ADHD PARENT EDUCATION DAY
BASICS OF ADHD
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DISCLOSURES

- I have no industry relationships or financial disclosures.
- Off-Label Use

  I will be presenting some therapeutic recommendations for medications that have not received regulatory approval (i.e. "off-label" use of medications).
- I will be using some brand names for clarity and will outline when this is done

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OUTLINE

- History
- ADHD Diagnostic Criteria
- Prevalence
- Causes
- Assessment
- ADHD Over the Lifespan

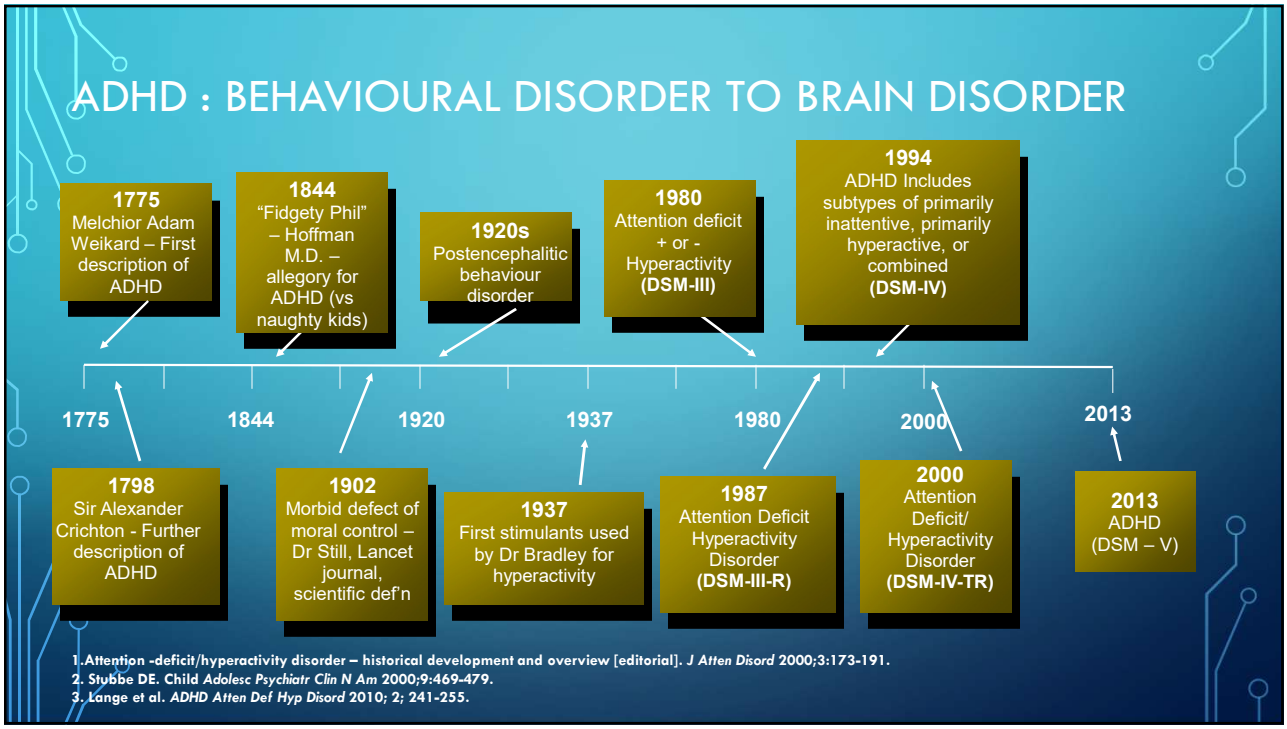
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WHAT IS ADHD?

- ADHD = Attention Deficit Hyperactivity Disorder
- Used to be ADD or ADHD but now we call it "ADHD"
- Chronic, lifelong, neurodevelopmental condition
- ADD was first introduced in DSM-3 (1980) but we have had medical/psychiatric descriptions of ADHD going back at least for the last 200 years (Fidgety Phil)

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ADHD : BEHAVIOURAL DISORDER TO BRAIN DISORDER



1. Attention -deficit/hyperactivity disorder – historical development and overview [editorial]. *J Atten Disord* 2000;3:173-191.
2. Stubbe DE. Child *Adolesc Psychiatr Clin N Am* 2000;9:469-479.
3. Lange et al. *ADHD Atten Def Hyp Disord* 2010; 2; 241-255.

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"FIDGETY PHIL" – ADHD OR NAUGHTY BOY?

Phil stop acting like a worm
The table is no place to squirm
Thus speaks the father to his son
Severely say it, not in fun.
Mother frowns and looks around
Although she does not make a sound.
But Phil will not take advice
He'll have his way at any price.
He turns and churns
He wriggles & jiggles
Here and there on the chair
Phil these twists I cannot bear.

(1863 by Heinrich Hoffman)

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DSM-5 ADHD SYMPTOM CRITERIA

Table 1.1 Diagnostic and Statistical Manual Fifth Edition (DSM-5) ADHD Symptom Criteria

	Criteria A1 Inattention Symptoms	Criteria A2 Hyperactive-Impulsive Symptoms
1	Often fails to give close attention to details or makes careless mistakes in school work	Often fidgets with hands or feet or squirms in seat
2	Often has difficulty sustaining attention in tasks or play activities	Often leaves seat in classroom when remaining seated is expected
3	Often does not seem to listen when spoken to directly	Often runs about or climbs excessively in situations where it is inappropriate
4	Often does not follow through on instructions and fails to finish school work	Often has difficulty playing or engaging in leisure activities quietly
5	Often has difficulty organizing tasks and activities	Often is "on the go" or often acts as if "driven by a motor"
6	Often avoids, dislikes, or reluctantly engages in tasks requiring sustained mental effort	Often talks excessively
7	Often loses things necessary for activities (e.g. school assignments, pencils, or books)	Often blurts out answers to questions before the questions have been completed
8	Often is distracted by extraneous stimuli	Often has difficulty awaiting turn
9	Often is forgetful in daily activities	Often interrupts or intrudes on others (e.g. butts into conversations/games)

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Table 1.2 Diagnostic and Statistical Manual, Fifth Edition (DSM-5) Presentations



Other Specified ADHD / Unspecified ADHD: Symptoms causing impairment but full criteria for ADHD are not met.

****Total number of symptoms are less in adults (17+): 5 of 9 instead of 6 of 9***

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

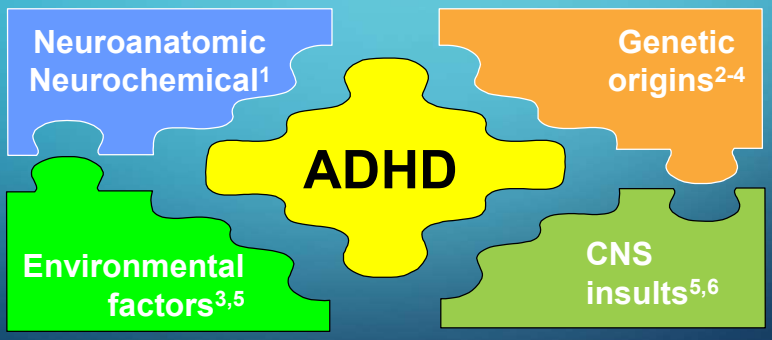
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CADDRA – WHO ARE THEY?

- CADDRA = Canadian ADHD Resource Alliance
  - National, independent, not-for-profit association with members drawn from family practice, pediatrics, psychiatry (child, adolescent and adult), psychology and other health professions
  - Published Canadian ADHD Practice Guidelines → Started in 2006, with additional editions in 2008, 2011, and 2020.
  - Targeted at health care professionals in diagnosing and treating ADHD but can also be used by policy makers, funding bodies, educators as well as individuals with ADHD and their families

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CAUSES (ETIOLOGY)



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PREVALENCE

- General prevalence = approx. 5-9% for children/adolescents and symptomatic for 5-7% of adults
- Studies have shown similar prevalence in Canada/USA as well as worldwide
- 75% are affected by core symptoms in adulthood
- Inattentive ADHD often goes undiagnosed until later in life (and females) - changing
- Overdiagnosed? Recent meta-analyses confirmed stable rates in prevalence of ADHD over past 30 years
  - Tik Tok/Social Media? Greater awareness and acceptance?

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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CAUSES (ETIOLOGY)

- Continues to be researched
- Tobacco/alcohol use during pregnancy
- Low birth weight
- Head trauma, infections, lead poisoning (approx. 3%)
- Psychosocial adversity
- Dysfunction in Fronto-striatal pathways (dorsolateral and anterior cingulate) – Attention/executive networks

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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CAUSES (ETIOLOGY)

- Highly heritable (genetics) -- **important for children/families**
  - Twin studies – heritability 76%
  - Parents with ADHD have >50% chance of child with ADHD
  - Children with ADHD have approx. 25% chance of a parent meeting ADHD diagnosis
  - Diagnosed individuals have 30-40% risk of ADHD in a first-degree relative (includes children, siblings, parents)
- Polygenic – no single ADHD gene – up to 27+ risk loci now identified

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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CAUSES – LACK OF EVIDENCE

- Social causes lack evidence – eg. Parenting, TV viewing, Video games, food additives
- Parenting styles do not cause ADHD (but may exacerbate the symptoms)

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NEGATIVE AND UNFAIR BELIEFS

- ADHD is not a real disorder
- Everyone has ADHD
- People with ADHD are just not trying hard enough, lazy
- ADHD is caused by bad parenting
- ADHD is diagnosed because teachers are lazy

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COMPREHENSIVE ADHD-SPECIFIC INTERVIEW

- Individual Interview (different approaches for <10 y vs. 10-13 y vs. 13-18 y)
- Collateral Interview (parents, care givers, teachers, close childhood friends)
- Complete review includes:
  - Perinatal history (birth weight, complications, maternal alcohol and tobacco use during pregnancy)
  - Developmental milestones
  - Medical history (i.e. illnesses, concussions, seizures, etc)
  - Impact of symptoms on learning, socialization and independent functioning
  - Temperament
  - Symptoms of ADHD prior to age 12
  - Presence of any life events that were of emotional concern in childhood
    - Ex. Abuse, bullying, divorce, loss, deaths, attachment issues
  - Review of completed forms with individual and family

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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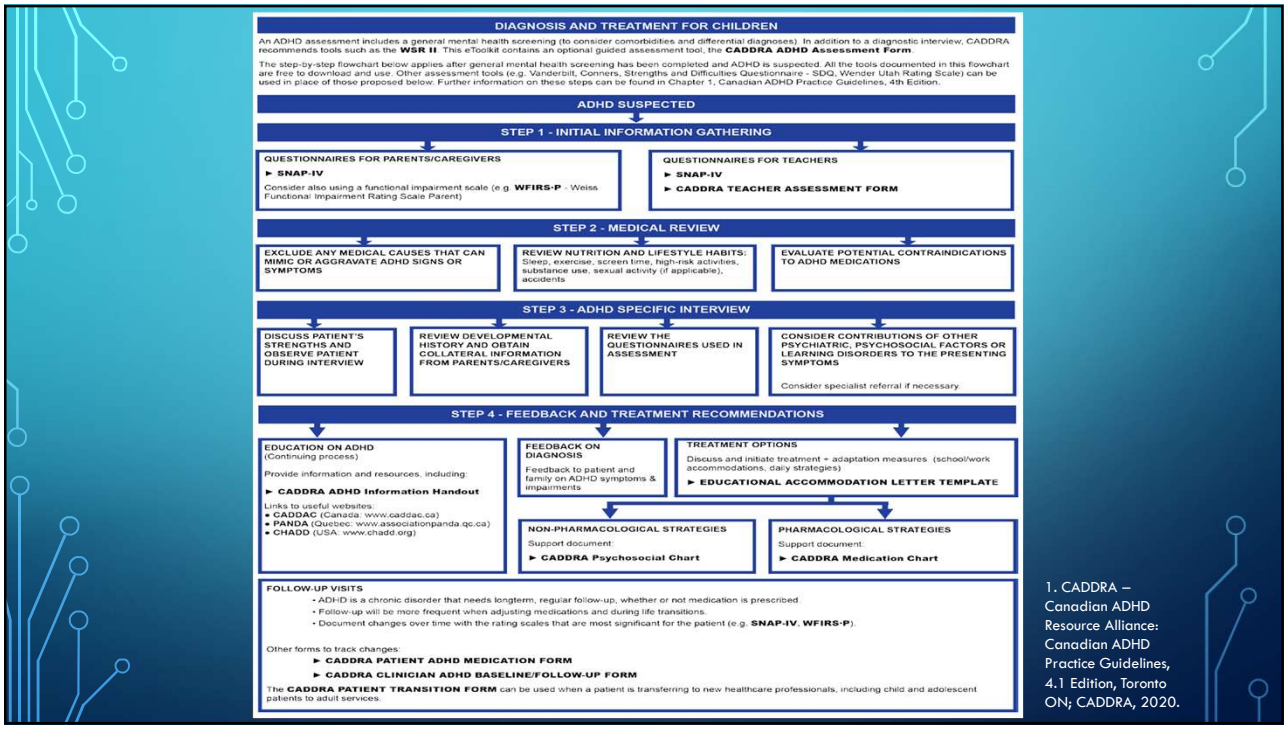
ADHD – NOT ALWAYS PRESENT

- Symptoms may be absent if the child is:
  - In a one-to-one situation
  - Under close supervision
  - Having consistent external stimulation (video games)
  - Receiving frequent rewards
  - In a new setting
  - In particularly engaging activities

many of these are when you see a health professional!

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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DIAGNOSIS AND TREATMENT FOR CHILDREN

An ADHD assessment includes a general mental health screening (to consider comorbidities and differential diagnoses). In addition to a diagnostic interview, CADDRA recommends tools such as the **WSR II**. This eToolkit contains an optional guided assessment tool, the **CADDRA ADHD Assessment Form**.

The step-by-step flowchart below applies after general mental health screening has been completed and ADHD is suspected. All the tools documented in this flowchart are free to download and use. Other assessment tools (e.g. Vanderbilt, Conners, Strengths and Difficulties Questionnaire - SDQ, Wender Utah Rating Scale) can be used in place of those proposed below. Further information on these steps can be found in Chapter 1, Canadian ADHD Practice Guidelines, 4th Edition.

ADHD SUSPECTED

STEP 1 - INITIAL INFORMATION GATHERING

QUESTIONNAIRES FOR PARENTS/CAREGIVERS
- ► **SNAP-IV**

Consider also using a functional impairment scale (e.g. **WFIRS-P** - Weiss Functional Impairment Rating Scale Parent)

QUESTIONNAIRES FOR TEACHERS
- ► **SNAP-IV**
- ► **CADDRA TEACHER ASSESSMENT FORM**

STEP 2 - MEDICAL REVIEW

EXCLUDE ANY MEDICAL CAUSES THAT CAN MIMIC OR AGGRAVATE ADHD SIGNS OR SYMPTOMS

REVIEW NUTRITION AND LIFESTYLE HABITS: Sleep, exercise, screen time, high-risk activities, substance use, sexual activity (if applicable), accidents

EVALUATE POTENTIAL CONTRAINDICATIONS TO ADHD MEDICATIONS

STEP 3 - ADHD SPECIFIC INTERVIEW

DISCUSS PATIENT'S STRENGTHS AND OBSERVE PATIENT DURING INTERVIEW

REVIEW DEVELOPMENTAL HISTORY AND OBTAIN COLLATERAL INFORMATION FROM PARENTS/CAREGIVERS

REVIEW THE QUESTIONNAIRES USED IN ASSESSMENT

CONSIDER CONTRIBUTIONS OF OTHER PSYCHIATRIC, PSYCHOSOCIAL FACTORS OR LEARNING DISORDERS TO THE PRESENTING SYMPTOMS

Consider specialist referral if necessary.

STEP 4 - FEEDBACK AND TREATMENT RECOMMENDATIONS

EDUCATION ON ADHD
(Continuing process)

Provide information and resources, including:
- ► **CADDRA ADHD Information Handout**

Links to useful websites:
- **CADDAC** (Canada: www.caddac.ca)
- **PANDA** (Quebec: www.associationpanda.qc.ca)
- **CHADD** (USA: www.chadd.org)

FEEDBACK ON DIAGNOSIS

Feedback to patient and family on ADHD symptoms & impairments

TREATMENT OPTIONS

Discuss and initiate treatment + adaptation measures (school/work accommodations, daily strategies)
- ► **EDUCATIONAL ACCOMMODATION LETTER TEMPLATE**

NON-PHARMACOLOGICAL STRATEGIES

Support document:
- ► **CADDRA Psychosocial Chart**

PHARMACOLOGICAL STRATEGIES

Support document:
- ► **CADDRA Medication Chart**

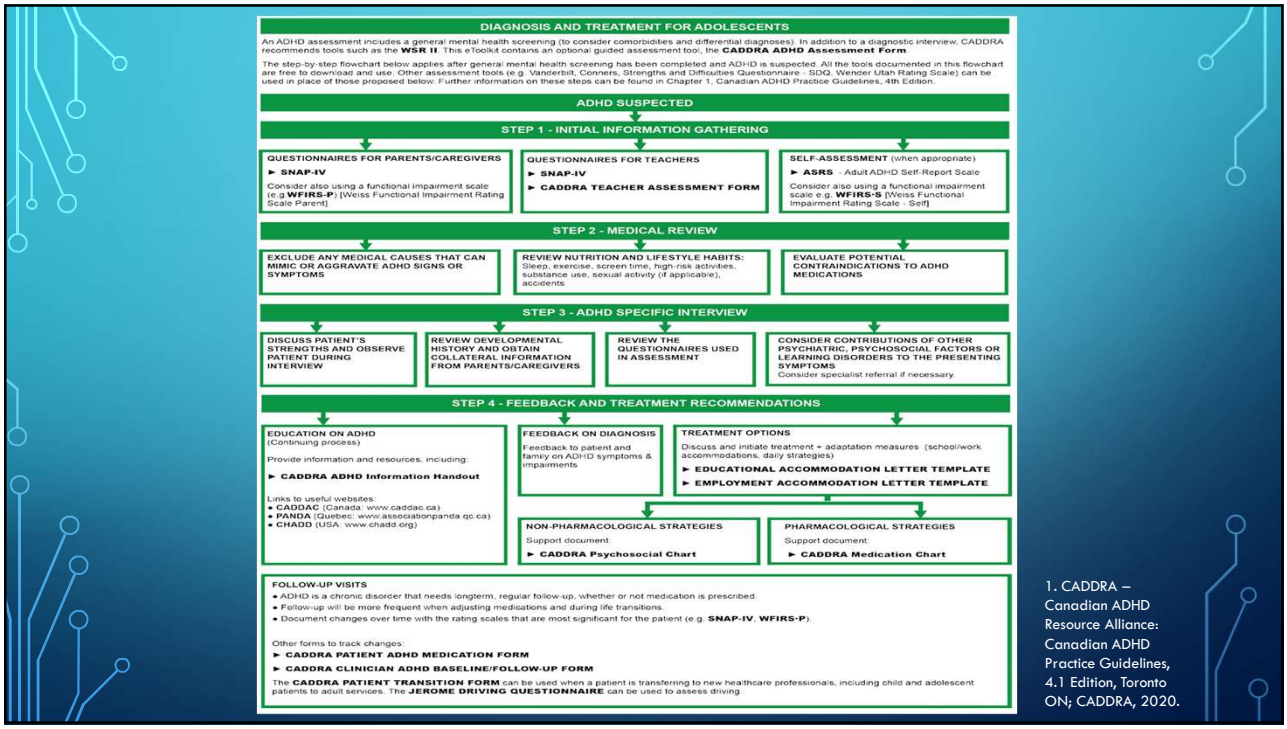
FOLLOW-UP VISITS
- ADHD is a chronic disorder that needs longterm, regular follow-up, whether or not medication is prescribed.
- Follow-up will be more frequent when adjusting medications and during life transitions.
- Document changes over time with the rating scales that are most significant for the patient (e.g. **SNAP-IV**, **WFIRS-P**).

Other forms to track changes:
- ► **CADDRA PATIENT ADHD MEDICATION FORM**
- ► **CADDRA CLINICIAN ADHD BASELINE/FOLLOW-UP FORM**

The **CADDRA PATIENT TRANSITION FORM** can be used when a patient is transferring to new healthcare professionals, including child and adolescent patients to adult services.

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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DIAGNOSIS AND TREATMENT FOR ADOLESCENTS

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QUESTIONNAIRES FOR TEACHERS
- ► **SNAP-IV**
- ► **CADDRA TEACHER ASSESSMENT FORM**

SELF-ASSESSMENT (when appropriate)
- ► **ASRS** - Adult ADHD Self-Report Scale

Consider also using a functional impairment scale e.g. **WFIRS-S** (Weiss Functional Impairment Rating Scale - Self)

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1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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GUIDING PRINCIPLES FOR ASSESSMENT AND DIAGNOSIS (AS PER CADDRA)

- Fully licensed and trained clinician in DSM-5 and ensure diagnostic criteria for ADHD are fully met
- Understand multi-systemic issues that may complicate ADHD diagnosis (eg. Education/vocational, psychosocial, psychiatric and medical interfaces)
- Evaluate frequency, severity and outcome of symptoms and functional impairment

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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OVERLAPPING MEDICAL CONDITIONS

- Common medical conditions that might overlap with ADHD:
  - Hearing or vision impairment
  - Thyroid dysfunction
  - Hypoglycemia
  - Severe anemia
  - Lead poisoning
  - Fetal Alcohol Spectrum Disorder (FASD)
  - Neurofibromatosis
- Medication Side Effects
  - Psychomotor agitation:
    - Decongestants
    - Beta-agonists like asthma meds

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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SPECIAL MEDICAL INVESTIGATIONS
(ONLY WHEN INDICATED)

- Physical exam, especially cardiac
- Electrocardiogram (ECG) – if history of cardiac issues
- Blood tests - to rule out prior list of medical conditions
- Polysomnography – for sleep issues
- Electroencephalogram (EEG) – for neurological disorders
- Brain imaging
- Psychological testing – to address suspected learning disability or other cognitive challenges

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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COMORBIDITIES ARE COMMON

Table 2.1 Prevalence of Comorbidities

Psychiatric comorbidities prevalence: + 1-10% ++ 11-30% +++ >31% ? controversial/unknown

	CHILD (6-12)	ADOLESCENT (13-17)	ADULTS (18+)
ANXIETY	++	++	+++
DEPRESSION	+	++	+++
LEARNING DISABILITIES	+++	+++	+++
OPPOSITIONAL DEFIANT DISORDER	+++	++	+
CONDUCT DISORDER	++	++	++ (Antisocial PD)
BIPOLAR	+ (?)	+	++
SUBSTANCE USE	+	++	+++
AUTISM SPECTRUM DISORDER	++	++	++ (?)
TIC DISORDERS	++	++	+
DMDD	?	?	?
BORDERLINE PERSONALITY DISORDER		?	+++
OBSESSIVE COMPULSIVE DISORDER	+	+	++

1. CADDRA – Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

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COMORBIDITY IN ADHD IS COMMON!

- Over half of children with ADHD have at least one other condition
- Many children will have two or more comorbidities
- Most common comorbid disorders are:
  - Anxiety
  - Depression
  - Learning disorders
  - Oppositional Defiant Disorder
  - Neurodevelopmental disorders, e.g. Autism

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ADHD OVER THE LIFESPAN

- KEY FEATURES:
  - Hyperactivity DIMINISHES with time
  - Impulsivity DIMINISHES with time, BUT impulsive actions later in life have more serious consequences
  - Inattention REMAINS PROBLEMATIC through the lifespan

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DOMAINS OF IMPAIRMENT

BEFORE SCHOOL	SCHOOL	AFTER SCHOOL	BEDTIME
Difficulty with: - Waking up - Getting ready for school - Struggling excessively with parents	Difficult with: - Lower grades - Lack of focus - Disruptive - Difficulties with friendships	Difficulty with: - Sports/Clubs - Homework - Risky behaviour and injuries - Sitting through dinner - Family interactions	Difficulty with: - Bedtime prep - Settling down and falling asleep

1. Barkley RA, et al. *J Am Acad Child Adolesc Psychiatry* 1990;29:546-556/
2. Barkley RA. *J Clin Psychiatry* 2002; 63 (Suppl 12); S10-15.
3. DuPaul GJ, et al. *J Am Acad Child Adolesc Psychiatry,* 2001; 40:508-515.
4. Greenhill LL. *J Clin Psychiatry*. 1998; 59 (Suppl 7): S31-41.
5. Weiss G, et al. *J Am Acad Child Psychiatry,* 1985; 24:211-220.

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ADHD – PRESCHOOL YEARS

- Motor restlessness (on the go)
- Aggressive (hits others)
- Spills things
- Insatiable curiosity
- "Fearless", endangers self/others
- Low compliance
- Vigorous/Destructive play
- Demanding, argumentative, noisy
- Interrupts others
- Excessive temper tantrums

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ADHD – SCHOOL CHILDREN

- Easily distracted
- Homework poorly organized, careless errors
- Low academic scores
- Trips to the principal's office, disruptive
- Interrupts/intrudes
- Low self-esteem
- Does not wait turns in games
- Often out of their seat
- Perception of "immaturity"
- Unwilling/unable to do chores
- Accident prone
- Aggression
- Peer difficulties

1. Greenhill LL. *J Clin Psychiatry* 1998;59 Suppl 7:31-41.

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ADHD - ADOLESCENTS

- Increased academic/social demands means greater difficulties* (early and late high school as key periods)
- Procrastinates/disorganized (while wanting more independence and control)
- Fails to work independently
- Poor peer relationships
- No delayed gratification
- Specific learning disabilities
- "Risky Behaviours" – eg. Speeding (discussion about driver safety*), Substances, Unprotected sex
- Difficulties with authority
- Poor self-esteem

1. Greenhill LL. *J Clin Psychiatry* 1998;59 (Suppl 7):31-41.

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ADHD – COLLEGE/UNIVERSITY STUDENTS

- Poor time management and organization
  - Academics driven by a sense of emotional urgency
  - Cramming for exams
- Comorbidities
  - Substance abuse
  - Learning Disabilities
  - Depression

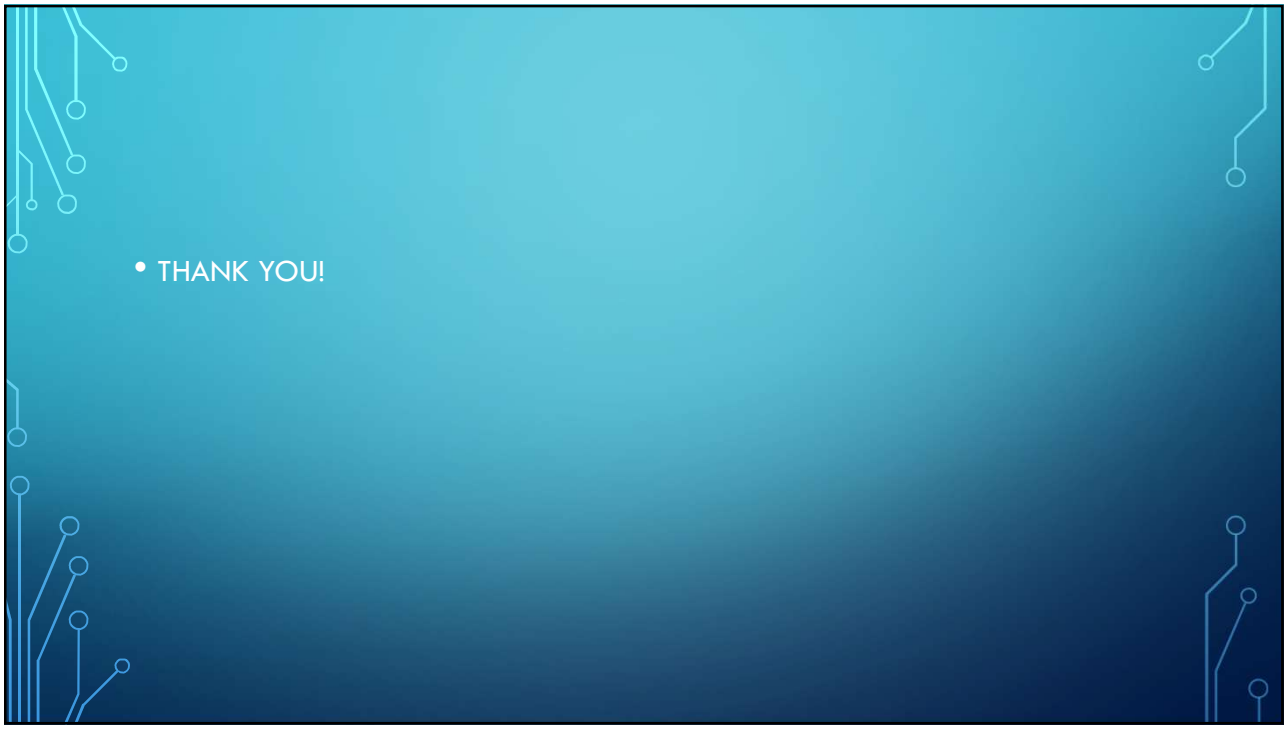
1. Heiligenstein E, et al. *J Am Coll Health* 1999;47:181-185.
2. Heiligenstein E, et al. *J Am Coll Health* 1995;43:226-228.

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HOW TO EXPLAIN ADHD TO A CHILD

- Be prepared (check your own acceptance, knowledge)
- Be truthful (secrets = shame, mistrust of you)
- Use ADHD label? Keep language age-appropriate
- Focus on areas of strength (ADHD is part of them, not all of them – "superpower")
- Keep it simple, brief, upbeat

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