

ADHD and Substance Abuse

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Goals of this talk

- Epidemiology of ADHD
- Diagnosis
- Comorbidity with Substance Abuse
- Treatment

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DSM-IV-TR Criteria for ADHD

- A. Either (1) or (2)
- (1) six (or more) of the following symptoms of **inattention** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:  
**Inattention**  
(a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities

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(b) often has difficulty sustaining attention in tasks or play activities  
(c) Often does not seem to listen when spoken to directly  
(d) Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)  
(e) Often has difficulty organizing tasks and activities  
(f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)

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(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

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(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 it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)  
(d) often has difficulty playing or engaging in leisure activities quietly  
(e) is often "on the go" or often acts as if "driven by a motor"  
(f) often talks excessively

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Impulsivity

- (g) often blurts out answers before questions have been completed
- (h) often has difficulty awaiting turn
- (i) 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.

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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 a Personality Disorder).

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Code based on type:

**Attention-Deficit/Hyperactivity Disorder, Combined Type** (314.01): if both A1 and A2 are met for the past 6 months

**Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type** (314.00): if criterion A1 is met but criterion A2 is not met for the past 6 months

**Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type** (314.01): if criterion A2 is met but criterion A1 is not met for the past 6 months

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**Attention-Deficit/Hyperactivity Disorder Not Otherwise Specified (314.9)**

This category is for disorders with prominent symptoms of inattention or hyperactivity-impulsivity that do not meet criteria for Attention-Deficit/Hyperactivity Disorder.

1. Individuals whose symptoms and impairment meet the criteria for Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type but whose age at onset is 7 years or after.
2. Individuals with clinically significant impairment who present with inattention and whose symptom pattern does not meet the full criteria for the disorder but have a behavioral pattern marked by sluggishness, daydreaming, and hypoactivity.

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**ADHD does not just disappear in adulthood**

- According to Barkley 30-68% of children with ADHD continued to meet criteria into adulthood.  
Barkley R, ADHD: A Handbook Guilford Press, 1998
- More recently according to the National Comorbidity Survey Replication Kessler –et al found that within a 12 month period prevalence of ADHD w as 50% of that found in child studies.  
Kessler R, et al. Journal of biological Psychiatry 2005

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**How do these criteria present themselves**

In adulthood, adults can present with inattention/concentration problems, forgetfulness, misjudging available time, shifting activities prematurely, making impulsive decisions related to spending money, travel, jobs, or social plans.

He or she may be inattentive, or have concentration problems, which can lead to job instability and marital difficulties

Greenhill LL. 1998, Conners CK, Jett JL 1999, Millstein RB. 1997.

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## Testing For ADHD

Common office based tests are not diagnostic but helpful in the overall evaluation and diagnostic process. Which can be done with psychologists if you don't want to take on the task on your own.

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The CPT- (continuous performance test) such as the, TOVA, and the CPT-II (Conners). Both test vigilance or sustained attention or attention over time.

The SAT ( shifting attention test )

measures the subjects ability to shift from one instruction set to another quickly and accurately, also known as cognitive flexibility

The Stroop Test

A measure of executive control that measures the interference effect. The incongruity of word color and word meaning.

C. Thomar Gualtieri, Psychiatry

MMC 2005

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## Computerized Neurocognitive Tests Appropriate for ADHD

- ANAM- [www.dtic.mil/matrix/ddsm/srch/ddsm0082.htm](http://www.dtic.mil/matrix/ddsm/srch/ddsm0082.htm)
- CNSVital Sign- [www.cnsvs.com](http://www.cnsvs.com)
- CogScreen- [www.cogscreen.com](http://www.cogscreen.com)
- Cogstate- [www.cogstate.com](http://www.cogstate.com)
- HeadMinder- [www.headminder.com](http://www.headminder.com)
- MicroCog- Psychological Corporation
- Neurotrax- [www.mindstreamshealth.com](http://www.mindstreamshealth.com)

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Childhood prevalence of ADHD is 4-12%.  
Similar findings were found world wide.  
Faraone SV, Sergeant J, et al. 2003.

Adult prevalence of ADHD is about 2-6% male  
to female ratio of 1:1

ADHD is an illness of emotional, cognitive, and  
behavioral problems.

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ADHD represents a broad vulnerability to  
Substance Abuse not a specific drug.

Adults with ADHD have been found to  
have elevated rates of lifetime substance  
use disorder compared to the general  
population.

Faraone SV et al, Biederman J  
et al, Wilens T et al,

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People with substance use disorders  
have a higher rate of ADHD  
17-50% in Alcoholics  
17-45% in Cocaine and Opiate  
Abusers  
VS 2-9% in the general population

The rate of Nicotine dependence in  
people with ADHD is 40% VS 26% in  
the general population.

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Children with a history of ADHD that were treated with Stimulants had a decreased rate of adult Substance Abuse.

Biederman J, et al 1998

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### Connections between Substance Abuse and ADHD

Children of individuals with Alcohol dependence and Opiate dependence have higher rates of ADHD

Earls F, et al, Steinhausen HC, et al, Wilens TE, et al

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### Frontal Lobe Deficits

People with ADHD have diminished cerebral blood flow or glucose metabolism in frontal and striatal structures, which correlate to kids with ADHD having problems with executive functioning and working memory

Waid et al

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A potential marker for frontal lobe dysfunction is seen in de-synchronized EEG's. This EEG dysfunction is related to a greater risk of relapse.

Winterer G, et al

Cocaine abusers have also been found to have structural deficits in frontal areas believed to be involved in decision -making and behavioral inhibition.

Waid et al, Franklin TR, et al

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Individuals with ADHD also have deficits in the Frontal lobe which affects decision making ability.

The frontal lobe is rich in Dopaminergic neurons, dopamine transporter, and dopamine -beta-hydroxylase. Which all have been implicated in the deficit seen in people with ADHD and Substance Abuse and Dependence

Faraone SV et al, Comings DE, et al,

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### Treatment

Treating patients with both ADHD and Substance Comorbidity can be a difficult task. Correct diagnosis is the most important part of treatment. This may require a period of 1-3 months of sobriety to be able to make an appropriate diagnosis of ADHD. Then what treatment options do we have?

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1<sup>st</sup> line treatment is with the use of Stimulants which have a 80% response rate.

Methylphenidate- both short and long acting Ritalin, as well as long acting Concerta 18mg-72mg daily

Amphetamine and Amphetamine compounds- such as Adderall XR 10-60mg daily which is the only stimulant approved for use in adults.

Dextroamphetamine- such as dexedrine 5mg-40mg daily

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### 2<sup>nd</sup> line treatment

Non-stimulants

Atomoxetine (Strattera)20-100mg

Bupropion (Wellbutrin)200-400mg

Venlafaxine (Effexor XR ) 37.5-225mg

### 3<sup>rd</sup> line treatment

Clonidine- 0.1-0.3 daily

Guanfacine (Tenex)1-3mg daily

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Treating individuals with substance disorders does not mean we have to start with 1<sup>st</sup> line treatments. Being creative with the medication available is what is important. Some individuals will respond to non-stimulants. But some patients will need to be placed on stimulants even with a history of Substance Abuse.

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Thank you for the willingness to treat this very difficult and many times misunderstood group of individuals.

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