David and colleagues (1976) openly treated 13 children who had hyperkinetic (HK) reaction and blood lead levels greater than 25mcg/dL with penicillamine (CaEDTA if allergic to penicillin); the 7 with no other probable medical cause of their HK reaction improved in teacher hyperactivity rating (ES = 1.4; $p<.01$) and parent hyperactive-impulsive rating (ES = 2.2; $p<.05$) but not significantly in teacher inattention rating (ES = 0.6), whereas the 6 with another probable medical cause did not improve. In a double-blind placebo-controlled 12-week trial, David and colleagues (1983) randomly assigned hyperactive children with "minimally elevated lead levels" (mean, 28 ± 6 mcg/dL) to either penicillamine plus methylphenidate placebo (n = 22), methylphenidate (5–40 mg/day) plus penicillamine placebo (n = 11), or double placebo (n = 11); compared with placebo, penicillamine improved Conners teacher hyperactivity scores (ES = 1.6; $p<.001$), parent Werry-Weiss-Peters hyperactivity scores (ES = 0.7; $p<.05$), and CGI (ES = 1.4; $p<.01$); across measures the penicillamine group did nonsignificantly better than the methylphenidate group. Thus, it appears that deleading would be the treatment of choice for children with ADHD who have blood lead elevations in the range treated by Oliver and associates. To how low a blood lead level this treatment should extend is a research question of high priority.

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American Academy of Pediatrics

Policy Statement

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Medication for Children With Attentional Disorders (RE9627)

AMERICAN ACADEMY OF PEDIATRICS

Committee on Children With Disabilities and Committee on Drugs

* **ABSTRACT. Increasing numbers of children with attentional difficulties have been treated with medication, especially during the last 25 years, and now adolescents and adults are also being recognized with attentional difficulties. This policy statement provides information on the role and the pharmacology of medications used to treat children with attention deficit disorders. Indications and use of medications are discussed and recommended drugs and dose levels are outlined. Information on adverse effects and common side effects is presented.**

Children with attentional difficulties have been described since the turn of the century. The modern era of treatment began with the publication by Bradley[1] regarding the beneficial effect of benzedrine in children with attentional and other behavior problems. Increasing numbers of children have been treated with medication, especially during the past 25 years, and now adolescents and adults are also being recognized with attentional difficulties. More than 700 studies on the effects of drugs on learning or behavior in children had been published by 1973,[2] and many studies and reviews have been published since that time. The American Academy of Pediatrics (AAP) has reviewed this subject several times, beginning with a position paper in 1970; the most recent statement was published in 1987.[3] The nomenclature for these disorders has changed with time, as has the knowledge and use of the medications involved. The role and the pharmacology of medications used to treat children with attention deficit disorders is reviewed in light of current information. In recent years, the term attention deficit disorder has become established as a recognized diagnostic category because of its listing in the *Diagnostic and Statistical Manual of Mental Disorders* compiled by the American Psychiatric Association. The new *Diagnostic and Statistical Manual for Primary Care* for children and adolescents, developed by the AAP in conjunction with the American Psychiatric Association and the Society for Pediatric Psychology, offers a comprehensive, pediatric-oriented definition of attentional disorders. Children with attention deficit/hyperactivity disorder demonstrate a persistent pattern of inattention or hyperactivity and impulsivity that is more frequent and severe than that observed in other children at a

similar level of development.[4] Although genetic factors or neurologic insults are sometimes involved, the etiology in many instances is unknown. The primary symptoms of these disorders occur along a continuum of severity and include: (1) difficulties with selective attention, including easy distractibility; (2) difficulty with impulse control; (3) problems with maintaining appropriate task-related activities; (4) disorders of executive function, including planning and organization of cognitive tasks; (5) difficulty recognizing and responding to social cues; (6) difficulty attending to directions; and (7) low frustration tolerance. Commonly associated features include combinations of impairments in learning, memory, sequencing, motor skills, language, modulation of emotional response, compliance with societal demands, sleep patterns, and mood and affect. Although attentional disorders may occur alone, they are more commonly manifested as one of a series of symptoms associated with disorders of higher cortical function, including disturbances in movement, cognition, communication, and social competence.

Many educators and physicians do not realize that a differential diagnosis exists for these behaviors much as for any other complex of symptoms. To establish an accurate diagnosis, information must be obtained concerning factors such as: (1) the child's birth, developmental, family, medical, psychosocial, and scholastic history; (2) sensory screening (ie, vision and hearing); and (3) physical, neurologic, and neuromaturational examinations.

As was originally stated by the Council on Child Health:

> The use of drug therapy in the management of the hyperkinetic child does not differ appreciably from drug therapy in other treatable maladies. In both instances, prescription drugs should be prescribed only by appropriately licensed physicians. Although the screening of patients may frequently be done by other disciplines, the ultimate selection of patients to be treated remains the responsibility of the prescribing physician.[5]

INDICATIONS AND USE OF MEDICATION

Medication may be indicated when a child or adolescent manifests signs of an attentional disorder and other related difficulties to a point that these problems interfere with the ability to learn or to develop satisfactory interpersonal relationships. Such symptoms may result in academic failure, inability to fulfill intellectual potential, poor self-esteem, or socially maladaptive behavior.

Drug therapy should not be considered a panacea or cure-all. An appropriate diagnostic evaluation is essential before a child begins any drug therapy for learning or behavior problems, both to establish the diagnosis and to identify commonly associated disorders that may require specific intervention. Such an evaluation often requires that the child be seen by other health professionals, such as psychologists, speech pathologists, and educational diagnosticians. Unfortunately, some children receive drug treatment for long periods without such evaluation and without continuing evaluation during therapy. Medication for children with attentional disorders should never be used as a sole treatment. The treatment team for children who have attentional disorders should consist of a partnership that includes the child, family, school personnel, physician, and other health professionals. Proper classroom placement, behavior modification, counseling, and provision of structure should be used, even if pharmacology is being considered.[6,7] This integrated approach should also continue once

the drug therapy has been started. Medication should not be used without clear evidence that a child's attentional difficulties significantly affect school performance, cause difficulties with social adjustment, or are associated with a significant behavioral disorder. Medication should not be continued if clear-cut benefits are not observed.

RECOMMENDED DRUGS AND DOSE LEVELS

The medications used most effectively and frequently in the treatment of attentional disorders are the stimulants methylphenidate hydrochloride, dextroamphetamine sulfate, and pemoline. Therapy with these drugs results in significant improvement in 70% to 80% of properly diagnosed children with attention deficit disorders.[6,8,9]

Any medication that is used to treat an attentional disorder should be started at a low dose, with gradual, small increases. The effects of methylphenidate and dextroamphetamine become evident quickly, but it may take several weeks before maximum effectiveness can be judged. Pemoline has been believed to require 3 to 6 weeks before effectiveness can be judged, but more recent evidence indicates that this drug may show an effect very quickly.[10] The usual dose range for methylphenidate is 0.3 to 0.8 mg/kg per dose given two to three times each day; low doses are recommended for initial treatment.[11] The usual starting doses of methylphenidate for children in the early elementary grades are 5 mg in the morning and 5 mg at noon, with an additional dose after school if needed. Each dose of the standard form of methylphenidate provides improved attentional ability for 3 to 4 hours. The dose can then be increased gradually, if necessary, to obtain optimal response. Doses of methylphenidate greater than 1.0 mg/kg per dose may lead to decreased performance in attention testing and memory.[8] The increased use of methylphenidate in the adolescent and adult population is recent enough that maximum doses have not been established. The manufacturer does not recommend a daily dose larger than 60 mg for children. Changes in attention and behavior should be closely monitored at school and home. The use of a qualitative rating scale as a baseline for behavioral observations is advisable before treatment is started and should be continued regularly thereafter.[12-14]

Dextroamphetamine and methylphenidate are manufactured as short- and long-acting medications. The recommended dose of dextroamphetamine is half that of methylphenidate. Results with the sustained-release form of methylphenidate have been disappointing, because the duration of effect is highly variable.[14,15] Pemoline is generally administered at a dose of 1 to 2 mg/kg once a day in the morning.

OTHER POTENTIALLY USEFUL DRUGS

Tricyclic antidepressants also ameliorate the symptoms of attentional disorders in children.[16] The most commonly used drugs are imipramine, desipramine, and nortriptyline. Overall, stimulant medications appear to be superior to the tricyclic drugs in the treatment of attentional disorders.[16] Tricyclic drugs, however, represent appropriate drugs of second choice when children do not respond to stimulant drugs, have intolerable side effects of stimulant drugs, or have attentional deficits associated with anxiety, mood disturbances, or depression. Blood levels can be helpful in establishing the proper dose. Many authors recommend various forms of electrocardiographic monitoring during therapy with tricyclic

drugs, owing to a very small number of reports of sudden death in children receiving these medications.[17] Several studies have demonstrated electrocardiographic changes during therapy with these drugs, especially prolonged QT intervals.[18,19] On the other hand, no current evidence indicates that such monitoring can help clinicians identify a child at risk, and the value of such monitoring has not been demonstrated. Thus, routine electrocardiographic monitoring is not recommended at this time.

A variety of other medications have helped selected children. The most commonly used alternative medication to the stimulant drugs and tricyclic antidepressants has been clonidine.[20] Although clonidine has not been approved for this purpose, it is particularly useful for treating the hyperactive component of attentional disorders and has been helpful in children with associated conduct disorders. The major side effect is sleepiness. Clonidine can be used alone or in combination with the stimulant medications. A bedtime dose of clonidine may benefit those children who respond well to the stimulant medications but who develop insomnia.

The use of alternative drugs such as tricyclics and clondine must be approached with caution, because they have the potential for causing death when ingested intentionally by emotionally fragile children or accidentally by their siblings (and other household members). When the decision is made to use potentially toxic medications for a behavior disorder, the care givers should be informed about the risks. Pediatricians should help assure that families take precautions to avert toxic ingestion of these drugs.

ADVERSE EFFECTS

The most common side effects of stimulant medications are decreased appetite, insomnia, stomachaches, and headaches.[21] There had been concern that stimulant medications lead to growth retardation. Recent studies indicate, however, that no growth suppression occurred with doses of methylphenidate up to 0.8 mg/kg taken for a prolonged period.[22] On rare occasions, pemoline has been linked to a hypersensitivity reaction, which may result in jaundice and elevation in laboratory tests of liver function. Overt hepatic dysfunction is rare.

Stimulant drugs can also help alleviate the attentional deficits that may accompany other developmental problems, such as tic disorders, pervasive developmental disorders, and mental retardation. Occasionally, however, children with these disorders experience worsening of their symptoms. For this reason, such drugs must be used with added caution in children whose attentional difficulties are part of broader developmental problems. There is no conclusive evidence that the stimulant medications precipitate tic disorders, such as Tourette syndrome, except when a genetic predisposition already exists.[23]

Drug holidays on weekends and during summer vacations have been suggested by some physicians. This suggestion is based on the unproved hypothesis that sensitivity to the effects of stimulant drugs is heightened if they are given intermittently. This recommendation also reflects the concern that continuous administration leads to growth suppression. For many patients the symptoms of attentional disorders may not disappear during vacations or weekends. For these patients, drugs should be given continuously. Medication should be administered continuously when the child's impulsiveness, activity, and other traits result in significant maladaptive behaviors toward family and peers.

RECOMMENDATIONS

Drug therapy should not be used as a part of the overall treatment program for children and adolescents without clear evidence that their attentional disorders have led to social, behavioral, and learning difficulties, and such therapy should not be continued if clear-cut benefits are not observed. Careful evaluation of patients is essential before drug treatment is initiated. Monitoring and follow-up both at school and home are vital. Pediatricians must work in concert with parents, principals, teachers, special educators, and school nurses to combine drug therapy with appropriate management of the child's environment and curriculum. In view of requests from other professionals and from school personnel to prescribe medication for children with attentional disorders, pediatricians should be cautious of becoming surrogate prescribers of medication. Although the overall management of social and school failure is a multidisciplinary venture, it is important to remember that the ultimate responsibility for the use of medication is the physician's.[24] The decision to use medication must always consider the overall needs of the child and family, and medication should never be considered the complete treatment program.

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---------- *The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.*

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AACAP FACTS FOR FAMILIES

Fact No. 6 (11/95)

CHILDREN WHO CAN'T PAY ATTENTION

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Parents are distressed to receive a note from school saying that their child "won't listen to the teacher" or "causes trouble in class." One possible reason for this kind of behavior is Attention-Deficit Hyperactivity Disorder (ADHD).

Even though the child with ADHD often wants to be a good student, the impulsive behavior and inability to pay proper attention in class interfere. Teachers, parents and friends know that the child is "misbehaving" or "different," but they might not be able to tell exactly what is wrong. A child and adolescent psychiatrist can diagnose and treat the child with Attention-Deficit Hyperactivity Disorder.

The "hyperactivity" symptoms in ADHD may include excessive running or climbing in young children, or extremely restless and fidgety behavior in older children. In contrast to a normal high level of activity in some children, hyperactivity is haphazard, poorly organized and not goal-directed. ADHD is ten times more common in boys than in girls.

A child who has ADHD shows several of the following characteristics:

- has difficulty organizing work and gives the impression he or she has not heard instructions.
- is easily distracted.
- makes careless, impulsive errors.
- frequently calls out in class.
- has difficulty awaiting his or her turn in group situations.
- fails to follow through on parents' requests.
- is unable to play games for the same amount of time as other children of the same age.

Without proper treatment, the child may fall behind in schoolwork, and friendships may suffer because of poor cooperation in playing and other social activities. Self-esteem suffers because the child experiences more failure than success and is criticized by teachers and family who do not recognize a health

success and is criticized by teachers and family who do not recognize a health problem.

Research clearly documents that medication can be helpful, and that medication prescribed for ADHD works best as part of a comprehensive plan of treatment including ongoing evaluation and, often, medical psychotherapy for the child, help for the family, and consultation with teachers.

If a child shows behavior problems like those of ADHD, parents may ask their pediatrician or family physician to refer them to a child and adolescent psychiatrist, who can diagnose and treat the child for this illness. By meeting with the child and adolescent psychiatrist, parents can learn how to cope with their child's problem. In addition, the child psychiatrist often helps teachers and school officials work out ways to teach more effectively those children with Attention-Deficit Hyperactivity Disorder.

[Facts For Families Main Menu] [Spanish] [French]

Child Development Institute

Attention Deficit & Learning Disorders

Suggested Classroom Accommodations for Specific Behaviors

When you see this behavior	Try this accommodation
1. Difficulty following a plan (has high aspirations but lacks follow-through); sets out to "get straight A's, ends up with F's" (sets unrealistic goals)	+Assist student in setting long-range goals: break the goal into realistic parts. +Use a questioning strategy with the student; ask, What do you need to be able to do this? +Keep asking that question until the student has reached an obtainable goal. +Have student set clear timelines of what he needs to do to accomplish each step (monitor student progress frequently).
2. Difficulty sequencing and completing steps to accomplish specific tasks (e.g. writing a book report, term paper, organized paragraphs, division problem, etc.)	+ Break up task into workable and obtainable steps. + Provide examples and specific steps to accomplish task.
3. Shifting from one uncompleted activity to another without closure.	+ Define the requirements of a completed activity (e.g. your math is finished when all six problems are complete and corrected; do not begin on the next task until it is finished).
4. Difficulty following through on instructions from others.	+ Gain student's attention before giving directions. Use alerting cues. Accompany oral directions with written directions. + Give one direction at a time. Quietly repeat directions to the student after they have been given to the rest of the class. Check for understanding by having the student repeat the directions.
5. Difficulty prioritizing from most to least important.	+ Prioritize assignment and activities. + Provide a model to help students. Post the model and refer to it often.
6. Difficulty sustaining effort and accuracy over time.	+ Reduce assignment length and strive for quality (rather that quantity). + Increase the frequency of positive reinforcements (catch the student doing it right and let him know it.
7. Difficulty completing assignments.	+ List and/or post (and say) all steps necessary to complete each assignment. + Reduce the assignment into manageable sections with specific due dates. + Make frequent checks for work/assignment completion. + Arrange for the student to have a "study buddy" with phone number in each subject area.
8. Difficulty with any task that requires memory.	+ Combine seeing, saying, writing and doing; student may need to subvocalize to remember. + Teach memory techniques as a study strategy (e.g. mnemonics, visualization, oral rehearsal, numerous repetitions).
9. Difficulty with test taking.	+ Allow extra time for testing; teach test-taking skills and strategies; and allow student to be tested orally. + Use clear, readable and uncluttered test forms. Use test format that the student is most comfortable with.Allow ample space for student response. Consider having lined answer spaces for essay or short answer tests.
10. Confusion from non-verbal cues (misreads body language, etc.)	+ Directly teach (tell the student) what non-verbal cues mean. Model and have student practice reading cues in a safe setting.
11. Confusion from written material (difficulty finding main idea from a paragraph; attributes greater importance to minor details)	+ Provide student with copy of reading material with main ideas underlined or highlighted. + Provide an outline of important points from reading material. + Teach outlining, main-idea / details concepts. + Provide tape of text / chapter.

Definition

Contents

The DSM IV definition of **Attention-Deficit Hyperactivity Disorder (ADHD)** is:

A. Either (1) or (2)

(1) six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

(2) six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g. at school[or work] and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational funtioning.

E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g. Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

ADHD NOS

Associated Diagnoses

12. Confusion from written material (difficulty finding main idea from a paragraph; attributes greater importance to minor details)	+ Provide student with a copy of presentation notes. + Allow peers to share carbon-copy notes from presentation (have student compare own notes with a copy of peer's notes). + Provide framed outlines of presentations (introducing visual and auditory cues to important information). + Encourage use of tape recorder. + Teach and emphasize key words (the following..., the most important point...,etc.).
13. Difficulty sustaining attention to tasks or other activities (easily distracted by extraneous stimuli)	+ Reward attention. Break up activities into small units. Reward for timely accomplishment. + Use physical proximity and touch. Use earphones and/or study carrels, quiet place, or preferential seating.
14. Frequent messiness or sloppiness.	+ Teach organizational skills. Be sure student has daily, weekly and/or monthly assignment sheets; list of materials needed daily; and consistent format for papers. Have a consistent way for students to turn in and receive back papers; reduce distractions. + Give reward points for notebook checks and proper paper format. + Provide clear copies of worksheets and handouts and consistent format for worksheets. + Establish a daily routine, provide models for what you want the student to do. + Arrange for a peer who will help him with organization. + Assist student to keep materials in a specific place (e.g. pencils and pens in pouch). + Be willing to repeat expectations.
15. Poor handwriting (often mixing cursive with manuscript and capitals with low-case letters)	+ Allow for a scribe and grade for content, not handwriting. Allow for use of computer or typewriter. + Consider alternative methods for student response (e.g. tape recorder, oral reports, etc.). + Don't penalize student for mixing cursive and manuscript (accept any method of production). + Use pencil with rubber grip.
16. Difficulty with fluency in handwriting e.g. good letter/word production but very slow and laborious.	+ Allow for shorter assignments (quality vs quantity). + Allow alternate method of production (computer, scribe, oral presentation, etc.). + Use pencil with rubber grip.
17. Poorly developed study skills	+ Teach study skills specific to the subject area - organization (e.g. assignment calendar), textbook reading, notetaking (finding main idea / detail, mapping, outlining), skimming, summarizing).

18. Poor self-monitoring (careless errors in spelling, arithmetic, reading)	+ Teach specific methods of self-monitoring (e.g. stop-look-listen). + Have student proof-read finished work when it is cold.
19. Low fluency or production of written material (takes hours on a 10 minute assignment)	+ Allow for alternative method for completing assignment (oral presentation, taped report, visual presentation, graphs, maps, pictures, etc. with reduced written requirements). + Allow for alternative method of writing (e.g. typewriter, computer, cursive or printing, or a scribe.
20. Apparent inattention (underachievement, daydreaming, not there)	+ Get student's attention before giving directions (tell student how to pay attention, look at me while I talk, watch my eyes while I speak). Ask student to repeat directions. + Attempt to actively involve student in lesson (e.g. cooperative learning).
21. Difficulty participating in class without being interruptive; difficulty working quietly	+ Seat student in close proximity to the teacher. + Reward appropriate behavior (catch student being good). + Use study carrel if appropriate.
22. Inappropriate seeking of attention (clowns around, exhibits loud excessive or exaggerated movement as attention-seeking behavior, interrupts, butts into other children's activities, needles others)	+ Show student (model) how to gain other's attention appropriately. + Catch the student when appropriate and reinforce.
23. Frequent excessive talking	+ Teach student hand signals and use to tell student when and when not to talk. + Make sure student is called when it is appropriate and reinforce listening.
24. Difficulty making transitions (from activity to activity or class to class); takes an excessive amount of time to find pencil, gives up, refuses	+ Program child for transitions. Give advance warning of when a transition is going to take place (now we are completing the worksheet, next we will ...) and the expectation for the transition (and you will need...)

Child Development Institute

Attention Deficit & Learning Disorders

Suggested Classroom Accommodations for Specific Behaviors

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1. Difficulty following a plan (has high aspirations but lacks follow-through); sets out to "get straight A's, ends up with F's" (sets unrealistic goals)	+Assist student in setting long-range goals: break the goal into realistic parts. +Use a questioning strategy with the student; ask, What do you need to be able to do this? +Keep asking that question until the student has reached an obtainable goal. +Have student set clear timelines of what he needs to do to accomplish each step (monitor student progress frequently).
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6. Difficulty sustaining effort and accuracy over time.	+ Reduce assignment length and strive for quality (rather that quantity). + Increase the frequency of positive reinforcements (catch the student doing it right and let him know it.
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8. Difficulty with any task that requires memory.	+ Combine seeing, saying, writing and doing; student may need to subvocalize to remember. + Teach memory techniques as a study strategy (e.g. mnemonics, visualization, oral rehearsal, numerous repetitions).
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to leave previous task; appears agitated during change.	+ Specifically say and display lists of materials needed until a routine is possible. List steps necessary to complete each assignment. + Have specific locations for all materials (pencil pouches, tabs in notebooks, etc.). + Arrange for an organized helper (peer).
25. Difficulty remaining seated or in a particular position when required to	+ Give student frequent opportunities to get up and move around. Allow space for movement.
26. Frequent fidgeting with hands, feet or objects, squirming in seat.	+ Break tasks down to small increments and give frequent positive reinforcement for accomplishments (this type of behavior is often due to frustration). + Allow alternative movement when possible.
27. Inappropriate responses in class often blurted out; answers given to questions before they have been completed.	+ Seat student in close proximity to teacher so that visual and physical monitoring of student behavior can be done by the teacher. + State behavior that you do want (tell the student how you expect him to behave).
28. Agitation under pressure and competition (athletic or academic)	+ Stress effort and enjoyment for self, rather than competition with others. + Minimize timed activities; structure class for team effort and cooperation.
29. Inappropriate behaviors in a team or large group sport or athletic activity (difficulty waiting turn in games or group situations)	+ Give the student a responsible job (e.g. team captain, care and distribution of the balls, score keeping, etc.); consider leadership role. + Have student in close proximity of teacher.
30. Frequent involvement in physically dangerous activities without considering possible consequences	+ Anticipate dangerous situations and plan for in advance. + Stress Stop-Look-Listen. + Pair with responsible peer (rotate responsible students so that they don't wear out!).
31. Poor adult interactions. Defies authority. Sucks up. Hangs on.	+ Provide positive attention. + Talk with student individually about the inappropriate behavior (what you are doing is..., a better way of getting what you need or want is...).
32. Frequent self-putdowns, poor personal care and posture, negative comments about self and others, low self-esteem	+ Structure for success. + Train student for self-monitoring, reinforce improvements, teach self-questioning strategies (What am I doing? How is that going to affect others?) + Allow opportunities for the student to show his strength. + Give positive recognition.
33. Difficulty using unstructured time - recess, hallways, lunchroom, locker room, library, assembly	+ Provide student with a definite purpose during unstructured activities (The purpose of going to the library is to check out..the purpose of...is...). + Encourage group games and participation (organized school clubs and activities).
34. Losing things necessary for task or activities at school or at home (e.g. pencils, books, assignments before, during and after completion of a given task)	+ Help students organize. Frequently monitor notebook and dividers, pencil pouch, locker, book bag, desks. A place for everything and everything in its place. + Provide positive reinforcement for good organization. Provide student with a list of needed materials and locations.
35. Poor use of time (sitting, starting off into space, doodling, not working on task at hand)	+ Teach reminder cues (a gentle touch on the shoulder, hand signal, etc.). + Tell the student your expectations of what paying attention looks like. (You look like you are paying attention when...) + Give the student a time limit for a small unit of work with positive reinforcement for accurate completion. + Use a contract, timer, etc. for self-monitoring.

Last Updated: 08/07/98

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NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

Position Statement

Students with Attention Problems

The National Association of School Psychologists advocates appropriate educational and mental health services for all children and youth. NASP further advocates noncategorical models of service delivery within the least restrictive environment for students with disabilities and students at risk for school failure.

NASP recognizes that some students with academic and adjustment problems exhibit a constellation of behaviors commonly associated with Attention Deficit Hyperactivity Disorder (ADHD). NASP believes that these behaviors exist along a continuum from mild to severe and that appropriate interventions will vary depending on the nature and severity of the behaviors of concern.

Longitudinal data suggest that the behaviors associated with ADHD typically present at an early age, may change over time and may persist into adulthood. Therefore, NASP believes that interventions must be designed within a developmental framework. Furthermore, recognizing that these students are at particular risk for developing social-emotional and learning difficulties, NASP believes problems should be addressed early to reduce the need for long- term special education. NASP believes that students with severe attention problems can be provided appropriate special education services under current disability categories of the IDEA or with accommodations in regular education through Section 504 of the Rehabilitation Act of 1973.

Diagnosis of ADHD should be done with care and with the understanding that attention problems are also symptoms of other psychological conditions. Because attention problems can co-exist with other significant problems or be symptomatic of very different disorders, it is essential that a thorough, differential evaluation be conducted prior to diagnosis and treatment, and that this assessment should include direct input from school and home. Further, NASP strongly believes that assessment of attention problems should be linked to interventions and recommends that intervention assistance to students, teachers and parents is provided early and for as long as such support is necessary to assure optimal performance.

NASP believes that effective interventions should be tailored to the unique strengths and needs of every student. For children with attention problems, such interventions will often include the following:

1) Classroom modifications to enhance attending, work production and social adjustment;

2) Behavior management systems to reduce problems in areas most likely to be affected (e.g., unstructured settings, large group instruction, independent seatwork, etc.);

3) Direct instruction in study strategies and social skills, with explicit strategies for enhancing generalization to natural environments such as the classroom, playground, etc.;

4) Collaboration and consultation with families to ensure that parents' expertise in managing their child is fully utilized, to support parents' behavior management at home, and to facilitate the use of consistent approaches across home, school and community settings;

5) Monitoring by a case manager to ensure effective implementation of interventions, to provide adequate support for those interventions, and to evaluate the effectiveness of programs in meeting behavioral and academic goals;

6) Education of school staff in characteristics and management of attention problems to enhance appropriate instructional modifications and behavior management;

7) Access to special education services when attention problems significantly impact school performance;

8) Collaboration with community agencies providing medical and related services to students and their families;

9) Interventions to help these students to appreciate their unique abilities and to develop their self esteem.

Research indicates that medication can be an effective treatment for many students with attention problems and can enhance the efficacy of other interventions. NASP believes that a decision to use medication rests with parents and is not an appropriate contingency for school placements and interventions. A thorough, differential assessment is essential prior to pharmacological intervention to assure that the most appropriate medication (if any) is prescribed. Furthermore, medication should be considered only after attempting or ruling out alternative, less invasive treatments. When medication is considered, NASP strongly recommends:

1) That behavioral and academic data be collected before and during blind medication trials to assess baseline conditions and the efficacy of medication; and

2) That communication between school, home and medical personnel emphasize mutual problem solving and collaborative teamwork; and

3) That the student's health, behavior and academic progress while on medication are carefully monitored and communicated to appropriate medical providers.

NASP believes school psychologists have a vital role to play in developing, implementing and monitoring effective interventions with students with attention problems. As an Association, NASP is committed to publishing current research on ADHD and to providing continuing professional development opportunities to enhance the skills of school psychologists to meet the diverse needs of students with attention problems.

— Revision adopted by the NASP Delegate Assembly, July, 1998.

Resource

Smallwood, D. (Ed.) (1997). *Attention disorders in children: A compilation of resources for school psychologists.* Bethesda, MD: National Association of School Psychologists.

NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

Attention Deficit Disorder

A Primer for Parents

by Elaine Morton Bohlmeyer, Ph.D, NCSP
with the school psychology staff of
Gilbert (AZ) Unified School District

When a student is not doing well in school, especially if teachers also report that the student doesn't seem to concentrate in class and does not complete or turn in work, the parents may wonder if the child has an Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD). Sometimes such children are labeled "hyperactive," although it now is recognized that children can have attention deficits with or *without* overactive behaviors. It is important for parents to recognize the symptoms of ADD and to work with professionals in making an accurate diagnosis.

Characteristics of ADD

Students who have ADD may display a variety of characteristics, but some of the most common are impulsiveness, inattention, disorganization and distractibility. These children are often described as:

- not thinking before they act
- having difficulty following complex directions
- unable to wait
- having difficulty maintaining attention to tasks that are not basically interesting, such as school work or chores (but they may be able to watch TV or play computer games for hours!)
- unable to comply with a schedule
- frequently losing things

Parents often will say, "Even when I see him complete his homework, it never seems to get turned in." It is as if a "black hole" follows some of these children and swallows their homework and supplies. Some children get into fights often and are avoided or rejected by their peers. Others are very likeable and have many friends, although their friendships usually are not deep and lasting. They may get into trouble in school and in the community for doing things they know they shouldn't do, and they may be either extremely sorry or have a great many reasons why it wasn't their fault. The child may relate a feeling of being out of control or not being able to stop an activity. Parents may ask, "I know he knows better, and I know he's a good kid; why is he always in trouble?"

Diagnosing ADD

Many of the symptoms associated with ADD also may be symptoms of other childhood problems such as depression, anxiety or conduct disorders. Another problem with diagnosis is that there is no blood test or other specific medical test for ADD. Physicians and psychologists who diagnose ADD use observation, behavior reports from people who know the child well and a careful history. Sometimes there is a family history of ADD. In addition, the child's personal history is important because symptoms of true ADD will be present in a child before age seven and will be persistent over the years. If a child suddenly begins to exhibit these symptoms, especially if the child is older than seven, the behavior usually is a temporary response to something that is troubling him or her; however, it also may be the beginning of a deeper emotional problem.

Helping Children with ADD

Treatment of ADD is most successful when a variety of approaches are taken. First, it is important for parents to obtain as much information as possible about ADD. They can attend support groups in their school or community and there may be lectures and seminars provided by their school or mental health agencies. It helps for parents to meet together to learn that they are not alone with this problem and to discuss what other parents have found helpful. The school psychologist should be able to provide information about various resources and reading material.

Second, it usually is helpful for the child to have some individual or group counseling. Counseling may include information about ADD, social skills training and techniques that help the child remember to focus and think before acting. Older children may be taught strategies that will help them organize and complete tasks, such as using notebooks, checklists or timers.

Third, behavior techniques used by parents and teachers can help the child be more successful in meeting the demands of tasks. Since most ADD children really do want to behave well and to be able to finish assignments, they may respond to a prearranged nonverbal signal to return to their work. Positive reinforcement (praise, rewards) for following instructions and completing work may be helpful, but such reinforcement needs to be immediate and frequent. Children with ADD do not respond well to long-term rewards; opportunities to earn rewards need to be given every few minutes for preschoolers, several times a day for young elementary school children and at least daily for adolescents. Other specific techniques include:

- give the child only one or two steps of a direction at a time
- break a school assignment into several short assignments that an adult checks after each part is completed
- set a timer for a short period of time and challenge the child to see how much of a task can be completed before the timer goes off
- help the child to keep a daily calendar
- help the child to organize homework into a notebook

Using Medication for ADD

Finally, a physician might choose to prescribe medication. ADD is a neurobiological condition and medication helps the child to focus and benefit from instructional and behavioral support. Although some parents are reluctant to give their children medication, research shows that other treatments without the medication component rarely have lasting effects.

A great deal has been learned about ADD during the past five or ten years, so it is important to know what information is current and what is outdated. For example, professionals used to believe that children "outgrow" ADD at puberty and that medication and other treatments were not needed after that time. It now is known that, while most children do outgrow the excessive motor activity often associated with ADD, many people retain other symptoms throughout their adult lives and continue to respond favorably to counseling and medication. There is also evidence that some popular treatments, such as biofeedback, special diets and herbs, are ineffective. Until recently, it was thought that medications used for ADD might permanently stunt children's growth or worsen symptoms of Tourette's Syndrome (such as tics), but new information does not support these fears.

What if I Suspect My Child Has ADD?

If you suspect your child has ADD, you can expect the school to help you by providing behavior reports from teachers, either in written summaries or in the form of structured questionnaires or rating scales. If you have concerns about your child's academic progress or behavior, the school also should investigate whether or not symptoms of learning disabilities or emotional disorder are present. If your child is diagnosed as having ADD, the school is obligated to make reasonable accommodations for the child's condition, such as preferential seating or giving the child more time to complete assignments.

To pursue medical treatment, be sure to see a physician who is knowledgeable about ADD and medications. Work with your physician to find the right medication and the right dosage for your child. It used to be thought that dosage should be dependent upon body weight, but now it is known that each child responds differently to dosage level. During the time of adjustment, remember that most medications prescribed for ADD are short-acting and any undesirable (as well as favorable) effects wear off quickly. That is why many of these medications must be taken every few hours. If, however, your child also is being treated for other conditions, such as depression, the effects of medication for these other conditions may be longer-acting. Be sure to discuss side effects with your physician and report any concerns immediately!

Expect the school and physician to work together and communicate regarding the effectiveness of behavior techniques and response to medications. Both educational and medical professionals have unique contributions to make in the treatment process. While reports from school are crucial for monitoring the effects of medications, nobody in the school setting is qualified to prescribe them or change the dosage. While the physician may give helpful educational recommendations, it is not within the authority of a physician to prescribe specific tests or treatments within the school setting.

If your child is diagnosed as having ADD, remember that this condition likely can be fairly well controlled, but it also probably will be a life-long condition. Despite the best treatment, your child may never be as organized and methodical as typical peers. For example, do no expect your child to remember to take medication according to the prescribed schedule unless he or she clearly has demonstrated the ability to do so. Remember that, when your child needs the next dosage of medication, the effects of the last dosage are wearing off and that this is when the child tends to be least well-organized and responsible. Your child may always need more that the usual amount of help to organize tasks and materials, and he or she may never conform to rules and regulations as closely as you would like. However, if you emphasize the child's unique strengths and abilities, the disability may not seem so frustrating.

Resources for Parents

CHALLENGE Newsletter, Challenge, Inc., P.O. Box 488, W. Newbury, MA 011985; $25/yr. A national newsletter on Attention Deficit Disorder published six times a year.

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Ingersoll, B.D. & Goldstein, S. (1993). *Attention Deficit Disorder and Learning Disabilities: Realities, Myths and Controversial Treatments.* New York: Doubleday.

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Moss, R.A. with Dunlap, H.H. (1990). *Why Johnny Can't Concentrate.* New York: Bantam Books.

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Organizations

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C.H.A.D.D. (Children and Adults with Attention Deficit Disorders). 499 NW 70th Ave. #109, Plantation, FL 33317. (305) 587-3700.

NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

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CH.A.D.D. (Children and Adults with Attention Deficit Disorders). 499 NW 70th Av #109, Plantation FL 33317. (305) 587-3700.

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NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

ADHD Children and Social Skills Training

A Handout for Teachers

by Patrick D. Sorensen
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Background

Attention Deficit/Hyperactivity Disorder (ADHD or ADD) is a biogenetically based disorder characterized by developmentally inappropriate difficulties with attention, impulsivity and (often) hyperactivity. Children with ADHD often demonstrate social skill problems and difficulties with interpersonal relations. Although school is the most important social experience outside the family, their frequently disruptive, noncompliant and restless behavior limit the positive opportunities for children with ADHD. Thus, the primary characteristics of the disorder interfere with the child's ability to develop appropriate social skills.

Impact of ADHD on Social Skills: Children with ADHD are often described as controlling, annoying and aversive by peers and tend to receive more negative social feedback from both peers and teachers. Due to their impulsivity and activity level, these children often seek to solve problems by physical means. ADHD children also may have difficulty accepting responsibility for their actions and attribute blame to others, often leading to further difficulties with peer relations. In some instances ADHD children may not have a *deficit* in social skills, but are unable to *produce* socially accepted behaviors in interpersonal situations , even though they "know" the appropriate behavior.

Because the ability to interact and share with others is a predominant contributor to a child's growth, children with social difficulties are significantly at-risk for later behavioral and emotional problems. As adults, individuals with ADHD often experience mental health problems, social isolation and employment difficulties.

Traditional Interventions for ADHD Children: Stimulant medications, including methylphenidate (Ritalin), pemoline (Cylert) or d-amphetamine (Dexedrine) are prescribed for 60%-90% of children with ADHD. In approximately 60-70% of ADHD children, medication has been shown to reduce aggressive, noncompliant and impulsive behavior and to improve attention. However, improvements in social behavior are most significant when medication is combined with behavioral management and/or social skills training. A combination of treatments has been shown to produce more positive long-term adjustment than medical or psychosocial intervention alone.

What can I do as a teacher? School is the most significant socializing agent for a child outside of the family. Teachers can be actively involved in developing positive social skills for ADHD children using training and self-monitoring strategies.

Social Skills training

Social skills training should occur in natural settings such as the school or home. Children are better able to maintain and generalize social skills when these are reinforced in the classroom, playground or in other social situations. Social skills training programs typically involve instruction, modeling, behavior rehearsal, coaching and feedback. Children are taught : *self expressive skills* (expressing feelings and opinion, accepting compliments, positive self-statements); *other-enhancing skills* (stating positives about others, stating genuine agreement or praise); *assertiveness* (making simple requests, disagreeing with others, denying unreasonable requests); and *communication skills* (conversing, interpersonal problem solving).

Instruction: The child is verbally taught to recognize social behaviors, such as participation cooperation, communication, validation and support. Broad and specific skills are addressed Examples of broad skills : "One should be positive to his/her friends because..." "Body posture and facial expressions communicate.." Specific skills might include: "Look the other person in the eye when beginning and maintaining a conversation..." "Take turns and share when involved in games "

Modeling: The child will enhance social skills while observing appropriate behaviors of others For example, point out positive behavior of other students, point out your own behavior and use videotapes of appropriate behavior.

Behavior rehearsal: Provide the child with immediate social situations conducive to practicing the behaviors that have been taught. Effective strategies include role playing, small group opportunities (e.g., projects, cooperative learning), interactive games or playground activities, instructional activities that encourage student interaction and class discussions.

Coaching: Provide instructions to the child during behavior rehearsal. Important aspects of coaching include focusing on important concepts, teaching concepts and skills suggested by the child, providing specific behavioral examples in given situations, and asking the child to evaluate his/her social behaviors in terms of the outcome.

Feedback: Give the child immediate reinforcement for appropriate behaviors *during* rehearsal (e.g., "Great job..." "That time you didn't look away, you looked right at him..."). Feedback should also be provided to the child *following* rehearsal. The major aspects of the training program should be reemphasized:

- What skills did we focus on during the training?
- What appropriate behaviors did you observe in others?
- Review the activity (how did you feel?, how did others react?, what worked and what didn't?)
- Review the important steps and aspects of successful interaction or behavior
- Provide positive reinforcement and encourage the child to further develop skills

Self-monitoring Procedures in the Classroom

Step by step problem solving is an effective self-monitoring procedure that can be taught to the child. Problem solving steps can be posted in the classroom. Braswell and Bloomquist describe a 5-step problem-solving process which includes the following:

1. ***Identify the problem.***
   The child slows down and acknowledges the presence of a problem Impulsive behavior is deterred and the child determines the source of the problem and the people affected ("What's the problem?").

2. ***Develop solutions.***
   The child generates alternative solutions to the problem ("What can I do?")

3. ***Select a solution.***
   The child chooses the best solution to the situation by considering the emotional and physical consequencesof the behavior on him/herself and others Help the child anticipate possible problems with each solution("What will happen if I choose this behavior?").

4. ***Take action.***
   The child takes action using the selected solution ("What is my plan?")

5. ***Evaluate the solution and its consequences.***
   The child evaluates the effectiveness of the plan and its consequences. The child selects another alternativeif the first solution was ineffective ("How did I do?" "I did a great job!").

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NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

ADHD Students in the Classroom

Strategies for Teachers

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Introduction

Affecting three to five percent of the population, Attention Deficit/Hyperactivity Disorder (ADHD) is one of the most common of the childhood behavior disorders. Associated with this disorder's core symptoms of inattention, hyperactivity and impulsivity are a variety of disruptive classroom behaviors (e.g., calling out, leaving seat, interrupting activities, etc.). Consequently, it is not surprising that these students are at risk for school failure.

Increased expectations for the use of classroom interventions for students with ADHD have been generated by Section 504 of the *Vocational and Rehabilitation Act of 1973* and the *Individuals with Disabilities Education Act* (IDEA) of 1997. Section 504 has been used to require the development of general education accommodation plans. These plans are designed to ensure that the student with ADHD is provided a free and appropriate education. Among the recommended components of these plans are a variety of classroom interventions (including behavior management), with a special emphasis on environmental modifications. Similarly, the recent reauthorization of *IDEA*, with its requirements for functional assessments, should increase the frequency with which classroom-based behavioral interventions are considered for these students.

General Behavior Intervention Suggestions

Classroom interventions for the student with ADHD should be based upon a solid foundation of general behavior intervention principles. While students with ADHD do have a core of common problems, this group is fairly heterogeneous. Thus, instead of focusing on ADHD symptoms, management should first directly target the specific problem behavior. Next, an alternative behavior, incompatible with the problem behavior, should be selected. It is important to keep both behaviors in mind. Not only do we want to make it clear to students what behavior is unacceptable (what we don't want them to do), but we also want to make it clear what behavior is acceptable (what we want them to do). These behaviors should be carefully defined so that the teacher will be able to accurately monitor them.

It is also important to ensure that the behavior intervention plan is based upon a careful functional assessment of behavior. Antecedents and consequences of both the problem and replacement behaviors need to be studied. Antecedents will suggest environmental changes that set up the student for success or failure. Analysis of consequences, on the other hand, will identify those environmental contingencies that serve to reinforce both desired and undesired behavior. The function of the problem behavior should guide intervention plans. For example, if the behavior is maintained by negative reinforcement (e.g., avoidance of an undesired task), then the intervention should ensure that this goal is not obtained by the problem behavior. At the same time the intervention should teach the student that the desirable behavior is a more effective way of obtaining the behavioral goal.

Environmental and Instructional Considerations

Task Duration

To accommodate to the student's short attention span, academic assignments should be brief and feedback regarding accuracy immediate. Longer projects should be broken up into manageable parts. Short time limits for task completion should be specified and can be enforced with timers.

Direct Instruction

Attention to task is improved when the student with ADHD is engaged in teacher-directed as opposed to independent seat-work activities. Also, the teaching of note-taking strategies increases the benefits of direct instruction. Both comprehension and on-task behavior improve with the development of these skills.

Peer Tutoring

Class-wide peer tutoring provides many of the instructional variables known to be important in setting up students with ADHD for success. For example, it provides frequent and immediate feedback. When combined with a token economy, peer tutoring has been found to yield dramatic academic gains.

Scheduling

Based on evidence that the on-task behavior of students with ADHD progressively worsens over the course of the day, it is suggested that academic instruction be provided in the morning. During the afternoon, when problem solving skills are especially poor, more active, nonacademic activities should be scheduled.

Novelty

Presentation of novel, interesting, highly motivating material will improve attention. For example, increasing the novelty and interest level of tasks through use of increased stimulation (e.g., color, shape, texture) reduces activity level, enhances attention and improves overall performance.

Structure and Organization

Lessons should be carefully structured and important points clearly identified. For example, providing a lecture outline is a helpful note-taking aid that increases memory of main ideas. Students with ADHD perform better on memory tasks when material is meaningfully structured for them.

Rule Reminders and Visual Cues

The rules given to students with ADHD must be well defined, specific and frequently reinforced through visible modes of presentation. Well-defined rules with clear consequences are essential. Relying on the student's memory of rules is not sufficient. Visual rule reminders or cues should be placed throughout the classroom. It is also helpful if rules are reviewed before activity transitions and following school breaks. For example, token economy systems are especially effective when the rules for these programs are reviewed daily.

Auditory Cues

Providing students with ADHD auditory cues that prompt appropriate classroom behavior is helpful. For example, use of a tape with tones placed at irregular intervals to remind students to monitor their on-task behavior has been found to improve arithmetic productivity.

Pacing of Work

When possible, it is helpful to allow students with ADHD to set their own pace for task completion. The intensity of problematic ADHD behaviors is less when work is self paced, as compared to situations where work is paced by others.

Instructions

Because students with ADHD have difficulty following multi-step directions, it is important for instruction to be short, specific and direct. Further, to ensure understanding, it is helpful if these students are

asked to rephrase directions in their own words. Additionally, teachers must be prepared to repeat directions frequently, and recognize that students often may not have paid attention to what was said.

Productive Physical Movement

The student with ADHD may have difficulty sitting still. Thus, productive physical movement should be planned. It is appropriate to allow the student with ADHD opportunities for controlled movement and to develop a repertoire of physical activities for the entire class such as stretch breaks. Other examples might include a trip to the office, a chance to sharpen a pencil, taking a note to another teacher, watering the plants, feeding classroom pets, or simply standing at a desk while completing classwork. Alternating seat work activities with other activities that allow for movement is essential. It is also important to keep in mind that on some days it will be more difficult for the student to sit still than on others. Thus, teachers need to be flexible and modify instructional demands accordingly.

Active vs. Passive Involvement

In line with the idea of providing for productive physical movement, tasks that require active (as opposed to passive) responses may help hyperactive students channel their disruptive behaviors into constructive responses. While it may be problematic for these children to sit and listen to a long lecture, teachers might find that students with ADHD can be successful participants in the same lecture when asked to help (e.g., help with audio-visual aids, write important points on the chalk board, etc.).

Distractions

Generally, research has not supported the effectiveness of complete elimination of all irrelevant stimuli from the student's environment. However, as these students have difficulty paying attention to begin with, it is important that attractive alternatives to the task at hand be minimized. For example, activity centers, mobiles, aquariums and terrariums should not be placed within the student's visual field.

Anticipation

Knowledge of ADHD and its primary symptoms is helpful in anticipating difficult situations. It is important to keep in mind that some situations will be more difficult for than others. For example, effortful problem solving tasks are especially problematic. These situations should be anticipated and appropriate accommodations made. When presenting a task that the teacher suspects might exceed the student's attentional capacity, it is appropriate to reduce assignment length and emphasize quality as opposed to quantity.

Contingency Management: Encouraging Appropriate Behavior

Although classroom environment changes can be helpful in reducing problematic behaviors and learning difficulties, by themselves they are typically not sufficient. Thus, contingencies need to be available that reinforce appropriate or desired behaviors, and discourage inappropriate or undesired behaviors.

Powerful External Reinforcement

First, it is important to keep in mind that the contingencies or consequences used with these students must be delivered more immediately and frequently than is typically the case. Additionally, the consequences used need to be more powerful and of a higher magnitude than is required for students without ADHD. Students with ADHD need external criteria for success and need a pay-off for increased performance. Relying on intangible rewards is not enough.

Use of *both* negative and positive consequences are essential when working with ADHD students. However, before negative consequences can be implemented, appropriate and rich incentives should first be developed to reinforce desired behavior. It is important to give much encouragement, praise and

affection as these students are easily discouraged. When negative consequences are administered, they should be given in a fashion that does not embarrass or put down students. Also, it is important to keep in mind that the rewards used with these students lose their reinforcing power quickly and must be changed or rotated frequently.

Token Economy Systems

These systems are an example of a behavioral strategy proven to be helpful in improving both the academic and behavioral functioning of students with ADHD. These systems typically involved giving students tokens (e.g., poker chips) when they display appropriate behavior. These tokens are in turn exchanged for tangible rewards or privileges at specified times.

Response-cost Programs

While verbal reprimands are sufficient for some students, more powerful negative consequences, such as response-cost programs, are needed for others. These programs provide mild punishment when problem behavior is displayed. For example, a student may lose earned points or privileges when previously specified rules are broken. There is evidence that such programming decreases ADHD symptoms such as impulsivity. A specific response-cost program found to be effective with ADHD students involves giving a specific number of points at the start of each day. When a rule is broken (a problem behavior is displayed), points are taken away. Thus, to maintain their points students must avoid breaking the rule. At the end of the period or day, students are typically allowed to exchange the points they have earned for a tangible reward or privilege.

Time-out

Removing the student from positive reinforcement, or time-out, typically involves removing the student from classroom activities. Time-out can be effective in reducing aggressive and disruptive actions in the classroom, especially when these behaviors are strengthened by peer attention. They are not helpful, however, when problem behavior is a result of the students desire to avoid school work. The time-out area should be a pleasant environment and a student should be placed in it for only a short time. Time-out is ended based upon the student's attitude. At its conclusion a discussion of what went wrong and how to prevent the problem in the future takes place. While these procedures are effective with ADHD students, it is recommend that they be used only with the most disruptive classroom behaviors and only when there is a trained staff.

Summary

As students with ADHD are a heterogeneous group, there is no one intervention (or set of interventions) that will improve the classroom functioning of all of these students. Thus, it is suggested that classroom modifications be tailored to the unique needs of each student. In developing these modifications it is perhaps best to begin by examining how the classroom environment might be changed to set up the student with ADHD for success. The next step is to consider the implementation of a contingency management system designed to provide external incentives for appropriate classroom behaviors. In doing so it is important to remember that behavior management programs must be consistently applied. Further, it is essential to avoid excessive use of negative consequences (such as reprimands, time-out). In all cost programs, it is important to avoid the use of unrealistic standards that result in excessive point or privilege loss. Students must experience success. In other words, it is essential that students be frequently reinforced for what we want them to do, rather than simply punished for what we do not want them to do.

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NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

ADHD Look-Alikes

Guidelines for Parents

by Servio Carroll, NCSP
Sheridan (WY) School District No. 2

Background

There are many psychological and medical problems that look like ADHD, so children who present the typical signs of Attention Deficit Hyperactivity Disorder need to be carefully evaluated. Look-alike ADHD children may meet the diagnostic criteria for ADHD but have a completely different problem. It is important to distinguish between the conditions because their long-term course and treatment may be quite different from children with classical ADHD.

Depression

Depression is as common in children as it is in adults. While it may seem unlikely that a depressed person would be "hyper" (since many depressed people seem to talk and think slowly and move with real effort), some inattentive children with impulsive and hyperactive behavior are actually depressed. These children may have mild symptoms and just feel blue or demoralized, or have more persistent symptoms like chronic bad moods (dysthymic disorder), or have the psychiatric diagnosis of depression with its accompanying physical changes (major depression). Even though these children may show ADHD-like symptoms, treating the depression will help more than treating the ADHD symptoms.

Stress-induced Anxiety States

Anxiety caused by a stressful environment may present as ADHD. Children living in a stressful home situation or who are dealing with social or family problems or academic pressures may look like they have ADHD. Obviously, helping them cope with the stress in their lives is the answer, rather than using stimulant medications, which may increase their anxiety. Even mild stress can produce symptoms like ADHD.

Biologically-based Anxiety Disorders

Even though many of the symptoms of certain medical conditions, such as separation anxiety or obsessive compulsive disorder, may look like ADHD, they are treated quite differently. Again, stimulants given to treat ADHD often worsen the symptoms of these anxiety disorders, which are better treated with anti-anxiety and mood stabilizing medications and other approaches.

Child Abuse or Neglect

In certain cases, the victims of sexual abuse, physical abuse or neglect display the symptoms of ADHD. Even after a limited period of abuse or neglect, these children may continue to show symptoms that are difficult to distinguish from ADHD.

Bipolar Disorder

Bipolar disorders are being more frequently identified in children. This family of disorders has symptoms that may look like ADHD. The most severe form of bipolar disorders in adults is manic-depressive illness, but most common bipolar disorders are milder. Likewise, only children with the more

severe forms of bipolar disorder show amazingly energized and lengthy temper tantrums with gross destructiveness during their brief or lengthy rages. In children, the milder forms of bipolar disorders present as impulsivity, inattention, hyperactivity and also with overly strong emotions, feelings, an overbearing manner, irritability or unprovoked hostility, and often difficulty in "getting going" in the morning.

While about half of boys and perhaps a quarter of the girls with bipolar disorders also meet the diagnostic criteria for ADHD, bipolar disorders tend to appear in families with a history of depression or bipolar disorders. Although stimulants can sometimes help these children with bipolar disorders, stimulants often make the symptoms worse and can be quite risky. Mood stabilizing medications can be much more helpful.

Schizophrenia

Schizophrenia is a serious illness that can include ADHD symptoms. Schizophrenia is uncommon in children, but when seen, there is usually a family history for the disease. Again, stimulant medications can be risky for these children.

Other Medical Disorders

Certain medical disorders such as sleep or arousal problems, malfunctions of the thyroid gland and lead poisoning may also give ADHD like symptoms.

Summary: Cautions in Diagnosis and Treatment

Given the variety of disorders that can be mistaken for ADHD, or that may be present with ADHD, a comprehensive evaluation of the child is always important. Numerous problems must be considered, assessed and "ruled out" before a diagnosis of ADHD can be made. It is no longer sufficient to start treatment for ADHD based on observations of "tuning out" or misbehavior. ADHD needs a psychological and medical evaluation that matches our growing awareness of the complexity that goes by the simple name of ADHD.

If a medical or psychiatric disorder is presenting as ADHD, and the child's condition is worsening with age, it is important to consider the possibility that ADHD may not be the only, or even *the* problem. Also, if the child has bad dreams, bad moods or disturbing thoughts, or if there is a family history of psychiatric disorders, then it is important to be sure that Look-Alike disorders and additional problems are not present. If another condition is present, a treatment that only improves the ADHD symptoms will leave behavioral problems, mood abnormalities or chemical imbalances untreated. In these cases, even if stimulants are helpful or if environmental changes improve the child's self control, it is critical to make sure that the other, and perhaps more serious, problems are not left untreated.

Resources

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by Servio Carroll, NCSP
Sheridan (WY) School District No. 2

Background

Due to the wide variety of psychomedical and biomedical problems that can be mistaken for Attention Deficit Hyperactivity Disorder (ADHD), or that may co-exist with ADHD, it is always essential for a child to be carefully evaluated. Medical specialists are working to develop a more precise idea of which hyperactive children and adolescents really have ADHD and which have look-alike problems that only resemble this disorder. Look-alike ADHD children may fulfill the diagnostic criteria for ADHD but have a completely different problem and, therefore, should receive a different diagnosis. These ADHD look-alikes are important to distinguish because their long-term course and treatment may be quite different from children with classical ADHD. There are several psychomedical problems or medical disorders that can mimic ADHD, resulting in an ADHD look-alike child.

Depression

Depression is certainly common in adolescents and children, just as it is in adults. While it may seem unlikely that a depressed person would be "hyper" (since many depressed people seem to talk and think slowly, and move with real effort), some inattentive children with impulsive and hyperactive behavior are actually depressed. These children may just have passing symptoms of depressed mood (e.g., feeling blue or demoralized) or more persistent or even chronically bad moods (dysthymic disorder), or have the psychiatric diagnosis of depression with its accompanying physical changes (major depression). Even though these children may have prominent ADHD-like symptoms, treating their depression is more successful than treating the ADHD symptoms.

Stress-induced Anxiety States

Anxiety states caused by environmental stress may present as ADHD. Certain children living in a stressful home situation or adolescents dealing with social or academic pressures may look like they have ADHD. Obviously, helping them cope with the stress in their lives is preferable to the use of stimulant medications. Even mild stress can produce symptoms that mimic ADHD.

Biologically-based Anxiety Disorders

Certain medical disorders such as separation anxiety disorder or obsessive compulsive disorder are treated quite differently from ADHD — even though many of the symptoms of these disorders may look the same as ADHD symptoms. However, stimulants often worsen the symptoms of these anxiety disorders, which are better treated with different medications and approaches.

Child Abuse or Neglect

In certain circumstances, the victims of sexual abuse, physical abuse or neglect can present with symptoms of ADHD. Even after a limited period of abuse or neglect, these children may continue to show symptoms that are difficult to distinguish from ADHD.

Bipolar Disorders

Another biomedical condition that may mimic ADHD is the family of bipolar disorders. The most severe version of bipolar disorder in adults is manic-depressive illness, but most common bipolar disorders are more mild. Bipolar disorders in children and adolescents can present with impulsivity, inatten-

tion and hyperactivity, along with overly strong feelings or an overbearing manner, irritability or unprovoked hostility, and often difficulty in "getting going" in the morning. It is only the more severe forms of bipolar disorder in adolescents and children that show amazingly energized and lengthy temper tantrums with gross destructiveness during their brief or lengthy rages. About half of boys (and perhaps a quarter of the girls) with bipolar disorders fulfill diagnostic criteria for ADHD, but bipolar disorder tends to appear in families in which depression or bipolar disorder has emerged before. Although stimulants can sometimes help these children with bipolar disorder, stimulants often make the symptoms worse and can be quite risky. Lithium and other medications can be much more helpful.

Schizophrenia

Schizophrenia is a serious biomedical disorder that can include ADHD symptoms. Children with schizophrenia are relatively uncommon, typically come from families in which schizophrenia has emerged before, and represent an extremely small fraction of the children with ADHD symptoms. Again, stimulant medications can be risky for these children, and other medications and treatments are strongly preferable.

Other Medical Disorders

Certain medical disorders of sleep (or arousal), malfunctions of thyroid gland and excessive lead ingestion may also present with symptoms that are typically seen in children with ADHD.

Summary: Cautions in Diagnosis and Treatment

Look-alike ADHD children may meet the diagnostic criteria for ADHD, but have a completely different problem and, therefore, should receive a different diagnosis and different course of treatment. All of the above conditions may cause a child to behave impulsively and show difficulties in attention and hyperactivity that are hard (and perhaps impossible in some instances) to distinguish from ADHD. Particularly if a child's situation is worsening with age, it is important to consider the possibility that ADHD may not be the sole or even primary problem. Also, if the ADHD is associated with bad dreams, bad moods or disturbing thoughts, or if there is a family medical history of psychiatric disorders, then it is important to be sure that mimicking disorders and ADHDitional problems are not present.

If a medical or other psychiatric disorder is presenting as ADHD, a treatment that merely improves the ADHD symptoms may leave a residue of untreated behavioral problems, mood abnormalities or disorders of physiology. In these cases, even if stimulants are helpful or if environmental changes improve the child's self control, it is critical to make sure that the other (and perhaps more serious) problems are not left to smolder.

Given the variety of disorders that can be mistaken for ADHD, or that may co-exist with ADHD, a comprehensive evaluation of the child is always important. Numerous problems must be contemplated, assessed and "ruled out" before a diagnosis of ADHD can be made. It is no longer sufficient to start treatment for ADHD based on observations of "tuning out" or misbehavior. This disorder needs a psychomedical evaluation that matches our growing awareness of the complexity that goes by the simple name of ADHD.

Resources

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NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

Attention Disorders: Interventions for Adolescents

by Peg Dawson and Richard Guare
Center for Learning and Attention Disorders
Portsmouth, New Hampshire

AREAS OF DIFFICULTY	POSSIBLE INTERVENTIONS
Organization	
Doesn't do homework	Homework Survival Guide (*Communiqué*, June 1994) Incentive system Supervised study hall Alternative homework assignments Self-designed homework After school homework sessions in school
Loses homework/possessions	Daily check-ins (home/school) — monitoring system Organizational aids (checklists/reminders/routines) Targeted incentive system
Doesn't come to class prepared	Case manager or other monitoring system Spare materials in classes students can borrow/rent Targeted incentive system
Disorganized notebooks	Monitoring system (e.g., daily notebook check) Don't penalize (e.g., grading modifications)
Messy work	Computer access Specify clear criteria — have student redo if work doesn't meet criteria Incentive system Modify expectations
Planning	
Prioritizing Breaking tasks down Setting goals Planning steps Time management	Students with attention disorders need assistance in these areas and cannot be expected to perform these skills without adequate instruction and practice. This could occur in planning periods built into the student's day. Instruction may follow a sequence such as: 1) define skill to be learned; 2) model skill; 3) have student engage in verbal rehearsal; 4) guided practice; 5) independent practice with follow-up. A second option is the use of a coach (described in Hallowell & Ratey, *Driven to Distraction).*

AREAS OF DIFFICULTY	POSSIBLE INTERVENTIONS
Remembering	
Handing in assignments	Case manager to monitor Home/school daily check-in Incentive system
Knowing when things are due	Case manager to monitor Home/school daily check-in Incentive system
Bringing materials to/from school	Case manager to monitor Home/school daily check-in Incentive system
Math facts/other rote memory tasks	Memory aids Allow use of calculators Reduce demands/expectations
Sequence of steps to follow (e.g. math)	Construct personalized instructional manual with templates, directions, examples of problems, models, etc.
Following Directions	
Verbal	Provide study partner Repeat directions individually
Written	Check-in with student/clarify as necessary Highlight directions for student/have student highlight
Written Production	
Poor fine motor skills/ motor impersistence	Allow to dictate written responses Allow the use of tape recorders Access to computers for writing assignments Reduce writing requirements
Discrepancy between thinking/ writing speed	Access to computers/recorders Opportunity to respond orally
Difficulty organizing thoughts	Assistance with prewriting activities (e.g., brainstorming, mind mapping, outlining) Writing ideas on post-its, rearranging to outline
Problems with initiation/word retrieval	Brainstorming vocabulary, key concepts Helping getting started Close-ended writing tasks
Proofreading problems	Use spellcheck Have another student/adult proofread Use proofreading checklist to cue for specific errors

Areas of Difficulty	Possible Interventions
Problems with Test-Taking	
Careless mistakes	Allow test re-takes Supervise checking work
Can't finish within time limits	Allow extra time Break testing into several sessions
Writing problems	Oral exams Short answer/multiple choice vs. essay Reduce demands/allow extra time
Distracted during testing	Let student take test in quiet room
Anxiety	Teach test-taking strategies Teach relaxation strategies Let student take test away from other students
Difficulties with retrieval	Multiple choice tests Open book tests Provide sample items/templates Cues to aid retrieval during test Teach test-taking strategies
Social Skills	
Impulsive	Consider the following for all social skills problems: Incentive systems
Disruptive	Negotiated behavior contract Match student with teacher
Apathetic	High rate of personalized positive feedback Alternative curriculum
Discouraged	Credit for out-of-school learning Work-study programs
Depressed	Hands-on learning
Cognitive Style	
Fast and sloppy	Assign shorter tasks with criterion for accuracy Teach self-evaluation/goal-setting re accuracy or quantity
Problems with initiation	Assign close-ended tasks Provide templates Help student get started (e.g., walk through 1st few items/brainstorm ideas, etc.) Assign study partner Use cooperative learning Assign shorter task/break tasks down

Areas of Difficulty	Possible Interventions
	Obtain verbal commitments (e.g., re start times)
Cognitive Style (continued)	
Low frustration tolerance	Modify assignments Ensure high rate of success Frequent reinforcement Provide individual help Self-designed assignments (brainstorm ideas)
Processing speed/simultaneous processing problems (e.g., can't listen and take notes)	Provide individual help Tape lectures Provide note-takers or access to teacher notes Present material in organized, sequential fashion Reduce assignments/allow extra time
Craves novelty/hates repetition	Avoid lecture style classes Avoid classes with heavy rote learning or worksheet requirements Computers/technology Use cooperative learning Use hands on learning/discussion format Self-designed assignments Individualized work contracts Assign to high energy teachers Avoid needless repetition Build in breaks/opportunities to move around Vary formats within/across class periods

Resources

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NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

Attention Problems

Strategies for Parents

by Marcia Weill
Folsum-Cordova (CA) Unified School District

Hyperactivity: Provide External Structure

Physical Controls

- Include regular exercise, balanced diet, adequate sleep, medication if appropriate
- Check schedules: mornings usually best for learning, need calm routine at bedtime
- Check environment for safety and remove treasured items, prevent problems

Predictability

- Use consistent rules across time and place
- Prepare for changes to new activity
- Practice simple daily routines
- Have regular contact with school

Distractibility: Focus on Priorities

Priorities

- Organize backpack and notebook
- Have a "Launch Pad" area for next morning's materials and messages
- Encourage on-task behavior
- Request special education assessment if appropriate

Directions

- Use simple, positive directions showing what to do instead of what not to do
- Give visual clues

Distractors

- Provide regular time and clean area for doing homework
- Limit and balance extra curricular activities

Impulsivity: Build Self-Confidence

Social Skills

- Build on strengths
- Teach game-playing skills, taking turns and making choices
- Encourage noncompetitive sports (karate, gymnastics, swimming)
- Teach friendship skills (making requests, giving compliments, less rough play)

Parent Support

- Enroll in classes in behavior management
- Join support groups
- Use "special time" for bonding

Counseling and Management

- Use strategies to reduce impulsive behavior
- Model positive self-talk and goal-setting
- Reward frequently

Adapted from material previously published by the California Association of School Psychologists in CASP Today, *August, 1994.*

NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

Attention Problems
Strategies for Teachers

by Marcia Weill
Folsum-Cordova (CA)Unified School District

Hyperactivity: Provide External Structure

Physical Controls Predictability

- Give energy breaks, opportunities for focused movement
- Minimize changes and pullouts
- Provide individual desks & space for extra materials
- Prepare for transitions
- Include short, fast-paced tasks; practice routines
- Be calm (soothing music, carpet, earp' ugs)
- Develop physical cues to refocus

Distractibility: Focus on Priorities

Priorities

- Use anticipatory set with frequent restatement of purpose
- Provide only needed materials
- Modify tasks: shorten, highlight, use markers and windows for tracking, break into manageable steps
- Teach summarizing skills
- One idea per paragraph or page

Directions

- Start with one step, student restates in own words beforeperforming independently
- Vary voice pitch and pacing of lesson
- Teach memory strategies (mnemonics, note taking, brain storming)
- Insist on instructional readiness (body still, eye contact)

Distractors

- Use multi-sensory materials and "hands on" learning to engage
- Locate student away from visual and auditory distractors (heating/air conditioning, traffic and stimulating bulletin boards)
- Seat student by organized, understanding peers

Impulsivity: Build Self Confidence

Social Skills

- Give opportunities for leadership, being a tutor for younger students, reinforce each step to success
- Use cooperative learning groups, giving a responsibility he or she can do
- Provide practice making choices, impulse control, empathy

Parent Support

- Send frequent progress reports
- Give honest feedback, mostly positive

Counseling

- Reinforce time-on-task (process), fading to task completion (product)
- Encourage risk-taking and positive self-talk
- Build on strengths, teach compensating skills and remind of successful accomplishments
- Use contracts with frequent reinforcement for desired behaviors and response-cost for negative behaviors

Adapted from material previously published by the California Association of School Psychologists in CASP Today, *August 1994.*