The Client with Attention-Deficit Disorder
Cynthia Parsons, MSN, RN, CS

CHAPTER OUTLINE

Epidemiology

Causative Factors: Perspectives and Theories
- Brain Injury
- Dietary Intake
- Environmental Toxins
  - Fetal Exposure to Alcohol and Drugs
- Lead
- Genetics
- Neurobiological Basis

Historical Perspectives
- Moral Defect
- Brain Injury
- Minimal Brain Damage
- Hyperkinetic Reaction of Childhood
- Attention-Deficit Disorder
- Attention-Deficit Disorder with or without Hyperactivity

ADHD Symptoms across the Life Span
- Childhood
- Adolescence
- Adulthood

Treatment Considerations for the Client in the Home and Community Settings

The Role of the Nurse
- The Generalist Nurse
- The Advanced-Practice Psychiatric Registered Nurse

The Nursing Process
- Assessment
- Nursing Diagnoses
- Outcome Identification
- Planning
- Implementation
- Evaluation

Psychopharmacology
- Stimulants
- Alternative Medications
  - Medication Assessment

Behavioral Interventions
- Time-Out
- Behavior Management Plans
- Social Skills Training
- Parent Training and Education
Competencies

Upon completion of this chapter, the learner should be able to:

1. Discuss the history of the diagnosis and recent advances in understanding attention-deficit hyperactivity disorder (ADHD) as a neurobiological disorder.
2. Identify the DSM-IV-TR criteria for the diagnosis of ADHD and describe the various subtypes.
3. Recognize and describe the symptoms of ADHD from childhood to adulthood.
4. Discuss the impact of the three major ADHD subtypes on a person’s ability to function in a variety of settings.
5. Identify the various components of a comprehensive assessment to achieve the diagnosis of ADHD.
6. Develop a comprehensive plan of care for the client with ADHD, including managing at home, in school, and in community settings.
7. Discuss the role of medication in treating the client with ADHD, including the various types of medications, indications for use, efficacy, dosing guidelines, and potential side effects.
8. Discuss the role of behavioral interventions in the treatment of the client with ADHD.

Key Terms

**Aggressive**: Physical or verbal behavior that is forceful, hostile, or enacted to intimidate others.

**Behavior Management Plans**: A plan designed to reinforce positive and reduce negative behaviors through the use of visual cues, charts, communication tools, and reward systems.

**Cognitive**: The mental process involved in obtaining knowledge, including the aspects of perceiving, thinking, reasoning, and remembering.

**Comorbidity**: Psychiatric or physical disorder that occurs with a primary psychiatric disorder.

**Conflict**: The opposition of mutually exclusive impulses, desires, or tendencies; controversy or disagreement.

**Cues**: Internal and external response signals that, if noticed, predict when, where, and what response will occur.

**Disruptive**: To throw into disorder or confusion; to disturb a balance.

**Distractibility**: The quality of being easily diverted or sidetracked.

**Emotional Lability**: An affective disturbance characterized by excessive and inappropriate emotional response.

**Gratification**: To be satisfied; receive pleasure from.

**Hyperactivity**: Extra active; having too much energy to handle. An activity level that is out of proportion for the situation, setting, and person’s developmental level.

**Impulsivity**: A tendency to act suddenly and without thought. An inability to delay gratification, which reflects a lack of personal control and inability to manage feelings and emotions.

**Inattention**: A failure to focus attention on those elements of the environment that are most relevant to the task at hand.

**Learning Disability**: A condition that makes it difficult for a person to learn information in a usual manner.

**Neurotransmitters**: Biochemicals found in the central nervous system involved in the transmission of impulses across the synapses between neurons.

**Overarousal**: To be excessively excited or stimulated.

**Personal Boundaries**: A mental idea of how one experiences and maintains a line of separation between oneself and the world.

**Psychostimulants**: A class of medications that temporarily increases the functioning activity of the brain.
Attention-deficit hyperactivity disorder (ADHD) is the most common neurobehavioral disorder among school-age children. The main characteristics of the disorder are inattention, impulsivity, and hyperactivity. Its estimated prevalence is between 3 and 8 percent, which makes it one of the most frequently encountered chronic health disorders in mental health clinics that treat children (Barkley, 1996). The brain possesses limited capacity for processing simultaneous information. It relies on a complex process to narrow the scope and focus of information to be processed and assimilated (Goldstein & Goldstein, 1998). ADHD is characterized by attention skills that are developmentally inappropriate for the clients’ age and may include the symptoms of hyperactivity and impulsivity.

The child with attention difficulties, impulsive behaviors, and increased motor activity presents a challenge to parents, teachers, peers, and health care providers. These symptoms create problems for the child and family in many settings, with the demands of the setting influencing the severity of the symptoms. At some point in the child’s life the impact of these symptoms on his academic, social, or leisure functioning causes the child to be brought to the attention of mental health providers.

The goal of this chapter is to discuss ADHD and its etiology, diagnosis, and the role of the nurse in developing and implementing an integrated biopsychosocial treatment plan.

EPIDEMIOLOGY

It is estimated that 3 to 5 percent of all school-age children have ADHD. This translates into a probability of 1 to 2 students in a typical classroom. Estimations of the number of affected adults vary widely, from 30 to 70 percent of those diagnosed in childhood experiencing ongoing symptoms. The incidence of occurrence in males exceeds females by a 4 to 1 ratio.

Symptoms of ADHD are usually first noticed in early childhood. The symptoms of excess motor activity are frequently detected when the child is a toddler, although children this age are normally active and curious. The child with ADHD, however, will be more active and impulsive than his peers. Symptoms of inattention in toddlers or preschool age children are not easily observable because young children rarely experience demands for sustained attention. As children mature the symptoms become more conspicuous. By late childhood or early adolescence, the symptoms of excess motor activity are less common and have been replaced by restlessness or fidgeting (APA, 2000). In most individuals symptoms attenuate during late adolescence and adulthood, although a minority will experience the full complement of symptoms into adulthood.

Comorbidity is a common occurrence with ADHD. Comorbid disorders often include learning disabilities, oppositional defiant disorder, conduct disorder, depression, and anxiety disorders (Wilens et al., 2002). Recognition of comorbid disorders is important because these conditions may influence the outcomes of medical and treatment interventions.

CAUSATIVE FACTORS: PERSPECTIVES AND THEORIES

Although the exact cause of ADHD is unknown, recent studies indicate an array of factors that play key roles in the cause of this complex disorder. Causative factors of ADHD include environmental factors associated with pregnancy and delivery complications, alterations in biochemical processes, genetics, and other biological influences.

Brain Injury

In the early 1900s, the symptom cluster that now represents ADHD was hypothesized to evolve from brain injury (Still, 1902). This theory gained wide acceptance supported by evidence of cognitive and behavioral symptoms in children and adults who had suffered from encephalitis. Most children with these symptoms, however, had no evidence of definitive brain injury (Bond & Partridge, 1926). The concept of minimal brain damage then emerged and was applied to children who had symptoms but no observable neurological signs of injury. This was based on the assumption that a lesser degree of injury could cause behavioral symptoms without other signs of brain injury (Knobloc & Pasaminick, 1959).

Most families with children manifesting symptoms of ADHD could identify difficulties during pregnancy or with labor or delivery occurring. The theory of minimal brain damage resulting from pre- or perinatal injury persisted through the 1950s. Major studies done during the 1960s and 1970s, however, did not validate the hypothesis. Routh (1978) reported that there was little evidence to support the theory that brain damage was the underlying cause of ADHD.

Dietary Intake

During the 1970s food and food additives became popular suspects as causal factors. Feingold (1974) developed a hypothesis, based on anecdotal observations, that certain foods and food additives caused behavioral deterioration. He postulated that a group of food constituents called natural salicylates yielded a toxic effect, thereby contributing to behavioral disturbances. Furthermore, he proposed that elimination of these substances from the diet would produce substantial improvement in the child’s behavior. Feingold again supported this hypothesis with anecdotal observations. There are no studies that provide data to support this.

Conners and Taylor (1980) also performed studies on the effects of artificial colors and food additives. He placed children on an additive-free diet and evaluated their behavior using the Conners’ Parent Rating Scale to determine severity of symptoms. He then reintroduced the additives in a double-blind manner. The findings demonstrated that, initially,
when children were placed on an additive-free diet, there was improvement in their behavior. However, with the addition of additives there was no clear deterioration of behavior that could be correlated. To date there are no definitive studies demonstrating a clear causal relationship between food additives and behavioral problems in children.

**Environmental Toxins**

The developing brain is very susceptible to toxins and other chemicals during the prenatal period. The neurotoxic effects of alcohol, drugs and lead often result in brain damage, attention deficits and behavioral problems.

**Fetal Exposure to Alcohol and Drugs**

Alcohol and other drugs ingested by the mother are transferred through the placenta to the fetus. Steinhaus, Williams, & Spohr (1993) studied children suffering from fetal alcohol syndrome. They found attention deficits and behavioral problems similar to those of ADHD children; however, they also found that the children who were affected by alcohol were more impaired intellectually. These findings were further supported by studies conducted by Naison and Hiscock (1990).

In Holland, a long-term longitudinal study looked at children exposed prenatally to amphetamines, cocaine, and heroin. These children showed impairment in cognitive functioning. The children exposed to amphetamines also exhibited more aggressive behavior. However, they did not find evidence of an increase in ADHD symptoms in the children exposed to these substances. Studies to date validate behavioral and cognitive problems related to fetal exposure to drugs or alcohol. There is no clear evidence that this exposure represents a significant risk factor for the development of ADHD.

**Lead**

Lead is a trace element that has no known use in human bodies. Ingestion of lead from paint, contaminated soil, or other sources can poison the brain. This poisoning produces a swelling of the brain, causing a decrease in general brain function. It also could lead to convulsions, if it is not detected and treated. Studies of children with significant lead ingestion demonstrate deficits in global IQ function, visual and fine motor coordination, and in behavior. School failure resulting from learning and behavior problems was also more frequent in the group exposed to lead.

These findings suggest that there may be a group of children with ADHD symptoms that are at least in part a result of lead exposure. The studies provided no evidence that treatment for lead poisoning would improve the cognitive or behavioral functioning of these children (Wyngarden, 1988).

**Genetics**

The majority of children with ADHD are found to have a positive family history of ADHD. For many, it is a close family member such as a parent. Studies of parental psychopathology demonstrate that attention-deficit symptoms are more common in the fathers and uncles of ADHD children than in the relatives of non-ADHD children (Stewart, DeBlois, & Cummings, 1980). Biederman and colleagues (1986) found that hyperactivity is present four times more often in parents of hyperactive children than those of a control sample.

Studies of identical twins demonstrated a strong element of heredity. Findings showed that identical twins are more likely to demonstrate hyperactive behaviors than do fraternal twins (Willerman, 1973). Subsequent studies have produced similar findings. Heredity appears to represent the most common identifiable factor in children who develop ADHD.

**Neurobiological Basis**

The attention system consists of a brainstem center composed of dopamine, serotonin, and noradrenaline neurons that project to many areas of the brain, basal ganglia, and frontal lobes. Limbic, frontal, and right hemispheric cells also are part of this system. This network, which projects to all areas of the brain, is important for a regulating system whose purpose is to modulate whole brain activity (Goldstein & Goldstein, 1998). Dopamine and norepinephrine are neurotransmitters that help transmit information from one brain cell to another. The dopamine neurons have cell bodies that originate in the brainstem. The noradrenaline neuron cell bodies originate and lie within the locus ceruleus, whereas the serotonin neuron cell bodies lie in the midline raphe of the medulla. Within the cerebral hemispheres, information from the senses is converted into electrical impulses that are sent to specific areas of the cerebral cortex. Certain areas of the cerebral hemispheres are involved in translating sensory input to prepare a response. Several areas of the brain responsible for this task have been identified to function differently in children with ADHD.

One area identified is the frontal lobes. The frontal lobes are the area of the brain responsible for the executive functions. These functions consist of initiating and sustaining activities, prioritizing, strategizing, and inhibiting impulses until the brain can weigh the possible consequences of the activity rationally. The basal ganglia are also an affected area. The basal ganglia assist the frontal lobes by helping to prioritize input and by organizing and executing actions decided on by the frontal lobes. The third area is the cerebellum. The cerebellum was once thought to be involved primarily in muscular coordination, balance, and movement. It is now recognized to play a role in emotion and higher level cognitive functions. These areas of the brain work together to take in information, process it, and act on it. Being able to sustain attention and process information before acting on it is an important component of this interrelationship.

The attention system may regulate the processing of information and concentration through coordination of several groups of nerve cells, primarily serotonin, dopamine,
and norepinephrine. This system adjusts the sensitivity of the brain to stimuli and regulates the degree of activity, attention, concentration, as well as impulsivity. For example, the attention system regulates a person’s ability to concentrate on reading and the cerebral cortical centers determine comprehension.

Attention and concentration are not an all-or-nothing phenomenon. There are times when it is appropriate to be inattentive to certain stimuli. For example, when driving, the driver’s attention is focused primarily in front of the vehicle, and although a loud noise or commotion may momentarily distract him, the driver is able to filter out stimuli and attend to the task of safe driving. Most people are able to adjust their attention and concentration abilities so that they can be less inhibited in certain situations yet remain focused in others. The disorder known as ADHD can be viewed as a dysfunction of the attention system.

A breakdown in any one of the parts of the system would produce dysfunction in the system. Children with ADHD likely have varying degrees of differences within this system. They are unable to change their degree of attention appropriately as required by tasks or situations. The high degree of variability of ADHD symptoms could be seen as variability in effectiveness of the attention system.

Recent studies at the Child Psychiatry Branch of the National Institute of Mental Health involving neuroimaging through positron emission tomography (PET) and functional magnetic resonance imaging (FMRI) provide findings of structural and functional differences in three areas of the brain: the frontal lobes, the basal ganglia, and the cerebellum (Filipek, 1999). These findings support the hypothesis that ADHD has a brain-based cause and provide the basis for future research.

**HISTORICAL PERSPECTIVES**

Historical perspectives associated with attention-deficit disorders have evolved over the past century and were linked to moral and neurological factors. The moral deficit theory most likely paralleled social normal concerning mental illness. Attempts to link biological factors to these disorders were linked to brain injury. Over the past decade there has been growing evidence that indicates that the cause of these disorders are far more complex than ever imagined and they are linked by neurobiological, neurocognitive, genetic, and environmental factors.

**Moral Defect**

Over the past century, the childhood cognitive and behavioral disorders categorized as disorders of attention, impulsivity, and hyperactivity have presented a challenge for psychiatric clinicians. In 1902 George F. Still first defined the disorder as a problem resulting from a defect in moral control. He defined moral control as “the control of action and conformity with the idea of the good of all” (p. 1008). He noted that this problem prevented these children from internalizing rules and limits; he also identified a pattern of restless, inattentive, and hyperactive behavior in these children. Still based his observations and research on the prevailing theories of the 1890s, which stated that this pattern of behavior occurred in individuals with brain injury. He suggested that children with these symptoms had experienced brain injury, which had caused some type of brain damage or dysfunction, and associated the defect in moral control with impairment in intellect. Still did note that this pattern of behavior could have resulted not only from injury, but also from heredity or environmental experience. He further hypothesized that the aim of these behaviors was self-gratification and could not be treated; therefore, these children should be institutionalized at an early age.

**Brain Injury**

In 1917 and 1918, following a worldwide outbreak of encephalitis, health professionals observed groups of children who had recovered from encephalitis who presented a pattern of restless, inattentive, impulsive, easily aroused, and hyperactive behavior not exhibited before the encephalitis (Hohman, 1922). It was thought that this pattern of behavior resulted from some type of brain injury caused by the disease process and was described as post-encephalitic disorder (Bender, 1942).

**Minimal Brain Damage**

From 1930 through the 1940s, behavior disorders with overactivity as a primary symptom continued to be associated with the hypothesis of brain damage or injury. Gradually, these symptoms or patterns of behavior were recognized even in children without identifiable brain damage. The hypothesis then shifted to a suspicion that these children had suffered some type of prenatal neurological insult or trauma during labor and delivery, which left the children with a slight injury or minimal brain damage.

The first studies using psychostimulants to treat these behaviors were performed at the Emma Pendleton Bradley Home in Providence, Rhode Island. Charles Bradley and his colleagues used dextroamphetamine to treat children with syndromes of cerebral dysfunction or organic brain damage.
syndrome (Bradley, 1937). Bradley documented improvements in a variety of tasks in 60 to 75 percent of these children regardless of specific diagnosis or level of intellectual functioning. (Bradley, 1937; 1950; Bradley & Bowen, 1941). These studies continued over the course of the next 40 years. At about the same time, Molitch and Eccles (1937) investigated the effects of Benzedrine on intelligence scores in children. Although noting no improvement on intelligence scores, they observed an improvement in general behavior, compliance, and attending skills.

Hyperkinetic Reaction of Childhood

In 1957, Laufer and Denhoff, working at the same facility as Bradley, were credited with the first behavioral description of the hyperactivity syndrome. Short attention span, poor concentration, variability of behavior, and impulsiveness, and the inability to delay gratification were considered characteristics of this syndrome. These authors suggested that these behaviors could be observed in infancy or childhood and that it was observed more frequently in males.

The 1950s saw a growth in the use of psychotropic medications, including renewed interest in the use of medications for children, specifically use of stimulants. Laufer and Denhoff’s (1957) tripartite set of hyperactive, impulsive, and inattentive symptoms was an early target of medication trials. In the second edition of the Diagnostic and Statistical Manual of Mental Disorders, the disorder is categorized as Hyperkinetic Reaction of Childhood (APA, 1968).

Attention-Deficit Disorder

By the 1970s research strongly suggested that the core problem was not excessive activity but inattention (Douglas & Peters, 1979), leading to a major shift in the focus of research, diagnosis, and treatment. Through the 1980s, the idea that the symptoms of impulsiveness and hyperactivity, but primarily inattention, were biologically based and caused multiple developmental and later life problems became popular (Goldstein & Goldstein, 1998). Research in the field grew at a rapid pace, and so did the rate of diagnosis of the disorder. Through the 1980s and 1990s, research had shifted to the concept of ADHD as a lifelong disorder that can affect all areas of an individual’s functioning. It is now accepted that inattentiveness can yield lifelong problems.

The third edition of the Diagnostic and Statistical Manual of Mental Disorders (APA, 1980) greatly expanded the definition of the disorder and retitled it Attention-Deficit Disorder with and without Hyperactivity. It included attention disorders with or without hyperactivity as well as a category for those who do not present with symptoms but whose history clearly demonstrates a period when the full disorder was exhibited. The two sets of core symptoms, inattention and hyperactivity, were arranged in three distinct areas, with hyperactivity and impulsivity separated. The third, revised edition of the DSM grouped these symptoms together, despite strong research supporting the distinction between children with an attention disorder with and without hyperactivity (Lahey, Schaughency, Hynd, Carlson, & Nieves, 1987).

Attention-Deficit Disorder with or without Hyperactivity

Despite criticism, the DSM-III-R (APA, 1987) criteria represented an attempt to improve the operational definition of ADHD. These criteria required that symptoms presented before children reached age 7; that symptoms were experienced for 6 months or more; and that symptoms could not be better accounted for from pervasive developmental disorder, mental retardation, schizophrenia, or severe emotional or behavioral problems. There, however, could be a coexisting diagnosis of ADHD for those populations, if the ADHD symptoms were excessive even in light of these disorders.

Although the DSM-III-R provided a thorough description of behavioral problems present with ADHD, it did not eliminate the need for the clinician to understand the impact of growth and development and social, environmental, and life experiences on a child’s behavior. The categorical model of the DSM-III-R is generalized and may have yielded over-inclusion of children meeting the criteria for ADHD. Symptoms of ADHD are a good start to differential diagnosing, but it is important to gather data from a number of sources; otherwise, children with a wide variety of behavioral, emotional, and developmental problems may be diagnosed inappropriately with ADHD.

DSM-IV and DSM-IV-TR—Attention-Deficit Hyperactivity Disorder (ADHD)

The DSM-IV criteria resulted from more comprehensive and better-structured field studies and represent an attempt to categorize ADHD as more than a unipolar disorder. The DSM-IV-TR defines ADHD as a persistent pattern of inattention or hyperactivity-impulsivity, or both, that is more frequent and severe than is typically observed in individuals at a comparable level of development (APA, 2000). Some hyperactive-impulsive or inattentive symptoms that cause impairment must have been present before age 7 years. Age of onset before age 7 had not been established by empirical data but it has become a mainstay of the diagnostic criteria (Applegate et al., 1997). A clinical study of 380 children ages 4 to 17 received a diagnosis of ADHD. Out of the children receiving a diagnosis of inattentive type, 50 percent did not meet the criteria for age of onset. Some impairment from the symptoms must be present in at least two settings (e.g., home and school or work). There must be clear evidence of interference with developmentally appropriate social, academic, or occupational functioning. Lastly, the symptoms do not occur exclusively during the course of another disorder, such as Pervasive Developmental Disorder, a psychotic disorder, mood, or other mental disorder. The DSM-IV-TR criteria are displayed in Table 17-1.
Table 17–1

**DSM-IV-TR Diagnostic Criteria for Attention-Deficit/Hyperactivity Disorder**

A. Either (1) or (2)

(1) Six (or more) of the following symptoms of inattention have persisted or at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

(a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
(b) often has difficulty sustaining attention in tasks or play activities
(c) often does not seem to listen when spoken to directly
(d) often does not follow through on instruction and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
(e) often has difficulty organizing tasks and activities
(f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
(g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)
(h) is often easily distracted by extraneous stimuli
(i) is often forgetful in daily activities

(2) Six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

**Hyperactivity**

(a) often fidgets with hands or feet or squirms in seat
(b) often leaves seat in classroom or in other situations in which remaining seated is expected
(c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
(d) often has difficulty playing or engaging in leisure activities quietly
(e) if often “on the go” or often acts as if “driven by a motor”
(f) often talks excessively

**Impulsivity**

(a) often blurts out answers before questions have been completed
(b) often has difficulty awaiting turn
(c) often interrupts or intrudes on others (e.g., butts into conversations or games)

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or Personality Disorder).

Code based on type:

314.01 ADHD, Combined Type:

Both Criteria A1 and A2 are met for the past 6 months

314.00 ADHD, Predominantly Inattentive Type:

Criterion A1 is met, but Criterion A2 is not met for the past 6 months

314.01 ADHD, Predominantly Hyperactive-Impulsive Type:

Criterion A2 is met but Criterion A1 is not met for the past 6 months

(continues)
Table 17–1 (continued)

Coding note:
For individuals (especially adolescents and adults) who currently have symptoms that no longer meet full criteria, “In Partial Remission” should be specified

314.9 ADHD, Not Otherwise Specified:
There are prominent symptoms of inattention or hyperactivity-impulsivity that do not meet criteria for ADHD


Quick Guide to Using the Abbreviated ADHD Symptom Checklist

The Abbreviated ADHD Symptom Checklist-4 (ADHD-SC4) is a behavior rating scale whose items are based on the 18 behavioral symptoms of attention-deficit hyperactivity disorder (ADHD) as defined by the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). Individual items are worded to be easily understood by caregivers. Physicians can use the Abbreviated ADHD-SC4 as a brief screening device with parents and teachers who are concerned about child behavior at home and in school. The findings from a number of studies indicate that the Abbreviated ADHD-SC4 is a reliable and valid screening instrument for ADHD in children 3 to 18 years old, and it is a reliable and valid measure for assessing response to treatment. The checklist can be completed in less than 2 minutes, and it is quick and easy to score.

Scoring procedures. There are two different ways to score the Abbreviated ADHD-SC4: Symptom Count scores and Symptom severity scores. The weights assigned to the response choices are as follows:

SYMPTOM COUNT: Never = 0, Sometimes = 0, Often = 1, Very Often = 1
SYMPTOM SEVERITY: Never = 0, Sometimes = 1, Often = 2, Very Often = 3

Symptom Count scores are used to screen for specific disorders. The DSM-IV identifies three types of ADHD: the predominantly inattentive type (Items 1–9), the predominantly hyperactive-impulsive type (Items 10–18), and the combined types (Items 1–18). The DSM-IV also specifies the number of symptoms necessary for a diagnosis. The minimum number of symptoms for each of the three types of ADHD is as follows: the predominantly inattentive type (six symptoms), the predominantly hyperactive-impulsive type (six symptoms), and the combined type (six symptoms of each the inattentive and hyperactive-impulsive types). Items that are checked as “Often” and “Very Often” are considered to be clinically significant.

Symptom Severity scores are used to assess the overall severity of child symptoms after a diagnosis has been established. This method of scoring is most useful when evaluating response to treatment.

Parent and teacher ratings. The accuracy of the Abbreviated ADHD-SC4 is enhanced when information is obtained from both parents and teacher(s). However, parent and teacher ratings do not always agree. Discrepancies between parent and teacher scores may indicate that either the child’s behavior is different in the two settings or one of these care providers is a more accurate informant about certain child behaviors. Because this is a screening instrument, parent or teacher indications of ADHD behavior should be investigated further when the child’s behavior is considered to be a serious problem by either informant.

Interpreting Symptom Count scores. The Abbreviated ADHD-SC4 does not provide diagnoses; it is simply a screening instrument. Furthermore, Symptom Count scores cannot be interpreted as verifying the presence or absence of specific disorders. If a child’s Symptom Count score meets the minimum number of symptoms required for a diagnosis of ADHD, then a comprehensive clinical evaluation is necessary to determine if (a) the child really had ADHD, (b) some other variable (e.g., environmental stressor) can explain the symptom, or (c) another disorder can account for the ADHD symptoms. In addition to the behavioral symptoms, a diagnosis of ADHD requires information about the age of onset and duration of symptoms, extent of impairment in functioning, and the exclusionary conditions and disorders. According to the DSM-IV, onset must be by age 7 years, symptoms must have been present for a minimum of 6 months, symptoms must cause difficulties in at least two settings, symptoms must cause clinically significant distress or impairment in functioning, and symptoms are not caused by other disorders (e.g., pervasive developmental disorder, schizophrenia, mood and anxiety disorders).

User qualifications. Users of the Abbreviated ADHD-SC4 should have an understanding of the basic principles and limitations of psychological and psychiatric screening and diagnostic procedures. Only qualified professionals can render diagnoses after a thorough evaluation.
The DSM-IV-TR criteria are further broken down into symptoms of inattention and hyperactivity-impulsivity. These symptoms are behavioral and can be measured through direct observation of the client in the home, school, or work environment. A variety of observation rating scales have been developed that help identify and measure the severity of the core symptoms of inattention, impulsivity, and hyperactivity. Many of these include ratings of social relationships. Some of the more well-known scales are the Conners’ Parent-Teacher Rating Scale, the Vanderbilt Rating Scale, and the Achenbach Child Behavior checklist. These scales are well established and have high degrees of inter-rater reliability. See the sample Behavior Rating Scale and instructions for use.

Field trial studies for the criteria resulted in some interesting findings. Of 276 children diagnosed with ADHD, 55 percent had the combined type, 27 percent had the inattentive type, and 18 percent had the hyperactive-inattentive type. Females accounted for 20 percent of the hyperactive-impulsive type, 12 percent of the combined type, and 18 percent of the inattentive type.

### Abbreviated ADHD Symptom Checklist–4

Child’s Name ___________________________ Date ________________
Name of Person Completing Form ___________________________ Relationship to Child ________________

**Directions**: Indicate the degree to which each item below is a problem. Please respond to all items. Consider the child’s behavior on the following days:

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Doesn’t pay attention to details; makes careless mistakes</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Difficulty paying attention</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Does not seem to listen</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Difficulty following instructions; does not finish things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Difficulty getting organized</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Avoids doing things that require a lot of mental effort</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Loses things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Easily distracted</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Forgetful</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10. Fidgets with hands or feet; squirms in seat</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. Difficulty remaining seated</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12. Runs about or climbs on things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13. Difficulty playing quietly</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14. “On the go”; acts as if “driven by a motor”</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15. Talks excessively</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16. Blurs out answers to questions</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. Difficulty awaiting turn</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. Interrupts others or butts into their activities</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

27 percent of the inattentive type. This validates clinician perceptions that males are affected more often than females and that females more often demonstrate the inattentive type (Silverthorn, Frick, Kupper, & Ott, 1996).

The current DSM-IV-TR criteria are well defined and comprehensive. Before establishing a diagnosis it is important to collect data, history, and observations from a variety of sources to determine that the child meets symptom criteria in more than one setting. Children with language, socialization, cognitive, and other behavioral difficulties that are the result of life experiences because of abnormal development or illness also exhibit attention-related problems (Goldstein & Goldstein, 1999).

In 1998, Goldstein and Goldstein proposed a practical definition of ADHD to provide a logical framework from which to understand the patterns of behavior that constitute ADHD. They are outlined as follows:

1. Impulsivity: Children with ADHD have difficulty thinking before they act. They know what to do but they do not do what they know. Their difficulty following rule-governed behavior (Barkley, 1981) appears to result directly from their inability to separate experience from response, thought from emotion, and action from reaction. They are impetuous and unthinking in their behavior. They require more parental or teacher supervision. They frustrate their parents and teachers with their inability to learn from experience. Frequently, parents and teachers label this behavior as purposeful, noncaring, or oppositional, which is not accurate and often leads to punitive and ineffective interactions between the adult and the child.

2. Inattention: Children with ADHD have difficulty remaining on-task and focusing attention compared with children without ADHD (APA, 2000). Normally as children get older they become more efficient in their ability to sustain attention. By the first grade or age 6 we expect children to sustain attention and work at a task for at least one-half hour at a time. Children with ADHD have an inability to invest and sustain attention to task, especially repetitive, effortful, uninteresting, or unchosen tasks.

3. Hyperactivity and overarousal. Children with ADHD tend to be restless, overactive, and easily overaroused emotionally. They have difficulty controlling bodily movements in situations where they are required to sit still or stay in place for an extended period of time. They are quicker to become overaroused. Whether happy or sad, the speed and intensity of the emotion is much greater than that of a peer of the same age. This problem reflects their impulsive inability to separate thought from emotion.

4. Difficulties with gratification: As a result of impulsivity children with ADHD require immediate, frequent, predictable, and meaningful rewards. They experience greater difficulty working toward a long-term goal. They do not appear to respond to rewards in a manner similar to other children without ADHD (Haenlin & Caul, 1987). Because of this problem, children with ADHD often require more time to master a task. It is therefore important to provide a sufficient number of structured, supervised, and reinforced experiences for the children to learn. This includes simple tasks, such as making a bed, to more complex tasks, such as playing a team sport.

It also appears that children with ADHD tend to receive more negative reinforcement and feedback than children without ADHD. Because of the child’s impulsivity and inconsistency, adults may place great pressure on them or the child perceives it this way. The child responds to this by completing tasks to the best of their ability but to gain relief from the adults’ negative attention. It is important when establishing a plan of care to remember that children with ADHD respond positively to rewards and not to punishment.

5. Emotions and locus of control: Children with ADHD are often on a roller coaster of emotions owing to their impulsiveness and emotional overarousal. When they are happy they are so excited and exuberant that people tell them to calm down. When they are angry or upset they are so volatile and intense that people tell them to calm down. They learn emotions are not to be valued, instead that they may lead to trouble or to being reprimanded.

The combination of these qualities—feedback when received for emotional lability, lack of ability to develop the skills necessary to control emotions, and the disruption in relationships these qualities cause—exerts a significant impact on the child’s emerging sense of self, locus of control, and likely subsequent personality. Refer to Table 17–2 for a historical time line of the diagnosis.

---

**Critical Thinking**

Attention-deficit hyperactivity disorder (ADHD) is a neurobiological disorder characterized by:

a. a high degree of consistency in the frequency of symptoms among patients with ADHD
b. developmentally inappropriate levels of inattention
c. a predictable and consistent pattern of functional impairment associated with the symptoms of ADHD
d. inappropriately high levels of attention
Thoughts, not being able to take turns, poor excessive talking. Impulsivity is exhibited as acting before sit still for an age-appropriate length of time, fidgeting, or is often seen as restlessness, excessive running, inability to symptoms of hyperactivity and impulsivity. Hyperactivity between the ages of 3 to 7. This is true primarily for the The symptoms of ADHD appear to arise on average Childhood persist over time (Connors & Jett, 1999). Psychiatric nurses are in unique positions to recognize the potentially disabling and adverse outcomes of these disorders across the life span and work with the client, caregivers, and other mental health professionals, and develop holistic treatment planning to facilitate an optimal level of functioning and quality of life.

### Childhood

The symptoms of ADHD appear to arise on average between the ages of 3 to 7. This is true primarily for the symptoms of hyperactivity and impulsivity. Hyperactivity is often seen as restlessness, excessive running, inability to sit still for an age-appropriate length of time, fidgeting, or excessive talking. Impulsivity is exhibited as acting before thinking, not being able to take turns, poor personal boundaries, intrusive behavior, and frequently interrupting others. Many of these symptoms are behaviors often seen in young children who have not learned the skills of delayed gratification or impulse control. Refer to Table 17–3 for symptoms of ADHD across the life span.

Children with hyperactivity and impulsivity in infancy are often described as difficult or temperamental. They are frequently very active, easily overstimulated, become very upset with changes in routine, and sleep poorly. They nap infrequently, fall asleep late, and wake early. As toddlers their exuberance is out of proportion to their peers. They are overactive, respond poorly to direction or requests, exhibit an intensity of emotional response, have frequent temper tantrums, and increased accidental injury.

Inattentiveness is a more discreet symptom and may not be identified until the child is in a structured situation requiring sustained attention to tasks, such as school. Inattentiveness is often seen as distractibility, inability to complete tasks or assignments, forgetfulness, poor listening skills, or disorganization. Children with the inattentive subtype tend to miss essential details with schoolwork and often lose the tools or materials required for class work or play. Because they have difficulty sustaining attention they often avoid activities that require concentration and mental effort. They also have more difficulty staying on topic or following the rules of a game once it has started.

In addition to the core symptoms discussed, children with ADHD may experience low self-esteem and difficulties with interpersonal relationships. They may exhibit mood swings, low frustration tolerance, temper tantrums, negativism, oppositional behavior, bossiness, and poor response to authority. School problems are frequent and these children often are described as lazy, stubborn, or unmotivated. Conflicts within the family are common owing to the child’s impulsivity, disorganization, difficulty with obeying rules, and academic problems.

### Adolescence

It is estimated that 50 to 80 percent of children with ADHD will continue to experience symptoms in adolescence. Adolescents with ADHD of the hyperactive-impulsive subtype will exhibit increasing difficulty with authority and an increase in high-risk-taking behaviors. They continue to have academic difficulties primarily in the area of assignment completion and organization of schoolwork. If the children have been able to channel their energy into sports, they may exhibit difficulty showing up on time for practices or following the coach’s instruction. Refer to Table 17–3.

Adolescents with ADHD are often seen as underachievers academically. Symptoms that persist and contribute to poor performance are inability to organize work, even having the proper tools, failing to follow directions, or forgetting to turn in assignments. By their teens many children with ADHD may experience some academic failure either course or complete grade failure.

Adolescents with ADHD continue to experience age-inappropriate levels of emotions. They are described as silly, overly sensitive to teasing by peers, or they are seen to excessively “fool around.” They continue to be restless or fidgety, frequently interrupt others, and have poor frustration tolerance. The high levels of overactivity and excessive talking have diminished but are still present at levels above that of same-age peers.
Taylor, Chadwick, Heptinstall, and Dancharets (1996) completed a follow-up study of a large community survey of children with severe hyperactivity or conduct problems identified at age 6 to 7 by parent and teacher ratings. The follow-up study was done when the children were ages 16 to 18. The authors concluded that children with hyperactivity demonstrated a much higher risk for development of other psychiatric disorders, including persistent hyperactivity, antisocial behaviors, and problems with peers. Achenbach and McConaughy (1996) tested the long-term effects of inattention on the development of conduct problems. After controlling for initial conduct problems, the authors concluded that initial problems with attention made little contribution to the development of later conduct problems. Adolescents with untreated ADHD of the hyperactive-impulsive subtype appear to be at higher risk for development of conduct problems, antisocial behaviors, academic failures, and substance abuse problems.

### Adulthood

Historically, ADHD was considered to be a disorder of childhood. There has been limited research done into the persistence of symptoms of ADHD into adulthood. Estimates are that from 20 to 35 percent of clients with ADHD eventually outgrow the symptoms or develop the skills to effectively manage the symptoms. Prospective studies that followed children diagnosed with ADHD through age 25 years demonstrated that over 50 percent continued to exhibit symptoms of the disorder into adulthood. They exhibit continued problems in the ability to sustain attention and inhibit impulsivity (Barkley, Fisher, Edelbrock, & Smallish, 1990; Searight, Rottnek, & Abby, 2001). Their findings further demonstrated that 23 percent of these adults had dropped out of high school. They also found that nearly 25 percent had had progressed into conduct disorder and developed a pattern of antisocial behavior, including inter-

---

### Table 17–3

<table>
<thead>
<tr>
<th>Symptoms across the Life Span</th>
<th>PRESCHOOL (3–5 YEARS OLD)</th>
<th>SCHOOL AGE (6–12 YEARS OLD)</th>
<th>ADOLESCENT (13–18 YEARS OLD)</th>
<th>ADULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increased motor activity</td>
<td>• Easily distracted</td>
<td>• Decreased/poor self-esteem</td>
<td>• Disorganized poor planning skills</td>
<td></td>
</tr>
<tr>
<td>• Aggressive to others</td>
<td>• Homework poorly organized frequent errors, careless mistakes, not complete</td>
<td>• School work is disorganized</td>
<td>• Forgetful, frequently loses things</td>
<td></td>
</tr>
<tr>
<td>• High curiosity level</td>
<td>• Blarts out answers before question is completed</td>
<td>• Difficulty completing long-term assignments</td>
<td>• Difficulty in initiation and completion of tasks, projects, assignments</td>
<td></td>
</tr>
<tr>
<td>• Spills, breaks things</td>
<td>• Frequently interrupts, disrupts class</td>
<td>• Fails to work independently</td>
<td>• Poor time management skills—misjudges available time</td>
<td></td>
</tr>
<tr>
<td>• Rough play (often breaks, damages toys, frequent accidental injuries)</td>
<td>• Fails to wait turn in games</td>
<td>• High-risk-taking behaviors</td>
<td>• Frequent job changes</td>
<td></td>
</tr>
<tr>
<td>• Demanding, argumentative</td>
<td>• Often out of seat</td>
<td>• Poor peer relations</td>
<td>• Marital difficulties</td>
<td></td>
</tr>
<tr>
<td>• Noisy, frequently</td>
<td>• Perceived as being immature by adults</td>
<td>• Difficulty with rules, laws, and authority figures</td>
<td>• Continued inattention/concentration problems</td>
<td></td>
</tr>
<tr>
<td>interrupts others</td>
<td>• Unwilling or unable to complete chores at home</td>
<td>• Poor frustration tolerance</td>
<td>• Poor frustration tolerance</td>
<td></td>
</tr>
<tr>
<td>• Excessive temper</td>
<td>• Often interrupts or intrudes on peers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tantrums (severe and frequent)</td>
<td>• Poor peer relations/few friends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Low level of compliance</td>
<td>• Difficulty playing games, unable to follow directions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with adult’s requests</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
personal difficulties, occupational instability and substance abuse. Refer to Table 17–3.

In 1995 Achenbach, Howell, McConaughy, and Stanger followed a sample of youngsters with ADHD into young adulthood. They found a common syndrome among young adults who had previously been diagnosed with ADHD inattentive type in adolescence: they exhibited a pattern of irresponsible behavior. The attention problems continued to affect significantly more females than males. The researchers suggested that when clinicians evaluate adults for ADHD, they should assess for problems related to irresponsibility. Common problems that would be exhibited are frequent firings from jobs, problems making decisions, and low self-confidence. The authors further concluded that the symptoms of overactivity and overimpulsivity might not be evident in the adult syndrome.
Deficits in sustained attention and concentration are likely to remain and become more apparent or problematic as responsibilities increase. Impulsivity can take the form of socially inappropriate behavior such as blurtling out thoughts or being rude. Although many of these symptoms are reported by significant others, adults with ADHD often present with complaints of an inability to be organized. They may also experience difficulties in prioritizing, giving simple tasks inordinate time and attention while procrastinating or not completing important ones (Vollmer, 1998).

Adults with ADHD are not the only ones affected by their symptoms. Relatives, spouses, employers, coworkers, and teachers also experience the disruptive impact of their symptoms. Disruptive refers to throwing into disorder or confusion. Appointments, social commitments, and deadlines may frequently be forgotten. These symptoms often lead to difficulties in sustaining employment, friendships, or even marriages. Adults with ADHD are often labeled as poor performers, lazy, unmotivated, self-centered, or slow learners (Millstein et al., 1997). Over the course of their lives a minority of those with ADHD are at significant risk for developing or not completing important ones (Vollmer, 1998).

The goal of treatment should be to identify and reduce disruptive symptoms and to promote improvement in family, peer, and social relationships. Successful treatment outcomes rely heavily on involving family and significant adults (teachers, mentors, coaches, clergy). The nurse needs to collaborate closely with all individuals involved with the client to identify symptoms and implement treatment strategies that best meet the client's individual needs.

To identify appropriate and effective interventions, the nurse should first perform an in-depth biopsychosocial assessment. The assessment should include identification of significant symptoms by both client and the adults involved with the client, physical health status (including nutrition, vision, and hearing), past and present academic performance, presence of comorbid conditions, and identification of the components of the family system. Because family members are often the most affected and are the primary providers of behavioral interventions, the assessment should include clinical interviews with the client and family and it must be comprehensive. It should assess family structure, communication patterns, strengths, weaknesses, styles of discipline, and social support network.

Another very important aspect of the nursing assessment is client and family educational needs. The nurse will serve an important role in educating the client, family, and significant adults about ADHD, its signs and symptoms, treatment options and prognosis. Because ADHD occurs across the life span, mental health care needs to be age specific and individualized to the client. Educational materials and teaching strategies must be appropriate for the client and family's cognitive level and include verbal information and visual and written materials.

Treatment considerations need to include family and community resources. Clients with supportive families and strong social support are more likely to have positive treatment outcomes (Bernier & Siegel, 1994). Financial resources are another consideration; lack of insurance or limited finances are likely reasons that access to required care will be impeded, because medical visits and pharmacologic agents can be costly. Assessing for potential barriers and incorporating these into the treatment plan can improve compliance.

Nursing responsibilities for management of the client's plan of care may include administering medications. Health teaching about the indications for use, effects, and potential side effects of medication is a major nursing responsibility. Clients and families will require education and nutritional counseling because many of the pharmacologic agents can affect the appetite, and certain food additives have been shown to exacerbate symptoms (Feingold, 1974, Kutcher, 1997).

Nonpharmacologic strategies should include the client, family, and other involved adults' education as well as behavioral management skills. These skills begin with parent training and follow a progression. Parents and teachers first need to be educated about ADHD—anits causes, symptoms, and course across the life span, and various treatments. A goal of education should be to help these adults to recognize ADHD as a chronic condition with symptoms, which vary in response to surroundings but which respond to interventions, much like diabetes. Family members need to be helped to modify their expectations of the child with

**TREATMENT CONSIDERATIONS FOR THE CLIENT IN THE HOME AND COMMUNITY SETTINGS**

Clients with ADHD will receive the majority of their care in the home and community. Impact of the symptoms of ADHD on the client, family, and social systems can be profound. Symptoms can range from mild to severe and extremely disruptive. Symptoms occur across a variety of settings, making it important to have a holistic treatment approach that incorporates home- and community-based interventions. Children with ADHD can present a challenge, and response to treatment interventions is individualized and unpredictable.

ADHD is often complicated by the existence of comorbid conditions such as oppositional defiant disorder, conduct disorder, anxiety, or affective disorders (Biederman, Milberger, & Fararone, 1995). These conditions have an impact on and may complicate treatment outcomes. The nurse must be familiar with a wide range of disorders and symptoms that can overlap or mimic ADHD, such as the overactive behaviors that can occur with bipolar disorder. The goal of treatment should be to identify and reduce disruptive symptoms and to promote improvement in family, peer, and social relationships. Successful treatment outcomes rely heavily on involving family and significant adults (teachers, mentors, coaches, clergy). The nurse needs to collaborate closely with all individuals involved with the client to identify symptoms and implement treatment strategies that best meet the client's individual needs.

To identify appropriate and effective interventions, the nurse should first perform an in-depth biopsychosocial assessment. The assessment should include identification of significant symptoms by both client and the adults involved with the client, physical health status (including nutrition, vision, and hearing), past and present academic performance, presence of comorbid conditions, and identification of the components of the family system. Because family members are often the most affected and are the primary providers of behavioral interventions, the assessment should include clinical interviews with the client and family and it must be comprehensive. It should assess family structure, communication patterns, strengths, weaknesses, styles of discipline, and social support network.

Another very important aspect of the nursing assessment is client and family educational needs. The nurse will serve an important role in educating the client, family, and significant adults about ADHD, its signs and symptoms, treatment options and prognosis. Because ADHD occurs across the life span, mental health care needs to be age specific and individualized to the client. Educational materials and teaching strategies must be appropriate for the client and family's cognitive level and include verbal information and visual and written materials.

Treatment considerations need to include family and community resources. Clients with supportive families and strong social support are more likely to have positive treatment outcomes (Bernier & Siegel, 1994). Financial resources are another consideration; lack of insurance or limited finances are likely reasons that access to required care will be impeded, because medical visits and pharmacologic agents can be costly. Assessing for potential barriers and incorporating these into the treatment plan can improve compliance.

Nursing responsibilities for management of the client's plan of care may include administering medications. Health teaching about the indications for use, effects, and potential side effects of medication is a major nursing responsibility. Clients and families will require education and nutritional counseling because many of the pharmacologic agents can affect the appetite, and certain food additives have been shown to exacerbate symptoms (Feingold, 1974, Kutcher, 1997).

Nonpharmacologic strategies should include the client, family, and other involved adults' education as well as behavioral management skills. These skills begin with parent training and follow a progression. Parents and teachers first need to be educated about ADHD—its causes, symptoms, and course across the life span, and various treatments. A goal of education should be to help these adults to recognize ADHD as a chronic condition with symptoms, which vary in response to surroundings but which respond to interventions, much like diabetes. Family members need to be helped to modify their expectations of the child with
ADHD because his performance in various tasks may differ from his peers. They should be encouraged to assume the role of advocate for their child and work with school, sports, or group leaders to provide the support and structure that will help enhance the child's performance.

Interventions in the classroom and at school will require the support of the child's teacher. A teacher who is knowledgeable about ADHD can help to effectively implement behavioral interventions, modify classroom setting, and provide valuable feedback on treatment efficacy. Behavioral interventions in the classroom may include moving the desk to a less-distracting location, daily report cards, visual cues, token or reward systems, and rules for time-out (Barkley & Murphy, 1998). It may also include workload or assignment modifications, peer tutoring, or individualized education plans.

When first implementing treatment it is important to decrease the impact of the symptoms of inattentiveness, distractibility, disruptive behavior, and overactivity. These symptoms are the most disturbing to the child and the adults who live or work with him on a daily basis. An initial goal of treatment should be to increase individual productivity (completing assignments correctly) rather than total workload. This will help the child experience successes and internalize new skills.

Younger children benefit from token or reward systems that are used consistently across multiple settings such as the home, school, and day care. The system should be used in similar fashion but address areas of functioning specific to the setting. Home areas may focus on chores, family relationships, and general behavior. School areas may focus on assignment completion, following class rules, and peer relationships. The behaviors need to be defined in a clear, concise manner, and the token or reward should be given frequently and immediately in response to desired behaviors. Figure 17–1 provides a sample behavior and reward contract.

For teenagers, classroom strategies will need to be modified. Teens should be allowed greater responsibility and involvement in developing a behavior management plan. By adolescence many teens are very aware of their specific symptoms and which strategies are most effective. Home

---

### Behavioral Contract

I, _________________________________________________, agree to do the following:

1. __________________________________________________________________________
2. __________________________________________________________________________
3. __________________________________________________________________________
4. __________________________________________________________________________
5. __________________________________________________________________________

Each period of ________________________________________________ that I will do these will earn me one of the following rewards:

1. __________________________________________________________________________
2. __________________________________________________________________________
3. __________________________________________________________________________
4. __________________________________________________________________________
5. __________________________________________________________________________

I understand that if I do not complete these responsibilities, I will not earn the rewards on this contract.

I agree to try to fulfill this contract to the best of my abilities.

Signed, Date

child: ________________________________________________________________ ________________

parent: ________________________________________________________________ ________________

teacher: __________________________________________________________________ ________________
rules will begin addressing areas such as curfews, dating, and even driving. Rewards can also be modified to be immediate and long term, such as earning points for an evening or weekend outing. School strategies should include the use of organizers and calendars, scheduling harder classes in the mornings, and use of adult mentors.

Other nonpharmacologic interventions may include the use of psychoeducational groups such as social skills or anger management. Individual or family therapy may be added to address issues related to communication, relationships, or symptoms from other comorbid conditions. The type of therapy should be individualized and specific to the needs of the client and family, severity of symptoms, personal preference, and past response to treatment.

THE ROLE OF THE NURSE

Providing care for the client with ADHD requires an understanding of the complexity of the disorder, symptom variations, and the influence of environmental and biological factors. The role of the nurse will vary according to educational preparation, use of nursing theoretical frameworks, clinical experience, personal interest, and the clinical care setting. Nursing roles and responsibilities vary, from administering medications to developing and implementing holistic treatment plans. Responsibilities will be commensurate with educational preparation and legal parameters. State practice acts define and regulate the nurse’s scope of practice at each level of nursing. Regardless of the level of practice, the nurse’s role is to assess, diagnose, plan, implement, and evaluate the client’s response to interventions. Interventions should be designed so as to minimize symptoms, improve relationships, and enhance client functioning.

The Generalist Nurse

The nurse in a generalist role may work with clients with ADHD in a variety of settings. Nurses working in mental health clinics, pediatricians’ offices, and schools have the most contact with these clients. Understanding the disorder, its etiology, symptoms, and types of treatment enables the nurse to work with the client and family and identify their specific mental health needs. The nurse may choose a specific theoretical framework to guide his practice, or he may follow clinical guidelines developed at the work setting. The initial goal of the nurse is to identify problems and establish a plan of intervention to reduce the frequency and severity of symptoms. Interventions include establishing the nurse-client relationship, enhancing the coping skills of the client and family, identifying maladaptive responses, and decreasing the negative impact of the symptoms of hyperactivity, impulsivity, and inattention. Another important nursing intervention is medication administration, patient education, and monitoring patient response.

The nurse will establish outcome criteria to measure client response. Improved relationships within the home and school environment, improved academic performance, improved sleep pattern, and ability to delay gratification can serve as outcome measures. Treatment modalities can include case management, group therapy, and psychoeducation. Psychoeducation can be effective in:

- Fostering age-appropriate behaviors, improving interactions with peers, dealing with aggressive impulses, and improving social skills (e.g., taking turns, following rules, and not interrupting others).
- Setting and helping the child respond to and adhere to limits through the use of time-outs, behavior charts, or earning and losing privileges.
- Assisting the parents in developing systems to improve self-esteem by providing tasks or activities in which the child can succeed.
- Helping the family, child, and teachers understand the disorder, client-specific symptoms, and interventions, which will help decrease the symptoms. These may be pharmacologic or behavioral, or both.

The nurse in the generalist role may encounter the client with ADHD in a variety of settings. He may work in a clinic as part of the direct treatment team or be an external partner located in the child’s school. It is essential for the nurse to work as part of the team in order to deliver consistent care and provide reinforcement in the use of new skills by the child or parent. The nurse also plays an important role in assessing the efficacy of treatment interventions and he can serve as a liaison between the child and family and the other members of the treatment team, including the child’s teachers.

The Advanced-Practice Psychiatric Registered Nurse

The advanced-practice nurse (APN) is a nurse with a master’s degree, who has the ability to apply knowledge, skills, and experience autonomously to complex mental health problems (ANA, 2000). The APN may function in the role of clinical specialist, psychotherapist, or nurse practitioner. The APN can perform all the role functions of the generalist nurse but additionally may use psychobiological interventions to diagnose and treat mental health disorders. These interventions can include ordering diagnostic tests, evaluating symptoms and making differential diagnoses, prescribing pharmacologic agents, or providing psychotherapy.

Establishing a diagnosis involves gathering information on the client’s current health status, family system, functional capacity, growth and development, course of symptoms, and ordering diagnostic tests. Data collection can involve communication and collaboration with other health care providers. Assessment data will include a review of body systems, mental status evaluation, psychosocial history, and interpretation of diagnostic information. Analysis of these data allows the APN to rule out certain conditions and establish a diagnosis.

Comprehensive physical and psychiatric assessments converge and form the basis for pharmacologic intervention.
THE NURSING PROCESS

ADHD is composed of a range of symptoms that evolve and change throughout the client’s life span. The incidence of comorbidity of other psychiatric disorders (anxiety, major depression, conduct, and oppositional defiant disorders) reinforces the need for nurses to understand the complexity of human responses to actual or potential mental health problems. This understanding provides the basis for development of effective interventions. The nursing process provides a guide for nurses to address these problems systematically. Development of a comprehensive plan of care requires an age-specific biopsychosocial assessment integrating data about the client’s physical and mental status.

Assessment

The assessment process begins with ruling out other potential illnesses or factors yielding symptoms that mimic ADHD. A complete medical examination, including hearing and vision evaluations, is the initial step. Data collection should also include a review of currently used prescribed and over-the-counter medications, dietary habits, and an assessment of the client’s living environment. Dietary habits are important to assess because many food additives can exacerbate symptoms. Data about the client’s living environment should be carefully gathered to identify potential contributing factors such as exposure to lead, inadequate living or sleeping space, or exposure to community violence (Fergus, Horwood, & Lynskey, 1994).

Eliminating other diagnoses and medical conditions then allows the nursing assessment to focus on identification of symptoms and their impact on client functioning. Assessing the client with ADHD requires an understanding of normal growth and development because this disorder most often first manifests itself in early childhood.

The establishment of the nurse-client relationship and development of trust and rapport begin during the assessment phase. It requires skill and patience in interviewing, because the client may be very overactive, impulsive, and distractible. The clinical interview may need to be broken into shorter visits, or the setting may need to be modified to minimize distractions and promote client participation.

The mental status examination is an important component of the assessment process, providing data about the client’s current mental health, judgment, cognitive functioning, thought processes, impulse control, insight, and strengths. Data collected can be used to classify ADHD into its various subtypes: inattentive, hyperactive, or combined type. The mental status examination will provide data regarding the symptoms, severity, and impairment in functioning as well as allow the nurse to identify possible comorbid conditions.

The family system is another important area of assessment. The nurse will need to focus the interview and data collection process to identify current stressors, communication patterns, social support systems, parenting and discipline styles, parents’ knowledge about ADHD, and available...
resources. Family systems are often disrupted by the client with ADHD. Parents are frustrated with their inability to help their child, sibling relationships are impaired owing to the client’s poor skills in relating to others, and support systems are often diminished because of the impact of the client’s symptoms.

Common behavioral manifestations of ADHD comprise difficulties with task completion, impaired peer relationships, frequent accidental injuries, and a high level of family conflict and tension. Clients with the inattentive type of ADHD often do not exhibit the disruptive behaviors and are often not identified until their school years, where they have difficulty with task completion, focusing, and concentration. Their academic performance suffers and they are frequently identified because of school failure.

Symptoms of ADHD are evident across a variety of settings, and the frequency and severity are determined by the demands placed on the client in the particular environment. For instance, a child may exhibit only mild symptoms in the home and social situations but symptoms greatly exacerbate within the school setting because of the structure and performance demands. Assessing the frequency, areas of occurrence, and impact on the client’s level of functioning is essential to accurate diagnosis and treatment planning.

**Nursing Diagnoses**

Nursing diagnoses should be based on an analysis of assessment data. The nurse working with the client with ADHD should consider the following diagnoses in developing the plan of care (NANDA, 2001):

- Alteration in Attention Process: Etiology Unknown*
- Alteration in Motor Activity, Overactive: Etiology Unknown*
- Risk for Injury: Related to Impulsivity
- Imbalanced Nutrition: Less than Body Requirements Related to Excessive Motor Activity
- Disturbed Sleep Pattern: Related to Medication Side Effects
- Impaired Social Interaction: Related to Ineffective Social Skills
- Situational Low Self-Esteem: Possibly related to rejection by Family, Peers, and Adults
- Deficient Knowledge: Related to a Lack of Understanding of ADHD, etiology, Course and Treatment
- Impaired Parenting: Related to Knowledge Deficit about ADHD

* Not in NANDA (2001)

Critical Thinking

The primary components of a nursing assessment and diagnostic evaluation should include:

a. psychologic testing (i.e., intelligence quotient [IQ] testing)

b. clinical interview, parent observation, and teacher rating scales

c. standardized diagnostic interviews (e.g., Diagnostic Interview Schedule for Children)

d. no pediatric evaluation

**Outcome Identification**

Outcome identification involves establishing individualized outcome measures. These measures are incorporated into the treatment plan. Outcome measures logically flow from the nursing diagnosis and planned interventions. They provide evidence regarding the effectiveness of planned interventions and they are measurable and objective. Common outcome measures for clients with ADHD include:

- Adequate management of symptoms
- Adequate nutrition
- Normal sleep and rest patterns
- Understanding and insight about the nature of ADHD, its symptoms, causes, and treatments
- Effective individual coping
- Healthy family, peer, and adult interactions

**Planning**

Achieving successful outcomes are the result of effective treatment planning, which should be holistic and collaborative. Collaboration needs to occur between the nurse, client, family, teachers, other health care providers, and community resources.

Treatment planning involves accurate assessment, problem identification, development of easily implemented interventions, and achievable outcome measures. Interventions should be designed to target specific symptoms and reduce or eliminate their impact on the client and others. Treatment plans are dynamic and fluid, requiring continuous evaluation and revisions in accordance with changes in the client and family.
Implementation

During the assessment phase the nurse has established a therapeutic relationship with the client, family, and others involved in the client's treatment. From this relationship trust evolves along with the rapport needed to successfully implement treatment. Client and family education are a fundamental component of treatment of the client with ADHD.

Parents require education about causal factors, heredity, and chronicity in order to modify their expectations of their child. Clients with ADHD will need time, patience, understanding, and ongoing treatment to achieve their full potential. Parents need assistance to develop advocacy skills so that they can assist in identifying environmental, academic, or systems problems that affect the child and facilitate change. Education about the variety and range of symptoms, effective interventions, and correcting misinformation is a primary goal of treatment. Clients and families should be educated as to the role of pharmacotherapy, the symptoms most likely to respond to medication, and potential side effects or problems that may result from the use of medication.

Individual and family therapies have not been demonstrated to be effective in the treatment of ADHD (MTA Cooperative Group, 1999). However, psychoeducation groups that focus on skill improvement, such as social skills or anger management, do serve to enhance client strengths. Social skills training can be effective in promoting listening skills, developing conflict resolution skills, and enhancing peer relations. Social skills training is more effective when taught in a group setting such as summer camp, after-school programs, or school-based groups (Sheridan, Dee, Morgan, McCormick, & Walker, 1996).

Psychosocial interventions will need to be taught to parents and teachers. The focus of parent training includes establishing a consistent, supportive, and structured environment for the child. Establishing household rules; giving commands that are specific, clear, and positive; ignoring mild inappropriate behavior, and praising positive behaviors are interventions designed to reduce the severity of disruptive symptoms and enhance self-esteem. Use of behavioral contracting, chart systems, and daily report cards serve to identify target behaviors and improve home-school communication while providing the client with consistent expectations. Figure 17–2 provides an example of a daily report card.

Behavioral interventions focus on positive learning experiences that reduce symptom impact, enhance coping skills, and provide opportunities for success for the client with ADHD. Active participation of family and teachers in helping the client adapt and develop coping skills is vital to the success of treatment. The overall treatment outcomes for the family and client with ADHD are:

- Identify and implement interventions to reduce target symptoms.
- Develop an understanding of triggers that exacerbate symptoms.
- Develop adaptive skills that enhance relationships and personal functioning in school or work and the community.
- Avoid maladaptive responses.
- Use community resources and support systems effectively.

Treatment must consider a combination of pharmacologic and behavioral interventions. Simultaneous use of this combination of interventions provides superior outcomes rather than the use of either intervention alone.

Evaluation

Evaluation of the effectiveness of the established behavioral management plan should be ongoing. The nurse, family, and child should meet on a regularly established timetable to review agreed-upon outcomes, academic and social progress, and whether or not problematic behaviors have improved. To achieve objectivity and consistency, the nurse may use a rating scale administered by teachers and parents, report cards, and reports from leaders of community-based activities. To accurately measure the child's progress and improvement, it is important to use the same rating scale throughout the course of treatment. As the child ages and matures, it will be necessary to modify the plan of care to meet the needs of the child, family, and other adults involved in his life.

PSYCHOPHARMACOLOGY

Pharmacologic treatment of ADHD is the most studied and best understood of all psychopharmacologic treatments in children and adolescents. Nursing implications in the treatment of ADHD vary with the nursing role but at either level includes assessing efficacy of psychotropics and patient and family education.

The APN will be involved in prescribing or recommending medications to treat the symptoms of the disorder. In order to effectively prescribe pharmacologic agents, maximize efficacy, and minimize risk, the APN must have an understanding of basic and clinical sciences. These include biochemistry, pharmacology, anatomy, physiology, cardiology, endocrinology, and neurology.

Diagnosis and symptom identification are key in determining the choice of pharmacologic agent. The core symptoms of ADHD—inattention, impulsivity, distractibility, and hyperactivity—have been shown to respond favorably to pharmacotherapy. Psychostimulant medication has clearly been demonstrated to be the treatment of choice in those clients who are able to tolerate them.

Before prescribing a medication, the APN will need to identify any existing comorbid conditions. ADHD often presents with comorbid conditions of depression, anxiety, conduct disorder, oppositional defiant disorder, tic disorder, or Tourette's syndrome. Clients with ADHD and either
<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participates in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follows class rules</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gets along with peers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performs assignments in allotted time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homework is complete</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher's initials and comments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent's initials and comments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TONIGHT'S HOMEWORK: ____________________________________________

__________________________________________

LONG-TERM PROJECTS: _________________________________________

Figure 17–2  Daily report card
conduct or oppositional defiant disorder often do fine with psychostimulant medication (Bukstein & Kolko, 1998). Clients with ADHD and the comorbid conditions of depression, anxiety, bipolar disorder, Tourette’s syndrome, or schizophrenia are less likely to respond favorably to these medications and will require further assessment (DuPaul, Barkley, & McMurray, 1994).

**Stimulants**

Psychostimulants are the most widely prescribed and best-researched medication used to treat ADHD. They increase the availability of certain neurotransmitters and have been found to improve focus and concentration. Common psychostimulant medications used in the treatment of ADHD include methylphenidate (Ritalin), mixed salts of a single-entity amphetamine product (Adderall), and dextroamphetamine (Dexedrine). Pemoline (Cylert) was once used first line, but because of the risk of development of serious side effects (liver failure), it is now reserved for use when first-line medications have not been successful. The majority of these medications are short acting, with effect lasting from 4 to 6 hours. There are a few psychostimulants with longer duration of action such as dextroamphetamine spansules, methylphenidate SR (a single dose of which can last for up to 8 hours), Metadate CD, and Adderall XR. Currently, both Adderall and methylphenidate have been produced with a different delivery system providing efficacy up to 12 hours.

The specific dose of medicine must be determined for each individual. There are ranges based on dose per unit of body weight that are recommended and that provide guidelines for initiation of treatment. However, there are no consistent relationships among the height, weight, and age of the child and response to medication. A medication trial is often used to determine the most beneficial dosage. Medication is started at a low dose and gradually increased.

---

**RESEARCH ABSTRACT**

**STIMULANT MEDICATIONS**


**Study Problem/Purpose**

To review the short- and long-term safety and efficacy of stimulants for the treatment of children with attention-deficit hyperactivity disorder (ADHD).

**Method**

A MEDLINE search was conducted for both randomized controlled trials and reviews to determine the efficacy and safety of stimulant drugs for treating children with ADHD. Information was obtained on adverse events associated with their use, including their impact on height and weight gain during childhood. Animal data were reviewed for information on tolerance, sensitization, and the impact of high-dose stimulant effects on neurons and on the development of hepatic tumors. Human data on dopamine transporter occupancy by stimulants were also included.

**Findings**

Stimulant treatment studies show robust short-term efficacy and a good safety profile. Longer-term studies are few in number but have produced no conclusive evidence that careful therapeutic use of these medications is harmful.

Current evidence indicates that stimulants show efficacy and safety in studies lasting up to 24 months.

**Implications for Psychiatric Nurses**

Results of the MEDLINE search of clinical trials and reviews yielded information that both supports and validates the safety and efficacy of psychostimulants as first-line agents in the treatment of attention-deficit hyperactivity disorder. Often parents are very uncomfortable with the recommendation for use of a psycho-stimulant because of either misinformation or lack of knowledge. By having this information available psychiatric-mental health nurses can offer resources and information to educate the parents and child. This education will enable the family to make an informed decision regarding the use of psychostimulants as part of an integrated treatment plan.
in frequency of administration and dosage until optimal effect is achieved. This also provides the opportunity for identification of side effects early in treatment.

Psychostimulants have been used successfully for over 50 years to treat ADHD. Although they have been found to be safe and effective, side effects may occur. The most common side effects are reduced appetite, headache, and difficulty sleeping. A relatively uncommon side effect may be the unmasking of latent tics such as eye blinking, shrugging, and clearing of the throat. Psychostimulant medications can facilitate the emergence of a tic disorder but are not a direct cause. Often the tic(s) will stop once the medication is discontinued. Some children experience a rebound effect as the medication wears off. They demonstrate a negative mood, increased irritability, or increased hyperactivity. Side effects are usually managed by an adjustment in dosage and scheduling of the medication.

**Alternative Medications**

Although psychostimulants are first-line agents in the treatment of ADHD, there are individuals who are not responsive to or cannot tolerate these medications. However, there are a variety of nonstimulating agents that have demonstrated efficacy. Table 17–4 provides an overview of medications used to treat ADHD and their mechanism of action. Tricyclic antidepressants and bupropion act on the neurotransmitters norepinephrine and dopamine. These medications have demonstrated a positive response in symptom reduction. Clonidine, originally an antihypertensive medication, has shown some positive response, primarily, in reduction of the symptoms of hyperactivity, impulsive behaviors, intrusiveness, and sleep disturbance. The selective serotonin reuptake inhibitors have not demonstrated efficacy in treatment of the core symptoms of ADHD. They have been effective in treatment of comorbid disorders such as depression and anxiety. These medications have been less studied and are not approved by the FDA for treatment of ADHD. However, they are frequently used off-label in the treatment of individuals with ADHD (Greenhill et al., 2002).

**Medication Assessment**

Baseline assessment data to be collected before initiation of medication include:

1. CBC (if pemoline is to be used, liver function tests should be obtained).

---

<table>
<thead>
<tr>
<th>NAME</th>
<th>TYPE</th>
<th>HOW IT WORKS</th>
<th>TARGET SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tofranil (imipramine)</td>
<td>Tricyclic antidepressants (TCAs)</td>
<td>Inhibits the reuptake of norepinephrine and serotonin</td>
<td>Helps with impulsivity and hyperactivity; not effective with inattention</td>
</tr>
<tr>
<td>Pamelor (nortryptiline)</td>
<td>Tricyclic antidepressants (TCAs)</td>
<td>Inhibits the reuptake of norepinephrine and serotonin</td>
<td>Helps with impulsivity and hyperactivity; not effective with inattention</td>
</tr>
<tr>
<td>Ritalin, Concerta, Metadate CD (methylphenidate)</td>
<td>Stimulants</td>
<td>Acts as a mild cortical stimulant with CNS action</td>
<td>Helps with focusing, concentration, and overactivity</td>
</tr>
<tr>
<td>Dexedrine, Adderall, Adderall XR</td>
<td>Stimulants</td>
<td>Acts as a mild cortical stimulant with CNS action</td>
<td>Helps with focusing, concentration, and overactivity</td>
</tr>
<tr>
<td>Cylert (pemoline)</td>
<td>Stimulants</td>
<td>Acts as a mild cortical stimulant with CNS action</td>
<td>Helps with focusing, concentration, and overactivity</td>
</tr>
<tr>
<td>Catapres (clonidine)</td>
<td>Antihypertensives</td>
<td>Stimulates alpha-adrenergic receptors to inhibit sympathetic nervous system</td>
<td>Helps with tic disorders, aggressive behaviors, and impulsivity. Does not help with inattention</td>
</tr>
<tr>
<td>Tenex (guanfacine)</td>
<td>Antihypertensives</td>
<td>Stimulates alpha-adrenergic receptors to inhibit sympathetic nervous system</td>
<td>Helps with tic disorders, aggressive behaviors, and impulsivity. Does not help with inattention</td>
</tr>
<tr>
<td>Wellbutrin (bupropion)</td>
<td>Antidepressant</td>
<td>Inhibits the reuptake of dopamine and norepinephrine</td>
<td>Improves mood and possibly inattention; some decrease in overactivity noted in adolescents and adults</td>
</tr>
<tr>
<td>Remeron (mirtazapine)</td>
<td>Antidepressant</td>
<td>Inhibits reuptake of norepinephrine and dopamine</td>
<td>Helps improve mood and sleep disturbance in children with comorbid mood and sleep disorders</td>
</tr>
</tbody>
</table>
2. Height, weight, heart rate, and blood pressure.

3. Behavioral rating scales from a variety of adults who observe the child in different settings such as parents, extended family members, teachers, coaches, or adult mentors. Some common rating scales are Conners’ Parent-Teacher Rating Scale, ADHD Rating Scale, or the Vanderbilt ADHD Rating Scale. Refer to the ADHD checklist for an example of a behavior rating scale and instructions for use.

4. A complete physical examination, including hearing and vision evaluation and electrocardiogram if TCAs are used.

The choice of medication will be contingent on assessment data, patient symptoms, previous response to medications, patient or family preference, and social or environmental factors. Table 17–5 list guidelines for diagnosis.

Other nursing implications of pharmacotherapy include client and family education about desired effects, potential side effects, timing of administration, monitoring, and documenting response to medication. Psychostimulants often require two-to-three-times-a-day dosing owing to their short-acting nature (Kutcher, 1997). This may necessitate administration of medication during school hours. It is important to work with the parents and the school to time dose administration to be effective and as least disruptive as possible. Trying to ensure medication administration during a child’s lunch or recess time will decrease drawing attention to the child and avoid disruption of class time. It is also important to time administration after meals to minimize appetite disturbance. The nurse’s role in medication administration will be two-fold: assessing the effects of medication and assessing the child’s response to the process. Table 17–6 provides medication education guidelines for the client on a stimulant medication.

Treatment of ADHD is usually long term. ADHD does not just disappear nor do children “grow out of it.” There is no evidence to support that clients develop a tolerance to or develop dependence on stimulant medications. Periodic evaluations of the continued efficacy of medication should be incorporated into the treatment plan. For children and adults with ADHD, medication is an integral part of treatment. Pharmacologic treatment of ADHD has been shown to be the most effective treatment in reduction and long term management of symptoms (Greenhill et al., 2002).

Table 17–5

<table>
<thead>
<tr>
<th>The American Academy of Pediatrics Guidelines for Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Initiate an evaluation for ADHD in a child aged 6 to 12 years who presents with inattention, hyperactivity, impulsivity, academic under-achievement, or behavior problems.</td>
</tr>
<tr>
<td>3. A diagnosis of ADHD requires evidence from parents or caregivers concerning the core symptoms of Attention-Deficit Hyperactivity Disorder in various settings, the age of onset, duration of symptoms, and the degree of functional impairment.</td>
</tr>
<tr>
<td>4. A diagnosis of ADHD requires evidence from the child’s classroom teacher or other school professional concerning the core symptoms of ADHD, the duration of symptoms, the degree of functional impairment, and coexisting conditions.</td>
</tr>
<tr>
<td>5. Include an assessment for coexisting conditions in the evaluation of the child with ADHD.</td>
</tr>
<tr>
<td>6. No other diagnostic tests are routinely indicated to establish a diagnosis of ADHD.</td>
</tr>
</tbody>
</table>

Table 17–6

<table>
<thead>
<tr>
<th>Patient Education Guide for the Client on a Stimulant Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Take the medication as prescribed. If you miss a dose, do not “make it up.” Just resume the medication at the next scheduled time.</td>
</tr>
<tr>
<td>• Avoid taking other medications, including over-the-counter medications, without discussing it with your health care provider or checking with your pharmacist to be sure there are no drug interactions.</td>
</tr>
<tr>
<td>• Take the medication after eating to avoid appetite problems or stomach upset.</td>
</tr>
<tr>
<td>• Avoid taking the medication late in the evening because it may disturb sleep.</td>
</tr>
<tr>
<td>• Some common side effects of this medication are:</td>
</tr>
<tr>
<td>1. Stomach upset, appetite loss, vomiting</td>
</tr>
<tr>
<td>2. Insomnia</td>
</tr>
<tr>
<td>3. Rapid heartbeat, chest pain</td>
</tr>
<tr>
<td>4. Headache</td>
</tr>
<tr>
<td>5. Irritability, nervousness, or confusion</td>
</tr>
<tr>
<td>• Keep all regularly scheduled appointments with your health care provider so that medication effects can be monitored. This may include laboratory tests, blood pressure or pulse checks, height and weight checks, or other tests like ECGs.</td>
</tr>
</tbody>
</table>
BEHAVIORAL INTERVENTIONS

Treatment modalities associated with attention-deficit disorders must be holistic and include pharmacologic, behavioral, psychotherapy, and psychoeducation. Psychiatric nurses play key roles in implementing multimodal interventions that involve symptom management, improve self-esteem, facilitate adaptive coping behaviors, and a higher level of functioning in the client, caregivers, and family systems.

Time-Out

Time-out procedures are quite effective in the management of the child with ADHD and should be incorporated into an overall behavior management plan. Time-out can be as simple as having the child sit in an isolated portion of the room, placing his head down on his desk, or sitting quietly for a few minutes. Time-out should be used to target unwanted behaviors that have previously been identified to the child, noncompliance, or to decelerate behavior.

Behavior Management Plans

Behavior management plans are very effective in decreasing unwanted behaviors and promoting desired behaviors. The plan should be developed by the adults involved with the children and incorporate behaviors across different environments such as the home, the school, public places (stores, restaurants), day care, and church. The behaviors should be clearly and simply stated and written to provide the child, noncompliance, or to decelerate behavior.

- Be positive. It is important to tell the child with ADHD what you want to happen rather than what is not desired.
- Provide the child with simple, clear directions. The child with ADHD has difficulty complying with multiple or complex instructions. This information should be shared with the child’s teacher. Because teachers frequently must give multiple or complex instructions to a group of students, they can be encouraged to check with the child with ADHD and have him repeat the instructions to ensure his understanding.
- State rules. Rules and desired behaviors need to be stated simply and clearly. They must also be reviewed and repeated frequently.
- Provide cues. The child with ADHD responds positively to visual and auditory cues. Cues such as audiotapes or cards taped to the desk that provide reminders to keep working have been shown to decrease off-task behavior.
- Use reinforcers. Provide reinforcement of positive behavior by use of multiple and frequent reinforcers. The reinforcers do not need to be fancy or expensive and can be as simple as stickers or tokens.
- Provide a consistent routine but keep things changing. A child with ADHD functions better in a consistent, predictable setting. Frequent changes in daily activity schedule may confuse the child or increase his disorganization.
- Within this consistent routine, however, the child with ADHD will function better with multiple shortened work periods, opportunities for choice among work tasks, and reinforcers that are enjoyable.

Social Skills Training

The social problems of ADHD are pervasive and varied; children with the hyperactive subtype tend to be overactive, impulsive, and aggressive, whereas the inattentive subtype have difficulty focusing, are socially inattentive, and can be withdrawn. These tendencies can directly or indirectly interfere with social interactions and the formation of peer relationships or friendships over time. It has been suggested that over 50 percent of children with ADHD have problems with interactions with peers (Barkley, 1996). Treatment of this deficit in social skills is an important part of the overall treatment of the client with ADHD.

According to social learning theory, social behaviors are acquired through observation and reinforcement (Bandura, 1977). The most common form of social skills intervention using social learning principles is modeling. Modeling is typically carried out in three steps. First is skill instruction involving the use of videotapes, audiotapes, or live demonstration showing the skill to be acquired. Social skills’ training entails identification of skill components, discussion about the particular social skill, and information about skill performance.

The second step is skill demonstration. A skill trainer, teacher, peer, or video demonstration models the behavior. The child is instructed to observe the behavior and identify the components previously discussed. The third and final step is skill performance. The child is required to demonstrate the skill after completion of the first two steps. This is usually done through role playing. Active and constructive feedback is provided to the child for attempts at skill performance. Skill performance demonstration will continue until the desired behavior is accurately displayed.

Social skills training can be done one-on-one or in a group context. Several curricula are available that focus on social skills training with children and adolescents. Most programs are based on skill or use a problem-solving approach. Programs that focus on preventing aggression and violence have been developed recently and implemented with youth at risk.

Parent Training and Education

Training parents to more effectively manage the behavior of children with ADHD is one component of parent training. Parents must also be taught to identify and modify causative or aggravating factors in the environment and advocate for
their children within the educational and social environments. Nurses can be instrumental in implementing and facilitating parent education classes. It is important to help parents understand that parenting classes offer a means to obtain new skills, develop problem-solving strategies, enhance communication, and develop conflict resolution skills. General parenting education classes may not be effective for the parents of children with ADHD.

Barkley (1997) suggests incorporation of eight principles within the parent training classes and recommends emphasis of the following:

1. The use of immediate consequences.
2. The use of consequences at a greater frequency.
3. The use of meaningful consequences.
4. Use of incentives before punishment.
5. Focus on consistency.
7. Keep a disability perspective. This requires parents to recognize the need for consistent behavior management over a long period of time.
8. Practice acceptance and forgiveness.

Barkley’s program targets noncompliance. Parents are first taught the typical causes of child misbehavior. They are then taught how to attend to and interact with the child appropriately, how to use time-out to decrease noncompliance, and how to generalize procedures learned at home to other environments. Assisting the parents to develop the awareness of causes of behavior and develop effective skills to manage the behavior promotes positive outcomes for both the child and family.

CASE STUDY

THE CLIENT WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER (Joe C.)

Joe C. is an 8-year-old male who is referred by his pediatrician for evaluation of academic and behavioral problems of at least 1-year duration. His parents accompany him. He has two siblings, both girls, ages 10 and 6. His parents are married and there has been no history of marital discord. The parents are concerned about Joe’s grades and his behavior at home, in school, and with his soccer team. They comment that “he seems a lot more immature than the other boys his age.”

Joe is currently in the second grade after failing reading and language arts (writing skills). This year he is also doing very poorly in these areas. He is currently in a class of 24 children. Joe has few friends and his classmates identify him as one of the least-liked children in the class. His teacher notes the following problem areas:

- Is frequently out of his seat
- Appears to be daydreaming when he is supposed to be working on an assignment
- Has difficulty getting along with peers during recess or free time
- Has trouble following the rules of games
- Becomes easily angered and can be aggressive with other children
- Is intrusive with others (adults and children)
- Wants to switch from activity to activity, becomes bored easily

His parents are frustrated with his behavior and feel overwhelmed by complaints from school, soccer, and parents of other children. Their concerns about his behavior are:

- He rarely completes his chores, even the simple ones (make bed, put toys away, and help take out the trash once a week).
- He frequently fights with his siblings.
- He cannot sit still through a meal.
- He requires constant supervision to complete his homework.
- Even though he is in bed by 8:30 P.M., he rarely is asleep before midnight.
- He has had more accidental injuries (scrapes, bruises, cuts) than his siblings.

(continues)
Case Study  (continued)

While practicing and playing with his soccer team, Joe’s parents have observed the following behaviors:

• He has difficulty following the coach’s instruction; he appears to forget what he’s been told.
• He is aggressive with teammates.
• During games he is easily distracted by the crowd noise.

The pediatrician has provided a copy of Joe’s latest physical examination, including current laboratory results, immunization record, and vision and hearing assessments.

The parents are anxious, frustrated, and want Joe fixed.

Scenario Questions

1. What is the most important consideration in the care of this client and his family?

The most important consideration is establishing a therapeutic relationship with the family and the client. Establishing trust and rapport are the bases of the nursing relationship and essential to the care of the client. Parents of children with ADHD often seek treatment when they have reached the peak of their frustration. Establishing trust and rapport can allow the nurse to work with the parents to decrease their frustration, gain an understanding of the nonvoluntary nature of the behavior, and develop a sense of hope. Once the anxiety and tension are decreased the family can be engaged in the assessment phase of treatment.

The nurse’s relationship with the client is extremely important, because these children have frequently received negative feedback about themselves in relation to their impulsive and overactive behavior. Their self-esteem and a feeling of mastery over their environment are usually quite low.

2. What important assessment data should the nurse collect as the next step in treatment?

• Information regarding the mother’s course of pregnancy, including labor and delivery, any history of maternal substance use during pregnancy, any family history of attention or excess motor activity, any history of head injury
• Information about the child as an infant, toddler, and preschooler, including activity level, developmental milestones, sleep pattern, any significant illnesses or hospitalizations, relationships with siblings and peers, any history of lead ingestion, and use of medications
• Child’s school behavior, including information from both teacher and parents and child, ability to perform academically, quality of work, need for frequent reminders, child’s report of boredom, and ability to get along with others
• Any history of sleeping, eating, or self-care problems
• Child’s response to limit setting, ability to follow rules, parent and teacher’s perception of child’s activity level, attention span, and response to authority
• Parent and teacher behavior rating scales

3. The child is started on a psychostimulant. What interventions should the nurse provide for the client and family?

The primary focus is psychoeducation of the family, client, and teacher related to the disorder, etiology, symptoms, and treatment options. Education about physical self-care (nutrition, exercise, and sleep and rest pattern). Behavioral strategies need to be developed and implemented as an integrated plan of care.

Reduction of symptoms and ongoing management involve pharmacologic and nonpharmacologic interventions. Outcome criteria should address stability of symptoms, medication administration and monitoring, acceptable and unacceptable behaviors, improvement in relationships with family and peers, and improved academic performance.

This case study demonstrates the variety and range of symptoms, the complexity of the disorder, and its impact across multiple environments. It outlines an approach based on client and family involvement, psychoeducation, and behavioral and pharmacologic interventions. It also demonstrates the effectiveness of involving the client and family in treatment planning.
## NURSING CARE PLAN 17–1

### THE CLIENT WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER (Joe C. [Age 8])

#### Nursing Diagnosis: Alteration in Attention; Etiology unknown

<table>
<thead>
<tr>
<th>OUTCOME IDENTIFICATION</th>
<th>NURSING ACTIONS</th>
<th>RATIONALES</th>
<th>EVALUATION</th>
</tr>
</thead>
</table>
| 1. By [date], Joe C. will complete assignments in class in allotted time. | 1. With Joe’s teacher, identify distracters in the classroom and modify the environment to decrease stimulation (e.g., move desk close to teacher, do not place desk near doors or windows). | 1. By decreasing stimuli the child with ADHD can more easily focus on tasks, assignments, or projects and become distracted less easily or frequently. | \( \text{Goals met:} \)
|                          |                  |            | By the end of the first month, Joe, his parents, and teachers report a marked improvement in task completion. | |
| 2. By [date], Joe C. will remain in his seat for 20 minutes consecutively. | 2. With Joe, his parents’, and teacher’s input, develop a daily report card outlining expected behaviors. Develop a reward system to recognize immediately and reward positive behaviors. | 2. Children respond positively to structure and rules. Children with ADHD require frequent visual reminders, rewards, and recognition to reinforce behaviors. Communication between home and school is essential to identify any new or recurrent problems. | Daily report cards contain more positive behavior checks and comments. |
| 3. By [date], Joe C. will not interrupt the teacher or disrupt class for 30 minutes. | 3. Monitor and assess response to medication, recommending scheduling changes, observed side effects, or poor response. | 3. Each child will respond to medication and dosage individually. During the early phase of treatment, monitoring of response, effect, side effects and modification of regime is often required to achieve optimal response. | Joe’s medication dose and schedule was adjusted, achieving maximum effect and no side effects are reported. |

(continues)
Nursing Care Plan 17–1  (continued)

**Nursing Diagnosis: Impaired Social Interaction**  
related to ineffective social skills

<table>
<thead>
<tr>
<th>OUTCOME IDENTIFICATION</th>
<th>NURSING ACTIONS</th>
<th>RATIONALES</th>
<th>EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. By [date], Joe will graduate from Social Skills group.</td>
<td>1. Joe is assigned to a twice-a-week Social Skills group that meets after school.</td>
<td>1. Social skills are often impaired in children with ADHD. Small group work that focuses on clearly defined skills and behaviors provide a safe environment for the child to learn new behaviors.</td>
<td>Goals met: Joe C. graduates from Social Skills group at the end of 10 sessions.</td>
</tr>
<tr>
<td>2. By [date], Joe will have had three play dates with no episodes of fighting.</td>
<td>2a. With Joe’s parents, identify two classmates Joe enjoys playing with. Educate Joe’s parents to supervise play without being critical or intervening often. Role play a scenario where Joe becomes angry over a game not going his way and demonstrate interventions to help calm Joe down and redirect him.</td>
<td>2a. Supervising play and structuring activities ensures the child with ADHD receives clearly defined expectations and early interventions when problems arise. Parents often need the opportunity to practice their newly acquired intervention and redirection skills before using them in real-life activities.</td>
<td>He has had two classmates over on three separate occasions, and his parents supervised the play dates. The visits were kept to 1½ hours with two activities planned along with a small juice and snack break. The parents report the visits went well with no arguments or temper tantrums from Joe.</td>
</tr>
<tr>
<td></td>
<td>2b. Educate Joe’s parents about the types of groups and activities that support his development of positive social skills.</td>
<td>2b. Children with ADHD often have difficulty in group activities. Activities that are geared to use of large muscle with minimal directions provide the child opportunity to burn energy and be part of a team. The parents should discuss the child’s diagnosis with coaches or leaders to help them be aware of the child’s symptoms.</td>
<td></td>
</tr>
</tbody>
</table>
### Nursing Care Plan 17–1 (continued)

<table>
<thead>
<tr>
<th>OUTCOME IDENTIFICATION</th>
<th>NURSING ACTIONS</th>
<th>RATIONALES</th>
<th>EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nursing Diagnosis:</strong> Situational Low Self Esteem</td>
<td>related to rejection by peers, negative feedback from parents and teachers, and classroom failures</td>
<td>It often seems that children with ADHD are getting into trouble. Despite frequent reminders, their behavior does not change. Visual cues, clearly defined rules, and reward systems provide the type of stimulation and reinforcement that promote change in these children. Requests to do chores should be phrased as follows: “Your room will be neat with the bed made and toys put away” rather than “Clean your room.” This helps the child to understand the request and follow rules. Children with ADHD require frequent and immediate feedback (rewards), or they forget what had occurred.</td>
<td>Goal met: Joe’s parents and teacher are able to identify the five most difficult school behaviors he exhibits. They develop and implement a home behavior chart, a school daily report card, and a reward system. The parents and Joe establish five household rules and chores and design posters outlining these. The posters are hung in Joe’s room and in the kitchen.</td>
</tr>
</tbody>
</table>

1. Joe’s parents will demonstrate by verbal report an understanding of behavior management plans, including the use of charts, daily report cards, and rewards.

2. By [date], Joe’s parents will have identified four major negative behaviors and established a behavior management plan to target these behaviors for change.

3. Educate Joe’s parents about the use of daily behavior charts and token systems for positive reinforcement.

4. Work with the parents to identify both positive and negative behaviors, help to develop a plan that will cover behaviors in at least two environments (home and school) and will include communication tools for use at home and school. The plan will include the use of rewards for positive behaviors. Input/feedback from the teacher.

(continues)
SUMMARY

- Attention-deficit hyperactivity disorder (ADHD) is a psychiatric illness characterized by attention skills that are developmentally inappropriate and, in some cases, impulsivity and hyperactivity.
- ADHD is a neurobiological disability that affects between 3 and 8 percent of all children in the United States.
- ADHD can have long-term serious consequences without diagnosis and appropriate treatment. These can include school failure and dropout, conduct disorder or antisocial behaviors, failed relationships, and even substance abuse.
- ADHD symptoms are often first detected in early childhood and are chronic, lasting at least 6 months, with onset before age 7.
- ADHD symptoms that may be exhibited are overactivity, academic difficulties (distractible, does not complete assignments, out of seat frequently), impaired family and social relationships, and frequent accidental injury.
- Before the late 1990s it was believed that most children outgrew ADHD in adolescence. It is now known that many symptoms of ADHD continue through adolescence and into adulthood.
- Adults with ADHD may experience difficulties at work and in relationships. Many adults with ADHD are restless, easily distracted, have difficulty sustaining attention, are impulsive or impatient, have poor frustration tolerance, and are disorganized or poor planners. They may also develop the comorbid disorders of depression, anxiety, or antisocial behaviors.
- Psychiatric nurses play an integral role in the diagnosis and treatment of ADHD.

- Nursing roles and responsibilities include assessment, planning, and implementation of interventions and ongoing evaluation of progress. Assessment data from a variety of sources are useful in clarifying symptoms and subtype classification.
- Treatment of ADHD is a multidisciplinary process that relies heavily on patient and family education regarding the etiology, symptoms, and pharmacologic and behavioral interventions.
- Psychostimulants are the most widely used medication for the treatment of ADHD, with between 70 and 80 percent of children with ADHD responding positively. The nurse plays an important role in working with the patient and family to monitor efficacy and symptom response.
- The nurse also plays an important role in helping the client and family to develop new and more effective coping skills through social skills and parent training classes, and psychoeducation.

SUGGESTIONS FOR CLINICAL CONFERENCES

1. Present several case histories of clients with attention-deficit hyperactivity disorder (ADHD); the cases should be representative of clients across the life span. For each case, identify (a) biological, environmental, and hereditary factors, (b) life span and developmental issues, (c) psychosocial issues, (d) diverse treatment modalities, (e) client and family education needs.

2. Discuss several treatment modalities for the treatment of clients with ADHD, such as pharmacologic options, social skills training, classroom modifications, and behavioral management plans.
STUDY QUESTIONS

1. ADHD is a disorder that often coexists with other psychiatric disorders. Which of the following is not a commonly identified comorbid disorder?
   a. Major depression
   b. Learning disabilities
   c. Tourette’s syndrome
   d. Social phobia

2. ADHD has been categorized as a psychiatric disorder for many years. In the early 1900s ADHD was thought to be a disorder deriving from:
   a. deficiencies in parenting
   b. brain injury or damage
   c. poor nutrition
   d. fetal exposure to drugs or alcohol

3. The *DSM-IV-TR* criteria for ADHD require that the onset of symptoms occur:
   a. before the age of 7
   b. after the age of 7
   c. before adolescence
   d. before the age of 5

4. ADHD screening tools include all of the following except:
   a. Conners’ Parent-Teacher Rating Scale
   b. Achenbach Child Behavior Checklist
   c. Vanderbilt Rating Scale
   d. Young Mania Rating Scale

5. Which of the following medications used to treat the symptoms of ADHD is *not* classified as a psychostimulant?
   a. Ritalin
   b. Dexedrine
   c. Wellbutrin SR
   d. Adderall

6. Adolescents with untreated ADHD (hyperactive-impulsive type) are at high risk for development of:
   a. conduct disorders
   b. depression
   c. aggressive behaviors
   d. anxiety disorders

7. Adults with ADHD (inattentive type) continue to exhibit problems in the area of:
   a. overactivity
   b. high-risk-taking behaviors
   c. organization skills
   d. emotional lability

8. In conducting the nursing assessment of a child with symptoms of ADHD, the nurse may do the following to minimize distractions:
   a. include all family members in the first session
   b. observe the child in the classroom setting before the interview
   c. establish a small number of shortened interview sessions
   d. talk with the child without the parents or other family members

9. The most effective treatment plan for the client with ADHD includes:
   a. family therapy and pharmacotherapy
   b. behavior management plan and pharmacotherapy
   c. individual therapy and pharmacotherapy
   d. behavior management plan and parent education

10. A common side effect of psychostimulant medications is:
    a. lethargy
    b. decreased blood pressure
    c. increase in activity level
    d. decreased appetite

RESOURCES

Please note that because Internet resources are of a time-sensitive nature and URL addresses may change or be deleted, searches should also be conducted by association or topic.

**Internet Resources**

The latest information on attention-deficit hyperactivity disorders and treatment recommendations can be accessed at:

http://www.health-center.com
http://www.chadd.org
http://www.add.org

Many of these sites provide chat rooms, bulletin boards, or answers to frequently asked questions (FAQs).

Information regarding the latest research on attention-deficit hyperactivity disorders is available from the National Institute of Mental Health (NIMH) and other government agencies:

• current research
• guidelines for diagnosing
• nursing research opportunities
• call for abstracts

Professional Nursing and Mental Health Professional Organizations:

http://www.apna.org American Psychiatric Nurses Association
http://www.psychnurse.org Alliance for Psychosocial Nursing
http://www.nami.org National Alliance for the Mentally Ill (NAMI)
Other Resources
Children and Adults with Attention Deficit Disorder (CHADD)
8181 Professional Place, Suite 201
Landover, MD 20785
http://www.chadd.org/

Learning Disabilities Association of America
4156 Library Road
Pittsburgh, PA 15234
http://www.ldanatl.org/

The National Attention Deficit Disorder Association (ADDA)
PO Box 972
Mentor, OH 44061
http://www.add.org/

National Institute of Mental Health
Office of Communications and Public Liaison
6001 Executive Blvd.,
Rm 8184, MSC 9663
Bethesda, MD 20892-9663
http://www.nimh.nih.gov/publicat/adhdmenu.cfm

REFERENCES


**SUGGESTED READINGS**


