Canadian ADHD Practice Guidelines (CAP-Guidelines)

Third Edition

CADDRA Information
Current contact details for the Canadian ADHD Resource Alliance (CADDRA) and information on ordering copies of the Canadian ADHD Practice Guidelines are available on the CADDRA website: www.caddra.ca

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Feedback
Reader suggestions can be provided through a feedback form on our website (www.caddra.ca) or email feedback@caddra.ca

Liability
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Please Note:
The CADDRA Canadian ADHD Practice Guidelines (CAP-G) is an active document that will be revised online as new information becomes available. The CADDRA website (www.caddra.ca) will always have the latest version of the Guidelines available free to download and print. This third edition is in binder format to facilitate the replacement of pages with updated versions. Updated documents will be sent out to CADDRA members at periodic intervals. Extra support documents are also accessible to members online.

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Canadian ADHD Practice Guidelines (CAP-Guidelines)

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Dr. Doron Almagor: Advisory Board member for Janssen-Ortho Inc; Purdue Pharma; Shire BioChem Inc.; Roche; Forrest.

Dr. Lauri Alto: Janssen-Ortho Inc (Speaker, Advisory Board); Purdue Pharma (Speaker, Advisory Board).

Dr. Don Duncan: Janssen-Ortho Inc (Speaker, Advisory Board); Purdue Pharma (Speaker, Advisory Board); Shire BioChem Inc. (Speaker, Advisory Board).

Dr. Geraldine Farrelly: Eli Lilly Canada Inc. (Speaker, Advisory Board, Research Grants); Janssen-Ortho Inc (Speaker, Advisory Board); Purdue Pharma (Advisory Board); Shire BioChem Inc. (Speaker, Advisory Board).

Dr. Karen Ghelani: Owner of Chrysalis Centre for Psychological and Counseling Services.

Dr Martin Gignac: Eli Lilly Canada Inc. (Speaker, Advisory Board); Janssen-Ortho Inc (Speaker, Advisory Board); Purdue Pharma (Advisory Board); Shire BioChem Inc. (Speaker, Advisory Board).

Dr. Andrew Hall: Speaker and Advisory Board member for AstraZeneca; Bristol-Myers Squibb; Janssen-Ortho Inc; Purdue Pharma; Shire BioChem Inc.

Dr Lily Hechtman: Eli Lilly Canada Inc. (Speaker, Advisory Board, Research Grants); GlaxoSmithKlein (Speaker, Advisory Board, Research Grants); Janssen-Ortho Inc (Speaker, Advisory Board, Research Grants); Purdue Pharma (Speaker, Advisory Board, Research Grants); Shire BioChem Inc. (Speaker, Advisory Board, Research Grants).

Dr. Ainslie Gray: Owner of Springboard Clinic. Speaker for Shire BioChem Inc., Janssen-Ortho Inc. and Purdue Pharma.

Dr. Laurence Jerome: Janssen-Ortho Inc (Speaker, Advisory Board); Shire BioChem Inc. (Speaker, Advisory Board).

Dr. Declan Quinn: Eli Lilly Canada Inc. (Speaker, Advisory Board, Research Grants); Janssen-Ortho Inc (Speaker, Advisory Board); Purdue Pharma (Advisory Board); Shire BioChem Inc. (Speaker, Advisory Board).

Dr. Joseph Sadek: Eli Lilly Canada Inc. (Speaker, Research Grants); Janssen-Ortho Inc (Speaker, Research Grants); Purdue Pharma (Speaker, Research Grants); Shire BioChem Inc. (Speaker, Research Grants).

Dr. Margaret Weiss: Eli Lilly Canada Inc. (Speaker, Advisory Board, Research Grants); Janssen-Ortho Inc (Speaker, Advisory Board, Research Grants); Purdue Pharma (Speaker, Advisory Board, Research Grants); Shire BioChem Inc. (Speaker, Advisory Board, Research Grants).

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Margaret Weiss PhD, MD, FRCPC, Clinical Professor, Psychiatry, University of British Columbia, Vancouver, BC

External Reviewers: 3rd Edition

Thomas E. Brown Ph.D., Associate Director, Yale Clinic for Attention and Related Disorders, Yale University School of Medicine, New Haven, CT
Peter S. Jensen MD, President & CEO, The Reach Institute; Professor of Psychiatry, Mayo Clinic, Rochester, MN
Sarah Shea MD, FRCPC, Associate Professor, Paediatrics, Dalhousie University, Halifax, NS
John Yaremko MD, FRCPC, Assistant Professor, Paediatrics, McGill University, Montreal, Quebec

Additional Contributors

Heidi Bernhardt, RN, President and Executive Director, CADDAC (Centre for ADHD Awareness, Canada), Markham, ON
Umesh Jain MD, FRCPC, DABPN, PhD, MEd, Associate Professor, Psychiatry, University of Toronto, Toronto, ON
Diane McIntosh MD, FRCPC, Clinical Assistant Professor, Psychiatry, University of British Columbia, BC
Simon-Pierre Proulx MD, Groupe de médecins de famille, Loretteville, Québec, QC
Derryck Smith MD, FRCPC, Clinical Professor, Psychiatry, University of British Columbia, Vancouver, BC
Annick Vincent MD, FRCPC, Centre Médical l'Hêtrière, Clinique FOCUS, Saint-Augustin-de-Desmaures Clinical Professor, Psychiatry, Laval University, Quebec, QC
Rosemary Tannock, PhD, Professor of Psychiatry, University of Toronto, Toronto, ON
Rosalia Yoon, PhD candidate, Centre for Addiction and Mental Health, Toronto, Ontario
Michael Zwiers Ph.D. Psychologist & Manager, Clinical Services and **Krista Forand**, Intake Clinician, Calgary Learning Centre, Calgary, AB (contributors to Chapter 6)

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PREFACE AND ACKNOWLEDGEMENT

What is CADDRA? The Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA) is a national, independent, not-for-profit association whose members are drawn from family practice, paediatrics, psychiatry (child, adolescent and adult), psychology and other health professions. We hope to support individuals with Attention Deficit Hyperactivity Disorder (ADHD) and their families and provide ongoing support to those who are delivering care for ADHD in their communities across Canada.

The evolution of the 3rd Edition. This third edition of the CADDRA Canadian ADHD Practice Guidelines (CAP-G or Guidelines) evolved from earlier editions of the CAP-G published in 2006[1] and 2008[2]. The Guidelines were developed to help Canadian physicians diagnose and treat ADHD across the lifespan. Many ADHD specialists and general physicians contributed to its writing. The Editorial Committee is made up of the CADDRA Executive Board. All contributing authors are experts selected on the basis of their contributions to treatment, education and research in the area of ADHD and represent several different disciplines from across Canada.

These Guidelines are unique (even from other Guidelines or Toolkits in the world) in that they:

a) have been produced by a multidisciplinary team
b) have been translated into French and English (including additional online material)
c) are specific to Canadian practice
d) include the entire lifespan of this disorder
e) speak to diagnosis and treatment in real-life conditions of practice where resources are limited
f) use paper and fonts that make for high resolution photocopies and are formatted so that they can be easily downloaded from the CADDRA website
g) recognize that ADHD is a disorder which will require treatment using a shared care model between specialists and primary care practitioners
h) stipulate both what can be handled in primary care and recommend when referral to specialists may be required
i) express our belief that the best care comes from optimizing care for each individual. We do not prioritize medications on a hierarchy or algorithm that can be considered appropriate for all patients
j) inform physicians but also empower patients to make informed choices in a collaborative process of care.

Features of the 3rd Edition

a) The current CAP-G is an **active document** that will be revised online as new information is obtained, and reprinted as required.
b) The **binder format** will allow the clinician to add and remove sections as revisions are made and for purposes of photocopying. The binder can also be used to file additional CADDRA information and newsletters.
c) The final drafts were sent for **independent review** by clinicians across the country and in the US.
d) The **authors were not paid** in any way for their contribution to the CAP-G. Declarations of conflicts of interests for each author are found on page ii.
e) The Guidelines receives **no financial grants from industry**. The cost of production is recouped entirely from sales.

f) The rating scales and tools developed by CADDRA are free and were created with the express purpose of being **user-friendly** in order to allow assessment of ADHD in primary care to become both a rigorous and efficient process. Written permission for use of the additional scales has been obtained.

g) There is a new section on **psychosocial treatments**.

h) The **medication sections** have been updated and regrouped.

i) The Guidelines are part of a **comprehensive educational program** to help clinicians reach the highest standards of clinical care.

j) These Guidelines are available free of charge on the CADDRA website, **www.caddra.ca** and CADDRA eLearning portal: **www.adhdlearning.caddra.ca**.

The Guidelines should be used by clinicians for interactive instruction on the diagnosis and treatment of ADHD across the lifespan. The website allows clinicians and their patients to download information, diagnostic instruments, forms and scales – all of which have been selected based on their validity, reliability and accessibility. References and an index of terms are included at the end of the document.

Evidenced-based versus Consensus-based. The CAP-Guidelines Committee has reviewed the other ADHD guidelines and consensus statements in current use. There are many, including the American Academy of Child and Adolescent Psychiatry Guidelines[3]; the American Academy of Pediatrics Guidelines[4]; the Texas Children's Medication Algorithm Project[5]; the American Psychiatric Association Diagnostic and Statistical Manual – Fourth Edition- Text Revision[6]; the American Psychiatric Association Diagnostic and Statistical Manual – Fifth Edition (DSM-5)[246]; the European Treatment Guidelines[7]; the National Institute of Health and Clinical Excellence (NICE) Guidelines[8]; and the British Association for Psychopharmacology Guidelines[9]. While there is a high degree of consensus among these publications, there are also very significant international differences. The most obvious difference is seen in the recent NICE Guidelines[8], which recommend medication treatment only in more severe cases, whereas the American practice is almost the opposite: start with medication and then see what else is necessary. In addition, the use of different diagnostic instruments, such as ICD-10 or DSM-IV, has also led to differences in what population is being referenced in a particular Guideline. The Canadian practice is holistic-based care, individualized to the patient, with medications as part of the treatment agenda.

The editors have been careful to identify which facts are consensus-based (CB). This information is noted in the text. Evidence-based (EB) data is cited in the literature detailed in the reference section. CB data was produced, as it suggests, by a consensus of the experts within the CADDRA Board after careful and rigorous consideration of the current facts. CB decisions have been made if there was no current EB data available to deal with a specific clinical issue or where the EB data may have been impractical in the Canadian environment.

It is clear that service delivery for ADHD is only feasible if it is within the scope of primary care practice. There is no country in the world with a sufficient number of specialists to provide diagnosis and treatment for what is one of the most common disorders of childhood and affects 4.4% of adults[10]. There are few if any guidelines available to assist physicians treating adults with a childhood history of ADHD. By providing these Guidelines, in English and in French, it is our hope that this impaired and treatable population will be appropriately serviced in the public healthcare system.

CADDRA GUIDING PRINCIPLES

Vision

To improve the quality of life for patients and their families living with Attention Deficit Hyperactivity Disorder (ADHD) while maximizing their potential across the lifespan.

Mandate

CADDRA is a national Canadian alliance of professionals working in the area of ADHD and dedicated to world class education, training and advocacy.

Mission (Objectives)

- To take a leadership role in disseminating information on ADHD in Canada
- To develop and update the Canadian ADHD Practice Guidelines (CAP-Guidelines)
- To facilitate development and implementation of training standards in the care of ADHD patients
- To share information among all stakeholder groups. To advocate to governments, teaching environments, employment organizations or others who interface with ADHD patients.

CADDRA GUIDELINES – CORE PRINCIPLES

Principles for Assessment and Diagnosis

1. The clinician must be accredited by his or her regional and national associations
2. The clinician has to be adequately trained in order to understand the developmental context of ADHD
3. The diagnosis needs to reflect an understanding of multi-systemic issues that relate to ADHD (e.g. the educational/vocational, psychosocial, psychiatric and the medical interfaces)
4. Every patient deserves to be seen in a place of safety that promotes the therapeutic alliance with the clinician
5. There should be no cost for distributing or scoring any of the materials from the CAP-G so that there is universal access to the best assessment materials
6. Symptoms and functional impairment must be recorded using valid, reliable and sensitive rating scales to evaluate symptom frequency, severity, and outcome
7. The clinician must document all relevant findings in a timely manner both for purposes of outcome but also for review
8. The results of the assessment should be communicated to the patient and their family with clarity and compassion.

Principles for Intervention

The five tiers of holistic-based care

ADHD is a chronic medical condition and requires long-term planning. It must include regular contact with the patient and the family about progress and performance. The family doctor, along with the pediatrician and child psychiatrist (in the case of children and adolescents) or the psychiatrist (when dealing with adults), are key professionals. Treatment should be multi-modal; there is no one treatment for ADHD (including medication) that has been demonstrated to assure a good long-term outcome in isolation[209].

1. ***Adequate education of patients and their families***
   Psychoeducation must be the first intervention. The more educated the family and the patient are, the better are their choices and the response to treatment. An integrated approach to ADHD education includes information on interventions related to:
   a) support for families and their advocacy of ADHD
   b) psychosocial and medical treatments
   c) patient, parent and school management, and
   d) occupational/educational accommodations.

2. ***Behavioural and/or occupational interventions***
   The core strategy is to develop better habits that, ultimately, may lead to coping strategies that minimize the patient's impairments. ADHD patients may take longer to integrate such habits into their lives. The therapeutic alliance between patient and clinician is necessary and an optimistic attitude can facilitate this process.

3. ***Psychological treatment***
   ADHD patients are at significant risk of being targets of intentional and unintentional conflict. There is a direct effect on their self-esteem and on the well-being of their families. They require a positive environment, sensitivity and understanding. Interventions may include individual and/or family support, counselling and therapy to help minimize damage to self esteem from such experiences. Cognitive behavioural psychotherapy has been demonstrated to be a useful adjunctive treatment for adolescents and adults, though evidence in children is still controversial.

4. ***Educational accommodations***
   ADHD should be classified as a developmental neuropsychiatric disorder and the patient should have access to educational accommodations where necessary. ADHD should be protected by the same type of legislation available in the United States, where every child is entitled to the education that meets his or her needs. By contrast, ADHD alone does not qualify a student for an "exceptional" educational designation in some Canadian provinces. This must change.

5. ***Medical management (as a way to facilitate the other interventions)***
   ADHD is a medical condition that requires an understanding of the medical options. Every patient should have access to the best medications available, regardless of their financial situation. Each patient must be treated uniquely. There is no one medication that is suitable for every ADHD patient. The guiding principle of medication management is to start low and go slow for most patients, though weight-based guidelines may be used as a way of estimating dose during the initial prescription.

Principles of Informed Consent

Ensure that the patient and family have had an adequate opportunity to educate themselves and then ask relevant questions regarding the disorder and its treatment. The following 'Principles of Informed Consent' should be reviewed.

Patients and their families need to be educated as follows:

1. They need to understand the proposed treatment plan
2. There must be a discussion of the risks and benefits of the prescribed treatment
3. Information on alternatives to treatment must be provided
4. There needs to be discussion regarding potential risks of no treatment.

A collaborative and long-term relationship between physician and patient is critical. Many doctors and patients associate the basis of their relationship with the prescription. When the medication is discontinued, so is the doctor. Instead, the hope would be that the basis of the relationship is long-term treatment of the disorder that respects the concerns of the child, adult or family in order to maintain the therapeutic alliance.

Principles of Advocacy

Patients and their families must be empowered. Facilitate this process by participating in advocacy campaigns that advance patient care. These will be posted on the **www.caddra.ca** and **www.caddac.ca** websites.

ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
ADHD-C	ADHD, Predominantly Combined Subtype
ADHD-HI	ADHD, Predominantly Hyperactive-Impulsive Subtype
ADHD-I	ADHD, Predominantly Inattentive Subtype
AMP	Amphetamines
ASD	Autism Spectrum Disorder
ASPD	Antisocial Personality Disorder
ASRS	Adult Self Report Scale
ATX	Atomoxetine Hydrochloride
BAD	Bipolar Affective Disorder
BD	Bipolar Disorder
BPD	Borderline Personality Disorder
CAAT	CADDRA ADHD Assessment Toolkit
CADDRA	Canadian Attention Deficit Hyperactivity Disorder Resource Alliance
CADDAC	Centre for ADHD/ADD Advocacy, Canada
CAP-G	Canadian ADHD Practice Guidelines
CB	Consensus Based
CBT	Cognitive Behaviour Therapy
CD	Conduct Disorder
CV	Cardiovascular
DCD	Developmental Coordination Disorder
DEX	Dextro-amphetamine
DMDD	Disruptive Mood Dysregulation Disorder
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, text revision
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5th Edition,
EDS	Excessive Daytime Sleeping
EB	Evidence Based
GAD	Generalized Anxiety Disorder
HAM-A	The Hamilton Anxiety Rating Scale
HAM-D	The Hamilton Rating Scale for Depression
IH	Idiopathic Hypersomnia
IPT	Interpersonal Psychotherapy
JDQ	Jerome Driving Questionnaire
MD	Major Depression
MPH	Methylphenidate
NICE	National Institute for Health and Clinical Excellence
OCD	Obsessive Compulsive Disorder
ODD	Oppositional Defiant Disorder
PD	Personality Disorder
PDD	Pervasive Developmental Disorder
PLMS	Periodic Limb Movements in Sleep
RLS	Restless Legs Syndrome
S-ADHD	Secondary Attention Deficit Hyperactivity Disorder
SDB	Sleep Disordered Breathing
SLD	Specific Learning Disorder
SUD	Substance Use Disorder
TS	Tourette's Syndrome
WISC	Wechsler Intelligence Scale for Children
WFIRS-P	Weiss Functional Impairment Scale – Parent Report
WFIRS-S	Weiss Functional Impairment Scale – Self Report
WSR	Weiss Symptom Record
Y-BOCS	Yale-Brown Obsessive Compulsive Scale

CHAPTER 1: DIAGNOSIS AND OVERVIEW OF VISITS

The Management of Uncomplicated ADHD From Diagnosis to Treatment

We are well aware that a busy family or primary paediatric practice may not have the luxury of time to carry out the longer assessment typical of a specialist paediatric or psychiatric visit. With this in mind, we have piloted this visit schedule with family doctors and community paediatricians in Canada for feedback and we are confident it is user-friendly, although remuneration schedules in some regions may make this schedule difficult to implement. We feel the comprehensive nature of the assessment adds credibility to the diagnosis. The work can be done in multiple visits that are as effective – if not more – than a single, longer one.

In Canada, paediatricians and family physicians are on the front line in screening for, assessing, and initiating treatment for ADHD in children, while adult psychiatrists and family doctors assess and manage adults with ADHD. However, since ADHD is the most common childhood psychiatric disorder[11], adequate levels of service delivery for ADHD are only going to be feasible when it becomes a disorder that primary care providers are trained to deal with, and when they can access specialist care when needed.

This outline is organized around proposed assessment and treatment visits. Physicians can use this as a guide. The objective of our summary is to allow physicians to know how to screen for ADHD across the lifespan, to conduct a reasonable assessment in simpler cases, and to know when to refer.

In complicated cases of ADHD (ADHD Complex) – where there are comorbid conditions, differential diagnosis and management with often multiple interventions and multiple medications – assessment and treatment of ADHD may be more difficult. It is the view of the CAP-G Committee that in such cases the patient should be referred to a specialist. However, once the patient is assessed and treatment initiated, it is reasonable for follow-up to be conducted by family doctors and primary care pediatricians.

CADDRA ADHD Assessment Toolkit (CAAT) – Overview

The CADDRA ADHD Assessment Toolkit is broken into CAAT Forms and CAAT Handouts sections (see index at the start of each). The required assessment templates, questionnaires and handouts are within each section. These tools are free to download from **www.caddra.ca** and print or duplicate as long they are not altered and the CADDRA logo and the appropriate credits remain intact. This toolkit is designed to support clinicians familiar with ADHD. Clinicians not familiar with ADHD are urged to attend training programs (including those hosted by CADDRA) or to go to the website for online training programs when they become available. Further information can be obtained from **www.caddra.ca**.

The assessment templates can be photocopied and used as follows:

1. The CADDRA ADHD Assessment Form and the CADDRA Patient ADHD Medication Form (to record somatic symptoms present prior to treatment) allow the doctor to document his/her findings during the interview itself and therefore provide a permanent record of the history and the supporting information for diagnosis. Should a report ever be required, the CADDRA ADHD Assessment Form allows for easy review/dictation in a logical format, even when the interview itself ran in different directions.
2. Rating scales and questionnaires can be used as an efficient way to obtain information from the patient and collateral sources. They are NOT diagnostic. They remain a part of the medical record and document change over time. It is important to remember that these tools measure the presence of symptoms but not their cause. *Clinical judgement is mandatory for the interpretation of the results.*

Reasons For Assessment or Referral

Patients may come to you or are referred for a wide variety of reasons:

1. someone close to the patient has learned about ADHD and recognizes traits in the patient (e.g. a relative, teacher, employer, colleague or friend)
2. the patient (typically an adolescent or an adult) has learned about ADHD and recognizes the relevant symptoms
3. a relative has already been diagnosed with ADHD and this triggers an awareness of ADHD within the patient (e.g. a child is diagnosed and one or both the parents think they may also have ADHD)
4. there are functional difficulties that the patient presents with (such as behavioural or attention problems, academic issues, difficulty with paperwork, time management, driving, smoking or marital problems) and the clinician postulates ADHD as a possible explanation.

Some physicians may be wary of patients self-referring with a possible ADHD diagnosis. They may suspect that the patient is looking for drugs, adaptations or an explanation/excuse for other problems. Clinical experience indicates this is an infrequent occurrence.

Practice Point: *Keep in mind that self-referral neither guarantees nor eliminates a diagnosis of ADHD.*

VISIT 1: SCREENING VISIT AND/OR TELEPHONE SCREEN

Presenting Complaint and Documentation Initiation

Review with the parents/patient their concerns, the reason for referral and the parents'/patient's hopes for the assessment.

Practice Point: *Simple questions to ask (any one should trigger concern). With an adult, clarify if the symptoms have been present since they were young.*
1. Do you find it harder to focus, organize yourself, manage time and complete paperwork than most people?
2. Do you get into trouble for doing impulsive things you wish you had not?
3. Do you find you are always on the go, or that you are constantly restless or looking for something exciting to do?
4. Do you find it really difficult to get motivated by boring things, though it is easier to do the things you enjoy?
5. Do people complain that you are annoying or are easily annoyed, unreliable or difficult to deal with?

If there is any suspicion of ADHD, begin to complete the CADDRA ADHD Assessment Form. Physicians may be somewhat reluctant to complete the semi-structured interview and scales we have provided for assessment since it is their usual practice to take notes as they go. They may feel patients will find this process tedious or that it interferes with their ability to "create a relationship". We would suggest that patients are more likely to be pleased to know their doctor is conducting a full and systematic evaluation. The interview is designed to document all necessary information and it can be inserted directly into your medical records to document care.

Practice Point: *Make sure you review the patient's strengths NOT just his or her areas of weakness. This establishes a rapport with a child, adolescent or adult and their family that makes future visits easier and can aid intervention planning. A useful rule of thumb is to ensure that each interview ends with a statement about the courage and coping skills that the patient and/or family have used to work with difficult circumstances, outlining and affirming the importance and value of these efforts.*

At the END of the Screening Visit:

1. give the patient the relevant inventories necessary for the next visit (see age group below)
2. ask the patient to bring all documentation from their past (e.g. school report cards, assessments, etc.)
3. obtain written consent to release information for institutional documentation
4. book the next appointment.

It is recommended that physicians complete an assessment form (A), a screener (S) and at least one rating scale (R). For children, the CADDRA Teacher Assessment Form (T) is also suggested; for adults, a collateral rating scale is useful. Follow-up forms (F) are also recommended, but a baseline of the chosen forms must be carried out initially.

Children and Adolescents (age 6 to 18):

1. CADDRA Information and Resources (Handout)
2. ADHD Checklist **(R) (F)**
3. Weiss Symptom Record (WSR) **(S)** for parents, teachers and adolescents in high school
4. Weiss Functional Impairment Rating Scale for Parents (WFIRS-P) **(R)**
5. CADDRA Teacher Assessment Form **(T)** to be completed by the teacher who knows the patient best
6. SNAP-IV-26 **(R)**
7. CADDRA Child or Adolescent Assessment Instructions
8. CADDRA Teacher Instructions.

Adults:

1. CADDRA Information and Resources (Handout)
2. ADHD Checklist **(R) (F)** to document child symptoms by patient and other, can also be used to document current symptoms
3. Adult ADHD Symptom Rating Scale (ASRS) **(R)**
4. Weiss Symptom Record (WSR) **(S)** for the patient and their significant other, close friend or parent
5. Weiss Functional Impairment Rating Scale – Self Report (WFIRS-S) **(R)**
6. CADDRA Adult Assessment Instructions

Practice Point: *Adults are not very good at bringing back forms so it might be better for them to fill out the relevant questionnaires in the office before they leave.*

VISIT 2: MEDICAL HISTORY AND PHYSICAL EXAM

Objectives for this Visit

1. collect the documentation from past records
2. obtain the relevant questionnaires for scoring before visit 3
3. determine if there is any missing information from the previous session
4. continue the **CADDRA ADHD Assessment Form** to:
   - complete the physical examination (or document that a physical examination was completed by a colleague)
   - ensure that there are no other medical causes of the symptoms of ADHD
   - review the possible medical consequences of having ADHD (e.g. accidents, sleep, poor nutrition)
   - ensure that there are no medical contraindications to the use of medications for the impairing ADHD symptoms.

Practice Point: *If there are any signs or symptoms of a physical illness that may be a factor in explaining the clinical symptoms, this takes precedence in the evaluation. Only when these factors are ruled out should the following steps be taken.*

At the END of this Visit:

1. review the list of documents required. Remind the patient of what is missing and give them a list
2. order any relevant clinical tests based on the physical findings to rule out medical causes and risk factors
3. obtain written consent to release information for institutional documentation (if more required)
4. make referrals for medical assessments if necessary (e.g. occupational therapist if there are coordination problems; speech and language therapist for expressive or receptive language problems)
5. book the next appointment and, if patient is an adult, arrange to obtain information from a collateral source that knows the patient's early childhood experiences (such as parents, if possible).

Practice Point: *If parents strongly object to involving a child's school, the physician should let the parent know that without an understanding of whether there are ADHD difficulties in the classroom he/she will only be able to provide a limited assessment. We have not encountered any problems with regard to schools refusing to complete the forms and have designed them to be as efficient as possible for the teacher. If this issue were to arise, it would be important to provide the parent with your telephone number and request that the parent ask the teacher or principal to call so that the matter can be discussed.*

VISIT 3: ADHD INTERVIEW (Over several visits if needed)

Practice Point: *Begin the interview by talking about the patient's strengths that were uncovered in the first session. The patient may not show clinical symptoms in your office setting. If there are obvious symptoms of motor hyperactivity, impulsivity and inattention, it suggests that the symptoms are more severe. Part of an ADHD assessment is observing not only the nature of the impairment and symptoms but the triggers that allow them to become apparent.*

The Objectives for this Visit(s)

- Do a complete review of the childhood developmental history for adults and a review for children/adolescents, determining that relevant symptoms were there before the age of seven
- Assess whether there are any life events that were of emotional concern in childhood (e.g., abuse, deaths, major changes)

Practice Point: *ADHD is a biologically-based disorder. Try to separate out symptoms caused by psychosocial stressors. This can be very difficult, particularly when the patient has suffered significant loss or trauma.*

- Obtain collateral information from the patient's mother/father or from a close relative that knows the patient's childhood story

Practice Point: *Some parents tend to dismiss problems in their adult children but will be able to tell stories about their behaviour if asked. It is also useful to establish the patient's temperament as a child.*

- Review the CAAT Rating Scales: ADHD Checklist, Weiss Symptom Record, WFIRS-P, the CADDRA Teacher Assessment Form (for children/adolescents) and WFIRS-S (for adults)

Practice Point: *It is useful to make your clinical impression BEFORE you look at the results of the questionnaires. Then see if the data from the questionnaires supports or refutes your conclusions.*

ACTION **At the END of the Interview Section:**

1. make necessary referrals for specialty assessment (e.g. to a psychologist; for an adult, to a psychiatrist or neurologist; for a child/adolescent to a developmental paediatrician, child and adolescent psychiatrist or paediatric neurologist)
2. make any necessary referrals based upon clinical findings
3. request a psychoeducational assessment if indicated (see Chapter 6; Supporting Documents 6A)
4. continue to emphasize the need for them to learn about ADHD and ensure they are aware of the relevant websites for more information
5. provide them with any handouts from the toolkit or supporting documents
6. arrange for the feedback and treatment appointment.

Practice Point: *Some students will be able to access psychoeducational assessment through their school system. For patients who can afford a private assessment, it is useful to have a list of local psychologists who offer assessment of learning and support needs in the context of ADHD, including strategies for successful accommodations at school. Sometimes local colleges and universities offer psychometric assessments at a reduced rate as they need subjects for their psychology interns. This may help reduce costs.*

VISIT 4: FEEDBACK AND TREATMENT RECOMMENDATIONS

Only proceed to feedback and treatment if the patient:

- has well documented evidence of impairment
- meets the thresholds for ADHD on the assessment batteries
- shows no other medical problems that would contraindicate further treatment
- has uncomplicated ADHD, i.e., no comorbid disorders (except Oppositional Defiant Disorder)
- is motivated to learn about ADHD (adult) or has parent(s)/guardian(s) that are motivated.

If the patient does not meet this threshold then:

- backtrack to see where the problem may have arisen and clarify using appropriate interventions
- pursue referrals to ADHD specialists.

Feedback of the Diagnosis

1. Review the threshold rating scales to determine if they meet criteria for ADHD. Look for consistency between the rating scales and between observer comments
2. Review the developmental history, identifying impairments which are often associated with ADHD, symptoms noted clinically and on the Weiss Functional Impairment Rating Scale (WFIRS)
3. For children/adolescents review the CADDRA Teacher Assessment Form
4. Review all other documentation, such as report cards and prior assessments, to determine if there is consistency
5. Give feedback related to the interview and collateral sources
7. Based on the findings above, present the diagnosis and any other concerns that might be relevant.

Dispelling Myths

Many patients come into an assessment for ADHD with false information or beliefs. Examples are:

- I am just lazy and looking for an excuse
- I don't want to take medication that could change my personality
- I am not the one with the problem, my spouse/employer/parent/teacher/school system is the problem
- I had it as a child but it went away
- I don't have all of the clinical symptoms
- ADHD is just a current fad
- and more ....

Practice Point: *This is a diagnosis that arouses a lot of emotion. It is very important to ensure that the patient and their family's concerns are heard and not dismissed. This is a collaborative process. This is even truer when there are differences between the patient and the person who initiated the referral. When there are conflicts, it is useful to focus on the person's strengths and to avoid blaming. Often the negative emotion emanates from fear and the loss of control. Empowerment is healing.*

Feedback of the Treatment Plan[12]

1. Ask the patients for their feelings, questions and reactions
2. Explain the impact of the diagnosis in school/vocational settings. E.g. documentation on the official diagnosis may be critical in order to receive various benefits (e.g. special funding) and accommodations
3. Review the areas of impairment, trying to narrow down the major symptom that is troubling the individual
4. Explain the multimodal treatment agenda:
   - The need for more education
   - Psychosocial treatments explaining the behavioural–lifestyle agenda, the school/vocational accommodations required, and the psychological interventions to deal with self-esteem and life stressors
   - Medication agenda – using medications to support the psychosocial agenda.
5. Relay the diagnosis through your report to stakeholders (with the patient's consent)
6. Arrange for follow-up, referrals, consultations, laboratory work or other interventions as needed.

At the END of this Visit:

1. give the patient the necessary handouts related to the treatment plan for them to review, including the psychosocial and medical treatment information
2. make the necessary referrals for the psychosocial agenda or schedule the patient with you if you are the provider
3. book the next appointment for the medication discussion.

VISIT 5: MEDICAL TREATMENT AND ADVOCACY

Objectives for this Visit (Go to Chapter 7 for a detailed review of medications)

1. Discuss the medical treatment options
2. Select the initial medication and review the dosing strategy. *Begin with the minimum dose recommended in these Guidelines and increase slowly* in order to assure the optimum comfort on medication.

Practice Point: *Sometimes the medical treatment is in response to a short-term emergency (e.g. aggression) but the long-term objective is improving functioning with a better quality of life and long-term maintenance.*

ACTION **At the END of this Visit provide:**

- a prescription if clinically indicated and the patient is ready and requests to start medication
- the 26 item ADHD Checklist (to be completed by patient, teacher or significant other before and for the period during which the patient is on optimal medication)
- the CADDRA Patient ADHD Medication Form should be filled out by the patient or parent(s) before medication is started and then regularly (see Practice Point) based on current symptoms
- an appointment for follow-up regarding the medication effects. Remind the patient/parent(s)/ guardian(s) that they are to bring the CADDRA Patient ADHD Medication Forms, the ADHD Checklist and, where relevant, the CADDRA Teacher Assessment Form to each visit.

Practice Point: *While adjusting the medication, we suggest the patient or parent completes the CADDRA Patient ADHD Medication Form every Wednesday and Saturday evening based on the day's symptoms. Collecting information in the middle of the week and at the weekend gives a better view of everyday symptom control and medication tolerability.*

Follow-up Visits

- Follow-up every three to four weeks is necessary until medication is optimized. A telephone call or secured email communication may be sufficient in the interim to ensure the patient has access to the doctor in case of questions related to efficacy or side effects.
- Once an optimal dose has been determined, the ideal medication follow-up would be every three months.

Drug "Holidays" CB

- Non-stimulant medications are usually given continuously as they rely on a blood level being sustained to establish treatment efficacy as mentioned in product monographs. However, for all medications, a trial of dose reduction or discontinuation is necessary at some point to determine if they are needed, and what positive and negative effect they are having
- Drug "holidays" for children with ADHD have been controversial. It has been argued that the risks of medication discontinuation exceed any potential benefits. More recently, the finding from the Multimodal Treatment of ADHD[13] study (that intermittent use of medication diminishes loss of height and weight) again brought the topic to the forefront, with physicians asking if drug "holidays" may have the same effect. Drug "holidays" have been described as having other important advantages. For example, they ensure that the patient and physician continue to monitor benefits and risks of medication or continued need for medication. In the event of deterioration, medication can be restarted. For children and adolescents, drug "holidays" may have an educational function in allowing them to be able to report subtle psychiatric side effects or to recognize beneficial effects they were not aware of. It is also not currently known if time off medication may minimize tolerance, dose increases, or total lifetime dose of exposure. At this time, there is no data to provide a definite recommendation on drug "holidays" and our consensus CB recommendation is that the risks, benefits and alternative coping strategies be discussed with each family and that an individualized approach be taken.

CHAPTER 2: DIFFERENTIAL DIAGNOSIS AND COMORBID DISORDERS

Introduction

When making an ADHD diagnosis, it is important to exclude other disorders that might overlap with ADHD or mimic ADHD symptoms. The differential diagnosis for ADHD is lengthy and ADHD is a highly comorbid psychiatric disorder. **Consider a second opinion or referral to an ADHD specialist if the patient has a clinical history that is complex or if you are contemplating medication treatment beyond those recommended in these Guidelines**[14].

Most individuals with ADHD have co-occurring conditions which may complicate the clinical presentation. Often these comorbid disorders need to be dealt with concomitantly.

- 50-90% of children with ADHD have at least one comorbid condition[10];
- Approximately half of all children with ADHD have at least two comorbidities[10];
- 85% per cent of adults with ADHD meet criteria for a comorbid condition[260].

Comorbidity contributes to the failure to diagnose ADHD in adults and children. Follow-up studies of children with ADHD and comorbidity show they have a poorer outcome than children with ADHD alone, as evidenced by significantly greater social, emotional and psychological difficulties[19]. The most common comorbidities identified in the Multimodal Treatment Study of ADHD[18] and in other comorbidity studies have been remarkably consistent.

High rates of comorbidities with ADHD have been reported in both clinical samples and epidemiological studies. Many authors have indicated that comorbidity is generally higher for ADHD in both children and adults. Several competing hypothesis are proposed to account for this high rate of comorbidity. ADHD with a comorbid condition may be indicative of one disorder being an early manifestation of the other, or that development of one disorder increases the risk for the other. Another possibility is that one disorder is a subtype of the other (conduct disorder and ADHD may be a subtype of ADHD). Comorbid disorders may share common vulnerability factors or genetic and psychosocial factors. Each disorder might be an expression of phonotypic variability or, finally, each disorder is a separate entity. More research is needed to understand the validity of each hypothesis.

Disorder-based Differentiation

Differential diagnoses are disorders that mimic ADHD while comorbid disorders are disorders that occur together with ADHD (either causally-related or independent and occur concurrent with ADHD). A careful assessment of other possible diagnoses should be undertaken at the time of evaluation.

Common Differential Diagnosis for ADHD

This table is modified from *Clinician's Guide to ADHD* with permission of the author, Dr. Joseph Sadek.

Conditions that Can Mimic ADHD	Symptoms or Signs not Characteristic of ADHD
Psychiatric Disorders	
Generalized Anxiety Disorder	Worry for six months or more that the person cannot control; lack of energy; anxious mood and somatic anxiety symptoms.
Obsessive Compulsive Disorder	Presence of obsessions or compulsions that interfere with level of function.
Major Depression	Episodic decline in mood or depressed mood and/or dysphoria ; suicide-related issues; low energy; psychomotor retardation.

Conditions that Can Mimic ADHD	Symptoms or Signs not Characteristic of ADHD
Bipolar Disorder I or II (manic or hypomanic episode)	Episodic change from baseline; psychotic symptoms; grandiosity; pressured speech; recent decreased need for sleep.
Psychotic Disorder (schizophrenia or schizoaffective disorder)	Psychotic symptoms.
Autism Spectrum Disorder	Qualitative impairment in social interactions, communication or odd eccentric behaviours.
Oppositional Defiant Disorder	Defiant; loses temper; annoys others and is easily annoyed; spiteful or vindictive.
Conduct Disorder	Presence of conduct disorder criteria e.g. aggression to people and animals; destruction of property; deceitfulness or theft; serious violations of rules.
Disruptive Mood Dysregulation Disorder	Severe recurrent disproportional temper outbursts (verbal and/or physical) occuring three or more times a week in at least two settings for 12 months or more. Diagnosis first made between ages six to ten years.
Substance Use Disorder	Urine toxicology screen confirms presence of substance.
Learning Disorder	Consultation with psychologist or neuropsychologist confirms presence of the disorder.
Language Disorder	Consultation with speech-language pathologist confirms presence of the disorder.
Tic Disorder/Tourette syndrome (TS)	Presence of vocal or motor tics (or both for TS).
Borderline Personality Disorder	Abandonment anxiety; hourly mood fluctuations; suicidal threats; identity disturbance; dissociative symptoms or micro psychotic episodes; feelings of emptiness.
Antisocial Personality Disorder	Lack of remorse; lack of responsibility; lack of empathy.
IQ-related problems: Intellectual disabilities Gifted child	Cognitive assessment confirms diagnosis **Note**: If IQ is within the normal range: explore whether curriculum is not well matched to child's ability.
Medication-related	
Medication with cognitive dulling side effect (e.g. mood stabilizers)	
Medication with psychomotor activation (e.g. decongestants, beta agonist)	
General Medical Conditions	**Investigations confirm the diagnosis of the medical condition**
Head Trauma/Concussion	Since underlying ADHD can increase risk for head trauma, it is important to look for timing of cognitive symptoms apparition (present before, or appeared or worsened after head trauma).
Seizure Disorders	Neurology assessment confirms diagnosis.
Hearing Impairment or Vision Impairment	Audiology and vision evaluation confirms diagnosis.
Thyroid Dysfunction	TSH levels indicate hypothyroidism or hyperthyroidism
Hypoglycemia	Abnormally low glucose blood levels confirms diagnosis
Severe Anemia	CBC and anemia investigations confirm diagnosis
Lead Poisoning	Lead blood level measurement confirms diagnosis
Sleep Disorders	Sleep lab assessment confirms diagnosis
Fragile X Syndrome	Molecular genetic testing for FMR-1 gene confirms diagnosis. Genotype confirms diagnosis
Fetal Alcohol Spectrum Disorder (FASD)	- Possible presence of intellectual disability - Growth deficiency and FAS facial features - Evaluate prenatal alcohol exposure risk - Magnetic brain imaging - Psychological assessment (including intellectual, language processing, and sensorimotor)
Phenylketonuria	Blood test confirms diagnosis
Neurofibromatosis	Café au lait spots
Other Factors	
Unsafe or disruptive learning environment	
Family dysfunction or poor parenting	
Child abuse or neglect	
Attachment Disorder	

A thorough history and full functional review accompanied by a physical examination will often confirm underlying physical conditions. In certain instances, laboratory work up will be needed in order to eliminate a suspected pathology. However, most individuals with ADHD do not need laboratory investigations as part of their diagnostic assessment. Some special investigations may be relevant, including polysomnography, electroencephalogram or brain imaging. Psychological testing, like WISC-IV (in children) or the WAIS (in adults), is often useful as it addresses any learning issues and helps to ascertain specific components of cognitive functioning that have overlaps with executive functioning (e.g. working memory and processing speed). Other tests, like personality assessment or projective testing, might be helpful to establish personality traits and assessing contact with reality.

Comorbidities[15-17]

Comorbid Problems that can complicate ADHD evaluation and treatment

Psychiatric Problems	Clinical aspects to take into account in the treatment process when comorbid with ADHD
Mood Disorders	
Major Depression	Treat the most impairing disorder first. Moderate to severe depression should be treated first and suicide must be assessed in all cases. Dysthymia and mild depression may benefit from ADHD treatment first. Stimulants can be combined with the majority of antidepressants when monitored. Also consider CBT. In adults, Bupropion and Desipramine may reduce ADHD symptoms, but with an effect size significantly lower than psychostimulants.
Bipolar Disorder	Treat Bipolar Disorder first. Treatment of ADHD can be offered when Bipolar Disorder is stabilized. Refer to specialist.
Anxiety Disorders	
Generalized Anxiety Disorder Panic Disorder Social Phobia OCD Post-Traumatic Stress Disorder	Treat the most impairing disorder first. Some patients may show worsending of anxiety and some may show improvement in their symptoms. ADHD treatments can be less tolerated in some individuals in this population. Note possible pharmacological interactions with meds metabolized through CYT2D6 system. Start low, go slow but titrate up to therapeutic dose. If not tolerated, switch to another medication, like atomoxetine. Also consider CBT. If Atomoxetine is much less effective, can refer to specialist for augmentation with stimulants.
Autism Spectrum Disorder (ASD)	ADHD treatments can be less tolerated in some individuals in this population but could be very helpful in the general management. Start low, go slow, but titrate up to therapeutic dose. If not tolerated, switch to another medication. Refer to specialist for specific interventions for ASD
Psychotic Disorders	Treat Psychotic Disorder first. (Refer to a specialist: treatment of ADHD can trigger a psychotic relapse in a predisposed patient). Stable patients who are in remission may benefit from ADHD treatment.
Oppositional Disorder and Conduct Disorder	Treat both conditions. Oppositional Disorder needs psychosocial interventions. Moderate and severe cases might require combinations of psychostimulants and an Alpha 2 agonist such as clonidine, or guanfacine. Conduct Disorder needs psychosocial interventions and may involve legal issues. Pharmacological treatment of ADHD may help better modulate reactive-impulsive behaviours. Adding an antipsychotic might improve the symptoms of conduct disorder, according to some cases cited in the literature.
Borderline Personality Disorder	Reducing impulsivity and increasing attention when treating comorbid ADHD may help the patient with a personality disorder to better participate in their psychological treatments.
Antisocial Personality Disorder	Treating patients with APD + ADHD requires more complex and comprehensive interventions.

Medical Problems	Clinical aspects to take into account in the treatment process when comorbid with ADHD
Epilepsy	Treat epilepsy first, then ADHD. New onset seizure should be managed with antiepileptic medication. Level of antiepileptic medications may increase with methylphenidate due to enzyme inhibition [245].
Tics	ADHD medications do not cause tics but some may increase or reduce tics. However, the presence of tics is not a contraindication for ADHD medication. Atomoxetine, clonidine and guanfacine have shown promise in this population. Addition of antipsychotic may be required in severe cases.
Sleep-related Disorders	Treat primary disorder first.
Sleep Apnea	Psychostimulants can reduce residual sleepiness and improve daily function in sleep apnea and narcolepsy with or without ADHD.
Cardiovascular problems	Physical exam before treatment (BP, pulse and cardiac auscultation). EKG and cardiac consult if positive cardiac history or structural heart disease. Measure BP and pulse and monitor vital signs and cardiac side effects during treatment.
Obesity	Discuss healthy eating and sleep habits and increase exercise. ADHD treatment may improve patient's capacity to implement lifestyle changes

Other Problems	Clinical aspects to take into account in the treatment process when comorbid with ADHD
Learning disorders	Treat specific learning disorders. ADHD treatments can improve attention, allowing improvement in learning skills. School adaptations, study and academic organizational skills should be considered and offered when needed.
Speech Disorders	Treat specific speech disorders. Refer to special education teacher, psychologist and/or speech and language therapist for specific interventions.
Developmental Coordination Disorder	Treat coordination disorders. Refer to occupational therapist and/or physiotherapist for specific interventions.
Low IQ High IQ	Treat ADHD and adapt non pharmacological approaches to the patient's IQ level. Treat ADHD and adapt curriculum to child's IQ level.

Note: Drug combinations and antipsychotics use described in this table is off-label use and reserved for complex cases.

The presentation of ADHD subtypes and the most common comorbid disorders change over time and by developmental stage. The most common comorbid disorders in early childhood are oppositional defiant disorder (ODD), language disorders and enuresis. Many children with ADHD have a specific learning disorder[20]. ADHD is two to three times more common in children with developmental disabilities or borderline IQ and intellectual disabilities. In the mid-school-age years, symptoms of anxiety or tic spectrum disorders may also be observed. Mood disorders tend to be more observable by early adolescence[21-23].

We will briefly describe the key comorbidities and the auxiliary treatments they require. An important clinical note is that outcome is generally determined by the most serious comorbid condition. Very little systematic research exists on sequencing of treatment for comorbidities, and this is generally handled on a case-by-case basis.

ADHD and Specific Learning Disorder

It is important to recognize that the term "Learning Disorder" (LD) in DSM-IV[6] has changed to Specific Learning Disorders (SLD) in DSM-5[246]. SLD and ADHD are now placed in the neurodevelopmental disorders section in DSM-5. The DSM-5 uses a single overarching term, Specific Learning Disorders, rather than distinct Disorders such as Reading Disorder, Math Disorder, Written Expression Disorder and Not Otherwise Specified as used in the DSM-IV-TR. The DSM-5 allows for a single category of SLD with specifiers. That is, the clinician can specify manifestations of learning difficulties at the time of the assessment in three major academic domains such as reading, writing and mathematics (e.g. SLD with impairment in reading, which includes difficulties in word reading accuracy, reading rate or fluency, or reading comprehension).

Given historical concerns about using the IQ-Achievement Discrepancy method, which was a prerequisite in the DSM-IV, this method is no longer required in the DSM-5. Rather, the four new criteria (A-D) for diagnosis state that there needs to be - A: persistence of symptoms (list of clinical symptoms provided) for at least six months despite focused intervention; B: low academic achievement causing significant impairment; C: age at onset in school age years (may manifest fully later); and D: not attributable to intellectual disorder, uncorrected visual or auditory acuity, other mental or neurological disorders, psychosocial adversity, lack of proficiency in the language of academic instruction, or inadequate instruction. The DSM-5 requires multiple measures including those that are individually administered and culturally appropriate before making the diagnosis (i.e., testing, school reports, curriculum-based assessments).

Children/adolescents with ADHD frequency fall below control groups on standardized achievement tests. Teachers and parent often express concerns about a child's level of productivity and may label this child/adolescent as "lazy" or "unmotivated". There are a number of trajectories that can culminate in underachievement. One of the possibilities is that the individual has comorbid disorders of ADHD and Specific Learning Disorders (SLD). Indeed, research indicates that the comorbidity of ADHD and learning disorders is high.

Comorbidity of SLD and ADHD

The comorbidity range has been suggested to be between 31% and 45%. One out of every three children with ADHD also have an SLD [264]. Comorbidity rates of SLD with ADHD can vary greatly depending on how SLD is diagnosed.

However, ADHD and SLD can often present with similar behavioral symptoms. For example, children who are struggling in reading or writing may present with difficulties sustaining their attention to such arduous tasks. Thus, they may appear distractible with their inattention considered secondary to the presence of a SLD. It is recommended that a comprehensive assessment be completed in order to tease apart the primary diagnosis or whether the two disorders are comorbid.

Even without comorbid learning disorders, children with ADHD may still have a great deal of difficulty, with performance deficits such as following instructions, listening in the classroom, or staying on task, which can result in significant underachieving compared to their potential. Additional individuals with ADHD often have executive function difficulties in the areas of initiation, organization, planning, self-directed activity, and ability to complete multistep tasks. The degree of difficulty individuals experience varies, with some individuals greatly impaired and their academic achievement subsequently falling well below their abilities. Learning disorders and executive function deficits are also developmental. That is, they may become more overt as cognitive demands in school increase.

Implications in Diagnostic Assessment

In terms of assessment, practitioners should always (a) screen for academic skills deficits among students with ADHD and for ADHD symptoms among students with SLD; (b) assess academic functioning across subject areas (e.g., reading, math, writing) when evaluating students with ADHD; and (c) carefully evaluate whether interventions for ADHD enhance academic functioning[264]. Given the relatively high comorbidity rate between ADHD and SLD, students who are evaluated for one of these disorders should always be screened for possible symptoms of the othe disorder. If the screening suggests the possibility of a learning disorder, then a referral should be made to the support staff and psychology practitioners at the child's school for consultation around school programming.

When psychoeducational assessments are completed, it is important to assess for comorbid SLD as well as to rule out other disorders, such as auditory processing disorders or motor disorders, which negatively impact on written output. Children with ADHD often have speech and language difficulties. Children with evident speech and language disorders should also have a hearing screen which may include central auditory processing.

It is important to differentiate between those academic difficulties that may be secondary to ADHD symptoms (i.e., performance deficits) and those academic difficulties that represent actual skill deficits (i.e., SLD related).

In adults, as in children, ADHD can occur along with specific problems in reading, math or with written expression. These can usually be identified by assessing whether these difficulties have caused previous problems in school and continue to cause more or less residual difficulty. What is more complex is the differential between a primary attention problem (ADHD-inattentive presentation) and various processing disorders, executive function problems secondary to organic conditions (e.g., head injury, exposure to toxins, drug abuse), or language deficits. The childhood history should reveal previous concerns of ADHD. It is additionally important to determine if the patient is inattentive only in the area in which learning

deficits present a challenge; if the attentional problems followed an accident involving a concussion or brain injury; or whether the problems with focus followed a period of heavy drug use.

Implications for Management

Academic skill deficits may require intensive, direct instruction and modification of antecedent events beyond medication and motivational (i.e., consequence-based) behaviour modification strategies[264]. The physician diagnosing the child or adolescent with ADHD has a responsibility to aid the individual in accessing appropriate classroom accommodations. If specific learning disorders are diagnosed, *it is essential* that accommodations be documented that will address the individual's learning impairments. It is likely that the individual will require accommodations to target both productivity and learning. It is also important for the individual's self-esteem to be able to differentiate their overall level of intelligence from specific deficits that can be remediated.

Templates that can be used as a guide for writing letters requesting school accommodations are found in Chapter 6, supporting document 6A. In recent years, schools have been much more willing and skilled in providing appropriate adaptations for children and adolescents with ADHD. These adaptations should be understood as giving the student with a disability equal access to the learning environment and not perceived as an indication of academic incompetence. This is true throughout the individual's academic years.

> ***Practice Point:*** *The templates for requesting psychoeducational testing and accommodations can be downloaded from the CADDRA ADHD Assessment Toolkit and printed on your letterhead. You can personalize and adapt them to suit your needs.*

Educational accommodations are a right (recognized in the Ontario Human Rights document, "Guidelines in Accessible Education"[28]). Although some school boards across Canada do not currently recognize ADHD as qualifying a student as a 'special needs student', this perspective is changing. Both CADDRA, the national physician's ADHD alliance, and CADDAC, the national parent and patient support and advocacy network, will be advocating to the Ministries of Education for standardized educational accommodations across Canada. CADDRA and CADDAC believe that all neurobiological and mental health disorders need to be recognized by educational institutions in order for individuals to receive the necessary multimodal care.

Comprehensive intervention services for students with comorbid ADHD and SLD will require empirically supported treatment strategies that address both disorders and that are implemented across school and home settings[246].

ADHD and Oppositional Defiant Disorder (ODD)

Behavioural problems (including ODD, aggression and delinquency) account for most of the comorbidity in children with ADHD. The presence of comorbid ODD with ADHD is likely to generate substantial impairment and would be expected to result in increased referrals for treatment[29]. Between 25-75% of adolescents with ADD may have concurrent ODD[30]. Distinguishing between normal adolescent self-assertion and ODD may not always be easy. Among adults with ADHD, there is some continuity of ODD in that population[247].

One of the most common reasons for ODD is parental vulnerability resulting in insecurity of the child who responds with a need to control. This manifests by active confrontation of authority they perceive as being weak. The treatment for psychosocial-based ODD is to reestablish the generational boundaries using positive parenting techniques. However, in patients with comorbid ODD with ADHD, it is advisable that

the first step is optimization of pharmacotherapy of ADHD followed by augmentation with psychosocial treatment, including parent and other behavioural treatments. It is important to distinguish ODD from CD. Children with ODD have recurring negativistic, defiant, hostile and disobedient behaviour, especially toward authority figures, whereas those with CD repeatedly violate the basic rights of others or age-appropriate societal norms, as defined by a pattern of repeated aggression, lying, stealing, and truancy[31]. The onset of both disorders is usually prepubertal, thus making early identification, diagnosis, and treatment crucial. ODD is a prodromal to conduct disorder in some cases but an unlikely outcome in more than 50% of the cases. Many children with ADHD and ODD do not evolve into CD[32].

Summary: Some patients with ADHD and ODD may respond adequately to stimulant medication or non-stimulant (atomoxetine, guanfacine) but moderate to severe cases are likely to require augmentation with another medication or with behavioural treatment. Effective treatment may reduce the risk of more severe conditions in adolescent and adult years, such as conduct disorder, substance use disorder and depression.

ADHD and Conduct Disorder (CD)/Aggression

CD comorbid with ADHD is a severe, persistent condition that has an earlier age at onset and is frequently preceded by ODD, therefore it is important to distinguish between the two disorders[32, 33]. CD is not always pre-pubertal onset; another group of children have adolescent-limited CD. Co-occurence of ADHD and CD in adolescents is often a precursor of antisocial behaviours; nicotine use; substance use or abuse; anxiety or depression; and development of antisocial personality disorder as adults[34, 35].

Pharmacotherapy for patients with ADHD, CD and aggression may be useful (stimulant and non stimulant medication). Although medications are usually effective in reducing the symptoms of ADHD and impulsive aggression[18, 36], these patients typically benefit from multimodal treatment[37]. Medications initially should treat the most severe underlying disorder, after which targeting specific symptoms is appropriate. Some of these patients show aggression before and during the course of treatment, making it imperative to document their aggressive behaviours before the introduction of medications and to make these behaviours an explicit target of treatment. Clinicians should assess treatment tolerability and efficiency if patients show aggression after starting medication for ADHD.

Conduct problems are generally reduced by all effective ADHD treatments (stimulant and non stimulant medication and psychosocial treatment[36, 38]). However, treatment of the ADHD may not be sufficient to resolve all symptoms. Optimization of medication with a multimodal treatment approach indicated psychosocial treatments including individual and family interventions are required. Specialists in this area may use mood stabilizers or an atypical anti-psychotic. Other treatments (besides optimizing ADHD medication and psychosocial treatments) are controversial and referral to a specialist is recommended[30, 39].

Research shows that ADHD and CD represent two complex and distinct entities that are often associated. Children with these conditions without comorbidity present with different core symptoms and perform differently on objective measures of ADHD symptoms. Children with these comorbidities show the poorest outcome within each individual group[40].

Researchers have attempted to understand the reasons for the high comorbidity between ADHD and CD. They have suggested several reasons for this:

- that one disorder is a precursor to another;
- one disorder is a risk factor for developmental of the other;
- the disorders share the same related risk factors; or

- there is a common underlying symptomatic basis for one or more of these behaviours[41,42].

DSM 5 emphasizes that aspects such as early onset (before 10 years old), high level of comorbidities and limited prosocial emotions (lack of remorse or guilt; callous - lack of empathy; unconcerned about performance; shallow or deficient affect[247]) are all poor prognostic indicators and increase the risk for development of antisocial personality disorders in adulthood.

Summary: The essential characteristic of conduct disorder is repetitive and persistent behaviour manifested by violation of others' fundamental rights or violation of social rules/norms.

- **Psychosocial treatment, parenting and problem-solving skills training, and family and/or individual therapy, is needed to improve patient outcomes.**
- **Pharmacological treatment of comorbid ADHD/conduct disorder may require combination of an ADHD medication and a medication that targets aggression.**

ADHD and Borderline Personality Disorder (BPD)[43]

BPD may occur in either gender but is more prevalent in women. It is advised that the individual should be over 16 before a formal diagnosis of BPD is applied. While patients with BPD are often impulsive, labile and have difficulties with executive function, the presence of rage, chronic feelings of emptiness, identity disturbance, dissociative symptoms, primitive defence mechanisms, deliberate self-harm actions, abandonment anxiety and suicide threats differentiate the two disorders. While patients with BPD may have ADHD, the BPD is the more severe disorder and more likely to impact outcome. Therefore it should be treated and stabilized before ADHD treatment is undertaken. Some caution needs to be exercises with the use of pharmacological treatment due to potential misuse, abuse, overdose, diversion, activation and mood dysregulation.

However, effective treatment of underlying ADHD can improve active participation in psychosocial treatments. Patients with BPD who have clear evidence of ADHD in childhood often expect that treatment of the ADHD in adulthood will resolve the personality issues and they are frustrated that they continue to struggle. In these cases, it is important to explain the treatment limitations of ADHD medications. This will reduce the risk that patients will react with feelings of abandonment, rage, disappointment, devaluation or feel that they have been rejected.

ADHD and Antisocial Personality Disorder (ASPD)[43]

Some children with ADHD and conduct disorder go on to have ASPD after the age of 18 (the age criterion is required), and show an absence of remorse, compassion and conscience. Since some patients with ASPD may be psychopathic and also drug-seeking, it is important to screen for cruelty, aggression, problems with the law and stealing. Treatment of ADHD in the context of ASPD may not lead to significant functional improvement in the patient's actual well-being but may improve the extent of their impulsivity[45]. Whether or not they are less impulsive, less hyperactive and more focused may or may not improve their functioning if symptomatic improvement is directed to antisocial activities rather than improved interpersonal relationships and life skills.

ADHD and Anxiety[43]

There are anxious patients in whom problems concentrating, restlessness and other aspects of dysregulation are caused by a primary anxiety disorder and not ADHD:

- Check for other signs of anxiety and family history of anxiety.
- Check to see if the patient has symptoms of ADHD not typical for anxiety, such as stimulus-seeking behaviour, disinhibition or difficulty with organization and time-management.

- Determine if symptoms have developed de novo as a result of new onset anxiety or a particular stressor.

The natural course of ADHD moves towards an internalization of the symptoms. As a result, the emergence of anxiety may be a natural extension of ADHD. Individuals with the inattentive presentation have a stronger propensity for anxiety as they typically have internalizing temperaments. This is particularly true in females who may be highly sensitive and have more inattentive symptoms. However, having ADHD also exposes the individual to considerable negative situations and anxiety may be a compensation for environmental insults (i.e. in order to avoid conflict situations due to their impulsiveness, they use anxiety to create excessive internal control). Once anxiety develops, attention can be severely compromised. As a result, there are patients with comorbid anxiety and inattention. This results in significant damage to their self esteem, lack of academic success and other types of impairment. There are many forms of anxiety within the DSM-5 but they all have some components in common:

a) the cognitive message always begins with the words "what if..." which is a need to anticipate a negative outcome before it has happened
b) a tendency to hold on to beliefs, thoughts, belongings and emotions (i.e. not being able to easily "let go")
c) is likely related to heightened noradrenaline activity, and
d) the behaviour leads to impairment in functioning.

As many as 33% of children[18] with ADHD have comorbid anxiety and that number increases to as many as 50% of adults[5]. Once the specific type of anxiety is identified the treatments are generally as follows: CB

- Behavioural intervention: Relaxation therapy, yoga, meditation, exercise, simplifying their environment by throwing things out, delegating anxious activities, improved organization skills etc. are all useful interventions
- Psychological therapy: Cognitive behavioural therapy (CBT) and individual therapy focusing on the specific anxiety disorder
- Medical treatment: If ADHD exists with anxiety, treat the ADHD first. There may be a risk of increasing anxiety in the short term so it is important to start very slowly and increase the doses gradually. If the anxiety becomes too intense, then the ADHD medication should be reduced or withdrawn and the anxiety should be treated until the symptoms are tolerable. Then the ADHD medication should be restarted. Any of the ADHD medications can be successfully used when anxiety is comorbid although atomoxetine has been found to be specifically helpful in management of anxiety with attention disorder[21, 22]. Due to 2D6 inhibition, atomoxetine should be used with caution if combined with fluoxetine or paroxetine for example.

ADHD and Major Depression[43] (MD)

There is considerable overlap between MD and ADHD. MD patients (without ADHD) may still have transitional inattention, short-term memory problems, irritability, impulsivity, trouble sleeping, trouble concentrating, restlessness and being fidgety. However, the differential with ADHD is based on two factors. Primary MD typically has consistent depressed mood or anhedonia. Typically bouts of depression are episodic whereas the attentional deficits associated with ADHD are ongoing. A drop in mood is qualitatively different from the lifelong deficits in maintaining focus or motivation that are typical in ADHD. There is a difference between poor concentration in the presence of depression and deficits in organization, impulsivity and lifelong difficulty with forced effort and listening even when happy. In the context of poor self-esteem or possible depression, a careful assessment of suicide risk needs to be conducted.

Patients with primary ADHD often have to deal with failure and may become demoralized, depressed or dysthymic as a result. In that case, they will present with both disorders. Patients with ADHD may look like they have a mood disorder when they do not. Lack of motivation may mimic anhedonia, chronic difficulty going to sleep and restless sleep may mimic insomnia secondary to MD. Patients with ADHD typically have dysregulated mood, are reactive and sometimes irritable, but it is not typical for ADHD in the absence of a mood disorder to be associated with entrenched, depressed affect. On the contrary, many individuals with ADHD maintain reasonable mood despite chronic rejection and difficulties with relationships and life skills. Some patients with ADHD are negative or chronically irritable ("life is a bore" or "I've never felt well") in the absence of major neurovegatative features. The most appropriate designation for this particular attribute would be a persistent depressive disorder (dysthymia) since these symptoms are not included in the diagnostic criteria for ADHD itself. Antidepressants can be helpful in some cases.

It is not uncommon for ADHD and depression to coexist. It may be helpful to try to determine if the patient is depressed secondary to ADHD or vice-versa. Depression or more commonly dysphoric symptoms are also possible due to the withdrawal effects of the medications used to treat ADHD (CB). Different guidelines differ on sequence of treatment, but clinically the "primary" disorder - meaning the more severe, early onset and pervasive disorder - is usually treated first. When initiating treatment with stimulants in a patient with untreated melancholic depression, worsening of already impaired sleep and appetite issues may be a problem.

When the depression is associated with problems in the psychosocial environment, treatment strategies including individual (e.g. CBT) and family therapy are primarily indicated[5]. However, pharmacological treatment is a useful intervention in the adolescent and adult age group. The evidence for successful treatment of childhood depression with medications is mixed. Stimulant medications may produce a dysphoric look in 30% of patients, even though the patient is not clinically depressed or reports depression. Adjustment of dose may improve the dysphoric symptoms; failing that, switching to a different ADHD medication may be successful. Treatment of the most disabling condition should be undertaken first. This is particularly true in the presence of suicide risk. If the MD continues to be impairing or worsens, referral is recommended. All of the drugs used to treat ADHD have potential antidepressant effect or can cause mood symptoms particularly in the rebound of their use ... *If suicide risk is imminent, an immediate referral or intervention must be carried out. Suicide risk should be assessed in the follow-up visits as well.*

Summary:

- **Risk of suicide in ADHD derives mostly from comorbidity and not from stimulants.**
- **Treat the most disabling condition with the most effective treatment for that condition first,**
- **then treat the other condition.**
- **Some evidence suggests that ADHD treatments may be less effective in patients with active depression and may lead to an exacerbation of dysphoria, poor sleep and decreased appetite.**
- **If a patient presents with chronic persistent depression and ADHD, or mild depression and ADHD, then ADHD should be the priority since its treatment may lead to amelioration of the mood symptoms.**
- **Moderate to severe depression should be managed as a priority, then ADHD treatment should take place.**

ADHD and Bipolar Spectrum Disorder

The risk of bipolar disorder in the general population, when considering the spectrum of bipolar presentations (BP I, II, NOS) is about 4%. In the adult ADHD patient population, the risk increases. Most children with ADHD do not go on to have BD, but a high index of suspicion should be maintained, particularly when a child or adolescent presents with depression symptoms. Any patient who experiences

a new and acute onset of increased energy, irritability, grandiosity and decreased need to sleep is, by definition, suffering a hypomanic/manic episode.

Children and adolescents diagnosed with ADHD may also be diagnosed with bipolar disorder but this comorbid diagnosis is controversial in young children[44]. A sample of patients with ADHD and comorbid bipolar disorder were compared to a sample of BP patients with no ADHD. Those ADHD patients with BP were found to have an earlier age of onset and short periods of wellness. They also had more irritability, violence, legal problems and less education. That sample exhibited more mania and depression and more suicide attempts, and those patients with ADHD and bipolar disorder had a greater number of other comorbidities on Axis 1[45].

Treatment should usually start with managing the bipolar disorder symptoms first. The management of ADHD with bipolar disorder is usually more complicated and often requires the use of mood stabilizers and/or atypical antipsychotics. There is a very small risk of switching from euthymia or depression to mania when a bipolar patient is prescribed stimulant medication. If this occurs, the stimulant should be discontinued and treatment of bipolar disorder should commence. Once the patient's mood is stabilized, stimulant medication may cautiously be re-instituted (start low and go slow)[248, 43].

Some patients have an early onset form of BD characterized by severe mood swings, anger outbursts, irritability, distractibility, hyperactivity and impulsive, self-destructive behaviour. Differentiating features include symptoms of grandiosity, euphoria and periodicity. Family history of BD is an important risk factor. However, children of bipolar parents are more likely to have ADHD (8-10%), rather than BD (5%)[45]. Other differentiating features include: discrete cyclical symptoms of emotional lability in BD as opposed to continuous symptoms in ADHD; psychosis or grandiose perceptions in BD are not present in ADHD; and possible depression and sleepiness after rage episodes in BD as opposed to baseline recovery in ADHD-based rages.

CB In adolescence and adulthood, BD should be considered as the primary diagnosis if there are prominent, episodic, distinct, cycling mood symptoms, grandiosity and hypersexuality. Mood stabilizers (lithium carbonate, anticonvulsants) and atypical antipsychotics are the treatment of choice for bipolar disorder[46]. Treatment of BD or BD + ADHD should be referred to a specialist.

ADHD and Disruptive Mood Dysregulation Disorder

The diagnostic criteria for Disruptive Mood Dysregulation Disorder (DMDD) includes: severe recurrent disproportional temper outbursts (verbal and/or physical) occurring three or more times a week in at least two different settings for 12 months or more. Diagnoses are generally made between the ages of 6 and 10 and cannot first be made before the age of 6 years or after the age of 18 years. Mood generally between temper outbursts appears to be irritable. This diagnosis was created to address concerns about the potential for the overdiagnosis of, and treatment for, bipolar disorder in children[246]. A study by Copeland et al.[249] of some 3,258 participants aged 3 to 17 showed a prevalence rate of 0.8% to 3.3% with the highest rate in preschoolers. Disruptive Mood Dysregulation Disorder was also found to be very comorbid (62% to 92% of the time). The highest rate of comorbidity occurred with depressive disorder (odds ratio 9.9 to 23.5) and oppositional defiance disorder (52.9 to 103.0). Rate of co-occurrence with ADHD had odds ratios which ranged from 2.9 to 12.6.

The condition was associated with significant social impairment, school suspension, substance use and poverty. Thus the possibility of disruptive mood dysregulation disorder needs to be considered in patients with frequent temper outbursts and irritable mood, both as a differential or comorbid condition

with regards to ADHD. A combination of medications and psychosocial interventions is needed to treat this comorbid combination.

ADHD and Autistic Spectrum Disorder

According to the literature:

- Until recently, ADHD was not recognized in persons with autism spectrum disorder but researchers and clinicians have now recognized the importance of attending to both syndromes when both are present and clinically impairing;
- up to 58% of the individuals diagnosed with autism and 85% of those diagnosed on the continuum of autistic spectrum disorders (previously referred to as Asperger's syndrome) tend to meet full criteria for ADHD as well[24];
- attentional impairments in autism tend to be more of the "not listening" and "difficulty shifting focus" type than of "the short attention span" and "excessive distractibility" type;
- medications used to treat ADHD can help alleviate ADHD impairments in the majority of patients with comorbid ADHD and autism spectrum disorder, though the effect is somewhat less than in those presenting with ADHD alone;
- in people presenting with ADHD and ASD, side effects such as dysphoria are more common[51]

✔ **dosage titration in this population should be done at a slower rate to minimize adverse effects.**

ADHD and Addictions

Substance Use Disorder (SUD)[24, 52-56]

Comorbidity of Substance Use Disorder and ADHD is high. Literature suggests that one-quarter of adults with SUD and one-half of adolescents with SUD have ADHD. Adults with SUD also show a higher risk for ADHD, as well as earlier onset and more severe SUD associated with ADHD. Several authors suggest a higher rate of SUD is recorded in adults with ADHD than in the general population, and ADHD itself is a risk factor for SUD. Patients with conduct or bipolar disorders co-occuring with ADHD have the greatest likelihood of developing SUD and major comorbidity. ADHD was related to SUD, but the main effect was related to conduct disorder.

ADHD can be a significant predictor of early initiation of cigarette smokng. Individuals start using with cigarettes, alcohol and other drugs of addiction.

Some controversy exists about the relationship between ADHD treatment and substance use. Some researchers suggest that ADHD and SUD-related craving share neurobiological similarities, and that treatment of ADHD may reduce craving for substances and subsequently reduce the risk for relapse to substance use. An aggregate of the literature seems to suggest that early stimulant treatment reduces or delays the onset of SUDs and perhaps cigarette smoking into adolescence; however, the protective effect is lost in adulthood.

The self-medication hypothesis is plausible in ADHD. Moreover, the accompanying poor self-judgement and impulsivity associated with ADHD may be conductive to the development of SUD.

Cocaine and stimulant abuse is not overrepresented in ADHD; in fact, marijuana continues to be the most commonly abused agent. Methylphenidate does not have the same abuse liability as cocaine does due to slower dissociation from the site of action, slower uptake into the striatum, and slower binding and dissociation with the dopamine transporter protein relative to cocaine.

The ADHD group that is at highest risk for diversion and misuse is those people with substance abuse and conduct disorder. Both immediate-release and, to a lesser degree, extended-release were diverted or misused.

The treatment needs of individuals with SUD and ADHD need to be considered simultaneously; however, if possible, the SUD should be addressed initially. If the SUD is active, immediate attention needs to be paid to the stabilization of the addiction. Depending on the severity and duration of the SUD, individuals may require inpatient treatment. Self-help groups and CBT can also be helpful. SUD individuals with ADHD require intervention(s) for ADHD (and, if applicable, for comorbid psychiatric disorders). Patients with ADHD and SUD require multimodal intervention incorporating both addiction and mental help treatment[52, 54-57, 43, 250-252].

Patients with ADHD are at significant risk of using illicit substances, particularly nicotine, cocaine and cannabis, and of starting at an earlier age than the general population[54]. Concurrent disorders with ADHD, like CD and BD, increase the likelihood of SUD[55]. While patients with ADHD do self-medicate with substances, it is important to dispel their belief that the use of illicit substances has a positive therapeutic benefit. SUD is a diagnosis in its own right, and data to date does not demonstrate that treatment of ADHD in this population will elimate the substance abuse[56]. A history of substance abuse should be explored with the individual in private.

> ***Practice point:*** *With adolescents, first ask whether their friends use drugs or alcohol. A positive response suggests they are likely a high risk candidate. Where substance abuse exists, there continues to be controversy about the timing of ADHD pharmacological treatment. Though the CAP-G Committee feels it is important to treat the SUD first, it is recognized that ADHD treatment might be required concurrently.*

Patients with ADHD have a two-fold risk for substance abuse and dependence, including daily marijuana use, alcoholism, smoking and other drugs[57]. On the other hand, it is also true that patients with these substance abuse/dependence problems present with attention, behaviour and self-control symptoms that mimic ADHD. For this reason, we do not recommend making a diagnosis of ADHD in the face of current substance abuse or dependence, even when childhood history is positive. The primary diagnosis in this circumstance is the substance problem and diagnosis of ADHD should be deferred until the patient is in recovery. Treatment of ADHD in patients who use marijuana without dependence or abuse is controversial and the risks and benefits of doing this have not been studied. Marijuana smoking (to calm themselves or facilitate sleep) is extremely common in this population. No treatment carries risk in itself and that treatment may minimize self-medication. Marijuana may be laced with substances that are more dangerous and it makes little sense to use a medication to help a patient focus when they are self-medicating with a substance that impairs attention skills in the long-term.

According to current literature:

- methylphenidate does not have the same abuse liability as cocaine does due to slower dissociation from the site of action, slower uptake into the striatum, and slower binding and dissociation with the dopamine transporter protein relative to cocaine;
- in some studies, 11% of subjects with ADHD reported selling their medication and 22% reported misusing their medication compared with 5% of controls. The ADHD group at highest risk for diversion and misuse were those with SUD and CD. Immediate-release, but not extended-release, stimulants were diverted or misused;
- patients with ADHD and SUD require multimodal intervention incorporating both addiction and mental health treatment.

ADHD and Other Addictions

The need for immediate feedback, the desire for reward and the enjoyment of risk all lead ADHD patients to be vulnerable to addictions. These may include not just substance abuse but also sports, shopping, sex,

internet and gambling addictions. Therefore it is essential that an ADHD assessment screen for any addiction is begun with a broad question, followed by a more detailed evaluation, and that both disorders be treated CB . There is no evidence that treatment of ADHD will treat the addiction, or that resolution of the addiction will lead to improvement in ADHD core symptoms.

ADHD and Enuresis

Enuresis treatment may be improved with medication initiation, particularly for daytime events. Nocturnal enuresis often requires separate management. The most effective intervention for the motivated child and family is the alarm-based training system. Medical treatment options may include the use of Desmopressin, DDAVP, imipramine and (recently determined) atomoxetine[58-60].

ADHD and Tic Disorders[61-64]

The most common tic is blinking. Tics present as either phonic or physical movements. Research on tic disorders and ADHD is complex and this may be a disorder where the population statistics do not always reflect the risk to the individual CB. While stimulants do not cause tics, they may be implicated in uncovering a patient's propensity for them. There is some evidence that while atomoxetine may be associated with improvement in tics, it may also cause tic emergence. Some recent research studies suggest:

- patients with Tourette Syndrome (TS) co-occurring with ADHD may suffer from more impairment related to ADHD than tics;
- treatment interventions for TS include education about tics and related disorders, clinical monitoring, pharmacological or psychological treatments and school interventions for kids as needed;
- some studies indicate that stimulants are a safe and effective treatment for ADHD in most children with comorbid tic disorder;
- the alpha-2-adrenergic agonists, clonidine and guanfacine XR (Intuniv), have shown promise in the treatment of tics, particularly in combination with ADHD.

ADHD and Epilepsy

Some studies have suggested a higher incidence of symptoms of ADHD in children with epilepsy. The five common epilepsy comorbid conditions are reduced bone health and fractures, stroke, depression, migraine and ADHD[65, 253]. There is a strong trend towards a higher incidence of epilepsy among children with ADHD than among children without ADHD[66] and epilepsy in children with ADHD appears to be more severe than in those without[66].

There appears to be a reluctance to diagnose and initiate treatment for ADHD in children with epilepsy[67]. Older data suggests that stimulant medications could lower seizure threshold, though current data supports the use of stimulants and non-stimulants in most cases.

Adult epilepsy patients who received relief from treatment with methylphenidate showed an improved quality of life without significant alteration of seizure control in the presence of antiepileptic medication[68, 254]. New onset seizures can be managed with the addition of an antiepileptic medication. Some studies suggest drug interactions between methylphenidate and antiepileptic drugs inhibit metabolism and increase the level of antiepileptic medications (AE)[69] CB. A conservative approach is still indicated when treating patients with comorbid ADHD and seizure disorder. However, ADHD can be treated in the majority of patients with seizure disorder[69].

ADHD and Brain Injury (any etiology)[70-74]

Individuals with ADHD of all ages are at risk for physical injuries because they are impulsive, hyperactive and

inattentive CB. Any injury to the brain, particularly to the frontal lobes, can produce a syndrome known as Secondary-ADHD (S-ADHD). Trauma to the brain can also worsen the symptoms of pre-existing ADHD. Children and teens with ADHD are three times as likely to experience a moderate or severe brain injury than their peers without ADHD. Children and adolescents with a moderate or severe brain injury have a 20% chance of developing S-ADHD. The literature on adults is less clear. S-ADHD can be treated using the same principles and medications as ADHD, but the research literature supporting this is not as extensive or compelling as it is for ADHD.

Given that concussion and brain injury are relatively common experiences, it is recommended that all patients being assessed for ADHD be questioned as to whether they have ever had a concussion or brain injury in the past. It is generally accepted that the more severe the brain injury, the greater the likelihood of developing or worsening ADHD. This is the one instance in which a patient may present with de novo ADHD symptoms, having no past history of these types of symptoms before the injury. Motor vehicle accidents are a major cause of traumatic brain injury and patients with ADHD need to receive specific advice on driving only when medication is in effect (see the section on ADHD and driving). The literature on non-traumatic acquired brain injury, such as fetal alcohol syndrome or stroke, is less clear, but many patients with ADHD symptoms may respond to standard treatments. Patients with brain injury may be more sensitive to medication and starting out with lower doses may be recommended. As with all patients, however, the best advice is to start low, go slow, but to persist with upper dosage adjustments until symptoms remit or side effects are evident or suggested maximum dosage is reached.

ADHD and Sleep Disorder

Twenty-five to fifty per cent of children and more than half of adults with ADHD reportedly suffer from sleep problems. Sleep plays a pivotal role in cognitive function, learning and memory consolidation. Sleep deprivation and disturbances of sleep architecture can result in symptoms varying in severity, from unrecognized deficits in cognitive performance to disabling sleepiness and/or fatigue that noticeably affect cognitive, emotional, and physical function, giving rise to, or exacerbating, ADHD symptoms[75].

However, it is not clear whether sleep disturbances are intrinsic to ADHD or whether they occur as a result of an underlying primary sleep disorder. On the one hand, if sleep disturbances in ADHD are caused by an underlying primary sleep disorder, the extent to which ADHD-like symptomatology is attributable to the sleep disorder is not sufficiently studied. The manifestation of ADHD-like symptoms in primary sleep disorders such as sleep disordered breathing (SDB), periodic limb movements in sleep (PLMS) in restless legs syndrome (RLS), and disorders of excessive daytime sleepiness (EDS) such as narcolepsy and idiopathic hypersomnia (IH) have been documented[76]. In light of the similarity of symptom presentations between ADHD and primary sleep disorders, it has been suggested that misdiagnosis may be an issue between these two disorders[77].

On the other hand, the association between sleep disturbances and ADHD-like symptomatology appears to extend to brain structure. Neuroimaging studies have shown similar metabolic changes in the prefrontal cortex (PFC) of patients with ADHD and sleep deprived subjects[78]. Some areas of the brain that are affected in ADHD are the very same structures that are involved in the regulation of sleep. Activation of areas of the cortex by the midbrain and locus coeruleus is required for sustained attention and alertness[79]. Attention and alertness, in turn, are properties that define the awake state. Cycling through the awake state and sleep state is an autonomically governed process that reflects changes in brain arousal. In ADHD, subjects appear to have problems with arousal, and deficits in cortical functioning have been reported. CB Thus, it has been proposed that sleep problems such as insomnia or hypersomnia result from abnormal cortical arousal and, therefore, sleep problems are intrinsic to ADHD[80].

ADHD and Obsessive Compulsive Disorder (OCD)[82-86]

Some studies suggest that one third of children and adolescents with OCD may have ADHD. Clinicians assessing patients for ADHD should routinely enquire about symptoms of OCD to establish the diagnosis of OCD. Treatment of both disorders should be carried simultaneously. Medications used to treat ADHD are not useful for treatment of OCD and medications used to treat OCD are not effective for treatment of ADHD. CBT is often effective in treatment of certain types of OCD.

ADHD and Developmental Coordination Disorder (DCD)

While there is no clear prevalence rate for the co-occurrence of these two disorders, evidence suggests that when ADHD and DCD occurred, there was a 58% rate of a poor outcome[87]. Balance problems, dyslexia, and poor handwriting may be related to cerebellar dysfunction and may be associated with DCD. Occupational therapy assessment is warranted to provide recommendations. Having the child learn keyboarding can often be beneficial. Relevant software programs can also help to overcome problems (e.g. voice recognition, etc.).

ADHD and Eating Disorders

Kooij in 2004 suggested that bulimia nervosa is found to be more prevalent in patients with ADHD versus patients without ADHD[255]. Wentz et al. in 2005 found that ADHD is more prevalent in anorexia nervosa purging type[256]. Biederman in 2007 suggested that females with ADHD are 3.6 times more likely to meet the diagnosis of eating disorders[257]. Sobanski in 2007 found the prevalence rate of ADHD in eating disorders is 11.4%[258]. This would suggest that females with ADHD should be screened for an eating disorder, and vice versa. Patients with anorexia who have ADHD may seek treatment of ADHD for the purpose of weight loss.

ADHD and Obesity

"There is a strong association between overweight/obesity and symptoms of ADHD in children, adolescents and adults. It is suggested that the inattention and impulsive behaviours that characterize ADHD could contribute to overeating. The fast food consumption of foods high in fat, sugar and salt might be a contributing factor to obesity in patients with ADHD as a form of self-medication or addiction. This hypothesis can be supported by the finding that addictions are substantially higher among those with ADHD than among the general population. Further research is needed in this area" [taken from Davis, C: *Attention deficit/hyperactivity disorder: associations with overeating and obesity* [259].]

CHAPTER 3: SPECIFIC ISSUES IN THE MANAGEMENT OF CHILDREN WITH ADHD: INTERVENTION WITH PARENTS OF CHILDREN DIAGNOSED WITH ADHD

Objectives:

1. To inform families about the etiology, diagnosis and treatment of ADHD and empower them to help their child overcome the impairment associated with this potentially disabling condition
2. To assist families in accepting and understanding the diagnosis of ADHD and the treatment possibilities. This process takes place over time
3. To make families active participants in the planning of a therapeutic approach
4. To direct families to community supports and resources to enable them to continue to learn about the disorder and about how they can support the treatment at home.

Explaining ADHD

First and foremost, parents need to be informed that **ADHD is a neurobiological condition with a strong genetic etiology**, that it involves a number of different neurotransmitters, and affects certain areas of the brain. The importance of this discussion is to relate any pharmacological treatment that is instituted to the physiology of the condition as we understand it.

All symptoms of ADHD can be problems everyone has at times, but people with ADHD have more of these symptoms a good deal of the time and more difficulty and impairment from them. This is not a disorder of willpower. Many people with ADHD have some domains of activity, such as sports, music, video games, art, mechanical activities, in which they can focus very well.

Connect the biological nature of ADHD to the behavioural presentation. ADHD affects behaviour, interpersonal relationships and academic output. It is important to dispel blame and to reassure the parents and the child that this is not anyone's fault, but is a result of brain development and functioning.

Therapeutic approach – multimodal treatment agenda. All aspects of the child's life must be dealt with through a multimodal approach that addresses the social, emotional, behavioural and academic issues. Medications are an important aspect of treatment and assist the facilitation of changes in these areas.

The child will require **long-term care** as challenges may occur at the beginning of every school year, with transitions into adolescence and adulthood, and with any changes or stressors within the family. The parents must be ready for challenges that can affect their child's mental and physical health as well as the stability of their own relationship.

Treatment Options CB

Psychosocial Therapies: General Guidance

Environment

ADHD in children and adolescents has been linked to a two to five times risk for accidental injuries of all types (trauma, burns, poisonings, etc.) for more severe injuries, as well as for repeated injuries. The comorbidity of ODD/aggression with ADHD in children is thought to exacerbate these risks. Children admitted to hospitals due to accidental injuries are three times more likely to have ADHD (approx. 30%) than are children admitted for other reasons. Factors that have been associated with these elevated risks

are inattention, impulsivity and risk-taking, motor incoordination, comorbidity with ODD/CD, anxiety, and depression, and parental characteristics such as reduced parental monitoring of the child's activities.

So far medication alone has not been shown to significantly reduce these risks. However increased parental supervision, positive parenting and greater time available to be with children appear to be protective of risk for injuries.

Promote safety in the home, especially for the hyperactive impulsive child. The first step is physical safety (i.e. safety-proofing, ample outdoor places that can be safely used and supervised, opportunities for physical movement). It is also necessary to create a calm, structured, positive approach to child-rearing which not only optimizes appropriate developmental progression but allows for a more acceptable response to limit-setting. Above all, it is crucial that parents retain a positive and enjoyable relationship with their child that encourages his/her self-esteem. Thus, doing things that the child excels at or enjoys is very important. Parenting should include structure, guidance, but also fun. The school must create a similar environment and the parents must communicate this agenda.

Creation of structure helps to calm children as it gives those references of familiarity. Aspects of structure include: clarity of communication, routines, decrease in disruptive distractions and the promotion of organization regarding time (physical cues, clocks, schedules, calendars), space and activity. The creation of an optimal environment requires taking into account level of noise, proximity to visual irritations, sensitivities to environmental and physical irritations. Appropriate and consistent limit-setting, with age-relevant and suitable supports and consequences (positive and negative), is also paramount. Parents will need to advocate for the child with schools so that the appropriate supports are provided, resulting in a consistency in structure that moves seamlessly from school to home. One area of significant concern is unstructured free time at recess and lunch periods when the child with ADHD is more likely to get into trouble. This time is critical for these children to burn off excess energy. Since free time periods are essential for all kids, including those who have ADHD, the school *must* ensure the child is supervised during these times. Removing free time periods should not be used as a consequence for children with ADHD. It is helpful when the school provides structured activities.

Enhance Self Esteem

Building the child's confidence and sense of confidence, by discovering and reinforcing those things they enjoy and/or do well, is part of working with a child who has ADHD. A child may never be invited to birthday parties but may be remarkable with animals or relate well one-to-one with a grandparent. A child may have limited skills at seat work but may excel at taking mechanical things apart and putting them back together. A child may encounter problems by being dreamy in class, but carry an imaginative world in play that is to be greatly admired. The more the family finds and reinforces the child's strengths, the easier it is to handle the frustration of what remains difficult, and the greater the child will sense that he/she is a welcome member of his/her family. This is a key factor in developing resilience.

Specific Useful Interventions *(see Chapter 6 on Psychosocial Interventions and Treatments for more details)*

There are many associated problems with ADHD which must be treated in addition to the ADHD symptoms. The clinician must utilize the resources of the community to provide additional supports for the child and the family. This may be through referral to a psychologist, occupational therapist, social worker, educational aid, resource teacher, behavioural consultant etc. Communities vary with respect to the availability and organization of resources to support children with ADHD. Access to some of these resources may be dictated by a family's financial resources.

Behavioural[88-93]**:** Social skills training
Anger management
Parent training

Educational[94-96]**:** Academic organizational and study skills
Specific academic remediation

Psychological: Individual therapy such as cognitive behavioural therapy (CBT)[97-104]; interpersonal psychotherapy (IPT)[105, 106]; play therapy[107-109]; art therapy[110]; supportive psychotherapy[111, 112]; family therapy[113]

Lifestyle: Proper nutrition
Good sleep hygiene
Regular exercise[114-116]
Extracurricular activities

Medication

Parents need to be informed that while medication is helpful, it does not offer a "cure". The clinician must discuss the issues of risks and benefits of various medication treatment options, including short and long-acting stimulants, as well as nonstimulant medication. Additionally, there should be a discussion of the expectation the parent has of the medication, dispelling of myths, review of non-treatment risks, long-term outcome and treatment alternatives, if any. The physician's approach to the patient should be that he/she is an ally in trying to alleviate the impairment caused by a long-term developmental disorder and that medications facilitate the improvement of functions in many domains of life. Using the analogy of the treatment of asthma can be helpful. A puffer works fast and provides almost complete relief but does not address the core problems. Identifying the triggers (like a cat allergy), changing the person's lifestyle, and improving factors that promote resilience is the route to, hopefully, reducing or eliminating long-term use of the puffer. Unfortunately, in asthma as in ADHD, it is often necessary to continue to use medications despite valiant efforts at changing the environment.

Parents and Home Situation

Comprehensive Family Review

In order to intervene effectively with parents, one needs to have a complete picture of each parent's medical and psychiatric history, past and current level of functioning in various domains (occupational, academic, social and emotional) and their relationship as a couple. The family picture should also be extended to the strengths and weakness of the relationships between the parent(s) and child, siblings and other significant extended family members (grandparents, uncles/aunts, step-parents and step-siblings).

Parental Psychopathology

Possible psychopathology in parents or significant family members, which can impact the child and how he/she is treated, needs to be explored. Conditions such as maternal depression, anxiety, paternal substance abuse, ADHD and personality disorders need to be considered. It is necessary for the clinician to assess for any psychopathology using the appropriate clinical review and/or symptom-based questionnaire. The literature and research supports the fact that ADHD runs in families[43, 117]. The ADHD Checklist can be used as a screening instrument for other family members since it is designed to be appropriate for any age group or informant. Parents, siblings and extended family members may have ADHD and therefore have problems with organization, consistency, impulsivity and emotional liability. In addition, having a child with a disability may increase the likelihood of substance abuse, depression and anxiety in the parents[118]. Parental psychopathology can have a significant impact on the parents' ability to structure, monitor and generally help their child[119, 120]. Identifying this psychopathology and referring the parents for appropriate treatment will improve the psychiatric state of the parents and their parenting ability, and thus be of great

help to the child and his/her family. Parents who are poor role models, such as the father or mother who stays up at night playing computer games or who forgets to make lists, misses important appointments, medication, etc, are difficult to engage and often do not make the necessary lifestyle changes for success at home.

Environmental Stressors

Families have many internal and external challenges that they must contend with (medical problems, unemployment, poverty, trauma, single parenthood or marital discord etc.) and these must be taken into account when working with parents. Whenever possible, an attempt should be made to work with both parents so that the child receives the benefit of having the help of each parent and there is consistency in their approaches. Furthermore, sharing this responsibility helps to ensure that one parent does not become overwhelmed. Many children with ADHD live in divided families where the child goes back and forth between households. Children can live in homes without perfect consistency in routine but it is critical that one parent does not undermine the other parent's efforts or integrity and that they work together. It is a great advantage to the child to ensure that the issue of diagnosis and medication is not the identified source of conflict between family members. If parents are in conflict about whether a child should have a particular treatment, we suggest that the clinician meet with both parents together and/or separately to be sure that they have all the relevant facts. Identifying and addressing concerns of each parent may reduce their conflict over issues central to treatment.

Child Management and Monitoring Skills

Parental Pathology Affecting Management and Monitoring[119]

If one or both parents have depression, ADHD, substance abuse, marital conflict (or other psychopathology), then their ability to carry out behavioural tasks and to record and monitor changes may be impaired. It is important for the parent(s) to be treated at the same time as the child. This "all in the family" intervention is good for the child as it shows that the parent can empathize with the child's experiences. When parents learn skills to control their own lives, it is easier to institute structure in the child's life.

Monitoring Change

Medication Management

Repeating rating scales, like the SNAP-IV 26, ADHD Checklist, CADDRA Teacher Assessment Form or WFIRS-P, is a very effective way to rate changes in impairing symptoms when the same person fills out the forms. These are most often used in determining the appropriate dose of the medication. However, improving grades should not be the ultimate target, nor should grades be used to monitor change. The chosen rating scale can be done weekly during the dose titration period and every three months subsequently. Monitoring side effects, using the CADDRA Clinician Baseline/Follow-Up Form, could be done concurrently. All of this documentation will be helpful only if it is brought to the physician during the follow-up sessions.

Habit Development

a) The Daily Positive Report Card is a useful communication strategy between the school and the home. No more than three specific and positive behaviours should be monitored for any given half an hour to one hour block. Frequent positive feedback from the teacher allows the child to work on specified behaviours until they become habits. The parents should reinforce the child's efforts by rewarding the child based on the number of positive checks the teacher has given during the day. This is also a helpful way of determining medication effectiveness. The emphasis is on a positive attitude and simplicity.
b) The White Board Reminder, placed in a strategic common place in the house like the kitchen, is a useful way for the family to know what is happening during the week (appointments and schedules)

and gives some structure to the family. It also promotes family communication when the weekly agenda is reviewed once a week; best after Sunday dinner. This is also a time for the parents to remind the children of the successes of the past week and the things they must work on for the subsequent week.

c) Homework Output using a Clock Timer allows the child to determine the efficiency of their homework effort. Dividing the tasks into "bite sized chunks" and using a clock timer both enhances the child's competitive spirit (particularly where there is a reward for beating a previous effort) but also limits their frustration as they know that the time on task is limited by the clock. It is very important that the parent establish a regular time and place for the child to do his/her homework, which is best done while the medication is still effective (for most long-acting medications, the effects wear off before 6 pm). A homework tutor or facilitator can be very helpful. Children with ADHD who dread attention-demanding tasks may perceive homework as overwhelming. When homework is destroying a family, with little being accomplished, it should be dealt with as part of the school accommodations and taken out of the home situation. Many schools now post homework on the Internet (e.g. First Class) making it easier to know what needs to be done. In addition, having an alternate set of books at home may make it easier to have the necessary supplies always at hand.

Keep Regular Physician Follow-up Appointments

Patients, when stable, should be seen every three months (though more frequently if there are complicating factors) for:

1. review of the medications and monitoring of the child's height, weight, blood pressure and pulse as well as any pertinent medical areas on functional enquiry
2. a booster session related to parenting efforts and to promote a focus on the child's strengths
3. detection of any deterioration or change in the mental health of the family
4. an update of the school observations
5. an opportunity to inform the parents of any new advances or resources
6. the implementation of proactive approaches for any emerging problems (e.g. starting a new year, camp, Christmas break etc).

CHAPTER 4: SPECIFIC ISSUES IN THE MANAGEMENT OF ADOLESCENT ADHD

The Changing Picture of ADHD Through Adolescence

Different cohorts of patients may present at different ages since the symptoms of ADHD are uncovered or are most apparent when challenges emerge. A very bright student with ADHD may do adequately in elementary school even if "not reaching her/his potential". However, when faced with multiple teachers, considerable homework, more than one project due, group work and an overload on working memory, ADHD that had been missed or well compensated by strategies may become quite apparent.

Even when secondary school teachers fill out the forms, they may still not provide evidence of ADHD symptoms that are clearly reported by the patient, parents and psychiatric testing. Sometimes we underestimate adolescent information; they can give good reports of symptoms not readily seen or recognized by parents or teachers, (spacing out in class though appearing to be listening, inability to recall what has just been read, difficulty in getting started on writing tasks, etc.).

Research has demonstrated that hyperactivity diminishes in adolescents over time, though it may still be represented by the patient being fidgety or impatient[121-123]. Associated impulsivity may lead to significant consequences as adolescents are often in an experimentation mode and in situations that are riskier. Furthermore, difficulties with attention become more impairing as the individual ages. As the demands of attention increase dramatically with increased task complexity and decreased assistance from others, the existing impairment will become more evident[124, 125]. DSM-5[246] recognizes that the total number of symptoms tends to diminish with age. Diagnostic criteria for ADHD specify that for older adolescents and adults (age 17+), at least five symptoms are required instead of six (or more) for younger patients.

Adolescents may present more subtly than younger children. Boredom increases as a subjective complaint and school underachievement is often significant. This may lead to dropping out of school which is a major socioeconomic problem and a noted limitation to the success of an individual[126]. Individuals with ADHD-inattentive subtype, as well as youth with high intelligence, tend to be diagnosed later, and more often in adolescence. A longterm follow-up study of ADHD patients over 33 years indicates that comorbid problems are more likely to develop in late adolescence, early adulthood[261].

The Therapeutic Alliance

It is necessary to work with adolescents in a direct physician/patient relationship with an assurance of confidentiality. Physicians should not rely exclusively on the parents as an intermediary. It is therefore essential to use language that adolescents can understand. It is often best to spend the first session developing rapport even if the chief complaint is not fully addressed. An important first step is to have the patient list his/her personal strengths. This shows the adolescent that the interviewer is interested in their positive attributes and not just focused on their weaknesses. This is also helpful in establishing rapport. Immersing oneself in the adolescent culture (e.g. watching the typical shows on TV, knowing their common interests and keeping up with attitudes) helps to foster this therapeutic alliance. Adolescents should also be seen alone to obtain a history of risk factors such as driving, illegal activities, smoking, drug use, sexual activity, issues of bullying, sexual identity and family or interpersonal conflicts. An assessment of their peer relationships helps to understand their social development and to flag any risky behaviour. Peers tend to be in trouble together.

Data Collection and Monitoring

Adolescents with ADHD are not always the best historians given their self-centered perceptions and tendency to deflect blame onto others. Direct contact with the guidance counsellor or school psychologist may be helpful as they may be able to coordinate the collection of relevant questionnaires and documentation from the other teachers. Sometimes these reports are completed by all teachers, sometimes by the guidance counsellor, sometimes by the teacher the student feels knows him/her best, and sometimes by a combination. Even though there tends to be considerable variability in performance in adolescents, serial ratings done by the same individual still provide a valid measure of treatment outcome from baseline.

Adherence

Adolescent adherence can be very poor with as many as 48-68% of adolescents stopping their medications[127], though the use of once-daily dosing improves adherence[128]. Psychoeducation is a very useful tool to help ensure adherence by making them a partner in therapy. Knowledge of the patient's acceptance level of their diagnosis will help determine if intervention is required to address resistance. Other important factors that improve adherence include: family stability, self-concept, the need for control, increased motivation, simplified regimens and low side effects[126]. Taking medication is an attention demanding task, especially when taken multiple times a day. A useful strategy is to have the medication laid out in a pill box for the week with the adolescent responsible to take her/his medication with parental supervision. Eventual autonomy in medication management is the goal.

> ***Practice Point:*** *First establish the likely dose the adolescent will need. Except for atomoxetine, there is no established weight-dose relationship. For titration, it is suggested to start low and build slowly up to the dosage that improves symptoms and functioning with a good side effect profile. Explain that dosages will need to be adjusted. This preempts treatment failure when the adolescent thinks the medication is not working because the dose is too low. Adolescents can be informed that initial doses are being held extremely low just to assure that if there is anxiety about taking medication, this can be distinguished from medication-related side effects.*

Safety Issues

Drug-drug interactions

It is best to ensure that sufficient time is given to educate the patient and gain their trust. Combining medications for ADHD with illicit drugs or alcohol could be dangerous as the potential for toxicity may be increased. Marijuana is associated with a decrease in motivation and increase in apathy[129, 130]. Abstinence is recommended, though a harm reduction approach (limiting the amount of use or restricting the use to evenings therefore reducing drug-drug interactions) may be a useful option. Sometimes an adolescent may be using excessive coffee, energy drinks and colas. These can also create problems with ADHD medications as they all act as inotropic agonists to the heart. However, studies have suggested that the early use of ADHD medication may protect the patient from drug use in the future[131].

Driving Risk

Driving assessment should be done (using the Jerome Driving Questionnaire in Chapter 6, Supporting Documents 6C) as driving problems are a significant risk for an adolescent and a major concern for parents. The evidence shows that effective medical treatment of ADHD has a carry-over effect into the evening which influences driving ability. It is important that all adolescents with ADHD have driver training and that their driving risks be minimized (e.g. curfews, absolutely no drugs or alcohol while driving, staying off major highways, etc.).

Sexual Risk

Adolescents are at significant risk of teenage pregnancy and unprotected sex. It is important that they be educated to understand the risks through open dialogue and education. The use of birth control pills may be necessary.

Educational Issues

School Failure

ADHD adolescents are at significant risk of dropping out of school early, school failure, repeating grades and not achieving their academic potential. As a result, they may opt for post-secondary programs that are accessible rather than wanted due to their poor grades. The social distractions of high school are significant. The lack of organizational skill and time management begin to show. Individuals with ADHD do not usually ask for help though teachers may expect them to ask as a sign of their self-directedness and maturity. They may be helped with school accommodations, sensitivity by the administration, and assisitive-organizational technologies.

Tutoring

Parents should not be involved in assisting the adolescent with ADHD with their homework as it leads to conflicts and feelings of resentment. Tutors should be employed who are there to help create structure, organization and task completion. Individuals with ADHD generally seem to respond better to one-on-one attention.

CHAPTER 5: SPECIFIC ISSUES IN THE MANAGEMENT OF ADHD IN ADULTS

1. The Clinical Presentation[132]

General Information and Referral Patterns

Prevalence Rates: It is well established that ADHD is a neurodevelopmental disorder that can persist into adulthood[27]. Genetic studies, imaging studies, clinical treatment trials and prospective follow-up studies have all established that for about 60% of children with ADHD, there will be continued impairment in adulthood[133]. The National Co-morbidity Survey[134] established the prevalence of ADHD in adults as 4.4%. It is likely that the demand for service will continue to rise. However, at this point, less than 12% of patients have been able to obtain services even at the primary care level[134].

A long-term follow-up study[261] showed that comorbidities tend to appear early in the life course (adolescence to early adulthood). Treatment of ADHD in adults therefore represents a significant healthcare need requiring physician education, establishment of services within the healthcare system, and appropriate research on treatment and service delivery. In the United Kingdom, the recent recognition of ADHD in adults by the National Institute for Health and Clinical Excellence (NICE) Guideline on ADHD[8] has resulted in the National Health Service beginning this process. DSM-5[246] provides better guidance for clinicians with new descriptions of ADHD symptoms in adulthood.

Recognition and Referral: People with this condition have always lived with their symptoms, which they may or may not have insight into, and which they may or may not identify as outside the norm. In clinical settings, it is the experience of the authors that the most common occurrence that causes adults to seek out a referral is the diagnosis of their own child or someone they know well. With the proliferation of popular texts on the subject, media attention on the disorder, and online information, many patients now come to their doctors requesting a diagnostic assessment for ADHD. Patients may come to their doctors with a chief complaint that is *not* one of the symptoms in the DSM-5 or with a symptom that is common to many disorders. Adults with ADHD may present with a primary complaint that is an associated symptom, such as procrastination; disorganization; lack of motivation; sleep-related problems; rage attacks; an overwhelmed sensation, associated with fatigue; and/or labile mood. In this case, it is important to remember that while the clinician's focus is on assessment of ADHD as the primary disorder, the patient's focus is on the associated complaint. A complication in assessing adults with ADHD is the frequency of comorbidities and the need to conduct effective monitoring within a reasonable period of time and without extraordinary costs. The current recommendations attempt to meet this goal but we anticipate that this is a work in progress that will undergo revision with time. The latest version of the CADDRA Canadian ADHD Guidelines will always be online at **www.caddra.ca**.

Practice Point – Patients you might see in your practice

The Reluctant Patient: Some patients may not be at the assessment voluntarily. If the patient is there for forensic reasons or at the insistence of a family member, the first objective of the clinician has to be to establish a therapeutic alliance that addresses the patient's concerns and level of insight.

The Impatient Patient: Some patients have come looking for the "stamp of approval" from the clinician and want to get on with the medical treatment. In their mind, the history gathering is a waste of time since the diagnosis is confirmed either from their own reading or from a previous assessment. They may use a lot of medical terminology. It is still necessary for the clinician to go through the protocol and reiterate the need to consider lifestyle changes, not just medication. It is not unusual for a previous diagnosis to have missed comorbid illnesses.

The Agenda Patient: This is the patient who has a secondary gain from the diagnosis (e.g., looking for a defence avenue in a legal suit, school accommodations or work-related advantage). The diagnosis could still be correct but it is important to flush out any secondary agenda the patient may have directly and without judgement. The patient sometimes withholds the whole truth because of the fear of being scrutinized

The Excessively Thankful Patient: This is a tricky one but be careful. The patient that puts you on a pedestal from the outset may be setting you up for failure. "Dr. X, I heard about you and I am so grateful to be in your mere presence because I know you are the only one who will help me." They may be transferring their anger onto you from prior experiences with authority figures and your impotence is their way of relieving anxiety, also known as primary gain.

Practice Point – Dispelling the Common Myths[15]

Aren't ADHD symptoms just indications of poor coping? When ADHD screening is used, one quickly realizes that the patient is not simply coping poorly but is significantly impaired and has a high risk of developing secondary comorbid disorders such as anxiety and depression.

My patient is a professional. How could he/she have made it through a rigorous training program while living with ADHD? ADHD does NOT preclude successful educational or professional attainment. It is necessary to assess the impairment relative to potential, the possible use of excessive coping strategies, and to look at all aspects of functioning to determine whether ADHD has an impact. For some adults, even when they appear functional in their jobs, a closer inspection reveals that they are using strategies that compensate for their weaknesses. Take into account the impacts of those compensatory strategies in the assessment and treatment process. These strategies may be hazardous and result in the person becoming a workaholic, having poor employee-employer relations and lacking career progression. It can also cause great frustration and emotional distress in family members, business partners and others.

My patient has come to my office with a self-made diagnosis after reading about the symptoms. How can I separate out what is real from what they want to believe? Many popular publications and TV shows about ADHD use questionnaires that may be too vague and may be applicable to too many people in the population. That is not to say that the patient's self-assessment is wrong. But sometimes the self-diagnosis represents an underlying belief that there is a "miracle pill" that will make lifelong problems or more serious disorders go away. Spending the time to carefully evaluate and educate is necessary to ensure an appropriate diagnosis and treatment.

ADHD patients are demanding, always late, and difficult to deal with so I don't want to treat them!
The clinician will miss an opportunity to treat a person who is very treatable and who may be presenting as above due to a lifelong history of disappointments with authority figures. Don't take it personally. They need empathic understanding.

Case Presentations

Physicians should have a high index of suspicion of possible ADHD in patients who have a lifelong history of problems with attention, disruptiveness or impulsive behaviour. These difficulties may become apparent during routine care in patients who demonstrate typical forms of impairment. Notable flags might include:

- organizational skill problems (e.g. missed appointments, poor time management, a desk that has a mountain of paper, unfinished projects, inability to comply with medication or follow instructions)
- an erratic work history (e.g. changed jobs frequently, fired due to lateness, forgetting appointments and/or being unprepared for meetings, difficulty delegating tasks, describing employers, employees, or clients as frustrated with them)
- anger control problems (e.g. argumentative behaviour with authority figures, being overly controlling as parents, fighting with their child's teachers, "wild-man" rage episodes)
- patients who are over-talkative, interrupt frequently or inappropriately (for example, talking loudly on a cell phone in the waiting room), run out to re-park the car, answer their phone during an exam
- marital problems (e.g. spouse complains he/she doesn't listen, makes impulsive remarks during arguments, forgets important events like birthdays and anniversaries, past relationship breakdowns)
- parenting problems (e.g. forgets to give child medication routinely, difficulty establishing and maintaining household routines such as bedtime and meals, difficulty getting child to school)
- money management problems (e.g. fails to do taxes, makes frequent overdrafts, runs out of money, buys things "on a whim" they can't afford)
- substance use or abuse (e.g. especially alcohol and marijuana), excessive caffeine or energy drink consumption
- addictions such as collecting/hoarding, compulsive shopping, sexual avoidance or addiction, overeating, compulsive exercising, gambling
- frequent accidents, involvement in risk-taking or extreme sports
- problems with driving (e.g. speeding tickets, serious accidents, license revoked or, alternatively, choosing not to drive or driving too slowly in an attempt to compensate for attention problems).

Other common presentations that should be followed by screening include:

- a parent whose child(ren) has ADHD and who notes they have similar problems
- a college student who requires a diminished course load, is frustrated that it is taking a long time to get through school, or is returning to school and re-experiencing earlier problems
- an individual who was diagnosed in childhood and is still having problems
- a patient whose parent or spouse identifies them as being "just like" information they have been exposed to on ADHD.

2. Screening

Current Symptom Screen

Administer and Score the World Health Organization's Adult Self Report Scale (ASRS-V1.1, 18 item)

If the patient screens negative on this scale they are not likely to have ADHD. The threshold score is ≥ 4/6 on Part A. If they screen positive, the clinician should screen for the other major DSM-5 criteria and

exclude other diagnoses that may appear similar to ADHD. Refer to Chapter 2 on Differential Diagnosis and Comorbid Disorders. *The ADHD Checklist can then be used for current symptoms.*

Developmental Screen

Did you have difficulty with these problems before you entered into puberty?

The patient must fulfill the diagnostic criterion that states the symptoms must be evident in childhood before the age of 12[246]. Collateral information from a reliable source is often necessary. *The ADHD Checklist can then be used to retrospectively assess symptoms in childhood.*

Impairment Screen

Are these symptoms causing difficulty in your life right now?

Patients who have screened positive on the ASRS and describe the problems as long-standing and impairing should receive a full psychiatric assessment for ADHD. *Functional impairment can then be explored with the WFIRS-S.*

3. History and Physical Exam (Expansion of the Current Symptom Screen)

> ***Practice Point:*** *ADHD is often associated with a particular cognitive style that is a variation of concreteness, over-inclusiveness and distractibility. This includes: talking excessively, getting stuck on relatively minor events (over-inclusive speech), inappropriately intense emotions, going on and on in response to open-ended questions (circumstantial speech), getting distracted by things in the office which interrupt their thought processes (tangential speech), and talking as if they are being understood without reading social cues that indicate otherwise[135-137]. If they seem to have pressured speech (talking so fast that the words sometimes seem intelligible) make sure it is not due to anxiety. If they seem to be jumping from idea to idea, it could be that anxiety is forcing them to try to get all the information in so their ideas are disjointed. Slow them down to see if this is really "loosening of associations" or a thought disorder.*
>
> *It is useful to speculate on what the childhood diagnosis would have been if you had seen them then, though the current diagnosis by the current clinical presentation may be different. For example, they may have been ADHD combined presentation as a child but now meet the criteria for ADHD inattentive presentation. This suggests that their core hyperactivity-impulsivity may have improved, been compensated for, or have changed in quality so that it is less obvious.*

Collecting the Relevant Information

Combining symptom-based questionnaires with a thorough clinical history is the first step in evaluation of the diagnosis (CB). The questionnaires should be administered first, but seen last, and *only* after the clinical opinion from the interview is made. It is important to be trained to see adults with ADHD and clinicians should be directed to the **www.caddra.ca** website for updates on training programs and to the CADDRA eLearning portal **www.adhdlearning.caddra.ca** for online presentations and training modules.

The CADDRA ADHD Assessment Form is available in the CADDRA ADHD Assessment Toolkit (CAAT) section of the Guidelines or can be downloaded and printed from the CADDRA website. It is a simpler and more user-friendly form than those in previous CADDRA Guideline editions. The clinician's office stamp and patient reference details can be inserted at the top of the page. The form mimics the natural progression of the clinical interview in order to make information gathering and recording relatively easy. It can also be used to remind the clinician of important facts for dictation and communication.

Symptom-based Rating Scales The Toolkit scales include the ASRS, ADHD Checklist, Weiss Symptom

Record (WSR) and the Weiss Functional Impairment Rating Scale (WFIRS). Other scales not in the Toolkit include the CAARS, BADDS and Adult BRIEF. These tools should *never* be used to establish the diagnosis as they have an inherent observer bias. If you want to have a particular diagnosis, you will score high and if you don't, you will score low, consciously or unconsciously. Scales assist in the clinician's history-taking and screen for relevant cases. They are also valid instruments in follow-up. When used serially and recorded by the same person, they reflect true symptom change. Rating scales other than those in the Toolkit also have the additional disadvantage that they are licensed or commercial products and expensive. Clinicians should try to get rating scales completed by additional informants, e.g. spouses, parents, adult siblings.

Physical Exam

Medical issues change in adulthood so a careful screen for hypertension, cardiovascular problems, early dementia, arthritis from previous injuries, obesity, poor dental hygiene, glaucoma, traumatic brain injuries and past injuries for accidents is crucial[138-141]. ADHD patients have double the medical morbidity in comparison to the rest of the population[142].

> ***Practice Point:*** *The physical examination, if not done by the treating physician, must still be documented. This is important from practical, clinical and medico-legal points of view. The attending physician should still do a functional enquiry.*

4. Childhood History of ADHD – (Expansion of the Developmental Screen)

Adult ADHD Developmental History

One of the diagnostic criteria for ADHD in DSM-5 is that onset is prior to the age of twelve, compared to onset prior to the age of seven as in DSM-IV-TR. This is an issue because an adult patient may not be able to reliably recollect whether or not he or she had symptoms as a young child. The DSM-IV-TR criterion was criticized for other reasons as well[143]. Adults may not have access to collateral sources that can verify their symptoms before the age of seven. The primary school curriculum is largely focused on skill development so that an individual of very high intelligence who is not disruptive may not show impairment until he/she is older. Clinicians with a long experience of evaluating adults have often commented on the unique stamp that ADHD puts on the developmental history of a patient from childhood through to the time of assessment with regard to the singular quality of the impairments. DSM-5 gives a better description of the adult ADHD presentation[246] and takes into account the fact that the total number of symptoms may diminish with age.

However, a good clinical history should demonstrate that the patient had evidence of similar problems throughout the lifecycle and that these were most prominent in situations that required attention. ADHD is a developmental disorder which does not have an acute onset. The ADHD Checklist can be used to retrospectively assess symptoms in childhood. It can be completed by the adult and whenever possible by someone who knew him/her well in childhood, for example the parents of the adult.

Many adults have developed compensatory strategies to better cope with the impact of ADHD in their life. Look for those coping strategies, but also how they manage to function in particular situations, not just with academics. ADHD may have been a burden, especially during transition phases, from the teenage period to adulthood. Look how they juggle implementing daily routines, taking care of themselves and balancing the act between work and parenting. Explore time, but also money, management; driving; sleeping; and eating habits. Measure the costs of ADHD relative to impairment and add the cost of all the coping strategies they need to put in place when you assess and decide what kind of treatment should be implemented (compensatory burden).

5. Impairment – (Expansion of the Impairment Screen)

Weiss Functional Impairment Rating Scale Self-Report (WFIRS-S)

The clinician can obtain a sense of the areas in which the patient has functional impairment by reviewing the WFIRS-S. Items that are circled within the "most of the time" and "all of the time" sections can be discussed in more detail when later completing the assessment form to determine the nature of the impairment and how it relates to ADHD symptoms. Identifying aspects of a patient's life that are impaired will help guide discussions about therapeutic interventions.

6. History of Past Psychiatric Health and Medications

While the current symptoms, the developmental history, and the history of impairment are the critical findings for screening, they are not sufficient to make a diagnosis.

Past Psychiatric History

A careful history of the problem(s), intervention and response is needed.

- Misinformed therapists in the past may have interpreted ADHD behaviours dynamically, further complicating the problem. This is not unusual in couple therapy where a patient's undiagnosed ADHD symptoms may be misinterpreted as unconscious hostility or passive-aggressive behaviour.
- A careful past psychiatric history helps to sort out the sequence of onset of symptoms, which may be helpful in differentiating between primary and secondary disorders.
- Review of past problems permits the clinician to assess the patient's capacity for psychological mindedness and the interpretive framework they use to explain past illness. Depending on which intervention they have received, it is also possible to obtain insight into whether they are likely to respond to problem-solving approaches, interpersonal interventions, cognitive behavioural techniques, behaviour therapy or restructuring of the demands of their environment.

Medication History

While many patients are treatment-naive, more often than not a patient has already tried various antidepressants and other psychotropic medications. It is not unusual that a patient may have tried his/her child's medication to determine whether it will work for him/her.

> ***Practice Point:*** *Get the telephone number(s) of the patient's pharmacist(s) and get a printout of his/her medication history. Ask the patient to bring pill bottles in or have the family physician that does the medical exam document the medications. Consider a urine drug test for patients where there is any reason to suspect drug abuse or drug-seeking behaviour.*

Document what medication the patient has taken, the duration of treatment, their response and any side effects, particularly ones that were unexpected or reflective of toxicity. Assess the patient's level of insight by comparing his/her report to that of the collateral informant. Assess for tolerance to medication by observing dose response over time and impact of drug holidays.

7. Family History

Background

Evaluation of family background provides the clinician with a sense of the person's upbringing. Families do not cause ADHD, but ADHD combined with family dysfunction is more disabling and increases impairment and risk.

Practice Point: *Be sure the interview is both sensitive to the patient's culture and non-judgemental.*

Family Psychiatric History

This history is significant in a disorder where heredity is related in about 80% of cases[144]. Ask if either parent, a sibling, or any of their children have a confirmed history of ADHD; learning problems; tics or Tourette's syndrome; depression; anxiety; anger problems; difficulty with the law; drug or alcohol problems; psychotic illness; personality problems; suicide; or needed to take medication for emotional illness. The patient may speculate on a relative's illness and the reliability of these speculations needs to be evaluated clinically (CB). If there is not a family history, it seriously undermines the strength of the diagnosis.

8. Screening For Comorbid Disorders

ADHD in adults is often comorbid with another disorder. A long-term follow-up study has shown that the critical period to develop co-occurring problems is early in the lifetime course, from teenage to young adulthood[261]. Refer to Chapter 2 on *Differential Diagnosis and Comorbid Disorders* for clinical information. The Weiss Symptom Record can be used as a means to clarify comorbid symptoms. While not diagnostic, it is helpful to the clinician to differentiate associated disorders. Additional rating scales can be used to proceed from the screener (e.g. The Hamilton Rating Scale for Depression (HAM-D)[145], The Hamilton Anxiety Rating Scale (HAM-A)[146], Yale-Brown Obsessive Compulsive Scale (Y-BOCS)[147] – these scales are not provided in this document).

9. Feedback

Diagnosis

The patient who meets all of the criteria below has ADHD:

1. **meets symptom criteria** on the DSM-5 rating scales on self-report and/or collateral report and clinician interview. Some patients lack insight and do not self-report symptoms but have clear evidence of symptoms on clinical interview. Other patients have excellent insight but their collateral informant does not know them well enough to identify a problem
2. has a developmental history consistent with ADHD and **childhood symptoms of ADHD**
3. shows a past and current pattern of **functional impairment** consistent with ADHD
4. has **no other disorder that can explain** the symptoms.

The following should NOT be used to dismiss a diagnosis of ADHD:

1. the clinician does not observe hyperactivity in the office
2. the patient reports a great deal of problems with organization, time management and executive function but is reliable in keeping appointments, filling out forms and paying for treatment
3. the patient comes in saying they have read about ADHD and thinks they have this problem
4. there is no family history
5. the spouse or parent suggests symptoms of ADHD which the patient dismisses
6. the patient is well educated or employed in a high level position
7. the patient is very bright, and early school report cards do not describe problems with attention or behaviour. For some, increased autonomy and challenge lead to evidence of impairment in later years. Other patients may, on further exploration, give a very convincing account of unusual coping strategies such as excess time on homework or increased need for assistance

8. the patient was clearly hyperactive, impulsive and inattentive when younger but currently only has difficulty with a few residual symptoms. In some, limited impairment is still clinically significant
9. the patient does not remember or denies symptoms in childhood, and school report cards are not available. Usually a careful developmental history will reveal evidence of the impact of the disorder, even if the patient did not have insight, either at the time or now, into the symptoms that provoked these consequences.

Some associated features may contribute to confidence in the diagnosis:

1. typical associated symptoms include procrastination, oppositional attitudes, difficulty with time, insomnia, reactivity, underachievement relative to potential, variable performance, temper outbursts
2. pattern of impairment is consistent with the sorts of impairments known to characterize the disorder such as problems with listening in class, working efficiently, paying bills, completing taxes, driving, smoking, etc.
3. positive family psychiatric history
4. typical comorbidities: these patients may have poor auditory processing, poor written output, poor reading comprehension, abuse of substances (e.g., marijuana, cocaine, nicotine or caffeine) and mood lability. Typical comorbid problems in childhood include ear infections, enuresis, learning disabilities, oppositional defiant disorder, tourette's syndrome or tics
5. the pattern of developmental challenges matches the typical course of ADHD. For example, someone may have problems with circle time as a toddler, difficulty with homework in grade three, poor choice of friends in middle school, skipping and acting out in high school, car accidents, impulsive financial decisions in adulthood, be attractive to others but have trouble keeping friends, be self-employed in a high energy job, and be accident-prone as a child and adult.

10. Treatment Considerations – Uncomplicated Adult ADHD

ADHD is not unlike other chronic developmental disorders in that treatment needs to be multimodal and the patient will require support and follow-up over time. Ongoing education regarding strategies for coping, in addition to medication, permits the patient to obtain developmental and functional gains that would not otherwise have been possible.

A typical sequence of interventions would be:

Psychoeducation[148-150]

The symptoms of ADHD relevant to this patient and the way in which these contribute to functional impairment are reviewed, with discussion of examples of how similar symptoms in the past impacted on the patient's capacity to cope with developmental challenges.

Behavioural Intervention and Goal Setting

The patient's original goals are reviewed and additional treatment planning is initiated. This might include short-term counselling. It might include problem-solving around residual deficits with executive function or activities of daily living. Improved insight into the relationship between ADHD and actual functioning often leads patients to make significant life changes to decrease their stress. For example, a student realized he was not yet ready to cope with college and decided to get a job as a mechanic (something he loved) and to take night courses for a year. A bank teller changed jobs and became a waitress and hairdresser, two positions that she could function in easily. A father realized he found watching his son's baseball games very boring, which was leading to friction between them. Since they both loved to ski, he became his son's ski instructor instead.

Assistive and Organizational Technologies

Various hardware and software are available to diminish a patient's reliance on working memory, to compensate for poor handwriting, and improve time management. These include, but are not exclusively limited to:

- Dragon Naturally Speaking® (voice-recognition software) **www.nuance.com/dragon/index.htm**
- Kidspiration® & Inspiration® (learning, communication & organization skills) **www.inspiration.com**
- Kurzweil 3000® (scanning and reading software) **www.kurzweiledu.com**
- Word Q® (writing software and word prediction) **www.goqsoftware.com**
- Write Out Loud® (talking word processor) **www.writersblocks.com**

For adults who have not learned to type, any common typing program, like Mavis Beacon Teaches Typing®, should be utilized to increase typing proficiency. Programmable watches, electronic PDA organizers and smart phones (iPhone®, BlackBerry®, android phones) are also very useful in integrating many of the organization tasks and often have the advantage that they can be synchronized with desktop computers. These devices can also be used as electronic reminders or cuing devices to help with remembering medications and appointments.

Medication Trial Efficacy/Safety

When appropriate, trial of any of the first line medications listed in Chapter 7 is initiated followed by a review of symptoms, management of adherence, observation for any negative psychiatric side effects such as anger or dysphoria, and the use of symptom ratings by the patient and collateral informant looking for improvement. Choice of medication is determined by issues such as:

- cost of medications
- the time of day of impairment (of most concern)
- tolerance of adverse events (such as insomnia)
- risk of substance abuse
- comorbid disorders
- capacity for adherence
- urgency of response
- and the patient's choice upon reviewing the risks and benefits of each medication option.

Optimization of Treatment

CB Some symptom reduction will occur with medication intervention but true optimal treatment must include lifestyle changes. Optimal treatment is reached when the patient's level of impairment is brought within the normal range and remission of symptoms occurs.

Follow-up

Most patients should receive regular follow-up by their community physician who will: a) adjust and maintain optimal medication effect; b) maintain the patient's motivation and refer for additional treatments when needed.

CHAPTER 6: PSYCHOSOCIAL INTERVENTIONS AND TREATMENTS

Introduction

ADHD is a chronic neurobiological disorder that impacts all aspects of the individual's daily life across the lifespan, including social and emotional functioning, academic/work-related success, relationships, marriage, family life and physical health. Therefore, a **comprehensive, collaborative, multimodal approach** tailored to meet the unique needs of each individual is not only important but essential.

The primary care provider is in the unique position of being able to follow an individual with ADHD across the lifespan. **Establishing trust and rapport** from the onset with the patient and family is crucial to optimal care and is vital for treatment success. The partnership that develops between the patient, the family and the primary care provider is the cornerstone of successful management and coordination of care. For the adolescent with ADHD, privacy concerns are heightened and more time to establish rapport may be required before the adolescent is willing to engage in changing their lifestyle.

Be aware of **gender differences**[151, 152]. Females are more likely to have inattentive-type ADHD. Girls can be more anxious and motivated to please others, especially at a younger age. On the surface they appear to be coping, but their underlying impairments can be hidden or ignored. As a result, ADHD may be undiagnosed or under-treated.

The family, school/college/workplace, the physician and other professionals are all critical parts of the treatment team that supports the individual with ADHD. Being **active participants in all aspects of treatment**, including decision-making, is the cornerstone of care, ensuring open communication and improved adherence at all ages and stages of life.

Psychosocial Intervention Overview

Research has shown that combined therapy using medication plus psychosocial interventions (multimodal) is the most effective way to deal with the core symptoms of ADHD and the resulting impairments[103, 153-161]. These interventions can be broken into four main categories:

a. Psychoeducation[96, 162, 163] is most relevant for individuals eight years and older and is designed to empower the patient and his/her supports with knowledge about the disorder, its impacts and how to function optimally while having ADHD. These approaches can also include strategy instruction, self-talk and organizational skill development. Topics might include information on sleep management, anger, organizational skills, etc.
b. Behavioural interventions[88-93] can be implemented at any age. These include the thoughtful application of rewards, consequences, response cost, point systems, token economies (in group settings such as classrooms), environmental management, ADHD coaching and lifestyle change (diet, exercise, sleep).
c. Social interventions[164-175] are useful across the lifespan and include social skills training, anger management, supervised recreation and parent training.
d. Psychotherapy[97-99, 101-110, 144, 176] for adolescent and adult ADHD with/without comorbid conditions (such as poor self-esteem, depression and anxiety) includes: self-talk, cognitive behavioural therapy, interpersonal therapy, family therapy, expressive arts therapy, play therapy and supportive counselling (typically for adjustment problems and less severe emotional concerns).
e. Educational/vocational accommodations include academic remediation, specialized educational placements and workplace interventions.

Individuals with ADHD function best in a consistent, structured, predictable environment where rules, goals, expectations, consequences and incentives are visibly posted in a prominent location for all involved to follow routinely. These should be simple, clear, and few in number. Immediate consequences and positive reinforcement are best, and close monitoring of successes and failures is essential to ensure a positive outcome.

Specific Psychosocial Interventions

The following guidelines can be readily incorporated into daily office practice and can help the physician provide some of the necessary psychosocial supports required by individuals with ADHD and their families. These supports may not otherwise be available elsewhere in the community or may be inaccessible because of cost or lengthy wait lists. The following techniques stem from evidence-based research.

Physicians may choose to start with one or two areas of concern, select a few strategies from the list, and then model the desired behaviour and state the expected outcome to the patient or their caregivers. It is critical to assign the individual homework in order to practice these skills.

As a physician, remember that some techniques work some of the time and others most of the time. Find out which is most effective for your patient and their family. Patience, consistency and understanding are fundamental elements of successful treatment and the key to future success, happiness and fulfillment in life for the individual with ADHD, no matter what their age.

Psychoeducation Interventions[43, 96, 111, 177-192]

CB Education should start with questions about what the patient and family already know or think they know about ADHD and about people they are acquainted with who have it. Educate the individual with ADHD regarding the diagnosis, assessment, possible investigations/tests and myths. Explain the treatment options in detail, including pharmacotherapy and psychosocial interventions and the risks and benefits of each, as well as the importance of using both in combination. Give handouts on ADHD, medications, websites, books, videos, community resources, support groups, parent training and social skills, as well as strategies for successful management. A useful website for adults to learn more about their condition is www.totallyadd.com

Practice Point: Common Reasons Why Physicians Avoid Psychoeducation

1. "I don't have the time." Materials downloaded from websites or copied from the CAP-Guidelines can assist the physician when explaining about ADHD.

2. "I want to do group-based education but I don't have the space." Convert your waiting room to a group room after the last appointment of your day. It will likely hold ten or more people. You can then give a session on specific topics like behavioural interventions or medications to several people, making the dissemination of information more efficient. Attendees with common concerns will also be able to support each other.

3. "I expect that if they have a question they will ask me." ADHD patients often need their questions drawn out so don't make the assumption that they actually have the information that they require.

Behaviour Management

Identify goals and target behaviours to change: There are many symptoms within ADHD but the behavioural task is to pick specific symptoms (no more than one or two at a time) to work on. Goals must be tailored

to meet the individual's needs and be appropriate for different ages and stages of development. Goals may change over time as circumstances change.

Examples include:

1. preschooler with temper tantrums – respond positively to desired behaviour and use ignoring and good time out techniques to respond to unwanted behaviour (e.g. 1-2-3 technique)
2. school age – use lists and agendas[150], teacher reminders, use positive incentives
3. adult – keep items like cell phones and keys in a designated, visible location. Post lists as reminders to check for necessary items each morning before leaving home.

Structure the day and the environment: Once habits are reinforced consistently, they may become automatic. Promote routine, consistency and follow-through as much as possible, especially for morning activities, after school/work and bedtime. Post rules/checklists, which should be clear, few in number and placed in obvious locations (fridge, bedroom, office etc.). Use sheet protectors and dry-erase markers so that the lists can be checked off and reused. Habits take a little longer to develop in ADHD patients so incentive strategies are often necessary.

Help select positive incentives to promote desired behaviours:

1. These incentives must be appropriate for age, developmental stage and economic ability. They must fit with the family's beliefs/cultural systems. They should include activities the individual can do and *items* that they can earn (e.g. stickers, toys for younger children, tokens, video games, TV, favorite meals, etc.)[47, 193, 194]. For younger children, the rewards should ideally be frequent, small, tangible and immediate. For older patients, natural consequences can be highly motivating (e.g. keys to the car for the adolescent, allowances, better curfew times, special outings etc.).
2. These incentives need to be changed often to keep their interest as individuals with ADHD have a need for novelty. Variable reinforcements can be even more powerful (e.g. "When you do…, then you can choose from the mystery prize box").
3. Use positive incentives while avoiding negative threats e.g. "When you do…then you will receive…" (something positive). This promotes a natural work ethic that also enhances self-esteem and pride in achievement. Impulsive behaviour is often a lifelong theme. Children with ADHD can be demanding and they need to know that they can earn their desired reward by working for it. Work first, fun later! One needs to use similar techniques with the adult with ADHD who may still lack frustration-tolerance and patience to wait for rewards.

Parent training[181, 182, 195]: Children with ADHD can be challenging and may irritate authority figures. Research shows that they can be stressful for parents[196]. They draw negative attention to themselves. Positive parenting approaches and maintenance of generational boundaries are essential. Information for parents is available online in the parent section of the CADDRA website (**www.caddra.ca**) and on the CADDAC website (**www.caddac.ca**). Parents should also be directed to local mental health agencies which often have parenting programs.

Help them use agendas, organize, keep appointments and be on time: Encourage proper use of calendars (month-at-a-glance calendars are best), checklists, agendas, electronic devices, sticky notes, whiteboards, colored folders, timers etc.

ADHD Coaches: While there is no coach accreditation body in Canada, there are many individuals who call themselves ADHD coaches. They are typically occupational therapists, social workers or health care providers. Some of these individuals have ADHD themselves and likely understand the suffering that

happens but caution should be exercised if the coach exceeds his/her competence and training. A coach's role is to help the patient be accountable on specific behavioural agendas through weekly follow-up meetings and reminders. Their role is to assist the patient make fundamental lifestyle changes by promoting good habits. If used, they should be part of a treatment team which includes a physician (who handles the medication) and a psychologist/social worker who can provide individual therapy, as well as other relevant professionals.

Promote healthy lifestyle changes[185]: Individuals with ADHD often struggle with their own daily physical needs (e.g. sleep, meals, personal hygiene, house cleaning) and must create a balanced lifestyle by developing regular habits and routines. The physician can instruct a patient to: make self-care a priority; promote exercise on a regular basis (such as brisk walks, weight training, bike rides, sports, etc.) as this decreases stress and frustration, improves focus and cognitive clarity, increases endorphins, improves mood and restores a sense of well-being[114-116]. Consistent sleep hygiene and good nutrition are essential ingredients for a healthy lifestyle.

Social Interventions

CB Showcase the patient's strengths and talents: The physician can point out a particular attribute identified in the office and encourage increased development of skills in the area. Gardner's Multiple Intelligences[197] is a useful framework as it focuses on non-traditional aspects of ability (i.e. artwork, dance, music, sports, chess, etc.).

Model some socially-appropriate skills in the office[198]: For example, model how to properly greet peers and others on the playground, at college or in the workplace, or how to manage a difficult co-worker, boss etc. Assign homework and have them practice those skills.

Anger management: This is often a major problem for someone with ADHD, and presents across all ages. Appropriate conflict resolution strategies must be put into place. Creating an environment of safety is the first priority and sometimes social service or enforcement agencies must be involved. However, if involved, there is an opportunity to create an emotional contract which can be of benefit to the family.

Social skills training: Many children with ADHD have social awkwardness. They want to have friends but may annoy their friends by their silly, immature and self-centered behaviour. Sometimes they miss social cues or misunderstand social conventions like when to ask to join in or when not to interrupt. It is important to note that there is a spectrum of impairment in social skills. Some levels of impairment may be due just to ADHD, but for others there may be sufficient impairment in social skills and related problems to warrant an evaluation for a possible Autism Spectrum Disorder (ASD) diagnosis. Making friends is an important skill set that both the school and parents can facilitate. Good friendships can be a protective factor in reducing some of the negative outcomes associated with ADHD[199]. When social problems continue into adulthood, the ADHD individual may find themselves isolated or overlooked for promotion. Local adult ADHD support groups can often help.

Psychotherapy

Emphasize the positive during the visit: A simple word of encouragement, praise or recognition[111] from the physician for appropriate behaviour observed or reported during the appointment can ameliorate the constant stream of complaints from home, school, college, partner and parents. Others (parents, significant others) can improve their relationship with the patient by transferring this approach to many different situations.

Boost self-esteem: Encourage verbal and tangible recognition for accomplishments. For youth, have parents, teachers and coaches give certificates, medals, plaques, stickers and check marks. Use a point system or tokens. For adolescents, place the individual in a leadership role which will promote continued motivation and build skills. For teenagers and adults, encourage them to reflect on accomplishments, possessions, talents, skills, traits, social memberships etc. Humour is a very effective means of helping them keep life in perspective.

Relaxation therapies: When individuals with ADHD are overwhelmed, they have a low tolerance for frustration and can experience angry outbursts (i.e. "have a short fuse"). Physical activity and breaks can help decrease stress and diffuse frustration. Relaxation techniques, such as meditation, deep breathing exercises, yoga or music can also be helpful, although research is limited and findings are mixed.

Cognitive behavioural intervention (CBT): *Further explanation in supporting document 6B.* CBT is a well-established type of psychotherapy that challenges the person's underlying negative thinking and beliefs in favour of a new thinking construct. It is widely used for mood and anxiety disorders and recent research shows its value in adults with ADHD [97, 98, 171, 173-175]. It can also be of benefit to adolescents but the evidence is not as robust, probably as CBT requires motivation and commitment to change and that might be lacking in the adolescent. While CBT is used in children with anxiety disorders, it has not been used successfully in children with ADHD[148, 200].

Supportive psychotherapy: It is best to pick a specific symptom to work on but the intent is to help provide a perspective that the individual with ADHD may not have, as well as encouragement and problem-solving strategies.

Family therapy: As ADHD is a highly heritable disorder[43], there are often negative interpersonal dynamics between the parents and conflicts with the children. As a result, there is often a need to address family issues, lack of structure and the conflicts that exist. The central goal of family therapy is to reduce the level of negative emotions and to address the family's approach to problem-solving and conflict resolution.

Educational/Vocational Interventions[201-203]

Individuals with ADHD suffer significant deficits in executive functioning (time management, organization, etc.) which can cause marked impairment at school/college and work. This places the individual with ADHD at a significant disadvantage for completing tasks, projects and tests on time. Their daily performance may be negatively affected and future achievements seriously compromised due to careless errors, misread questions, late assignments or completed assignments not handed in, etc. Teachers can access help and advice on how to deal with these issues through the www.teachadhd.ca website.

Make classroom recommendations: CADDAC (www.caddac.ca), a sister organization to CADDRA, hosts a comprehensive guide to classroom accommodations on its website. The Calgary Learning Centre (www.calgarylearningcentre.com) also provides online resources. Classroom adjustments can include having the student seated away from distractions (pencil sharpeners, windows, doors, pets etc.) and beside good role models, if possible. Allow movement breaks (i.e. allow the student to clean the whiteboard, collect papers, run errands etc.). Appropriate fidget toys such as bracelets, special cushions, chewing gum, and the use of headphones to decrease distractions while doing desk work can be useful in certain cases.

Structure the environment: A firm, organized, yet flexible teaching style is a good fit for a student with ADHD. Have reminder lists posted on or inside desks and lockers. Have teachers or homework buddies check agendas and ensure that proper homework materials go home. Have an extra set of textbooks at home if possible. Allow the student to submit work to the teacher after deadlines.

Vocational testing: Adolescents will often benefit from vocational testing by grade 11 so they can understand that school is a stepping stone to a future career of one's choice. Some adolescents with ADHD start losing interest in school and there is a high drop out rate. They also have difficulties, particularly in their first year, at college or university due to the lack of structure and accountability. The physician is often required to send a letter to support accommodations that these individuals require. (See Chapter 6, support document 6A for a template).

Workplace issues: In adulthood, announcing an ADHD diagnosis at work may limit one's chances of promotion, but the diagnosis can be helpful to get accommodations rather than risk the alternative of being fired. Employers have a duty to provide accommodations for this condition. Some examples of accommodations include the use of headphones to limit external noise, increased frequency of meetings with their immediate supervisor to evaluate progress and voice dictation software.

Monitoring Strategies

There are many simple ways to monitor response to medication and treatment, including questionnaires, agendas, charts, daily report cards[43, 96], exam results, workplace reviews, parental and spousal updates. These methods provide excellent feedback regarding progress, behaviours, social skills, and medication successes or failures. Daily report cards designed to target specific goals for the student with ADHD can work well and promote compliance and communication with parents. Additionally, they offer parents the opportunity to give positive incentives at home. They are also excellent for monitoring medication responses during trials.

Promote Advocacy and Self-Advocacy

Human rights legislation requires that individuals with disabilities be accommodated in school and the workplace. Unfortunately, these accommodations are not typically offered without specific advocacy. Letters written by the physician for schools/colleges/workplaces outlining these impairments and prescribing special accommodations (such as taking tests in less distracting environments, having extra time for projects/tests, use of computers and electronic organizers) are invaluable and significantly contribute to the success of individuals with ADHD. Teach self-advocacy skills[96].

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

REQUEST FOR SCHOOL SUPPORT SERVICES

Date: _____
Name and address of School or Institution: _____
_____
_____

Dear Principal:

Re: Name of Student: _____
Date of Birth: (dd/mm/yr) _____
Name of Parent: _____

Indicate signed parent consent exists (or is attached) for exchange of information with school staff

The above-named student is being assessed through my medical practice for Attention Deficit Hyperactivity Disorder (ADHD). Best practices in the assessment of ADHD recommend a collaborative approach to fully understand the child's range of challenges and possible explanations. A collaborative approach involving school staff is particularly helpful when a student presents with both learning and attention problems.

To provide an integrative approach to this student's care, it would be most helpful if you would bring this student to the attention of the School Board's team of relevant professional support staff to provide information and consultation as appropriate. In particular, it would be helpful to receive the teacher's observations regarding this student's performance in the classroom, including behaviour, attention, activity level, social interactions as well as the child's learning strengths and needs. Also, I would appreciate knowing if there are any special education services in place currently for this child, and the focus of these supports.

Based on my own professional judgment and assessment at this time, for this student to improve and succeed, I strongly recommend a psychoeducational assessment for this child. However, I do understand that this is the school's decision.

I wish to thank you in advance for your collaboration on this matter and I would appreciate receiving your feedback. The information from the school will help me in my treatment planning and in turn, my treatment recommendations may be helpful for the school's education plans for this student.

Should you have any further questions or concerns, please feel free to contact me for information.

Yours truly,
Signature _____ Print name _____
Telephone No. _____ Fax No. _____

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

CADDRA EDUCATIONAL ACCOMMODATION LETTER TEMPLATE

This document can also be copied or downloaded from www.caddra.ca and can be used as a template when requesting educational accommodations for a patient.

Date: _____

Name and address of School or Institution:

_____

_____

Dear _____ ,

I am writing to inform you that your student, _____, has been diagnosed with ADHD. This diagnosis was based on information from *clinical diagnostic interview, standardized behaviour rating scales, psychoeducational assessment and* _____.

I am requesting that a meeting be held to discuss this student's cognitive, academic and mental health profile, as I believe that _____ should have an Education Plan developed to ensure that his/her needs are met as he/she proceeds through his/her educational program. At this time, it is essential that accommodations be put in place to ensure that this student is able to successfully access the school curriculum. These accommodations will be critical in assisting the student with their special learning needs and help him/her compensate for his/her impairments which include: ☐ difficulty maintaining necessary levels of attention, ☐ distractibility, ☐ impairments in executive functioning, ☐ poor working memory, ☐ problem solving, ☐ mental arithmetic calculation, ☐ writing notes while listening to the teacher, ☐ slow processing speed as outlined in the WISC-IV PSI.

Learning disabilities outside of the parameters of ADHD may be outlined in the psychoeducational report. From my clinical evaluation, I recommend the following accommodations (from the Canadian ADHD Resource Alliance (CADDRA) list of usual accommodations for ADHD) be implemented, with the understanding that additional accommodations may be decided on by the school and put in place in collaboration with the student's parents.

☐ Direct instruction, repetition and frequent clarification to assist with attentional difficulties
☐ Preferential seating to help alleviate distractibility
☐ Additional time for assignments, class work, tests/exams and flexibility of due dates
☐ Testing should be done on the computer or orally where necessary (with the use of spellcheck, if applicable)
☐ A quiet environment to write tests and complete assignments to assist with external distraction
☐ Copying written text from the blackboard or otherwise to be kept at a minimum
☐ Lengthy assignments to be given in written format for easy referral
☐ Copies of overheads, PowerPoint presentations, classmate's notes and teacher's notes required
☐ Flexibility in scheduling of tests/exams is essential if student is easily overwhelmed
☐ Listening to headsets during individual class work time
☐ Should not be unduly penalized for grammar or spelling
☐ Should be allowed to clarify questions on tests and assignments
☐ Will require more frequent breaks
☐ Will need assistance on assignments including: breaking assignments into manageable chunks; time management; procrastination; reviewing due dates and reviewing assignments to ensure that instructions are clearly understood
☐ A scribe should be provided.

Thank you for your kind attention to this matter. Should you have any questions, please do not hesitate to contact me.

Sincerely,

_____

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

COGNITIVE BEHAVIOUR THERAPY (CBT)

Historical Roots and Rationale

Cognitive behaviour therapy (CBT) has its roots in the 1960s with the pivotal work by Albert Ellis and Aaron T. Beck and it quickly spread for a number of reasons:

a) it could be manualized (which meant that it could be actually experimented to determine its effectiveness)
b) the application had a common sense understanding of negative thinking which resonated strongly with mainstream therapists who were looking for something that was not so deeply theoretical as, for example, psychoanalysis, and
c) it could be done by non-psychologists and highly trained professionals.

It is not surprising that research has focused on the utility of CBT as a possible treatment option for ADHD because:

a) ADHD children draw negative attention to themselves by their behaviour
b) the disorder internalizes through adolescence and the most common presentation in adulthood is as a mood and anxiety disorder
c) the internal dialogue of the ADHD individual tends to be self-deprecating and self-sabotaging.

Literature on CBT in ADHD

Many years ago in a review Dr. Howard Abikoff and his co-authors[99] clearly showed that cognitive behaviour therapy was not very effective for children with ADHD. Lack of motivation and maturity were sited as possible reasons for this. Recently, a number of researchers have shown that cognitive behaviour therapy for adults with ADHD can be effective with or without medication. Dr. Steven Safren and his team[100] demonstrated that adults with ADHD that present with difficulties, even when taking medications, see their condition improved by individual CBT[244, 245]. Their approach is manualised (therapist and patient guides available). Since then, Dr. Mary Solanto and her group[101] reported on the efficacy of a 12-week metacognitive behavioural therapy intervention which focused mainly on time management and organizational skills in adults with ADHD. Dr. Anthony Rostain[102] and colleagues reported on the usefulness of a cognitive behaviour therapy intervention which focused on both cognitive time management and organizational skills as well as emotional lability, impulsivity, relationship problems and self esteem in adults with ADHD.

Dr. Lily Hechtman[103] and colleagues in Montreal have presented preliminary results for adults with ADHD who are randomly assigned to stimulant medication only, cognitive behaviour therapy (CBT) only, and the combined intervention of CBT and stimulant medication. The cognitive behaviour therapy is presented in 12 weekly group sessions with 6 to 10 subjects in a group. It focuses on time and organizational skills as well as anger management, impulsivity, relationships, cognitive reframing and self esteem. Each participant also receives individual coaching three times per week to help implement and generalize the CBT skills

being taught. Finally, three monthly booster sessions with weekly coaching follow the intervention to help maintain treatment gains. The study is ongoing but preliminary data suggest that both stimulant medication and CBT are effective, with some advantages seen in the combined CBT plus medication group.

Dr. Alexandra Philipsen in Germany[205] is exploring a dialectical cognitive behaviour therapy approach for adults with ADHD because it was found these adults show some similarities in their emotional lability and impulsivity to patients with borderline personality disorder who have benefited from such treatment. That study is ongoing.

Current Treatment Model

The current treatment model stresses two components. One focuses on behaviour which involves organization and time management skills. The second explores internal assumptions and beliefs about oneself which influences one's behaviour and may lead to automatic maladaptive beliefs and behavioural patterns. Changing these beliefs, or "reframing", is an important aspect of therapy which is helped by the practice and therapist input.

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

ADHD AND DRIVING

Key Points For Physicians To Review With Adolescents and Adults Who Have ADHD

Risk Data:

a) Clinical studies indicate that young drivers with untreated or sub-optimally treated ADHD have between *two to four times as many motor vehicle collisions (MVC)* and moving violations than a comparable non-ADHD population[206]

b) These driving problems are seen *independent of comorbidity*. The problem profile commonly includes driving anger or road rage

c) The presence of ADHD and *comorbid substance use disorders magnifies driving risk*

d) *Neurodevelopmental immaturities in executive function* (resulting in problems with attention, impulse control and emotional regulation) combined with a lack of driving experience can lead to problem driving styles in young people in general

e) Based on simulator studies, stimulant medication may reduce cognitive difficulties related to ADHD problem driving. However, there is limited real-time, on-the-road data demonstrating the benefit of stimulants. Adherence with stimulant medication is particularly poor in the evening, the time of maximum driving risk for young drivers.

Protective Factors:

a) Restrictions on cell phone use, night time and weekend driving and on use of a manual transmission may all have an impact on improving driving performance. Psychosocial and legislative measures may prove to be a more effective preventative public health measure in the long run.

b) Many patients with ADHD who drive are not at any significant risk of driving problems, particularly when informed of the risks and provided with good clinical care.

Evaluation of Driving Risk and Documentation:

a) Discussion with young drivers and their families should include information on functional impairment and driving risks. Problems with speeding, following too close, road rage, inattention and distractibility when driving should be reviewed.

b) When developing a therapeutic alliance with a family, it may be useful to encourage contracts between young drivers and their families where adherence with medications and other issues such as good school performance are exchanged for access to a motor vehicle.

c) Documentation of discussions regarding driving safety, along with the use of an assessment of driving style and behaviour, would demonstrate that the clinician is exercising due diligence for their ADHD patients around driving safety issues. The current CMA Guidelines[207] remind physicians that if ADHD drivers have a demonstrated problem with driving and are non-compliant with treatment, the doctor has a duty to report his or her concerns to the Provincial Ministries of Transportation. Reporting in Alberta, Quebec and Nova Scotia is discretionary.

The Jerome Driving Questionnaire (JDQ)

Why use it? Recent literature speaks to an increased risk of motor vehicle collisions and moving violations in young drivers with ADHD. The 2006 CMA guidelines "Determining Medical Fitness to Drive" recommend that Canadian physicians be aware that ADHD is a reportable condition if patients have demonstrated problem driving. Physicians need to consider it their duty to warn high risk drivers of the dangers of driving without the benefit of appropriate medical treatment which includes the use of long-acting stimulants, providing improved attention control and reduced impulsivity while driving[2]. The JDQ printed in the Guidelines (which can also be downloaded from the CADDRA website or completed online at **www.adhddriving.com**) provides clinicians with a simple tool that assists them in deciding if their patient is at increased risk of problem driving. It also provides documentation in the medical record that the clinician has assessed this important functional skill in their patients.

How to use it The JDQ is a self-report instrument in two parts. **Part A** provides a lifetime driving history of driving exposure, moving violations and accidents. **Part B** provides a subjective account of the driver's driving style. It takes approximately five minutes to complete. Self and collateral observations can be collected and compared. Psychometric data have been reported[208].

The JDQ will provide the physician, the patient and their family a view of the patient's driving record and a measure of strategic driving style. This instrument is meant to *augment* clinical evaluation, not to substitute or replace the physician's judgement about patient driving safety. It can help a health professional initiate discussion about driving safety with the patient and their family. The instrument provides the physician with a measure of the effects of medication and other behavioural interventions. Serial measures for each patient provide a visual analog record of change over time.

The **www.adhddriving.com** website allows JDQ data to be stored and displayed serially and downloaded for later analysis. The resource section contains educational videos that are helpful for patients and their families regarding the risk of untreated ADHD and driving. Review articles on driving risk and psychometric scale information will be updated periodically.

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

JEROME DRIVING QUESTIONNAIRE (JDQ)© 2010 *To be completed by the driver*

Name of Driver:		
Date of Birth: DD MM YY	**Date completed:** DD MM YY	
Please list all your medications and dosages, including over-the-counter medicines with mg doses if known:		
1.	2.	3.
4.	5.	6.
7.	8.	9.
10.		

Instructions: *This section should be completed by the driver. Rate yourself on the following questions regarding past and current driving history.*

Driving History Part A

1. At what age did you obtain your driver's license?	years months
2. How many times did you take to pass your final driving test?	☐ 1 ☐ 2 ☐ 3 ☐ or more
3. How long have you been driving?	years
4. On average, how much time per day do you spend driving?	☐ < 1 hour ☐ 1 - 2 hours ☐ > 2 hours
5.(a) Estimate kilometres/miles driven in the last month (city):	km
(b) Estimate kilometres/miles driven in the last month (highway):	km
6.(a) How many motor vehicle collisions have you been in as a passenger?	☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ or more
(b) How many motor vehicle collisions have you been in as a driver?	☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ or more
7. How many times since you have been driving have you been determined to be at fault in an accident?	
8.(a) How many times since you have been driving have you had your licence revoked or suspended?	
(b) How many times have you driven when your licence was suspended?	☐ Never ☐ Once ☐ Twice ☐ Three or more
9. Did you ever go joy riding in a car? (Select all that apply) ☐ As a driver before you held a valid license? ☐ As a passenger when the driver was intoxicated with alcohol and /or drugs? ☐ As a passenger with a driver without a valid license? ☐ As a driver when intoxicated with alcohol and/or drugs?	
10. How many times since you have been driving have you received a parking ticket?	times
11. How many times since you have been driving have you received a speeding ticket?	times
12. How many times since you have been driving have you been given a ticket for failing to stop at a stop signal or sign?	times
13. How many times since you have been driving have you been given a ticket for reckless driving?	

14. How many times since you have been driving have you struck a pedestrian or cyclist while driving?	
15. How many times since you have been driving have you been given a ticket for driving while intoxicated?	
16. Have insurance rates increased as a result of driving problems?	☐ Yes ☐ No
17. Has car insurance been denied because of driving problems?	☐ Yes ☐ No

JEROME DRIVING QUESTIONNAIRE PART B ©2010

This form can be completed either by you the driver or a close friend or relative who observes you drive.

Date completed: _____ Completed by: _____

Instructions

The following questions are about your usual driving style over the last month. Try to answer all the questions. There are no right or wrong answers. Please put a mark "X" on the horizontal scale to indicate your rating regarding driving in the last month when out driving (a) in the city; (b) on the highway.

Select the correct answer to the following two questions:

In the last month have you driven (or driven with the driver) in the city? ☐ Yes ☐ No

In the last month have you driven (or driven with the driver) on the highway? ☐ Yes ☐ No

Since you last completed this questionnaire have you had any motor vehicle violations such as speeding or parking tickets or collisions? ☐ Yes ☐ No

Motor vehicle violations: ☐ Yes ☐ No; Collision(s): ☐ Yes ☐ No

1. Frustration:

a. City

no frustration — high frustration

b. Highway

no frustration — high frustration

2. Risk taking:

a. City

no risk taking — high risk taking

b. Highway

no risk taking — high risk taking

3. Show anger verbally or physically to other drivers:

a. City

no risk taking — high risk taking

b. Highway

no risk taking — high risk taking

4. Speeding:

a. City

no speeding — excessive speeding

b. Highway

no speeding — excessive speeding

5. Anxiety:

a. City

no anxiety — high anxiety

b. Highway

no anxiety — high anxiety

6. Experiences Panic:

a. City

no panic — extreme panic

b. Highway

no panic — extreme panic

7. Concentration on Road:

a. City

no concentration problems — major concentration problems

b. Highway

no concentration problems — major concentration problems

8. Alert to sudden changes in driving conditions:

a. City

alert — not alert

b. Highway

alert — not alert

9. Easily distracted by sights or sounds in the car or off to the side of the road:

a. City

no distraction — high distraction

b. Highway

no distraction — high distraction

10. Daydreaming:

a. City

no daydreaming — frequent daydreaming

b. Highway

no daydreaming — frequent daydreaming

11. Drowsiness:

a. City

no drowsiness — major drowsiness

b. Highway

no drowsiness — major drowsiness

12. Anticipating potential dangers from other cars or pedestrians (looking ahead):

a. City

always anticipating — never anticipating

b. Highway

always anticipating — never anticipating

Please note if any of your answers would be changed by driving with passengers. Please describe:

CHAPTER 7: PHARMACOLOGICAL TREATMENT OF ADHD

Principles for Medical Treatment

Seventeen Considerations in Medication Selection in the Treatment of ADHD[209]

1. Age and individual variation
2. Duration of effect
3. Speed of action of the medication
4. ADHD clinical presentations
5. Comorbid symptom profile
6. Comorbid psychiatric disorder
7. History of family medication use
8. Attitudes towards medication use
9. Affordability
10. Medical problems and other medications
11. Associated features similar to medication side effects
12. Combining stimulants with other medications
13. Potential for misuse/diversion
14. Physician attitude towards ADHD medications
15. A first-line treatment represents a balance of efficacy, tolerability and clinical support and is approved by Health Canada
16. Second-line treatments are medications approved by Health Canada but have lower efficacy rates
17. Third-line treatments are reserved for situations where first-line and second-line treatments have not worked and are usually off-label medications.

1. Age and individual variation

All ADHD medications can be used for all age groups, although not all medications have received the "official" approval for various ages through the process required by the Therapeutic Products Directorate (TPD) of the Canadian government. Treatment before the age of six, if necessary, should only be done under the direction of a specialist[262] or in consultation with a specialist. There is no maximum age to treat ADHD if the general health of the patient permits use of those treatments. Women of childbearing age taking ADHD medications should be advised to talk with their physicians if they plan a pregnancy, as effects of ADHD medications on the foetus, and on the baby while breastfeeding, are unknown. Individual variation may exist (e.g. effective dosage is not closely correlated with age, weight or symptom severity), accounting for differences in treatment response and wide variation in dosage requirements. Medications don't work equally well for all patients – for some, results are huge; for others, substantial, but not huge; for others, much more modest; and for a few, currently available medications don't work very effectively at all, even when different classes of drugs are tried. **Caution: clinicians should not oversell the effectiveness of medications.** Some patients may experience difficulty swallowing pills. Although this can be improved by training, it should also be noted that some medication can be sprinkled on soft food or diluted in water.

2. Duration of effect

Exposure to tasks that require mental effort changes over the years. Medication use can be titrated to meet increased demands or to cover longer periods of daytime impairment. When considering duration of medication, it is important to remember that ADHD impacts all aspects of the child, adolescent and adult's life on a daily basis, not just the classroom or workplace. Learning also takes place outside of school and work. The severity and complexity will vary from individual to individual and developmental stages and ages.

However, as mentioned in previous chapters, areas often significantly affected causing impairment include: social functioning (interpersonal relationships, marriage and family life); emotional functioning (self-esteem, anxiety mood); recreational activities (sports, hobbies, etc.); physical exercise; sleep patterns; eating habits; participation in risky, impulsive behaviours (unprotected sex, unplanned pregnancies, HIV, driving and other accidents, SUD, etc.); physical health (poor adherence to medication and follow-up for other medical conditions); and other areas. Therefore it is important not only to optimize treatment for core symptoms and to minimize side effects but, in order to improve the overall quality of life for most individuals of all ages, the duration of medication should extend beyond the classroom/work settings into the p.m. and also include weekend and holidays. Similarly, a patient may need to have individualized treatment based on day-to-day variation. This may be critical for tasks such as driving, where the maximal risk period for young drivers is during the evenings and at weekends. Duration of effect can vary from patient to patient. **Clinical experience indicates that, for some patients, duration of effect is shorter or longer than what is indicated in the product monograph.**

3. The speed of action of the medication

When patients require urgent treatment, psychostimulants are the treatments of choice. However, ADHD is a chronic disorder where long-term management approaches are critical. For ADHD patients in general, ADHD is often perceived as an emergency once it is identified, and faster is seen to be better. However, given the extraordinary rates of low adherence over a year, long-term benefits are more likely if the ultimate goal – once emergencies such as abuse or expulsion from school are dealt with – is not just to obtain reduction of symptoms and better quality of life but also to support long-term adherence by taking into account patient side effects and comfort.

4. ADHD presentations

The core symptoms within ADHD (that also determine the presentations) include inattentiveness, impulsivity and motor hyperactivity. All three of these symptoms are associated with impairment of different sorts. For example, attention problems remain stable and impairing throughout the lifespan and affect academic and organizational functioning. Hyperactivity may diminish in adolescence but is transformed into restlessness, driven behaviour, stimulus-seeking behaviour, and discomfort from always being on the go. This may continue well into adulthood. While adults may present with impairing inattentive symptoms, their childhood progression into adulthood may reveal that some came from an only inattentive background, while others came from a transformation of the combined presentation. It is important to understand the transformation of the clinical symptoms because it may have relevance both in terms of dosing effect as well as emergence of anxiety and other side effects. All of the ADHD medications improve inattention, but not to the same extent.

5. Comorbid symptom profile

The CAP-Guidelines Committee has used a symptom-based inventory to help the clinician determine the possible treatments for each symptom. When comorbid disorders exist, prioritizing the key symptom

makes the choice of medication simpler and widens the medication options. For example, aggression and irritability may be a part of many of the comorbid disorders the patient has, but focusing on this symptom addresses the major area of impairment.

6. Comorbid psychiatric disorders

When there is a comorbid disorder along with ADHD, it is generally advised that the treatment may be determined by the more severe disorder first CB. A variety of strategies have been used to determine sequence of treatment including diagnostic certainty, patient preference, the primary disorder and the disorder with greatest impairment, or the disorder most likely to respond to treatment CB. However, major mood disorders like depression, bipolar disorders and substance use disorder should be identified and treated prior to ADHD CB. Residual symptoms may require additional treatments. It is important to review drug-to-drug interactions to ensure that there is no risk to the patient. It is not unusual for patients to be on more than one medication to deal with "complex ADHD".

7. Family history of medical treatment

A family history of prior positive medical treatment should also be considered as well as negative experience with a specific medication. Although there is no good research data on these aspects, it is understandable that a positive response to a specific treatment in a family member could increase positive expectations for this treatment while the contrary can occur for a negative outcome.

8. Attitudes towards medication use

All patients and their families need to be educated. The choice of medication should follow the principles of informed consent. Information on informed consent is available in chapter one of the Canadian ADHD Practice Guidelines. Emotional biases against the use of ADHD medications are often due to misinformation regarding side effects and guilt about having 'caused' the problem through 'bad' parenting. Alternatively, excessive expectation of medication improvement may be present and lead to disappointment. It is important for families to access reliable and valid sources and to rely on parent support groups. Medical treatments are there to facilitate treatment of the patient's full range of concerns. Also, parents that are at risk for diversion (e.g. substance abusers) should not be given short-acting stimulants for themselves or for their children. Patients should be educated about the risks of diversion of medication to friends.

9. Affordability

All patients should have access to optimum treatment. Unfortunately, some medications are beyond the financial reach of a significant number of patients without extended health insurance. Some medications can be supported through special access programs, but access is often limited by the extensive paperwork required and the constricted time for which medication is supplied. Most medications are covered by third party insurers. However, sometimes patients may have to rely on generic medications that may not be as effective. CADDRA continues to advocate for a resolution of this problem at the government level. Clinicians need to be informed about the cost of medications and the patient's coverage or ability to afford them before deciding what to prescribe.

10. Medical problems and other medications

It is important for the clinician to do a thorough medical assessment including physical examination before prescribing medications. The Canadian ADHD Practice Guidelines provide templates that can guide the clinician. Many conditions look like ADHD (e.g. thyroid, hearing deficits, vision problems, etc.). It is important for clinicians to be aware of any medical risk the patient may have that affects suitability for a medication (e.g. blood pressure problems, interactions with other medications, cardiovascular risk, etc.). When in doubt, a specialist referral is indicated.

11. Associated features similar to medication side effects

All medications may cause side effects. Most side effects settle after two or three weeks of continuous use. One of the most common reasons for non-adherence is related to a lack of physician awareness or understanding of side effects, or patients' reluctance to explain their discomfort. Some pre-existing conditions like tics, sleep problems, very low weight, headaches, GI problems or dysphoria may be aggravated by ADHD medications (although some of these very symptoms might actually be improved by the ADHD medications as well). Patients should be told up front about how to tell if they are getting too much medication, e.g. feeling too "wired", too irritable or too serious during the time medication should be active. In those cases, there is a strong chance that the dose is too high or that the specific medication may not be a good fit for that patient. However, if any symptoms from this triad of too "wired", too irritable or too serious is experienced later in the day, or they are dysthymic at the time when medications would be expected to be wearing off, it is likely that those symptoms are not from an excessively high dose but from rebound, where the medication is wearing off too fast and the patient is "crashing". An understanding of the side effect profile of each medication may afford a better 'fit'.

12. Combining stimulants with other medications

When a clinician feels that a second medication is needed, it is suggested to begin with an ADHD medication that is known to combine safely with the second medication. For example, in the selection of an ADHD medication for a patient with severe anxiety disorder, a psychostimulant could be combined with an antidepressant (note: there are some limitations with atomoxetine). Younger children should be referred if this is being contemplated.

13. Potential for misuse/diversion

It is important to be aware of the issue of diversion and misuse associated with psychostimulants. Non-medical use of prescription stimulants is a growing concern. There are particular groups in society that have misinformation and, in fact, pass on myths that non-medical use of stimulants increase academic performance. As well, other groups use prescription stimulants in hopes to experience euphoria and enhance their experience of partying. The short-acting stimulants have a much higher risk of misuse/diversion than the longer-acting stimulants. All professionals involved in treating ADHD patients should be alert to the signs of diversion and misuse and consider these behaviours as significant and not benign. (For more information about the signs of diversion and misuse, please see Health Canada 2006, Abuse and Diversion of Controlled Substances: A Guide For Health Professionals).

14. Physician attitude towards ADHD medications

Information on ADHD is rapidly evolving (i.e. understanding of comorbidity, adult ADHD, medical treatments, biological underpinnings, etc). It is imperative that physicians seek out reliable sources of information and continue to upgrade their clinical skills. The CADDRA Guidelines, website, conference, continuing medical education courses and other updates are designed to expose clinicians to the latest advances in assessment and treatment for ADHD across the lifespan. Patients today are often as educated about their health conditions as their doctors, and physicians need to be comfortable working with the knowledgeable patient and/or family. Such comfort can be achieved through an open attitude, experience and quality continuing education.

15. First-line treatments

First-line pharmacological treatments for ADHD are medications that have the best risk-benefit profile; longer duration (diminishes need for multiple dosages and therefore augments compliance, coverage and

recovery, diminishes diversion, diminishes rebound); effectiveness as measured by effect size; and are Health-Canada approved treatments.

16. Second-line treatments

Second-line pharmacological treatments for ADHD are medications that have demonstrated efficacy and are approved for ADHD. They can be used for patients who do not tolerate or respond to first-line treatment, or do not have access to first-line medications. They can also be used as a potential augmentation for first-line treatment responders.

17. Third-line treatments

Third-line pharmacological treatments are medications whose use is off-label. They have a higher side-effect profile and are less efficacious.

ADHD Medication Chart

The Canadian ADHD Medication Chart contained in the sleeve of the CAP-G binder provides information on the dosage and appearance of ADHD medications and is a useful tool when discussing medication options with patients and their families. It is available in a Canada-wide and Quebec version on the CADDRA website. The charts were originally developed by the Continuing Medical Education Team at Laval University in Quebec City in collaboration with the organizational committee for the Conference on the Pharmacological Treatment of ADHD in April 2007. This team continues to collaborate with CADDRA to update the medication charts when new medications, changes in indication or in coverage occur. The most recent update is always available at www.caddra.ca

Specific Medication Selection Guidelines and Monitoring

STEP 1

Feedback and Expectations (refer to Chapter 1, Visit 4 for more details)

Use principles of informed consent to ensure the patient is adequately educated when addressing medication questions, particularly regarding degree of efficacy and side effects.

STEP 2

Specific Medication Selection: Considerations

One central philosophy within CADDRA is to treat each patient as a unique being and to use the clinical advice within the "Seventeen Considerations for Medication Selection" as the guide.

Practice Point: There are some practical questions that begin the selection process:

a) Is medication indicated in your age group? *Generally speaking, the first choice should be a medication that has an approved indication by Health Canada for ADHD within the specified age group. Even though some ADHD medications are not officially approved by Health Canada for a specific age group, doctors may decide to use them based on scientific evidence and expert consensus.*

b) What impairment do you have and at what time of the day? Is it mainly during work hours, meetings, exam times, leisure times, driving periods, morning routines, etc.? *Ensure the patient is medicated when it is necessary and that you understand and are responding to his/her individual needs.*

c) What medication do you prefer? Have you ever taken any medications before or heard of something you might want to try? *Patients respond better to the medications they most strongly believe in. This also addresses the belief that patients must be educated and they should have a partnership in the treatment agenda.*

d) Is a family member on medication for ADHD? *If yes, then consider trying the same medication first. (Note: there is no evidence at this time about a possible role for such a pharmacogenetics-based approach.)*

e) Do you have third party coverage or do you plan to pay for the medication? *Many of the current medications are expensive so there should be an open discussion related to government plans, third party insurance coverage, direct payment, co-payment plans and limited benefit plans.*

f) Do you have trouble swallowing a pill? *If yes, then that will limit certain medications choices, though one should make an attempt to train the individual to swallow a capsule.*

g) Do you require urgent treatment? *If yes, then a stimulant is likely your first choice due to its speed of onset of effect. However, the treatment of ADHD is a long-term plan so while there may be urgent issues, the patient should be cautioned about rapid fixes.*

h) Does the patient have comorbid disorders that require more complex interventions? *If yes, the current agenda is to decide which problem to treat first. If it is ADHD, then initiate the ADHD medication and see what residual symptoms are left over that require further management. Anticipate drug-drug interaction issues.*

If the patient is expressing suicidal or homicidal thoughts these need to be addressed as a priority.

STEP 3

Monitoring

- Establish a schedule for visits and contact with the patient and parents
- It is useful to establish an objective measure within the patient's domain. For example, the teacher may want to observe a five minute on-task behaviour. An adolescent may target their ability to sustain attention in their most difficult tasks. An adult may use a specific target that needs to change, like hourly work production. Formal observational rating scales help to quantify specific medication changes, particularly at school and home. The CADDRA Clinician ADHD Baseline/Follow-up Form and the ADHD Checklist can be used to evaluate change
- During the titration phase, weekly contact with the patient reporting in either by phone, email, fax or visit is recommended. Ideally, the patient should be seen every two to three weeks where possible for a review of medication doses during the titration period and to check physical health, vital signs, review side effects, family functioning, patient and family well being, coping strategy management, behavioural treatment and other therapies when indicated.

STEP 4

Titration

- Recommended starting dose and schedule for dose increases is a guide only
- Start low and go slow but continue to increase the dose until the desired goals of treatment have been reached or side effects preclude dose increases. Optimal treatment means that the symptoms

have decreased and that there is improvement in general functioning. Optimal dose is also that dose above which there is no further improvement. Sometimes side effects limit the dose titration (refer to unsatisfactory response to treatment section of this chapter and Side Effect Management, Supporting Document 7C). The threshold maximum suggestions in this document are consistent with the off-label standards established by the American Academy of Child and Adolescent Psychiatry.

- It is useful to alert the patient in advance that a peak effect may occur in the first week and a plateau effect may occur over the subsequent three weeks. Sometimes patients interpret this as a tolerance to the medication and request a higher dose. In fact, if the patient improves in their functioning at the plateau dose, they are likely dose-optimized.
- **If there is an unsatisfactory response to one psychostimulant class, then there should be a switch to the other psychostimulant class.**

STEP 5

Managing Side Effects

1. In educating patients about medication it is important to provide the realistic view that individuals have different risk/benefit profiles on medication, ranging from those who cannot tolerate or benefit from medication at all, to those who have full remission with no side effects.
2. While our evidence base on medication allows us to provide patients with a great deal of information on medication options, it is also important to remind patients and parents that all individuals are unique and may require doses that are smaller or larger than are usually recommended. It is important to point out that agreeing to a "trial" of medication is not a decision to use it forever. A trial is an experiment that carries minimal if any risks that would extend beyond a very brief period of time, and can be discontinued at any point.
3. Patients who are good stimulant responders, but whose medication is limited by side effects, should be managed by the techniques described below or switched to a different medication regimen that minimizes that particular problem.
4. Patients who are not responding to medication and obtaining little benefit, but do not have major side effects, may require non-medication strategies.
5. If the patient does not respond to any of the first line medications, augmentation strategies or use of second line medications such as guanfacine XR, third line options like buproprion, clonidine, modafinil or imipramine may be helpful, but a specialist referral should be made. In the rapidly changing field of ADHD, treatment with new medications with different side effect profiles and possibly differential effectiveness in particular patients is becoming possible.
6. If a change in medication is thought necessary, switch medication during long vacations or during the summer to avoid possible side effects that may impair school performance in the short-term. However, sometimes switching medications requires a more immediate intervention due to the urgency of the situation.
7. If a period off medication or on a reduced dose to minimize side effect is required, it should be done during long vacations, the summer, or on long weekends to minimize impact on school performance. Clinically, it is observed that interrupting medication every weekend may in fact increase side effects. Taking the medication each day will help develop a tolerance toward side effects. Some medications (e.g. atomoxetine, guanfacine XR, buproprion, imipramine) need to be taken continuously to maintain clinical effect. These medications should be tapered due to the risk of significant side effects or dangers (e.g. a hypertensive crisis for guanfacine XR and clonidine).

Unsatisfactory Response to Treatment?

If there is no response to treatment, it is important to review the diagnosis, including comorbidities, and the treatment plan in order to ensure compliance to treatment as well as to check if there are new external factors that could complicate the clinical picture. Patients' responses to medication cannot be predicted based solely on the clinical symptoms displayed. Some patients may respond preferentially to one versus the other class of medications, so if response or side effects to one class of medication are not optimal, another class of ADHD medication should be tried. Specifically, if a patient does not have an adequate response to one class of stimulant, then it would be prudent to switch to the other class of stimulant. Sustained-release medications are preferred as they are taken once daily, thus improving adherence, and are less likely to be abused, misused or diverted than immediate-release products. Also sustained-release preparations maintain privacy, dignity and respect for patients and families in the context of the school setting.

There are several reasons why one ADHD medication may be substituted for another:

- Peak and trough effects: change the immediate-release mechanism for a more sustained one.
- End-of-dose rebound effects: change the immediate-release mechanism for a more sustained one or take an additional, perhaps lesser, dose of same psychostimulant in an immediate-release form to be taken just before the rebound is expected to occur.
- Partial effects despite optimization of dosage: change the release mechanism or change the molecule. The combination of a psychostimulant with a non-stimulant like guanfacine XR or atomoxetine (off-label) is also an option sometimes used but there is no official indication, or long-term studies, on the safety of this approach. Closely monitor adverse effects if this option is selected.
- Adverse effects don't allow dosage to be optimized: change the release mechanism or change the molecule.
- Presence of a comorbidity that requires a switch of medication
- Drug-to-drug interaction

Switching from One Type of Medication to Another: Points to consider

Generally, it is best to only be medicating with one medication at a time. Thus, it is often best to gradually decrease on the first medication and stop it before starting on the second. Trying to use two medications at the same time often results in side effects from each medication and prevents the clinician from reaching optimal clinical dosages because of side effects.

Situation A: Switching from a psychostimulant to another psychostimulant

- Choose an opportune time for transition, such as during holidays or at the weekend.
- Consider if there is an equivalent dose or if the new medication needs to be initiated at the starting dose.

<table>
<tr><th>Presently on:</th><th>Changing to:</th><th>Comments:</th></tr>
<tr><td>MPH-based medication</td><td>MPH-based medication</td><td>Stop the first and start the second at the calculated equivalent dose while taking into account the release mechanism
<table>
<tr><th>MPH-Based Medication</th><th>% Immediate/Delayed Release</th></tr>
<tr><td>Ritalin</td><td>100/0</td></tr>
<tr><td>Biphentin</td><td>40/60</td></tr>
<tr><td>Concerta</td><td>22/78</td></tr>
<tr><td>Generics</td><td>Unknown (not disclosed by manufacturer)</td></tr>
</table></td></tr>
<tr><td>MPH-based medication</td><td>AMP-based medication</td><td rowspan="3">No direct equivalent dose. Stop the first and begin the second at the starting dose.

Note: Methylphenidate: MPH; Amphetamine: AMP</td></tr>
<tr><td>AMP-based medication</td><td>MPH-based medication</td></tr>
<tr><td>AMP-based medication</td><td>AMP-based medication</td></tr>
</table>

Situation B: Switching from a psychostimulant to atomoxetine or guanfacine XR

Since non-stimulants will take time to show clinical response, it is important to decide if the psychostimulant needs to be stopped before or if you combine both as you start atomoxetine or guanfacine XR.

- If the first medication shows no clinical effect despite optimal dosing, stop it and start the non-stimulant as monotherapy, following usual titration strategies.
- Only if it is not possible to stop the first medication and if the first medication shows important clinical effect and needs to be continued until the non-stimulant shows its effects, then keep the first medication and add atomoxetine slowly, following usual titration strategies.

✔ If side effects occur, decide between reducing the psychostimulant versus atomoxetine or guanfacine XR dosage.*

Situation C: Switching from atomoxetine or guanfacine XR to a psychostimulant

Decide if the non-stimulant needs to be stopped before, or if you combine both, as you start the psychostimulant.

- If atomoxetine or guanfacine XR shows no clinical effect despite optimal dosing, stop it first and start the psychostimulant as monotherapy, following usual titration strategies.
- Even if atomoxetine or guanfacine XR has a partial effect it can be stopped since stimulant effects are usually seen quite rapidly and this approach allows the patient and clinician to only have to deal with one set of side effects.
- If atomoxetine or guanfacine XR shows important clinical effect and needs to be continued until the psychostimulant shows its effects, then add the psychostimulant to the non-stimulant. Start slowly,

following usual titration strategies.

✔If side effects occur, decide between reducing the psychostimulant versus the non-stimulant dosage.*

*__Note:__ Guanfacine XR is the only medication with a specific indication as an adjunctive therapy to psychostimulants for the treatment of ADHD in children aged 6-12 years with a sub-optimal response to psychostimulant. Long-term combination (off-label) of a psychostimulant with guanfacine XR in adults or with atomoxetine has not been studied. If the patient gets better with a combination of both a non-stimulant and a psychostimulant, closely monitor adverse effects and try to eventually reduce either the psychostimulant or the non-stimulant.

SUPPORTING DOCUMENT 7A: CANADIAN MEDICATION TABLES PER AGE GROUP

Children's Medical Treatment Options (6-12 years)

Table 1. MEDICAL TREATMENT FOR ADHD UNCOMPLICATED – CHILDREN
Alphabetically Listed – Refer to product monographs for complete prescribing information.

Brand Name *(active chemical)*	**Dosage Form**	**Starting Dose***	**Titration Schedule Every 7 days**		**Maximum per day[1] (up to 40 kg child)**	
			Per product Monograph	Per CADDRA Board	Per Product Monograph	Per CADDRA Board*
FIRST LINE AGENTS – long-acting preparations						
Adderall XR® *(amphetamine mixed salts)*	5, 10, 15, 20, 25, 30 mg cap	5-10 mg q.d. a.m.*	⬆ 5-10 mg	⬆ 5 mg	30 mg	30 mg
Biphentin® *(methylphenidate HCl)*	10, 15, 20, 30, 40 50, 60, 80 mg cap	10-20 mg q.d. a.m.	⬆ 10 mg	⬆ 5-10 mg	60 mg	60 mg
Concerta® *(methylphenidate HCl)*	18, 27, 36, 54 mg tab	18 mg q.d. a.m.	⬆ 18 mg	⬆ 9-18 mg	54 mg	72 mg
Vyvanse® *(lisdexamfetamine dimesylate)*	20, 30, 40, 50, 60 mg cap	20-30 mg q.d. a.m.	By clinical discretion	⬆ 10 mg	60 mg	60 mg
CB Doses per CADDRA Board that are over or under product monograph maximum or minimum doses should be considered off-label use. *CADDRA recommends generally starting at the lowest dose available. Young children should be started at the lower end of the recommended CADDRA dose and titrated slowly, e.g. Concerta: 18, 27, 36 and Biphentin 10, 15, 20 mg. A consensus decision has been made based on clinical use and research data.						
SECOND LINE/ADJUNCTIVE AGENTS – long-acting preparations Non psychostimulant - selective norepinephrine reuptake inhibitor						
CB **Indications for use:** Monotherapy for the treatment of ADHD in children aged 6-12 years (off-label: prescribed as an adjunctive therapy).						
Strattera® *(atomoxetine)*	10, 18, 25, 40, 60, 80, 100 mg cap	0.5 mg/kg/day	Maintain dose for a min. of 7-14 days before adjusting to 0.8 mg/kg/day then 1.2 mg/kg/day	Maintain dose for a min. of 7-14 days before adjusting to 0.8 mg/kg/day then 1.2 mg/kg/day	lesser of 1.4 mg/kg/day or 60 mg/day	lesser of 1.4 mg/kg/day or 60 mg/day
SECOND LINE/ADJUNCTIVE AGENTS – long-acting preparations Non psychostimulant - selective Alpha$_{2A}$-adrenergic receptor agonist						
CB **Indications for use:** Monotherapy and as an adjunctive therapy to psychostimulants for the treatment of ADHD in children aged 6-12 years with a sub-optimal response to psychostimulant.						
Intuniv XR® *(guanfacine XR)*	1, 2, 3, 4 mg tab	1 mg	Maintain dose for a min. of 7-14 days before increasing by no more than 1 mg per week up to a max. 4 mg daily dose	Maintain dose for a min. of 7-14 days before increasing by no more than 1 mg per week up to a max. 4 mg daily dose	4 mg	4 mg

TABLE 1. MEDICAL TREATMENT FOR ADHD UNCOMPLICATED – CHILDREN (CONTINUED)

Alphabetically Listed – Refer to product monographs for complete prescribing information*

Brand Name *(active chemical)*	**Dosage Form**	**Starting Dose***	**Titration Schedule Every 7 days**		**Maximum per day**[1, 2] **(>40 kg)**	
			Per Product Monograph	Per CADDRA Board	Per Product Monograph	Per CADDRA Board*
SECOND LINE/ADJUNCTIVE AGENTS – short-acting and intermediate-acting preparations						
Indications for use: a) p.r.n. for particular activities; b) to augment long-acting formulations early or late in the day, or early in the evening and c) when LA agents are cost prohibitive. To augment Adderall XR® or Vyvanse®, short-acting and intermediate-acting dextro-amphetamine products can be used. To augment Biphentin® or Concerta® short-acting MPH products can be used. b.i.d. refers to qam and qnoon and t.i.d. refers to qam, qnoon and q4pm.						
Dexedrine® *(dextro-amphetamine sulphate)*	5 mg tab	2.5-5 mg b.i.d.	⬆ 2.5-5 mg	⬆ 2.5-5 mg	40 mg	20 mg
Dexedrine® Spansule[2] *(dextro-amphetamine sulphate)*	10, 15 mg cap	10 mg q.d. a.m.	⬆ 5 mg	⬆ 2.5-5 mg	40 mg	30 mg
Ritalin® *(methylphenidate)*	10, 20 mg tab	5 mg b.i.d. to t.i.d.	⬆ 5-10 mg	⬆ 5 mg	60 mg	60 mg
Ritalin® SR[3] *(methylphenidate HCl)*	20 mg tab	20 mg q.d. a.m.	⬆ 20 mg	⬆ 20 mg	60 mg	60 mg
GENERIC MEDICATIONS						
PMS® or **Ratio®-methylphenidate**	5, 10, 20, mg tab	5 mg q.d. a.m. and noon	⬆ 5 mg (add q4pm dose)	⬆ 5 mg	60 mg	60 mg
Novo-MPH ER-C® *(methylphenidate)*	18, 27, 36, 54 mg tab	18 mg q.d. a.m.	⬆ 18 mg	⬆ 9-18 mg	54 mg	72 mg
THIRD LINE AGENTS						
These medications (except for clonidine) should only be initially or first prescribed by a specialist.						

[1] The maximum daily dose can be split into once daily (q.d.), twice daily (b.i.d.) or three times daily (t.i.d.) doses except for once a day formulations. Refer to the adolescent table for children over 40kg.

[2] Dexedrine® Spansule may last 6-8 hours

[3] Ritalin® SR may help cover the noon period but clinical experience suggests an effect similar to short-acting preparations. An increased dose could be spread out to include q2pm dose with a daily maximum of 60 mg.

** CADDRA recommends generally starting at the lowest starting dose available.*

Medication for Adolescents with ADHD

TABLE 2. MEDICAL TREATMENT FOR ADHD UNCOMPLICATED – ADOLESCENTS

Alphabetically Listed – Refer to product monographs for complete prescribing information.

Brand Name *(active chemical)*	**Dosage Form**	**Starting Dose***	**Titration Schedule Every 7 days**		**Maximum per day**[1, 2] **(>40 kg)**	
			Per Product Monograph	Per CADDRA Board	Per Product Monograph	Per CADDRA Board*
FIRST LINE AGENTS – long-acting preparations						
Adderall XR® *(amphetamine mixed salts)*	5, 10, 15, 20, 25, 30 mg cap	5-10 mg q.d. am	⬆ 5-10 mg	⬆ 5 mg	20-30 mg	50 mg
Biphentin® *(methylphenidate HCl)*	10, 15, 20, 30, 40 50, 60, 80 mg cap	10-20 mg q.d. am	⬆ 10 mg	⬆ 5-10 mg	60 mg	80 mg[3]
Concerta® *(methylphenidate HCl)*	18, 27, 36, 54 mg tab	18 mg q.d. am	⬆ 18 mg	⬆ 9-18 mg	54 mg	90 mg (54 + 36 mg)
Vyvanse® *(lisdexamfetamine dimesylate)*	20, 30, 40, 50, 60, mg cap	20-30 mg q.d. am	By clinical discretion	⬆ 10 mg	60 mg	70 mg
CB * Doses per CADDRA Board that are over or under product monograph maximum or minimum doses should be considered off-label use. Note: CADDRA recommends generally starting at the lowest starting dose available. A consensus decision has been made based on clinical use and research data.						
SECOND LINE/ADJUNCTIVE AGENTS – long-acting preparations Non psychostimulant - selective norepinephrine reuptake inhibitor CB **Indications for use:** a) Monotherapy for the treatment of ADHD (off-label: prescribed as an adjunctive therapy).						
Strattera® *(atomoxetine)*	10, 18, 25, 40, 60, 80 100 mg cap	0.5 mg/kg/day	Maintain dose for a min. of 7-14 days before adjusting 0.8 mg/kg/day then 1.2 mg/kg/day for patients <70kg[4]	Maintain dose for a min. of 7-14 days before adjusting 0.8 mg/kg/day then 1.2 mg/kg/day for patients <70kg[4]	lesser of 1.4 mg/kg/day or 100 mg/day	lesser of 1.4 mg/kg/day or 100 mg/day
SECOND LINE/ADJUNCTIVE AGENTS – short-acting and intermediate-acting preparations CB **Indications for use:** a) p.r.n. for particular activities; b) to augment long-acting formulations early or late in the day, or early in the evening and c) when LA agents are cost prohibitive. To augment Adderall XR® or Vyvanse®, short-acting and intermediate-acting dextro-amphetamine products can be used. To augment Biphentin® or Concerta® short-acting MPH products can be used. b.i.d. refers to qam and qnoon and t.i.d. refers to qam, qnoon and q4pm.						
Dexedrine® *(dextro-amphetamine sulphate)*	5 mg tab	2.5-5 mg b.i.d.	⬆ 5 mg	⬆2.5-5 mg	40 mg	30 mg
Dexedrine® Spansule[5] *(dextro-amphetamine sulphate)*	10, 15 mg cap	10 mg q.d. a.m.	⬆ 5 mg	⬆2.5-5 mg	40 mg	30 mg
Ritalin® *(methylphenidate HCl)*	10, 20 mg tab	5 mg b.i.d. to t.i.d.	⬆ 5-10 mg	⬆5 mg	60 mg	60 mg
Ritalin® SR[6] *(methylphenidate HCl)*	20 mg tab	20 mg q.d. am	⬆ 20 mg (add q2pm dose)	⬆ 20 mg (add q2pm dose)	60 mg	80 mg

[1] Maximum off label doses have been published in the AACAP Practice Parameters[14] but the off label maximums are either the same or lower in the CAP-G based on CB

[2] The maximum daily dose can be split into once daily (q.d.), twice daily (b.i.d.) or three times daily (t.i.d.) doses except for once a day formulations

[3] While the theoretical maximum off label dose for Biphentin® could be 100 mg, clinical practice currently suggests that 80 mg is the maximum that is used

[4] For adolescents greater than 70 kg, use the adult dose titration schedule

[5] Dexedrine Spansule® may last 6-8 hours

[6] Ritalin SR® may help cover the noon period but clinical experience suggests an effect similar to short-acting preparations.

Table 2. MEDICAL TREATMENT FOR ADHD UNCOMPLICATED – ADOLESCENTS (continued)
Alphabetically Listed – Refer to product monographs for complete prescribing information.

Brand Name *(active chemical)*	**Dosage Form**	**Starting Dose***	**Titration Schedule Every 7 days**		**Maximum per day***	
			Per product Monograph	Per CADDRA Board	Per Product Monograph	Per CADDRA Board
GENERIC MEDICATIONS						
PMS® or **Ratio®-methylphenidate**	5, 10, 20, mg tab	5 mg q.d. a.m. and noon	⬆ 5 mg (add q4pm dose)	⬆ 5 mg	60 mg	60 mg
Novo-MPH ER-C® *(methylphenidate)*	18, 27, 36, 54 mg tab	18 mg q.d. a.m.	⬆ 18 mg	⬆ 9-18 mg	54 mg	90 mg
THIRD LINE AGENTS						
These medications (except clonidine) should only be initiated or first prescribed by a specialist.						

Medication for Adults with ADHD

TABLE 3. MEDICAL TREATMENT FOR ADHD UNCOMPLICATED – ADULTS

Alphabetically Listed – Refer to product monographs for complete prescribing information.

Brand Name *(active chemical)*	**Dosage Form**	**Starting Dose***	**Titration Schedule Every 7 days**		**Maximum per day**[1, 2]	
			Per Product Monograph	Per CADDRA Board	Per Product Monograph	Per CADDRA Board*
FIRST LINE AGENTS – long-acting preparations						
Adderall XR® *(amphetamine mixed salts)*	5, 10, 15, 20, 25, 30 mg cap	10 mg q.d. a.m.	⬆ 10 mg	⬆ 5 mg	20-30 mg	50 mg
Biphentin® *(methylphenidate HCl)*	10, 15, 20, 30, 40 50, 60, 80 mg cap	10-20 mg q.d. a.m.	⬆ 10 mg	⬆ 5-10 mg	80 mg	80 mg[3]
Concerta® *(methylphenidate HCl)*	18, 27, 36, 54 mg tab	18 mg q.d. a.m.	⬆ 18 mg	⬆ 9-18 mg	72 mg	108 mg
Vyvanse® *(lisdexamfetamine dimesylate)*	20, 30, 40, 50, 60 mg cap	20-30 mg q.d. a.m.	By clinical discretion	⬆ 10 mg	60 mg	70 mg
CB * Doses per CADDRA Board that are over or under product monograph maximum or minimum doses should be considered off-label use. Note: CADDRA recommends generally starting at the lowest dose. A consensus decision has been made based on clinical use and research data.						
SECOND LINE/ADJUNCTIVE AGENTS – long-acting preparations Non psychostimulant - selective norepinephrine reuptake inhibitor						
CB **Indications for use:** Monotherapy for the treatment of ADHD (off-label: prescribed as an adjunctive therapy).						
Strattera® *(atomoxetine)*	10, 18, 25, 40, 60, 80, 100 mg cap	40 mg[4] q.d. for 7-14 days	Maintain dose for a min. of 7-14 days before adjusting to 60 then 80 mg/day max dose/day 1.4 mg/kg/day or 100 mg[5]	Maintain dose for a min. of 7-14 days before adjusting to 60 then 80 mg/day max dose/day 1.4 mg/kg/day or 100 mg[5]	Lesser of 1.4 mg/kg/day or 100 mg/day	Lesser of 1.4 mg/kg/day or 100 mg/day
SECOND LINE/ADJUNCTIVE AGENTS – short-acting and intermediate-acting preparations						
CB **Indications for use:** a) p.r.n. for particular activities; b) to augment long-acting formulations early or late in the day, or early in the evening and c) when LA agents are cost prohibitive. To augment Adderall XR® or Vyvanse®, short-acting and intermediate-acting dextro-amphetamine products can be used. To augment Biphentin® or Concerta® short-acting MPH products can be used. b.i.d. refers to qam and qnoon and t.i.d. refers to qam, qnoon and q4pm points.						
Dexedrine® *(dextro-amphetamine sulphate)*	5 mg tab	2.5-5 mg b.i.d.	⬆ 5 mg	⬆2.5-5 mg	40 mg	50 mg
Dexedrine® Spansule[5] *(dextro-amphetamine sulphate)*	10, 15 mg cap	10 mg q.d. a.m.	⬆ 5 mg	⬆2.5-5 mg	40 mg	50 mg
Ritalin® *(methylphenidate HCl)*	10, 20 mg tab	5 mg b.i.d. to t.i.d., consider q.i.d.	⬆ 5-10 mg	⬆ 5 mg	60 mg	100 mg
Ritalin® SR[6] *(methylphenidate HCl)*	20 mg tab	20 mg q.d. a.m.	⬆ 20 mg (add q2pm dose)	⬆ 20 mg (add q2pm dose)	60 mg	100 mg

[1] Maximum off label doses have been published in the AACAP Practice Parameters[14] but the off label maximums are either the same or lower in the CAP-G based on CB

[2] The maximum daily dose can be split into once daily (q.d.), twice daily (b.i.d.) or three times daily (t.i.d.) doses except for once a day formulations

[3] While the theoretical maximum off label dose for Biphentin® could be 100 mg, clinical practice currently suggests that 80 mg is the maximum that is used since no published study has researched doses higher than 80mg

[4] Some adults may better tolerate a lower starting dose of 25 mg

[5] Strattera titration schedule applies to children and adolescents over 70 kg body weight and adults.

[6] Dexedrine Spansule® may last 6-8 hours

[7] Ritalin SR® may help cover the noon period but clinical experience suggests an effect similar to short-acting preparations.

Table 3. MEDICAL TREATMENT FOR ADHD UNCOMPLICATED – ADULTS (continued)
Alphabetically Listed – Refer to product monographs for complete prescribing information.

Brand Name *(active chemical)*	**Dosage Form**	**Starting Dose***	**Titration Schedule Every 7 days**		**Maximum per day**	
			Per product Monograph	Per CADDRA Board	Per Product Monograph	Per CADDRA Board
GENERIC MEDICATIONS						
PMS® or **Ratio®-methylphenidate**	5, 10, 20, mg tab	10 mg q.d. a.m. and noon CADDRA: 5 mg b.i.d. to t.i.d., consider q.i.d.	⬆ 10 mg	⬆ 5 mg	60 mg	100 mg
			(add q4pm dose)			
Novo-MPH ER-C® *(methylphenidate)*	18, 27, 36, 54 mg tab	18 mg q.d. a.m.	⬆ 18 mg/wk	⬆ 9-18 mg/wk	54 mg	108 mg
THIRD LINE AGENTS						
These medications (except clonidine) should only be initially or first prescribed by a specialist.						

SUPPORTING DOCUMENT 7B: SPECIFIC INFORMATION ON MEDICATIONS

Provincial drug plan coverage may be different from one Canadian province to another and is subject to change (www.drugcoverage.ca). The CADDRA CAP-Guidelines Committee recommends that all medication approved for ADHD treatment should be accessible and covered by provincial drug plans.

STIMULANTS

Dextro-amphetamine (DEX) based products – long-acting medications

Adderall XR® (mixed amphetamine salts)

Amphetamines (AMP) work by the blockade of the reuptake of dopamine. They also increase the release of dopamine and noradrenaline from the vesicles accounting for their increased potency over MPH (i.e. a lesser mg dose may be sufficient). AMP is indicated in ADHD patients. Adderall XR® is a controlled drug, made up of a combination of different AMP salts, predominantly dextro-amphetamine (DEX). Adderall XR® comes in an extended release capsule available in six doses (5, 10, 15, 20, 25 and 30 mg). The major strengths of Adderall XR® are that:

a) the medication can give symptom control that lasts for 10–12 hours covering the major times when impairment occurs (e.g., school, homework, work day periods)
b) the medication is indicated in all age groups by Health Canada
c) the capsules may be opened and the beads inside the capsule can be sprinkled (e.g. on apple sauce) with no loss in efficacy (particularly important to improve adherence in young children who can't swallow pills)
d) a 50/50 delivery system means that fifty percent of the dose is immediately available leading to a fast morning response and 50% is released later during the day, without a need for augmentation
e) patients can be switched from immediate release AMP very easily
f) a focused review of sudden unexplained deaths was carried out by Health Canada in 2006 and the medication's safety has been assured
g) the abuse potential is significantly reduced in comparison to short-acting medication due to the product formulation according to anecdotal reports from Canadian regional addiction centres, CB and
h) the active ingredient DEX has been available for more than 50 years and has a well-known safety and efficacy profile.

Occasionally it may be necessary to "top up" the medication in the late afternoon to extend the clinical effect. CB

Vyvanse® (lisdexamfetamine dimesylate)

DEX works by the blockade of the reuptake of dopamine. It also increases the release of dopamine and noradrenaline from the vesicles accounting for its increased potency over MPH. Vyvanse® is a controlled substance made up of a pro-drug, lisdexamfetamine (inactive drug), that needs a biological enzymatic transformation to release DEX (active drug). DEX has effects on noradrenaline and dopamine similar to Adderall XR® and other DEX products but the delivery mechanism is different for all those products. In Canada, Vyvanse® comes in capsules available in five doses (20, 30, 40, 50 and 60 mg). In the United States, since the FDA has approved dosages of Vyvanse from 20 mg to 70 mg, a 70 mg capsule is also available.

The major strengths of Vyvanse® are that:

a) the medication can give symptom control that lasts for 13 hours in children and up to 14 hours in adults, covering the major times when impairment occurs, including part of the evening
b) the medication has been indicated in all ages by Health Canada
c) the capsules may be opened and diluted in water with no loss in efficacy (particularly important to improve adherence in young children who can't swallow pills)
d) patients can be switched from Dexedrine® or Adderall XR® quite easily
e) this kind of delivery system is not influenced by gastric PH or transit time
f) clinical effects have been described as more stable over time for each individual and more constant from one person to the other
g) because of its pro-drug design, its delivery curve is not changed by mode of administration (oral, inhalation or injection), reducing its possible abuse potential (CB) and
h) the active ingredient, DEX, has been available for more than 50 years and has a well known safety and efficacy profile.

Dextro-amphetamine (DEX) based products – short-acting and intermediary-acting medications

Dexedrine® and Dexedrine® Spansules

DEX works by the blockade of the reuptake of dopamine. It also increases the release of dopamine and noradrenaline from the vesicles accounting for its increased potency over MPH. DEX is indicated in ADHD patients. It is a controlled substance. Dexedrine® and Dexedrine® Spansules are placed by the CADDRA Guidelines Committee in the second line group as their duration is shorter than that of long-acting versions and they are therefore prone to having peak/valley effects that may be uncomfortable. Their efficacy and safety, however, are well established. The major strengths of DEX are that:

a) the active ingredient has been available and actively studied for many decades
b) it may be useful in situations where a top-up of the once-daily medication is required or when the patient desires more flexibility in the dosing schedule
c) a consensus of the CAP Committee suggests that DEX may be indicated in some adult ADHD patients who want the medication for situational versus continuous use
d) Dexedrine® Spansules may be covered by some government special access programs, they are relatively inexpensive, and
e) Dexedrine® Spansules last about six to eight hours while the pill formation last about three to five hours.

Methylphenidate (MPH)-based products – long-acting medications

Biphentin®

MPH, the active ingredient, is a controlled substance which works by the blockade of the re-uptake of dopamine and is indicated in ADHD. Biphentin® is a controlled-release methylphenidate (MPH) product and comes in eight strengths (10, 15, 20, 30, 40, 50, 60 and 80 mg). Biphentin® uses a multi-layer release (MLRTM) delivery system. The major strengths of Biphentin® include the following:

a) There are long term studies, of over twenty years in duration, which show MPH is safe and the active ingredient is MPH which has a well-known safety and efficacy profile
b) its delivery is a 40% immediate and 60% gradual effect putting it in the middle of the other medications

c) the delivery technology has shown an effect that is sustained for 10-12 hours, covering the major times that impairment occurs (e.g. school, homework periods and during the work day)

d) it is available in eight doses making it easier to titrate the medication even from a much lower dose

e) the medication has been indicated in all age groups by Health Canada

f) the medication is actually available only in Canada and is relatively cheaper than the other long acting MPH products (at the lower doses)

g) the capsules can be opened and sprinkled making it useful for children who can not swallow pills and, since the beads within each capsule are all the same, there is no concern when it is poured, and

h) patients can be switched from MPH easily and, if necessary, can be augmented with immediate release MPH at the end of the day.

Occasionally it may be necessary to "top up" the medication in the late afternoon to extend the clinical effect. CB

Concerta®

MPH, the active ingredient, is a controlled substance which works by the blockade of the reuptake of dopamine and is indicated in ADHD. Concerta® is an extended release MPH that uses the OROS technology and comes in four dosing options (18, 27, 36 and 54 mg capsules). The major strengths of Concerta® are that:

a) there are long-term studies, of over twenty years in duration, which show MPH is safe

b) it controls ADHD symptoms for approximately 10–12 hours, covering the major times that impairment occurs (e.g. school, homework periods and during the work day)

c) it is a 22% immediate release and 78% long acting release combination suggesting a long duration of effect

d) the non-deformable shell makes it very difficult to break, cut or crush, which reduces its abuse risk (according to anecdotal report from Canadian regional addiction centres) CB

e) patients can easily be converted from immediate release MPH to Concerta® and

f) the medication has an indication in all age groups by Health Canada. While multiple doses can be used to create a closer titration (18 mg + 27 mg= 45 mg; 27 mg + 36 mg = 63 mg, etc), the higher cost of the combination of two dosages may be prohibitive.

Occasionally it may be necessary to "top up" the medication in the morning to extend the clinical effect. CB

Ritalin LA® and Daytrana®

Ritalin® LA, a once-a-day extended-release MPH formulation, and the MPH patch, Daytrana®, are currently not available in Canada.

FocalinXR® and Focalin®

The isomer dextro-methylphenidate is available in the USA in a long-acting (FocalinXR®) and short-acting (Focalin®) formulation. Those products are not available in Canada.

Other long-acting methylphenidate products (delivery mechanism not published)

Novo-Methylphenidate ER-C is a generic methylphenidate-based product with a progressive delivery system that was approved by Health Canada in 2010 as a generic for Concerta®. There are long term studies, of over twenty years in duration, which show MPH is safe. The actual delivery mechanism of Novo-Methylphenidate ER-C has not been described. This medication is not delivered via the OROS pump system, which is utilized for Concerta®. It comes in four dosing options (18, 27, 36 and 54 mg capsules). The major strengths of this generic formulation are cost-related and its active ingredient is MPH. However, the clinical profile of this new delivery system formulation has not been field tested. As with all generics, only bioequivalence needs to be demonstrated.

The CADDRA CAP-Guidelines Committee strongly believes that bioequivalence does not always mean clinical equivalence and that we need clinical data to better comment on this new medication. Side effects and duration of action are still unknown. Monograph information is derived from the Concerta® Monograph; only the bioequivalence data has been researched.

The tablets look like Concerta® but can be more easily crushed; this could affect its abuse potential as the time to maximum concentration (Tmax) is earlier with the generic medication. We don't know if that will influence the side effects profile, onset and duration of action of Novo-Methylphenidate ER-C compared to Concerta™. At present, we don't have enough data to comment on its clinical efficacy. We will need to wait for clinical experience to offer clarity.

CADDRA and Health Canada have received information from families and physicians reporting cases of drastic behavioural changes when a patient's Concerta prescription was switched to the generic formulation. The CADDRA CAP-Guidelines Committee believes these changes can be attributed to the medication formulation change. Meanwhile, the decision to switch to a generic formulation is an individual-based decision and we strongly advocate that the patient/family be advised of the switch, told to check for clinical changes in efficacy or tolerability and report any changes to their pharmacist and doctor.

Methylphenidate (MPH) based products: Short-acting and intermediary-acting medications

PMS®-Methylphenidate, Ratio®-Methylphenidate, Ritalin®, Ritalin® SR

The efficacy and safety of MPH is well established with significant reduction in the core ADHD symptoms. MPH short- and medium-acting products are placed by CADDRA CAP-Guidelines Committee in the second line group as their duration is shorter than that of long-acting versions and they are therefore prone to having peak/valley effects that may be uncomfortable. The major advantages of MPH are that:

a) there are long-term studies of over twenty years in duration that show MPH is safe
b) they may be useful in situations where a top-up of the once-daily medication is required or if the patient desires more flexibility over the dosing schedule
c) a consensus of the CADDRA CAP-Guidelines Committee suggests that MPH may be indicated in some adult ADHD patients who want the medication for situational versus continuous use, and
d) they are relatively inexpensive.

Ritalin® SR

Ritalin SR lasts longer (5-6 hours) than Ritalin. However, the compound has a wax matrix which at times results in inconsistent release of medication and thus inconsistent effects.

NON-STIMULANTS

Strattera®

Atomoxetine hydrochloride (ATX) is a specific noradrenaline reuptake inhibitor and comes in seven doses (10, 18, 25, 40, 60, 80 and 100 mg). ATX is not classed amongst the psychostimulants and it is not a controlled substance. The major strengths of ATX are that:

a) it provides continuous coverage including the late evening and early morning periods

b) it is indicated by Health Canada in all ADHD patients across the lifespan

c) it may be particularly useful for ADHD patients who have tic spectrum disorders or comorbid anxiety, resistance and/or side effects to stimulant medications, including problems with worsening of sleep

d) there appears to be no substance abuse or diversion potential and

e) may be useful in patients with ADHD and comorbid enuresis[58, 59].

The onset of action is slower than stimulants as it acts differently on neurotransmitters and the maximum treatment effect may not be reached for six to eight weeks. The clinical changes are gradual. It would not be suitable in cases where there is an urgency to obtain a rapid onset of action. The dose is calibrated to the weight of the patient (see relevant tables for initiation, titration and maximum doses in Supporting Document 7A). There appears to be no increased benefit past 1.4 mg/kg/day though there may be some improvement of oppositional defiant disorder after 1.8 mg/kg/day[211]. The American Academy of Child and Adolescent Psychiatry has stated that the doses could go as high as 2.2 mg/kg/day but this is much higher than the Canadian standard[3].

If higher doses are contemplated, a referral to an ADHD specialist should be made. If the doses exceed one pill a day, the cost of the medication increases. The medication's safety profile has been established, including risk factors related to cardiovascular conduction irregularity similar to those of stimulant drugs. Rare cases of reversible alteration in hepatic enzyme are noted. No special monitoring protocol is required (i.e. blood tests) but patients should be advised of the clinical symptoms of hepatic dysfunction. Poor metabolizers (i.e., 7% Caucasians and 2% African-Americans) are unlikely to have toxic effects given the slow titration schedule. Measurements of blood levels are not required. There have been rare reports of increase in suicidal ideation; one suicide attempt (overdose) was identified; no completed suicides occurred[212, 213]. Clinicians need to carefully monitor suicidal ideation, especially in the early phases of treatment, not unlike with many antidepressant medications. The clinical efficacy was the same as stimulants in patients who were treatment naive[214]. ATX can also be combined with stimulants to augment the effect if the clinician feels the patient has not achieved an adequate response (CB), but in these circumstances, a referral to an ADHD specialist may be indicated. Strattera® can be given as a morning and evening split dose which is sometimes optimal to reduce side effects (but this strategy increases costs). Strattera can cause significant nausea and stomach upset in some patients. Strattera capsules should not be opened because the contents are an ocular irritant. If the contents get in the eye, there should be immediate eye-flushing and seek medical attention if needed.

Intuniv XR

Guanfacine hydrochloride extended-release (GXR) is a selective alpha 2A-adrenergic receptor agonist and comes in four doses (1, 2, 3 and 4mg). GXR is not classed among the psychostimulants and it is not a controlled substance. It is indicated by Health Canada for the treatment of ADHD in children aged 6-12 with sub-optimal response to psychostimulants either as an adjunctive therapy to psychostimulants or as a monotherapy. The major strengths of GXR are that:

a) it provides continuous coverage including the late evening and early morning periods.

b) it may be particularly useful for ADHD patients who have tic spectrum disorders or significant comorbid

anxiety, oppositional behaviours, aggression, or in cases of resistence and/or side effects to stimulant medications, including problems with worsening of sleep or pulse/blood pressure elevation.
The onset of action is slower than stimulants as it acts differently on neurotransmitters and the maximum treatment effect may not be reached for several weeks. The clinical changes are gradual. It would not be suitable in cases where there is an urgency to obtain a rapid onset of action. The side effects profile is very unique and necessitates close follow-up. There may be a dose-response related to weight. Dose is calibrated slowly (see relevant tables for initiation, titration and maximum doses in Supporting Document 7A).

Considering that GXR has a lower response rate than psychostimulants and requires close follow-up due to its side effects profile, the CADDRA Guidelines Committee recommends it as a second-line therapy. But in specific circumstances where psychostimulants are not recommended, GXR could be a first choice. In such cases, referral to an ADHD specialist may be made. The tablets should not be crushed, chewed or broken down before swallowing as this will alter the rate of guanfacine release. The medication's safety profile has been established. The risk factors related to cardiovascular side effects differ from those associated with stimulant drugs and atomoxetine. Somnolence, sedation and a lowering of pulse and blood pressure may occur, particularly at the initiation, after dose adjustments and following discontinuation. GXR should not be stopped abruptly since this may significantly increase pulse and blood pressure. Use caution when administered to patients taking medications like CYP3A4/5 inhibitors (e.g. ketoconazole), CYP3A4 inducers, valproic acid, heart rate-lowering and QT prolonging drugs. GXR should not be administered with high fat meals. It is recommended not to use grapefruit products.

Intuniv XR does not require any blood tests before starting treatment. As well, no ECG is required (if using as monotherapy) as long as there is NOT a positive cardiac history (which should be asked before initiating any medication for ADHD). To help maintain adequate blood pressure, patients should be advised to avoid dehydration. GXR is the only medication indicated in Canada as an adjunctive therapy to psychostimulants for the treatment of ADHD in children, aged 6-12 years, with sub-optimal response to psychostimulants, but in these circumstances, a referral to an ADHD specialist may be indicated. Intuniv XR™ can be given as a morning or an evening dose. Intuniv XR has been studied in adolescents with ADHD but no literature is available for adult ADHD, therefore all prescriptions for patients over 12 years old are off-label use and should be supervised by an ADHD specialist.

OFF-LABEL MEDICATIONS

Treatment by these medications should be initiated by specialists only or in consultation with a specialist in ADHD.

SUPPORTING DOCUMENT 7C: SIDE EFFECTS MANAGEMENT

Sleep Problems in ADHD

Problems with sleep are a common complaint from parents of ADHD children and patients of all ages[214]. Children with ADHD are at increased risk of sleep disorders[215], and ADHD is overrepresented in sleep disorder clinics[216, 217]. In addition, stimulant medication may increase the difficulty of falling asleep[218, 219]. The most common sleep problem comorbid with ADHD is delayed sleep phase syndrome (DSPS), which is a disorder in which patients go to bed late and then want to sleep longer in the morning[217, 220]. Patients often complain that "they cannot turn their thoughts off" and resist going to bed since they do not feel sleepy. DSPS is one of several circadian rhythm sleep disorders (CRSD)[220, 221].

Patients with ADHD are also at increased risk of other sleep disorders including obstructive sleep apnea[215, 222]. Children with ADHD should always be screened for sleep disorders. The acronym **BEARS** is useful for this purpose: **B**edtime resistance, **E**xcessive daytime sleepiness, **A**wakenings, **R**egularity, **S**noring[223]. Most sleep problems can be diagnosed clinically and treated effectively with significant improvement in quality of life[11]. Although there is some evidence of cases in which sleep problems were misdiagnosed as ADHD, treatment of sleep problems does not usually cure ADHD itself[219, 220].

Stimulants may induce insomnia: Administer medication as early as possible in the morning. Try to assure that the patient is not in rebound at the time that they are trying to fall back asleep by either lowering the dose late in the day or shaping a slow offset of action.

Strategies to Improve Sleep

Sleep Hygiene

Optimize sleep hygiene: maintain a quiet and comfortable sleep environment. Maintain a consistent time of going to bed and waking in the morning. If the patient is allowed to sleep late in the day this will phase delay the circadian rhythm. Exposure to passive stimulation activities such as watching television, playing computer games or going on chat lines will disrupt the initiation of sleep, despite beliefs that these activities promote fatigue. It is better that the individual do active stimulation such as reading as a means to make themselves mentally fatigued. It is helpful if the individual is physically active through the day (though not within two hours of bedtime) to aid in physical exhaustion. Limit the use of the bed to sleep and sex only as this will create a positive association. The bed is not for watching TV, eating or doing homework. As patients often have a difficult time getting up in the morning, it is best to ask the individual what would be the best way for them to be approached. Strategies such as giving a sugar-free carbonated drink first thing in the morning (which causes the eyes to water and wakes a child up) or warming up the room (otherwise the room feels cold and the bed feels warm) have also been anecdotally tried.

Validated Treatments for Sleep Disturbance

The only over the counter preparation that has been tested in randomized, double blind trials for insomnia in children with ADHD is melatonin. Two trials demonstrated efficacy, one in combination with sleep hygiene[221] and one without sleep hygiene[225, 263]. The CADDRA Guidelines Committee feels that this data demonstrating efficacy, safety and very low cost make this a first line intervention when initiation of sleep is a problem, either off or on medication. Melatonin 3-6 mg should be administered at least 30 minutes (up to 2-3 hours) before the desired bedtime and is a safe and effective way of treating initial insomnia associated with ADHD. We have no available information on the safety and efficacy of melatonin use longterm.

Non-validated Treatments for Sleep Disturbance

None of the following suggestions have been investigated proving their efficacy. More research is required. At all times, the patient should consult his/her doctor regarding these choices.

Dietary snacks that maybe sedating: Dietary interventions are often foods that are high in tryptophan, a common amino acid found in many foods including turkey, beans, rice, hummus, lentils, hazelnuts, peanuts, sesame seeds, sunflower seeds, tuna, soy milk, cow's milk and other dairy products. An example of an ideal bedtime snack is a peanut butter sandwich with ground sesame seeds and a glass of warm whole milk, consumed one hour before sleep.

Naturopathic remedies Valerian root (450-900 mg extract) has not been clinically investigated but is felt to be relatively safe and anecdotal reports suggest efficacy.

Problems With Appetite and Their Management

Many parents of ADHD complain that their children are "picky eaters". In addition, stimulant medication can further suppress appetite and often shifts the timing of food intake to periods of the day in which stimulant blood levels are waning. There is a long history of research on ADHD and nutrition. Early studies of the relationship between special diets, sugar, red food dye, food allergies and ADHD did not confirm that diet is a significant contributor to the etiology of ADHD[226].

More recently there has been increasing interest in whether ADHD is associated with either delay in growth or poor nutrition[13, 227-231]. Many parents are concerned that their children with ADHD are thin or small and, as a group, children with ADHD are slightly smaller than age-matched controls[232]. Children who receive continuous stimulant medication are found to show growth deceleration as compared to children who do not receive medication for up to three years. Most recent evidence from the Multisite Multimodal Treatment study of children with ADHD suggests a 2 cm suppression in adult height with continuous medication treatment for 12 years.

Several studies of the nutritional status of children with ADHD show deficits in zinc[233, 234,] serum ferretin[235], and general omega 3 fatty acids[236], but the clinical implications of this are unclear. Parents who are concerned about their child not eating, eating too much junk food, or refusing to eat a particular food group may be helped if the physician takes the time to review dietary intake and gives strategies to encourage good nutrition. In particular, people with ADHD may not sit for long meals, may need to snack when medication wears off, and benefit from access to healthy snacks. Reliable randomized control trials demonstrating the impact of improved diet on ADHD are not available. There is some research suggesting the benefit of omega 3 fatty acids but the methodology is poor[237, 238]. Common sense dictates that while improved sleep hygiene and sound nutrition are not likely to cure ADHD, sound sleep and nutrition would improve overall health and well being, and thus indirectly benefit behaviour and attention[239-241]. More information is located in the section on Psychosocial Interventions (Chapter 6).

Strategies to Improve Caloric Intake

1. Offer parents a weight and height chart so they can monitor from a baseline any changes in these critical areas. Reassure parents that although the child may lose weight, this will stabilize, but the child's height percentiles will not change, though it is important to monitor them. This information helps to reduce parents' anxiety.
2. Supplemental strategies are often indicated, such as nutritional supplements or meal replacements (e.g., Boost®, Breakfast Anytime®, Ensure®, PediaSure®, PediaSure Complete®). Because dry mouth can be a

side effect of medication, the patient will have significant thirst. Allowing them to have frequent fluids throughout the day and high protein/high calorie drinks for lunch exclusively is usually sufficient to maintain their caloric needs.

3. Children should be encouraged to eat when they are hungry, especially early in the morning and in the evening. In the evenings, when there may be rebound appetite, supper can be spread out into two or three sessions to prevent gorging and stomach distress.
4. A significant snack equivalent to lunch can be instituted before bedtime.
5. Encourage the consumption of energy dense foods, especially at breakfast, prior to taking medication, to take advantage of the child's hunger, even if this means letting them choose less typical breakfast foods (such as a peanut butter and jelly sandwich, leftover supper, etc.).
6. Switch to whole dairy products (including milk, yogurt and cheese).
7. Ensure availability of nutritious snack foods.
8. Engage the child in meal preparation and in shopping for their favourite foods.
9. Structure and routine is important even at mealtimes. Encourage patients and their families to try to eat as a family in a calm environment.
10. Referral to a registered dietician may be necessary to optimize nutritional intake in cases of growth faltering.
11. If there is familial short stature, the CAP-G Committee has suggested drug holidays.

Problems With Headaches and Their Management

Headache is a common side effect occurring in greater than 3% of patients who use medications for ADHD. Headache may or may not be accompanied by nausea or gastric irritation. Headache is most common within the first two to three hours of taking the medication and tends to be a tension-type headache, characterized by a constant ache as opposed to a vascular headache that has a throbbing sensation. Vascular headache can also occur but is more of a suggestion of activating pre-morbid migraine propensities.

Strategies to Improve Headaches

Treatments include mild analgesics such as acetaminophen or ASA. Headaches usually dissipate after the ADHD medication has been used at a set dose for one to three weeks. It is important to remember that headaches are quite often associated with hunger and this issue needs to be addressed.

SUPPORTING DOCUMENT 7D: POTENTIAL CARDIOVASCULAR RISKS OF ADHD MEDICATIONS

Robert Hamilton, MD, *Division of Cardiology (Pediatrics), Hospital for Sick Children; Professor of Pediatrics, University of Toronto*
Paul Dorian, MD, *Division of Cardiology, St. Michael's Hospital; Professor of Medicine and Pharmacology, University of Toronto*

Regulatory History

In May, 2006, Health Canada issued important safety information on ADHD medications which included the following warning:

ADHD drugs should be started at the lowest possible dose, and increased slowly, as individual patient response to these drugs is known to vary widely.

- ADHD drugs should not be used if a patient has: symptomatic cardiac disease; moderate to severe hypertension; advanced arteriosclerosis; or hyperthyroidism
- ADHD drugs should generally not be used in patients with known structural cardiac abnormalities
- Before prescribing an ADHD drug, it is important to be aware of whether the patient: has a family history of sudden death or death related to cardiac problems; participates in strenuous exercise; or takes other sympathomimetic drugs; as these are thought to be additional risk factors. In patients with relevant risk factors, and based on the physician's judgement, further evaluation of the cardiovascular system may be considered before starting on the drug
- Patients who are considered to need long-term treatment with ADHD drugs should undergo periodic evaluation of their cardiovascular status, based on the physician's judgement
- Patients taking drugs for the management of ADHD are being advised not to discontinue their medication without consultation with their physician
- Similar information will appear in the Information for the Patient materials for these drugs.

The complete article is available on the www.caddra.ca website and should be read by any clinician who is contemplating treatment in a patient they deem as being at risk. The CAP-G Committee enlisted the help of two prominent Canadian cardiology consultants to prepare some guidance in at-risk patients who have a combination of some prior history of cardiac problems and ADHD. The opinions are those of the consultants and were not peer-reviewed, but were written to provide guidance to physicians who need direction in complicated cases.

Clinical Recommendations

American Heart Association Recommendations for Monitoring

In the American Heart Association Scientific Statement: Cardiovascular Monitoring of Children and Adolescents Receiving Psychotropic Drugs (A Statement for Healthcare Professionals)[242, 243], the Committee on Congenital Cardiac Defects, Council on Cardiovascular Disease in the Young states that:

1. "Reports of sudden deaths of children and adolescents treated with psychotropic medications have

raised concerns regarding the appropriateness of this therapy, as well as the advisability of baseline and periodic electrocardiographic (ECG) monitoring of such patients."

2. "Stimulants such as the amphetamines and methylphenidate (Ritalin®) cause slight but clinically insignificant increases in heart rate and blood pressure."
3. "Clonidine, a widely used antihypertensive medication, has been associated with two deaths in patients who also received methylphenidate, but the mechanism for these deaths is unknown and may have been sudden cessation of treatment."

The American Heart Association Recommends:

1. Before therapy with psychotherapeutic agents is initiated, a careful history should be obtained with special attention to symptoms such as palpitations, syncope, or near syncope. Medication use (prescribed and over-the-counter) should be determined. The family history should be reviewed with reference to the long QT syndrome or other causes of sudden, unexplained death. Detection of these symptoms or risk factors warrants a cardiovascular evaluation by a pediatric cardiologist before initiation of therapy.
2. At follow-up visits, patients receiving psychotropic drug therapy should be questioned about the addition of any drugs and the occurrence of any of the above symptoms. The physical examination should include determination of heart rate and blood pressure.

Conclusions

1. Sudden death in the young is fortunately very rare (1.2 - 1.3/100,000 population). **Sudden death in the ADHD population occurs in similar proportion to the general population**, even if only 50% of cases have been reported. However, higher rates of under-reporting could be concealing an ADHD effect on sudden death, and rare deaths have occurred on the first day of administration.
2. **There are similar associated conditions** in patients with sudden death on ADHD medications to those with sudden death in the general population (structural heart disease, history of syncope, family history of sudden death, exercise triggering sudden death), and some of these clues can help to suspect a higher risk sudden death, whether in the untreated or treated population.
3. ECG abnormalities can identify some individuals in the general population at risk for sudden death, and has been recommended and implemented as a cost-effective screening tool in some at risk populations, such as competitive athletes. Cost-efficacy in the general school-age population is less clear and the usefulness of ECG screening in patients being treated with or considered for ADHD medications is unknown. There is no consensus here, and American Heart Association recommendations for ECG screening relate specifically to tricyclic antidepressant therapy or phenothiazine therapy. There is **no indication for ECG's** for the treatment of ADHD using stimulant medications (except in at-risk populations).
4. The small (but unproven) potential contribution of ADHD drugs to the rare incidence of sudden death in children and adolescents **must be weighed against the clinical benefit of the medication**. Risk/benefit should be discussed with the parent/patient as appropriate.
5. **Cardiac consultation should be considered in at-risk patients** with cardiac conditions. ADHD medications should only be considered after a thorough discussion of the risks and potential benefits with the patient, family and consultants.

Practice Point
Practical questions and answers: Management of patients with combined cardiovascular risk and concurrent ADHD.

Q: Is there a way to specifically know ahead of time the risk of sudden death in individual patients with ADHD, and the potential increase in risk in such patients following treatment?
A: *It is not possible to accurately assess the magnitude of increases in risk with ADHD medications, or even if there is any increase in risk. However it is helpful to consider, for discussion purposes, some possible numbers to place these risks in perspective. If the risk of sudden death in an individual without evident structural heart disease is approximately 1 per 100 000 /year (age under 25), then even a 50% increase in risk would translate into an absolute increase of 0.5/100 000 deaths/year, or a 1/200 000 chance of death.*

Q: Are there disorders where structural cardiac defects pose low risk?
A: *Patients with cardiac conditions whose sudden death risk is only marginally elevated from the general population are likely at very low risk if taking ADHD medications. Risks/benefits should be discussed with the parent/patient as appropriate. Such conditions might include (but not be limited to) patients with: a) an asymptomatic or well-repaired atrial septal defect; b) a small or well-repaired ventricular septal defect; c) a well-repaired coarctation of the aorta, without hypertension or significant associated aortic valve disease and d) a mild or well-repaired pulmonary valve stenosis.*

Q: What reasonable steps should be taken to ensure patients' cardiovascular safety before starting pharmacological therapy for ADHD?
A: *As described above, patients and families should be questioned about a family history of sudden death, a history of loss of consciousness particularly with exercise, and a history of marked exercise intolerance. There is no proof that routine 12 lead ECGs are useful in screening in unselected patients, and most consultants do not recommend such screening unless there is a history or symptoms to suggest cardiac disease. During follow up, new onset syncope, severe dizziness, or exercise intolerance should be asked about, particularly in the early months of pharmacological treatment. If any of these symptoms occur, these should prompt a referral to a pediatrician or a cardiologist, and a consideration at least temporarily stopping the medication for ADHD.*

If an ADHD pharmacological treatment is contemplated in a patient with previously known structural heart disease, or in a patient who has a personal or a family history of syncope or sudden death respectively, a pediatric or cardiologic consultation prior to ADHD pharmacological treatment is strongly advised.

It must be emphasized that in the average child or adolescent with ADHD, who has no cardiac symptoms, the risk of cardiac adverse events from ADHD medications is extremely low. On the other hand, a cautious and vigilant attitude with respect to the potential risks is highly advisable.

SUPPORTING DOCUMENTS 7E: OTHER MEDICATION INFORMATION

Long-Acting Medication Comparison Profiles

	Adderall XR®	Vyvanse®	Biphentin®	Concerta®	Novo-MPH-ER-C®	Strattera®	Intuniv XR®
CLINICAL COMPARISONS							
Active Ingredient	Mixed Amphetamine Salts	DEX	MPH HCL	MPH HCL	MPH HCL	ATX	Guanfacine extended-release
Canadian Indication	All age groups	All age groups	All age groups	All age groups	A generic substitute for Concerta	All age groups	6-12 y.o. children: monotherapy/adjunct therapy to psycho-stimulants when associated with a suboptimal response
Clinical Efficacy Studies	Yes	Yes	Yes	Yes	No	Yes	Yes
Long-acting Technology Used	Two beads	Pro-drug	Multilayer beads	OROS	Unknown	Blood level based	Polymer matrix
Duration of Effect[1]	~12 hours	13-14 hours	10-12 hours	10-12 hours	Unknown	Continuous	Continuous
(%IR/%LA) Delivery	50/50	Continuous	40/60	22/78	Unknown	Continuous	Continuous
Sprinkle Format	Yes	Dissolvable in water	Yes	No	Unknown	No	No
Available Doses	6	5	8	4	4	7	4
Abuse Potential CB	Low	Very Low	Low	Very Low	Likely High	None	None
Cost	$$	$$	$+ low doses but $$ higher doses	$$	$	$$$	$$$
Controlled Substance	Yes	Yes	Yes	Yes	Yes	No	No

[1]Clinical experience indicates that, for some patients, duration of effect is shorter or longer than what is indicated in the product monograph.

SIDE EFFECTS (PUBLISHED LITERATURE)

	First Line Agents				Second Line or Adjunctive Agents						
	Adderall XR®	Biphentin®	Concerta®	Vyvanse®	Dexedrine®	Dexedrine Spansules®	MPH Generic®	Ritalin®	Ritalin SR®	Strattera®	Intuniv XR®
Appetite suppression	X	X	X	X	X	X	X	X	X	X	Reported at lesser incidences
Decrease in weight	X	X	X	X	X	X	X	X	X	X	
Initial insomnia	X	X	X	X	X	X	X	X	X	X[1]	
Somnolence										X	X
Headache	X	X	X	X	X	X	X	X	X	X[2]	X
Dry mouth	X	X	X	X	X	X	X	X	X	X	X
Rebound irritability	X	X	X	X	X	X	X	X	X		
Nausea/vomiting	X	X	X	X	X	X	X	X	X	X	X
GI upset	X	X	X	X	X	X	X	X	X	X	Upper abdominal pain was reported
Dizziness	X	X	X	X						X	X
Anxiety	X	X	X	X	X	X	X	X	X	X[2]	
Uncovering tics	X	X	X	X	X	X	X	X	X	possible	
BP and HR increase	X	X	X	X	X	X	X	X	X	X	When ceased abruptly
BP and HR decrease											X
Constipation/diarrhea	X	X	X	X	X	X	X	X	X	X	
Sexual dysfunction	minor			minor	minor	minor				X	
Dysphoria	X	X	X	X	X	X	X	X	X	X	
Skin reactions	X	X	X	X	X	X	X	X	X	X	

[1] Clinically observed initial insomnia in adults reported by CAP-G Committee
[2] Clinically reported by CAP-G Committee

PHARMACOKINETICS

	First Line Agents				Second Line or Adjunctive Agents						
	Adderall XR®	**Biphentin®**	**Concerta®**	**Vyvanse®**	**Strattera®**	**Dexedrine®**	**Dexedrine Spansules®**	**MPH Generic®**	**Ritalin®**	**Ritalin SR®**	**Intuniv XR®**
Protein binding	12-15%		8-15%		98%	12-15%	12-15%	8-15%	8-15%	8-15%	70%
Peak plasma levels	7 hours	2 hours, then 6 hours	1 hour, then 6-10 hours	3.5 hours	1-2 hours	1-4 hours	6-10 hours	3.8-4.6 hours	0.3-4 hours	1-8 hours	5 hours
% immediately released	50%	40%	22%	Continuous	Continuous	100%		100%	100%		Continuous
T 1/2	9 hour child 10 hour adult	5 hours	3-5 hours	9.6 hours	5 hours	6-8 hours	6-8 hours	2.5 hours	2.5 hours	3-4 hours	18 hours
Duration of action[1]	~12 hours	10-12 hours	10-12 hours	13-14 hours	24 hours	~4 hours	~6-8 hours	3-4 hours	3-5 hours	3-8 hours	24 hours
Enzyme inhibited					CYP2D6						
Controlled substance	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Neurochemical	DA/NA	DA	DA	DA/NA	NA	DA/NA	DA/NA	DA	DA	DA	Alpha 2A noradrenergic agonist

DA: Dopamine
NA: Noradrenaline

[1]Clinical experience indicates that, for some patients, duration of effect is shorter or longer than what is indicated in the product monograph.

DRUG INTERACTIONS*

	First Line Agents				Second Line or Adjunctive Agents						
	Adderall XR®	**Biphentin®**	**Concerta®**	**Vyvanse®**	**Strattera®**	**Dexedrine®**	**Dexedrine Spansules®**	**MPH Generic®**	**Ritalin®**	**Ritalin SR®**	**Intuniv XR®**
Acidifying Agents e.g. fruit juices	⬇ absorption ⬆ elimination ⬇ plasma level			⬇ absorption ⬆ elimination ⬇ plasma level[1]		⬇ absorption ⬆ elimination ⬇ plasma level					
Alkaline Agents e.g. sodium bicarb	⬆ absorption ⬇ elimination ⬆ half-life			⬆ absorption ⬇ elimination ⬆ half-life[2]		⬆ absorption ⬇ elimination ⬆ half-life					
Analgesics e.g. Meperidine	⬆ analgesic effect			may ⬆ analgesic effect							
Antiarrhythmic e.g. Quinidine					⬆ ATX						generally not recommended
Antiasthmatic					⬆ HR with nebulizer						
Antibacterial e.g. Linezolid		avoid	avoid					avoid	avoid	avoid	
Anticoagulation e.g. Warfarin		⬆ effects of Warfarin	⬆ effects of Warfarin					⬆ effects of Warfarin			
Anticonvulsants e.g. Carbamazepine											⬆ concentrations of valproic acid
Phenobarbital	may ⬆ effects of anti-epileptic	⬆ effects of anti-epileptic	⬆ effects of anti-epileptic	may ⬆ effects of anti-epileptic		synergistic effects		⬆ effects of anti-epileptic			⬇ effects of GXR
Phenytoin											
Primidone											

[1] GI acidifying agents do not affect Vyvanse but urinary acidifying agents do

[2] GI alkylinizing agents (e.g. antiacids) won't affect Vyvanse but urinary ones could

* Reviewed by the relevant pharmaceutical manufacturer, except for Glaxo Smith Klein, Novartis and Novopharm.

DRUG INTERACTIONS* (continued)

	First Line Agents				Second Line or Adjunctive Agents						
	Adderall XR®	**Biphentin®**	**Concerta®**	**Vyvanse®**	**Strattera®**	**Dexedrine®**	**Dexedrine Spansules®**	**MPH Generic®**	**Ritalin®**	**Ritalin SR®**	**Intuniv XR®**
Antidepressants - MAOI e.g. Phenelzine	⬆ Noradrenaline - may lead to hypertensive crisis - do not combine				⬆ Noradrenaline - may lead to hypertensive crisis - do not combine						
RIMA e.g. Moclobemide	do not combine		⬆ BP	do not combine	⬆ BP	precaution		there may be an adjunctive quality; may ⬆ BP			
SSRI e.g. Fluoxetine	⬆ effects of SSRI	⬆ effects of SSRI	⬆ effects of SSRI	⬆ effects of SSRI	⬆ ATX plasma concentration	may be additive effects		⬆ effects of SSRI			CYP450 34A inhibitor ⬆ levels of GXR
TCA- Secondary e.g. Desipramine **TCA - Tertiary** e.g. Amitriptyline	may lead to ⬆ levels of TCA or AMP	⬆ effects of TCA	⬆ effects of TCA	may lead to ⬆ levels of TCA or AMP	should not be used in combination	may lead to ⬆ levels of either TCA or amphetamine		may lead to ⬆ levels of either TCA or amphetamine			
Antihypertensives Beta Blockers e.g. Propranolol	may ⬇ hypotensive effects			may ⬇ hypotensive effects							may ⬆ hypotensive effects
Alpha 2 Agonists e.g. Clonidine	may ⬇ hypotensive effects	precaution	precaution	may ⬇ hypotensive effects		may ⬇ hypotensive effects		precaution			not recommended
Antipsychotics e.g. Chloropromazine, Haloperidol											may interact with other medications that prolong QTc
CNS Depressants Antihistamines e.g. Diphenhydramine	may inhibit central stimulant effect of AMP			may inhibit central stimulant effect of AMP			may antagonize sedative effects				may be additive to sedative effect

ATX= ATOMOXETINE

*Reviewed by the relevant pharmaceutical manufacturer, except for Glaxo Smith Klein, Novartis and Novopharm.

CONTRAINDICATIONS(C) OR PRECAUTIONS(P) (PUBLISHED LITERATURE)

	First Line Agents				Second Line or Adjunctive Agents						
	Adderall XR®	Biphentin®	Concerta®	Vyvanse®	Strattera®	Dexedrine®	Dexedrine Spansules®	MPH Generic®	Ritalin®	Ritalin SR®	Intuniv XR®
Tic Disorders[1]	p	c	c	p		p	p	c	c	c	
Epilepsy	p	p	p	p		p	p	p	p	p	
Cardiac Disease[2]	p/c	p/c	p/c	p/c	p/c	p/c	p/c	p/c	p/c	p/c	p
Hepatic Disease											p
Eating Disorders											
Psychosis	p	p	p	p	p	c	c	c	c	c	
Kidney Disease											p
Glaucoma	c	c	c	c	c	c	c	c	c	c	
Hyperthyroidism	c	c	c	c	c	c	c	c	c	c	
Adrenal Tumours	p	p	p	p	p	p	p	p	p	p	
Asthma					p[3]						
GI Obstruction			p								
Hypertyroidism											

[1] Psychostimulant medications are used with precaution in tic spectrum disorders but the CAP-G Committee agrees that use can be indicated if there is sufficient impairment of the concurrent ADHD. In these cases, the medications for ADHD are often combined with other drugs for tics (e.g., atypical neuroleptics or alpha-2 agonists).

[2] Refer to Chapter 7, Supporting Document 7D.

[3] Strattera may be used in combination with inhaled Beta2 agonists, e.g.,salbutamol, but should be used with caution in patients being treated with systemically administered (oral or intravenous) Beta2 agonists, including salbutamol.

CADDRA ADHD ASSESSMENT TOOLKIT (CAAT) FORMS

It is recommended that physicians complete an assessment form (A), a screener (S) and at least one rating scale (R). For children, the CADDRA Teacher Assessment Form (T) is also suggested; for adults, a collateral rating scale is helpful. Follow-up forms (F) are also recommended but a baseline of the chosen should be carried out initially.

Assessment and Follow-Up Forms

Physician Instructions

CHILD/ADOLESCENT TOOLKIT		ADULT TOOLKIT	
Assessment and Follow-Up Forms		**Assessment and Follow-Up Forms**	
CADDRA ADHD Assessment Form	8.1	CADDRA ADHD Assessment Form	8.1
Weiss Symptom Record (WSR)	8.14	Weiss Symptom Record (WSR)	8.14
ADHD Checklist	8.20	ADHD Checklist	8.20
SNAP-IV-26	8.22	Adult ADHD Self-Report Scale (ASRS)	8.24
Weiss Functional Impairment Rating Scale – Parent Report (WFIRS-P)	8.29	Weiss Functional Impairment Rating Scale – Self Report (WFIRS-S)	8.27
CADDRA Teacher Assessment Form	8.31	Weiss Functional Impairment Rating Scale – Parent Report (WFIRS-P)	8.29
CADDRA Clinician ADHD Baseline/Follow-Up Form (F)	8.34	CADDRA Clinician ADHD Baseline/Follow-Up Form (F)	8.34
CADDRA Patient ADHD Medication Form	8.35	CADDRA Patient ADHD Medication Form	8.35
Handouts		**Handouts**	
CADDRA ADHD Information and Resources	8.39	CADDRA ADHD Information and Resources	8.39
CADDRA Child Assessment Instructions	8.43	CADDRA Adult Assessment Instructions	8.46
CADDRA Adolescent Assessment Instructions	8.44		
CADDRA Teachers Instructions	8.45		

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

CADDRA ADHD ASSESSMENT FORM

Identifying Information

Patient:		**Date of Birth:**	**Date seen:**
Age:	**Gender:** ☐ m ☐ f	**Grade** (actual/last completed):	
Current Occupation: ☐ student ☐ unemployed ☐ disability		occupation:	
Status: ☐ child/adolescent *OR* adult ☐ single ☐ married ☐ common-law ☐ separated ☐ divorced			
Ethnic Origin (*optional*)**:**			
Other person providing collateral:		**Patient's phone no:**	

Demographics

	Biological Father (if known)	**Biological Mother** (if known)	**Spouse/Partner** (if applicable)
Name			
Occupation			
Highest education			
Adopted: ☐ No ☐ Yes	**Age of Adoption:**	**Country of Adoption:**	
Number of biological and/or half siblings:			
	Stepfather (if applicable)	**Stepmother** (if applicable)	**Other Guardian** (if applicable)
Name			
Occupation			
Highest education			
Number of step-siblings:			
Custody (circle custodial parent)	**Time with bio Father**	**Time with bio Mother**	**Time with step family**
Language	**At home:** ☐ English	☐ Other _____	☐ At school _____
Children (if applicable)	**Number of biological:**	**Number of step children:**	
Names and ages			

Reason for Referral

Referred by:		**Phone:**	**Fax:**
Initiated by: ☐ self ☐ parent ☐ spouse ☐ employer ☐ school ☐ physician ☐ other:			
Chief complaint: (check all that apply)	☐ impulsiveness ☐ disorganization ☐ self esteem ☐ aggression	☐ inattention ☐ mood/anxiety ☐ substance use ☐ other	☐ hyperactivity ☐ procrastination ☐ academic problems
Details:			
Attitude to referral:			

ADHD SYMPTOM HISTORY: (onset, progression, worsening factors, protective factors, adaptive strategies, outcome)

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

Medical History

Allergies: ☐ No ☐ Yes (Details):

Cardiovascular medical history:
☐ hypertension ☐ tachycardia ☐ arrhythmia ☐ dyspnoea ☐ fainting ☐ chest pain on exertion ☐ other

Specific cardiovascular risk identified: ☐ No ☐ Yes (Details):

Positive lab or EKG findings:

Positive medical history:	☐ In utero exposure to nicotine, alcohol or drugs	☐ Stigmata of FAS/FAE	☐ History of anoxia/perinatal complications
☐ Developmental delays	☐ Coordination problems	☐ Cerebral palsy	☐ Lead poisoning
☐ Neurofibromatosis	☐ Myotonic dystrophy	☐ Other genetic syndrome	☐ Hearing/visual problems
☐ Thyroid disorder	☐ Diabetes	☐ Growth delay	☐ Anemia
☐ Traumatic brain injury	☐ Seizures	☐ Enuresis	☐ Injuries
☐ Sleep apnea	☐ Tourette's/tics	☐ Enlarged adenoids or tonsils	☐ Asthma
☐ Sleep disorders	☐ Secondary symptoms to medical causes	☐ Medical complications of drug/alcohol use	

Other/details:

Medication History

Extended health insurance: ☐ No ☐ Yes (Details):

☐ Public ☐ Private insurance Coverage for psychological treatment: ☐ No ☐ Yes

Adherence to treatment/attitude towards medication:
Difficulty swallowing pills: ☐ No ☐ Yes
(If applicable) Contraception: ☐ No ☐ Yes (Details):

Current medications	**Dose**	**Duration Rx**	**Outcome and side effects**
Previous medications	**Dose**	**Duration Rx**	**Outcome and side effects**

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

Physical Examination

Practice guidelines around the world recognize the necessity of a physical exam as part of an assessment for ADHD in order to rule out organic causes of ADHD, rule out somatic sequelae of ADHD, and rule out contraindications to medications. While this physical exam follows all the usual procedures, several specific evaluations are required. These include, but are not limited to:

Rule out medical causes of ADHD-like symptoms

1. Hearing and vision assessment
2. Thyroid disease
3. Neurofibromatosis (cafe au lait spots)
4. Any potential cause of anoxia (asthma, CF, cardiovascular disease)
5. Genetic syndromes and facial or dysmorphic characteristics
6. Fetal alcohol syndrome: growth retardation, small head circumference, smaller eye openings, flattened cheekbones and indistinct philtrum (underdeveloped groove between nose and upper lip)
7. Physical abuse: unset fractures, burn marks, unexplained injuries
8. Sleep disorders: enlarged tonsils and adenoids, difficulty breathing, sleep apnea
9. Growth delay or failure to thrive
10. PKU, heart disease, epilepsy and unstable diabetes can all be associated with attention problems
11. Head trauma.

Medical history/lab work provides information on maternal drinking in pregnancy, sleep apnea, failure to thrive, lead poisoning, traumatic brain injury.

Rule out sequelae of ADHD

1. Abuse
2. High pain threshold
3. Irregular sleep, delayed sleep phase, short sleep cycle
4. Comorbid developmental coordination disorder, evidenced by motor difficulties in doing routine tasks such as getting on the exam table
5. Picky eater: will not sit to eat
6. Evidence of injuries from poor coordination or engagement in extreme sports

Rule out contraindications to medication:

1. Glaucoma
2. Uncontrolled hypertension
3. Any evidence of significant cardiovascular abnormality

Date of last physical exam:	**By who:**
Abnormal findings last exam:	

Current Physical Exam

System	**Done**		**Normal**		**Findings** (Details of Abnormality)
	No	**Yes**	**No**	**Yes**	
Skin	☐	☐	☐	☐	
ENT	☐	☐	☐	☐	
Respiratory	☐	☐	☐	☐	
GI and GU	☐	☐	☐	☐	
Cerebrovascular	☐	☐	☐	☐	
Musculoskeletal	☐	☐	☐	☐	
Immunol. & Hematological	☐	☐	☐	☐	
Neurological	☐	☐	☐	☐	
Endocrinological	☐	☐	☐	☐	
Dysmorphic facial features	☐	☐	☐	☐	
Other	☐	☐	☐	☐	

Weight: In children: percentile	**Height:** In children: percentile	**Head Circum:** (In children only)	**BP:**	**Pulse:**

Positive Findings on Observation: (Details)

Psychiatric History

Assessed in childhood/adolescence/adulthood? ☐ No ☐ Yes **By whom:**	
Previous diagnoses:	
Previous suicidal attempts or violent gestures toward others: ☐ No ☐ Yes	**Details:**
Psychological treatments: ☐ No ☐ Yes	
Previous psychiatric evaluation/hospitalization: ☐ No ☐ Yes	

Developmental History

Pregnancy Problems: ☐ No ☐ Yes Delivery ☐ on time ☐ Early (# of weeks: _____) ☐ Late (# of weeks: _____) ☐ forceps used ☐ Caesarean section ☐ breech	**Details:**
Difficulties gross motor: crawl, walk, two-wheeler, gym, sports: ☐ No ☐ Yes	
Difficulties Fine motor: tracing, shoe laces, printing, writing: ☐ No ☐ Yes	
Language difficulties: first language, first words, full sentences, stuttering ☐ No ☐ Yes	
Odd behaviours noted: (e.g. rocking, flapping, no eye contact, odd play, head banging etc) ☐ No ☐ Yes	
Temperament: (eg. difficult, willful, hyper, easy, quiet, happy, affectionate, calm, self soothes, intense)	
Parent description of child's temperament:	
Learning Disorder identified: ☐ No ☐ Yes ☐ dyslexia ☐ dysorthographia ☐ dyscalculia ☐ dsyphasia ☐ other: _____	

Family History in First Degree Relatives

Childhood temperament of the biological parents, if known: (e.g. internalizing versus externalizing)
Father: **Mother:**

Positive family history of:

☐ ADHD (probable)	☐ ADHD (confirmed)	☐ Learning Disorders	☐ Intellectual Disability
☐ Autism Spectrum Disorders	☐ Congenital Disorders	☐ Anxiety	☐ Depression
☐ Bipolar	☐ Psychosis	☐ Personality Disorders	☐ Suicide
☐ Sleep Disorders	☐ Tourette's/Tics	☐ Epilepsy	☐ Alcohol/Drug Problems
☐ Legal Convictions			
☐ **History of early cardiac death**		☐ Known arrhythmias	☐ Hypertension

Details:

Functioning and Lifestyle Evaluation

General Habits (depending on the subject's age, some may not apply). **Give frequency and/or details:**	
Exercise	
Nutrition	
Self care, personal hygiene	
Adequate leisure activity	
Sleep Routine and Quality of Sleep	Bedtime: Time to fall asleep: Wake up time: # Sleep hours: Melatonin: ☐ No ☐ Yes Dose:
Sleep Problems? (BEARS)	Bedtime resistance: ☐ No ☐ Yes Regularity: ☐ No ☐ Yes Excessive daytime sleepiness: ☐ No ☐ Yes Snoring: ☐ No ☐ Yes Awakening: ☐ No ☐ Yes

Important Risk Factors to Identify

Risk Factor	No	Yes	Details and Attitude towards Change
Excessive screen time	☐	☐	
Accident-prone	☐	☐	
Extreme sports	☐	☐	
Caffeine	☐	☐	
Smoking	☐	☐	
Alcohol	☐	☐	
Drugs	☐	☐	
Financial	☐	☐	
Driving	☐	☐	
Relationships	☐	☐	
Parenting	☐	☐	
Family conflict	☐	☐	
Legal	☐	☐	
Discipline	☐	☐	
Witness to violence	☐	☐	
Trauma	☐	☐	
Physical abuse	☐	☐	
Emotional abuse	☐	☐	
Sexual abuse	☐	☐	
Foster placements	☐	☐	
Significant losses	☐	☐	
Illness	☐	☐	

Current Functioning at Home (depending on age, some may not apply). **Give frequency and/or details:**	
Family/patient strengths	
Stressors within the family	**Past:**
	Present:
Family atmosphere	
Morning routine	
Attitudes towards chores (adult: doing housework)	
Attitudes towards rules (adult: able to set/follow rules)	
Engagement in family fun	
Discipline in the family (adult: parenting abilities)	
Relationship to siblings (adult: partner relationship)	
Parent/spouse frustrations	

Social Functioning (depending on age, some may not apply). **Give frequency and/or details:**	
Patient's strengths:	
Hobbies, activities	
Friends (e.g. play dates, parties, social events)	
Social skills (e.g. social cues compassion, empathy)	
Humour	
Anger management (e.g. aggression, bullying)	
Emotional intelligence (e.g. emotional control, awareness)	
Sexual identity	

Functioning at School (if not at school, indicate where academic history took place and if there were difficulties)		
School name	☐ English Second Language ☐ Individual Education Plan ☐ Specialized Class ☐ Specialized Designation **Details:**	
	Kindergarten to Grade 8	**High School**
Report card grades		
Report card comments		
Behaviour problems		
Peer relations		
Teacher-child relationships		
Teacher-parent relationships		
Homework attitudes		
Organizational skills		
Achieving potential/difficulties		
Written output		
Accommodations		
Tutoring and/or Learning assistance		
Assistive Technology		
College/University		
Accommodations		
Achieving potential/ difficulties		

Functioning at Work (depending on the subject's age, some may not apply) **Frequency and/or details:**	
Current employment status:	☐ FT ☐ PT ☐ Unemployed ☐ Self-employed ☐ Contract ☐ Disability
Vocational Assessment:	☐ No ☐ Yes If yes, suitable jobs:
# of past jobs:	**Length of longest employment:**
Work strengths:	
Work weaknesses:	
Complaints:	
Workplace accommodations:	
Other information about work:	

RATING SCALES: *Administer one or more of the relevant rating scales to the parent, teacher or patient*

STEP ONE: Check the ADHD scale(s) used

ADHD symptoms in childhood:	☐ ADHD Checklist	☐ SNAP-IV	☐ Other
Current ADHD symptoms:	☐ ADHD Checklist ☐ SNAP- IV (for children)	☐ Weiss Symptom Record (WSR) ☐ ASRS (for adults)	☐ Other

The ADHD Checklist can retrospectively be used to assess childhood ADHD symptoms (in adults), for current symptoms and for follow-up (all ages)

STEP TWO: Fill in the result of the scale

SYMPTOM SCREENER (enter the number of positive items for each category, circle the box if the threshold was met or if ODD or CD is a concern)								
Retrospective Childhood symptom screen	IA	/9	HI	/9	ODD	/8	CD*	/15
Current								
Parent	IA	/9	HI	/9	ODD	/8	CD*	/15
Self	IA	/9	HI	/9	ODD	/8	CD*	/15
Teacher	IA	/9	HI	/9	ODD	/8	CD*	/15
Collateral	IA	/9	HI	/9	ODD	/8	CD*	/15
Other comorbid dx*								

* Conduct disorder and other comorbid disorder only applies to the WSR

FOR ADULTS: The Adult ADHD Self Report Rating Scale (ASRS) can be used for current ADHD symptoms, part A being the screener section

ADULT ADHD SELF REPORT RATING SCALE (ASRS) (record the number of positive items for Part A and Part B, circle the box where threshold is made)			
Part A (Threshold > 4)	/6	Part B	/12

STEP THREE: Administer the Weiss Functional Inventory Rating Scale (WFIRS)

WEISS FUNCTIONAL INVENTORY RATING SCALE (WFIRS)
(record the number of items rated 2 or 3, circle the boxes where you perceive a problem)

Parent	Family	/10	School (learning)	/4	(behaviour)	/6	Life Skills	/10	Self	/3	Social	/7	Risk	/10
Self	Family	/8	Work	/11	School	/10	Life Skills	/12	Self	/5	Social	/9	Risk	/14

OTHER SCALES

Psychometric Evaluation – Done? ☐ No ☐ Yes ☐ Requested **Date(s) of Testing:**					
Intelligence Tests Score: ☐ marked below ☐ borderline ☐ low average ☐ average ☐ above average ☐ marked above ☐ superior					
WISC or WAIS (%ile or scaled score)	**Verbal Comprehension**	**Perceptual Reasoning**	**Working Memory**	**Processing Speed**	**Older IQ tests used %ile/IQ** Full Scale IQ Verbal IQ Performance IQ
Achievement tests Score: -2 (>2 yrs below) -1 (1-2 yrs below) 0 (grade level) +1 (1-2 yrs above) +2 (>2 yrs above)					
Grade level:	Reading	Spelling	Math	Writing	

MENTAL STATUS EXAMINATION (clinical observations of the interview)

SUMMARY OF FINDINGS

(This allows a clinician reflect on the global collection of information in readiness for the diagnosis, feedback and treatment)

Item of Relevance	N/A	Does not indicate ADHD	Marginally indicates ADHD	Strongly indicates ADHD	Comments
Symptoms of ADHD in childhood	☐	☐	☐	☐	
Current ADHD symptoms	☐	☐	☐	☐	
Collateral information	☐	☐	☐	☐	
Clinical observation	☐	☐	☐	☐	
Family history of diagnosed first degree relatives	☐	☐	☐	☐	
Review of school report cards	☐	☐	☐	☐	
Previous psychiatric assessments	☐	☐	☐	☐	
Psychometric/psychological assessments	☐	☐	☐	☐	
	N/A	**Suggesting an alternative explanation is better**	**ADHD is possible but other factors relevant**	**ADHD is still the best explanation of findings**	**Comments**
In utero exposure to substances	☐	☐	☐	☐	
Neonatal insult	☐	☐	☐	☐	
Infant temperament	☐	☐	☐	☐	
Developmental milestones	☐	☐	☐	☐	
Psychosocial stressors before 12					
Accidents and injuries (particularly head injury)	☐	☐	☐	☐	
Major trauma before age 12 (e.g. abuse-physical, sexual, neglect)	☐	☐	☐	☐	
Substance use history	☐	☐	☐	☐	
Other psychiatric problems	☐	☐	☐	☐	
Other medical problems	☐	☐	☐	☐	

Important Lifestyle Issues:

Treatment Plan

Patient Name: _____ **MRN/File No.:** _____

	N/A	To Do	Done	Referred to and comments/Details
Psychoeducation				
Patient Education	☐	☐	☐	
Parent Education	☐	☐	☐	
Info to School	☐	☐	☐	
Handouts	☐	☐	☐	
Medical				
Physical Exam	☐	☐	☐	
CV Exam	☐	☐	☐	
Baseline Ratings	☐	☐	☐	
Lab Investigation	☐	☐	☐	
Other	☐	☐	☐	
Pharmacological Interventions				
Review Medication Options	☐	☐	☐	
Medication Treatment	☐	☐	☐	
Non Pharmacological Interventions				
Psychological Testing	☐	☐	☐	
Social Skills Management	☐	☐	☐	
Anger Management	☐	☐	☐	
Addiction Management	☐	☐	☐	
Therapy	☐	☐	☐	
Cognitive Behaviour Therapy	☐	☐	☐	
Parent Training	☐	☐	☐	
OT Referral	☐	☐	☐	
Speech Therapy	☐	☐	☐	
Educational & Vocational				
Psychoeducational Assessment	☐	☐	☐	
Special Education/Accommodations	☐	☐	☐	
Vocational Assessments	☐	☐	☐	
Workplace Accomodations	☐	☐	☐	
Completion of Special Forms				
CRA Tax Credits	☐	☐	☐	
Insurance	☐	☐	☐	
Other	☐	☐	☐	

Physician Signature: _____ **Date:** _____

Copy sent to: _____ **Fax No:** _____

_____

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Weiss Symptom Record (WSR) Instructions

Purpose

- To collect systematic information from the patient and other informants about various disorders, including learning, developmental and personality difficulties
- To serve as a cross check to assist clinicians in focusing their mental status, assuring that they do not miss relevant but unusual comorbidities, and in differentiating disorders which have significant symptom overlap
- This screener is not 'diagnostic'.

Unique Characteristics

- Since this symptom record can be completed by any informant, it enables a rapid comparison of symptom profiles across settings
- Items scored as 'pretty much' or 'very much' are in shaded columns so that quick scanning of the screener enables rapid identification of problematic symptom groupings
- Items are translated into simple language for ease of use
- Item selection attempted to assure not only sensitivity to identification of comorbid disorders, but also selection of items that would assist in differentiating those symptoms that are specific to one disorder and assist in differentiating it from another overlapping problem
- The formulation of items on the Weiss Symptom Record was based on DSM-IV criteria.[1]

Scoring

This is not a psychometrically validated instrument but a clinical record of the DSM-IV criteria for various disorders. The DSM-IV criteria for diagnosis for each disorder are listed in the column labelled 'Diagnosis'. Answers should be scored as follows: Not at all = 0, Somewhat = 1, Pretty Much = 2, Very Much = 3.

Copyright Information

[1] In the development of this screener DSM-IV diagnostic criteria were used with permission of the American Psychiatric Press.

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:
Date of Birth: MRN/File No:
Physician Name: Date:

Weiss Symptom Record (WSR)

Instructions to Informant: *Check the box that best describes typical behavior* ***Instructions to Physician:*** *Symptoms rated 2 or 3 are positive and total count completed below*	Not at all (0)	Somewhat (1)	Pretty much (2)	Very much (3)	N/A	# items scored 2 or 3 (DSM Criteria)
ADHD COMBINED TYPE 314.01						**≥6/9 IA & HI**
ATTENTION 314.00						
Fails to give close attention to details, careless mistakes						
Difficulty sustaining attention in tasks or fun activities						
Does not seem to listen when spoken to directly						
Does not follow through on instructions and fails to finish work						
Difficulty organizing tasks and activities						
Avoids tasks that require sustained mental effort (boring)						
Losing things						
Easily distracted						
Forgetful in daily activities						/9 (≥6/9)
HYPERACTIVE/IMPULSIVE 314.01						
Fidgety or squirms in seat						
Leaves seat when sitting is expected						
Feels restless						
Difficulty in doing fun things quietly						
Always on the go or acts as if "driven by a motor"						
Talks excessively						
Blurts answers before questions have been completed						
Difficulty awaiting turn						
Interrupting or intruding on others						/9 (≥6/9)
OPPOSITIONAL DEFIANT DISORDER 313.81						
Loses temper						
Argues with adults						
Actively defies or refuses to comply with requests or rules						
Deliberately annoys people						
Blames others for his or her mistakes or misbehaviour						
Touchy or easily annoyed by others						
Angry or resentful						
Spiteful or vindictive						/8 (≥4/8)

	Not at all (0)	Somewhat (1)	Pretty much (2)	Very much (3)	N/A	Diagnoses
TIC DISORDERS 307.2						**SEVERITY**
Repetitive involuntary movements (blinking, twitching)						
Repetitive involuntary noises (throat clearing, sniffing)						
CONDUCT DISORDER 312.8						
Bullies, threatens, or intimidates others						
Initiates physical fights						
Has used a weapon (bat, brick, bottle, knife, gun)						
Physically cruel to people						
Physically cruel to animals						
Stolen while confronting a victim						
Forced someone into sexual activity						
Fire setting with the intent of damage						
Deliberately destroyed others' property						
Broken into a house, building, or car						
Often lies to obtain goods or benefits or avoid obligations						
Stealing items of nontrivial value without confronting victim						
Stays out at night despite prohibitions						
Run away from home overnight at least twice						
Truant from school						/15(≥3/15)
ANXIETY						
Worries about health, loved ones, catastrophe						300.02
Unable to relax; nervous						300.81
Chronic unexplained aches and pains						300.30
Repetitive thoughts that make no sense						
Repetitive rituals						300.01
Sudden panic attacks with intense anxiety						300.23
Excessively shy						
Refusal to do things in front of others						309.21
Refusal to go to school, work or separate from others						300.29
Unreasonable fears that interfere with activities						312.39
Pulls out hair, eyebrows						
Nail biting, picking						
Refusal to talk in public, but talks at home						mutism
DEPRESSION 296.2 (single) .3 (recurrent)						
Has been feeling sad, unhappy or depressed	Yes		No	Must be present		
No interest or pleasure in life	Yes		No	Must be present		
Feels worthless						
Has decreased energy and less productive						
Hopeless and pessimistic about the future						
Excessive feelings of guilt or self blame						
Self-injurious or suicidal thoughts						

	Not at all (0)	Somewhat (1)	Pretty much (2)	Very much (3)	N/A	Diagnoses
DEPRESSION (CONT'D)						**SEVERITY**
Social withdrawal						
Weight loss or weight gain						
Change in sleep patterns						≥5/9>2wks
Agitated or sluggish, slowed down						
Decreased concentration or indecisiveness						
Past suicide attempts	#		Serious			
MANIA 296.0(manic) .6(mixes) .5(depressed)						
Distinct period of consistent elevated or irritable mood	Yes		No	Must be present		
Grandiose, sudden increase in self esteem						
Decreased need for sleep						
Racing thoughts						
Too talkative and speech seems pressured						
Sudden increase in goal directed activity, agitated						≥3 >1wk
High risk activities (spending money, promiscuity)						/3 (≥3)
SOCIAL SKILLS 299						
Makes poor eye contact or unusual body language						
Failure to make peer relationships						
Lack of spontaneous sharing of enjoyment						
Lacks reciprocity or sensitivity to emotional needs of others						
Language delay or lack of language communication						
Difficulty communicating, conversing with others						
Speaks in an odd, idiosyncratic or monotonous speech						
Lack of creative, imaginative play or social imitation						
Intensely fixated on one particular interest						
Rigid sticking to nonfunctional routines or rituals						
Preoccupied with objects and parts of objects						
Repetitive motor mannerisms (hand flapping, spinning)						
PSYCHOSIS 295						
Has disorganized, illogical thoughts						
Hears voices or sees things						
Conviction that others are against or will hurt them						
People can read their thoughts, or vice versa						
Belief that the television is talking specifically to them						
A fixed belief that is out of touch with reality						
Thought sequence does not make sense						

	Not at all (0)	Somewhat (1)	Pretty much (2)	Very much (3)	N/A	Diagnoses
SUBSTANCE ABUSE						**SEVERITY**
Excessive alcohol (> 2 drinks/day, > 4 drinks at once)						305
Smokes cigarettes						
Daily marijuana use						
Use of any other street drugs						
Abuse of prescription drugs						
SLEEP DISORDERS 307.4						
Agitated or sluggish, slowed down						
Has difficulty falling asleep						
Has difficulty staying asleep						
Has abnormal sleep patterns during the day						347
Unanticipated falling asleep during the day						307.4
Sleep walking						307.4
Has nightmares						307.45
Falls asleep late and sleeps in late						3.27
Sleep schedule changes from day to day						
Excessive snoring						
A feeling of restless legs while trying to sleep						
Observed to have sudden kicking while asleep						780.57
Observed to have difficulty breathing at night						
ELIMINATION DISORDERS 307						
Wets the bed at night						
Wets during the day						
Soils self						
EATING DISORDERS 307						
Vomits after meals or binging						
Underweight and refuses to eat						307.1
Distorted body image						
Picky eater						
High junk food diet						
LEARNING DISABILITIES 315						
Delayed expressive language						
Stuttering						
Problems articulating words						315
Below grade level in reading						315.1
Below grade level in math						315.2
Trouble with writing (messy, tiring, avoids writing)						
Variable performance in school						
Underachieves at school relative to potential						315.4

	Not at all (0)	Somewhat (1)	Pretty much (2)	Very much (3)	N/A	Diagnoses
DEVELOPMENTAL COORDINATION DISORDER						
Difficulty with gross motor skills (i.e. gym, sports, biking)						
Clumsy						
Difficulty with fine motor (buttons, shoe laces, cutting)						
PERSONALITY 301						**SEVERITY**
Unstable interpersonal relationships						
Frantic efforts to avoid abandonment						
Recurrent suicidal ideation or attempts						
Intense anger						
Major mood swings						BPD 301.83
Impulsive self destructive or self injurious behavior						
Fragile identity or self image						
Chronic feelings of emptiness						
Transient stress related dissociation or paranoia						/9 (≥5/9)
Self centred or entitled						NPD 301.81
Deceitful, aggressive, or lack of remorse						ASP 301.7
COMMENTS:						

ADHD=attention deficit hyperactivity disorder; IA=inattentive subtype; HI=hyperactive impulsive subtype; BPD=borderline personality disorder; NPD=narcissistic personality disorder; ASP=antisocial personality disorder.

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ADHD Checklist Instructions

Scoring Instructions

The ADHD Checklist is a list of the nine DSM items of attention and the nine DSM items of hyperactivity/impulsivity. Attention and impulsive-hyperactive items are grouped together so that the clinician can easily differentiate with a glance which area is primarily impaired. The number of items rated pretty much (2) or very much (3) are an indicatation that these areas are clinically problematic. Add up the numbers of clinically significant items and determine whether the client has met the threshold which is stated in next to the section heading (e.g. Attention > 6/9). If physicians are suspect but are unsure of whether ADHD is a possibility, the Checklist can be completed in the waiting room prior to assessment.

Comparison to Other Scales

The items are also almost identical to those of the SNAP-IV scale, with the exception that the statement "Often ..." and then rating frequency as sometimes, often or very often has been deleted. Items have also been made generic enough to be appropriate to all age groups and so that they can be completed by any informant and for the past or present. The correlation between the DSM-IV checklists is very high (>.8). Therefore, if a clinician wishes to use an alternative checklist, the rating of number of positive items can be entered into the assessment form in the same way, noting the checklist used.

If Only ADHD

The items on the ADHD Checklist are identical with the attention, hyperactive, and oppositional items at the beginning of the Weiss Symptom Record. This is so that the WSR can be given at baseline, but if the primary disorder is ADHD, follow-up assessments can be done by just using the Checklist and allowing for comparison.

The Checklist Used by Other Informants

The Checklist can also be completed to identify ADHD in adults in childhood, or completed by a collateral informant as well as the patient.

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Patient Name:
Date of Birth: MRN/File No:
Physician Name: Date:

ADHD CHECKLIST

Retrospective assessment of childhood symptoms ☐ Current symptoms ☐
Current medication: _____

SYMPTOMS: Check the appropriate box	Not at all (0)	Somewhat (1)	Pretty much (2)	Very much (3)	Diagnoses
ATTENTION 314.00 (≥6/9)	**SEVERITY**				**TOTAL**
Fails to give close attention to details, careless mistakes					
Difficulty sustaining attention in tasks or fun activities					
Does not seem to listen when spoken to directly					
Does not follow through on instructions and fails to finish work					
Difficulty organizing tasks and activities					
Avoids tasks that require sustained mental effort (boring)					
Losing things					
Easily distracted					**_/9**
Forgetful in daily activities					**≥6/9**
HYPERACTIVE/IMPULSIVE 314.01 (≥6/9)					
Fidgety or squirms in seat					
Leaves seat when sitting is expected					
Feels restless					
Difficulty in doing fun things quietly					
Always on the go or acts as if "driven by a motor"					
Talks excessively					
Blurts answers before questions have been completed					
Difficulty awaiting turn					**≥6/9**
Interrupting or intruding on others					**_/9**
OPPOSITIONAL DEFIANT DISORDER 313.81 (>4/8)					
Loses temper					
Argues with adults					
Actively defies or refuses to comply with requests or rules					
Deliberately annoys people					
Blames others for his or her mistakes or misbehavior					
Touchy or easily annoyed by others					
Angry or resentful					**≥4/8**
Spiteful or vindictive					**_/8**
COMMENTS					

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SNAP-IV 26 RATING SCALE: SCORING INSTRUCTIONS

The SNAP-IV is a revision of the Swanson, Nolan and Pelham (SNAP) questionnaire (Swanson et al. 1983). The items from the DSM-IV criteria for Attention Deficit Hyperactivity Disorder (ADHD) are included for the two following subsets of symptoms: inattention (items 1 to 0) and hyperactivity/impulsivity (items 10 to 18). The scale also includes the DMS-IV criteria for Oppositional Defiant Disorder (items 19 to 26) since this is often present in children with ADHD.

The SNAP-IV is based on a 0 to 3 rating scale: Not at all = 0, Just a little = 1, Often = 2, and Very often = 3. Sub scale scores on the SNAP-IV are calculated by summing the scores on the subset and dividing by the number of items in the subset. The score for any subset is expressed as the Average Rating-Per-Item, as shown for ratings on the ADHD-Inattentive (ADHD-I) subset:

	Not at all (0)	Just a little (1)	Often (2)	Very often (3)	Score
1. Makes careless mistakes			*		2
2. Difficulty sustaining attention				*	3
3. Does not listen				*	3
4. Fails to finish work			*		2
5. Disorganized		*			1
6. Can't concentrate				*	3
7. Loses things		*			1
8. Easily distracted				*	3
9. Forgetful	*				0

Total ADHD-Inattention = 18 Average = 18/9 = 2.0

ADHD-Inattention	**ADHD-Hyperactivty/Impusivity**	**Oppositional Defiant Disorder**
#1	#10	#19
#2	#11	#20
#3	#12	#21
#4	#13	#22
#5	#14	#23
#6	#15	#24
#7	#16	#25
#8	#17	#26
#9	#18	
Total	**Total**	**Total**
Average	**Average**	**Average**

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Patient Name:
Date of Birth: MRN/File No:
Physician Name: Date:

SNAP-IV 26 – Teacher and Parent Rating Scale

Name: _____ Gender: _____ Age: _____

Grade: _____ Ethnicity: ☐ African-American ☐ Asian ☐ Caucasian ☐ Hispanic Other: _____

Completed by: _____ Type of Class: _____ Class size: _____

For each item, check the column which best describes this child:	Not At All	Just A Little	Quite A Bit	Very Much
1. Often fails to give close attention to details or makes careless mistakes in schoolwork or tasks				
2. Often has difficulty sustaining attention in tasks or play activities				
3. Often does not seem to listen when spoken to directly				
4. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties				
5. Often has difficulty organizing tasks and activities				
6. Often avoids, dislikes, or reluctantly engages in tasks requiring sustained mental effort				
7. Often loses things necessary for activities (e.g., toys, school assignments, pencils, or books)				
8. Often is distracted by extraneous stimuli				
9. Often is forgetful in daily activities				
10. Often fidgets with hands or feet or squirms in seat				
11. Often leaves seat in classroom or in other situations in which remaining seated is expected				
12. Often runs about or climbs excessively in situations in which it is inappropriate				
13. Often has difficulty playing or engaging in leisure activities quietly				
14. Often is "on the go" or often acts as if "driven by a motor"				
15. Often talks excessively				
16. Often blurts out answers before questions have been completed				
17. Often has difficulty awaiting turn				
18. Often interrupts or intrudes on others (e.g. butts into conversations/ games)				
19. Often loses temper				
20. Often argues with adults				
21. Often actively defies or refuses adult requests or rules				
22. Often deliberately does things that annoy other people				
23. Often blames others for his or her mistakes or misbehavior				
24. Often touchy or easily annoyed by others				
25. Often is angry and resentful				
26. Often is spiteful or vindictive				

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ADULT ADHD SELF-REPORT SCALE (ASRS-V1.1) SYMPTOM CHECKLIST INSTRUCTIONS

Description:

The Symptom Checklist is an instrument consisting of the 18 DSM-IV-TR criteria. Six of the 18 questions were found to be the most predictive of symptoms consistent with ADHD. These six questions are the basis for the ASRS-V1.1 screener and are also Part A of the Symptom Checklist. Part B of the Symptom Checklist contains the remaining 12 questions.

Instructions:

Symptoms

1. Ask the patient to complete both Part A and Part B of the Symptom Checklist by marking an X in the box that most closely represents the frequency of occurrence of each of the symptoms.
2. Score Part A. If four or more marks appear under Often/Very Often then the patient has symptoms highly consistent with ADHD in adults and further investigation is warranted.
3. The frequency scores on Part B provide additional cues and can serve as further probes into the patient's symptoms. Pay particular attention to marks appearing under Often/Very Often. The frequency-based response is more sensitive with certain questions. No total score or diagnostic likelihood is utilized for the 12 questions. It has been found that the six questions in Part A are the most predictive of the disorder and are best for use as a screening instrument.

Impairments

1. Review the entire Symptom Checklist with your patients and evaluate the level of impairment associated with the symptom.
2. Consider work/school, social and family settings.
3. Symptom frequency is often associated with symptom severity, therefore the Symptom Checklist may also aid in the assessment of impairments. If your patients have frequent symptoms, you may want to ask them to describe how these problems have affected the ability to work, take care of things at home, or get along with other people such as their spouse/significant other.

History

1. Assess the presence of these symptoms or similar symptoms in childhood. Adults who have ADHD need not have been formally diagnosed in childhood. In evaluating a patient's history, look for evidence of early-appearing and long-standing problems with attention or self-control. Some significant symptoms should have been present in childhood, but full symptomology is not necessary.

References:
1. Schweitzer JB et al. Med Clin North Am. 2001;85(3),10-11:757-777.
2. Barkley RA. Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment. 2nd ed. 1998.
3. Biederman J, et al. Am J Psychiatry. 1993;150:1792-1798.
4. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders.Fourth Edition, Text Revision. Washington, DC, American Psychiatric Association. 2000:85-93.

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CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:
Date of Birth: MRN/File No:
Physician Name: Date:

ADULT ADHD SELF-REPORT SCALE (ASRS-V1.1) SYMPTOM CHECKLIST

Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page. As you answer each question, place an X in the box that best describes how you have felt and conducted yourself over the past 6 months. Please give this completed checklist to your healthcare professional to discuss during your appointment	Never	Rarely	Sometimes	Often	Very often
PART A					
1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?					
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?					
3. How often do you have problems remembering appointments or obligations?					
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?					
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?					
6. How often do you feel overly active and compelled to do things, like you were driven by a motor?					
PART B					
7. How often do you make careless mistakes when you have to work on a boring or difficult project?					
8. How often do you have difficulty keeping your attention when you are doing boring or repetitive work?					
9. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?					
10. How often do you misplace or have difficulty finding things at home or at work?					
11. How often are you distracted by activity or noise around you?					
12. How often do you leave your seat in meetings or in other situations in which you are expected to stay seated?					
13. How often do you feel restless or fidgety?					
14. How often do you have difficulty unwinding and relaxing when you have time to yourself?					
15. How often do you find yourself talking too much when you are in social situations?					
16. When you're in a conversation, how often do you find yourself finishing the sentences of the people you are talking to, before they can finish it themselves?					
17. How often do you have difficulty waiting your turn in situations when turn taking is required?					
18. How often do you interrupt others when they are busy?					

WEISS FUNCTIONAL IMPAIRMENT RATING SCALE (WFIRS) INSTRUCTIONS

Purpose

- ADHD symptoms and actual impairment overlap but are distinct concepts. It is important to measure both since some patients are highly symptomatic but not impaired or vice versa
- This scale contains those items that are most likely to represent the patient's target of treatment. Therefore, the use of the scale before and after treatment can allow the clinician to determine not only if the ADHD has improved, but if the patient's functional difficulties are also better.
- This instrument has been translated into 18 languages. It has been used in many studies and is psychometrically validated. This is the only measure of functional impairment that looks at specific domains and has been validated in the ADHD population.

Design and Validation Information

Scoring The instrument uses a Likert scale such that any item rating 2 or 3 is clinically impaired. The scale can be scored by looking at the total score or by creating a mean score for the total score/number items for each domain, omitting those rated not applicable. For clinical purposes, when defining impairment for DSM-IV, clinicians can consider that any domain with at least two items scored 2, one item scored 3 or a mean score >1.5 is impaired.

Validation The scale has been psychometrically validated with an internal consistency >.8 for each domain and for the scale as a whole. It has moderate convergent validity (0.6) with other measures of functioning (i.e. Columbia Impairment Scale and the Global Assessment of Functioning (GAF). It has moderate discriminating validity (0.4) from symptoms pre-treatment (i.e. ADHD-Rating Scale) and quality of life (CHIP). The domains have been confirmed by factor analysis, although the domain of school functioning separates into learning and behaviour. The scale is highly sensitive to change with treatment and, in particular, significantly correlated to change in ADHD symptoms (40% change) and overall psychopathology. Each anchor point on the Likert scale represents approximately one standard deviation(SD). A total score change of 13 would be considered a significant improvement or about half a SD. The change obtained in treatment is typically one full SD. The mean score for risky behaviour in children is 0.5 but increases with age. For adolescents the mean score is 1.

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CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:
Date of Birth: MRN/File No:
Physician Name: Date:

WEISS FUNCTIONAL IMPAIRMENT RATING SCALE – SELF REPORT (WFIRS-S)

Work: ☐ Full time ☐ Part time ☐ Other _____ School: ☐ Full time ☐ Part time

Circle the number for the rating that best describes how your emotional or behavioural problems have affected each item in the last month.

		Never or not at all	Sometimes or somewhat	Often or much	Very often or very much	n/a
A	**FAMILY**					
1	Having problems with family	0	1	2	3	n/a
2	Having problems with spouse/partner	0	1	2	3	n/a
3	Relying on others to do things for you	0	1	2	3	n/a
4	Causing fighting in the family	0	1	2	3	n/a
5	Makes it hard for the family to have fun together	0	1	2	3	n/a
6	Problems taking care of your family	0	1	2	3	n/a
7	Problems balancing your needs against those of your family	0	1	2	3	n/
8	Problems losing control with family	0	1	2	3	n/a
B	**WORK**					
1	Problems performing required duties	0	1	2	3	n/a
2	Problems with getting your work done efficiently	0	1	2	3	n/a
3	Problems with your supervisor	0	1	2	3	n/a
4	Problems keeping a job	0	1	2	3	n/a
5	Getting fired from work	0	1	2	3	n/a
6	Problems working in a team	0	1	2	3	n/a
7	Problems with your attendance	0	1	2	3	n/a
8	Problems with being late	0	1	2	3	n/a
9	Problems taking on new tasks	0	1	2	3	n/a
10	Problems working to your potential	0	1	2	3	n/a
11	Poor performance evaluations	0	1	2	3	n/a
C	**SCHOOL**					
1	Problems taking notes	0	1	2	3	n/a
2	Problems completing assignments	0	1	2	3	n/a
3	Problems getting your work done efficiently	0	1	2	3	n/a
4	Problems with teachers	0	1	2	3	n/a
5	Problems with school administrators	0	1	2	3	n/a
6	Problems meeting minimum requirements to stay in school	0	1	2	3	n/a
7	Problems with attendance	0	1	2	3	n/a
8	Problems with being late	0	1	2	3	n/a
9	Problems with working to your potential	0	1	2	3	n/a
10	Problems with inconsistent grades	0	1	2	3	n/a
D	**LIFE SKILLS**					
1	Excessive or inappropriate use of internet, video games or TV	0	1	2	3	n/a
2	Problems keeping an acceptable appearance	0	1	2	3	n/a
3	Problems getting ready to leave the house	0	1	2	3	n/a
4	Problems getting to bed	0	1	2	3	n/a
5	Problems with nutrition	0	1	2	3	n/a

		Never or not at all	Sometimes or somewhat	Often or much	Very often or very much	n/a
6	Problems with sex	0	1	2	3	n/a
7	Problems with sleeping	0	1	2	3	n/a
8	Getting hurt or injured	0	1	2	3	n/a
9	Avoiding exercise	0	1	2	3	n/a
10	Problems keeping regular appointments with doctor/dentist	0	1	2	3	n/a
11	Problems keeping up with household chores	0	1	2	3	n/a
12	Problems managing money	0	1	2	3	n/a
E	**SELF-CONCEPT**					
1	Feeling bad about yourself	0	1	2	3	n/a
2	Feeling frustrated with yourself	0	1	2	3	n/a
3	Feeling discouraged	0	1	2	3	n/a
4	Not feeling happy with your life	0	1	2	3	n/a
5	Feeling incompetent	0	1	2	3	n/a
F	**SOCIAL**					
1	Getting into arguments	0	1	2	3	n/a
2	Trouble cooperating	0	1	2	3	n/a
3	Trouble getting along with people	0	1	2	3	n/a
4	Problems having fun with other people	0	1	2	3	n/a
5	Problems participating in hobbies	0	1	2	3	n/a
6	Problems making friends	0	1	2	3	n/a
7	Problems keeping friends	0	1	2	3	n/a
8	Saying inappropriate things	0	1	2	3	n/a
9	Complaints from neighbours	0	1	2	3	n/a
G	**RISK**					
1	Aggressive driving	0	1	2	3	n/a
2	Doing other things while driving	0	1	2	3	n/a
3	Road rage	0	1	2	3	n/a
4	Breaking or damaging things	0	1	2	3	n/a
5	Doing things that are illegal	0	1	2	3	n/a
6	Being involved with the police	0	1	2	3	n/a
7	Smoking cigarettes	0	1	2	3	n/a
8	Smoking marijuana	0	1	2	3	n/a
9	Drinking alcohol	0	1	2	3	n/a
10	Taking "street" drugs	0	1	2	3	n/a
11	Sex without protection (birth control, condom)	0	1	2	3	n/a
12	Sexually inappropriate behaviour	0	1	2	3	n/a
13	Being physically aggressive	0	1	2	3	n/a
14	Being verbally aggressive	0	1	2	3	n/a

SCORING:

1. Number of items scored 2 or 3
   or
2. Total score
   or
3. Mean score

DO NOT WRITE IN THIS AREA

A. Family _____
B. Work _____
C. School _____
D. Life skills _____
E. Self-concept _____
F. Social _____
G. Risk _____
Total _____

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Patient Name:
Date of Birth: MRN/File No:
Physician Name: Date:

WEISS FUNCTIONAL IMPAIRMENT RATING SCALE – PARENT REPORT (WFIRS-P)

Your name: _____ Relationship to child: _____

Circle the number for the rating that best describes how your child's emotional or behavioural problems have affected each item in the last month.

		Never or not at all	Sometimes or somewhat	Often or much	Very often or very much	n/a
A	**FAMILY**					
1	Having problems with brothers & sisters	0	1	2	3	n/a
2	Causing problems between parents	0	1	2	3	n/a
3	Takes time away from family members' work or activities	0	1	2	3	n/a
4	Causing fighting in the family	0	1	2	3	n/a
5	Isolating the family from friends and social activities	0	1	2	3	n/a
6	Makes it hard for the family to have fun together	0	1	2	3	n/a
7	Makes parenting difficult	0	1	2	3	n/a
8	Makes it hard to give fair attention to all family members	0	1	2	3	n/a
9	Provokes others to hit or scream at him/her	0	1	2	3	n/a
10	Costs the family more money	0	1	2	3	n/a
B	**SCHOOL**					
	Learning					
1	Makes it difficult to keep up with schoolwork	0	1	2	3	n/a
2	Needs extra help at school	0	1	2	3	n/a
3	Needs tutoring	0	1	2	3	n/a
4	Receives grades that are not as good as his/her ability	0	1	2	3	n/a
	Behaviour					
1	Causes problems for the teacher in the classroom	0	1	2	3	n/a
2	Receives "time-out" or removal from the classroom	0	1	2	3	n/a
3	Having problems in the school yard	0	1	2	3	n/a
4	Receives detentions (during or after school)	0	1	2	3	n/a
5	Suspended or expelled from school	0	1	2	3	n/a
6	Misses classes or is late for school	0	1	2	3	n/a
C	**LIFE SKILLS**					
1	Excessive use of TV, computer, or video games	0	1	2	3	n/a
2	Keeping clean, brushing teeth, brushing hair, bathing, etc.	0	1	2	3	n/a
3	Problems getting ready for school	0	1	2	3	n/a

		Never or not at all	Sometimes or somewhat	Often or much	Very often or very much	n/a
4	Problems getting ready for bed	0	1	2	3	n/a
5	Problems with eating (picky eater, junk food)	0	1	2	3	n/a
6	Problems with sleeping	0	1	2	3	n/a
7	Gets hurt or injured	0	1	2	3	n/a
8	Avoids exercise	0	1	2	3	n/a
9	Needs more medical care	0	1	2	3	n/a
10	Has trouble taking medication, getting needles or visiting the doctor/dentist	0	1	2	3	n/a
D	**CHILD'S SELF-CONCEPT**					
1	My child feels bad about himself/herself	0	1	2	3	n/a
2	My child does not have enough fun	0	1	2	3	n/a
3	My child is not happy with his/her life	0	1	2	3	n/a
E	**SOCIAL ACTIVITIES**					
1	Being teased or bullied by other children	0	1	2	3	n/a
2	Teases or bullies other children	0	1	2	3	n/a
3	Problems getting along with other children	0	1	2	3	n/a
4	Problems participating in after-school activities (sports, music, clubs)	0	1	2	3	n/a
5	Problems making new friends	0	1	2	3	n/a
6	Problems keeping friends	0	1	2	3	n/a
7	Difficulty with parties (not invited, avoids them, misbehaves)	0	1	2	3	n/a
F	**RISKY ACTIVITIES**					
1	Easily led by other children (peer pressure)	0	1	2	3	n/a
2	Breaking or damaging things	0	1	2	3	n/a
3	Doing things that are illegal	0	1	2	3	n/a
4	Being involved with the police	0	1	2	3	n/a
5	Smoking cigarettes	0	1	2	3	n/a
6	Taking illegal drugs	0	1	2	3	n/a
7	Doing dangerous things	0	1	2	3	n/a
8	Causes injury to others	0	1	2	3	n/a
9	Says mean or inappropriate things	0	1	2	3	n/a
10	Sexually inappropriate behaviour	0	1	2	3	n/a

SCORING:

1. Number of items scored 2 or 3
   or
2. Total score
   or
3. Mean score

DO NOT WRITE IN THIS AREA

A. Family	
B. School	
Learning	
Behaviour	
C. Life skills	
D. Child's self-concept	
E. Social activities	
F. Risky activities	
Total	

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CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

CADDRA Teacher Assessment Form

Adapted from Dr Rosemary Tannock's Teacher Telephone Interview.
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Student's Name:	Age:	Sex:
School:	Grade:	

Educator completing this form: _____ Date completed: _____

How long have you known the student? _____ Time spent each day with student: _____

Student's Placement: _____ Special Ed: ☐ Yes ☐ No Hrs per week: _____

Student's Educational Designation: _____ ☐ None

Does this student have an educational plan?: ☐ Yes ☐ No

ACADEMIC PERFORMANCE	Well Below Grade Level	Somewhat Below Grade Level	At Grade Level	Somewhat Above Grade Level	Well Above Grade Level	n/a
READING						
a) Decoding						
b) Comprehension						
c) Fluency						
WRITING						
d) Handwriting						
e) Spelling						
f) Written syntax (sentence level)						
g) Written composition (text level)						
MATHEMATICS						
h) Computation (accuracy)						
i) Computation (fluency)						
j) Applied mathematical reasoning						
CLASSROOM PERFORMANCE	Well Below Average	Below Average	Average	Above Average	Well Above Average	n/a
Following directions/instructions						
Organizational skills						
Assignment completion						
Peer relationships						
Classroom Behaviour						

CADDRA Teacher Assessment Form

Strengths: What are this student's strengths? _____
_____
_____
_____

Education plan: If this student has an education plan, what are the recommendations? Do they work? _____
_____
_____
_____

Accommodations: What accommodations are in place? Are they effective? _____
_____
_____
_____

Class Instructions: How well does this student handle large-group instruction? Does s/he follow instructions well? Can s/he wait for a turn to respond? Would s/he stand out from same-sex peers? In what way? _____
_____
_____
_____

Individual seat work: How well does this student self-regulate attention and behaviour during assignments to be completed as individual seat work? Is the work generally completed? Would s/he stand out from same-sex peers? In what way? _____
_____
_____
_____

Transitions: How does this student handle transitions such as going in and out for recess, changing classes or changing activities? Doe s/he follow routines well? What amount of supervision or reminders does s/he need? _____
_____
_____
_____

Impact on peer relations: How does this student get along with others? Does this student have friends that seek him/her out? Does s/he initiate play successfully? _____
_____
_____
_____

Conflict and Aggression: – Is s/he often in conflict with adults or peers? How does s/he resolve arguments? Is the student verbally or physically aggressive? Is s/he the target of verbal or physical aggression by peers? _____
_____
_____
_____

Academic Abilities: We would like to know about this student's general abilities and academic skills. Does this student appear to learn at a similar rate to others? Does this student appear to have specific weaknesses in learning?
_____
_____
_____

Self-help skills, independence, problem solving, activities of daily living: _____
_____
_____
_____

Motor Skills (gross/fine): Does this student have problems with gym, sports, writing? If so, please describe.

_____
_____
_____
_____

Written output: Does this student have problems putting ideas down in writing? If so, please describe.

_____
_____
_____
_____

Primary Areas of concern: What are your major areas of concern/worry for this student? How long has this/these been a concern for you? _____

_____
_____
_____

Impact on student: To what extent are these difficulties for the student upsetting or distressing to the student him/herself, to you and/or the other students? _____

_____
_____
_____

Impact on the class: Does this student make it difficult for you to teach the class? _____

_____
_____
_____

Medications: If this student is on medication, is there anything you would like to highlight about the differences when s/he is on medication compared to off? _____

_____
_____
_____

Parent involvement: What has been the involvement of the parent(s)? _____

_____
_____
_____

Are the problems with attention and/or hyperactivity interfering with the student's learning? Peer relationships? _____

_____
_____
_____

Has the student had any particular problems with homework or handing in assignments? _____

_____
_____
_____

Is there anything else you would like us to know? If you feel the need to contact the student's clinician during this assessment please feel free to do so. _____

_____
_____
_____
_____
_____
_____

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:
Date of Birth: MRN/File No:
Physician Name: Date:

CADDRA CLINICIAN ADHD BASELINE/FOLLOW-UP FORM

Patient Name: _____ Date of Birth: _____ Date seen: _____
Other person present during interview: _____

Clinician: Other therapist(s) involved:

Current medication(s):	Dose & schedule	Therapeutic Effects	Side Effects

Adherence to treatment (took medications as directed):
☐ FULL ☐ PARTIAL (missed doses, did not take all medication) ☐ NONE (Discontinued medication for at least a week)

Developments since last appointment:

Height: Weight: BP: Pulse: Observations:

Opinion:

Psychiatric Diagnosis:
☐ ADHD, Combined ☐ Oppositional Defiant ☐ Anxiety Disorder ☐ Depression
☐ Learning Disorder ☐ ADHD, Inattentive ☐ Conduct Disorder ☐ Tic Disorder
☐ Language Disorder ☐ Personality Disorder/Traits ☐ Intellectual Disability ☐ Other

Medical Diagnosis (physical abnormalities):

Stressors: ☐ Mild ☐ Moderate ☐ Severe ☐ Extreme

Impairment Severity:	☐ Borderline	☐ Mild	☐ Moderate	☐ Marked	☐ Severe	☐ Extreme
☐ Very much improved	☐ Much improved	☐ Minimally improved	☐ No change	☐ Minimally worse	☐ Much worse	☐ Very much worse

Treatment Plan:

Medication: ☐ No change ☐ Decrease ☐ Increase ☐ Switch

Psychological/Other:

School/Work:

Follow-up plan:

Signature: Date:

☐ Copy to be sent to:

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

CADDRA PATIENT ADHD MEDICATION FORM

Please complete and bring to your next appointment

Patient name: _____ Date form is completed: _____

Person completing this form (if not the patient): _____ ☐ Mother ☐ Father ☐ Other

Medication usage since (decided with doctor):
_____(date)

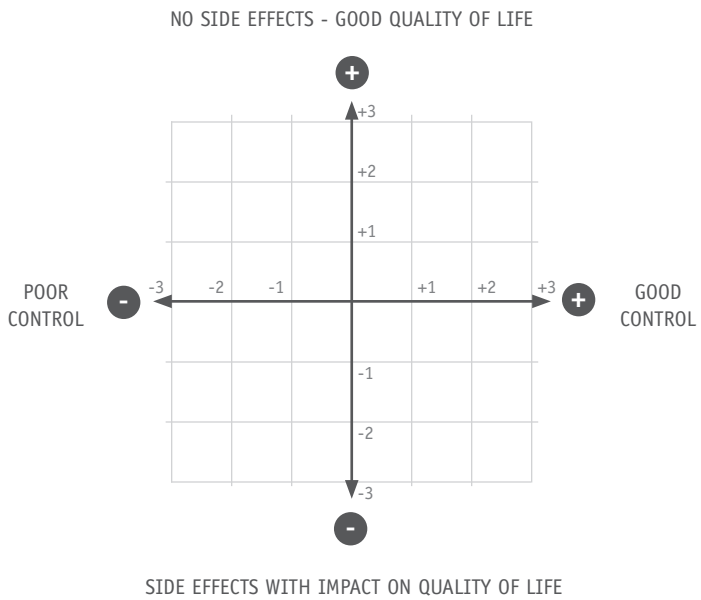
- ☐ Medication not started yet
- ☐ Takes medication regularly, as prescribed
- ☐ Forgets/skips doses occasionally
- ☐ Takes medication irregularly
- ☐ Medication stopped

Current Medication List:

_____
_____
_____
_____
_____
_____

Instructions to use the quadrant below:

1. Place a mark on the horizontal black line indicating the level of current symptom control between -3 and +3.
2. Place a mark on the vertical black line indicating current side effect levels, between -3 to +3
3. Draw an X where lines from the marks made on each line would meet to show current patient status



COMMENTS:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

What changes have occurred since medication started?

- ☐ Not applicable: no medication taken
- ☐ Small deterioration
- ☐ Small improvement
- ☐ No change
- ☐ Improvement
- ☐ Marked deterioration
- ☐ Marked Improvement
- ☐ Deterioration

Please indicate below the frequency of any side effects experienced since the last medical appointment (mark with an X). Please contact your physician if side effects are significant.

SIDE EFFECT	FREQUENCY				
	Not at all	Sometimes	Often	All the time	Comments
Headache					
Dryness of the skin					
Dryness of the eyes					
Dryness of the mouth					
Thirst					
Sore throat					
Dizziness					
Nausea					
Stomach aches					
Vomiting					
Sweating					
Appetite reduction					
Weight loss					
Weight gain					
Diarrhea					
Frequent urination					
Tics					
Sleep difficulties					
Mood instability					
Irritability					
Agitation/excitability					
Sadness					
Heart palpitations					
Increased blood pressure					
Sexual dysfunction					
Feeling worse or different when the medication wears off (rebound)					
Other:					

Things to discuss at the next medical appointment:

_____

_____

_____

_____

_____

CADDRA ADHD ASSESSMENT TOOLKIT (CAAT) HANDOUTS

Handouts

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

CADDRA ADHD INFORMATION AND RESOURCES

Adapted for CADDRA with permission, by Dr Annick Vincent, Centre médical l'Hêtrière, Clinique FOCUS, Québec.

Description

Attention Deficit Hyperactivity Disorder is a neurodevelopmental disorder that leads to difficulty regulating attention, controlling excessive physical activity, and impulsivity.

ADHD affects about one in twenty children and follow-up studies have shown that symptoms persist into adulthood for more than half of these. A recent U.S. study estimated that 4% of adults have ADHD. Adults with ADHD suffer from distractibility and mental restlessness, disorganization and procrastination, leading to difficulties beginning and completing tasks and with time management and impulsivity. These symptoms can be as impairing at work as in a person's private life. At times, people suffering from ADHD also have difficulty regulating their emotional responses. They are referred to as being "thin-skinned" or "hypersensitive" and as having a "short fuse". Often, these individuals deal with their physical restlessness by channelling it into work or sports activities. Some will "self-medicate" by taking stimulants such as caffeine or nicotine or illicit drugs such as cannabis or cocaine. Due to the impact of their symptoms, many people with ADHD also suffer from poor self esteem and a chronic sense of under-achievement.

Causes

While we do not know the exact cause of ADHD, science shows that in most cases ADHD has been inherited. Occasionally, ADHD can also be caused by a traumatic brain injury, lack of oxygen, neurological damage or infection, prematurity, or prenatal exposure to substances such as alcohol or nicotine. ADHD is a neurodevelopmental condition. It is not caused by poor parenting or by psychological stress, although raising an ADHD child can be both challenging and stressful. However, environment can impact the expression and progression of ADHD. When ADHD is treated properly, physicians are usually able to decrease the symptoms and improve functioning. Physicians can also recommend adaptations at school, college or in the workplace and empower the patient and/or parents so that they do not feel alone.

Scientific research has revealed some dysfunction in particular neurotransmitters, such as dopamine and noradrenaline. These chemicals help to carry signals across synapses in the brain. Studies of brain function in persons with ADHD have revealed an impairment of the regions responsible for controlling or inhibiting certain behaviours, such as initiating tasks, being able to stop unwanted behaviour, understanding consequences, holding information in the mind and being able to plan for the future. In ADHD, the information transmission network appears to be somewhat impaired - as if the "go" and "stop" signals are delayed.

Why consult a doctor?

Patients seek medical attention for many different reasons. If a child or adolescent is experiencing difficulties regulating his/her attention or is demonstrating hyperactivity in the classroom, educators may report to the parents on what they are seeing and recommend assessment. Increased media and online information on ADHD has resulted in a rise in self-referral among adults. Once a child is diagnosed, parents may seek out an assessment if they recognize ADHD symptoms in themselves. Whatever way a patient comes to a physician, the first task for the individual will be to explain his/her concerns and problems.

Assessment

Just because a person has difficulty concentrating, or can not sit still, this does not mean that he/she

has ADHD. The only way to establish this is through a diagnostic assessment. This takes the form of an interview with the patient or his/her parents where symptoms and impairments are discussed. Possible reasons (medical or psychiatric) for the symptoms other than ADHD are also explored and investigated. ADHD is only diagnosed if the symptoms are not caused by other conditions and are impairing. If this is the case, the doctor, patient and/or family must decide whether treatment is needed and, if so, what kind. It is essential to also look at any associated problems and conditions in order to establish an effective and personalized treatment plan.

Psychological evaluations can assist in assessing whether any learning and/or social impairments exist. This will help to exclude any other possible diagnoses. However, psychological tests and rating scales alone cannot be used to make a diagnosis without a full medical evaluation. While ADHD is a medical diagnosis, there are no laboratory tests to determine if it is present.

Diagnosis

ADHD treatment begins with the confirmation of the diagnosis. This is followed by an explanation on how the symptoms, which the child, adolescent or adult has been exhibiting, can be explained by the diagnosis. A diagnosis can be bittersweet and acceptance may take time. On one hand, a patient and/or parent is often relieved to know what the problem is and, in the case of parents, that poor parenting is not the cause. However receiving a diagnosis of a chronic condition is generally not perceived as good news.

Treatment

While medication can dramatically improve symptoms, medication alone is never enough. In the case of a child or adolescent, the parents, child and school must work together to understand that an ADHD diagnosis is not "an excuse" but will require the implementation of learning strategies and new parenting methods. Work place accommodations may be required for adults. Access to resources, such as parent training or (for adults) cognitive behavioral therapy, is slowly becoming more available through the public health care system.

When a person continues to be incapacitated by their ADHD symptoms, pharmacological treatment may be helpful and a medication trial should be initiated. A trial of more than one medication and more than one dose may be required in order to find the optimal one. Medication must be evaluated at least twice a year, so no medication decision is forever.

Medication for ADHD can work somewhat like glasses for those with vision problems. It can help improve the brain's ability to focus. It improves the flow of signals along synapses allowing better information transmission. There are many different types of medication available. The most common and most effective are stimulants of which there are two types, methylphenidate and amphetamines. Each of these medications comes in short-, intermediate- and long-acting forms. The most common side effects of stimulants are decreased appetite, trouble sleeping and becoming quiet, sad or irritable when the medication wears off.

There are a number of nonstimulant medications which can be used if the stimulants are not effective or have prohibitive side effects. In Canada, two different types of nonstimulants are indicated for ADHD treatment (atomoxetine and guanfacine XR). Whatever treatment is chosen, your doctor will start the medication at a low dose and slowly increase the dose until maximum symptom control is experienced with the minimum amount of side effects. At this time another evaluation should be carried out to decide if added interventions are required. Any co-existing mood or anxiety disorder must be taken into account in a treatment plan. Stimulant medication can sometimes aggravate certain anxiety disorders. Several antidepressants act on noradrenaline or dopamine and can also assist with ADHD symptoms but clinical studies have not yet studied the effects of these products specifically on ADHD. When ADHD and depression or anxiety disorders exist together, the doctor must decide which condition is the most disabling and treat that condition first.

ADHD medications have an effective rate of 50% to 70%. Although generally well tolerated, all drugs can produce side effects. Discuss any treatment being considered beforehand with your doctor and pharmacist. Although your doctor will provide you with research-based information on treatment options, the only way to determine the impact on your child or yourself is to go though a supervised medication trial. Additional information on ADHD medications is available on the CADDAC website (www.caddac.ca).

ADHD Resources

Websites

Canadian ADHD Resource Alliance (CADDRA) – **www.caddra.ca**
Centre for ADD/ADHD Advocacy, Canada (CADDAC) – **www.caddac.ca**
ADHD website of Dr. Annick Vincent, Quebec - **www.attentiondeficit-info.com**
Attention Deficit Disorder Association (ADDA) - **www.add.org**
Answers to your questions about ADHD (Patricia O. Quinn, MD and Kathleen Nadeau, PhD) - **www.ADDvance.com**
Online catalogue of ADHD resources – **www.addwarehouse.com**
Quebec-based Dr Annick Vincent's ADHD website - **www.attentiondeficit-info.com**
Children and Adults with Attention Deficit Hyperactivity Disorder – **www.chadd.org**
Connecting doctors, parents and teachers – **www.myadhd.com**
Online planner - **www.skoach.com**
Totally ADD – **www.totallyadd.com**

Support Groups: Look for local support groups on the CADDAC website (**www.caddac.ca**) under Resources.

Canadian DVDs on ADHD

Portrait of AttentionDeficit / Hyperactivity Disorder Dr. Annick Vincent and the educational department of ISMQ (2007); Quebec City (418-663-5146)
ADHD Across The Lifespan, Timothy S. Bilkey, Ontario; **www.bilkeyadhdclinic.com**
Various DVDs for patients, parents and educators CADDAC, Toronto: **www.caddac.ca**

Books

Children/Adolescents

- Barkley, R. A. (2000). *Taking Charge of ADHD: The Complete Authoritative Guide for Parents*, New York: Guilford Press.
- Bertin, M. (2011). *The Family ADHD Solution: A Scientific Approach to Maximizing Your Child's Attention and Minimizing Parental Stress*, New York: Palgrave Macmillan.
- Brown, T.E. (2005). *Attention Deficit Disorder: The Unfocused Mind in Children and Adults,* New Haven, CT: Yale University Press.
- Brown, T.E. (2009). *Attention Deficit Disorders and Comorbidities in Children, Adolescents and Adults*, Washington, DC: American Psychiatric Press.
- Hallowell, E.M. and Ratey, J.J. (2005). *Delivered from Distraction*. New York: Ballantine Books.
- Handelman, K. (2011). *Attention Difference Disorder: How to Turn Your Child or Teen's Difference into Strengths in 7 Simple Steps*. New York: Morgan James Publishing.
- Moghadam, H. (2006). Attention Deficit-Hyperactivity Disorder. Calgary, Alberta, Canada: Detselig Enterprises Ltd.
- Nadeau, K. G., Litman, E.B., and Quinn, P. (1999). *Understanding Girls with AD/HD*. Silver Spring: Advantage Books.
- Nadeau, K. (1998) *Help4ADD@High School*. Silver Spring: Advantage Books
- Phelan, T. W. (2003). *1-2-3 Magic*. Glen Ellyn, Illinois: Parent Magic inc.
- Phelan, T. W. (2000). *All about Attention Deficit Disorder: Symptoms, Diagnosis andTreatment: Children and Adults*. Glen Ellyn, Illinois: Parent Magic inc.
- Vincent, A. (2013). *My Brain Needs Glasses: Living with Hyperactivity*. Montréal: Québecor. French version available: *Mon cerveau a besoin de lunettes: Vivre avec l'hyperactivité*.
- Wender, P. H. (2002) *ADHD: Attention-Deficit Hyperactivity Disorder in Children and Adults*. Oxford University Press

Adults

- Adler, L. and Florence, M. (2006) *Scattered Minds: Hope and Help for Adults with ADHD*, New York: Putnam.
- Barkley, R.A. (2011). *Barkley Deficits in Executive Functioning Scale (BDEFS)*. New York: Guilford Press.
- Barkley, R.A. (2011). *Barkley Adult ADHD Rating Scale-IV (BAARS-IV)*. New York: Guilford Press.
- Barkley, R.A. (2010). *Taking Charge of Adult ADHD*. New York: Guilford Press.
- Barkley, R.A., Murphy, K.R. & Fischer, M. (2008) *ADHD in Adults: What the Science Says*, New York: Guilford Publications

- Brown, T. E. (2005) *Attention Deficit Disorder: the Unfocused Mind in Children and Adults,* New Haven, CT: Yale University Press
- Brown, T.E. (2009). *Attention Deficit Disorders and Comorbidities in Children, Adolescents and Adults*, Washington, DC: American Psychiatric Press.
- Green, R. and Jain, U. (2011). *A.D.D. Stole My Car Keys*. Mississauga, ON: Big Brain Production.
- Hallowell, E. M., and Ratey, J. J. (2005). *Delivered from Distraction*. New York: Ballantine Books.
- Kelly, K., and Ramundo, P. (1996). *You Mean I'm not Lazy, Stupid or Crazy? A Fireside Book*. New York: Simon & Schuster.
- Kolberg, J and Nadeau, K.G. (2002) *ADD-Friendly ways to Organize Your Life*. New York: Routledge.
- Kooij, J.J.S. (2013). *Adult ADHD: Diagnostic Assessment and Treatment*. London: Springer.
- Kutscher, M. L. (2003) *ADHD Book: Living Right Now!* White Plains, New York: Neurology Press
- Moulton Sarkis, S., Klein, K. (2011) *ADD and Your Money: A Guide to Personal Finance for Adults with Attention-Deficit Disorder*. Oakland: New Harbinger Publications, Inc.
- Moulton Sarkis, S. (2011) *10 Simple Solutions to Adult ADD*. Oakland: New Harbinger Publications, Inc.
- Moulton Sarkis, S. (2011) *Adult ADD: A Guide for the newly Diagnosed*. Oakland: New Harbinger Publications, Inc.
- Moulton Sarkis, S. (2008) *Making the Grades with ADD, A Student's Guide to Succeeding in College with Attention Deficit Disorder*. Oakland: New Harbinger Publications, Inc.
- Nadeau, K. G. (1996). *Adventures in Fast Forward: Life, Love and Work for the ADD Adult*. New York: Brunner/Mazel.
- Nadeau, K. G. (1997). *ADD in the Workplace: Choices, Changes and Challenges*. New York: Brunner/Mazel.
- Nadeau, K. G., Littman, E. B., and Quinn, P. (2002). *Understanding Women withAD/HD*. Silver Spring: Advantage Books.
- Pera G. (2008) *Is it You, Me, or Adult ADD? Stopping the Roller Coaster When Your Partner has -- Surprise! -- Attention Deficit Disorder*, San Francisco, 1201 Alarm Press.
- Pinsky, S. C. (2006) *Organizing Solutions for People with Attention Deficit Disorder-Tips and Tools to Help you Take Charge of Your Life and Get Organized,* Glouchester, Fair Winds Press.
- Quinn, P.O., Ratey, N.A., Maitland, T.L. (2000) *Coaching College Students with AD/HD, Issues and Answers*. Washington D.C. : Advantage Books
- Rotz R., Wright, S.D. (2005) *Fidget to Focus: Outwit Your Boredom: Sensory Strategies for Living with ADD*. Lincol: iUniverse.
- Ramsay, J. R., Rostain, A.L. (2007). *Cognitive-Behavioural Therapy for Adult ADHD. An Integrative Psychosocial and Medical Approach*. Routledge.
- Ramsay, J. R. (2009). *Nonmedication Treatments for Adult ADHD: Evaluating Impact on Daily Functioning and Well-Being*, Washington D.C.: American Psychological Association Press.
- Safren, S. A., Sprich S., Perlman C.A., Otto, M. W. (2005) *Mastering Your Adult ADHD, A Cognitive Behavioral Treatment Program, Therapist and Client Workbook,* New York: Oxford.
- Solden, S. (1995). *Women with Attention Deficit Disorder: Embracing Disorganization at Home and in the Workplace*. Grass Valley: Underwood Books.
- Solanto, M. (2011). *Cognitive-Behavioral Therapy for Adult ADHD: Targeting Executive Dysfunction*, New York, Guilford Press.
- Surman C., Bilkey T., Weintraub K. (2013). *Fast Minds: How to Thrive If You Have ADHD (Or Think You Might*). New York: Penguin Groups.
- Tuckman, A. (2009) *More Attention, Less Deficit: Success Strategies for Adults with ADHD,* Specialty Press/ A.D.D. Warehouse, U.S.
- Tuckman, A. (2008) *Integrative Treatment for Adult ADHD,* Oakland: New Harbinger Publications, Inc.
- Vincent, A. (2013). *My Brain Still Needs Glasses: AD/HD in Adults*. Montreal: Québec Livres.
- Walker, L. (2011). *With Time to Spare: The Ultimate Guide to Peak Performance for Entrepreneurs, Adults with ADHD and Other Creative Geniuses*. Montreal: Creative Genius Publications.
- Wender, P. H. (2002) *ADHD: Attention-Deficit Hyperactivity Disorder in Children and Adults*. Oxford University Press
- Zylowska, L. (2012). *The Mindfulness Prescription for Adult ADHD, An 8-Step Program for Strengthening Attention, Managing Emotions and Achieving your Goals*. Boston & London: Trumpeter.

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

CADDRA Child Assessment Instructions

Your child is being assessed for Attention Deficit Hyperactivity Disorder (ADHD). You will be asked to complete forms in order to provide your medical professional with information on how your child functions in different areas of life.

This information must be reviewed by a trained medical professional as part of an overall ADHD assessment. ADHD is not identified just through questionnaires. Diagnosing ADHD is not a matter of simply recognizing certain symptoms; a thorough medical evaluation is necessary to rule out other possible causes for your child's symptoms.

Your input is very important but don't worry about answering the questions incorrectly or be concerned that you might 'label' your child. There are no right or wrong answers. You will be asked questions about how your child functions in a variety of different situations. If you are unsure of an answer, provide an answer which best describes your child a good deal of the time in that particular situation. Individual questions are less important than the scale as a whole, and this can only be properly evaluated by a trained professional.

If the child is living in two households, each household should complete these forms separately. It is important that parents take the time to thoughtfully complete all the required questionnaires. This information on how your child functions in different settings is essential. Therefore, it is also important that your child's teacher provides feedback. Please give the teacher the indicated forms and the teacher instruction handout.

Additional testing may be recommended by your health professional. This is particularly important if a learning disorder, speech disorder, or any other health condition is suspected.

If you were not given copies of the forms, instructions and handouts that you need, they can all be printed from the CADDRA website (www.caddra.ca).

Forms

Note: Please fill in the forms required by your health professional and indicated below. You may be asked to fill in forms in two different colours to demonstrate the differences in your child when on and off medication.

Document Name	Recommended forms	To be completed by: Each Parent	Teacher
Weiss Symptom Record	3	x	x
Weiss Functional Impairment Rating Scale - Parent	2	x	
ADHD Checklist (current symptoms)	3	x	x
SNAP-IV-26	3	x	x
CADDRA Teacher Assessment Form	1		x
CADDRA Patient ADHD Medication Form (if on medication)	2	x	

Resources

Please read the information on ADHD as indicated by your health professional. The CADDRA ADHD Information and Resources handout can be printed from the CADDRA website (www.caddra.ca).

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

CADDRA Adolescent Assessment Instructions

You are being assessed for Attention Deficit Hyperactivity Disorder (ADHD). You, and those who know you best (parents and a teacher), will be asked to complete forms in order to provide your medical professional with information on how you function in different areas of your life.

This information must be reviewed by a trained medical professional as part of an overall ADHD assessment. ADHD is not identified just through questionnaires. Diagnosing ADHD is not a matter of simply recognizing certain symptoms; a thorough medical evaluation is necessary to rule out other possible causes for your symptoms.

Your input is very important but don't worry about answering the questions incorrectly or be concerned that you might 'label' yourself. There are no right or wrong answers. You will be asked questions about how you function in a variety of different situations. If you are unsure of an answer, provide an answer which best describes you a good deal of the time in that particular situation. Individual questions are less important than the scale as a whole, and this can only be properly evaluated by a trained professional.

If you are living in two households, each household should complete these forms separately. It is important that you and your parents take the time to thoughtfully complete all the required questionnaires. This information on how you function in different settings is essential. For that reason, it is also important that your teacher also provides feedback. Please give the teacher the indicated forms and the teacher instruction handout.

Additional testing may be recommended by your health professional. This is particularly important if a learning disorder, speech disorder, or any other health condition is suspected. If you were not given copies of the forms, instructions and handouts that you need, please print them from the CADDRA website (www.caddra.ca).

Forms

Note: Please fill in the forms required by your health professional and indicated below. You may be asked to fill in forms in two different colours to demonstrate the differences when on and off medication. Ask your parents to do the same.

Document Name	Recommended forms	To be completed by: Patient	Each Parent	Teacher
Weiss Symptom Record	3		x	x
Weiss Functional Impairment Rating Scale - Self	1	x		
Weiss Functional Impairment Rating Scale - Parent	2		x	
ADHD Checklist (current symptoms)	3		x	x
SNAP-IV-26	3		x	x
CADDRA Teacher Assessment Form	1			x
CADDRA Patient ADHD Medication Form (if on medication)	2		x	

Resources

Please read the information on ADHD as indicated by your health professional. The CADDRA ADHD Information and Resources handout can be printed from the CADDRA website (www.caddra.ca)..

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

CADDRA Teacher Instructions

Name of the educator: _____

Name of the student: _____ Date: _____

Number of hours spent with the student per week: _____

Time period for which the form was filled out: _____

Hello,

Your student, _____, is presently under medical evaluation. To assist with this process, his/her doctor would appreciate your observations on his/her functioning in class. Your feedback will be important in providing knowledge of the student's functioning in the school setting.

As his/her teacher, you are a key part of his/her learning process. We thank you for your input and your assistance in better assessing the needs of this student. The objectives of these forms are to reach an accurate diagnosis and offer interventions and therapeutic solutions that will be individualized for this student.

If you are unsure of your response, go with your first instinct. Do not leave any items blank.

Questionnaires

Please complete:

- ☐ CADDRA Teacher Assessment Form
- ☐ Weiss Symptom Record
- ☐ SNAP-IV 26 or ADHD Checklist

Please use this section for other details or comments you would like to provide to your student's doctor:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

CADDRA
CANADIAN ADHD RESOURCE ALLIANCE

Patient Name:	
Date of Birth:	MRN/File No:
Physician Name:	Date:

CADDRA Adult Assessment Instructions

You are being assessed for Attention Deficit Hyperactivity Disorder (ADHD). You, and someone who knows you well (significant other, family member, roommate or close friend), will be asked to complete forms in order to provide your medical professional with information on how you function in different areas of your life.

This information must be reviewed by a trained medical professional as part of an overall ADHD assessment. ADHD is not identified just through questionnaires. Diagnosing ADHD is not a matter of simply recognizing certain symptoms; a thorough medical evaluation is necessary to rule out other possible causes for your symptoms.

Your input is very important but don't worry about answering the questions incorrectly or be concerned that you might 'label' yourself. There are no right or wrong answers. You will be asked questions on how you function in a variety of different situations. If you are unsure of an answer, provide an answer which best describes you a good deal of the time in that particular situation. Individual questions are less important than the scale as a whole, and this can only be properly evaluated by a trained professional.

If you were not given copies of the forms, instructions and handouts that you need, they can be printed from the CADDRA website (www.caddra.ca).

Forms

Note: Please fill in the forms required by your health professional and indicated below. You may be asked to fill in forms in two different colours to demonstrate the differences when on and off medication.

Document Name	Recommended forms	To be completed by: Patient	Spouse/Other	Parent
Weiss Symptom Record	2	x	x	
Weiss Functional Impairment Rating Scale - Self	2	x	x	
ADHD Checklist (current symptoms)	2	x	x	
ADHD Checklist (retrospective: to be completed based on childhood experience)	2	x		x
Adult ADHD Self Report Scale	2	x	x	
CADDRA Patient ADHD Medication Form (if on medication)	1	x		

Resources

Please read the information on ADHD as indicated by your health professional. The CADDRA ADHD Information and Resources handout can be printed from the CADDRA website (www.caddra.ca)

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