Faculty/Presenter Disclosure

• Faculty: Dr. Scott McLeod
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  - Speakers Bureau/Honoraria:
  - Consulting Fees: N/A
  - Patents: N/A
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Behavioural Disorders in Children

Family Medicine Summit 2019
Scott McLeod, MD, FRCPC
March 1, 2019
Objectives

At the end of this workshop participants will:

1) **Describe** useful questions to explore the symptoms and severity of challenging behaviours in children.

2) **Adapt** current methods of history taking to incorporate cultural sensitivity using the “EMPOWER” clinical tool.

3) **List** the evidence-based non-pharmacological interventions for Attention Deficit Hyperactivity Disorder.

4) **Identify** patients with Autism Spectrum Disorder with challenging behaviours that warrant referral.
When do I suspect a behavioural disorder?

• Poleverywhere Question
Behavioural Problems

- **Severe** temper tantrums, aggression, and pervasive noncompliance are relatively common (~15%)
- Gaps in behavioural and emotional self-regulation interfere with participation in successful school entry
- In Canada 25-30% of children may not be developmentally ready for school entry (Kershaw, 2016)

Charach et al., J Can Acad Child Adolescent Psychiatry, 2017
Behavioural Problems vs. Disorders

**Table IV. Important behavioral markers in the preschool period**

<table>
<thead>
<tr>
<th>Normative preschool misbehaviors</th>
<th>Behavioral markers of preschool conduct disorder</th>
<th>Behavioral markers predicting school-age conduct disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intensity destruction of property</td>
<td>High-intensity argument/defiant behavior</td>
<td>High-intensity argument/defiant behavior</td>
</tr>
<tr>
<td>Low-intensity deceitfulness/stealing</td>
<td>Low- and high-intensity aggression to people/animals</td>
<td>Low- and high-intensity aggression to people/animals</td>
</tr>
<tr>
<td>Losing temper</td>
<td>High-intensity destruction of property</td>
<td>High-intensity destruction of property</td>
</tr>
<tr>
<td></td>
<td>High-intensity peer problems</td>
<td>High-intensity peer problems</td>
</tr>
<tr>
<td></td>
<td>High-intensity deceitfulness/stealing</td>
<td>High-intensity deceitfulness/stealing</td>
</tr>
<tr>
<td></td>
<td>Vindictiveness</td>
<td>Inappropriate sexual behavior</td>
</tr>
</tbody>
</table>

- Differentiating clinically significant developmental extremes remains somewhat ambiguous
- A longitudinal cohort study of children between 3-6 years helped investigate normative behavior and those predictive of later conduct disorder

*Hong et al., J Peds, 2015*
Behavioural Problems vs. Disorders

Hong et al., J Peds, 2015
Differentiating Severity

Differentiating Factors:
- Physical Injury Caused
- Number of Settings
- Kicked out of School/Daycare
- Pervasiveness
- Frequency
- Duration

**Aggression to people/animals-low intensity cluster**
- Bullying using threats only
- Fights not resulting in physical injury
- Cruelty to animals not resulting in obvious injury
- Cruelty to people not resulting in physical injury
- Shoving not resulting in physical injury
- Isolated pinching causing pain
- Hitting not resulting in physical injury
- Kicking not resulting in physical injury
- Biting not resulting in physical injury
- Choking not resulting in physical injury
- Attack with a weapon not resulting in physical injury
- Bullying with actual violence
- Fights resulting in physical injury

**Aggression to people/animals-high intensity cluster**
- Cruelty to animals resulting in obvious injury
- Cruelty to people resulting in physical injury
- Shoving resulting in physical injury
- Repeated pinching resulting in physical injury
- Hitting resulting in physical injury
- Kicking resulting in physical injury
- Biting resulting in physical injury
- Choking resulting in physical injury
- Attack with a weapon resulting in physical injury
- Asked to leave daycare/school for fighting
- Asked to leave daycare/school for assault

*Hong et al., J Peds, 2015*
Behavioural Problems vs. Disorders

Disordered Behaviours:
• Persist for more than 6 months
• Occur across situations and cause a functional limitation
• Cause significant distress for both the child and family

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Normative misbehaviour</th>
<th>Problem indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noncompliance</td>
<td>Says ‘no’ when told to do something</td>
<td>Misbehaves in ways that are dangerous (e.g., refuses to hold a parent’s hand and instead runs into the street)</td>
</tr>
<tr>
<td>Aggression</td>
<td>Acts aggressively when frustrated, angry or upset</td>
<td>Acts aggressively to try to get something he or she wants</td>
</tr>
<tr>
<td>Temper loss</td>
<td>Loses temper or has a tantrum when tired, hungry or sick</td>
<td>Has daily temper tantrums; has tantrums that last &gt;5 minutes*</td>
</tr>
</tbody>
</table>

*There is no consensus regarding the threshold at which a child’s tantrums shift from being normative to atypical. However, factors considered during assessment include frequency (e.g., daily or in repeated clusters), intensity (e.g., with aggressive behaviours, such as hitting, biting or kicking) and duration (e.g., >5 minutes per bout).

Charach et al., J Can Acad Child Adolescent Psychiatry, 2017
Domains Influencing Behavioural Symptoms

<table>
<thead>
<tr>
<th>Table 2. Factors to evaluate during assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child</strong></td>
</tr>
<tr>
<td>Cognitive levels</td>
</tr>
<tr>
<td>Language and communication (e.g., delays and atypical patterns)</td>
</tr>
<tr>
<td>Social skills</td>
</tr>
<tr>
<td>Emotional regulation (e.g., excessive fears or angry outbursts)</td>
</tr>
<tr>
<td>Attention, overactivity and impulse regulation</td>
</tr>
<tr>
<td>Eating and sleeping patterns</td>
</tr>
<tr>
<td>Adaptive functioning</td>
</tr>
<tr>
<td><strong>Family</strong></td>
</tr>
<tr>
<td>Parent*-child interactions</td>
</tr>
<tr>
<td>Prolonged separation from a parent*</td>
</tr>
<tr>
<td>Parental* medical or mental health</td>
</tr>
<tr>
<td>A parent’s* employment status</td>
</tr>
<tr>
<td>Housing or food insecurity</td>
</tr>
<tr>
<td>Presence of domestic violence</td>
</tr>
<tr>
<td>Presence of child abuse or neglect</td>
</tr>
<tr>
<td>Parenting practices</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
</tr>
<tr>
<td>Support from family and quality of social network</td>
</tr>
<tr>
<td>Quality of child care or alternate care arrangements</td>
</tr>
<tr>
<td>Neighborhood characteristics</td>
</tr>
<tr>
<td>Household composition</td>
</tr>
</tbody>
</table>

*Mother, father or alternative main caregiver

Charach et al., J Can Acad Child Adolescent Psychiatry, 2017
Surveillance Questions

1. Do you (or any other caregiver) have difficulties encouraging your child to do as you ask?
2. Has a preschool teacher (or child care staff member) ever mentioned concerns about your child’s readiness to start school?
3. Do you have any concerns about your child’s ability to communicate or learn new skills?
4. Do you have any concerns about how your child gets along with other children at home or in the community?
5. Do you have any other concerns about your child’s emotions, behaviour or social functioning?

- Review the pattern and persistence of disruptive symptoms
- **Review sensory systems**: hearing, vision
- **Review basic needs**: nutrition, sleep
- **Consider screening for Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder, or Anxiety Disorders** using validated questionnaires

*Charach et al., J Can Acad Child Adolescent Psychiatry, 2017*
Initial Interventions

Triple “P” Parent Program

Parenting skills taught

1. Ensure positive and nurturing parent–child interactions
2. Set developmentally appropriate expectations for the child
3. Provide clear, consistent expectations, limits and routines
4. Identify triggers for positive and negative behaviours (e.g., fatigue, hunger, disappointment)
5. Use positive parenting skills such as giving salient rewards (e.g., praise or affordable items/activities) for select positive child behaviours
6. Reduce negative or harsh parent–child interactions
7. Ignore negative behaviours that are minor (i.e., ‘Pick your battles’)
8. Implement time-outs selectively (i.e., for specific behaviours such as hitting) with clear parameters (e.g., limited duration of time in time-out)
9. Work as a team with other parents and caregivers
10. Communicate with child care staff or schoolteachers

Charach et al., J Can Acad Child Adolescent Psychiatry, 2017
Case 1:

Ochen and Akello are twin 6 year old boys from Uganda who have recently arrived as refugees to Canada with their family. They have recently entered school (Grade 1), where they are exploring classroom items with their mouths, require significant one on one assistance, have difficulty sitting during storytime, and move from task to task quickly.

What further history do you want to explore?
Case 1:

- Oochen and Akello have never had prior formal education
- Their father has a grade 12 education, and mother has a elementary school education
- Ma’di language is their first language, although some English is spoken by their father
- They have had the standard immigration/refugee medical screening
Activity:

Pair with a partner to discuss your current approach to medical and developmental assessment of young children who have recently immigrated or are refugees in Canada
Newcomers to Canada

- 55695 individuals claimed asylum within Canada in 2018 (Government of Canada, 2018)
- Approximately 1/3 of these newcomers were children
- Family physicians are often the primary point of contact for refugees
- A large number of pediatric visits to family physicians and pediatricians are developmental/behavioural in nature
## Protective and Risk Factors in Children who are Newcomers to Canada

<table>
<thead>
<tr>
<th>Protective Factors</th>
<th>Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Proficiency/Language Skills</td>
<td>Trauma (pre- or post-migration)</td>
</tr>
<tr>
<td>Prior education (formal/informal)</td>
<td>Interrupted education/Lack of education</td>
</tr>
<tr>
<td>Appropriate school placement</td>
<td>Low educator expectations</td>
</tr>
<tr>
<td>Supportive parents &amp; Secure attachment</td>
<td>Financial Stressors</td>
</tr>
<tr>
<td>Inclusive and Welcoming Community</td>
<td>Unwelcoming community</td>
</tr>
<tr>
<td>Educated parents</td>
<td>Parental trauma</td>
</tr>
<tr>
<td>Employed parents</td>
<td>Unemployed parents/financial difficulties</td>
</tr>
<tr>
<td>Well nourished</td>
<td>Malnutrition</td>
</tr>
</tbody>
</table>

Adapted from Minhas et al., 2017, Pediatrics and Child Health
Other Challenges in Supporting the Developmental Health of Refugee Children

• Cultural expectations of appropriate behaviours, attention span, social interactions, and typical eye contact may differ between cultures
• Traditional developmental assessment instruments may lose validity
• Resources of schools are generally already quite stressed, and receive limited additional support for children new to Canada
EMPOWERing Children New to Canada

| E: Education:          | Current grade placement  |
|                       | Past formal/informal education |
|                       | School interruptions       |

| M: Migration           | Where? Who with? Reason for migration (war, violence, poverty)? |

| P: Parents and Family  | Mental health, Coping, Education level, Language proficiency, Engagement with school team & resources |

| O: Outlook             | Hopes and dreams for the future |
|                        | Worries                        |

| W: Words               | Language proficiency of the child |
|                        | Social communication            |

| E: Experience          | Trauma, Bullying                |

| R: Resources           | Money, Funding, Housing, Food, Transportation, Health care, Developmental supports |

Adapted from Minhas et al., 2017
Resources for Clinicians

Caring for Kids New to Canada

A guide for health professionals working with immigrant and refugee children and youth

Mental Health & Development

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Mental Health
- Attachment disorders
- Depression
- Mental Health Promotion
- Post-Traumatic Stress Disorder
- Presentations, Publications and Webinars
- Substance Use and Immigrant Youth

Child Development
- Child Development: Issues and Assessment
- Developmental Disability Across Cultures
- First Language Use and Bilingualism
- Prenatal Risk Factors for Developmental Delay
- Presentations, Publications and Webinars
- School and Education

International Adoption
- Enhancing Attachment
- Preparing to Adopt
- Parent Travel
- Tools and Resources
- Health Evaluation of the International Adoptee

KidsnewtoCanada.ca
Further Resources

- Refugee Clinic Calgary
- Calgary Immigrant Educational Society (https://www.immigrant-education.ca/)
- Calgary Catholic Immigration Society (https://www.ccisab.ca/services/services-for/refugees.html)
- Centre for Newcomers (http://centrefornewcomers.ca/)
- Caring for Kids New to Canada (http://kidsnewtocanada.ca/)
Case 2:

Colten is an 11 year old boy with Autism Spectrum Disorder and co-occurring Intellectual Disability. He has symptoms of significant aggression towards his mother, other children at school, and towards his teachers. He has recently ran away from school, and the police were called. He was found 5 blocks away. The family has tried a few medication options in the past with limited success (methylphenidate, dextroamphetamine). At home, Colten is mainly left to his own devices watching YouTube videos.

With a partner:
1) Discuss non-pharmacological management strategies.
2) Discuss next steps of management.
Non-pharmacological management

• Significant overlap between ASD and ADHD
• 50% of individuals with ASD have co-occurring target symptoms of inattention and impulsivity
• 50% of individuals with ADHD have some traits of ASD, such as social communication challenges due to inattention
• ASD + ADHD = severe behavioural problems
• Unfortunately, there is not a lot of evidence to guide both pharmacological and non-pharmacological management
Non-pharmacological management

- Various **physical activities** when pooled in a meta-analysis (N=1000 participants) showed positive results in improving motor and social skills
- Activities ranged from swimming 30 mins per day, to horseback riding 1 hour per week, to jogging
- One limitation may be positive study reporting bias

Sowa et al., 2012
Healy et al., 2018
Pharmacological management

- Most pediatricians use stimulant-based medications 1st line

Pharmacological management

- After carefully evaluating confounding factors, proceed to medical management

5. a) Is there a discrepancy in symptoms across settings?
   b) Can behavioral or educational supports be improved?

Yes (to either) → Optimize behavioral/educational supports

No

6. a) Prescreening work-up
   b) Medication choice algorithm (Page 2)

After treatment, do clinically significant symptoms persist?
Pharmacological management

1. Child with ASD and ADHD symptoms necessitating medication.

2. Does the clinical profile support a stimulant trial?
   - **Supporting factors**: Moderate evidence, aids hyperactivity and inattention
   - **Factors weighing against**: age < 5 years, IQ < 50, severe tics or stereotypes, psychosis (history of), unstable mood disorder, severe anxiety, low weight or poor eating.
   - **Contraindications**: Personal or family history of childhood cardiac disease without cardiologist clearance

3 & 4. Does the clinical profile support an alpha agonist or norepinephrine reuptake inhibitor trial?

   **Norepinephrine Reuptake Inhibitor**
   - **Supporting factors**: May benefit hyperactivity, inattention, and anxiety
   - **Factors weighing against**: age < 6 years, history of activation on an antidepressant or bipolar disorder

   **Alpha Agonist**
   - **Supporting factors**: Weak evidence, may benefit hyperactivity, perhaps impulsivity/aggression, also tics
   - **Factors weighing against**: significant inattention symptoms, severe anxiety or depression
   - **Contraindications**: Personal or family history of childhood cardiac disease without cardiologist clearance

If stimulants are selected:
- a.) Methylphenidate
- b.) Amphetamine Salts

If norepinephrine reuptake inhibitor is selected:
- a.) Atomoxetine

If alpha agonist is selected:
- a.) Guanfacine
- b.) Clonidine

**Medication Choice Practice Pathway for Children with Autism Spectrum Disorder (ASD) and Symptoms of Attention Deficit Hyperactivity Disorder (ADHD)**

Atomoxetine and ASD

- There is parent-reported measures reported
- No clinician or teacher rated measures

\[\text{Table 1. Characteristics of Included Studies}\]

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Mean age (range) (years)</th>
<th>Gender (%M)</th>
<th>Design</th>
<th>Length of treatment (weeks)</th>
<th>Atomoxetine (mean dose)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arnold et al. [2006]</td>
<td>16</td>
<td>9.3 (5-15)</td>
<td>75</td>
<td>Crossover</td>
<td>6</td>
<td>44.2 mg/day</td>
</tr>
<tr>
<td>Harfertkamp et al. [2012]</td>
<td>97</td>
<td>10.0 (6-17)</td>
<td>86</td>
<td>Parallel</td>
<td>10</td>
<td>1.2 mg/kg/day</td>
</tr>
<tr>
<td>Handen et al. [2015]a</td>
<td>64</td>
<td>9.5 (5-14)</td>
<td>80</td>
<td>Parallel, four arm</td>
<td>10</td>
<td>1.8 mg/kg/day</td>
</tr>
</tbody>
</table>

*aOnly two study arms which met inclusion criteria were included in our meta-analysis.

Patra et al., 2019
Conclusions

Atomoxetine may be effective in causing improvement in hyperactivity and inattention as also overall symptoms of ADHD in children with ASD. There are higher reports of gastrointestinal side effects and decreased sleep in atomoxetine group as compared to placebo which require monitoring. However, the analysis did not find any significant difference between atomoxetine and placebo in causing serious side effects.
Guanfacine XR and ASD

• Extended release guanfacine is safe and effective for the short term treatment of hyperactivity, impulsivity, and distractibility in children with ASD
• Drowsiness, fatigue, emotional fragility, tearfulness and irritability were reasons for stopping
• No teacher ratings were collected

Scahill et al., 2015
Summary

At the end of this workshop participants will:

1) **Describe** useful questions to explore the symptoms and severity of challenging behaviours in children.

2) **Adapt** current methods of history taking to incorporate cultural sensitivity using the “EMPOWER” clinical tool.

3) **List** the evidence-based non-pharmacological interventions for Attention Deficit Hyperactivity Disorder.

4) **Identify** patients with Autism Spectrum Disorder with challenging behaviours that warrant referral.
Thank you!

Questions?
References


Slides for Q&A if needed
Table 2. Summary of Findings: Atomoxetine Compared to Placebo for Attention Deficit Hyperactivity Disorder in Children with Autism

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>No. of participants (studies) follow-up</th>
<th>Quality of the evidence (GRADE)</th>
<th>Relative effect (95% CI)</th>
<th>Anticipated absolute effects*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent rated hyperactivity</td>
<td>96 (2 RCTs)</td>
<td>⊕⊕⊕⊕ LOW&lt;sup&gt;a,b,c&lt;/sup&gt;</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DSM-IV ADHD rating scale</td>
<td></td>
<td></td>
<td></td>
<td>SMD 0.73 SD lower (1.15 lower to 0.34 lower)</td>
</tr>
<tr>
<td>Follow-up mean: 8 weeks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent rated inattention</td>
<td>96 (2 RCTs)</td>
<td>⊕⊕⊕⊕ VERY LOW&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DSM-IV ADHD rating scale</td>
<td></td>
<td></td>
<td></td>
<td>SMD 0.53 lower (0.93 lower to 0.12 lower)</td>
</tr>
<tr>
<td>Follow-up mean: 8 weeks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent rated oppositional behavior</td>
<td>96 (2 RCTs)</td>
<td>⊕⊕⊕⊕ VERY LOW&lt;sup&gt;a,b,d&lt;/sup&gt;</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DSM-IV ADHD rating scale</td>
<td></td>
<td></td>
<td></td>
<td>SMD 0.09 lower (0.49 lower to 0.31 higher)</td>
</tr>
<tr>
<td>Follow-up mean: 8 weeks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious adverse events</td>
<td>193 (3 RCTs)</td>
<td>⊕⊕⊕⊕ LOW&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>RR 3 (0.32–27.76)</td>
<td>Atomoxetine was not associated with higher risk of serious side effects as compared to placebo</td>
</tr>
<tr>
<td>Overall improvement in ADHD</td>
<td>193 (3 RCTs)</td>
<td>⊕⊕⊕⊕ LOW&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>RR 2.37 (1.38–4.06)</td>
<td>144 per 198 more per 1,000 (55 more to 442 more)</td>
</tr>
<tr>
<td>Follow-up mean: 10 weeks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent stress and quality of life</td>
<td></td>
<td>No studies have reported this outcome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-serious adverse events: nausea and</td>
<td>193 (3 RCTs)</td>
<td>⊕⊕⊕⊕ LOW&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>The risk ratio for all outcomes ranges from 1.79 to 1.91, with the 95% CI of minimum (1.17 to maximum of 2.94)</td>
<td>Atomoxetine had a significantly higher risk of non-serious side effects in all of the listed outcomes compared to placebo</td>
</tr>
<tr>
<td>vomiting, decreased appetite, and decreased sleep.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*The risk in the intervention group (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

CI, confidence interval; SMD, standardized mean difference; RR: risk ratio.