



**City and County of San Francisco
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**CLINICAL PRACTICE PROTOCOL AND PSYCHOSTIMULANT ACCESS
POLICY FOR THE TREATMENT OF ADULT ADHD**

San Francisco Community Behavioral Health Services

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INTRODUCTION AND BACKGROUND

The recognition of the differences in clinical course and characteristics between children and adult Attention Deficit Hyperactivity Disorder (ADHD) is essential in the evaluation and development of proper treatment for the management of adult ADHD. The clinical presentation of ADHD often changes with increase age as the patient moves from childhood to adulthood. The predominant symptoms of ADHD tend to shift from external, visible ones such as hyperactivity and impulsivity during childhood to inattention, which is the most common symptom in adulthood.

The diagnostic criteria for ADHD require documented onset of symptoms prior to the age of 7 years, childhood records from family members and school personnel in addition to a well-documented clinical history in medical records to appropriately establish the diagnosis for this longitudinal disorder. These records should document childhood ADHD symptoms being pervasive and severe enough to interfere with academic, occupational and social functioning. Comorbidity is common in patients with ADHD. In children and especially in adolescent, comorbid disorders are often difficult to recognize but the existence of a comorbid condition is correlated with greater likelihood that the symptoms will persist into adulthood. In the adult with ADHD, comorbidity of several other psychiatric diagnoses is common and requires broader and more comprehensive treatment goals.

PREVALENCE

Epidemiologic studies identify ADHD as a prevalent disorder, affecting 6% to 9% of children in the United States and 4% to 5% of children in New Zealand/Australia, Germany and Brazil. Although it was previously thought to remit largely in adolescence, it is now recognized and supported in the DSM IV that the disorder is persistent and is associated with impairment into adulthood. Approximately 40% to 50% of the children diagnosed with ADHD continue to manifest ADHD symptoms into adulthood, meaning that 2% to 6% (the most common estimate is 4%) of the adult population has ADHD.

ADHD in U.S. population	Prevalence rate in U.S. population
Children	6% to 9%
Adult	2% to 6% (average 4%)

It appears ADHD has a high genetic transmission rate with roughly 50% concordance in first-degree relatives.

DIAGNOSIS

Diagnosis of Adult ADHD

Diagnosis of adult ADHD is a longitudinal process requiring both the documentation of ADHD symptoms with onset at not older than 7 years of age, are pervasive as demonstrated in a variety of settings and severe enough to interfere with school, occupation and social functioning.

Adult clinical presentation is different from childhood ADHD

Adults must have childhood-onset and persistent current symptoms of ADHD to be diagnosed with the disorder. Adults with ADHD often present with marked inattention, distractibility, organization difficulties, and poor efficiency reflected in life histories of academic and occupational failures.

Children Symptoms	Symptom manifestations
Restlessness/ Hyperactivity	Fidgeting, squirming, leaving one's seat in the classroom, talking excessively, feeling "on the go" or "motor driven", running about, climbing excessively, having difficulty playing quietly, blurting out answers before questions are completed, interrupting others, having difficulty waiting one's turn. Constantly feeling "on the go",
Impulsivity	
Inattentiveness	

Adult Symptoms	Symptom manifestations
Restlessness/ Hyperactivity	Internal restlessness
Impulsivity	Impulsivity=>low frustration tolerance, i.e. high job and relationship turnover, explosive or irritable episodes, reckless driving.
Inattentiveness	Inattentiveness=>poor time management, difficulty completing and changing tasks.

DIAGNOSTIC CRITERIA

The overall diagnostic criteria for an ADHD diagnosis include onset by age 7 years, impairment from symptoms in at least 2 settings, and significant impairment in social, academic, or occupational functioning.

Type of symptom	Symptom manifestations
Inattentive	Difficulty sustaining attention in tasks or play; a lack of close attention to details in schoolwork or on the job; difficulty organizing tasks or activities; avoiding, disliking, or being hesitant to engage in tasks or sustained mental effort; not following through on instructions at school or work; not listening when directly spoken to; often losing things; becoming easily distracted; often being forgetful in daily activities.
Hyperactive	Being fidgeting or squirming and leaving one's seat in the classroom or in other situations where the expectation is to remain seated; talking excessively, feeling "on the go" or "motor driven"; running about or climbing excessively; having difficulty playing quietly; blurting out answers before questions are completed; interrupting others; having difficulty waiting one's turn.

The DSM IV further defines ADHD into 3 subtypes:

1. A predominantly inattentive type.
2. A predominantly hyperactive-impulsive type.
3. A combined type in which elements of both inattention and hyperactivity are present.

DSM diagnostic subtypes	Diagnostic criteria
Inattentive	Have 6 or more inattentive symptoms for more than 6 months
Hyperactive	Have 6 or more hyperactive symptoms for more than 6 months
Combined	Must have 6 or more inattentive symptoms and 6 or more hyperactive symptoms for more than 6 months

Of the three subtypes the combination subtype is the most common and accounting for 50% to 75% of all ADHD individuals, followed by the inattentive subtype (20% to 30%) and the hyperactive-impulsive subtype (<15%). The combination subtype individuals have more co-occurrence of psychiatric and substance–abuse disorders and are the most dysfunctional.

ADHD Subtypes	Rate
Inattentive	20% to 30%
Hyperactive-impulsive	<15%
Combination inattentive-hyperactive	50% to 75%

CO-MORBIDITY

Youth with ADHD have a higher risk of developing other psychiatric disorders in childhood, adolescence, and adulthood including antisocial personality, mood, and substance abuse disorders. Co-morbidity prevalence rate in adult ADHD is estimated up to as high as 75% with mood and bipolar disorders as the higher rate co-morbidities. Additionally it is often difficult to differentiate symptoms of ADHD from that of bipolar disorder.

Co-morbidity Disorders	Co-morbidity Rate
Mood disorders (major depression, BAD, dysthymia)	19% to 37%
Anxiety disorders	25% to 50%
Alcohol abuse	32% to 53%
THC and cocaine abuse	8% to 32%
Nicotine and caffeine	Increase rate of abuse unspecified
Antisocial personality disorder	18% to 28%
Other personality disorders	10% to 20%
Learning disability (esp. dyslexia and auditory processing deficits.)	20%

Higher rate of Substance Abuse in Adult ADHD patients

ADHD is commonly associated with a higher incidence of substance abuse. One study (5) found that 52% of adults with ADHD versus 27% of controls met criteria for substance abuse. Adults with ADHD usually have higher rate of substance abuse than children with ADHD. ADHD by itself increased the chance of substance abuse, but if the ADHD were combined with another disorders such as antisocial personality disorder, anxiety, depression or bipolar disorder, the rates increased further.

With a known high rate of substance abuse co-morbidity in adult ADHD patients some of the identified risk factors for adult ADHD individuals for abuse/addiction of stimulants and other drugs including alcohol include the following:

1. Family history of ADHD and/or substance abuse.
2. Individual history of substance abuse or addiction.
3. History of substance abuse treatment. Patient may not necessarily be in current substance abuse treatment.
4. Co-existing antisocial personality disorder, impulse control disorder, conducts disorder and/or oppositional defiant disorder.
5. Criminal justice and police records of criminal and/or assault behaviors and for the possession and sale of illicit drugs or substances.

System Impact

- Adult ADHD is associated with a high rate of co-morbid mental illness and substance abuse.
- A significant portion of the adult ADHD population is incarcerated in American prisons.
- Since the rate of substance abuse is so high in the adult ADHD population, we can't effectively treat the substance abusing ADHD patients with stimulants.
- With such high rate of co-morbid mental illness and substance abuse the system-wide cost of providing treatment, rehabilitation and maintenance is quite substantial.
- Therefore we need a non-stimulant alternative in treating adults with ADHD.

TREATMENT

Treatment for ADHD consists of two major modalities: nonpharmacological therapy and pharmacotherapy.

Nonpharmacological

Nonpharmacological therapies include 1. Support groups for ADHD; 2. Special and individualized education for youths including screening for learning disorders and appropriate education remediation, specialized individual education or training which may include increased structure, predictable routine, learning aids, resource room time and assistance with homework such as tutors; 3. Individual and family therapy such as focused therapies incorporating cognitive-behavioral features, behavior modification for child and parents are useful in cases of co-occurring disruptive behaviors, inflexibility, anxiety, or outbursts; modality more specifically for adults include traditional insight-oriented psychotherapy; social skills remediation and coaching for improving organization and study skills.

Pharmacotherapy

Medications remain a mainstay of treatment for children, adolescents, and adults with ADHD. In fact, recent multisite studies suggest that medication management of ADHD is the single most important variable in outcome in the context of multimodal treatment.

Psychostimulants, antidepressants, and antihypertensives comprise the 3 main categories of therapeutic agents for ADHD. The stimulants are considered first-line agents for children and adults with ADHD based on their extensive efficacy, safety data, and lack of a more efficacious alternative, up until now. Most ADHD studies are on stimulants with the vast majority limited to children, Caucasian boys treated for no longer than two months. However more recent larger longer-term controlled studies verify a 70% efficacy with the stimulants in the treatment of ADHD.

The stimulants available in the U.S. market today are methylphenidate (Ritalin, Concerta, Metadate), amphetamine (Dexedrine, Adderall) and pemoline (Cylert). Stimulants act as sympathomimetics that increase intrasynaptic concentration of catecholamines (mainly) dopamine, norepinephrine, and serotonin. The suggested mechanisms are inhibiting presynaptic reuptake and releasing presynaptic catecholamines. Methylphenidate and pemoline act specifically on the blockade of the dopamine transporter protein and amphetamines in addition to blocking the dopamine transporter protein, also release dopamine stores and cytoplasmic dopamine directly into the synaptic cleft (7). Moreover, amphetamines release serotonin and norepinephrine to a greater extent than other stimulants.

Drug (or drug class)	Efficacy Rate
Stimulants (dextroamphetamine, methylphenidate)	70% - 77%
Atomoxetine (Strattera®)	Similar efficacy rate as stimulants: 60% - 70%
TCA	65%
Bupropion	55%
Antihypertensives (guanfacine, clonidine)	55%

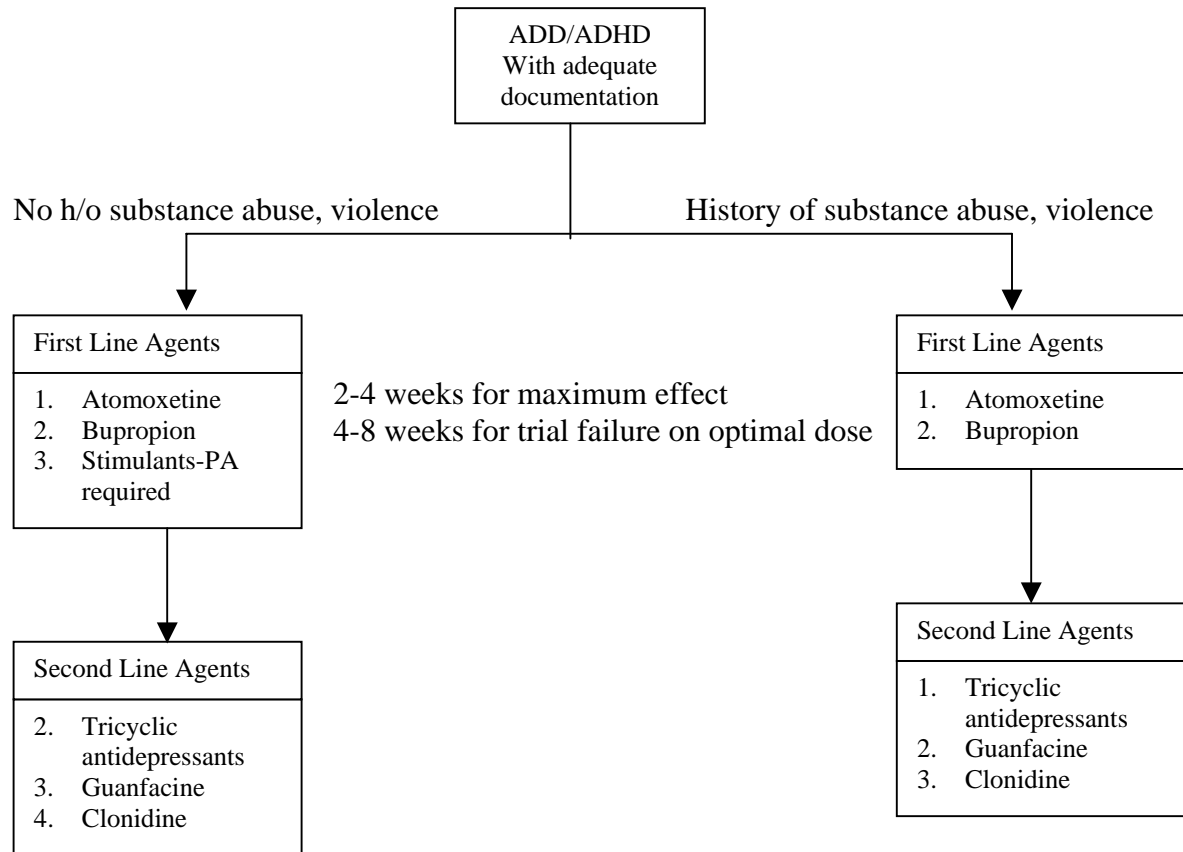
Formulary Agents for Adult ADHD:

First Line Agents: For Adult ADHD patients. First line agents can be use consecutively in any order if patient fails to respond or has intolerable side effects to another first line agent.

1. Atomoxetine
2. Bupropion
Consider especially in patients with co-existing substance abuse, especially nicotine addiction, depression, aggression, impulsivity:
3. Psychostimulants: require Prior Authorization case consultation.
Not available as first line agent to patients with co-existing or significant history of substance abuse disorders.

Second Line Agents:

1. Tricyclic antidepressants (nortriptyline, desipramine, etc.): failure or intolerance to stimulants and other agents.
2. Guanfacine or clonidine: requires ECG baseline and on-going cardiovascular monitoring.



COMMON THERAPEUTIC AGENTS USED FOR THE TREATMENT OF ADHD

Drug	Common daily dosage Range	Optimal Daily dose	Daily dosing Frequency	Onset of Action	Time of Peak effect	Duration of Action
Short Acting						
Dextroamphetamine (Dexedrine)	10-60mg	30-60mg	2 to 3 times	30-60 min	1-3 hours	5 hours
Methylphenidate	10-80mg	35-60mg	3 times	30-60 min	1-3 hours	2-4 hours
Intermediate Acting						
Dextroamphetamine Slow release SR Spansule	20-80mg	40-60mg	Once in the morning	Within 60 minutes	1-4 hours	6-9 hours
Methylphenidate SR	10-80mg	40-60mg	1 to 2 times	Within 60 minutes	3 hours	5 hours
Adderall Amphetamine salts	10-60mg	54-60mg	2 or 3 times	Within 60 minutes	1-3 hours	5 hours
Metadate ER	10-80mg	30-60mg				4-8 hours
Long Acting						
Adderall XR Amphetamine salts	10-60mg	30-60mg	Once in the morning	Within 60 minutes	1-4 hours	9 hours
Concerta methylphenidate	18-54mg	36-54mg	Once in the morning	30-60 min	8 hours	12 hours
Metadate CD	10-80mg	30-60mg	Once in the morning	30-60 min	5 hours	8 hours
Ritalin LA methylphenidate	20-80mg	30-60mg	Once in the morning			8-12 hours

Non-stimulants

Drug	Common daily dosage Range	Optimal Daily dose	Daily dosing Frequency	Onset of Action	Time of Peak effect	Duration of Action
Guanfacine	1mg-3mg	3mg hs	Once in the morning		1-4 hours	12-24 hrs
Bupropion IR/SR	200mg-450mg	300-450mg	2-3 times/d/IR 2 times/d/SR			
Tricyclics	25mg-350mg	250mg-300mg	Once daily			

New Drug

Drug	Common daily dosage Range	Optimal Daily dose	Daily dosing Frequency	Onset of Action	Time of Peak effect	Duration of Action
Atomoxetine (Strattera)	10mg-80mg	40-80mg	Once daily or bid		1-2 hours (peak level)	

Cost Comparison

Drug	AWP	Common Daily Dosage	Monthly cost (AWP)
Dextroamphetamine 10mg	0.56	40mg	\$67.20
Methylphenidate 10mg	0.50	60mg	\$61.20
Dextroamphetamine spanule 10mg	1.01	40mg	\$121.20
Ritalin SR 20mg	1.60	60mg	\$144.00
Adderal 10mg	1.70	40mg	\$102.00
Adderal XR 10mg	2.80	40mg	\$168.00
Concerta ER 18mg	2.80	54mg	\$96.30
Metadate CD 20mg	1.68	60mg	\$151.20
Bupropion 100mg	0.96	300mg	IR=\$86.40 SR=\$72.60
Guanfacine 1mg	0.87	3mg	\$78.30
Atomoxetine (Strattera) 40mg	3.13	40-80mg	\$93.75-\$187.50

CLINICAL PRACTICE GUIDELINES FOR THE TREATMENT OF ADULT ADHD

Assessment, treatment and monitoring:

- Document onset of ADHD symptoms before age 7 by parents, teachers, care takers and health care professionals.
- Review and identify history of substance abuse for illicit drugs, stimulants, alcohol, nicotine and caffeine.
- Review treatment for use and abuse of illicit drugs, prescription drugs, benzodiazepine, alcohol, nicotine and other substances of abuse.
- Identify treatment for other psychiatric disorders including personality disorders.
- Review treatment with non-stimulants i.e. antidepressants including bupropion, antipsychotics, mood stabilizers, and antihypertensives.
- Review treatment failures, adequate dosage and adequate treatment duration.
- Review periods of stability and relate circumstances such as compliance with treatment, abstinence, adequate life structure and support.
- Review periods of exacerbation and related stressors, relapse or worsening of other psychiatric disorders, substance abuse, etc.
- Rule out symptoms associated with existing co-morbidities.
- Review history of treatment of co-morbid disorders. Are treatable co-morbid conditions currently treated? If not consider treating co-morbid conditions before using stimulants or concurrently if possible.

CBHS PSYCHOSTIMULANT TREATMENT ACCESS POLICIES

Procedures:

- Requires prior authorization case consultation with a clinical pharmacist. If requesting prescriber disagrees with suggested options, alternatives and/or request denial she/he can appeal to the CMHS Medical Director.
- Provider to make every attempt to obtain documentation of childhood history on onset, functional impairment and childhood stimulant treatment response if none is provided by patient. Patient self-reporting of history, symptoms, functioning and duration is not sufficient as a justification for prove of documentation or prior treatment history.
- Requires review of substance abuse history. Significant positive substance abuse history precludes the use of stimulants as first line agent for ADHD.
- Requires prescription dosage and quantity limitations.
- Requires duration of treatment and response review.
- Requires review of treatment of co-existing psychiatric, personality disorders, and substance abuse.
- Requires review of criminal history.
- Caution is recommended when considering stimulants as first line agent for patients with a history of persistent violence and/or poor impulse control.
- Requires limitation on refills. See Psychostimulant Refill/Replacement Policy.

PSYCHOSTIMULANT REFILL/REPLACEMENT POLICY

Psychostimulant Refill/Replacement Policy for Adults

Policy for replacement of lost psychostimulants or request for refill before the previously dispensed quantity is due:

No more than 2 replacements of lost medication or early medication refills are permitted within the first 12 consecutive months of stimulant treatment if the patient's prescriber determined they were reasonable requests. No further replacement or early refill of psychostimulants after the second request was given. After 2 requests all future refills should be at lesser quantities and no more than at one to two week supply each time. No more than one replacement of lost medication or early refills will be permitted during the second 12 consecutive months of treatment. After this all refills will be no more than in one-week quantities.

This policy will be clearly explained and is to be accepted by the patient prior to initiation of therapy. Signing of this treatment consent includes consent to this psychostimulant refill/replacement policy without exception.

CONSENT TO PSYCHOSTIMULANT REFILL POLICY

My doctor or therapist has explained the PSYCHOSTIMULANT REFILL/REPLACEMENT POLICY to me. I clearly understand, agree, and accept this policy as part of my ADHD treatment using psychostimulants. I also understand and agree if I refused or failed to comply with this policy I will not be able to receive psychostimulants but I will be given prescriptions for other medication that will give me similar benefit and effectiveness.

Patient Signature

Date

Clinician's signature

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