



Fonds de recherche
Santé

Québec



Strategy for Patient-Oriented Research



LES ALLIÉS
DE LA FACULTÉ
DE PHARMACIE

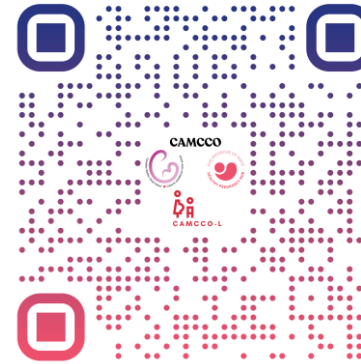


Université
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THE CANADIAN MOTHER-CHILD
INITIATIVE



INNOVATION
Canada Foundation
for Innovation / Fondation canadienne
pour l'innovation

Canadian Mother-Child Initiative on Drug Safety in Pregnancy

Anick Bérard *PhD FCAHS FISPE*

Principal Investigator

Université de Montréal, CHU Ste-Justine

Fondation
CHU
Sainte-
Justine



CHU Sainte-Justine
Le centre hospitalier
universitaire mère-enfant

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de Montréal

Medications and Pregnancy

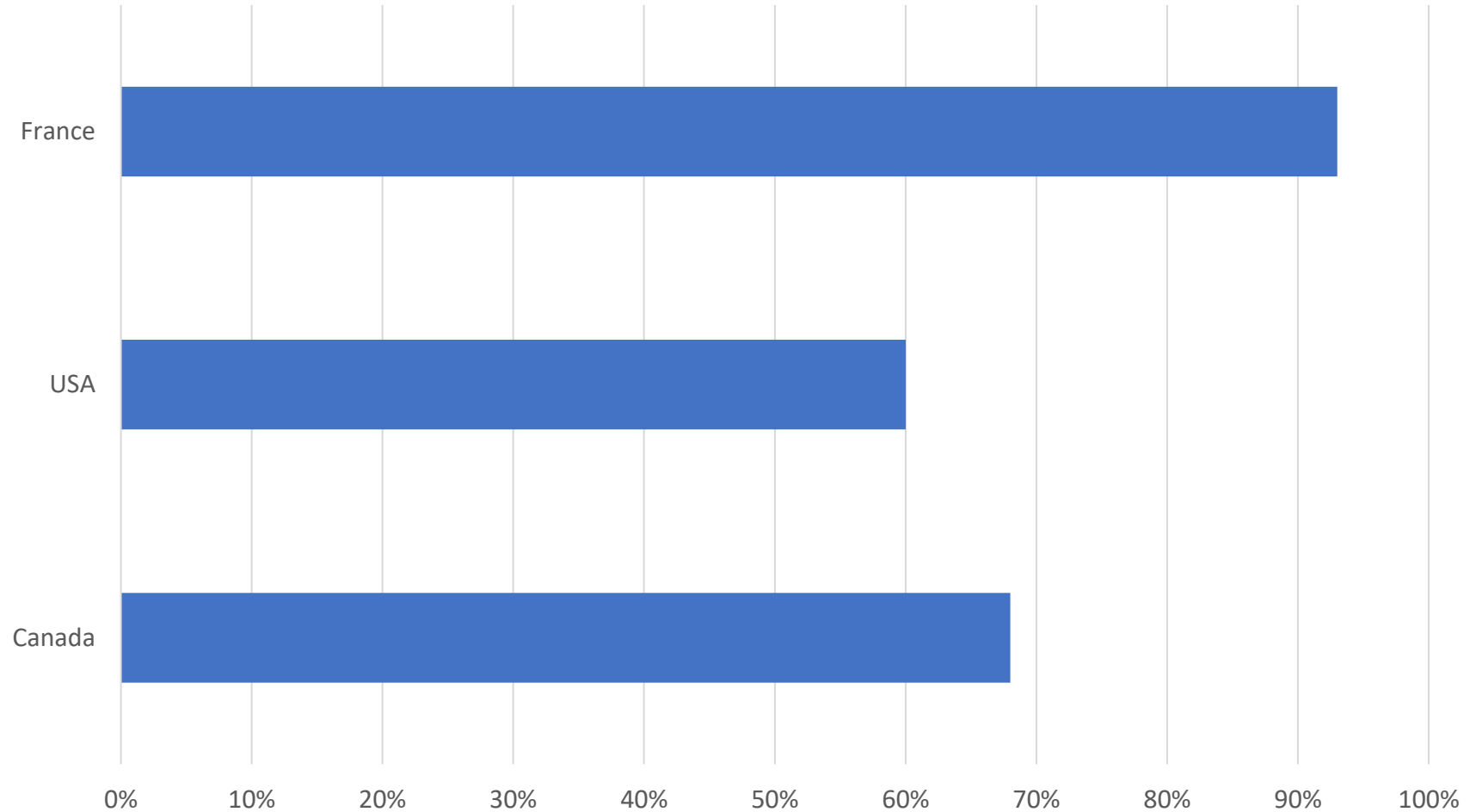


- No randomized controlled trials pre-marketing
- 50% of pregnancies are unplanned
- Maternal age at first pregnancy is increasing worldwide (29 years in Canada)



- Probability of being exposed to medications by inadvertance or to treat a chronic or pregnancy-related condition is high
- In Canada, 68% of pregnant women take at least 1 Rx during pregnancy (Bérard et al., 2022)
- In Québec, 6% of pregnant women are exposed to known teratogens (Kulaga et al., BJOG 2009)
- No risk 0

Prevalence of medication use in pregnancy?



Ren et al. <https://doi.org/10.1016/j.ajog.2021.04.227>

Bérard et al., <https://doi.org/10.1371/journal.pone.0274355>

Bérard et al., [10.1371/journal.pone.0219095](https://doi.org/10.1371/journal.pone.0219095)

Why study medications in pregnancy ?

~60%

of pregnant women take one or more prescription medications for their pre-existing or pregnancy-induced conditions



~70%

of women who breastfeed and/or pump their milk take some form of medication or supplement during lactation



~90%

of clinically approved medications do not have appropriate drug labeling information for pregnant and lactating women



Building on existing successes

CAMCCO-Learn

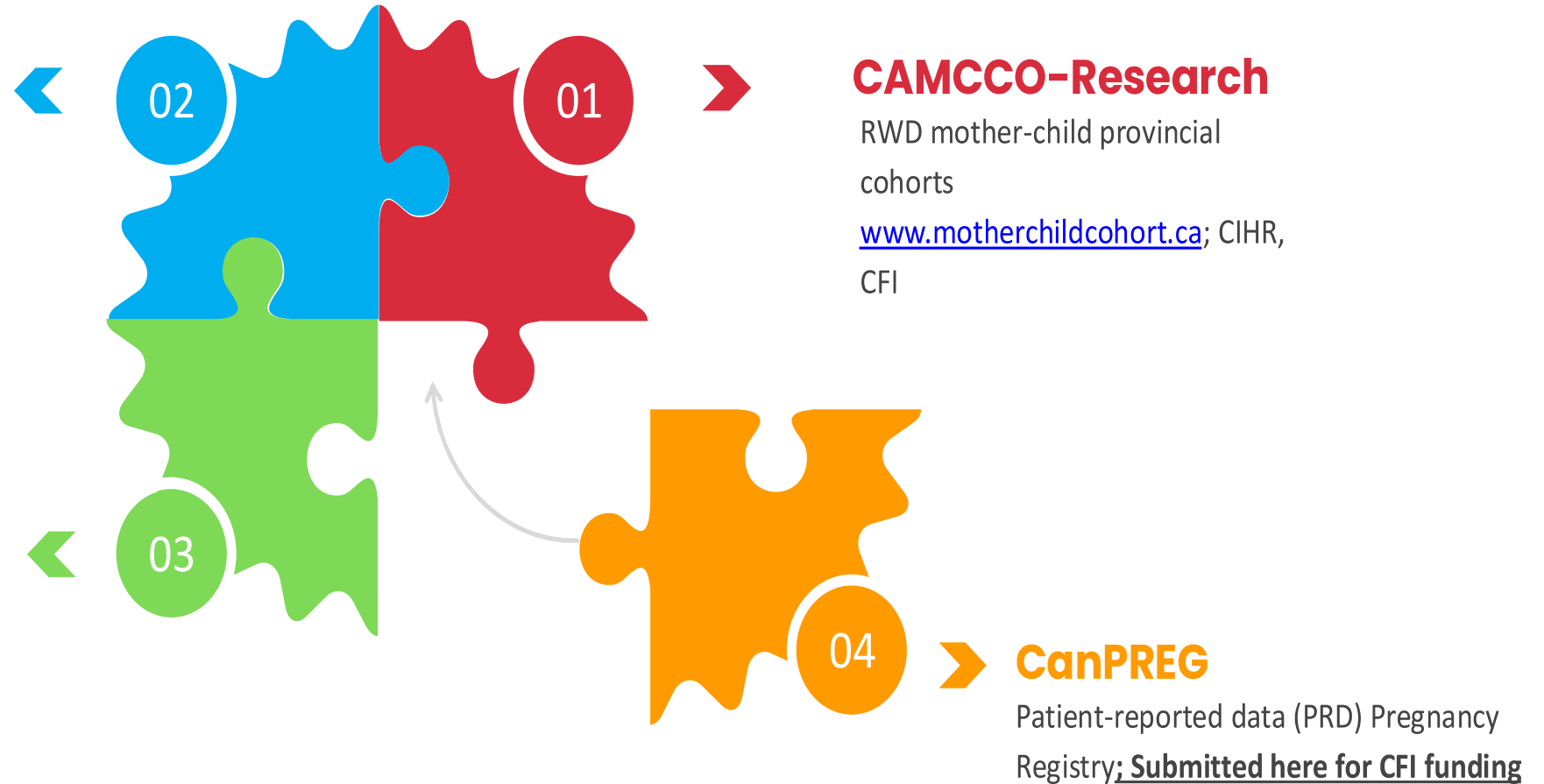
Training platform

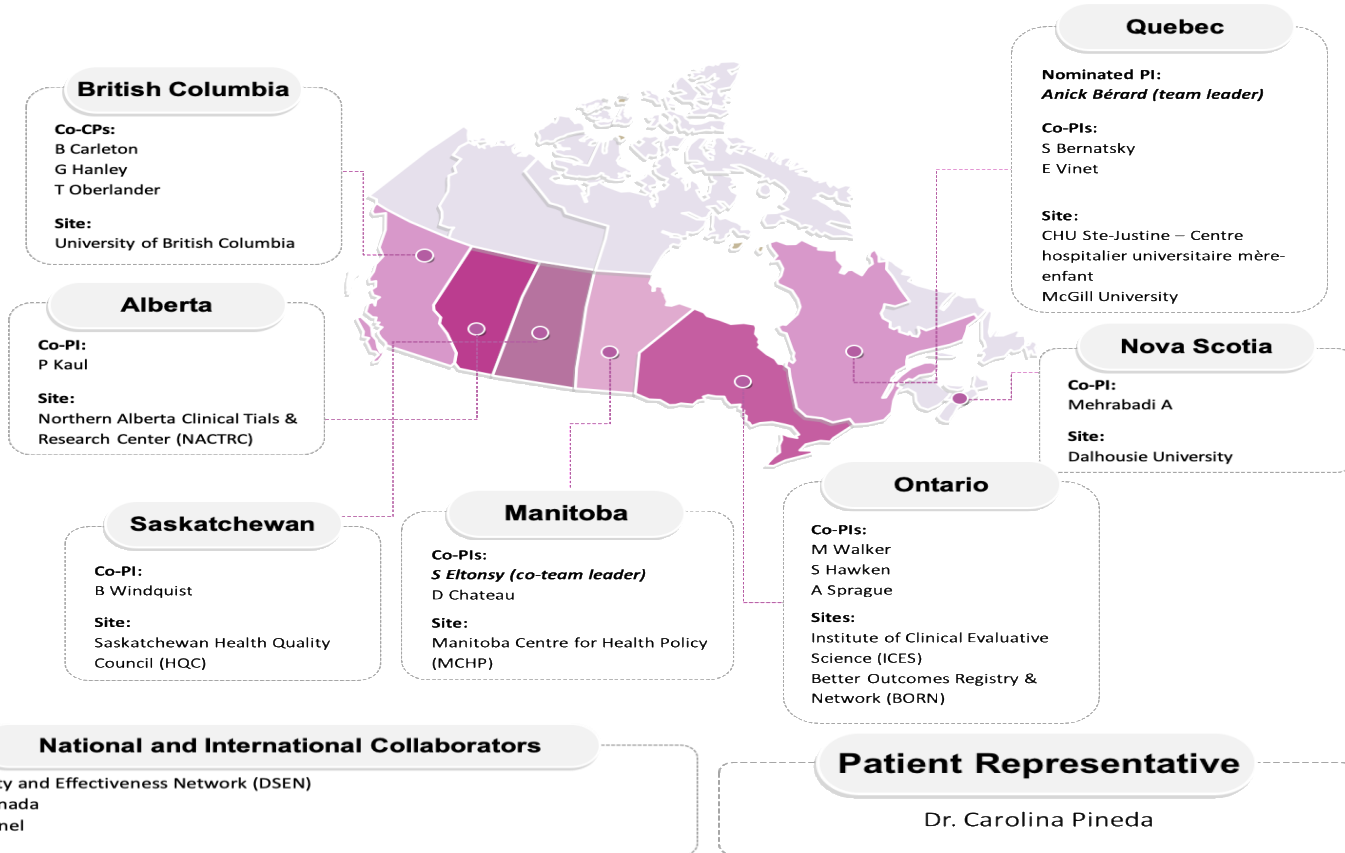
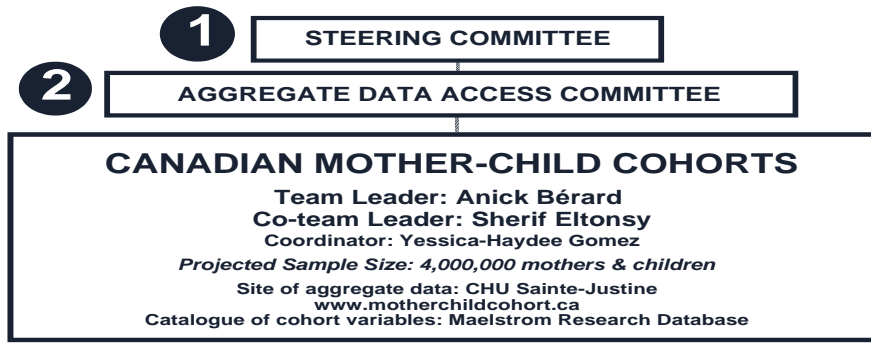
www.camccol.ca; CIHR, SPOR

CAMCCO-Outreach

Knowledge dissemination platform

www.healthypregnancyhub.ca; CIHR





- 1 Steering Committee :**
- Provincial Ministry of health representatives
 - Health Canada representatives
 - All PIs

- 2 Aggregate Data Access Committee :**
- All PIs
 - Provincial data holder representatives

Data on
10 million pregnancies,
over 8 million children,
up to 30 years of
follow-up



Structure

Provincial Cohort

- Provincial access
- Provincial-level data
- Individual servers



QC



ON



MA



SA



AL



BC



NS

Central repository

- Team access
- Dictionary (provincial- and national-levels)
- Data catalogue



- Dictionary
- Codes
- Algorithms

- SAS/R programming
- CDM

Aggregated Data

- Team access
- Stakeholders access
- National-level data
- Repository



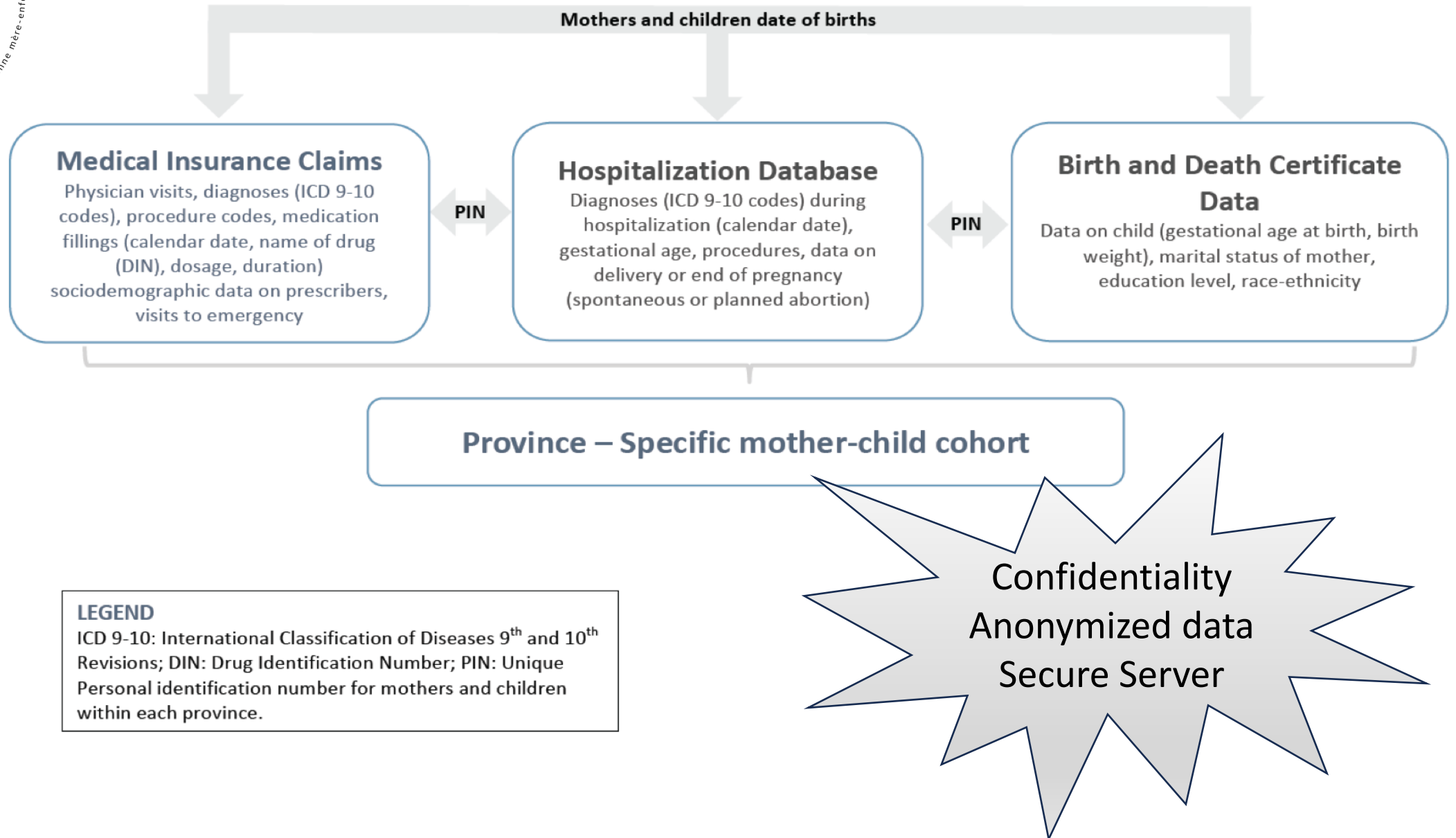
Website

- Team access
- Stakeholders access
- Global access

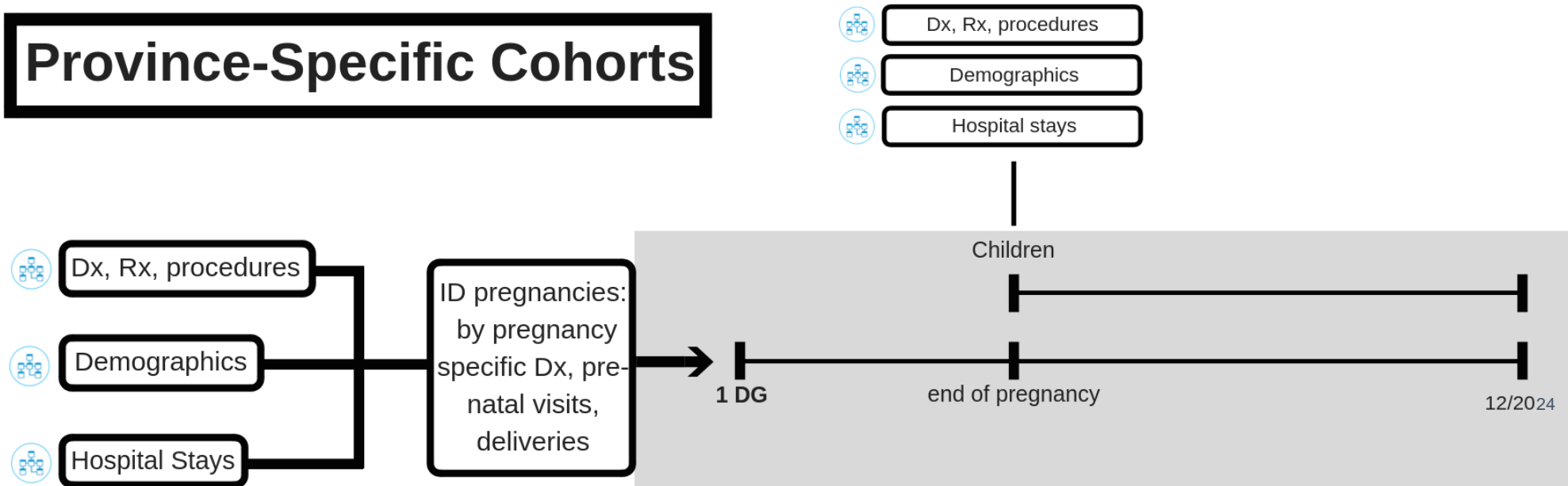


www.motherchildcohort.ca

Linkage procedures within each province



Province-Specific Cohorts

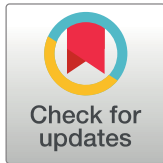


RESEARCH ARTICLE

The Canadian Mother-Child Cohort Active Surveillance Initiative (CAMCCO): Comparisons between Quebec, Manitoba, Saskatchewan, and Alberta

Anick Bérard^{1,2,3*}, Padma Kaul^{4,5}, Sherif Eltonsy⁶, Brandace Winquist⁷, Dan Chateau^{6,8}, Steven Hawken^{9,10,11}, Ann Sprague¹², Mark Walker^{9,10,11,12,13}, Sasha Bernatsky¹⁴, Michal Abrahamowicz¹⁵, Cristiano Soares de Moura¹⁶, Évelyne Vinet¹⁴, Bruce Carleton¹⁷, Gillian Hanley¹⁸, Tim Oberlander¹⁹, Odile Sheehy², Yessica Haydee Gomez², Jessica Gorgui^{1,2}, Anamaria Savu⁵

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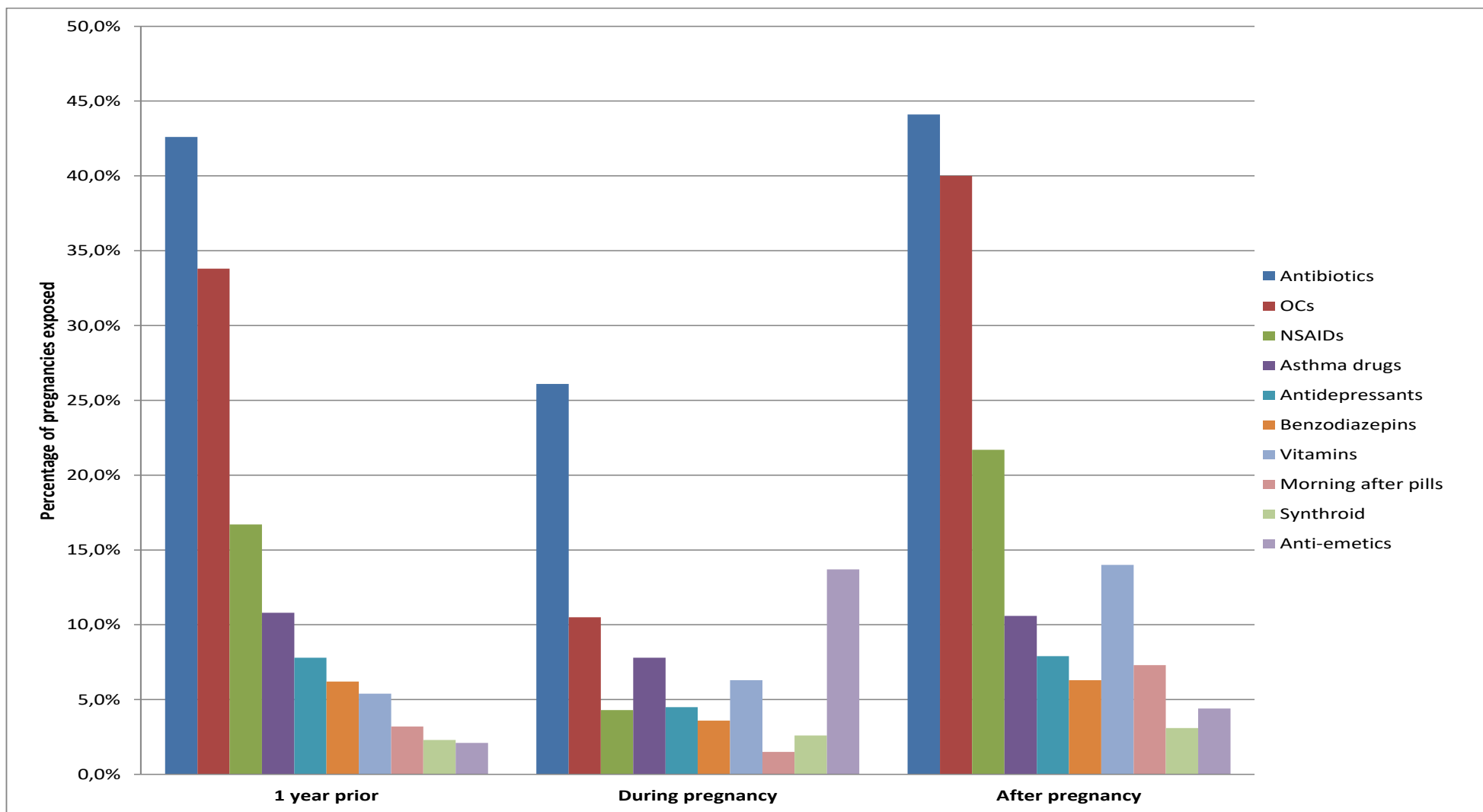


OPEN ACCESS

Citation: Bérard A, Kaul P, Eltonsy S, Winquist B, Chateau D, Hawken S, et al. (2022) The Canadian Mother-Child Cohort Active Surveillance Initiative (CAMCCO): Comparisons between Quebec, Manitoba, Saskatchewan, and Alberta. PLoS ONE 17(9): e0274355. <https://doi.org/10.1371/journal.pone.0274355>

Editor: Rodrigo Romao, Dalhousie University, CANADA





Active Risk Identification and Analysis (ARIA)



After protocol approval

- Signal ID: 1-2 months
- Level 1: 3-4 months
- Level 2: 6 months
- Level 3: 12 months

RESEARCH ARTICLE

The Canadian Mother-Child Cohort Active Surveillance Initiative (CAMCCO): Comparisons between Quebec, Manitoba, Saskatchewan, and Alberta

Anick Bérard^{1,2,3,*}, Padma Kaul^{1,5}, Sherif Eltonsy⁶, Brandace Winquist⁷, Dan Chateau^{8,9}, Steven Hawken^{9,10,11}, Ann Sprague¹², Mark Walker^{10,11,12,13}, Sasha Bernatsky¹⁴, Michal Abrahamowicz¹⁵, Cristiano Soares de Moura¹⁶, Évelyne Yinet¹⁴, Bruce Carleton¹⁷, Gillian Hanley¹⁸, Tim Oberlander¹⁹, Odile Sheehy², Yessica Haydee Gomez², Jessica Gorgui^{1,4}, Anamaria Savu²

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Citation: Bérard A, Kaul P, Eltonsy S, Winquist B, Chateau D, Hawken S, et al. (2022) The Canadian Mother-Child Cohort Active Surveillance Initiative (CAMCCO): Comparisons between Quebec, Manitoba, Saskatchewan, and Alberta. *PLOS ONE* 17(9): e0274355. <https://doi.org/10.1371/journal.pone.0274355>

Editor: Rodrigo Roman, Dalhousie University, CANADA

PLOS ONE | <https://doi.org/10.1371/journal.pone.0274355> September 20, 2022

Query: Q21-03 - COVID-19 infection and medicines in pregnancy.

Background

Although it is estimated that over 100 million pregnant women worldwide may be at risk of infection with SARS-CoV-2, and more than 3,800 pregnant women in Canada have been infected to date¹, little data exists on the consequences of COVID-19 infection and related treatments on maternal and neonatal health.

Effects and outcomes have primarily been reported in case series, small cohort studies and meta-analyses². Most of the available evidence has focused solely on third-trimester exposures to COVID-19 and the use of medicines off-label. This has led to important gaps in information about the impact of COVID-19 infection at different gestational ages and the use of, and guidelines for, treatments across all trimesters and their impacts, including outcomes such as fetal malformations, preterm delivery, pregnancy loss, and low birth weight. Real-world data can fill current knowledge gaps and inform future safety and effectiveness studies and clinical practice guidelines for treating pregnant women infected with COVID-19.



Main objectives

Health Canada advisory impacts on the prevalence of oral codeine use in the Pediatric Canadian population: comparative study across provinces

O. Sheehy¹, S. Eltonsy², S. Hawken^{3,4,5}, M. Walker^{3,4,6,7,8,9}, P. Kaul¹⁰, B. Winquist¹¹, O. Barrett¹², A. Savu¹⁰, R. Dragan¹³, M. Pugliese^{3,14}, S. Bernatsky¹⁵, J. Gorgui¹ & A. Bérard^{1,16,17,18}

Health Canada (HC) has, since 2013, issued safety alerts restricting the use of codeine-containing drugs among breastfeeding women and children/adolescents under 18 years of age. These products are linked to breathing problems among ultra-rapid CYP2D6 metabolizers and early use of opioid can lead to future opioid misuse. Using a multi-province population-based cohort study, we estimate the impact of federal safety alerts on annual rates of codeine use in the Canadian pediatric population. We analyzed data from 8,156,948 children/adolescents in five Canadian provinces between 1996 and 2021, using a common protocol. Children/adolescents were categorized as: ≤ 12 years (children) or > 12 years (adolescents). We defined codeine exposure by ≥ 1 prescription filled for codeine alone or combined with other medications. For both age categories, we obtained province-specific codeine prescription filling rates per calendar year by dividing the number of children/adolescents with ≥ 1 codeine prescription filled by the number of person-time. Annual rates of codeine use per 1000 persons vary by province from 3.0 (Quebec) to 10.1 (Manitoba) in children, and from 5.5 to 51.3 in adolescents. After the 2013 HC advisory, exposure decreased in all provinces (adjusted level change from −0.6 to −18.4%) in children and from −2.1 to −17.9% in adolescents after the 2016 advisory. Annual rates declined over time in all provinces, following HC safety alerts specific to each of the two age categories.

On-going studies:

ASM and Neurodevelopment (Eltonsy et al., CIHR; Bérard et al., CIHR)

Risk management program (Bérard et al., CIHR)

Treatment of cardiovascular comorbidity in pregnancy (Malhamé et al., CIHR)

PregTrial (Dayan/Bérard et al., CIHR)

Check for updates

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Front. Pharmacol. 15:1469552.
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Trends of antiseizure medication utilization among pregnant people in four Canadian provinces from 1998 to 2023; a study from the Canadian mother-child cohort active surveillance initiative (CAMCCO)

Payam Peymani¹, Anick Berard^{2,3}, Brandace Winquist⁴, Padma Kaul^{5,6}, Odile Sheehy², Alekhyia Lavu¹, Christine Leong^{1,7}, Jamie Falk¹, Joseph A. Delaney^{1,8}, Kaarina Kowalec^{1,9}, Marcus Ng¹⁰, Chelsea Ruth^{11,12}, Laila Aboulatta¹, Silvia Alessi-Severini^{1,12}, Roxana Dragan¹², Shelley Derksen¹², Olesya Barrett¹³, Golnaz Shams¹⁴ and Sherif Eltonsy^{1,15*}

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Background: Epilepsy management during pregnancy is crucial for both the mother and fetus. The use of antiseizure medications (ASMs) during pregnancy requires careful consideration due to their potential effects on maternal and

Real World Data...

Strengths

- Larger and more diverse study population
- High statistical power
- Decrease selection bias
- Historical data over decades
- Study rare events/outcomes
- Target rial emulation

Limitations

- Data is collected for non-research purposes and outcomes may not be validated
- Inadequate or missing information
- Data access and privacy concerns

Launch – November 2024

CHUSJ Gala Excellence et
Reconnaissance
(May 30th 2025)













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Ressources

Fiches informatives

Recherche de fiches informatives

Rechercher par mots-clés, médicaments, type de médicaments ou conditions médicales.

[Toutes les conditions médicales](#)

[Consulter toutes les fiches informatives](#)

[51 sheets; 35 ressources; Collaborations with ANSM, MothertoBaby, EPI-PHARE, MotherSafe](#)

www.hubgrossesseensante.ca
www.healthypregnancyhub.ca

CAMCCO-Outreach team:
76 academics; 46 graduate students/fellows; 7 decision-makers; 16 knowledge users; 2,000 people with lived experiences

Chaque grossesse est unique ; elle a son environnement, ses symptômes, ses défis qui **varient d'une personne à l'autre** et même d'une grossesse à l'autre. Dans certains cas, prendre un médicament est la meilleure chose à faire pour la santé de maman et donc celle du bébé.

Plus de **3 personnes enceintes sur 4** prennent des médicaments, mais l'information sur leur sécurité durant cette période est souvent limitée. Nous sommes convaincues et convaincus qu'en ayant toute l'information nécessaires, chaque personne aura les outils pour discuter avec son équipe soignante et **prendre une décision éclairée** pour une GROSSESSE en SANTÉ.

C'est pourquoi nous avons regroupé une équipe de plus de **70 chercheuses et chercheurs** nationaux et plus de **2 000 personnes ayant une expérience vécue** afin d'offrir de l'information accessible fondée sur des **données scientifiques**.

Que vous soyez futur parent, membre d'une équipe professionnelle en santé périnatale ou personne curieuse, ce site changera la façon de vous informer sur les **médicaments durant la grossesse** pour vous soutenir dans votre choix.

Fiches informatives ⁽⁶⁾

Tout savoir sur les médicaments et conditions médicales durant la grossesse.

Ressources ⁽²⁴⁾

Explorez nos vidéos, balados, articles et dépliants.

Découvrez notre équipe ⁽¹⁾

Les professionnel.le.s de la santé, chercheu.se.r.s et expert.e.s en communication derrière notre site.

Fiches informatives populaires ⁽⁶⁾

Nos fiches informatives répondent aux questions fréquemment posées sur de nombreuses expositions courantes pendant la grossesse et l'allaitement, notamment les médicaments, les problèmes de santé, les infections, les vaccins, etc.

← → [Voir tout](#)

Acétaminophène
(Tylenol)

Diabète de
grossesse

Infection
urinaire

Troubles
anxieux

Influenza
(g ↑ e)



Un peu, beaucoup,
passionnément, à la foli...que!



 www.hubgrossesseensante.ca

Can Acetaminophen (Tylenol®) During Pregnancy Affect Baby's Brain Development?

What Are Brain Development Disorders?

It includes conditions that affect **how the brain grows and works**, making it harder for a person to:

- learn
- move
- communicate
- handle emotions

What Did We Do?

Our team looked at **ALL** the research on the effect of **acetaminophen** during pregnancy on baby's brain development.

What Did We Find?

Right now, studies show **no clear link between acetaminophen** use in pregnancy and problems with baby's brain development.

More research in the future can help to confirm this.

Research Is Great, But It's Not Perfect

Limits of research can make it difficult to be sure about the effects because:

- Difficult to know the **exact amount of acetaminophen** taken during pregnancy, so the effect of dose is unclear.
- Different tools are used to **evaluate** a child's brain development, making study results difficult to compare.
- People **take acetaminophen** for many reasons, making it difficult to tell if effects are from the medication, the illness, or other factors.

What Does Science Say?

No increased risk of Language Delay

Trouble with learning to talk and understand words on time.

35,000 pregnancies from 5 studies.

No increased risk of Cognitive Development

Problems with thinking, remembering, and learning.

7,600 pregnancies from 2 studies.

No increased risk of ADHD

Condition that makes it hard to focus, sit still, and control actions.

2.5 millions pregnancies from 4 studies.

No increased risk of Autism Spectrum Disorder

Condition affecting how someone interacts, communicates, and behaves.

2.5 millions pregnancies from 2 studies.

No increased risk of Psychomotor Development

Slower development of movement and coordination skills.

35,000 pregnancies from 3 studies.

Always consult a healthcare professional before making changes to your medication.

Reference:
Sears, Arick, et al. "Acetaminophen use during pregnancy and the risk of neurodevelopmental disorders in childhood: A Systematic Review and Meta-Analysis." Center for Truth in Science, November 2024.





< Publication de Canadian Institutes of Health R...



Canadian Institutes of Health Research · Suivre

3 j ·

Are medications safe to take during pregnancy?
A quick Google search might tell you to avoid them all, but that's not always true.

The Healthy Pregnancy Hub is tackling misinformation with trusted, research-backed resources – from fact sheets to videos – to help pregnant individuals make informed decisions about their health.

https://cihr-irsc.gc.ca/e/54363.html?hsid=d2d92720-a06e-4900-b5ae-e5aea77913ab&utm_medium=facebook&utm_source=canadian+institutes+of+health+research

31

9 partages

J'adore

Commenter

Envoyer

Partager



The Society of Obstetricians and Gynaecologists of Canada

12 650 abonnés

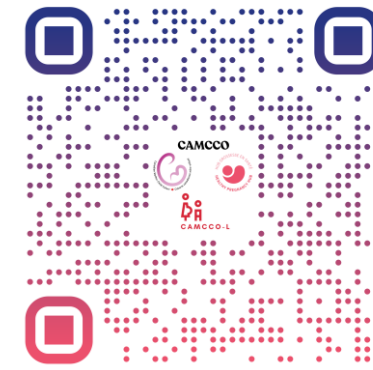
4 sem. ·

The SOGC was present at the Canadian National Perinatal Research Meeting (CNPRM) last week in ... plus

Afficher la traduction



avec Dre Diane Francoeur



Thank you!

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www.motherchildcohort.ca

www.camccol.ca

<https://healthypregnancyhub.ca/>