

**Early Diagnosis of Cerebral Palsy**  
Part 1: Fundamentals

February 29, 2024

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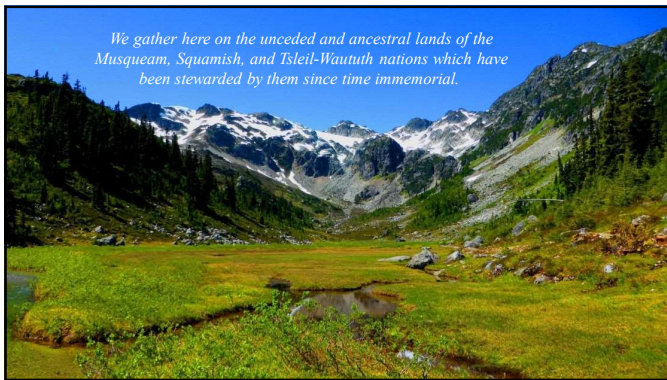
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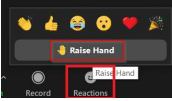
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**Before we get started**

- This session's presentation sections will be recorded
- Please keep your mics muted
- Click on the [Raise Hands](#) button if you would like to speak or ask a question



- We encourage participants to have their cameras on if possible
- You can also participate by sharing in the Zoom chat

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**Disclosure**

No conflicts of interest or financial ties to disclose

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**Early Diagnosis of Cerebral Palsy  
Part 1: Fundamentals**

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**Learning Objectives**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
List the evidence and benefits of an early diagnosis of CP	Identify the key clinical red flags for CP in children	Implement the necessary assessments for CP diagnosis	Communicate a CP diagnosis with parents and caregivers	Utilize resources and supports for CP in children

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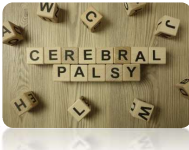
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### Cerebral Palsy – Definition



“Cerebral palsy is a group of permanent disorders of the development of movement and posture, causing **activity limitation**, that are attributed to **non-progressive disturbances** that occurred in the **developing fetal or infant brain**.”

— Rosenbaum et al., 2007

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### Cerebral Palsy – Etiology

Brain injury at different stages:

- Prenatal
- Perinatal
- Postnatal

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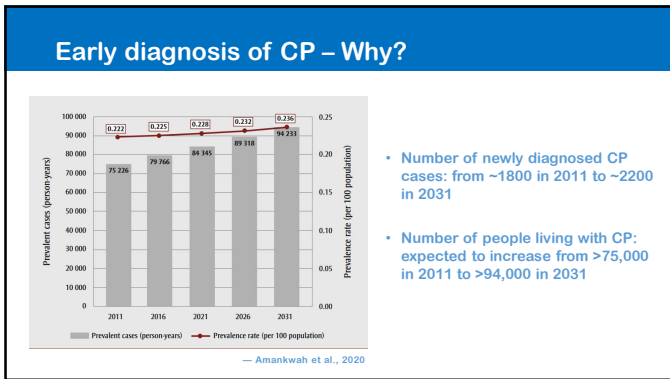
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### Early diagnosis of CP – Why?

**For children:**

- Inform the prognostic care plan
- Expedites early intervention to maximize neuroplasticity
- Prevents related complications

**For parents and caregivers:**

- Reduces distress of uncertainty, improves mental health and facilitates future planning

**For the family as a unit:**

- Fosters greater acceptance, coping, and adaptation to the new diagnosis

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### Early diagnosis of CP – What we know in BC

What does a cerebral palsy diagnosis mean for you as a parent?

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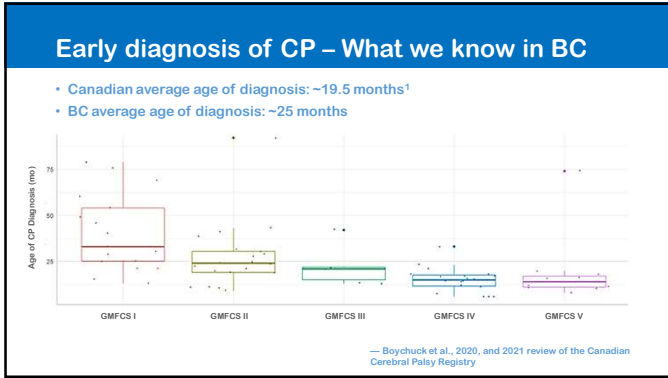
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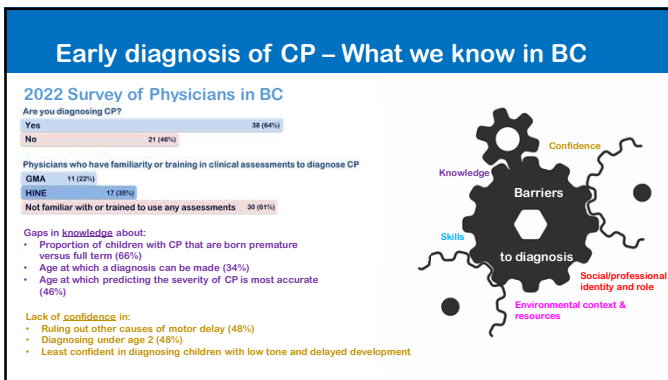
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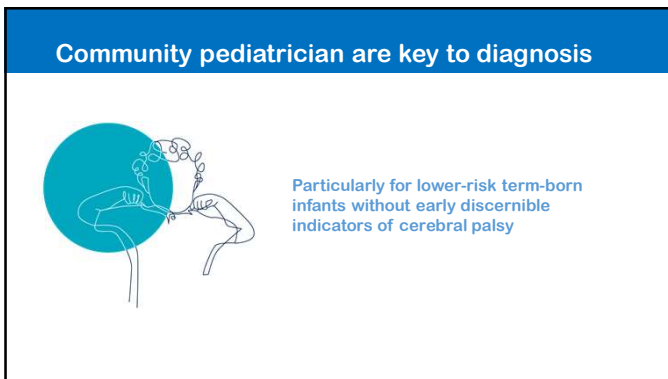
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### Red flags of CP in infants

**1**




Demonstrates a hand preference before 12m

**2**




Demonstrates stiffness or lightness in the legs

**3**



Demonstrates a persistent head lag beyond 4m of age

**4**



Keeps their hands fisted (closed/clenched) after the age of 4m

Recommendations from: BC Cerebral Palsy Advisory Committee 2017-2021 and The PROMPT Group 2019

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### Red flags of CP in infants

**5**




Demonstrates persistent primitive reflexes, including startle (Moro) reflex beyond 6mo of age, or "Fencer" (ATNR) beyond 4m of age

**7**




Demonstrates consistent asymmetry of posture and movement after the age of 4m

**6**



Not able to sit without support beyond 9m of age

**8**



Demonstrates consistent toe-walking or asymmetric-walking beyond 12m of age

**9**

Unable to walk by 18m of age

Recommendations from: BC Cerebral Palsy Advisory Committee 2017-2021 and The PROMPT Group 2019

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### Medical risk factors of CP

Prematurity - <32 weeks	Apgar <7 at age 5 minutes
Very Low birth weight - <1500 g	Postnatal meningitis
Cystic Periventricular Leukomalacia (PVL)	Genetic abnormality associated with CP
Intraventricular Hemorrhage (IVH) Grade III-IV	Placental abruption
Moderate to severe neonatal Encephalopathy (including, but not restricted to: HIE, infectious encephalopathy) neonatal meningitis	Severe traumatic brain injury requiring hospitalization or rehab, or any history of hospitalization due to encephalitis or bacterial meningitis, before the age of two years
Congenital CNS defects	History of stroke

Recommendations from: BC Cerebral Palsy Advisory Committee 2017-2021

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### Integrate a CP-specific approach

Don't forget about cerebral palsy during child developmental consultations!

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### Learning Objectives

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List the evidence and benefits of an early diagnosis of CP

**2**

Identify the key clinical red flags for CP in children

**3**

Implement the necessary assessments for CP diagnosis

**4**

Communicate a CP diagnosis with parents and caregivers

**5**

Utilize resources and supports for CP in children

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### How is CP diagnosed?

**Introducing a new care pathway to support clinical decision-making in diagnosis of CP**

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### How is CP diagnosed?

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### How is CP diagnosed?

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## Learning Objectives

1

List the evidence and benefits of an early diagnosis of CP

2

Identify the key clinical red flags for CP in children

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## Preparing for a conversation

**BC Cerebral Palsy Community Diagnostic**

**Checklist of Red Flags** - Identified by parent or caregiver  
Note: A single red flag or red flag in itself is not enough

**Red Flags:**

- Delayed milestones or atypical movements
- Child Development Program (CDP) or a child development intervention program has not already been initiated

**Indicators that may lead to a comprehensive assessment including:**

- Full range of signs
- Assessment requires tests for diagnosis
- Other signs/behaviors concerning
- Other assessment can be completed by other health professionals in the community (developmental pediatrician, physiotherapist, occupational therapist, etc.)

**YES OR HIGH RISK**

- Communicate diagnosis to caregivers -  patient resources
- Referral to appropriate interventions & supports
- Screen for developmental and medical co-occurring conditions common in CP
- Follow up and re-assess depending on clinical presentation

**Types of information and knowledge needed by parents**

- The diagnosis
- Interventions
- Daily caregiving
- Equipment
- Supports
- How to explain the disability to others
- The effects on the family
- The future

Adapted SPIKES protocol, Novak et al., 2019

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## Communicating the diagnosis



**Key ingredients for a supportive diagnosis conversation:**

*Well-planned*  
+  
*Compassion*

Hope and realism: hope springs eternal - Kaye et al., 2020

Adapted SPIKES protocol, Novak et al., 2019

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### Communicating the diagnosis

How did you find out about your son's CP diagnosis?

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### The "odyssey" of CP diagnosis in BC

START

12 MONTHS

18 MONTHS

24 MONTHS

30 MONTHS

36 MONTHS

42 MONTHS

FINISH

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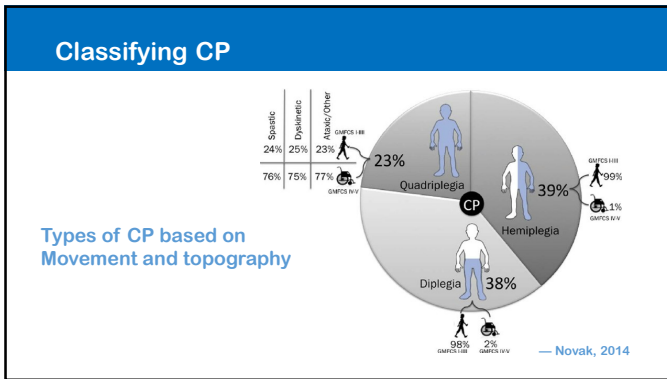
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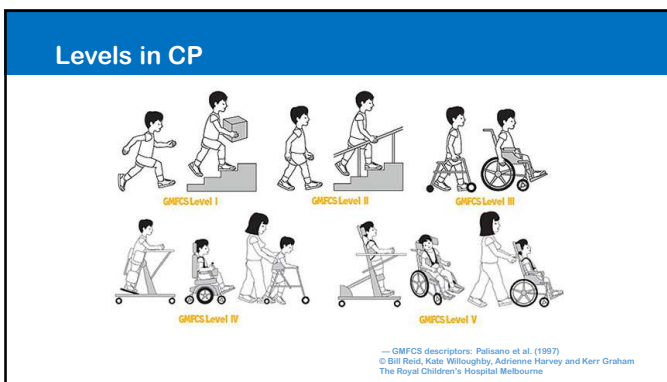
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### Post-diagnosis best practice

**Screen for developmental and medical co-occurring conditions in CP**

- Vision and hearing impairments
- Cognitive, learning, and attention impairments
- Seizures
- Musculoskeletal concerns
- Pain
- Sleep
- Feeding and swallowing
- Speech and language delay
- Bowel and Bladder

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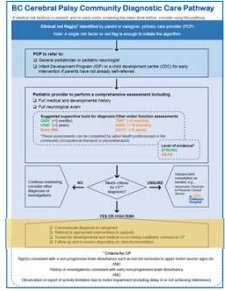
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### Post-diagnosis best practice



**Referrals to early intervention and supports**

- IDP/CDC (specify OT/PT/SLP/Rec Therapy)
- BC Hip Surveillance Program
- At Home Program
- Disability Tax Credit if appropriate
- Parking pass

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### Questions and discussion



Type your question in the chat or click the 'raise hand' button to speak

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### Further Learning and Resources

#### Sunny Hill Neuromotor Physician to Physician consult



- Virtual consults available with developmental pediatricians
- 15-20 min appointments available
- Download booking form online – Sunny Hill Website




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## Further Learning and Resources

Hammersmith Infant Neurological Exam  
<https://hollandbloorview.ca/our-services/programs-services/neuromotor-services/hammersmith-infant-neurological-examination-hine>



Request an account and find all the resources mentioned in one hub  
<https://pathwaysbc.ca/login>

UBC CPD  
<https://ubccpd.ca/cp-resources>

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## Your role as a community provider



Community providers have a pivotal role in the diagnosis of CP.

Find and get to know PT/OTs allies in your communities!

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## Acknowledgements

### Many thanks to our project team



Project leads:

Dr. Ram Mishaal  
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Olivia Scoten, UBC MD Undergraduate Program Student  
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Nanay Fajardo, Physiotherapist, Sunny Hill Health Centre  
Cynthia Vallance, Patient and Family Engagement Advisor  
Carol Lai, Project Manager, Sunny Hill Health Centre

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