Preface

- Etiology
  - A neurobiological disorder.
  - The exact cause of AD/HD is not known, but genetic, environmental, and neurological factors likely play a primary causal role.

- Diagnosis
  - No single procedure will reliably diagnose AD/HD.
  - Complicated by the fact that a variety of conditions may co-exist with and/or cause AD/HD symptoms.
  - Is time consuming
  - Involves the use of...
    - multi-procedures.
    - multi-sources.
    - multi-disciplines.

Workshop Objectives

From this workshop, it is hoped that participants will increase their...
1. understanding of clinical ADHD criteria.
2. ability to conduct ADHD diagnostic and eligibility evaluations.
3. ability to offer empirically supported treatment recommendations.

NOTE: NOTE: The presenter, Stephen E. Brock, has a financial interest related to this presentation from sales of the book Identifying, Assessing, and Treating ADHD at School.
**Workshop Outline**

- Background Information
  - Reasons to be Vigilant
  - Symptoms & Associated Features
  - Prevalence
  - Legal Issues
  - Causes

- Special Education Eligibility
- Clinical Diagnosis
- Psycho-educational Evaluation
- Psychosocial Treatment Recommendations

**Introduction: Reasons to be Vigilant**

- AD/HD is very common
- AD/HD may be under-identified
- AD/HD is associated with school adjustment difficulties
- School professionals play a key role in identification
- School-based interventions are important treatments
- Students with AD/HD are often included in general education classrooms.
- Federal statute mandates

**Introduction: Symptoms & Associated Features**

**Inattention**
- Fails to give close attention to details/make careless mistakes
- Difficulty sustaining attention
- Does not seem to listen
- Lack of follow through
- Avoids/dislikes tasks requiring sustained mental effort
- Loses things
- Easily distracted
- Forgetful

**APA (2013)**

**Hyperactivity/Impulsivity**
- Fidgets with hands or feet
- Difficulty remaining seated
- Runs about/climbs excessively
- Difficulty playing quietly
- On the go ("Driven by a motor")
- Talks excessively
- Blurs out answers before questions are asked
- Difficulty awaiting turn
- Interrupts or intrudes on others

**APA (2013)**

**Associated Features**
- Vary according to age and development, but may include...
  - Low frustration tolerance
  - Irritability or mood lability
  - Impaired academic or work performance (even absent an LD)
  - Cognitive problems
    - Perform poorly on measures of attention, executive functioning and memory.
    - Increased risk of suicide attempts
    - By early adulthood
      - Primarily when comorbid with mood, conduct, or substance use disorders
  - Increased slow wave EEG
  - Reduced total brain volume as measured by MRI

**APA (2013)**
**Introduction: Prevalence (USA)**

- **2011 National Survey of Children’s Health**
  - 2003-2011
  - 42% increase in parent-reported ADHD
  - Ever diagnosed with ADHD
    - 11% (15.1% of boys, 6.7% of girls)
  - Current ADHD diagnosis
    - 8.8% (12.1% of boys, 5.5% of girls)
  - Current ADHD diagnosis & medicated
    - 6.1% (8.4% of boys, 3.7% of girls)

Visser et al. (2014)

---

**Introduction: Prevalence (Worldwide)**

- Worldwide 5.9 to 7.1%
  - Variability of prevalence rates resulted mainly from methodological differences
  - No significant prevalence differences between countries or regions of the world.
  - After controlling for differences in the diagnostic algorithms used to define ADHD.
  - Argues against the hypothesis that ADHD is a cultural construct that is uniquely associated with the US.

Wilcutt (2012)

---

**Introduction: Legal Issues**

- DSM diagnoses do not automatically qualify a student for any special education placement and/or related services!
Introduction: Legal Issues

- IDEA 1990
  - Attempt to make what was then referred to as ADD a disability category under the Individuals with Disabilities Education Act (IDEA) of 1990.
  - The U.S. DoE opposed this change as it judged that students with ADD who required special education would already meet existing eligibility criteria.

- IDEA 1990
  - Subsequently, the U.S. Congress made no change to the definitions of "children with disabilities" with respect to AD/HD
    - Although it did add categories for Traumatic Brain Injury and Autism.
  - However, Congress did direct the Secretary of Education to issue a Notice of Inquiry (NOI) asking for public comment on special education for students with AD/HD (Davila, Williams, & MacDonald, 1991).

- September 16, 1991, Policy Memorandum
  - From the Department’s review of over 2000 comments generated by the NOI, it was concluded that there was confusion regarding the extent to which students with AD/HD may be eligible for special education services and general education accommodations. As a result, the Department issued a policy memorandum titled: “Clarification of Policy to Address the Needs of Children with Attention-Deficit Disorders within General and/or Special Education.”

- September 16, 1991, Policy Memorandum
  - This document indicated that students with ADD who require special education are eligible under the IDEA disability categories of “other health impairment,” “specific learning disability,” or “serious emotional disturbance.” Further, it specified that students with ADHD who do not require special education may nevertheless be eligible for specialized services, under Section 504 of the Rehabilitation Act of 1973 (which prohibits agencies that receive federal funds from discriminating against persons with disabilities on the basis of that disability). Eligibility for 504 services would be based upon the finding that the student with ADHD was judged to be a “handicapped person” (i.e., the student’s AD/HD substantially limits the major life activity of learning; Davila et al., 1991).

- April 29, 1993, Clarification Memorandum
  - Offered as a response to what was viewed as a misinterpretation of earlier communications (including the Davila et al. 1991 Memorandum), this memorandum addressed the responsibility of school districts to evaluate students “suspected” of having ADHD.

- April 29, 1993, Clarification Memorandum
  - The Lim (1993) memorandum reiterated that the Davila and colleagues (1991) Memorandum was intended to ensure that students suspected of having ADHD and believed by the school district to need special education or related services are evaluated for such (and that these statements were necessary since many districts prior to the 1991 Memorandum felt that they did not need to conduct such evaluation given that ADHD was not an IDEA disability category).
Introduction: Legal Issues

- April 29, 1993, Clarification Memorandum
  - The Lim memorandum, however, also clarified that it was not the intent of prior communications to require school districts to evaluate every student suspected of having ADHD, “based solely on parental suspicion and demand.” It concluded that if a school district did not judge that a student required special education or related services, then it may refuse to evaluate the child (and notify the parents of their due process rights).

- October 22, 1997, Notice of Proposed Rule Making
  - Published in the Federal Register (U.S. Department of Education, 1997) this NPRM was designed to elicit public comment on the 1997 reauthorization of IDEA.

- October 22, 1997, Notice of Proposed Rule Making
  - Elements related to ADHD offered clarification of the conditions under which a student with ADHD would be eligible for IDEA services. “Note 5” indicated that some students with ADHD will meet the criteria for other health impairments (OHI) if (a) the ADHD is determined to be a chronic health problem that results in limited alertness that adversely affects educational performance, and (b) special education and related services are needed. In addition, the note clarifies that the term “limited alertness,” a key element of OHI criteria, includes a child’s heightened alertness to environmental stimuli that results in limited alertness with respect to the educational environment (p. 55070).

- March 12, 1999, Final Regulations for IDEA 1997
  - The final regulations added ADHD to the list of conditions that may result in special education eligibility (Part B, Definition of “Child with a Disability” - 20 U.S.C. 1401(3)(A); 300.7(c)(9)(i) ADD and ADHD - 300.7(c)(9)(i))). These regulations also clarified that the phrase “limited strength or vitality or alertness” that defines OHI includes “a child’s heightened alertness to environmental stimuli that results in limited alertness with respect to the educational environment,” which is characteristic of many students with ADHD (U.S. Department of Education, 1997, p. 55031).

- August 14, 2006, Final Regulations for IDEA 2004
  - Regulations for the most recent reauthorization of IDEA were published in the Federal Register (U.S. Department of Education, 2006). With this reauthorization no substantive changes were made and the student with ADHD as their primary disability continues to potentially qualify for special education under one of three different eligibility categories: Specific Learning Disability, Emotionally Disturbed, and Other Health Impaired.
Introduction: Legal Issues

- August 14, 2006, Final Regulations for IDEA 2004
  - However, the only specific mention of ADHD is found in the Other Health Impaired criteria §300.8(c)(9)(i), which states: “Other health impairment means having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that” — “is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome; and” — “adversely affects a child’s educational performance” (emphasis added, p. 48767).

Introduction: Causes

- Genetics (cause)
  - Plays a significant role, but does not account for all cases of AD/HD.
- Environment (cause)
  - May play a small role, but not nearly as predictive as genetics
- Neurobiology (consequence/cause)
  - The result of genetic and/or environmental factors that appear to cause AD/HD behaviors

Genetic Factors

Neurological Differences

AD/HD Sx

Brock et al. (2009)

Introduction: Causes (Genetics)

- Twin studies reveal that AD/HD is highly heritable.
- Spencer et al.’s (2002) review suggests a heritability of 0.75.
  - 0 means there is no genetic input.
  - 1 means the disorder is completely determined by genetics.
- In other words, approximately 75% of the etiologic contribution of AD/HD is genetic!
  - Nikolas & Burt (2010) obtained similar findings for both AD/HD subtypes
- Thus, a family history of AD/HD is an important variable to consider when diagnosing this disorder.
A number of risk factors have now been associated with AD/HD, no factor or any combination is sufficiently explanatory to account for all AD/HD cases.

In fact, many children suffer similar difficulties are exposed to comparable levels of such risk factors and do not develop AD/HD.

It may require a combination of some trauma, toxic exposure, or subtle form of brain insult, coupled with a certain pattern of susceptibility genes, for AD/HD to emerge.

From the response of children with AD/HD to medications that increase the availability of dopamine and norepinephrine, neurochemical explanations for AD/HD have also been proposed.

Methylphenidate (Ritalin®), pemoline (Cylert®), and dextroamphetamine (Dexedrine®) increase the release and inhibit the reuptake of dopamine.

Atomoxetine (Strattera®), is a norepinephrine reuptake inhibitor.

Further evidence supporting the neurochemical basis of AD/HD include:

- Decreased brain dopamine in the cerebral spinal fluid of children with AD/HD.
- Animal studies have suggested that methylphenidate increases norepinephrine and dopamine out flow within the prefrontal cortex.
- The genes implicated in AD/HD are known to regulate brain chemicals.
Workshop Outline

- Background Information
- Special Education Eligibility
  - SLD
  - OHI
  - ED
- Clinical Diagnosis
- Psycho-educational Evaluation
- Psychosocial Treatment Recommendations

Special Education Eligibility: SLD

- Is the ADHD considered a processing disorder?
  - The predominately inattentive type has been shown to affect reading comprehension even in the absence of a reading disability (Brock & Knapp, 1996).

Special Education Eligibility: OHI

- Is the ADHD considered a chronic health problem?

Special Education Eligibility: ED

- Is the ADHD considered an emotional disturbance?

Workshop Outline

- Background Information
- Special Education Eligibility
- Clinical Diagnosis
  - DSM-IV-TR Criteria
  - Age Specific Features
  - Differential Diagnosis
  - Recommended Procedures
- Psycho-educational Evaluation
- Psychosocial Treatment Recommendations

Diagnosis

- According to Pelham, Gabiano, and Massetti (2005):
  - "Because the definition of AD/HD is currently a behavioral one based on the individual’s functioning in daily life (APA, 1994), assessment procedures must focus on the observable behavior as reported by adults or otherwise measured in natural (home and classroom) and laboratory (clinic, analogue classroom) settings" (p. 451).
Identification & Assessment of ADHD

**Diagnosis**

- American Academy of Pediatrics (2011)
  - ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents.
  - Practice Parameters for the Assessment and Treatment of Children, Adolescents, and Adults with Attention-Deficit/Hyperactivity Disorder.

**Diagnosis**

- “… tests are not sufficiently sensitive or specific to serve as diagnostic indices” (p. 61).
- “No biological marker is diagnostic for ADHD” (p. 61).

**Diagnosis: DSM-5 Criteria**

- Symptom Impairment Onset
  - Age 12
- Developmental Level
  - Inconsistent with...
- Symptom Duration
  - 6 months.

**Diagnosis: DSM-5 Criteria**

- Symptom Display
  - Two or more settings.
- Clinical Significance
  - Clear evidence that symptoms interfere with, or reduce the quality of, social, academic or occupational functioning.

**Diagnosis: Age Specific Features**

- Preschoolers
  - Difficult to diagnose.
  - High levels of hyperactive/impulsive behavior do not indicate a problem or disorder if the behavior does not impair functioning.
  - Those with ADHD will be extremely active and impulsive, will need constant supervision to avoid injury, and will be difficult to contain.
  - This constant activity can be very stressful to adults who may not have the energy or patience to tolerate such behavior.
  - It has been suggested that task persistence is a feature of preschool ADHD.
  - While the preschooler without ADHD can stick with a task for at least 10 minutes, the preschooler with ADHD is ready to change activities every few minutes.

- Elementary School Students
  - Symptoms most prominent.
  - Activity may be high in play situations.
  - Impulsive behaviors may occur especially in peer pressure situations.
  - Inattention often interferes with class work and academic functioning.
  - Impulsivity often result in the breaking of social, familial, and school rules.
  - Independent seat work tasks can be especially challenging.
  - On-task behavior and task completion are poor.
  - Do not have good organizational habits.
Diagnosis: Age Specific Features

- Late childhood and early adolescence
  - Symptoms of excessive hyperactivity become less common, and may be replaced by an internal sense of restlessness.
  - However, the increased work demands of these school years, combined with poor organizational habits, results in excessively poor task completion and very negative attitudes toward school.

- Adulthood
  - About ¼ of children diagnosed with AD/HD will continue to meet diagnostic criteria into adulthood.
  - About ¼ demonstrate sub-threshold symptoms.
  - Restlessness associated with AD/HD may result in avoidance of activities that offer limited opportunities for spontaneous movement, such as desk jobs.
  - Social dysfunction may also be noted.

Diagnosis: Differential Dx

- Medical Conditions
  - Impairment of vision and/or hearing
  - Medication side effect(s)
  - Asthma (or reaction to asthma medications)
  - Allergic rhinitis (or reaction to antihistamine)
  - Incontinence of urine or feces
  - Malnutrition (vitamin or metabolic deficiency)
  - Thyroid disorder
  - Lead toxicity

- Neurologic and Psychiatric Conditions
  - Learning disabilities
  - Tic disorder
  - Seizure disorder (or effect of antiepileptic)
  - Mental retardation or intellectual precocity
  - Low developmental level.
  - Brain damage or injury
  - Sleep disorders (including sleep apnea and insomnia)
  - Oppositional Defiance and Conduct Disorders
  - Substance abuse
  - Anxiety
  - Depression (or Bipolar Disorder)
  - Obsessive-compulsive Disorder
  - Posttraumatic Stress Disorder

- Environmental Conditions
  - Improper or poor learning environment
  - Mismatched curriculum and child
  - Dysfunctional or stressful home
  - Poor parenting (inconsistent, punitive)
  - Neglect or abuse
  - Parental psychopathology
  - Low motivation.

Sources:
Diagnosis: Recommended Procedures

- A variety of different procedures were identified.
- Most could be classified into one of six categories.
- Behavior rating scales, diagnostic interviews, behavioral observations, and laboratory/psychoeducational testing are the most frequently recommended.
- Medical evaluations and school record reviews were also recommended.

61

Diagnosis: Recommended Procedures

- Rating Scales
  - Cited in 100% of the papers reviewed.
  - Strengths:
    - Quick and cost effective way to document the presence of ADHD symptoms.
    - Provide a normative frame of reference.
    - Useful in assessing treatment effectiveness.
    - Allow for assessment of behavior in specific settings.
  - Weaknesses:
    - Many false positives.
    - Rater bias.
    - Unrepresentative samples.
  - Recommendations:
    - Raters must have observed the child for at least six weeks.
    - Symptom specific and broad band rating scales are recommended.

62

Diagnosis: Recommended Procedures

- Broad Band Rating Scales
  - Include items that span the range of child psychopathologies.
  - By themselves are not currently recommended for the diagnosis of AD/HD in clinical practice (Pelham et al., 2005).
  - Useful as a tool for considering comorbid or competing diagnoses.

63

Diagnosis: Recommended Procedures

- Broad Band Rating Scales
  - Examples:
    - Behavior Assessment System for Children (Kamphaus & Reynolds, 2007)
    - Conners Comprehensive Behavior Rating Scales (Conners, 2008)
    - Child Behavior Checklist (Achenbach et al., 2004)
    - Teacher Report form (Achenbach et al., 2004)

64

Diagnosis: Recommended Procedures

- Symptom Specific Rating Scales (Available via Internet)
  - SNAP-IV
    - http://vrosario.bol.ucla.edu/forms/snapIV.pdf
  - Parent / Teacher DBD Rating Scale
  - Vanderbilt ADHD Diagnostic Parent Rating Scale
  - Vanderbilt ADHD Diagnostic Teacher Rating Scale

65

Faraone et al. (2005); Mick et al. (2003)
Diagnosis: Recommended Procedures

- Rating Scales
  - These measures are ...
    - Reliable, however, cross-informant reliabilities are low ranging from .14 to .59
    - Effective at discriminating between clinical and nonclinical groups and among ADHD subgroups
    - Have a long history of use as treatment outcome measures
    - Are sensitive to both behavioral and pharmacological treatment effects

Pelham et al. (2005)

Diagnosis: Recommended Procedures

- Interviews
  - Cited in 98% of the papers reviewed.
  - Help to answer the following questions:
    - Are ADHD symptoms present?
    - When did symptoms begin to present problems?
    - How long have symptoms been problematic?
    - Is there a family history of ADHD?
    - Are there learning disabilities?
    - Are there interpersonal difficulties?
  - Interview Types:
    - Structured, semistructured, and unstructured interview
    - Parent, teacher, and student interviews

Diagnosis: Recommended Procedures

- Structured and semi-structured interviews
  - Strengths: allow for normative comparison.
  - Weaknesses: cumbersome, don’t facilitate school interventions, false positives.
  - Examples (Structured):
    - Diagnostic Interview for Children and Adolescents – Revised
    - Diagnostic Interview Schedule for Children
  - Example (Semistructured)
    - Kiddie Schedule for Affective Disorders and Schizophrenia
      - Available: http://www.psychiatry.pitt.edu/research/tools-research/kads-pl
      - Child and Adolescent Psychiatric Assessment
  - Unstructured interview
    - Strengths: flexible, interviewee focused, facilitate collection of psychosocial data.
    - Weaknesses: Lack reliability.

Diagnosis: Recommended Procedures

- Parent interviews
  - Strengths: Identifies historical data (e.g., family, developmental, and school histories).
  - Weaknesses: Lacks reliability.

- Teacher interviews
  - Strengths: Informant has knowledge of developmental expectations. Has frequent observations. Helps to identify behavioral contingencies. Provides academic data.
  - Weaknesses: May lack objectivity. Under utilized. If parent report is positive for ADHD, there is a 90% probability that the teacher report will be positive.

- Student interviews
  - Strengths: May facilitate behavioral observations and helps in the identification of psychopathology.
  - Weaknesses: ADHD symptoms may not be displayed during the interview. ADHD symptoms may not be recognized by the student.

Diagnosis: Recommended Procedures

- Psychological Testing
  - Cited in 90% of the papers reviewed.
  - Strengths:
    - Assist in differential diagnosis.
  - Weakness:
    - Ability to directly assess ADHD.
  - Recommendations:
    - Psychoeducational tests are best used to rule in or out competing explanations for ADHD symptoms (e.g., learning disabilities).
    - Continuous performance tests appear to be the most useful for ADHD diagnosis.

Continuous-Performance Testing

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Continuous Performance Testing

- The most frequently studied laboratory test for AD/HD.
- Examples include the Gordon Diagnostic System and the Conners Continuous Performance Test.
- Require the student to listen to or look at a series of numbers or letters, and to respond in some way.
- Scores are typically based upon number of correct responses, errors of omissions, and errors of commission.
- Should not be used as the only data source when making an AD/HD diagnosis.

Test Taking Behavior

- Observations of children taking CPTs may be as sensitive to discriminating AD/HD children from other diagnostic groups as CPT scores themselves.
- During testing students with AD/HD typically make more careless and impulsive errors. In addition, they may find it difficult to sit still, may display sustained concentration difficulties, and be distracted by events outside of the testing room.
- Test performance often characterized by omissions or insertions, or misinterpretation of easy items when motivated to do well (not just when completing task that are not intrinsically valued).

Intelligence Testing Profiles

- WISC
  - “If a child’s lowest index is WMI or PSI, AD/HD should be considered and needs to be ruled in or out with a comprehensive evaluation” (p. 247).
  - “If a child’s lowest index is not WMI or PSI, AD/HD is unlikely because all children with AD/HD in our study scored lowest on WMI or PSI” (p. 247).
- See Brock et al. (2009) for additional IQ test profiles

Executive Functioning

- Behavior Rating Inventory of Executive Function (BRIEF)
  1. Parent report on the Behavior Regulation Index scale differentiates AD/HD-Combined Type from the AD/HD-Inattentive Type and Non-AD/HD groups
  2. Metacognitive Index most useful in differentiating AD/HD from the non-AD/HD group.
  3. Working Memory also differentiates AD/HD from the non-AD/HD group
Diagnosis: Recommended Procedures

- Behavioral Observation Recommendations:
  - Should conduct several observations in different settings given that symptoms may vary across situations and times.
  - Should include the setting(s) where the student is reported to have his/her greatest difficulty.
  - Classroom observations are particularly important.
  - Both anecdotal and systematic observations should be used.

- ADHD School Observation Code (ADHD SOC)

- Medical Examination
  - Cited in 34% of the papers reviewed.
  - Includes the medical interview and the physical examination.
  - From this examination the need for diagnostic medical testing can be determined.
  - By itself is inadequate to diagnosis AD/HD.

- Behavioral Observation of Students in Schools (BOSS)

Diagnosis: Recommended Procedures
Identification & Assessment of ADHD

July 8, 2015

Stephen E. Brock, Ph.D., NCSP

15

Medical Examination
- Critical for children with a seizure disorder and/or asthma.
- Purposes of . . .
  1. Identify conditions that may have caused symptoms.
  2. Identify medical conditions associated with the symptoms that may require treatment.
  3. Identify medical conditions that would contraindicate treatment with stimulant medications.

School Record Review
- Cited in 24% of the papers reviewed.
- Cumulative folders (report cards).
- Document symptom onset and duration.
- Document symptom changes over time.

Conclusion
- Diagnosis is as much an art as it is a science.
- There is no single psychological or medical test.
- There are a number of conditions that generate AD/HD-like symptoms.
- Requires a multidisciplinary team, accessing multiple data sources, and using multiple assessment procedures.

Diagnostic vs. Psycho-educational Assessment
- Diagnostic vs. Psycho-educational evaluation.
  - While diagnosis will focus on the presence or absence of relevant symptoms, the psycho-educational assessment should operationalize specific problem behaviors, evaluate establishing operations and immediate antecedents, and consider the environmental consequences that may exacerbate, precipitate, and maintain the behavior (Pelham, 2005).

Workshop Outline
- Introduction
- Special Education Eligibility
- Clinical Diagnosis
- Psycho-educational Evaluation
  - Testing Accommodations & Modifications
  - Developmental and Health History
  - Behavioral Observations & Functional Assessment
  - Specific Measures
- Psychosocial Treatment Recommendations

Psycho-ed. Evaluation: Testing Accommodations & Modifications
- Allow for frequent test session breaks
- Allow for physical movement
- Minimize distractions
- Make use of powerful external rewards
- Provide clear test taking rules
- Carefully pre-select task difficulty
- Allow the student to pace him- or herself.
- Schedule the testing session early in the day
- Provide structure and organization.
- Modify test administration and allow nonstandard responses
Psycho-ed. Eval: Developmental and Health History

- Attention-deficit/Hyperactivity Disorder Diagnostic Evaluation Health, Family, Developmental, & Behavioral History Interview Form

Psycho-ed. Eval: Behavioral Observations & Functional Assessment

- Students with AD/HD are a very heterogeneous group.
- Observation of the student with AD/HD in typical environments, such as the classroom, will also facilitate the evaluation of test taking behavior.
- From such observations judgments regarding how typical the students test taking behaviors were can be made and the validity of the obtained test results assessed.
- A specific tool for evaluating the test session behavior, suggested to be valid and reliable, is the Guide to the Assessment of Test Session Behavior (Glutting & Oakland, 1993).
- Parent and teacher interviews will also be important to understanding the student’s behavior and are key elements of a functional behavioral assessment.

Psycho-ed. Eval: Specific Measures

- Should be evaluated in all areas of suspected disability.
  - This means that the evaluation should include measures designed to help determine eligibility for special education services under the learning disabled, other health impaired, and emotionally disturbed criteria.
  - The evaluation will typically include measures of cognitive functioning, adaptive behavior, basic psychological processes, academic achievement, emotional functioning, and language functioning.

Psycho-ed. Eval: Specific Measures

- Cognitive Functioning
  - To establish the student’s developmental level.
  - Students with AD/HD score an average of nine points lower than their age peers.
  - Students with AD/HD often score lower on tasks that assess executive functions.

Psycho-ed. Eval: Specific Measures

- Adaptive behavior
  - Score lower on measures of adaptive behavior.
  - Relative to other clinical groups, discrepancy between IQ test and adaptive behavior scale scores is often larger among students with AD/HD.
  - IQ standard scores higher than adaptive behavior scores.
  - Measures such as the Vineland Adaptive Behavior Scales should be administered.
  - Serve as a measure of the functional impairments.
  - Can be used to establish a baseline for, and evaluate attainment of, IEP objectives.

Psycho-ed. Eval: Specific Measures

- Psychological processes
  - AD/HD frequently comorbid with reading disabilities
    - Thus, phonological processing tests should always be considered.
  - AD/HD associated with impaired executive functioning
    - The NEPSY differentiates individuals with the inattentive type of AD/HD from those with the combined type.
    - The BRIEF parent and teacher rating scales have promise in identifying intervention targets, and to account for a significant amount of academic achievement and adaptive behavior variance among students with AD/HD.
  - AD/HD associated with motor coordination problems and poor graphomotor ability.
    - Among the measures that could be used to assess this ability is the Developmental Test of Visual-Motor Integration.
Identification & Assessment of ADHD

July 8, 2015

Psycho-ed. Eval: Specific Measures

- Psychological processes
  - Executive functioning differentiates children with ADHD from a normal control group.
  - Phonological awareness differentiates children with a reading disability from a normal control group.

Marzocchi et al. (2008)

Psycho-ed. Eval: Specific Measures

- Psychological processes
  - While ADHD symptom severity predicted both social and school functioning, impaired executive functioning predicted only school functioning.
  - With high levels of inattention, impaired executive functioning indicated a greater need for special education.
  - With high levels of hyperactivity/impulsivity, impaired executive functioning predicted higher levels of physical aggression.
  - Girls with poor executive functioning were less accepted by peers as compared to similarly impaired boys.

Diamantopoulou, Rydell, Thorell, & Bohlin (2007)

Psycho-ed. Eval: Specific Measures

- Academic achievement
  - ADHD is typically associated with significant deficits in academic achievement.
  - Measures such as the WJ III: ACH and the WIAT should be administered.
  - Can be used to establish a baseline for, and evaluate attainment of, IEP objectives.
  - Even in the absence of a comorbid learning disability, students with ADHD may have relative academic achievement deficits.
  - Example: ADHD students without learning disabilities still have lower reading comprehension test scores.

Psycho-ed. Eval: Specific Measures

- Emotional functioning
  - ¾ or more of students with AD/HD will develop a comorbid psychiatric disorder.
  - It will also be important to evaluate the student’s emotional/behavioral status.
  - Measures such as the BASC-2 would be appropriate as a general purpose screening tool.
  - More specific measures such as The Children’s Depression Inventory and the Revised Children’s Manifest Anxiety Scale would be appropriate for assessing more specific presenting concerns.

Psycho-ed. Eval: Specific Measures

- Language functioning
  - One of the least problematic areas.
  - Children with AD/HD do not appear to have higher rates of serious or generalized language delays.
  - However, language impairment are not uncommon.
  - Language comprehension/communication are rated problematic 3 times more often than expressive language.
  - More likely to have specific speech development challenges.
  - Given these observations, referral to a speech and language pathologist may be a common supplement to the psycho-educational evaluation.

Workshop Outline

- Introduction
- Special Education Eligibility
- Clinical Diagnosis
- Psycho-educational Evaluation

- Psychosocial Treatment Recommendations
  - Setting the Student up for Success
  - Encouraging Adaptive Behavior
  - Connecting Diagnosis to Treatment
A Note About Medication

- Relative to children (age 9 to 15 years) who have never been medicated, age peers with a history of having been medicated (but not currently on medication) appear to have better executive and academic functioning.


Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Modify the Academic Environment
    - Eliminate irrelevant cues or distractions from the work area
    - Engaging/relevant visual stimuli (toys, cartoons)
    - Conversations during complex thinking tasks
    - Auditory distractions during individual seatwork
  - Highlight relevant information
    - Bold important elements of written directions
    - Provide examples or models when giving directions
    - Ask students to repeat instructions and recount
    - Use color, animation, or verbal cues to improve attention to academic tasks. (e.g., brightly colored spelling words).

Zentall (2005)

- Setting the Student up for Success
  - Modify the Academic Environment
    - Add music or sound during academic tasks.
    - ADHD students have been found to be more productive and accurate when music was playing in the background.
  - Increase the novelty of lessons.
    - ADHD students have shown improved attention when presented with novel tasks (films, free time, tests) when compared to routine lectures and seat work.

Zentall (2005)

- Setting the Student up for Success
  - Adjust Task Difficulty
    - Match task difficulty to instructional level
    - Begin with easier tasks
    - Progress to more complex assignments after a period of practice.
    - Avoid tasks that are too easy or difficult
    - ADHD students often give up or become bored with tasks that appear too difficult or too easy.
    - Encourage students to set goals relative to their own work - not that of other students.

Zentall (2005)

- Setting the Student up for Success
  - Adjust On-task Behavior Expectations
    - Reduce the quantity of items or amount of time required for class work in one sitting
    - Allow students to take breaks
    - Break large assignments up into small parts
    - Shorten task directions and use fewer words to explain assignments
    - Decrease repetitive tasks
    - Students with ADHD are more likely to become off task when information is repetitive.
Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Student Self-Monitoring
    - Teach students to use self-monitoring strategies before beginning tasks such as asking:
      - “What is my problem?”
      - “What is my plan?”
      - “Am I following my plan?”
      - “How did I do?”
    - This technique has been shown to improve selective attention, sustained attention, and language as well as reducing impulsivity.

Zentall (2005)

- Example of a Self-Monitoring Chart:

<table>
<thead>
<tr>
<th>Tone 1</th>
<th>Tone 2</th>
<th>Tone 3</th>
<th>Tone 4</th>
<th>Tone 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher on-task rating</td>
<td>=</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My on-task rating</td>
<td>=</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreement</td>
<td>=</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Brock, Cummings, & Seiver (2004)

Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Practice
    - Provide extra practice
      - Students with AD/HD benefit most from short repeated exposures to new material.
    - Provide “attention training” sessions
      - Direct instruction and practice on selectively attending to visual and auditory cues significantly improves ability to selectively attend to important material.

Zentall (2005)

Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Feedback
    - Use Cross-Modal Response Options
      - Feedback that is delivered in a different mode than the task being performed (e.g., providing auditory feedback for visual math problems).
      - Response options are different from the task (e.g., problems presented orally, with answers presented visually).
    - Allow the student to...
      - differentiate information they are taking in from information they are putting out.
      - differentiate information they are receiving about their performance.

Bennett, Zentall, Giorgetti-Borucki, & French (2005)

Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Task Modifications
    - Visual vs. Auditory Presentation
      - Oral reading has been shown to produce more accurate reading comprehension than silent-reading.
    - Structure
      - Increased structure and predictability in class routines and activities is helpful for students.
    - Choice Making
      - Allowing AD/HD students to make choices about assignments (e.g., which book to read) improves on-task behavior.

Raggi & Chronis (2006)
Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Social Skills Training
    - Mixed efficacy
    - Debate over skill deficit vs. performance deficit
    - Assertion skills are the most positively impacted area.
    - Results are improved when social skills groups are diagnostically heterogeneous
    - May be contraindicated for ADHD- Inattentive type.
    - Inattentive type students show greater gains than combined type students.
      - This group is thought to lack knowledge about appropriate social skills, while combined type students typically have knowledge, but fail to use their skills.

Antshel & Remer (2003)

Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Peer Tutoring
    - Children with ADHD are paired with a peer tutor to work an academic task.
    - Allows for one-to-one instruction tailored to the student’s need and pace.
    - Frequent immediate feedback is provided by the tutor.

Raggi & Chronis (2006)

Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Computer-Assisted Instruction (CAI)
    - Improves both academic performance and on-task behavior.
    - Targets specific instructional objectives using a computer program.
    - The most effective programs are presented in a game-like format, without animation, and offer an unlimited response time.
    - Math-based programs have been shown to be more effective than reading programs.
    - Easy to implement in the classroom.

Raggi & Chronis (2006)

Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Social Skills Training: Components of Effective Programs
    1. Brief introduction to the skill.
    2. Majority of session involves playing a supervised game or activity with prompting and coaching on using the skill.
    3. A short debriefing with feedback and reinforcement for demonstrating the skill.
    4. Skills taught should be generalized across settings.
    - Skills should be practiced at school and at home.
    - Students should be encouraged to set and monitor specific social skills goals.

Rief (2005)

Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Class-Wide Peer Tutoring (CWPT)
    - Increases in on-task behavior and accuracy
    - Students are trained in tutoring and randomly paired
    - Tutors are provided with a script of academic material (e.g., math problems)
    - Items are presented orally to the tutee.
    - Points are awarded for correct responses and feedback is given for incorrect responses.
    - The item list is repeated multiple times.
    - Students switch roles.
    - Teachers monitor the tutoring sessions and provide assistance as needed.

Raggi & Chronis (2006)

Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Strategy Training
    - Direct Note-Taking Activity (DNA)
      - DNA training shown to significantly increase on-task behavior, scores on assignments, and comprehension.
      - Students are explicitly taught strategies for effective note-taking (e.g., dividing notes into main ideas and supporting details).
      - Prompting is gradually faded until students are able to take accurate effective notes.

Raggi & Chronis (2006)
Psychosocial Treatment Recommendations

- Setting the Student up for Success
  - Strategy Training
    - Significant GPA improvements seen after two semesters.
    - Combination of psychosocial and educational interventions including DNA, study skills training, organizational skill training, and parent training.

Raggi & Chronis (2006)

- Challenging Horizons Program (CHP)

- Homework Interventions

- Parent-Training Programs
  - Parents taught to establish consistent homework routines
  - provide a quiet homework environment
  - help their children prioritize
  - break down large assignments
  - set goals

Raggi & Chronis (2006)

- Encouraging Adaptive Behavior
  - Immediate verbal praise should be delivered frequently.
    - Praise is most effective when it is specific and related to the desired behavior.
    - Praise is most effective when given immediately following appropriate behavior.
    - Praise should be increased in relation to negative feedback.

Zentall (2005)

- Home-School Communication
  - Shown to increase homework accuracy and completion rates.
  - Parents and teachers work together to address the students needs, set goals, and manage homework.

Raggi & Chronis (2006)

- Encouraging Adaptive Behavior
  - Increase the intensity of positive feedback
  - Increase the frequency of positive feedback to encourage practice of new skills.
  - Students performed better on rote tasks when there was a higher level of verbal praise and immediate reinforcement.
  - Increase the immediacy of feedback
    - Immediate feedback increases stimulation and helps sustain attention.
    - Students with AD/HD are more influenced by current rewards than history of past rewards.

- Functional Assessment and Behavior Intervention Plans
  - Before a behavior intervention plan (BIP) is implemented, a functional assessment (or analysis) of behavior (FBA or FAA) should be conducted to evaluate the function of the student’s behavior.
  - Once the function of the student’s behavior is understood, a BIP should be implemented to make the target behavior irrelevant, ineffective, and inefficient.
  - The BIP should focus on providing the student with an appropriate means for obtaining the desired function of the target behavior.
Psychosocial Treatment Recommendations

- Encouraging Adaptive Behavior
  - Beginning a BIP
    - Ensure the student understands expectations and procedures.
    - Behaviors to be rewarded are clearly operationally defined and understood.
    - Behaviors framed in positive language focusing on desired behavior.
    - Behavior contracts are a useful way of helping the student understand the goals and contingencies of the plan.

Brock, Cummings, & Seiver (2004)

Psychosocial Treatment Recommendations

- Contingency Management Options
  - Self-Monitoring
  - Token Economy Systems
    - Student earns points for appropriate behavior that can be used to “buy” desired rewards.
  - Response Cost Systems
    - If the “cost” is too frequent AD/HD students may become frustrated.
    - Must include the opportunity to earn points back.
  - Time Out
    - Used the least restrictive form.
    - Time out from attention.

Brock, Cummings, & Seiver (2004)

Psychosocial Treatment Recommendations

- Daily Mini-Conferences
  - One to two minute mini-conferences between the teacher and student should be scheduled several to discuss behavior.
  - The more conferences held the better, but it must be feasible for the teacher.
  - During conferences, teacher gives verbal praise for appropriate behavior in the last period.
  - Teachers can use a tally sheet to mark or place a sticker on the sheet and further reinforce behavior.
  - Encouragement of, and instruction on, behaviors not displayed is given.

Brock, Cummings, & Seiver (2004)

Psychosocial Treatment Recommendations

- Weekly Rewards
  - A weekly reward can be used.
  - Are typically of greater magnitude than daily goals.
  - Are most effective with older students.
  - Should not replace daily and immediate rewards.
  - Weekly progress can be graphed during a mini-conference.

Brock, Cummings, & Seiver (2004)
Psychosocial Treatment Recommendations

- Encouraging Adaptive Behavior
  - Example of a weekly rewards chart

**Weekly Contract**

<table>
<thead>
<tr>
<th>Day</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

My weekly total goal is

This week’s total

If I meet my weekly goal, I will earn

Brock, Cummings, & Seiver (2004)

Psychosocial Treatment Recommendations

- Encouraging Adaptive Behavior
  - Concluding Comments
  - It is important to select goals that are important to student learning.
  - Students should only be rewarded when they clearly deserve it.
  - As the student progresses, external rewards should be faded. The goal is to move the student from extrinsic motivation to intrinsic motivation as soon as possible.

Assessment, Identification, & Treatment of ADHD at School

Stephen E. Brock, Ph.D., NSCP
California State University, Sacramento
brock@csus.edu

2015 NASP Summer Conference
Milwaukee, WI

July 8, 2015

Stephen E. Brock, Ph.D., NCSP