



Better Outcomes Registry & Network
Registre et Réseau des Bons Résultats dès la naissance

Healthy Growth Initiative



APHEO Conference

November 25 - 27, 2018

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Epidemiologist, BORN Ontario



APHEO AND BORN

How BORN and Public Health Work Together

How Does BORN Partner with Public Health in Ontario?



The **BORN-PUBLIC HEALTH WORKING GROUP**, established in 2013, promotes and facilitates the use of BORN data for public health purposes.

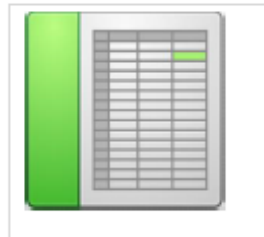
The Working Group facilitates effective communication between member agencies: BORN, public health units & Public Health Ontario.



Every PHU has a **DATA SHARING AGREEMENT** with BORN.

As outlined in this agreement:

- The Medical Officer of Health ensures the proper use and protection of BORN data.
- The designated Local Administrator oversees user management within the BORN system.



All 36 PHUs have access to BORN **DATA**.

Data can be used for population health assessment and reproductive health surveillance.

*Helpful for outcomes and goals defined in the Ontario Public Health Standards



3 STANDARD REPORTS and an **ANALYTICS CUBE** have been created for PHUs.

These are useful for:

- Board of Health Reports
- PHO Health Information Snapshots
- Baby Friendly Initiative (BFI) designation
- APHEO Core Indicators



BORN and MCYS partnered to improve the capture and transmission of the **HBHC SCREEN**.

Portions of the screen can be pre-populated from data in the BORN Information System (BIS), improving data quality and efficiency.

For more information contact HBHC@BORNOntario.ca

A large, stylized yellow silhouette of a person's head and shoulders, facing forward. The silhouette is composed of a circular head and a rounded, open-bottom torso. The text "BORN ONTARIO" is centered horizontally across the middle of the silhouette.

BORN ONTARIO

What is BORN?

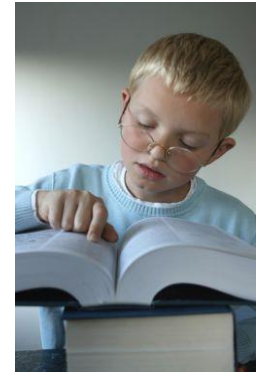
- BORN is a **REGISTRY**: granted registry Status under the *Personal Health Information Privacy Act* (PHIPA) in Nov 2009
- Allows BORN to collect, use and disclose personal health information **without consent** for the purpose of “facilitating or improving the provision of health care”.



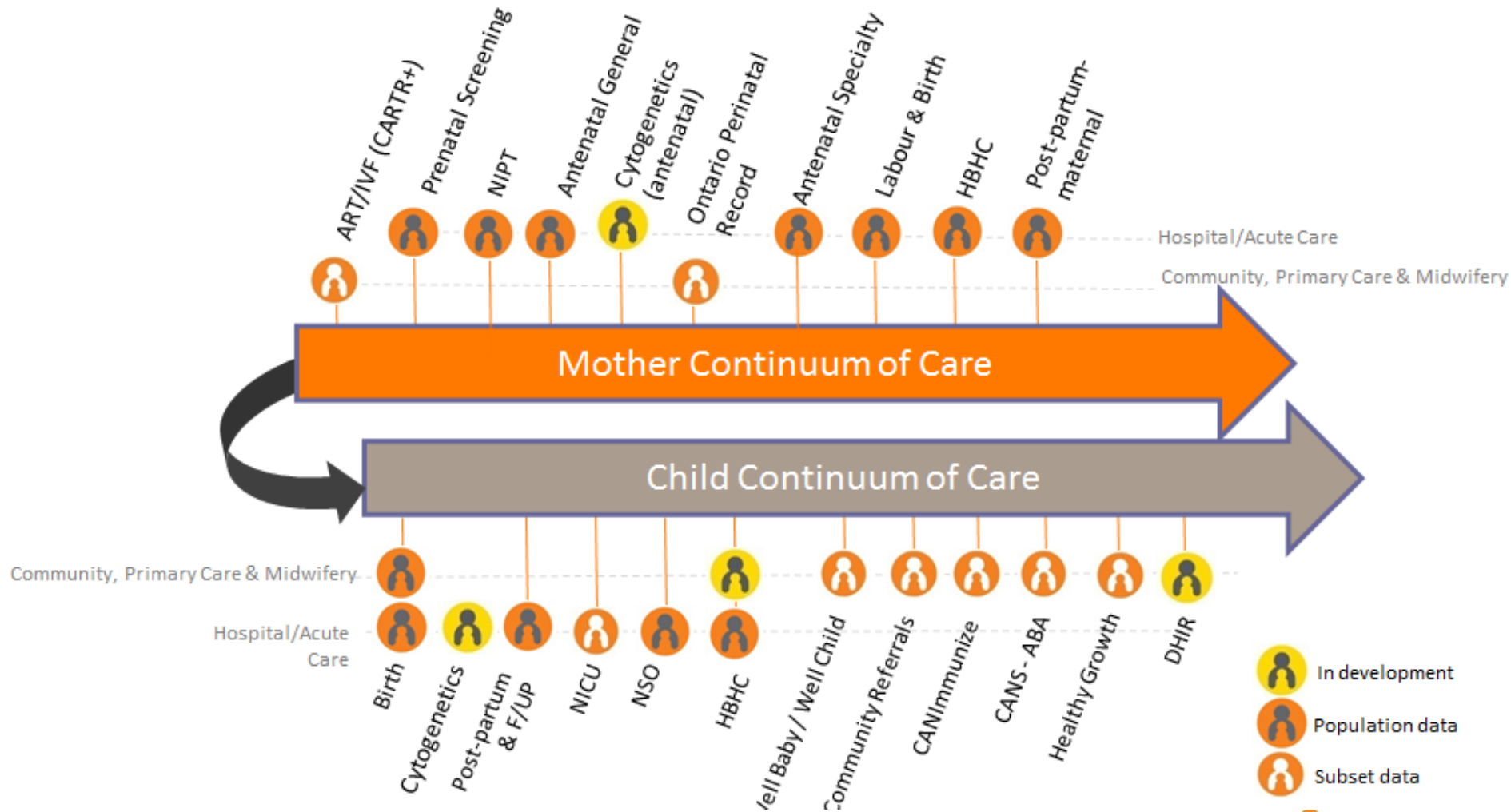
This special authority requires BORN to develop and adhere to rigorous privacy policies and have them reviewed and *approved* by the Ontario Information and Privacy Commissioner.

Growing Into Child

Adding new data sources to improve and facilitate care to children as they continue to grow



BORN Information: Continuum



A large, stylized yellow silhouette of a human figure, composed of rounded shapes for the head, torso, and limbs, positioned on the left side of the page. The figure is semi-transparent, allowing the text to be seen through it.

HEALTHY GROWTH INITIATIVE

Background

- May 2012 – MOHLTC assembled Healthy Kids Panel to provide advice on achieving goal to reduce childhood obesity



Healthy Kids Panel

Background

- March 2013 – No Time to Wait: The Healthy Kids Strategy
 - Recommendation to develop a surveillance system to monitor childhood weights, and risk and protective factors over time
 - There is currently no routine, ongoing collection of measured height and weight data for children and youth

HGI: Project Overview

Goal: The development and management of a system to obtain accurate and timely information on growth (height and weight), as well as behavioural risk and protective factors, for children from birth to 18 years of age in Ontario from Electronic Medical Records (EMRs) of primary care providers.



HGI: Project Overview

- HGI objectives
 - Provincially representative data on children from birth to 18 years of age
 - The development of high quality reporting on children's height and weight and other aspects of children's health at the provincial, regional, local and health care provider level
- Reports generated by the system will support policy makers and health care providers to plan and implement improved programs in support of children in Ontario

Sampling Strategy

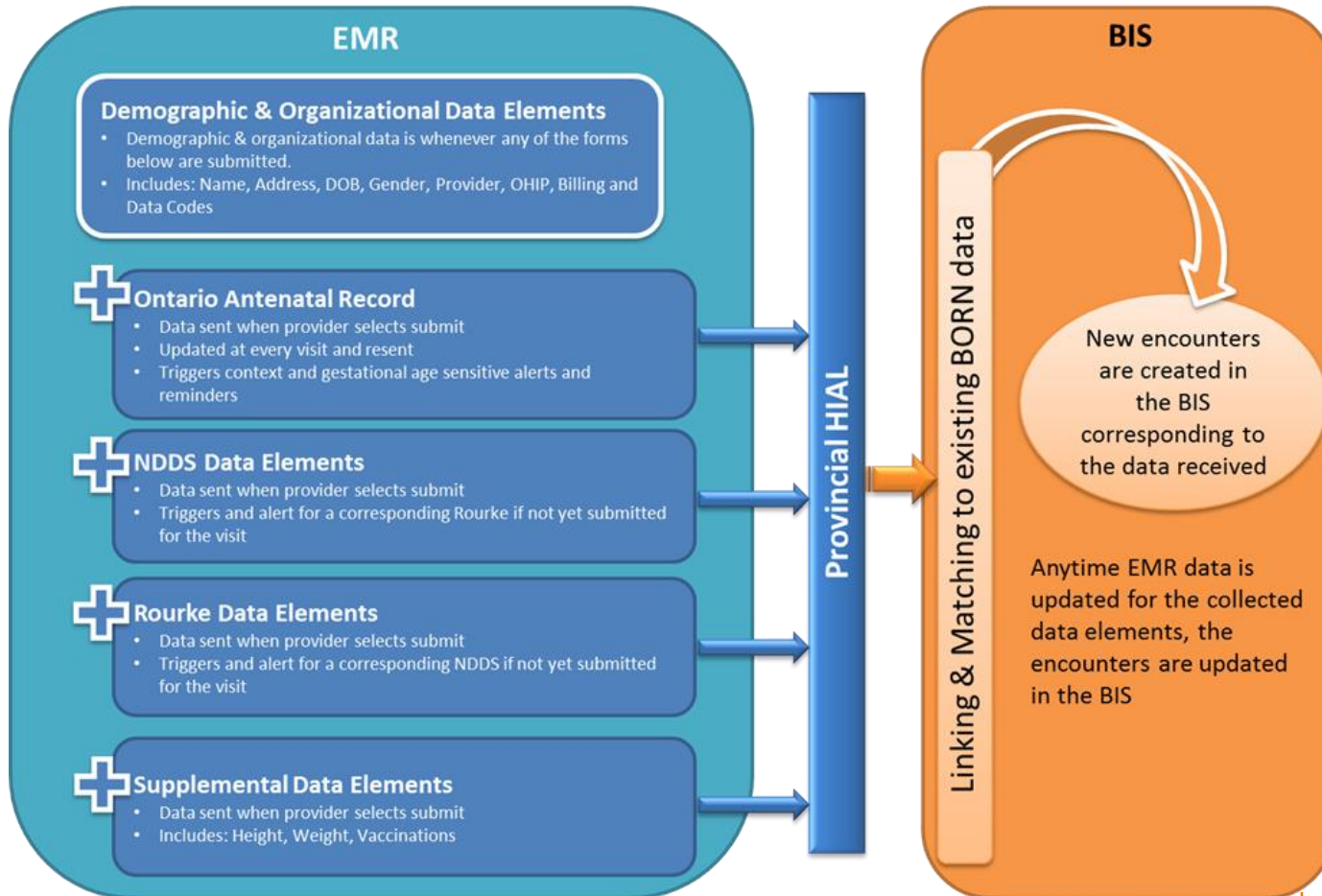
- Representative sample of children from birth to 18 years of age
 - Stratified random sample proportional to practice size
 - Minimum of 15 primary health care providers per PHU from at least 2 practice sites
 - All children from birth to 18 years in roster are included ~ 5000 children per PHU

Data Collection

- Data collected from EMRs of primary care providers (TELUS, OSCAR, QHR)
 - Secure transfer of data from EMR to BORN using Provincial Health Information Access Layer (HIAL)
 - Retrospective and prospective collection of data
 - Linking and matching of child data to birth record for births from 2012 – present

BORN Child Registry

Data Collection Model: EMR to BORN Information System (BIS)



Supplementary Data Elements

HGI Data Elements

Standardized Data Fields (EMR)

- Date of Birth
- Sex
- Weight
- Height
- Date height/weight recorded
- Postal code

Supplementary Behavioural Data (BORN)

- High birth weight
- Rapid infant weight gain associated with low birth weight
- Maternal weight
- Gestational weight gain
- Maternal smoking
- Breastfeeding

Additional Supplementary Behavioural Data

- Sugar sweetened beverage consumption
- Physical activity
- Sedentary behaviour
- Sleep
- Breakfast consumption
- Consumption of fruits and vegetables

Clinical Advisory Expert Panel

- Purpose:
 - Provide scientific, health system and technical leadership advice to BORN
 - Guided development of the behavioural risk and protective factor questions

- Meetings:
 - December 2016
 - January 2017
 - March 2017

Clinical Advisory Expert Panel

- Membership:

- BORN

- Shelley Kennedy (Chair)
- Chantal Wright (recorder)
- Cynthia Emerson
- Gillian Alton

- Invited Members

- Dr. Mark Tremblay
- Dr. Catherine Birken
- Dr. Brenda Weitzner
- Dr. Jean-Philippe Chaput

- Angelina Wiwczor
- Kathy Moran
- Lesley Andrade
- Dr. Kristi Adamo

Supplementary Data Elements

- MOHLTC requested these supplementary data elements
 - No standardized clinical tools collect these data elements across the desired age groups
 - Building a data field into primary care EMR does not equate with adoption by clinicians to complete
 - Preventative health visits, where these types of data elements might be collected, decline in children over 5 years of age

Collection of Supplementary Data Elements

- Ocean by CognisantMD is a technical solution that connects patients and healthcare providers using secure patient forms, screening tools, and surveys that integrate with EMRs.
- Waiting room Ocean tablets
- Development of HGI Forms to collect Supplementary Behavioural Data Elements
 - To be completed by parents/guardians/patient in the waiting room
 - 0 – 4 years
 - 5 – 13 years
 - 14 – 18 years
 - Data crosses into the EMR

First, please take a moment to confirm your demographic information. Tap anything that needs to be fixed and use the on-screen keyboard.

First Name Jane
Second Name
Last Name Smith
Preferred Name
Title Ms
Address 486 Main St
Address Line 2
City Toronto
Province ON
Postal Code M5A 1L8
Date of Birth 11 Sep 1975

Back Next



High Level Timeline

2017/2018

- Invitations to randomly selected primary care providers
- Follow-up and onboarding of primary care providers

2017/2018

- Build and collection of supplementary data elements

2018/2019

- Evaluation of system

2018/2019

- Recommendations to MOHLTC for consideration in provincial roll-out



DATA ANALYSIS

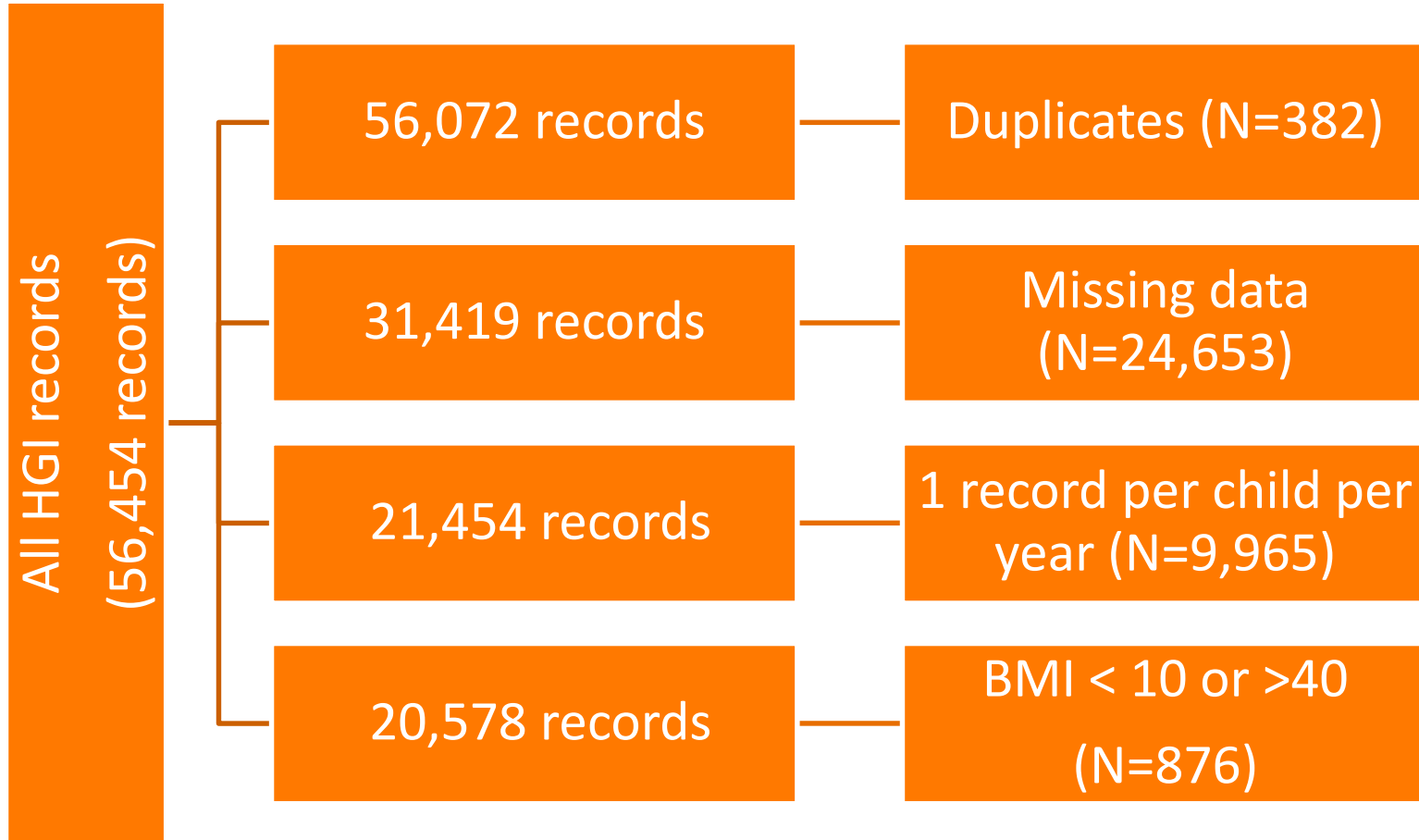
Descriptive Analyses

- Primary care sites:
 - 23 sites submitting data
 - 220+ care providers
 - 21,454 patients
 - Representation from
 - 13 of 14 LHINs
 - > 50% of PHUs

Descriptive Analyses

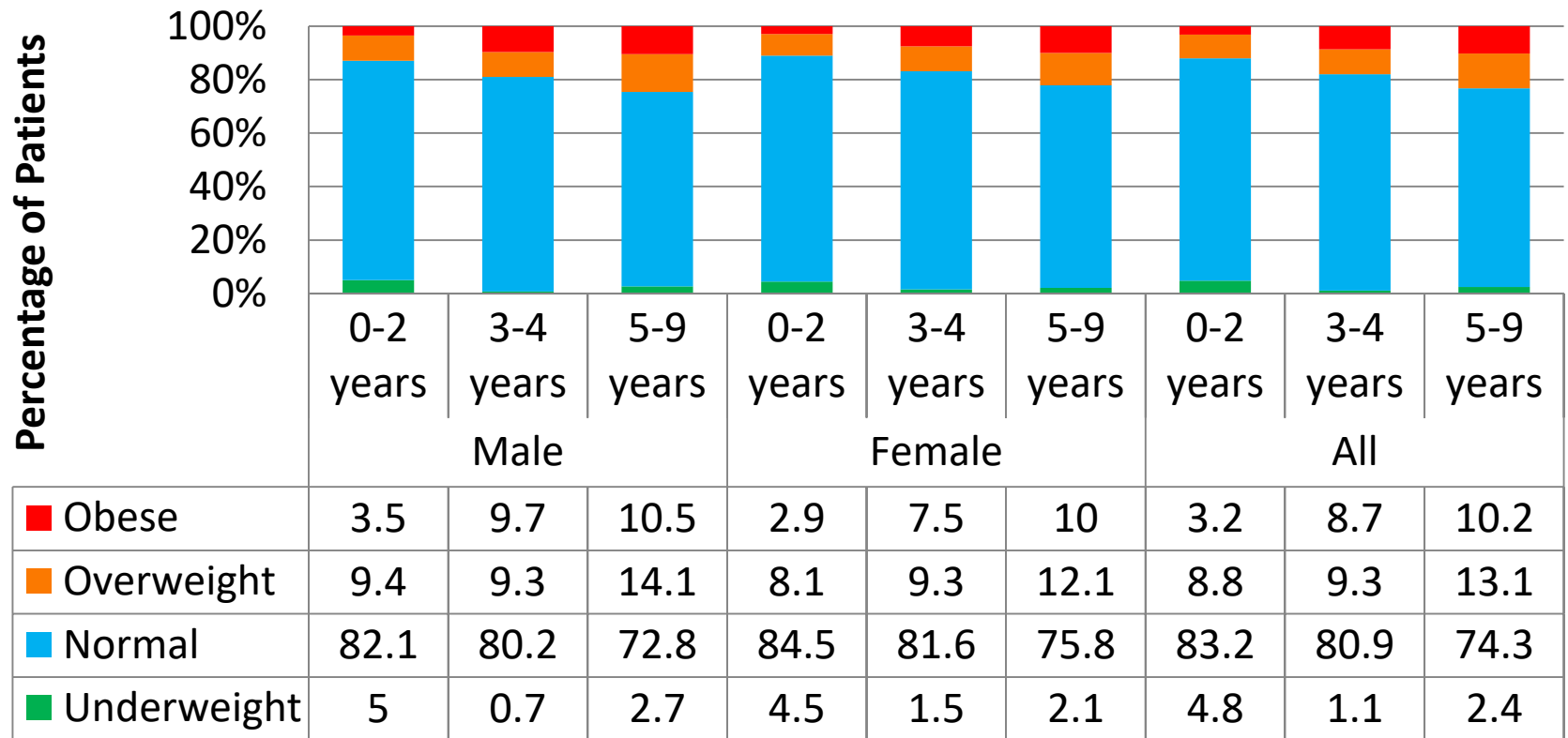
- Methods:
 - Extract all HGI data from EMRs in the BIS
 - Review and clean any duplicate records
 - Only one measurement for each patient per calendar year is included in analyses
 - Apply macro to calculate BMI percentile according to WHO age-sex-specific growth curves
 - Assign BMI percentiles into WHO age and sex specific growth categories
 - Link data to BIS pregnancy and birth records (if applicable)

Descriptive Analyses



Descriptive Analyses

Healthy Growth Initiative



Descriptive Analysis

20,578 records with BMI

17,152 records linked with birth record in
BIS

16,448 records
with Size for GA
element and
BMI

15,141 records
with diabetes
element and
BMI

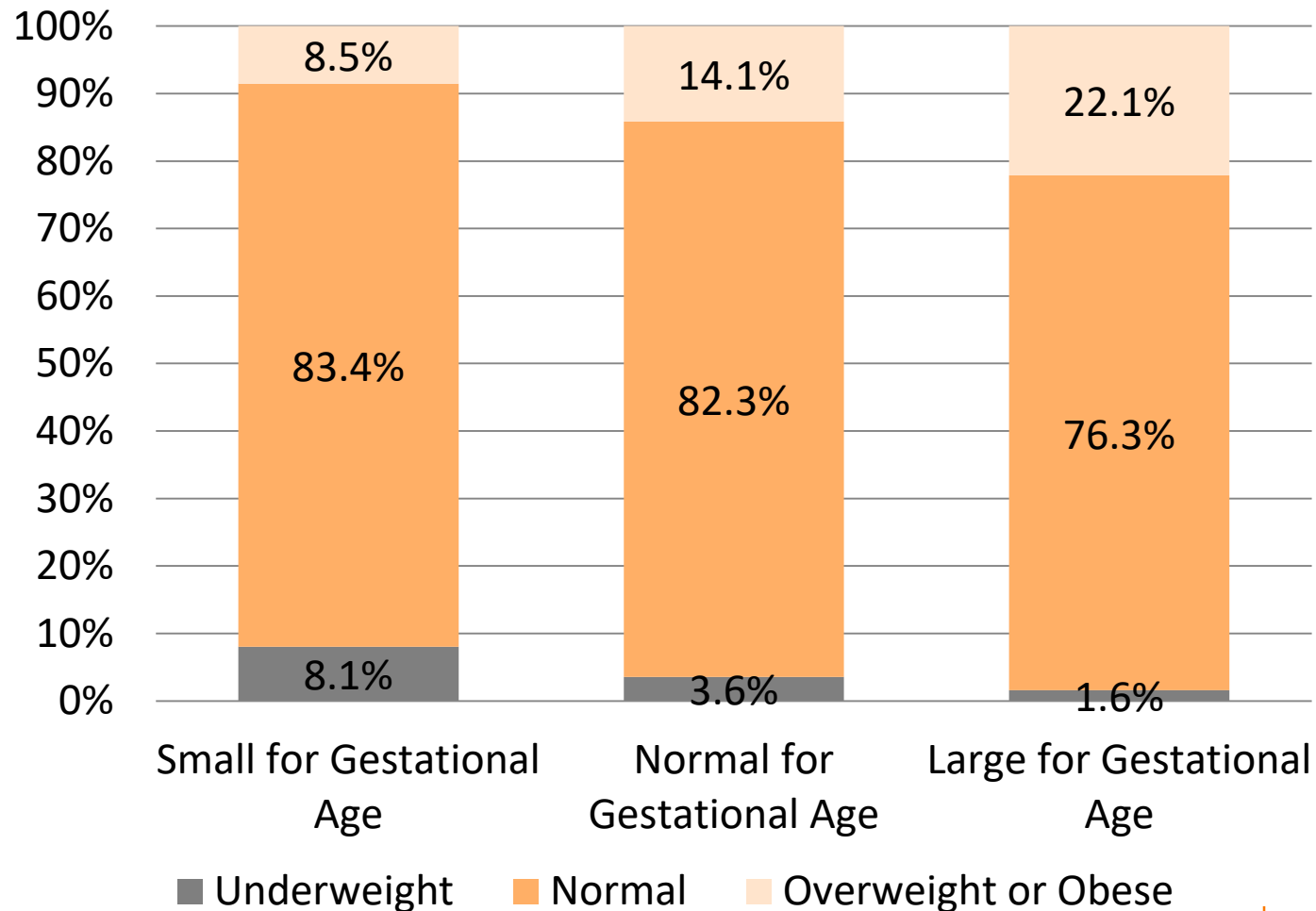
15,054 records
with smoking
element and
BMI

14,877 records
with alcohol
elements and
BMI

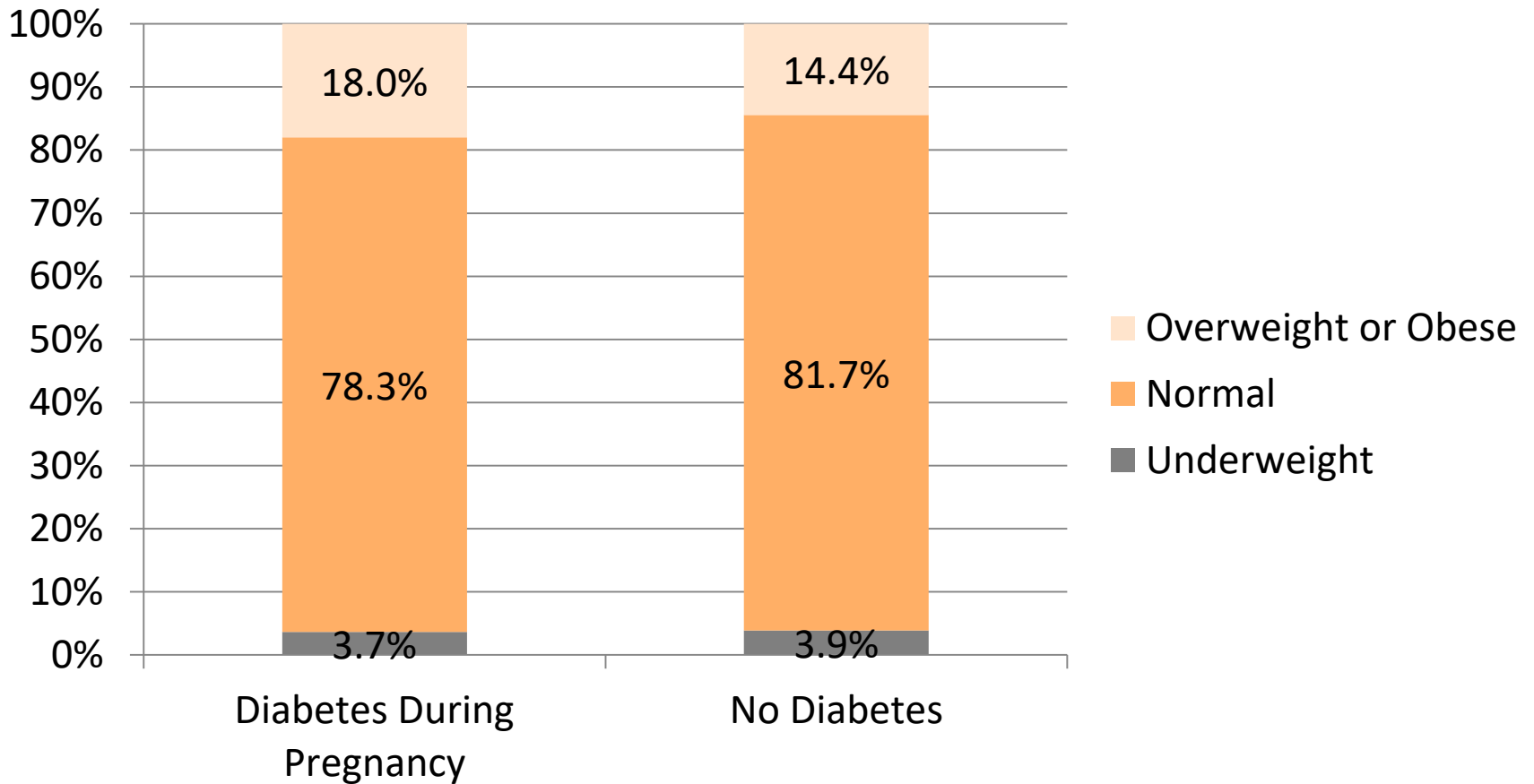
Preliminary Results

- Based on preliminary results, risk factors associated with children who were overweight or obese:
 - There was a statistically significant association between
 - Size for gestational age and childhood BMI
 - Diabetes (gestational, type 1 or type 2) during pregnancy and childhood BMI
 - Smoking during pregnancy and childhood BMI
 - There was no statistically significant association between alcohol use during pregnancy and childhood BMI

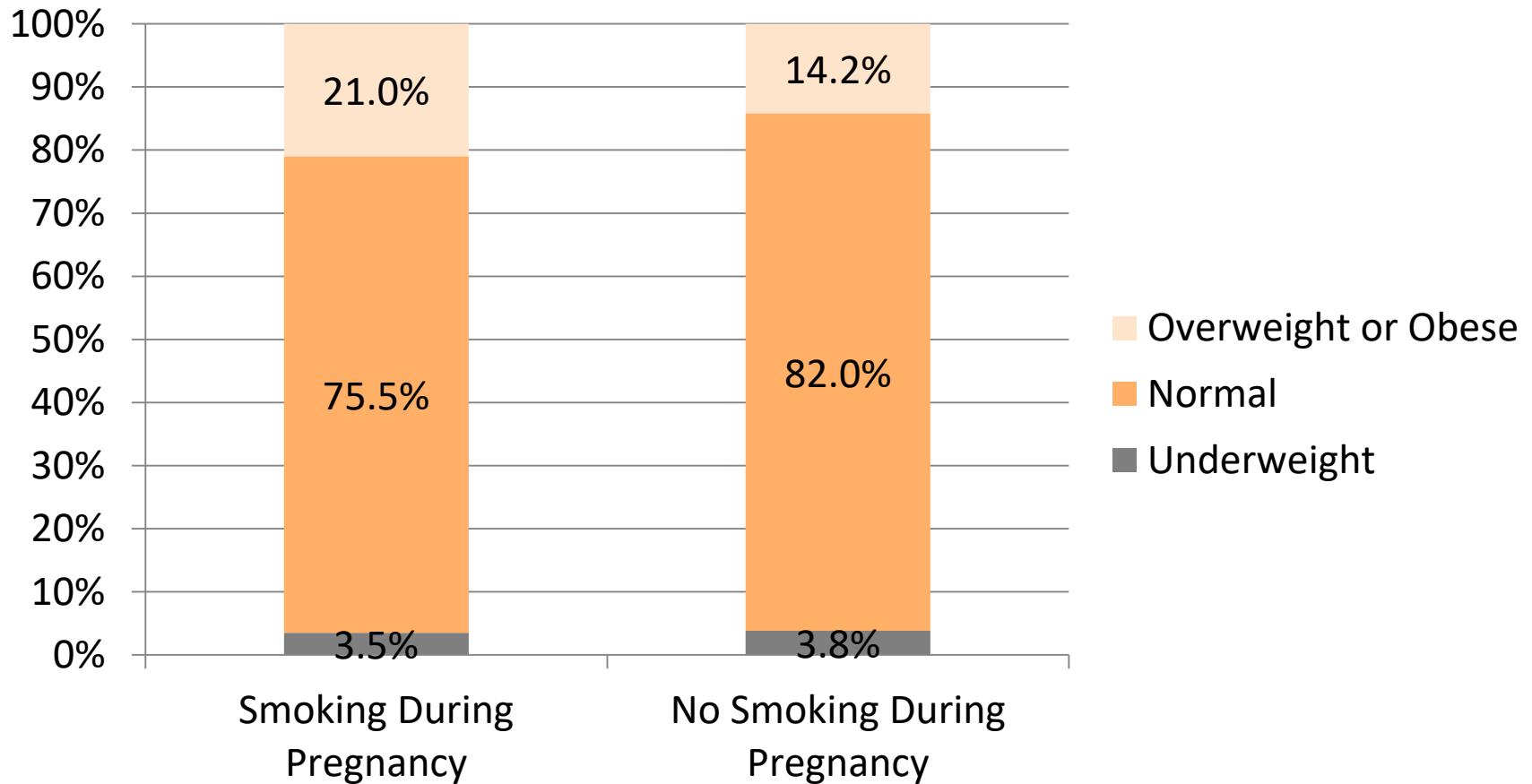
Size for Gestational Age Compared to BMI



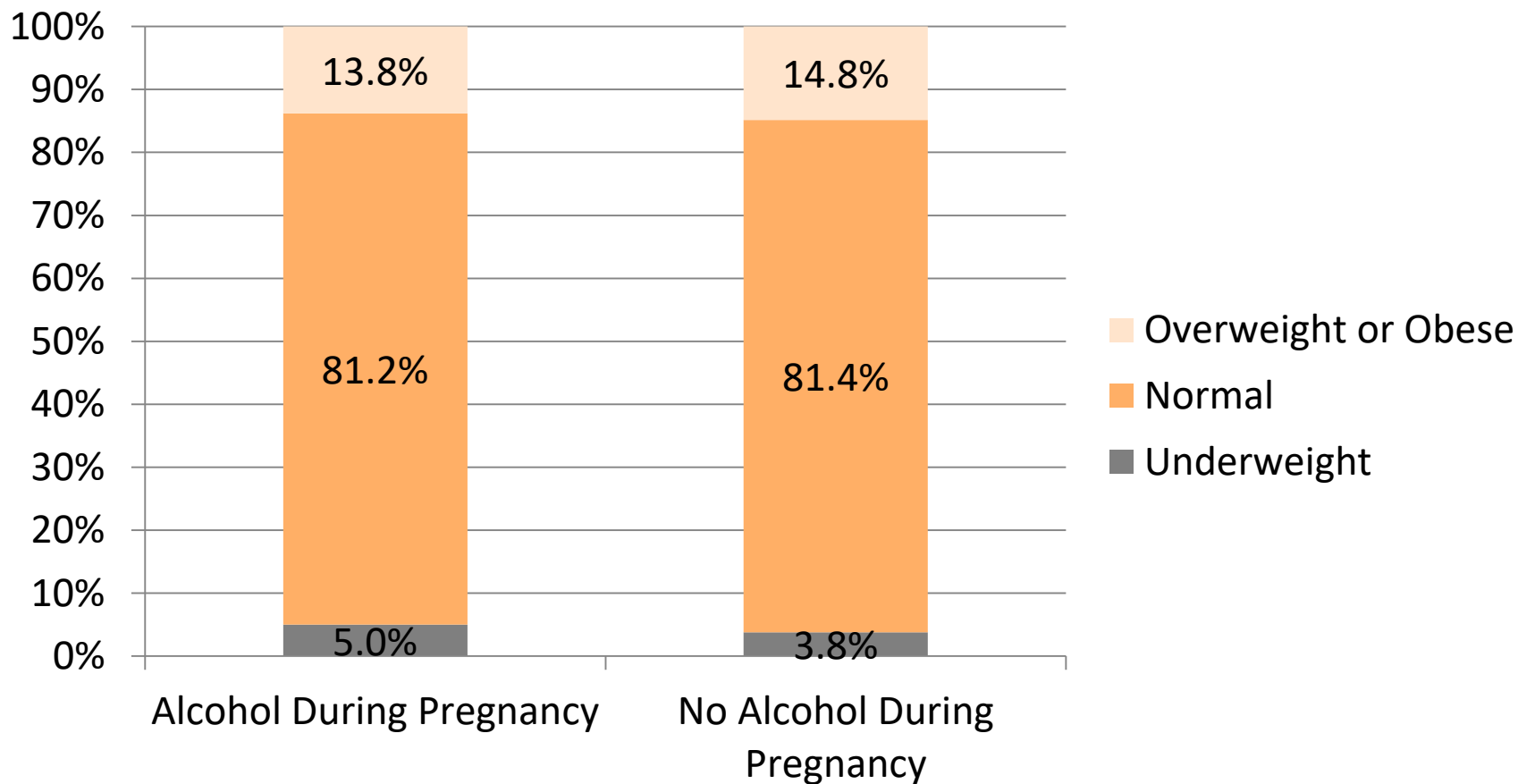
Diabetes During Pregnancy Compared to BMI



Smoking During Pregnancy Compared to BMI



Alcohol Use During Pregnancy Compared to BMI





DISSEMINATION AND USE OF RESULTS

Reporting and Research

- Customized Reports
 - BORN is developing site reports for contributors to help them better understand their patient population and to permit comparison with provincial aggregate-level data
- Collaboration
 - Opportunity to influence report content through:
 - Primary Care Working Group
 - BORN-Public Health Working Group

Reporting and Research

- Quarterly reporting to MOHLTC
- BORN Annual Report
- External research requests
- Potential internal research projects
 - Description of growth of children from birth to 18 months
 - Description of BMI distribution across the province
 - Clusters of high and low BMI in children in Ontario
 - Risk and protective factors associated with BMI categories in children
 - Health equity and BMI

Discussion

Which elements are important to you for HGI reporting?



Questions

www.BORNOntario.ca



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