



# Webinar Report

**RESEARCH** *Spotlight*  
#LetsTalkNMD

**Current State of Spinal Muscular Atrophy in Canada**  
**04-21/2020**



# **NMD4C (Neuromuscular Disease Network For Canada)**

**NMD4C** launched in January 2020, is a Canadian network that is funded by Muscular Dystrophy Canada and the Canadian Institutes for Health Research.

**NMD4C brings together the country's leading clinical, scientific, technical, and patient expertise on neuromuscular disease.** The rarity and diversity of neuromuscular diseases make interdisciplinary collaboration and networking essential to future progress.

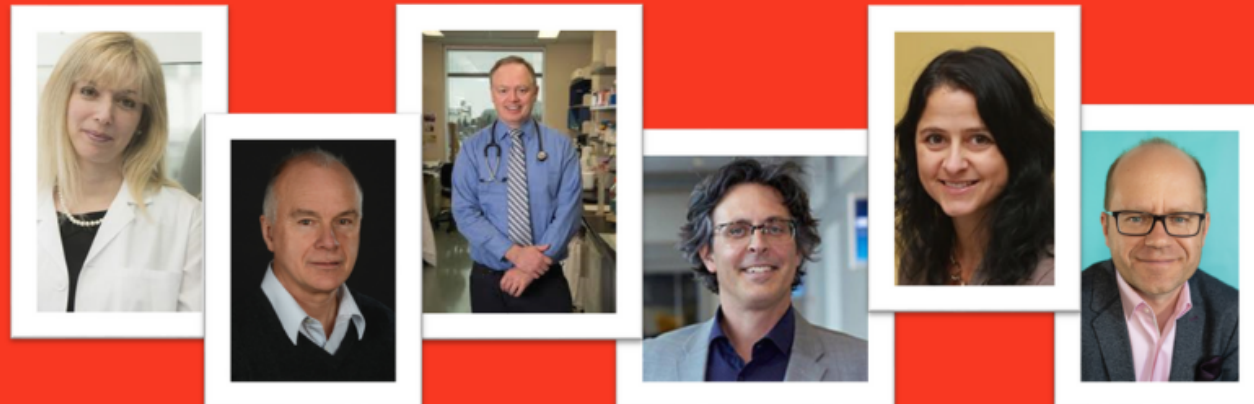
# NMD4C strives to train and educate neuromuscular disease stakeholders



#LETSTALKNMD

## WEBINAR SERIES

### CURRENT STATE OF SMA: PRACTICAL CONSIDERATIONS FOR CLINICIANS



TUESDAY APRIL 21, 2020

5:00-6:30 PM EST

*Register Now*

<https://bit.ly/SMAview>

Muscular Dystrophy Canada and NMD4C launched a new joint educational initiative under the **#LetsTalkNMD** webinar series.

The goal is to share knowledge on best practices, current issues, disease diagnosis and management and possible therapeutic interventions. Our target audience are neurologists, scientists, physicians, medical trainees/students and other allied healthcare professionals involved in the care of patients with neuromuscular disease.

# COVID-19 & Neuromuscular: Resources

[COVID-19 Ask The Experts](#)

[COVID-19 and Neuromuscular Patients](#)

[COVID-19: Care Recommendations for Home-Based Ventilation Patients](#)

[Pulmonary Support for Myotonic](#)

[Dystrophy Patients During COVID-19 Pandemic](#)



# WEBINAR DISCUSSION TOPICS

## **SMA Clinical Care in the Era of COVID-19:**

Jodi Warman Chardon

## **Newborn Screening in Ontario:**

Kristin Kernohan, Alex Mackenzie, Hugh McMillan

## **Update on Zolgensma for Canada:**

Hugh McMillan

## **Update on Risdiplam for Canada:**

Craig Campbell

## **Adult Outcome Measures:**

Colleen O'Connell

## **Update on CNDR-SMA Project:**

Lawrence Korngut, Victoria Hodgkinson

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*Disclaimer: Please note the speakers in this  
webinar have involvement in the subject matter  
with real or perceived relationships*



# **SMA CLINICAL CARE IN THE ERA OF COVID-19**

**Jodi Warman-Chardon, MD, MSc**

NEUROMUSCULAR CENTRE. THE OTTAWA HOSPITAL  
(OTTAWA, ONTARIO)



**Patients with SMA are at a risk of severe COVID-19 infection because of respiratory insufficiency from neuromuscular weakness or musculoskeletal limitations (e.g., kyphoscoliosis), weak cough or airway secretion, baseline use of ventilation, bulbar weakness or comorbid conditions (e.g., obesity).**

**COVID-19 has potential to disproportionately and severely affect individuals with SMA**



**There is no clinical evidence that COVID-19 virus directly affects motor neurons. However, patients with SMA are at significantly increased risk of acute weakness because COVID-19 is associated with elevated muscle enzyme levels.**

**COVID-19 may put patients with SMA at increased risk for muscle weakness and pain**





**COVID-19 has contributed to drastic changes in neuromuscular care and practice. COVID-19 has necessitated major changes to the manner in which we deliver and organize healthcare.**

**Our best practices for patients with SMA has changed from only a month ago**



**A survey of 25 clinicians who manage patients with SMA in Canada indicated that 58% have had no delays in delivery of Spinraza (Nusinersen) in spite of COVID-19 closures. Of those with delays, 4% were related to patient preference, 12% was mediated by the physician and 12% was radiology or hospital administration.**

**Canadian clinicians are worried about delivery of Spinraza if closures continue**



**Care for SMA can be transferred to virtual care such as symptom verification, physical therapy and occupational therapy, diet assessments and multi-disciplinary evaluations. The challenges are with swallowing assessments, coordinating local laboratory or imaging evaluations and pulmonary function testing etc.**

**Physical distancing has forced a rapid and unprecedented transition to telemedicine**

PUT OFF



ACTION

NOT NOW



**Modelling data tells us that delaying a Spinraza (nusinersen) maintenance dose by a short delay (i.e weeks) should not have a huge impact but longer delays (i.e months) might require greater time to return to central nervous system steady-state levels.**

**Schedule as close to regular dosing while balancing risk of infection with functional decline**



**Many clinical trials can be continued with home delivery of products and virtual follow-up care for those already enrolled. However, there are challenges to animal and clinical research (e.g., starting/closing out trials, site initiation visits, lack of/redeployment of staffing (i.e., research personnel, RN- nurse investigators)).**

**COVID-19 has contributed to significant delays to basic and translational SMA research**



# NEWBORN SCREENING IN ONTARIO

**Kristin Kernohan, PhD, FCCMG**  
**Alex MacKenzie, MD, PhD**  
**Hugh McMillan, MD, MSc**

CHILDREN'S HOSPITAL EASTERN ONTARIO  
NEWBORN SCREENING ONTARIO



**People have two copies of the survival motor neuron-1 (SMN1) gene. When a baby is born with no working copies of SMN1 gene, they will develop SMA. SMA can be caused by deletions (~97% of cases) or other genetics changes (~3%).**

**Newborn screening will only detect cases of SMA caused by deletions and conversions in the SMN1**



**Babies with a deletion of both their copies of SMN1, and with SMN-2 (SMN2) copy numbers of 1, 2, 3 or 4 will be reported as having a screen positive result and referred for more testing. This means that greater than 99% of SMA type 1 and 2 cases and greater than 97% of SMA type 3 cases caused by a deletion in the SMN1 gene will be picked up by screening. SMA type 4 will also be detected if caused by SMN2 copy numbers of 4 or less. For the new pilot project in Ontario, the screening target is early onset disease, with the goal of treatment to prevent symptoms.**

**As of mid-January 2020,  
all infants in Ontario are  
screened for SMA**





**If a patient is identified to have a positive screen for SMA by the newborn screening program, then a second independent blood sample occurs between 7-10 days. This can confirm the SMN1 homozygous deletion and determine SMN copy number.**

**By two weeks of life, an infant can have a confirmed SMA diagnosis**



**Once a genetic diagnosis is confirmed, and before the onset of symptoms, there can be initiation of treatment as early as 1 month of life.**

# **Early diagnosis of SMA has allowed for very early access to treatment options**



# UPDATES ON TREATMENTS UNDER EXPERIMENTAL REVIEW

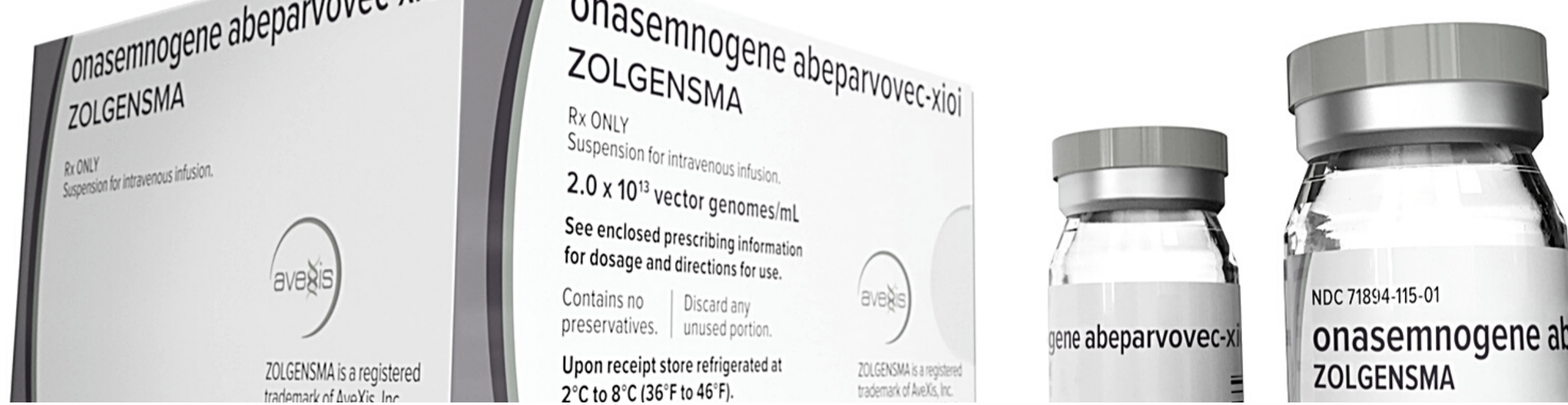
**Hugh McMillan, MD, MSc**

CHILDREN'S HOSPITAL EASTERN ONTARIO (OTTAWA)

**Craig Campbell, MD**

LONDON HEALTH SCIENCES CENTRE (LONDON, ONTARIO)

Please note the speakers in this session have involvement in the subject matter with real or perceived relationships



**Zolgensma is an investigational therapy designed to deliver a working copy of the *SMN1* gene to motor neurons in *SMA* patients by a one-time intravenous infusion. These modified genes live in the cell nucleus and make *SMN* protein, so motor neurons keep firing.**

**Data shows prolonged event-free survival and motor milestone achievement**



**Risdiplam is an investigational SMN2 splicing modifier for SMA and is an orally administered liquid. It is designed to increase and sustain SMN protein levels both throughout the central nervous system and in peripheral tissues of the body. It is being evaluated for its potential ability to help the SMN2 gene produce more functional SMN protein throughout the body.**

# **Risdiplam shows benefit on motor outcomes in a wide range of children and young adults with SMA**



# **ADULT OUTCOME MEASURES IN SMA**

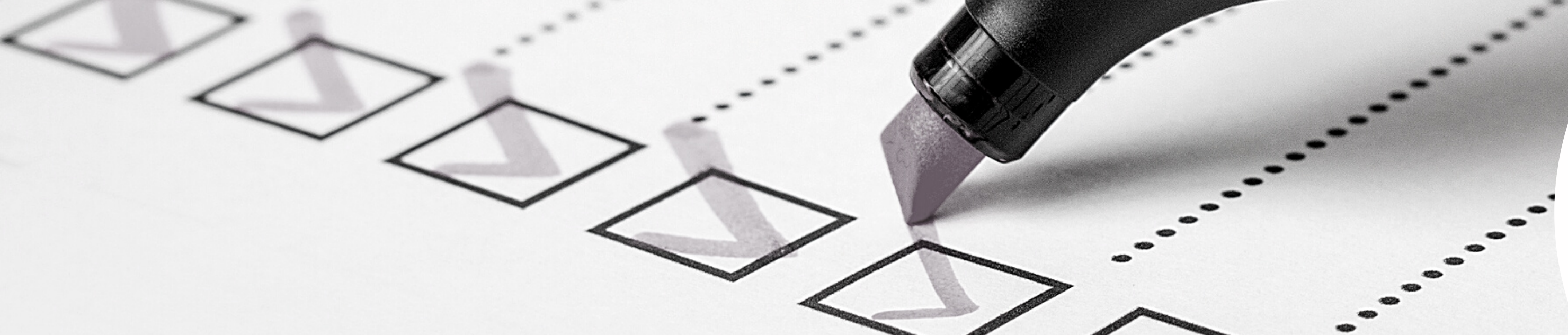
**Colleen O'Connell. MD**

DALHOUSIE UNIVERSITY FACULTY OF MEDICINE  
(FREDRICKTON, NEW BRUNSWICK)



**There is a project underway currently to identify outcome measures that clinicians should use across Canada when evaluating adults with SMA. Agreement of which measures to use helps to: (1) understand natural progression and treatment outcomes in adults; (2) assist in clinical decisions (e.g., anticipatory care and managing expectations); (3) advocate for supports in clinics.**

# **Agreement on how to measure clinical outcomes for adults is important**



**Clinicians in Canada have identified 8 measures that appropriately measure respiratory, motor and function abilities for adult with SMA in the following groups; 'sitters', 'non-sitters' and 'ambulatory'. There are also measures being considered for assessing quality of life, patient-specific goals and patient-reported outcome measures for adults with SMA.**

**Consensus was reached on how best to measure respiratory, motor and function abilities**





**UPDATE ON CANADIAN  
NEUROMUSCULAR DISEASE  
REGISTRY (CNDR) SMA PROJECT**

**Lawrence Korngut, MD  
Victoria Hodgkinson, PhD**



**CNDR is a Canada-wide registry of people diagnosed with a neuromuscular disease with over 30 clinics involved. Currently there are ~200 patients with SMA with baseline data and over a 100 patients with motor outcomes information. There are ongoing and future research projects through the registry available.**

**National registry helps to organize information for clinical and research purposes**



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QUESTIONS?



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