Attention Deficit Disorder

DIALOGUES IN PEDIATRIC MANAGEMENT

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Attention Deficit Disorder

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Contents

Foreword

In this third issue of the series *Dialogues in Pediatric Management,* the editors and Appleton-Century-Crofts again provide a medium for the academic pediatrician and the practitioner to interact on a specific topic of current interest. Academics with established expertise have been selected to develop a comprehensive essay on the subject of *Attention Deficit Disorders.* This monograph has been forwarded to an eminent practitioner for a pragmatic reply derived out of the experience of his career and from working with his own private patient population.

Dr. Esther K. Sleator and Dr. William E. Pelham, Jr., researchers and academicians, have collaborated on a comprehensive treatise describing the definition, diagnosis, evaluation, management, and natural history of the important and often complex entity of *Attention Deficit Disorder.* Dr. William B. Carey, for many years a practicing solo pediatrician with a particular interest in problems of temperament, has responded with an analysis of what he finds helpful and what he finds confusing in the Sleator/Pelham manuscript.

The reader profits by learning the most reasoned thoughts, often eloquently stated, of both the academic and pragmatic worlds. Enjoy the dialogue and be rewarded for the time expended with a broad understanding of the "state-of-the-art" of a puzzling symptom-complex.

David Cornfeld, M.D.
Benjamin K. Silverman, M.D.

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Acknowledgments, alas, seem a feeble way to recognize the contributions of Rina Ullmann, my colleague, and Jo Melton who knows how to work the word processor. Their help and support in accomplishing this work has been so generous, unstinting, and selfless that I felt I had reaped rewards before a word was set in type.

Esther Sleator

Are Doctors Helping or Hurting?

1

All physicians, every day of their practicing lives, make decisions under conditions of uncertainty. The complexity of biological systems; the vast array of possible problems, diseases, and syndromes; insufficient, unreliable, or inappropriate information; unique responses to therapy; and insufficient available time all combine to guarantee that physicians function much of the time in a morass of ambiguity. Despite this situation, they *must* constantly make decisions of the utmost importance to those who trust them, and they must have learned to work, relax, and sleep despite this onerous burden.

The physician "plays the percentages." Most babies whom the pediatrician treats over the telephone are not in the early states of bacterial meningitis, but a few may be. Most patients will not have an anaphylactic reaction to penicillin or cimetidine, but a few do. Of 325 patients admitted in one year to an intensive care unit 12.6 percent were hospitalized because of iatrogenic disease, and 8 died.[1] The truly dreadful consequences of what the physician does or does not do are very real and are attested to daily by the notoriously high levels of medical malpractice litigation.

Considering the risks inherent in the practice of medicine, it is remarkable as well as somewhat surprising that hyperactivity, now known as Attention Deficit Disorder without and with Hyperactivity (ADD and ADD-H),[2] seems to have been specially selected as a condition about which some of the most vigorous public attacks on physicians are centered, with the implication that in both diagnosing hy-

peractivity and in treating with stimulants physicians are somehow damaging their patients.

In very recent years there has been some abatement of hostile publicity in the printed and electronic media, but such publicity was rife all during the 1970s. The attack on physicians was probably best exemplified by a book, *The Myth of the Hyperactive Child*,[3] a passionate diatribe. Here it is implied that physicians are the easy dupes of the establishment as represented by schools and drug companies. The impression was given of a whole generation of helpless children drugged by physicians to enrich the drug companies and satisfy teachers who wanted their pupils turned into regimented zombies. A more direct attack on physicians was made by Sidney Walker III, M.D.,[4] in an article called "Drugging the American Child" which appeared in *Psychology Today*. He suggested that if other doctors only took the trouble he did they would always find a physical cause for hyperactivity. His purely anecdotal paper (surprising in a journal edited by those with some pretense of understanding experimental rigor) found several improbable physical causes for hyperactivity, including tight underwear!

The titles of other articles that rolled off the presses tell a lot about their content—for example, "Drug Abuse—Just What the Doctor Ordered," "Drugging and Schooling," and "A Slavish Reliance on Drugs—Are We Pushers for Our Own Children?" A not uncommon attitude was shown by a physician member of the human subjects committee which at one time reviewed the research of the University of Illinois psychopharmacology unit in the Institute for Child Behavior and Development. He refused to approve *any* research which used stimulant drugs for children regardless of the nature of the research. Other investigators in various localities engaged in the objective evaluation of the safety and efficacy of a widely used drug found their work seriously hampered by a media outcry that had widespread impact.

Considering the nature of much of the medical intervention the physician is obliged to provide, these attacks on the profession for the diagnosis and treatment of ADD are certainly disproportionate. This is not to deny that the problem is complex and that there are vast areas of ignorance. But it is also true that any physician can identify with some specificity the nature and extent of an ADD child's behavior problems. If he or she does choose to provide a trial of stimulant drugs for a patient, the drug will have been extensively used, thoroughly studied, and in fact endlessly scrutinized for damaging effects. Methylphenidate, although like all drugs not free of side effects, is unusually safe.[5] In a recently published legal compendium of every court case in which the issue was damage to patients

because of drug use,[6] not a single case involving dextroamphetamine or methylphenidate was listed, and these are by a wide margin the most commonly used drugs for the treatment of ADD-H.

In summary, despite all the adverse publicity, the prescribing of stimulants for ADD children must seem to the actively practicing physician who thinks about it, one of the safest effective interventions available. Not only is it often considered a blessing by the beleaguered family of the young patient, but there are few immediate physical consequences and no established, severe long-term detrimental effects when reasonable precautions and reasonable therapeutic doses are used.

Nevertheless, a sense of unease related to the process of diagnosing and treating ADD is still to some extent present among doctors. Some physicians use stimulants rarely if at all. Others require great batteries of unnecessary testing of patients with, very probably, the idea in mind that extensive testing will legitimize the diagnosis and treatment of ADD. One is hard put to think of another medical condition that has the somewhat tainted aura that characterizes ADD. Perhaps the taint can be exorcised if we examine and discuss in some detail the specific nature of the criticisms leveled at the medical profession in connection with ADD.

Peter Conrad is a sociologist who has actually worked with ADD children in the clinical setting, maintains a scholarly tone in his writing, and at the same time, succinctly expresses most of the concerns publicized in the media outpourings of the 1970s. His writings on this subject provide a representative framework to discuss the merits of the case against doctors who diagnose and treat ADD-H: "Where were all the hyperactive children before the middle 1950s? When this writer was in elementary school there were no hyperactive children: active children, disruptive children, restless children, yes, but no hyperactive children. . . . Before the medical concept for hyperactivity was formalized in the late 1950s . . . hyperactivity did not exist." That children manifested the characteristic behaviors is not denied by Conrad: "Children might have exhibited behaviors that now could be defined as hyperactive, but they were defined and controlled in other than a medical framework."[7]

What Conrad seems to consider bad is that "medicalization" has occurred: "By medicalization we mean defining behavior as a medical problem or illness and mandating or licensing the medical profession to provide some type of treatment for it."[8] But what are the disadvantages of medicalization? To quote Conrad again: "By defining a problem as medical it is removed from the public realm where it can be discussed by ordinary people and put on a plane where only medical people can discuss it."[7] Physicians will have no difficulty

judging the validity of this statement and, in fact, hyperactivity itself is an adequate demonstration of the absurdity of the claim that only medical people discuss medical problems.

Another disadvantage of medicalization is that defining a behavior as a medical problem allows for what Conrad calls "social control."[8] Two tools are employed by physicians to effect this control. First, psychoactive drugs are used by doctors to prevent individuals from behaving in ways that do not suit the dominant value system. Second, it is now possible to blame the individual and not society for the individual's deviant behavior, whereas in Conrad's opinion the blame should be attributed to the social environment. Conrad provides as an example of such social control (by implication analogous to the use of stimulants in hyperactive children) the confinement of Soviet dissidents to mental hospitals!

In their rebuttal to Conrad's polemic, Whalen and Henker[9] deal appropriately with this claim:

> This particular argument is absurd. . . . We can view the mental hospitalization practices alluded to by Conrad as exclusionary, designed to eject the "deviant" from mainstream society, while the use of psychostimulants is an inclusionary societal reaction, intended to maintain the individual in the group. Moreover, Conrad's contention that the drugs are a form of social control implies that they serve a suppressive or even sedating function. We would suggest that the power Conrad attributes to psychostimulants is grossly inflated. In the 60 percent to 90 percent of cases where the drugs appear to work well, their impact, although salient, is also quite subtle. The main behavioral effect (assuming appropriately low dosage levels, of course) seems to be that of an alert or attention sustaining function. Contrary to popular belief, the drugs have a rather minimal influence on the child's motoric processes and may actually increase rather than decrease activity levels. Psychostimulants are neither sedatives nor tranquilizers, and there is no indication that they would or do act to suppress dissenting behavior. In fact, it is conceivable, that, due to improved attention and better-directed action, these children may be more likely to have a productive impact on their social environments than they are without medication.

Conrad does not use the word "diagnosis." To Conrad, what the doctor does to hyperactive children is not "diagnosing" (a good thing) but "labeling" (a bad thing). Conrad is far from alone in use of the word "labeling" in a condemnatory way when referring to the diagnosis of behavioral disorders. It is a common shibboleth, a "buzzword" among psychologists. Physicians who work with psy-

chologists hear "labeling" a good deal, and when they do they can be sure they are being harshly criticized. What is felt to be bad about giving a name to a disorder is that the children are then somehow specially marked, become the butt of their peers, and have been lowered into a diagnostic ditch from which they will never emerge.

Again, Whalen and Henker[9] deal with this concept of labeling:

> A careful scrutiny of the labeling literature reveals analytic but not empirical support for this thesis. Recent evidence indicates that deviant labels such as "mentally retarded" or "juvenile delinquent" tend to have less influence than do the actual behavior patterns of labeled individuals. . . . Our interviews with children identified as hyperkinetic indicate that those who are not called "hyper" by their peers tend to earn other pejorative labels such as "retardo" or "weirdo." These youngsters do not escape the labeling process even when the medical diagnosis has been avoided or kept secret. There is no justification for the assumption that the medical labeling process exacerbates the child's deviant behavior patterns.

How very true! Many subjects brought to the clinic at the University of Illinois in their first medical contact because of deviant behavior have a long history of being excluded from the home of every child on their street by irate parents, of never being invited to birthday parties, of being excluded from games on the playground, of never receiving a phone call from a friend. These things hurt terribly, but the hurt was not created by a doctor's diagnosis of hyperactivity.

One must credit Conrad with raising several provocative issues. For example, what is the significance of imparting a medical name to a condition that afflicted people before it was named but was not identified as a specific entity? This certainly did happen with hyperactivity or ADD. Conrad interprets the event as evidence of society's use of medicalization for the purpose of social control of helpless individuals. But the facts are that hyperactivity is anything but unique as a condition long present but only relatively recently "discovered." Mitral valve prolapse, sleep apnea, and—most striking of all—sudden infant death syndrome or SIDS, have also only recently been endowed with names. The naming was followed by a spurt of research, growth of knowledge about the condition, and in some cases the development of effective therapeutic interventions.

SIDS is a particularly striking example of the recent "discovery" of a disease that has certainly been present since antiquity. Although the leading cause of death among infants more than a month old,[10] as recently as 1974 *Science* reported what they considered the disgraceful fact that doctors were mostly ignorant of the existence of

the condition. Curran, in his "Law–Medicine Notes" in the the *New England Journal of Medicine*,[11] pointed out that in 1972, when his article was written, SIDS was "not a reportable cause of death in this country and has no code in the International Classification of Diseases." It was not until 1974 that the U.S. Congress passed a law mandating that SIDS be listed as a cause of death on the death certificate. Infants died in bed before the condition was "labeled" SIDS, but the condition was simply considered accidental (i.e., smothering) or occasionally—after another disease "discovery," child abuse—the deliberate killing of a child. Recognition of SIDS as a separate entity and giving it a name has resulted in a remarkable growth of knowledge of the pathophysiology at least of some cases[12] and promises to yield eventually the blessed diagnostic ability to identify at-risk children and prevent these tragic deaths.

The point is that the "discovery" and naming of a disease is clearly evidence of growth of medical knowledge, and the frequency with which it occurs in diseases other than deviant behavior indicates it is not "medicalization" with the goal of social control. It can more logically be considered the result of an increase in understanding, with subsequent intensification of research and growth in true knowledge.

Another source of discomfort about ADD-H is that some consider that the usual criteria for diagnosing hyperactivity are largely subjective and their validity doubtful; this is claimed by Mark Stewart, M.D., child psychiatrist.[13] One must assume that what he means is that observing and reporting behavior is subjective in contrast to, perhaps, measuring insulin secretion. But is such a criticism pertinent? The child's problem *is* his or her behavior and the effect it has on close associates. The only possible meaningful measure of the child's difficulty is therefore the reporting of the child's behavior by those associates. Diabetic children have trouble with their blood sugar, and blood chemistries will give us the diagnosis and information on how to handle the problem. ADD-H children cannot sit still, cannot pay attention, cannot complete tasks, cannot learn in school. Neither blood chemistries nor even tasks requiring attention done in an unusual setting (although useful in research) will tell us the important thing about these children: that they do not function well in the classroom. Reports from the teacher will. And if each of a child's teachers tells us the same story, we have the pertinent information needed for diagnosis and treatment.

Because ADD-H is a condition frequently seen by pediatricians as well as family practitioners who are accustomed to using blood chemistries, bacterial cultures, X-rays, and so on in diagnosis, it is understandable that relying on reports of behavior takes some get-

ting used to; but one is hard put to explain the criticism of subjectivity from a psychiatrist. How does one diagnose the major clinical entities of psychiatry, such as depression or schizophrenia, other than by observations of all aspects of the patient's behavior by other human beings? There is much material in the current psychiatric literature about the dexamethasone suppression test for depression and the hope has been that by using it, a simple blood test would then be available for identifying depression. But how else is that blood test validated except by using diagnoses made by psychiatrists who observed and then diagnosed patients? This presumably nonsubjective test is, then, founded entirely on subjective observations.[14] Such tests might eventually prove a useful adjunct to observation, but if one found a positive dexamethasone test in a cheerful, noncomplaining, well-adjusted person, it is clear which "test" would take precedence.

Observations can be made precise, informative, and reproducible by good, properly developed rating scales, but fundamentally one relies for diagnosis in behavioral disorders on observations of one human being by another.

Finally, the recognition of ADD-H as a clinical entity has been deplored by some because society deems certain behaviors deviant and not because there is anything inherently wrong with the behaviors. As Conrad puts it, "The emphasis is on the societal reaction to the act or behavior, not on the act or behavior itself."[8] There can be no arguing with this statement. It is obviously true. A worker wielding a hammer in a quarry may earn his living by crushing stone and be a respectable member of society; however, if he wields the same hammer in the Vatican to crush the stone from which the Pieta of Michelangelo has been carved, he is rushed off to incarceration and surely no one raises a cry in protest.

Nevertheless, statements emphasizing societal faults conjure up a picture of a merely exuberant child being suppressed by a demanding society which permits drugging children to conquer the child's natural impulses. Surely societal demands can be unnecessarily harsh, and expectations are sometimes disproportionate to the child's ability or developmental level, but this is hardly unexpected in an achievement-oriented society such as ours. All cultures, by their very natures, attempt to preserve their characteristics intact by the education of the young. Wender puts the situation in very nice perspective:

> Finally, general cultural characteristics exert an obvious effect on diagnosis. The archetypical all-American (or Australian) boy, independent, stubborn, self-willed, other directed, would be a miser-

> able failure as a traditional Japanese child. If a child has MBD proclivities, he is well advised to be born as a male, and as the son of a nineteenth century frontiersman with past prison sentences.[15]

Whalen and Henker[9] appropriately emphasize that the help for the ADD-H child cannot wait for major or even minor cultural changes:

> Less dramatically, Conrad is arguing, directly or by implication, that we should stop focusing on troubled children and begin dissecting social systems. It is certainly likely that changes in society's expectations about child behavior, and alterations of the physical, temporal, and social structures of learning environments, might reduce the problems encountered by these youngsters. Eliminating malnutrition, reducing prenatal and perinatal complications, and lowering environmental lead levels would also help. We are concerned that the replacement of medicalization by politicization of deviant behavior may increase the distance between problem and solution and, if available intervention procedures are denied while necessary social changes are sought, will exclude the children themselves from consideration.

Indeed let us not "exclude the children themselves from consideration." That is the core issue, and physicians should be unfettered by preconceptions, be sensitive to the needs of both parents and children, remember to both listen and hear, and use all means available to attempt, appropriately, to alleviate the distress of their young patients.

Even though means are available now to provide some help to these unhappy children, there are those who seem to want to make them involuntary standard-bearers in the battle against what they consider a repressive society and a repressive school system. The conscious nonconformism of the adult intellectual is foreign to 8-year-old children who are developmentally at a stage where they *want* to learn, where they *want* to win the approval of peers and important adults. It is carrying doctrine to the point of cruelty to deny children who are unable to achieve these goals, a treatment which has been shown in many well-designed and carefully executed studies to be one of the most effective, rapid, and safe therapies used at present for any behavioral disorder, at least for immediate help. Stimulants may be only a crutch, but a crutch is not necessarily a trivial aid.

When patients need help and ask for help, it is essential that we offer them whatever treatment we have available that has been shown to be safe and at least somewhat effective. In this way will the physician be truly recognizing the rights of children.

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Diagnosis 2

The diagnostic methods described here apply to children who are enrolled in nonspecialized schools and living at home, are considered to have the mental capacity to learn in the regular school setting, and do not have a major chronic illness. Such patients constitute the majority of ADD patients the pediatrician will be asked to see. The diagnosis of preschool children presents special problems which will be dealt with briefly (as befits the paucity of data) later.

This discussion is aimed at practicing physicians who, within the limits imposed by individual practice and the financial restraints of their patients, need to assure themselves that they are dealing with a child for whom therapy for ADD is indicated.

The diagnostic procedures recommended here are parsimonious. All are eliminated which cannot be convincingly shown to contribute to the ultimate goal. This is in line with a trend in medical attitudes now being promulgated in some medical journals. This development probably stems from the realization that the health care system seems well on its way to imposing an intolerable financial burden on our society. Even more important, it may stem from the realization that more is not necessarily better (as used to be assumed) but may, in fact, be worse.[1-6] More may be worse not only because of the burden of unnecessary time and money expended, but because of the common problem of false positives, which may

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Some of the material on diagnosis originally appeared in Gadow KD, Bialer I: Advances in Learning and Behavioral Disabilities, Vol. 1. Greenwich, Conn, JAI Press, 1982.

cause severe emotional stress and stimulate further unnecessary procedures with the potential for new false positives.

Despite the wholesome trend noted above, some authors still recommend time-consuming, expensive, and noncontributory procedures in the diagnosis of hyperactivity.[7]

In the early 1970s, Wender[8] differentiated necessary from unnecessary diagnostic procedures and found very few to be necessary. Have the ensuing years of intensive research wrought changes? The time has come for a new look.

It is true that the first problem facing the practitioner in diagnosing hyperactivity is that parents, usually at the behest of professionals (that is, teachers, nurses, psychologists, and sometimes other physicians), present themselves to the physician requesting "tests" that will determine whether or not their child is hyperactive. The recipient of such requests often visualizes with yearning a pair of electrodes that can be attached to the skin with a dial that would read "hyperactive" or "not hyperactive." Or even better, the ideal thing would be a laboratory test (slightly painful and rather expensive) that would provide a definite diagnosis.

However, psychiatric diagnostic classifications are descriptions of behavioral phenomena, and it can hardly be denied that *a behavioral disorder must be diagnosed by observing the relevant behaviors.* This stricture is generally accepted for conditions ranging from schizophrenia to ailurophobia. The lack of a chemical or electrophysiological test is accepted in these disorders, and a diagnosis is made and therapeutic action taken without the demand for a definitive laboratory measure. But with hyperactive children the belief in, or at least the yearning for, something which is felt to be more reliable than observed behavior is widespread. This is hardly surprising when one considers that the patients are children and the treatment is frequently a stimulant drug. Nevertheless, it must be accepted that hyperactivity does not differ from other behavior syndromes, and can be diagnosed *only by observing the characteristic behaviors.* The physician's dilemma with respect to hyperactivity is: whose observations?

SITUATIONAL SPECIFICITY

The answer to this question which seems most logical is, of course, the physician's observations. Physicians are the trained diagnosticians in medical and/or psychiatric disorders, they are the responsible therapists, and it is to them that many, if not most, turn for help with behavioral problems. However, a marked difference of opinion on the validity of the physician's own observations can be documented.

Wender[8] stated unequivocally that "the typical behavioral abnormalitites of the MBD child . . . can be diagnosed only by historical inquiry." Indeed, he goes so far as to state that the psychiatrist's interview with the child "may provide misleading information [for] . . . it is normal for a child to be at school or at home; it is 'abnormal' for him to spend an hour playing and talking with a strange adult."

Werry,[9] another child psychiatrist and long-time student of hyperactivity, concurs with Wender and states:

> A recurrent problem in pediatric psychopharmacology arises when the technique of eliciting the data is inadequate for its purported scope. A common example of this is the observation of behavior made by the doctor in a hurried consultation, where a petrified child sits immobilized awaiting the customary injection. The doctor is then asked to evaluate the child's behavior as a universal thing, and finding comments from the mother about the child's behavior at conflict with his own, diagnoses the child as normal and the mother as over-anxious.

An opinion in marked contrast to those expressed above has been emphatically stated by Miller,[10] a pediatrician. Of 290 children Miller examined for hyperactivity over a 10-year period, he found that 220 who came to him with a presumptive diagnosis of hyperactivity "were not clinically hyperactive when . . . examined . . . and did not consistently display the impulsivity, distractibility, or excitability that is generally considered to be part of the syndrome." He found only 70 of the 290 children to be what he called "true hyperactives," that is, showing the classical criteria while under scrutiny by the physician.

The 220 children who behaved well in Miller's office were called by him "an unclassifiable grab bag" and he stated, without further details, that a few relatively simple suggestions on his part greatly benefited these children and that "the prognosis in this group was good during a mean 5-year follow-up." He also questioned the standards, stability, and possibly even the integrity of anyone who considered hyperactivity a possible diagnosis for those children who behaved well while in his office. As he put it, this group of children could not be scientifically discussed "except in terms of the sociology and psychology of those who made the diagnosis."

What Wender and Werry recognized and accepted, and Miller did not, is the tendency of people to behave differently in different circumstances—or to resort to the brevity of jargon, that their behavior is *situationally specific*. The situational specificity of much human functioning is a daily experience of everyone who observes or introspects. A one-situation, one-time assessment of an individual's func-

tioning needs to be questioned and examined before it can be accepted as an adequate basis for diagnosis.

One can sympathize with Miller's need to see manifestations of the behavior he is being called upon to treat. It *is* disturbing to make the diagnosis of hyperactivity when the patient is a very nicely behaved child who responds appropriately to questions, obeys instructions quickly, and is obviously showing good self-control.

On the other hand, is it rational to give more diagnostic weight to observations made during the doctor's brief time with the child than to the rating of a teacher who sees the child 6 hours a day, 5 days a week, 9 months of the year? The teacher knows the hyperactive child in a situation that is particularly stressful for him or her, namely, one in which the child is expected to quietly complete school work in one of the most stimulating possible environments—a small room with at least 20 peers gathered together. Teachers also have the great advantage of knowing how most of their pupils are able to handle the same situation. And the mother, of course, has spent countless hours with the child in many situations, although they are rarely as consistently demanding as the classroom. Behavior during church services, long automobile drives, and the quality of chore performance are rich sources of good historical data from parents of hyperactive children. However, the behavior of such children (particularly males) *in the home* is not always distinguishable from that of so-called "real boys" (a term often used by the parents of hyperactive children to explain their delay in seeking professional help).

For the practicing physician, a resolution of the above two contrasting viewpoints is imperative. The family practitioner, pediatrician, or child psychiatrist must take the responsibility for making the diagnosis and instituting therapy. Can a physician rely on the history from parents and/or teachers when they say that the nicely behaved, well-controlled child seen in the office actually does disrupt classroom activities, fails to finish any school tasks, is not learning, annoys the other children, cannot sit through a meal, and is sometimes even too restless to watch television?

What do we need to know to be able to accept the fact that the "perfect" child sitting in our office may really be hyperactive just because mother and teacher say he or she is? We need to know, first of all, whether behavior really changes so much from one setting to another. Common sense and lots of anecdotes (both notably unreliable sources of information) tell us it certainly does, but has anyone really counted?

Someone has. Klein and Gittelman-Klein[11] obtained rating scales on 155 children who had been referred to their clinic for diagnostic workup. Hyperactivity rating scales were completed by the teacher,

the mother, and clinic staff members. Only 25 percent were unanimously judged by the teacher, mother and staff to be hyperactive. In the majority of cases, almost 60 percent, no excessive activity was observed in the clinic. Some children were clearly hyperactive in the classroom and clinic but could not be identified as hyperactive from maternal reports. An additional 315 children were screened, and of these nearly 30 percent failed to demonstrate hyperactivity in two of the three possible settings. They were rated as hyperactive by only one of the raters.

Despite such data, Miller[10] relied totally on his observations of the child's behavior in his office to make the diagnosis of hyperactivity, and also claimed that his judgments had excellent prognostic significance. However, no information is provided by Miller about his methods of data collection or analysis.

The discrepancy between parent and teacher reports and the child's behavior in the clinic was noted shortly after the beginning of the extensive studies of ADD carried out in the laboratory at the University of Illinois. Those who showed the typical hyperactive behaviors, even during first scrutiny by the physician, came to be called the "obvious hyperactives" (OH) (a more common term is now "pervasive hyperactive"), and those who did not, the "not-obvious hyperactives" (NOH) (situational hyperactive). This designation was noted on their records. To satisfy our curiosity about the significance of this striking difference in behavior, data on the two groups were retrieved and analyzed.

Subjects were not brought into our laboratory for workup unless they had received a score of at least 15 on the Conners Abbreviated Teacher Rating Scale (ATRS) (this scale and cutoff have been widely used in research circles, but at the University of Illinois have been replaced by a more informative and accurate scale which will be discussed later). The ATRS is a 10-item quantified rating scale in which the items describe typical hyperactive behaviors. A score of 15 was at that time thought to place such children two standard deviations above the mean.[12] Almost all children with scores of 15 or more were subsequently considered hyperactive and participated in the full complement of treatment, research studies, and detailed followup.

Miller[10] reported that 23 percent of his 290 presumptive hyperactive children were what he called "true hyperactives." Of 95 children presumptively hyperactive referred to the University of Illinois, 21 percent were designated as OH by the pediatrician.[13] This remarkable correspondence confirms the belief that Miller and the group at the University of Illinois were responding to the same phenomenon but were calling it by different names.

After the initial workup and a short-term, double-blind, placebo-controlled, within-subject study of the effects of methylphe-

nidate (Ritalin), all subjects were entered into long-term follow-up. Teacher ratings on the ATRS were obtained every month during the school year, as well as global ratings on quantity and quality of school work done and regular report cards. Written or telephoned comments from the teacher were solicited and often received. Contacts with the parents were frequent and the subjects were periodically seen for checkups in the center.

Although the differences in the behavior of the OH and NOH subjects were clear-cut in the clinic, the mean initial teacher ratings on performance and behavior in the classroom were 22.6 for the OH group and 22.5 for the NOH children, indicating that the behavior of the children in these groups—so different in the doctor's office—was identical when they were in school! There were no significant differences in demographic, SES, and family assessment data between the groups. The only difference found at intake (except for behaviors in the physician's office) was that the OH group included significantly more children in whom onset of symptoms was said to have occurred before 2 years of age.

The follow-up findings of the OH and NOH groups after 3 to 4 years of intensive data collection showed no significant differences between the two groups with regard to the number still on medication, dose of medication, mean monthly teacher ratings, and grade-point averages. Although all subjects' mean teacher ratings had substantially improved from those on entrance to the project 3 to 4 years previously, their scores were still not at normal level. This was true even though half were still on medication and showing significant improvement on medication (as demonstrated by an annual placebo trial). In other words, follow-up results showed that by our selection methods we had indeed picked a deviant group *but the behavior of the subjects in the physician's office on initial interview had no diagnostic or prognostic significance.*

PSYCHIATRIC EXAMINATION

The question now naturally arises as to whether or not a physician especially trained in behavioral diagnoses would be more successful in eliciting perhaps subtle signs of deviant behavior from the child than would a primary-care physician. Cantwell, a child psychiatrist who has been a productive student of ADD, lists "a detailed psychiatric evaluation" of the child as one of the essential items in the comprehensive diagnostic workup that he feels should be done when one is considering the use of a stimulant drug.[14] A psychiatric evaluation is not a trivial intervention in terms of cost, if nothing else. The primary-care physician should not insist upon it unless he or she is

confident that something can be learned from the psychiatrist that cannot be learned in any other way. Let us examine further what Cantwell has said on the matter.

In an article designed for the practitioner,[15] Cantwell provides a fairly lengthy case history "because it illustrates an important point in the physician's dealing with the ADD child."

That particular child had been expelled from nursery school at age 3 with a special flourish: the school personnel stated that under no circumstances would he ever be taken back, "he was simply too disruptive." The parents found him uncontrollable and told several hair-raising anecdotes to confirm their statement. Cantwell notes:

> My next move was to examine the child himself. He appeared abnormal in some minor respects: an articulation problem that made his speech hard to follow . . . yet he played reasonably quietly with the Fisher-Price dollhouse for some 45 minutes. To his parents and teacher he was a disaster—yet to me he looked pretty good, so I began to wonder what was going on.

His wonder ceased when, on exiting from Cantwell's office, the child started an altercation with a secretary, kicked her in the shins, called her obscene names, and had a kicking and screaming tantrum which could not be stopped for 45 minutes. Cantwell then goes on to explicitly state: "the main point of this story . . . is the relative normality shown in the one-to-one situation with me. *This is almost standard in such cases*" (italics added). Hardly convincing evidence for the necessity of calling upon a child psychiatrist for an examination as part of the diagnostic process in hyperactivity!

Other child psychiatrists concur in the view that in the majority of ADD children the psychiatrist does not make a unique contribution. Wender[8] has already been quoted as saying the psychiatrist's interview "may provide misleading information" because of the abnormality of the office setting. Rutter and Graham[16] added strength to this position when they concluded on the basis of a careful study that the psychiatric interview made no contribution to the diagnostic process that could not be better obtained from parent or teacher accounts of the child.

This is not to say that the primary-care physician might not recommend a psychiatric consultant in the case of certain children who, for example, exhibit what the physician considers bizarre or seriously deviant behavior. However, this is rarely true of the patients brought to the physician with a presumptive diagnosis of ADD. In any case, the primary-care physician is entirely capable, using his or her own resources and *that of the school system,* of making a sound

diagnosis of hyperactivity without turning to other specialists, either physicians or psychologists.

THE TEACHER'S ROLE

If the child's behavior in the clinic is sufficiently altered from the usual to preclude diagnoses there, it is clear that great weight will need to be given to the history, mainly from parents and teachers.

A good deal of the data accumulated in the laboratory at the University of Illinois attest to excellent teacher reliability. It has been found that teachers are consistently sensitive to small changes in drug dose.[17] That is, using a quantified 10-item rating scale or a simple 7-level global scale, the teachers saw behavior change with every increase in dose level even when the dosage differences were very small. The teachers were, of course, "blind," and dosage order was randomized. This kind of demonstrable sensitivity to small drug effects is impressive proof that we are dealing with accurate observers.

Probably the most impressive published data that can be interpreted as supporting the accuracy of teachers' observations are those of Needleman and associates[18] in their study of lead levels in deciduous teeth. They found that when ratings by teachers of 2146 children on a simple two-choice scale of 11 behaviors were analyzed, "the frequency of non-adaptive behavior increased in a dose related fashion to dentine lead levels." These investigators, interested in the effects of an increase in the lead burden that is above the average but not high enough to produce gross clinical manifestations, have interpreted the teacher ratings to be evidence that even a moderately elevated lead level can have a detrimental effect on a child's behavior. But clearly this work also provides good evidence of the remarkable sensitivity of teachers to small, but evidently real, differences in the behavior of children.

Another mode of assessing teacher reliability is to find how closely the ratings of a trained outside observer correspond to teacher ratings. True, poor correspondence may be due to the inadequacy of the outside observer, the very presence of an observer, or inappropriate methods of data collection rather than to the deficiencies of the teacher. Still, good interrater scores can strengthen confidence in teacher accuracy.

At the University of Illinois, Ullmann sent rigorously trained observers into a classroom where they systematically observed a hyperactive target child and an average peer (unpublished data). A time was chosen when the child was scheduled to be doing quiet seat work while the teacher was working intensively with another group in a different part of the room. The teacher was asked to rate

the target and peer children for the same period of time and on the same behaviors as those being counted by the observers. The hyperactive children were all in a short-term study of the effects of methylphenidate, and were taking either placebo or one of two different mg/kg doses of methylphenidate during the period of observation. The behaviors being observed were on-task, sitting, noise-making, and peer interaction (both positive and negative). Agreement between the trained observers and the teachers was derived by calculating correlations for each behavior between the observed behaviors and the teachers' ratings. While the correlations were moderate, all were significant at $p < .05$ or better. Scores on the five items of the teacher ratings scales were combined, and the total score was correlated separately with each observed behavior. Again, the correlations were moderate, but they were significant at $p < .01$ or better, indicating good agreement between teacher ratings and the records of outside observers.

Other experiments looking for correspondence between outside observers and teachers have not reported nearly as good results,[19] but the methods used in previous studies may be at fault. The study by Ullmann differed from those of previous investigators in that: (1) both teachers and trained observers rated the same behaviors for the same time period; (2) teachers were given the scale prior to the time of ratings and therefore were more likely to attend to the relevant behaviors; (3) teachers were instructed to make the ratings as soon as possible after the observers left the room rather than retrospectively; and (4) raters came to the classroom repeatedly, making it less likely that children would behave differently merely because of the presence of strangers. (Pollock[20] showed that hyperactive children reacted to the initial presence of the observer by behaving better than normally.)

For all of the reasons listed above, the methods devised by Ullmann certainly seem the best designed to date to give accurate results, and they show significant correspondence between teacher and observer. One very interesting finding was that the correspondence was better for on-task and out-of-seat behavior than for making noise. These results support the conclusion that teacher ratings are accurate measures of important school behaviors, and they indicate—contrary to critical comments about the eagerness of teachers to simply quiet bothersome children—that they are actually considerably more sensitive to on-task behavior than to noise-making.

In another study by Abikoff and associates,[21] 60 children in Long Island schools who had all received teacher ratings in the hyperactivity range on the ATRS were observed by outside, trained classroom observers using a 14-category observation code. These hyperactive children were given significantly higher (worse) scores on

12 of the 14 observed behaviors as compared to normal peers. This finding again supports the conclusion that teachers are accurate observers.

Anecdotal information from the University of Illinois suggests that outside observers, even in the most careful study, can and sometimes do influence the subject's behavior. The most striking episode was one in which an observer was counting behaviors of one of the hyperactive subjects and found her surprisingly quiet and restrained. However, no sooner had the observer left the classroom than the model child (reverting to her more usual behavior) jumped on top of her desk and began gratuitously screaming obscenities at the teacher. Considering the expense, design difficulties, and potential impact of an observer in the classroom, employing classroom observers is hardly a justified routine diagnostic procedure.

Teachers are not only reliable, but to add to their attractiveness as colleagues in the diagnosis of hyperactivity, teachers are always available in the classroom, their services are without cost to the patient, and most teachers are pleased when asked by the doctor for help in the diagnosis and monitoring of their pupils.

At this point, the reader may very well be asking why—in a chapter claiming to reveal all about diagnosis of hyperactivity by the physician—so much is being said about teachers. It is because teachers are able to provide more important information relevant to diagnosing and monitoring hyperactivity than can the physician in the office or laboratory except for the history he or she obtains from the parents. Also, behavior in school is invariably a major aspect of the hyperactive child's problems—in many cases *the* major aspect. This being the case, the physician *must* take full advantage of everything that can be learned from the school personnel if his or her diagnostic workup and monitoring of treatment effects are to be anything but a mockery. A quick, convenient way to get useful information from the teacher is to use a quantified rating scale. Teachers have been shown to be most accurate when they are asked about specific behaviors.[22]

Nevertheless, the failure of physicians to seek information from teachers of learning disabled children when called upon to treat such children was impressively shown in the study by Sprague and Gadow.[23] Gadow conducted a meticulous survey of special education in Illinois of teachers who taught children between the ages of 3 and 5 years. He found that 8.6 percent of the children were receiving psychoactive drugs for behavior disorders. Among the teachers of these children, 95.8 percent had had no direct contact with a doctor. Interestingly enough, the teachers still were 99 percent accurate in knowing exactly what medication the children were being given, even for those students who were getting multiple drugs.

An important cautionary word is appropriate at this juncture. No doubt the doctor is an accurate observer of the behavior of the child during the time the child is in the office. Teachers also seem to be accurate observers of the behavior they see, but it is undoubtedly true that the environment created by teachers will alter the behaviors they will be called upon to observe. That phenomenon must be expected to be especially important for hyperactive children who are known to be peculiarly responsive to the situation they are in. The specter of a single teacher who is harsh, overdemanding, impatient, blundering, unsympathetic, overworked, or indolent, who considers a child deviant and can manipulate the physician to give his or her opinion the authority of medical diagnosis, is a matter of concern.

PARENT HISTORY

Fortunately, the solution is simple, readily available, and of no additional cost to the parents. It takes the form of the all-important parent history of the child's problems. In our era of dazzling advances in medical technology, the ubiquitous "tests" carry an authority that mere talk does not seem to have. However, the major importance of the history in the diagnostic process was stated succinctly by North[4] in a compendium on screening in child health care:

> Nothing has been learned in the past 70 years to refute Osler's maxim that 90 percent of diagnosis is based on history.

It should go without saying—but it must be said anyway—that the physician's major source of information about his or her child patient is the parent(s), usually the mother. Inevitably, most of what is learned about the child will come from her, certainly a great deal more than the physician will learn from interacting with the patient. The short time available in the office means that no matter how acute the physician's diagnostic acumen, he or she simply cannot learn what the mother has learned about the child's behavior in all her years of an intimate relationship with the child. This would seem simply obvious, but there are physicians who feel that their 15 minutes with the child provides them with information more accurate than that gleaned from the mother—a point of view, pathetically enough, not infrequently accepted by the mother.

Three classes of information that the physician must be certain to obtain from the parents when taking a history about a presumptively hyperactive child are (1) a standard health history, (2) a history of the parents' perceptions of the child's behavior, and (3) a school history of the child as experienced by the parents.

How detailed the information needs to be will vary depending on the material. For example, it is frequently claimed or implied that detailed information about pregnancy, birth, and developmental history is important in the diagnostic workup.[7] As a matter of fact, most hyperactive children are the product of normal pregnancies and normal deliveries, and usually (although parental memory is notoriously inaccurate in these matters) they show normal developmental landmarks.[24] A history of birth trauma and developmental delays is not necessary in order to make a diagnosis of hyperactivity. However, as taking such a history will not add to the expense of the workup (nor is it likely that any harm will come from it), there is no good reason to strongly discourage the physician from obtaining such a history.

In contrast, it is of real importance to find out as specifically as possible whether or not parents found the child "always restless," "never entertained by any toy for more than a short time," and "impulsive" (for example, hyperactive children are frequently reported to have the distressing habit of leaping out into the street heedless of traffic even when they are old enough to know better). However, the reporting of such behavior by the parents, although it is very important and clearly strengthens the diagnosis, is not as essential as a history of school difficulties.

By itself, the history from the parents will provide the needed information to ensure against the "labeling" of a child on the basis of reports from an individual teacher. Parental reports will tell us if the current school difficulty is an isolated experience or, as is usually the case by the time the child is brought to the doctor, if the child has been manifesting the hyperactive behavior since the first nursery school experience. From the parental history the physician gets a panoramic overview of the child's difficulties. The physician may hear of a child who from a very early age could hardly be kept in a crib, did not sleep, or was demanding, extremely restless, and assertive. On the other hand, there is the child who seemed in no way out of the ordinary until he or she began to attend any kind of school, including nursery school. At that point the complaints may have begun: "Your child won't sit still," "he won't listen to stories," "she won't color," "he picks on other children," "she will not take her nap." Another child might not be seen as strikingly different from restless little nursery school peers until kindergarten or first grade. Sometimes it is only then that the parents hear that their child will never finish an assignment, or that he or she is too restless, distractible, or inattentive to learn.

It is not unusual for the parents—who actually do recognize that they have a difficult preschool child—to accept their child for what he or she is and willingly cope. Devoted parents recognize the

child's weaknesses but also find strengths. In many cases, it is not until the child experiences the stresses of school, the need to sit still, to finish tasks, to be quiet (so different from what has been expected at home), that his or her hyperactivity becomes manifest. It is often true that medical advice is sought only when complaints begin to come from the school. In our culture, school problems are almost invariably taken with the utmost seriousness by people at all socioeconomic levels.

On the other hand, it would be difficult to justify making the diagnosis of hyperactivity in a third- or fourth-grade child who had not previously had difficulties at home, with peers, and most especially in school. The suggestion that such a child simply be switched to a different classroom would probably be the best advice the doctor could give for handling the problem. However, the physician should also make a point of soliciting feedback about the results of such a transfer if it is effected.

As for interviewing technique, open-ended questions plus attentive listening offer the best means for getting information not molded by the questioner's bias, expectations, or hopes. Simple, open-ended questions will frequently initiate a flow of information often expressed with a good deal of insight and eloquence, even from parents from whom the doctor would not have expected perceptive responses. The interview should, however, have enough structure so that the physician is certain that all the essentials outlined above have been covered.

WHERE MUST THE CHILD BE DEVIANT?

Some careful investigators require that children show ADD behavior in more than one setting before they are accepted as legitimate research subjects. Should this policy be honored by the clinician as well?

Sleator and Ullmann[13] showed that the child's behavior in the physician's office had no diagnostic or prognostic significance. Few, if any, serious investigators dispute this finding. However, it should be equally clear, simply on the basis of logic or common sense, that the child who does not manifest the characteristic behaviors in the classroom cannot possibly be considered hyperactive. If the child is indeed victimized by a very short attention span, severe distractibility (so that he or she fails to finish almost any task) and impulsivity, it is certainly impossible for that child to function well in a classroom and to show expected advances in learning.

As already discussed, another arena from which we can readily obtain information about the behavior of hyperactive children is the

home. If a child is reported as hyperactive by one teacher after another throughout the child's school experiences but not described as especially hyperactive by his or her parents, can the child be diagnosed as hyperactive? Klein and Gittelman-Klein,[11] in their interesting study of situational hyperactivity, state that their criterion for accepting children as subjects was that there be evidence of demonstrable hyperactivity in two of the three possible settings (home, clinic, and school). However, the material presented in the very same paper (a remarkable demonstration of objectivity) fails to support this position. The authors report that another study they performed resulted in the discovery "that some mothers' evaluations did not reflect their own verbal descriptions of the child. They regularly tended to rate the child considerably lower than seemed appropriate from the descriptions of the child." The Kleins also report a study which showed there was "no significant relationship between the parental scale ratings of the child's hyperactivity at home and the home observations. The results suggest that mothers may rate their children in idiosyncratic fashion and fail to report the child's level of activity accurately." Also, "a number of children were clearly hyperactive in the classroom and in the clinic, but could not be identified as hyperactive from maternal interview. These findings engender skepticism concerning negative maternal reports of hyperactivity at home."

Research at the University of Illinois has shown that parents, using the ATRS, often cannot distinguish between the child's behavior when he or she is on drug or on placebo, while teachers show acute and highly significant sensitivity to drug manipulation using the same scale. Because of the possibility that drug effects have worn off when the child returns home from school (methylphenidate is a short-acting drug), weekend data on parent sensitivity to drug manipulation were analyzed separately from weekday reports. Analyzing the entire group, significant (in the statistical sense) sensitivity to drug condition was not found in the parent's ratings. This same finding was true over several research years for the parents as a group in our controlled drug studies. There were, of course, many individual exceptions.

Again, these facts are not an assault on logic or common sense. The demands of the home environment are much less stringent and stressful for a child with the behaviors that characterize hyperactivity than those of the school setting. In a considerable number of homes an environment of noise, turmoil, sibling conflict, and excess activity is the usual state of affairs. Many mothers do not have, perhaps through lack of opportunity, realistic standards of normal child behavior. The teacher does know how most children behave in

school, and the school environment demands controlled, attentive behavior.

As stated in the third *Diagnostic and Statistical Manual* of the American Psychiatric Association (DSM-III),[25] a publication responsible for the term Attention Deficit Disorder, which includes an excellent description of the characteristic behaviors:

> When the reports of teachers and parents conflict, primary consideration should be given to the teacher's reports because of greater familiarity with age-appropriate norms. Symptoms typically worsen in situations that require self-application, as in the classroom. Signs of the disorder may be absent when the child is in the new or a one-to-one situation.

For all of the reasons discussed, it seems clear that if the only arena in which the child is rated as manifesting ADD behaviors is the school, and such behavior has been a consistent pattern, the child *can* be diagnosed as ADD and so treated. This holds even if the child is well-controlled in the physician's office and the mother states that she does not see abnormal activity at home.

This position that the child need demonstrate consistent hyperactive behaviors only in school is not as iconoclastic as it may sound. Klein and Gittelman-Klein[11] express doubts about their own policy of demanding a report of hyperactive behaviors in more than one setting as a diagnostic criterion:

> It is quite conceivable that the majority of children who are hyperactive only in school suffer from the same basic disorder as more pervasively hyperactive children. We may well be doing these children a disservice by denying them possible appropriate pharmacotherapy because of the erroneous presumption that situational fluctuation means psychogenesis.

MEDICAL EXAMINATION

The routine physical examination and the medical history so familiar to all primary-care physicians are essential because physicians should have the assurance that they are dealing with a healthy child. The medical history and physical exam should be complete and include any laboratory work or special studies (for example, an audiological referral, if there is any possibility of a hearing deficit) suggested by the history and/or physical. The physician should be aware of any medication the child takes either chronically or more

sporadically but repeatedly. What is more important, at this point, is to make clear what medical procedures and referrals need *not* be done routinely.

The recommendation for "baseline blood count, urinalysis and a screening battery such as the SMA-12" is often made.[14] There is now abundant evidence that a laboratory test which is not directed toward substantiating a clinical finding will not be of value. A most revealing study on 185 young children hospitalized for failure to thrive[6] (and these were certainly children with severe health problems, not the vigorous youngsters who usually present with ADD) showed no laboratory study "was of positive value without a specific indication from the clinical evaluation."

If the history and/or physical suggests a urinary tract difficulty, anemia, or if an enlarged liver is present, certainly further testing is indicated. A doctor is able to rely on careful looking and listening to determine what further workup is needed.

A common recommendation is for a complete neurological examination. Wender[8] dealt decisively with that recommendation in his 1971 book:

> In many clinics, neurological evaluation and an EEG are routinely obtained. In the factor analytic studies mentioned previously, the following results were found: (1) *Abnormalities of neurological function bear no relationship to other characteristics of the MBD syndrome.* (2) *They are of no predictive value with regard to therapy.* Obviously, neurological evaluation is necessary for the child with concurrent neurological disease or in the child in whom one suspects a progressive neurological lesion. In the few hundred MBD children I have seen during the past several years—with the exception of those with epilepsy and known cerebral palsy—I have not seen a single child in whom the presence of progressive neurological disorder has been detected. Obviously such disorders exist. The point is that they are seen uncommonly and that, accordingly, *routine neurological evaluation would not seem to be indicated.* (italics added)

Our experience over the past 10 years in the diagnosis and treatment of hyperactive children at the University of Illinois corresponds exactly to that of Wender. The quick neurological assessment as part of a routine physical exam is entirely adequate. Referral is indicated only in those rare cases in which the physician finds a "hard" neurological sign—that is, one known to be related to a structural deficit in the nervous system. It will not happen often.

Since Wender wrote his book, a whole new area of neurological deficits in hyperactive children has surfaced and been explored, that

is, the so-called "soft" signs, in which the relationship to an organic deficit is not clear. To be as concrete as possible about what "soft" signs are, here are the criteria employed by McMahon and Greenberg:[26]

> *Posturing of Upper Extremities on Heel Gait*
> The subject was asked to walk ten paces on his heels with his hands at his sides. Associated posturing of the upper extremities by flexion at the elbows and hyperextension at the wrists was considered a positive soft sign.
>
> *Posturing of Upper Extremities on Toe Gait*
> The subject was asked to walk ten paces on tiptoe with his hands at his sides. Associated posturing of the upper extremities with extension of the elbows and palmar flexion of the wrists was considered a positive soft sign.
>
> *Diadochokinesis*
> The subject was asked to sit with his elbows flexed and fingers extended. Then he was asked to alternately supinate and pronate the forearms. Dysrhythmic or dysynchronous movements or posturing of the hands or fingers during the procedure were considered positive responses.

McMahon and Greenberg did serial examinations of hyperactive children on five separate occasions and found a high degree of variability of response within individuals. They conclude that "the value of these signs for purposes of diagnosis or assessment of therapy is doubtful."[26]

In an attempt to explore the importance of "soft" signs in hyperactivity, the Early Clinical Drug Evaluation Unit of the Psychopharmacology Research Branch of the National Institute of Mental Health developed a detailed, scored Physical and Neurological Examination for Soft Signs (PANESS). Camp, Bialer, Sverd, and Winsberg[27] studied the clinical usefulness of PANESS because, as they put it, "it is important that treatment be based on accurate diagnosis." They compared PANESS scores on 32 hyperactive boys and 111 normal boys. In general, it was found that PANESS scores decreased (performance improved) with increasing age, but the scores did not discriminate between the hyperactive and normal samples at any age. The conclusions derived from that study cast doubt on the diagnostic validity of the PANESS.

As Werry[9] put it after an exhaustive review of the literature on neurological deviations in hyperactivity: "Present indications . . . are that a clinical diagnosis of hyperactivity has no inexorable 'neurological' concomitants." An examination for "soft" neurological signs is

fussy, time-consuming, difficult to quantify, and no one seems to understand what excessive "soft" signs mean. So why bother with them? Nevertheless, some authorities[7] recommend testing for "soft" signs—or at least imply that they are useful. There is every reason to believe that the clinician can quite comfortably ignore such testing.

The prevalence of minor physical anomalies (low-set ears, high palate, fifth finger curved inward, third toe longer than second toe) has been reported by Quinn and Rapoport[28] to have a low but significant correlation with hyperactivity. But again, no one claims that an excess of such anomalies is invariably present in hyperactive children, so it is neither an aid in diagnosis nor of any discernable assistance in devising means of helping the patient.

The EEG used to be quite a favorite in the long lists of "musts" in a routine workup. However, the utter uselessness of the EEG as a diagnostic aid in hyperactivity is now so clear[24] that all but a few of the most intransigent long-list-makers have dropped it. No doubt by now the much more expensive computerized axial tomography or nuclear magnetic resonance is being recommended in its place.

PSYCHOLOGICAL TESTS

Tests of attention and distractibility, common procedures in a research laboratory, are often recommended as part of the diagnostic workup.[7] One might hope these tests could be the avenue for bringing the diagnostic solidity to ADD not provided by "mere" observations of behavior. Safer and Allen[29] say: "Although laboratory measures of hyperactivity have scientific value and hold some promise in the future, they are far less valid and generally reliable than are the classroom ratings of independent observers or of teachers."

Such tests will, indeed, show consistently poorer performance of ADD children than controls on *group* analysis of results. However, to the best of our knowledge no one has demonstrated that each *individual* ADD child will invariably do poorly on such tests. This can be explained by the fact that the child is working one-to-one on a novel task in an unusual setting.

Nontypical superior levels of performance on tests given in atypical settings is a common finding in children with a variety of achievement problems. Berninger and Colwell,[30] in a study examining the relationship between neurodevelopmental and educational findings in 241 patients, report that:

> Children with performance disabilities may achieve at or above grade level on standardized achievement tests administered in a one-to-one setting in which an adult structures the situation and

keeps the child focused on the task at hand. Yet, these same children in another situation without adult supervision, may fail to perform or produce the required work.

Such tests, although of importance for research to increase our knowledge of ADD children in general, have not yet been specifically shown to be essential to the diagnosis of ADD. IQ and achievement tests can and should be done in the school.

EVALUATION OF LEARNING PROBLEMS

A new item has been added to the long list of deplored deficiencies in the education of doctors—the study of learning disabilities.[31] Public Law 94-142 does include the physician on the team designated to help disabled (including learning-disabled) children. But should the physicians not, as members of teams, confine their contributions to those aspects of the problem appropriate to the standard role of physicians? Those who have chosen to devote their education to the complex and difficult field of special education should certainly be the ones to deal with the specific educational problems. It is possible that a few individuals with both medical and educational training might be able to make some unique contributions, but such individuals are a tiny minority among physicians. Will a smattering of knowledge equip the physician to diagnose and recommend treatment for specific learning disabilities? The answer is obvious.

There is a certain kind of dreadful (but not rare) arrogance in the assumption that doctors can do anything better than anyone else. This is exemplified in an article on hyperactivity[7] addressed to physicians in which one page of instructions is devoted to procedures for administering a Wechsler Intelligence Scale for Children (WISC), a Wide Range Achievement Test (WRAT), and tests of writing and language ability!

The point is that if the hyperactive patient has school and learning difficulties, some assessment of the child's ability and how he or she can best be helped should be made, but certainly not by the physician. In fact, under Public Law 94-142 the physician need not refer the patient to an expensive private practitioner but can expect the school to evaluate the student and prepare an Individualized Educational Program (IEP). The physician may be able to play a role in assuring that such an evaluation is, indeed, performed. It is in this role as child advocate to the school that the physician is likely to be effective.

RATING SCALES

If pediatricians are sometimes discomfitted by the feeling that their diagnosis of ADD has an ephemeral basis, it can hardly be of much solace that they would almost certainly make the same criticism of those who are doing the research pediatricians depend on for their knowledge of the condition.

Investigators sometimes (but not always) briefly describe their methods of selection of subjects, on whom they then proceed to perform manipulations, the results of which are published as data generalizable to the world of ADD children. Diagnosis of behavior disorders, even by psychiatrists, supposedly trained in such evaluations, is widely recognized as unreliable.[32] Given this fact, how then do investigators select their research populations and the controls? A few examples follow.

Mendelson and associates[33] describe their subjects as 140 children who had been diagnosed by psychiatrists as having hyperactive child syndrome. They admit: "We were not able to use uniform criteria for selection because the symptoms associated with hyperactivity had not been recorded systematically in the charts." Children were admitted to the study if they had shown symptoms of hyperactivity and/or distractibility (how this was determined was not stated) and at least 4 of 35 additional symptoms over a period of at least 2 years. Some of the 35 symptoms were "bad temper," "silly, immature," "reading problems," "speech problems," and "bedwetting."

Henker and associates[34] based conclusions on research done on 22 boys "who were considered hyperactive by their pediatricians." There were a few exclusion criteria such as evidence of mental retardation or neurological disease or family crisis.

Levy and Hobbes[35] selected their subjects by the diagnosis of a child psychiatrist using DSM-III criteria, and a rating above 18 on the Conners Abbreviated Teacher Rating Scale (ATRS) *with the rating done by their mothers.* Their controls were selected by a rating below 15 on the ATRS *with the rating done by the teachers.*

Tant and Douglas[36] used a mean item score of 1.5 (range 0 to 3) on the eight hyperactivity items of the long Conners' Teacher Rating Scale (although the cutoff of 1.5 was determined in a study done on a different Conners scale), intelligence within normal limits, and reading one year below grade level.

Sprague and Sleator[37] used for subject selection a score of two standard deviations above the normal mean on the ATRS.

This point is perhaps somewhat belabored but it is important—very—for two reasons. Even in the research community, the diagnostic process and subject selection in ADD with or without hyperactivity can be called, with some understatement, a shambles. As a

result, one must be concerned about the generalizability of research in which subject selection is so diverse and imprecise.

Despite the confusing and inadequate array of methods of subject selection for research, the fact is that for ADD "there is remarkable consensus among clinicians and researchers concerning primary and secondary symptomatology. . . ."[38] However, physicians must of necessity, as has been shown, rely on the history to satisfy themselves that the symptoms characterizing ADD are present.

Physicians have access to the parents, who can be interviewed at any desired level of detail. However, to establish the diagnosis and accurately monitor treatment effects, access to the child's teacher is essential. This is most easily and accurately achieved by the use of a well-constructed and properly validated rating scale. Although we know the behaviors characterizing the ADD child, one must recognize that they are present in some degree at some time in all school-age children. DSM-III, which meticulously describes the abnormal behaviors, provides no aid to the physician in differentiating the child who manifests the critical behaviors to a handicapping degree from those who merely behave like children. Most children, especially in the lower grades, occasionally leave tasks unfinished, squirm, fidget, and behave impulsively and impatiently.

Rating scales are at present essential tools in psychiatric research—in fact, in behavioral research of all sorts. For example, in clinical trials testing the efficacy of a new behavior-modifying drug, periodic ratings of the subject's behavior on an established scale are the dependent measure expected by the FDA. Rating scale development, an elaborate procedure, is an important branch of statistical science.

A good rating scale in ADD will quantify the widely accepted descriptive characteristics of ADD children by gathering normative data from many classroom teachers who complete the scale for each of their students. The ratings have numerical values and the normal range of behavior is determined. Such a scale can provide the physician with an accurate, quantified description of the child's behavior in his or her everyday school environment, and show the physician whether or not the child is deviant. A good scale will make clear in which areas of behavior the ADD child is having the most difficulty.

The rating scale can be the physician's most important *clinical* tool in diagnosing and monitoring ADD. The physician would not diagnose anemia without a blood count, strep throat without a throat culture, or diabetes without measuring blood sugar. Laboratory tests are repeated in these conditions for monitoring of treatment. The teacher rating scale is in an important sense the pediatrician's clinical laboratory. First-hand, quantified, descriptive data from the teacher are inevitably more accurate and informative than

the second-hand reports from parents, the physician's usual source of information from the school.

Unfortunately, rating scales are not widely used by the practicing physician in diagnosing and monitoring ADD. Such procedures are not in the usual routine of a busy practice. However, the fact is that the effort required by the physician is small, the cost to the patient and physician is negligible, and physicians who use rating scales soon find them indispensible. A simple, close to effortless manner for physicians to accumulate rating scale data on their patients will be described when drug treatment is discussed in Chapter 4.

What qualities should a teacher rating scale have to make it a useful diagnostic and monitoring instrument for the clinician? For both clinician and investigator alike the ideal scale should provide information about the presence and severity of all typical features of ADD. It must be acceptable to both the teacher and clinician by virtue of convenience to use and ready interpretability. Repeated ratings will be needed if the clinician plans to monitor treatment; therefore, filling out the scale should add little to the burdens of already overworked teachers. Above all, the scale must have been developed by methods sufficiently rigorous to justify confidence that it is providing the physician with reliable and valid information. This is possible if the scale has been tested on a large sample of randomly selected children. Only by comparison with scores received by nonreferred peers can the physician know when a child is markedly deviant from the norm.

There are a few teacher rating scales available at present which are brief, convenient, and provide operational criteria for diagnosis, so that they can be useful to the clinician. Three will be discussed: (1) Conners' Abbreviated Teacher Rating Scale,[39,40] which is shown in Figure 2–1; (2) the SNAP,[41] which will be discussed in Chapter 3 and is shown in Figure 2–2; and (3) the ADD-H Comprehensive Teacher's Rating Scale[42] (ACTeRS) and profile, which is shown in Figure 2–3.

Brevity is the chief virtue of the ATRS, for it includes only 10 items. Because it has been in use since the early 1970s it is certainly "tried," but whether or not it is "true" is in doubt. This is particularly important, because it is a scale that is well-known and widely used by investigators, and many clinicians are familiar with it.

Conners selected some of the 10 items from the original parent scale,[41] some from the teacher scale,[41] and one or two from some indeterminate place. In 1975 Werry and colleagues[12] accumulated normative data on this brief scale and recommended a cutoff, or minimum for diagnosis, of 15 (or a mean score of 1.5 on each item).

The adoption of this cutoff by investigators has been astonish-

ABBREVIATED TEACHER QUESTIONNAIRE

PATIENT NAME _____

TEACHER'S OBSERVATIONS

Information obtained _____ by _____
Month Day Year

Observation	Degree of Activity			
	Not at all	Just a little	Pretty much	Very much
1. Restless or overactive				
2. Excitable, impulsive				
3. Disturbs other children				
4. Fails to finish things he starts - short attention span				
5. Constantly fidgeting				
6. Inattentive, easily distracted				
7. Demands must be met immediately - easily frustrated				
8. Cries often and easily				
9. Mood changes quickly and drastically				
10. Temper outbursts, explosive and unpredictable behavior				

COMMENTS _____

Figure 2–1. Conners' abbreviated rating scale, which has been widely used for many years in several different versions.

ingly widespread and, to an alarming extent, inappropriate. For example, using an item score of 1.5 for the entire 39-item scale and this is only one example of the use of the 15 cutoff in a way never indicated by the research. Conners, to confound the situation further, has repeatedly changed the 10 items so that one could never be sure which version had been used in a particular research paper, while normative data were available on the 1973 version only![41] Ironically, a recent, considerably more rigorous collection of normative data from the laboratory that originally recommended the 15 cutoff shows

SNAP CHECKLIST

Child's Name _____ Age _____ Grade _____ Sex _____

Completed by: Mother ____ Father ____ Teacher ____ Other ____

OBSERVATION	Not at all	Just a little	Pretty much	Very much
Hyperactivity.				
(1) Excessive running or climbing.				
(2) Difficulty sitting still or excessive fidgeting.				
(3) Difficulty staying seated.				
(4) Motor restlessness during sleep. (Parents) Motor restlessness. (Teachers)				
(5) Always on the go or acts as if "driven by a motor."				
Inattention.				
(1) Often fails to finish things he or she starts.				
(2) Often doesn't seem to listen.				
(3) Easily distracted.				
(4) Difficulty sticking to a play activity.				
(5) Difficulty concentrating on school work or other tasks requiring sustained attention.				
Impulsivity.				
(1) Often acts before thinking.				
(2) Excessive shifting from one activity to another.				
(3) Has difficulty organizing work (not due to cognitive impairment).				
(4) Needs a lot of supervision.				
(5) Frequent calling out in class.				
(6) Difficulty waiting for turn in games or group situations.				
Peer Interactions.				
(1) Fights, hits, punches, etc.				
(2) Is disliked by other children.				
(3) Frequently interrupts other children's activities.				
(4) Bossy; always telling other children what to do.				
(5) Teases or calls other children names.				
(6) Refuses to participate in group activities.				
(7) Loses temper often and easily.				

Figure 2–2. The SNAP checklist, which will be discussed in Chapter 3.

that that cutoff was in error, much too low.[42] The final irony is that there is no reason to believe that the ATRS selects children with attention problems at any cutoff.

Another rating scale devised with the clinician in mind is the ADD-H Comprehensive Teacher Rating Scale (ACTeRS), which was developed at the University of Illinois by Ullmann and her col-

leagues.[43] The four types of behavior that the teacher rates on ACTeRS are attention, level of activity, social skills, and oppositional behavior. The reasons for inclusion of attentional skills and activity level are obvious. Oppositional behavior refers to what is called in DSM-III "conduct problem-unsocialized-aggressive." The frequent association of ADD-H with antisocial behavior[44] and the prognostic importance of differentiating aggressive from nonaggressive ADD-H children[45] prompted the inclusion of items describing such behavior. Social skills deficits are known to be common in ADD children. In fact, lack of peer acceptance is close to invariable in these patients and a source of suffering articulated occasionally by the child but almost always by the parents. Considering that poor peer acceptance is a powerful predictor of adult maladjustment,[46,47] neglect of evaluation of this aspect of behavior in ADD children is an oversight very much in need of correction.

The acceptability of ACTeRS to teachers is shown by the fact that 84 percent of the teachers whose opinions were requested gave it the highest possible score for convenience (unpublished data).

Easy interpretation of the severity of each of the four behavior areas is provided by the "profile sheets" (Figure 2–3). The total score for each type of behavior is entered on the profile by circling the actual numerical score in the appropriate column, and the percentile score is read directly in the column on the extreme left. In this way the physician can determine almost at a glance how his or her patient compares to a large norm sample on attention, activity level, social skills, and oppositional behavior. In the same way the physician can determine to what extent the treatment he or she has instituted alters the child's behavior.

In order to diagnose a child as having Attention Deficit Disorder, a poor score on attention is essential. If the score on the profile is at the tenth percentile or below, no matter what the other scores, one can confidently feel that the diagnosis of ADD is legitimate. A child who scores up to the twenty-fifth percentile on attention is certainly somewhat handicapped, but here one would be more likely to take into consideration the child's other difficulties. For example, if the child is also very restless, out of seat, and moving around the classroom, the child could be diagnosed ADD-H despite the fact that the attention, although deficient, is not extremely so. The point is that the scale provides graphically a quantified rating by the teacher for the clinician. By using it in conjunction with all else known about the child, an informed decision about diagnosis and treatment can be made without being locked into a rigid "cutoff point" which is surely inappropriate for such a complex condition as ADD with or without Hyperactivity.

Child's Name_____

ID_____

(ADD-H Comprehensive Teacher's Rating Scale)

Refer_____

Date_____

Below are descriptions of children's behavior. Please read each item and compare this child's behavior with that of his/her classmates. Circle the numeral that most closely corresponds with your evaluation.

BEHAVIOR ITEM	AM Almost never				Almost always	PM Almost never				Almost always
1. Works well independently	1	2	3	4	5	1	2	3	4	5
2. Persists with lack for reasonable amountof time	1	2	3	4	5	1	2	3	4	5
3. Completes assigned task satisfactorily with little additional assistance	1	2	3	4	5	1	2	3	4	5
4. Follows simple directions accurately	1	2	3	4	5	1	2	3	4	5
5. Follows a sequence of instructions	1	2	3	4	5	1	2	3	4	5
6. Functions well in the classroom	1	2	3	4	5	1	2	3	4	5
ADD ALL NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE----------						----------				
	never				always	never				always
7. Extremely overactive (out of seat, "on the go")	1	2	3	4	5	1	2	3	4	5
8. Overreacts	1	2	3	4	5	1	2	3	4	5
9. Fidgety (hands always busy)	1	2	3	4	5	1	2	3	4	5
10. Impulsive (acts or talks without thinking)	1	2	3	4	5	1	2	3	4	5
11. Restless (squirms in seat)	1	2	3	4	5	1	2	3	4	5
ADD ALL NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE----------						----------				
12. Behaves positively with peers/classmates	1	2	3	4	5	1	2	3	4	5
13. Verbal communication clear and "connected"	1	2	3	4	5	1	2	3	4	5
14. Nonverbal communication accurate	1	2	3	4	5	1	2	3	4	5
15. Follows group norms and social rules	1	2	3	4	5	1	2	3	4	5
16. Cites general rule when criticizing ("We are not supposed to do that")	1	2	3	4	5	1	2	3	4	5
17. Skillful at making new friends	1	2	3	4	5	1	2	3	4	5
18. Approaches situations confidently	1	2	3	4	5	1	2	3	4	5
ADD ALL NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE----------						----------				
19. Tries to get others into trouble	1	2	3	4	5	1	2	3	4	5
20. Starts fights over nothing	1	2	3	4	5	1	2	3	4	5
21. Makes malicious fun of people	1	2	3	4	5	1	2	3	4	5
22. Defies authority	1	2	3	4	5	1	2	3	4	5
23. Picks on others	1	2	3	4	5	1	2	3	4	5
24. Mean and cruel to other children	1	2	3	4	5	1	2	3	4	5
ADD ALL NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE----------						----------				

Please circle the numeral 1 through 5 that most closely describes the behavior of classmates and teacher toward the child

This child:	Almost never				Almost always	Almost never				Almost always
is readily accepted by peers/classmates	1	2	3	4	5	1	2	3	4	5
is in demand for group activities	1	2	3	4	5	1	2	3	4	5
ADD NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE----------						----------				
requires a great deal of teacher time for help with social or emotional problems	1	2	3	4	5	1	2	3	4	5
Requires a great deal of teacher time for help with academic problems	1	2	3	4	5	1	2	3	4	5
ADD NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE----------						----------				

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Percent of sample	ATTENTION	HYPERACTIVITY	SOCIAL SKILLS	OPPOSITIONAL
			35	
95				
90			34	
80				
	29		32	
	28	5	31	
	27			
70	26	6	30	
	25	7		
60	24	8	29	
	23	9	28	
		10	27	6
50	22	11	26	7
	21		25	
40	20			8
	19	12	24	9
		13	23	10
		14		11
30	18			
	17	15	22	12
	16	16	21	13
				14
20	15	17	20	15
	14	18	19	16
	13	19	18	17
10	12	20	17	18
				19
5	11	21		20
		22	16	21
		23	15	
	6-10	24		22-25
		25	7-14	
				over 25

DESIRABLE DIRECTION ---->

<---- PROBLEM BEHAVIOR DIRECTION

Circle the raw scores in each of the four (factor) columns and determine percentiles in the leftmost column.

Some raw scores represent a range of percentile scores (e.g. for Oppositional behavior, the perfect score of 6 represents the range from the 55th percentile on up).

06/83

INSTITUTE FOR CHILD BEHAVIOR AND DEVELOPMENT, UNIVERSITY OF ILLINOIS

Figure 2–3. The left side of Figure 2–3 shows ACTeRS (ADD-H Comprehensive Teacher's Rating Scale). On the right is the profile for boys, which provides a simple way to determine the percentile score indicated by ACTeRS for each of the four behaviors.

DIAGNOSTIC RECOMMENDATION OF OTHERS

It is possible to find as many lists of recommendations as there are papers on the topic of diagnosis of ADD. However, only two will be reproduced, one carrying recommended evaluations to an extreme and one which is relatively modest.

The longest list of diagnostic recommendations comes, interestingly enough, from CIBA, the pharmaceutical company in the business of selling the drug Ritalin (methylphenidate). Following is a complete statement from a *MDB Compendium* distributed by CIBA to practicing physicians:

> Since the criteria for diagnosis are not always clear, a multi-disciplinary approach is needed for evaluating the MBD child. In its most comprehensive form, this evaluation may require the following examinations:
>
> 1. General medical examinations.
> 2. Pediatric neurological evaluation.
> 3. Psychiatric examination.
> 4. Psychologic evaluation.
> 5. Ophthalmologic evaluation (including optometry).
> 6. Psychiatric evaluation (including physical therapy and occupational therapy evaluation).
> 7. Social services evaluation.
> 8. Educational evaluation.
> 9. Speech and hearing consultation.
> 10. Laboratory studies (including a CBC, urinalysis, appropriate blood chemistries, a skull series, and an EEG).
> 11. Other medical or related evaluations as needed.

Four aspects of this list are noteworthy. First, the logic of the introductory statement seems peculiarly faulty. If the "criteria for diagnosis are not always clear," does getting a great many different people involved clarify matters? Most likely the opposite. Second, if the above workup was really indicated, diagnosis and subsequent treatment of hyperactivity would, of necessity, be limited to the children of rich parents. The third point is that CIBA has worded the recommendations so that they seem to be advocating an extraordinarily extensive workup before the diagnosis (and consequent use of Ritalin) can be made. However, they do hedge in their recommendations by indecisive wording: "In its *most comprehensive form,* this evaluation *may require* the following examinations" (italics added). So the claim is not being made that this workup is really necessary.

Fourth, and above all, it is noteworthy that the most important part of any workup of any child is not included, and that is a history from the parents and a rating by the teacher.

Cantwell and Carlson[14] have compiled a different list which they state should be used for evaluation before "considering the use of a stimulant." The components they include are:

1. A detailed interview with the parents.
2. A detailed psychiatric evaluation of the child.
3. Physical and neurological examinations of the child.
4. Obtaining information from the school.
5. Obtaining appropriate laboratory studies including psychological tests.
6. Baseline blood count, urinalysis, and a screening battery such as the SMA-12.

Numbers 1, 3, and 4 are necessary but the practitioner need not, as has been demonstrated, feel guilt in dispensing with all the others.

In a subsequent paper Cantwell[15] himself states "Both today and in the near future, ADD will continue to be identified and treated by traditional methods available to the office practitioner."

A careful reading of the diagnostic recommendations by Safer and Allen,[29] in their excellent book on hyperactivity, indicates that they agree that the history from the parents and school are the essential diagnostic device: "The school history is usually best in these respects although a detailed parent history is nearly as useful. . . . The most important school information includes the present teacher's behavioral report and behavioral comments from previous teachers." Under "Diagnostic Priorities" they list only parent and teacher histories. Under "Clinical *Support* for the Diagnosis" (italics added) they list and discuss all of the items of which diagnostic list-makers for hyperactivity are so fond—visual motor impediments, EEG, "soft" neurological signs, excess minor physical anomalies, and various laboratory measures—but they are also careful to point out that none of these are diagnostic.

SUMMARY

The primary-care physician, by taking a careful history from the child's parents, and by talking to the child's teacher and/or obtaining a rating of the child's classroom behavior on a quantified rating scale, can garner sufficient knowledge to help ADD children. In addition, the physician need only be assured by a routine office exam

that the child is healthy and see to it, if necessary, that there is an evaluation (preferably by school personnel) of the child's intellectual capacity. The physician can then feel quite comfortable that these procedures alone meet reasonable standards on which to base a diagnosis of hyperactivity.

Only one real claim to distinction can be made for the diagnostic recommendation made in this presentation. The facts have been let out of the closet—the only items essential to the diagnosis of hyperactivity are a history from the parents and a rating from the teacher, preferably on a quantified rating scale. It is not that a definitive "test" would not be grand, but the history and teacher rating are really all we have.

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