

Congenital Anomalies Surveillance System of Québec

Marianne Bilodeau-Bertrand, Nathalie Auger

May 1, 2018

BiESP BUREAU D'INFORMATION
ET D'ÉTUDES EN SANTÉ
DES POPULATIONS

Overview



- **Congenital Anomalies Surveillance in Québec**
 - Current status of surveillance in Québec
 - MOA and Objectives
 - Workplan
- **Research Team**
 - Data
 - Research program and sample study
 - Future projects

Current status of surveillance in Québec

- The Ministry of Health and Social Services has some data on congenital anomalies in Quebec, but this information is not part of a national surveillance system, and is not reported or published.

Prevalence in 2004-2008 (includes stillbirths and infants diagnosed before the age of 1 year):

| | Prevalence per 10,000 |
|---------------------|-----------------------|
| Neural tube defects | 2.8 |
| Heart defects | 123.6 |
| Cleft palate | 6.6 |
| Cleft lip | 6.7 |
| Down Syndrome | 9.8 |

Congenital Anomalies Surveillance in Québec - MOA and objectives



- Agreement between the PHAC and the Ministry of Health and Social Services (MSSS).
- The MSSS mandated the Institut national de santé publique du Québec (INSPQ) to establish a surveillance system.

Objectives:

- Assess the burden of congenital anomalies
- Document trends and identify geographical and temporal variation
- Share data with CCASS

Congenital Anomalies Surveillance in Québec - Workplan



Year 1 – 2018

- Preparation of the surveillance plan
 - Context
 - Identify the indicators for surveillance

Year 2 – 2019

- Data linkage
 - Define the dataset we want to create (hospitalizations, births, deaths, stillbirths)

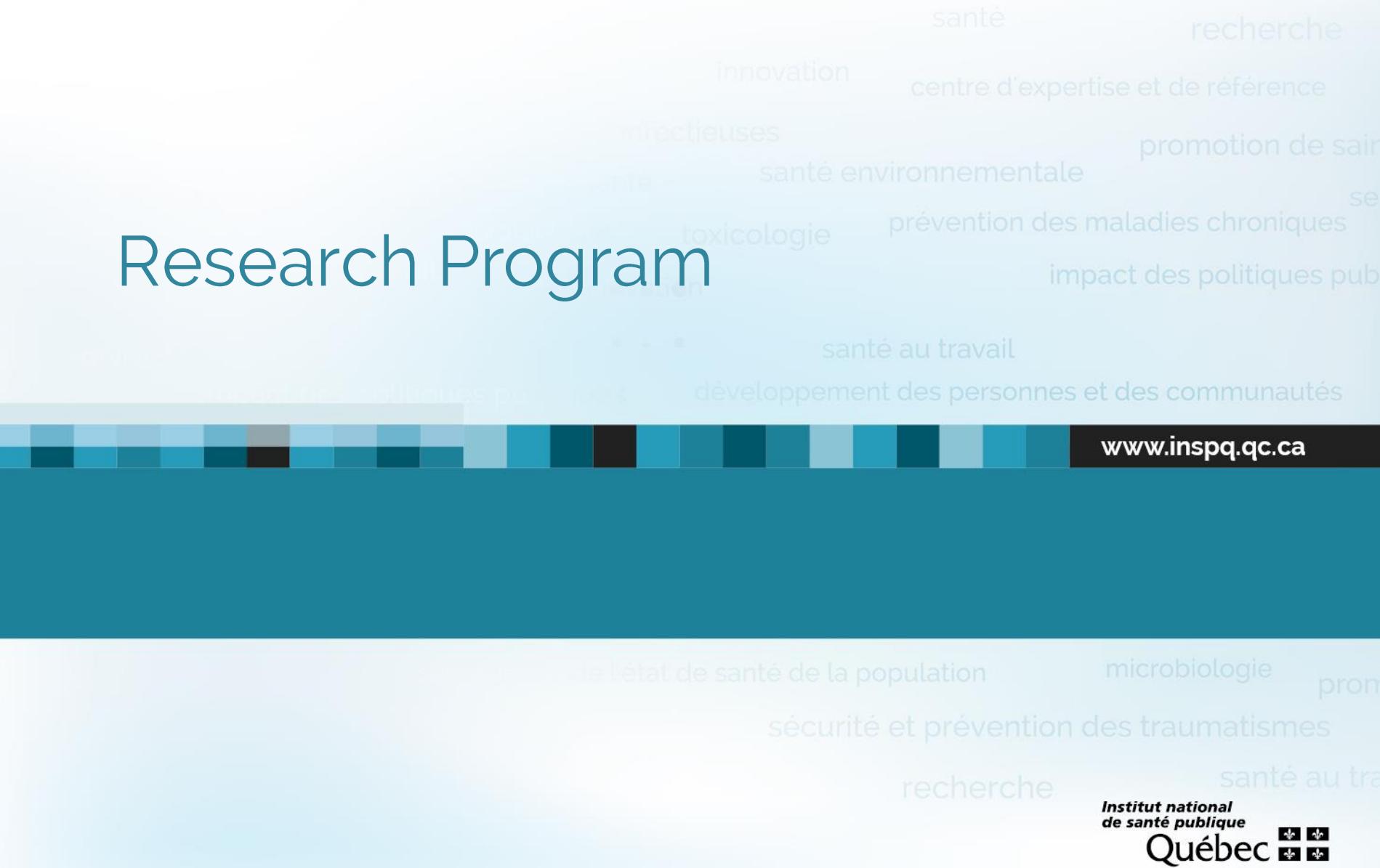
Year 3 – 2020

- Data validation
- Statistical analyses
- Share Québec data with CCASS

Research Program



www.inspq.qc.ca



Research Program – Data



Cohort of women who delivered in Québec 1989-2016

- Based on the hospital discharge abstract
- Linked with the birth of their offspring
- Follow-up of mother's hospitalization (1989-2016)

Research – Example of a study (1/3)



Auger et al. Long-Term Risk of Cardiovascular Disease in Women Who Have Had Infants With Heart Defects. *Circulation*. 2018

- Objective: Determine whether the risk of cardiovascular disorders later in life was higher for women who have had newborns with congenital heart defects.

Research – Example of a study (2/3)



- **Exposure:**
 - Infants with critical, noncritical, or no heart defects.
- **Outcome:**
 - Hospitalization for cardiovascular disease up to 25 years after pregnancy.
- **Analysis:**
 - Cox proportional hazards regression to estimate hazard ratios, adjusted for maternal characteristics.

Research – Example of a study (3/3)

Table 1 Incidence and hazard ratio of cardiovascular hospitalization

| | Total no. of women | No. of women hospitalized for cardiovascular disorder | Incidence of cardiovascular hospitalization per 1000 person-years | Adjusted hazard ratio (95% CI) |
|-----------------|--------------------|---|---|--------------------------------|
| No heart defect | 1,067,851 | 36,878 | 2.4 | Reference |
| Critical | 1516 | 69 | 3.4 | 1.43 (1.13–1.82) |
| Noncritical | 14,884 | 664 | 3.2 | 1.24 (1.15–1.34) |

Research Program – Future projects



- Risk of cancer later in life for women who have had newborns with congenital anomalies.
- Exposure to electromagnetic fields during pregnancy and the risk of congenital anomalies.
- Anesthesia of the mother during pregnancy and the risk of congenital anomalies in the infant.

To contact the Bureau d'information et d'études en santé des populations

Website : www.inspq.qc.ca/biesp

Email : nathalie.auger@inspq.qc.ca

marianne.bilodeau-bertrand@inspq.qc.ca

Tel. : 514 864-1600

www.inspq.qc.ca