



Texas Preventable Disease NEWS

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**Bureau of Disease Control and Epidemiology,
1100 West 49th Street, Austin, Texas 78756 (512-458-7455)**

50 Years ago...

TEXAS MORBIDITY *this* WEEK

SYLVATIC PLAGUE

Week No. 36

Plague has been much in the news during the past few days, due to the reporting of a case of the disease in a young child. While this case occurred in a Western state, it has aroused nation-wide interest, since few people suspected that there existed a focus of the plague in the United States. The origin of this focus was an outbreak of rat-borne plague in a West Coast city around 1900. Infected rats escaped the city into the surrounding countryside where the infection was transferred by fleas to ground squirrels. Since that time, there have been scattered human cases of highly virulent plague due to contact with infected rodents.

A careful watch on the eastward progress of the infection has been kept; practically every week the Public Health Service reports trapping of infected animals. Every year there are a few human cases. Infected ground squirrels have been trapped as far east as New Mexico.

While no human or rodent case has been found in Texas in recent years, it behooves physicians, particularly those practicing in West Texas, to be on the lookout for human cases. The form of the disease most likely to be encountered is the bubonic. Diagnosis by gland puncture is easy if the disease is suspected. Undiagnosed cases could produce a great hazard, since plague is transmissible directly from man to man.

This Department would appreciate information concerning excessive deaths among ground squirrels, since this is the usual way that rodent infection is discovered.

TEXAS STATE DEPARTMENT OF HEALTH

WEEK ENDING September 6, 19 41

ATTENTION DEFICIT - HYPERACTIVITY DISORDER AN UPDATE

HISTORY

Minimal brain damage (MBD), minimal brain dysfunction, hyperactivity, attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD) -- these are all terms which have been used to describe individuals who have problems with inattention, impulsivity, and over-activity.¹ In the past, these problems often went unrecognized and untreated. Children who had short attention spans were often labeled as "immature," "emotionally disturbed," "trouble-makers," or "slow learners." ADHD was overlooked as the underlying reason for many children's learning and behavioral difficulties.

ADHD is now recognized as a syndrome. The core symptoms are deficits in attention and impulse control along with hyperactivity. This triad of symptoms was first established as a diagnostic category in the 1980 revision of the American Psychiatric Association's Diagnostic and Statistical Manual, 3rd edition (DSM III). At that time, the disorder was described as

"attention deficit disorder with or without hyperactivity" (ADD & ADDH). A more current edition of the DSM III (DSM III-Revised, 1987)² has eliminated the distinction between ADD and ADDH, and the disorder has been renamed "Attention Deficit-Hyperactivity Disorder" (ADHD).

DIAGNOSIS

Attention deficit-hyperactivity disorder is a complex disorder which necessarily involves careful diagnosis and treatment. Some children with more severe ADHD symptoms (eg, severe hyperactivity) are identified in the preschool years, but often these children are not identified as having a problem until they reach school-age. The school environment represents an increased demand for attentional skills and impulse control. In kindergarten, the child is expected to do such things as sit quietly in a small group to listen to a story, wait for a turn in games, or perform a series of academic tasks. If, after four to six weeks of school, the child is not

able to adjust to the demands of the classroom, the teacher may suspect a problem and may request a parent conference to discuss referring the child to the school nurse, counselor, or family physician. If a significant problem is suspected, further assessment is necessary. A thorough physical examination is needed to rule out any medical condition (eg, absence seizures, hyperthyroidism, lead toxicity, etc) that may be causing ADHD symptoms. A psychological and educational evaluation is helpful to rule out such underlying problems as learning disabilities, developmental delay, anxiety disorder, etc. A child neuropsychologist (a psychologist who has expertise in neurologically based disorders of childhood) may be a good resource to assist in the diagnosis of ADHD. School personnel, the family physician, or a local ADHD parent support group can often refer the family to other appropriate professionals.

Listed below are the major behavioral symptoms required for the diagnosis of ADHD. According to the DSM III-Revised, eight or more of these characteristics must be present for the diagnosis of ADHD:²

1. Restlessness, fidgeting
2. Difficulty staying seated
3. Easily distracted by extraneous stimuli
4. Difficulty waiting turn
5. Blurts out answers before questions are complete
6. Difficulty following through on instructions
7. Difficulty sustaining attention in tasks or play activities
8. Shifts from one uncompleted activity to another
9. Difficulty playing quietly
10. Talks excessively
11. Interrupts or intrudes on others
12. Does not seem to listen to what is being said to him or her
13. Engages in dare-devil activity without regard for danger

PREVALENCE OF ADHD

Estimates of the prevalence of ADHD vary depending on the criteria used for diagnosis. Conservatively, it is estimated that 2%-3% of the childhood population (approximately 1.2

million school-age children in the United States; over 91,000 in Texas) have this disorder.³

ETIOLOGY

Family Association: A family pattern does seem to exist with ADHD. Studies have shown that about 20%-30% of children with ADHD have a parent and/or sibling with similar attentional problems.³ Thus, there may be a subgroup of ADHD children who have inherited neurologic factors that predispose them to problems with short attention span and/or overactivity.

Neurological Mechanisms: There are several proposed brain mechanisms which may underlie the symptoms of ADHD. It has been hypothesized that frontal lobe dysfunction, particularly hypoarousal of the inhibitory system of the frontal lobe, may be the basis for some of the symptomatology observed in ADHD children.⁴ The ADHD child may be unable to inhibit cognitive or behavioral responses to novel or extraneous stimuli, thus they appear distractible and impulsive. Another related neural mechanism may be a neurodevelopmental lag in the frontal lobes of ADHD children. It has been established that myelination of the frontal lobes continues into adolescence.⁵ The symptoms of ADHD may be related to a maturational lag in frontal lobe myelination.⁶ There also may be dysfunction in the feedback loop between the reticular activating system and the frontal regions of the brain.⁷ This dysfunction may negatively affect the inhibitory and integrative function of the frontal-reticular system leading to deficits in impulse control and difficulty in screening out environmental or internal distracters. In one study, ADHD subjects showed low metabolic and functional activity in frontal and central brain structures. This abnormality was noted to be partially reversible with medication treatment using methylphenidate.⁸

Allergies: It has been theorized that ADHD is caused by an allergic reaction to certain foods, dyes, additives, and other environmental toxins. Researchers have found that there may be a small percentage of ADHD children who show an adverse behavioral reaction to certain foods, and this negative reaction is more likely to be seen in children 6 years of age and younger. One

popular theory in the mid- to late 1970s suggested that fluorescent lighting contributed to hyperactive behavior. Well-controlled studies have not shown any scientific support for this theory. Thus, while there may be some ADHD children in which allergic reactions play a role, it is likely that this has been greatly overrated and particularly exaggerated by the lay press.

Several environmental toxins have been found to be associated with hyperactivity. Children who have a high amount of lead in their systems are known to exhibit hyperactivity. Similarly, some children who are exposed to abnormally high amounts of pesticides or other poisons may become hyperactive. However, the vast majority of hyperactivity in ADHD children is probably not related to environmental toxins.

LONG-TERM OUTCOME

Although hyperactivity and inattention do not appear to worsen with age, the number and severity of their consequences often do increase with age.³ Numerous studies indicate that ADHD children are at an increased risk for developing anti-social behavior,⁹ alcoholism, substance abuse,¹⁰ and school failure.¹¹ Two studies recently completed at Austin Neurological Clinic have also found increasingly negative repercussions of ADHD in children identified at a later age.^{12,13} The older children were found to show poorer performance on norm-referenced cognitive,^{12,13} neurologic, and academic measures than younger ADHD children, indicating a widening discrepancy between ADHD children and their age-peers. Also, older ADHD children exhibited greater problems with social withdrawal and depression, demonstrating the increasing emotional consequences of ADHD. It should be noted that these results were found with children who had not been previously diagnosed as ADHD, and thus, their ADHD had not been directly treated. With earlier diagnosis and treatment, many of these associated problems can be prevented or minimized.

TREATMENT

A number of approaches to treatment of ADHD have shown varying degrees of success. Some of these treatment methods are: 1) medication, 2)

educational remediation, 3) behavior modification, 4) counseling, and 5) diet. Although there is no cure for ADHD, very effective methods are available to treat the symptoms, allowing the individual to lead a relatively normal life. ADHD is often a lifelong disorder,¹⁴ however, there are certain individuals who appear to "outgrow" it. For example, where the underlying cause of ADHD appears to be a developmental delay, there may be a gradual lessening of ADHD symptoms as the child matures. By mid-puberty, these symptoms may no longer be evident, but the individual may need continued treatment to deal with the secondary academic, emotional, and social problems often associated with a history of ADHD.

Medication: Some medications (eg, stimulants such as Ritalin, Cylert, or Dexadrine) appear to help the ADHD child's nervous system function more normally, leading to a reduction in over-activity and distractibility and an increase in attention span. These medications have a "cognitive focusing" effect that allows the child to better focus attention on important information or tasks in the environment. Medication may also help to decrease impulsivity, so that the child can "think" before "doing." Reducing impulsivity can also allow the child to interact more appropriately in social and classroom situations.

Research has shown that medication is effective in managing many of the symptoms of ADHD for 70%-80% of children who have been carefully diagnosed as having ADHD.¹⁵ However, it must be emphasized that drugs are not a "cure" or panacea for ADHD. For example, they have not been found to substantially improve long-term academic achievement in ADHD children despite the positive effects on classroom conduct. If the child has academic difficulties or learning disabilities, he will also need specific help with these disabilities.

Educational Remediation: Children with ADHD frequently have learning disabilities (LD) too. Learning disabilities are also neurologically based and may be related to the brain dysfunction underlying the child's ADHD. Because these two disorders are often so closely associated, it is very important to carefully evaluate

for any possible LD. If an LD is diagnosed, the child will need a specialized educational plan to remediate the LD. This may include individual tutoring, special assistance in the regular classroom, and/or placement in the resource classroom for all or part of the school day.

Even if an LD is not found, most ADHD children will need some special help in the regular classroom. The problems that they have with distractibility, impulsivity, and sometimes overactivity will almost always interfere with their behavior and performance in the classroom. In general, ADHD children will function best in a classroom where the teacher is supportive but very firm in setting limits and clearly communicates behavioral expectations. Since these children often have difficulty adjusting to ambiguity and change, they need to be in a very structured classroom that has a set routine.

Behavior Management: Because ADHD children are impulsive, they often have difficulty controlling their own behavior; they do things without thinking. And because they are distractible and inattentive, these children often do not seem to learn from their mistakes. Thus, many children with ADHD develop negative behavior patterns and have difficulty learning new, healthier patterns. Behavior problems are best dealt with early, before they become too deeply ingrained. A professional who has special expertise in behavior management, such as a psychologist or a behavior therapist, can be very helpful in developing an effective behavior management program.

Counseling: In addition to behavioral problems, ADHD children often develop secondary social and emotional problems. Because of their impulsivity, many ADHD children have difficulty with peer and family relationships. Their problems with poor academic performance and social relationships may lead to decreased self-esteem and depression. Thus, at some point, many ADHD children may benefit from some form of counseling, such as social skills training, individual psychotherapy, or family counseling depending on the individual needs of the child. A parent support group can also be another

important resource for parents in dealing with their child's ADHD. A support group can provide invaluable educational information about ADHD, and members of the group can give needed emotional support for coping with a very difficult problem.

Diet: It has been proposed that there may be a number of dietary factors that may contribute to ADHD, such as hypoglycemia, food additives, food allergies, etc. Research in this area has been equivocal. There does appear to be a very small percentage of ADHD children whose symptoms may be related to food allergies.³ Thus, if food allergies are suspected, the child should be evaluated by an allergist. Any dietary changes should be discussed with the child's physician.

Recent research in relation to ADHD and diet indicates that ADHD children are more likely to suffer from missing breakfast than normals, and that they are especially vulnerable to impairment in attention following a pure carbohydrate meal.¹⁶ A balanced diet is important for all children, but it may be particularly important for the ADHD child. An especially important component of such a diet would be balanced meals including protein and carbohydrate.

In summary, attention deficit-hyperactivity disorder is a complex disorder that can affect many aspects of a child's life. Thus, it requires the cooperation of parents, medical personnel, educators, and mental health professionals to carefully diagnosis ADHD and to develop a multifaceted, comprehensive treatment approach.

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SAFE USE OF CAPILLARY BLOOD SAMPLING DEVICES*

The purpose of this notice is to inform health care workers of a potential risk of hepatitis B transmission associated with **improper** use of spring-loaded lancet devices in obtaining capillary blood samples. While TDH has received no reports of cases of hepatitis B or other blood-borne diseases associated with misuse of such devices, recent reports in the medical literature underscore the importance of avoiding cross contamination when using these units.^{1,2}

One such report described an outbreak of 16 cases of hepatitis B associated with **improper** use of a spring-loaded lancet. Investigation revealed that health care personnel were replacing the hemolance but not the platform after each use which resulted in the patient's exposure to the previous patient's blood.¹

Continued next page

*Adapted from: State of New York Department of Health. Memorandum, Series 90-22, May 23, 1990.

When used correctly, spring-loaded lancet devices are effective and safe. Capillary blood samples are obtained by finger or heel sticks using hand-held, single-use lancets or automatic spring-loaded devices. Such devices are in widespread use in hospitals, clinics, and private physician offices.

Spring-loaded devices typically have two disposable parts: the lancet, which is used to puncture the skin, and the platform or endcap, which is used to control the depth of the puncture. Health care workers are generally aware of the necessity to replace the lancet after each use, but may fail to replace the platform or endcap, which may become contaminated with the patient's blood.

Health care workers using spring-loaded lancets should follow the manufacturer's instructions for using the device. In addition, they should:

1. Replace the lancet **and** the platform or endcap after each use.
2. Always order an equal number of platforms or endcaps when reordering lancets.

3. Dispose of both lancets and platforms in an appropriate sharps container.

4. Not use spring-loaded lancets that do not have replaceable platforms.

Health care workers receiving this notice should ensure that this information is communicated to appropriate staff. Should you become aware of hepatitis B virus transmission in association with such capillary blood sampling units or any medical device, please immediately report the circumstances to your local health department, and the TDH Epidemiology Division, Infectious Diseases Program, at 1-800-252-8239.

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RELAPSING FEVER IN GRAND CANYON NATIONAL PARK

On July 12, 1990, the California State Department of Health reported a laboratory confirmed case of relapsing fever in a 66-year-old male resident of Los Angeles County. The man had visited the Grand Canyon and stayed overnight in a cabin at the North Rim of the park on June 7 and 8. Two additional cases related to overnight stays in park cabins on July 5 and 6 were reported by the Arizona Department of Health Services.

Relapsing fever is characterized by the acute onset of high fever with rigors, headache, myalgias, arthralgias, photophobia, and cough. Patients often have petechiae and hepatosplenomegaly. The diagnosis is established by the demonstration of borreliae in peripheral blood smears collected during febrile episodes.

Relapsing fever is not a reportable disease in Texas. However, because of this cluster, Texas physicians are requested to report any identified cases to the TDH Epidemiology Division toll-free at 1-800-252-8239.

EPI NOTES

Shigellosis Outbreak: Fourteen cases of shigellosis have been reported in children attending a day-care center in Weatherford (Parker County). The outbreak began on June 21. *Shigella sonnei* was cultured from stool specimens in three children. A foodborne source is suspected.

St. Louis Encephalitis: Two cases of SLE have been reported in Harris County. Both cases had onset of illness in July and occurred in areas where SLE virus had been identified in mosquito populations. Although both patients died, the extent to which SLE virus contributed to their deaths is undetermined.

Staphylococcal Wound Infections: A Houston hospital has reported an outbreak of postsurgical infections. Sixteen patients with *Staphylococcus aureus* infections associated with surgeries performed between April 17 and June 20, 1990, were identified. The outbreak was related to improper aseptic technique and the use of propofol, an intravenous anesthetic agent capable of supporting bacterial growth.

Vibrio-Associated Deaths: Since January 1990, four deaths due to *Vibrio* infections have been reported in Texas. Three patients had *Vibrio vulnificus* infections, and one patient had a *Vibrio cholerae* non-01 infection. Three of the patients (two with *V. vulnificus*, one with *V. cholerae* non-01) had consumed raw oysters within two days of onset of illness. The source for the fourth case is unknown.

* * *

INFECTION CONTROL WEEK

OCTOBER 14-20, 1990

The Bureau of Disease Control and Epidemiology would like to congratulate infection control practitioners throughout Texas during **National Infection Control Week**, October 14-20, 1990. This week, also designated as **Texas Infection Control Week** by the Governor and the Texas Society of Infection Control Practitioners, has been established to bring attention to the many issues of infection control in health facilities and the importance they have for patient care.

Public health agencies rely heavily on the professionalism of infection control practitioners. Their work in support of disease surveillance and control efforts benefits all Texans and is greatly appreciated.

Congratulations!

**VACCINE-PREVENTABLE DISEASE UPDATE
PROVISIONAL DATA**

Weeks 32-36*

CONFIRMED AND SUSPECTED MEASLES

County	Latest Rash Onset	# Cases	Affected Population
Bandera	09/04/90	2	Pre-school
Bell	08/22/90	45	All age groups
Dallas	08/20/90	2,353	All age groups
Galveston	08/18/90	3	All age groups
Jefferson	08/20/90	18	All age groups
Orange	08/17/90	7	All age groups
Parker	08/14/90	11	All age groups
Yoakum	09/07/90	3	All age groups
Young	08/22/90	10	All age groups
Total	YTD	4,930	

PERTUSSIS

County	Latest Onset	# Cases	Affected Population
Lamar	08/29/90	1	Pre-school
Lubbock	08/27/90	1	Pre-school
Swisher	08/20/90	1	Pre-school

*Cumulative data for counties with onbreaks
(ie, latest rash onset within last 31 days).

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