# MARGINALIZATION AND ACCESS TO OUTPATIENT MENTAL HEALTH SERVICES PRIOR TO PSYCHIATRIC EMERGENCY VISITS IN POSTPARTUM WOMEN IN ONTARIO

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CAHSPR May 2015

# Disclosures

- I have no financial disclosures or conflicts of interest relevant to this project

# Acknowledgements


- Thank you to my research supervisor, Dr. Simone Vigod
- Thank you to our collaborators on this project, Dr. Paul Kurdyak and Dr. Flora Matheson
- And thank you to Kinwah Fung for dataset creation and analysis

- This study was supported by a grant from the Canadian Institutes of Health Research (CIHR). In addition, this study was supported by the Institute for Clinical Evaluative Sciences (ICES), which is funded by an annual grant from the Ontario Ministry of Health and Long-Term Care (MOHLTC).

# Overview

- **The issue:** Marginalization is a barrier to mental health service use in the general population but whether marginalization impacts service use in the postpartum is largely unknown

- **What this study accomplished:** Learned that 2/3 of postpartum women do not access outpatient mental health services prior to presenting in the emergency department for a mental health concern and that barriers to service use seem to exist for women who live in areas of economic marginalization, residential instability, and who live rurally.

- **How we got there:** Nested case control study using Ontario health administrative data

# Rationale

- Psychiatric conditions are common in the postpartum period (up to 20% of women) and have significant negative impact on mothers, children, and families

- Psychiatric conditions are the 5$^{th}$ most common reason for urgent presentation to the emergency department during the postpartum period

**To some extent, this may be an avoidable outcome**

Clark SL, Belfort M a., Dildy G a., Englebright J, Meints L, Meyers J a., et al. Emergency department use during the postpartum period: implications for current management of the puerperium. Am J Obstet Gynecol [Internet]. Elsevier Inc.; 2010;203(1):38.e1–38.e6.

Paschetta E, Berrisford G, Coccia F, Whitmore J, Wood AG, Pretlove S, et al. Perinatal psychiatric disorders: An overview. Am J Obstet Gynecol [Internet]. Elsevier Inc; 2014;210(6):501–9.e6.

# Rationale

- Outside of postpartum, emergency department visits can be avoided if adequate outpatient mental health care is provided

- Women who deliver a baby are almost always connected with the health care system to some extent, therefore there should be opportunities for connection with needed mental health care

- To design appropriate supports and services, need to understand characteristics of women at risk of presenting to ED without prior outpatient mental health care

# Rationale

- Marginalization has been repeatedly identified as a barrier to accessing outpatient mental health services outside of the postpartum period

- Very few studies have focused on this issue, and its consequences (such as resultant psychiatric ED visits) in the postpartum period.

# Our Research Goal

- Among postpartum Ontario women, to determine whether marginalization is associated with having a first postpartum psychiatric contact in the emergency department setting.

# Methods

- **Study Design:** Nested case control study using Ontario population-based health administrative data
- **Sample:** Female Ontario residents who had a mental health ED visit within the first postpartum year between April 1, 2006 and April 1, 2012
- **Primary outcome:** ED visit was the first mental contact since delivery ("first presenters")
- **Comparisons:** Level of marginalization using the ON-Marg index, place of residence (urban vs. rural) and neighbourhood income

# Data Sources

- Ontario health administrative data sources at the Institute for Clinical Evaluative Sciences (ICES)
  - Patient level records anonymously linked through a unique identifier for every Ontario resident with a health care number.
  - **MOMBABY** datafile used to identify births using a main patient service code for "obstetric delivery" +/- hospital diagnostic codes
  - **Registered Persons Database *(RPDB)*** Health card number, date of birth, sex and postal code associated with the carrier of each valid health card.

# Data Sources

- **Canadian Institutes of Health Information Discharge Abstract Database (*CIHI-DAD*)** All hospitals submit demographic and clinical information about all hospital admissions and discharges to CIHI using standard diagnosis (ICD-9 and ICD-10-CA) and procedure/intervention codes (CCP and CCI)

- **Ontario Mental Health Reporting System (*OMHRS*)** Contains mental health clinical and administrative data on adult patients from 2005 onward in all facilities in the province of Ontario with designated inpatient mental health beds

- **Ontario Health Insurance Plan (*OHIP*)** In Ontario, physicians are reimbursed after submitting claims to OHIP for each service provided. This covers all aspects of ambulatory and hospital care

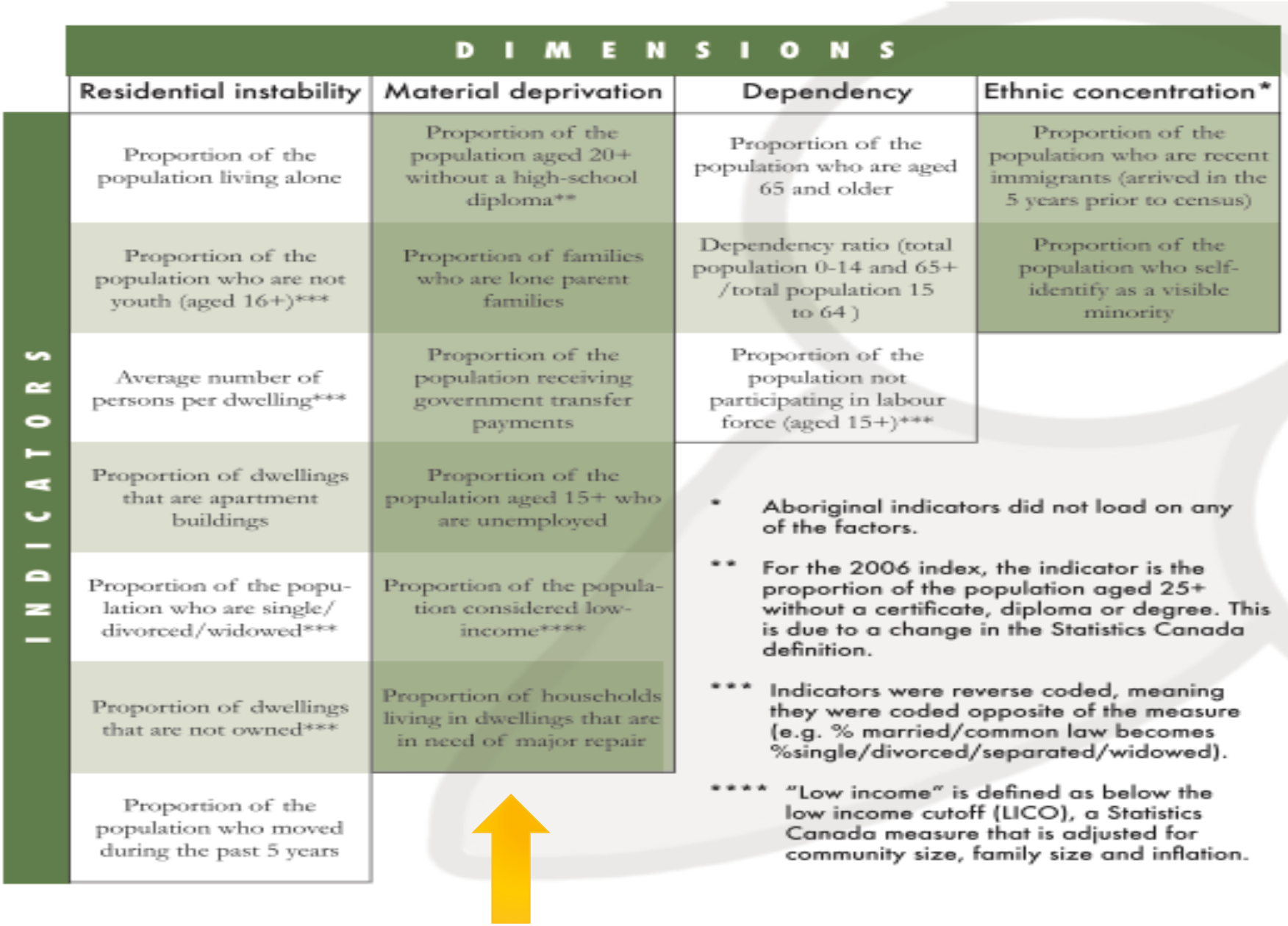
- **National Ambulatory Care Reporting System (*NACRS*)**. NACRS covers emergency department visits, day surgery and mandated outpatient clinics. It includes acuity, diagnoses, interventions, demographic and complaint information. All emergency departments in Ontario are mandated to report each visit using to NACRS.

# Measures of Marginalization

1. Ontario Marginalization index (ON-Marg)
   - A census-based, empirically-derived index that stratifies the Ontario population by quintile for various dimensions of marginalization

2. Place of residence
   - Defined as rural if <10,000 and urban if ≥ 10,000

3. Income
   - Defined as neighbourhood income quintile



| | DIMENSIONS | | | |
|---|---|---|---|---|
| | Residential instability | Material deprivation | Dependency | Ethnic concentration* |
| INDICATORS | Proportion of the population living alone | Proportion of the population aged 20+ without a high-school diploma** | Proportion of the population who are aged 65 and older | Proportion of the population who are recent immigrants (arrived in the 5 years prior to census) |
| | Proportion of the population who are not youth (aged 16+)*** | Proportion of families who are lone parent families | Dependency ratio (total population 0-14 and 65+ /total population 15 to 64 ) | Proportion of the population who self-identify as a visible minority |
| | Average number of persons per dwelling*** | Proportion of the population receiving government transfer payments | Proportion of the population not participating in labour force (aged 15+)*** | |
| | Proportion of dwellings that are apartment buildings | Proportion of the population aged 15+ who are unemployed | | |
| | Proportion of the population who are single/ divorced/widowed*** | Proportion of the population considered low-income**** | | |
| | Proportion of dwellings that are not owned*** | Proportion of households living in dwellings that are in need of major repair | | |
| | Proportion of the population who moved during the past 5 years | | | |

* Aboriginal indicators did not load on any of the factors.

** For the 2006 index, the indicator is the proportion of the population aged 25+ without a certificate, diploma or degree. This is due to a change in the Statistics Canada definition.

*** Indicators were reverse coded, meaning they were coded opposite of the measure (e.g. % married/common law becomes %single/divorced/separated/widowed).

**** "Low income" is defined as below the low income cutoff (LICO), a Statistics Canada measure that is adjusted for community size, family size and inflation.

Matheson FI, Dunn JR, Smith KLW, Moineddin R, Glazier RH. ON-Marg Ontario Marginalization Index User Guide. Centre for Research on Inner City Health.

# Statistical Analysis

- Described “first-presenters” and “non-first presenters” using means and/or proportions

- Primary analysis: groups compared across ON-Marg quintiles, with least marginalized as referent, using logistic regression, generated crude and adjusted odds ratios (ORs) and 95% confidence intervals

- Secondary analysis: groups compared on place of residence (urban as referent) and income (highest income as referent)

# Results

- There were 8,728 psychiatric postpartum ED visits, with a median time to presentation of ~ 5 months (152 days)
- For 5,271 (65.5%), there was no outpatient physician mental health service use between the obstetrical delivery and the ED visit (median time to presentation was ~4 months, or 126 days).
- Meaning that….

**2/3 were “first presenters”, and on average these women had 4 months postpartum in which to access services**

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| Measure | Cases (n=5,271) | Controls (n=3,457) |
|---|---|---|
| **Demographic characteristics** | | |
| Age in years, mean (SD) | 26.1 (6.21) | 27.0 (6.31) |
| Parity (primiparous) | 2479 (47.0) | 1523 (44.1) |
| **Psychiatric diagnoses in 2 years prior to delivery** | | |
| Any diagnosis | 2711 (51.4) | 2571 (74.4) |
| **Mental health service use in 2 years prior to delivery** | | |
| Usual psychiatrist provider (>50% of visits to same provider) | 304 (5.8) | 595 (17.2) |
| Any psychiatric outpatient visit to psychiatrist or family physician | 2203 (41.8) | 2417 (69.9) |
| **Non-mental health outpatient service use between delivery and ED presentation** | | |
| Non-mental health family physician visit | 3109 (59.0%) | 2674 (77.4%) |
| Obstetrics visit | 3499 (66.4%) | 3349 (96.9%) |
| Pediatrics visit | 4205 (79.8%) | 3226 (93.3%) |
| **Days from delivery discharge to index ED presentation, median (IQR)** | 126 (48-236) | 185 (96-272) |
| **Main Reason for index ED presentation** | | |
| *Psychotic disorder* | 190 (3.6) | 145 (4.2) |
| *Bipolar disorder* | 59 (1.1) | 124 (3.6) |
| *Depressive disorder* | 1570 (29.8) | 1231 (35.6) |
| *Anxiety disorder* | 2262 (42.9) | 1256 (36.3) |
| *Alcohol or Substance-related disorders* | 658 (12.5) | 398 (11.5) |
| *Personality disorder* | 11 (0.2) | 19 (0.5) |
| *Other psychiatric diagnosis* | 167 (3.2) | 83 (2.3) |
| *Self-harm with no psychiatric diagnosis* | 354 (6.7) | 204 (5.9) |
| **Admission to hospital at index presentation** | 732 (13.9) | 679 (19.6) |

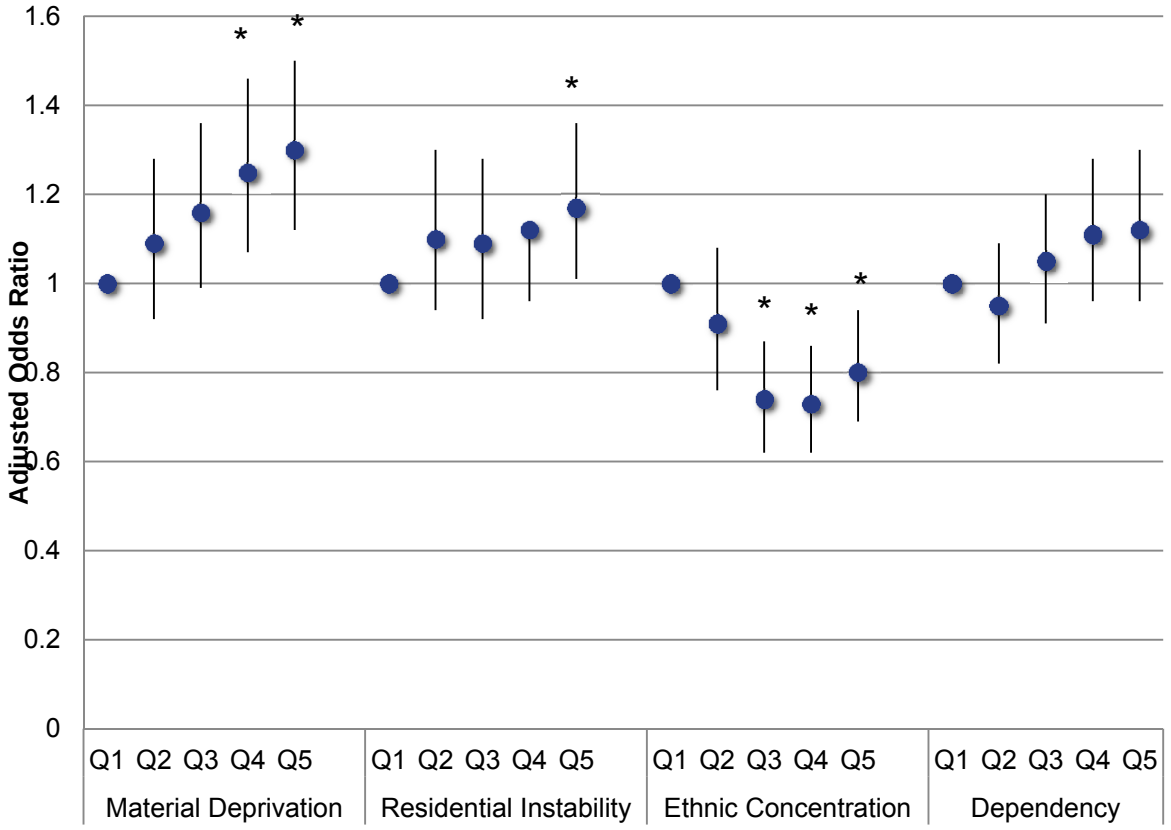
Table 1 (partial). Selected baseline characteristics of 5,271 first presenters and 3,457 non-first presenters, presented as N(%) unless otherwise specified.

# Results

| ON-Marg Material Deprivation Index | Cases (n=5,271) | Controls (n=3,457) | OR (95% CI) | Adjusted OR*(95% CI) |
|---|---|---|---|---|
| **Quintile 1(Q1)** | 765 (14.5) | 571 (16.5) | 1.00 (referent) | 1.00 (referent) |
| **Q2** | 796 (15.1) | 571 (16.5) | 1.04 (0.89-1.21) | 1.09 (0.92-1.28) |
| **Q3** | 918 (17.4) | 634 (18.3) | 1.08 (0.93-1.25) | 1.16 (0.99-1.36) |
| **Q4** | 1,060 (20.1) | 685 (19.8) | **1.16 (1.00-1.34)** | **1.25 (1.07-1.46)** |
| **Quintile 5 (Q5)** | 1,468 (27.9) | 913 (26.4) | **1.20 (1.05-1.38)** | **1.30 (1.12-1.5)** |

* Adjusted for age < 20, primiparity, any psychiatric diagnosis in the 2 years prior to delivery, having a family physician involved in antenatal care, previous outpatient psychiatric service use, and time to ED visit

# ON-Marg




Adjusted odds ratios (aORs) and 95% confidence intervals (CI), adjusted for age < 20, primiparity, any psychiatric diagnosis in the 2 years prior to delivery, and having a family physician involved in antenatal care.

For each dimension, quintile 1, the referent, represents the least marginalized group. Quintiles for which the aOR is statistically significant ($p<0.05$) are indicated by *.

Table 3. Comparison of 5271 first presenters and 3457 non-first presenters for place of residence and neighbourhood income quintile

| | Cases (n=5,271) | Controls (n=3,457) | OR (95% CI) | Adjusted OR** (95% CI) |
|---|---|---|---|---|
| ***Place of Residence*** | | | | |
| Urban | 4,105 (77.9) | 2,984 (86.3) | 1.00 (referent) | 1.00 (referent) |
| Rural | 1,166 (22.1) | 473 (13.7) | **1.61 (1.42-1.83)** | **1.58 (1.38-1.8)** |
| ***Neighbourhood Income*** | | | | |
| Highest | 593 (11.3) | 408 (11.8) | 1.00 (referent) | 1.00 (referent) |
| Q4 | 807 (15.3) | 541 (15.6) | 1.03 (0.87-1.22) | 1.06 (0.89-1.27) |
| Q3 | 868 (16.5) | 636 (18.4) | 0.94 (0.79-1.1) | 0.97 (0.81-1.15) |
| Q2 | 1,117 (21.2) | 742 (21.5) | 1.04 (0.89-1.22) | 1.10 (0.93-1.31) |
| Lowest | 1,812 (34.4) | 1,106 (32.0) | 1.09 (0.94-1.26) | **1.18 (1.01-1.38)** |

# Summary of results

- About 66% of women with postpartum psychiatric ED visits are not accessing postpartum outpatient mental health services first
- Most of these women did access other forms of health services prior to the ED visit
- Marginalization measured in a variety of different ways was associated with lack of postpartum outpatient mental health service use prior to ED visits

# Strengths and Limitations

- Strengths
  - Population-level coverage
  - Multiple measures of marginalization
  - Detailed past history for each woman and her baby
  - Outcome (ED visit) is important consequence
- Limitations
  - Neighbourhood-level data
  - Only OHIP-covered women (excludes some of most marginalized)
  - Only women who delivered in hospital (98.4% of women)
  - No data on on psychologists, SW, etc (more likely accessed by less marginalized women)

# Explanation for results

- Women experiencing material deprivation, residential instability, rurality, and low income access fewer outpatient services prior presenting to ED. Barriers may include poor social supports, geographic distance to services, lack of education regarding services, lack of childcare to attend appointments, and stigma within the healthcare system.

- Ethnic concentration seemed to be associated with greater service use prior to ED visit. This may represent more urban populations or closer knit communities.

- Dependency was not  associated with lower service use. This is not surprising as this dimension is more focused on individuals who are not of child-bearing age (seniors and children).

# Implications and Next Steps

- In the context of universal healthcare and recent contact with the healthcare system for obstetrical delivery, 2 out of 3 postpartum women are not accessing outpatient services prior to presenting to the ED for psychiatric reasons.

- Barriers to service use seem to exist for women who live in areas of economic marginalization, residential instability, and who live rurally.

- A better understanding of barriers is needed to ensure equitable services and prevent negative mental health outcomes such as postpartum psychiatric ED visits.

# Thank you

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| Any diagnosis | 2711 (51.4) | 2571 (74.4) |
| Psychotic disorder | 122 (2.3) | 198 (5.7) |
| Mood disorder | 687 (13.0) | 924 (26.7) |
| Alcohol and substance related disorders | 558 (10.6) | 537 (15.5) |
| **Mental health service use in 2 years prior to delivery** | | |
| Usual psychiatrist provider (>50% of visits to same provider) | 304 (5.8) | 595 (17.2) |
| Any psychiatric outpatient visit to psychiatrist or family physician | 2203 (41.8) | 2417 (69.9) |
| Any psychiatrist outpatient visit | 598 (11.3) | 989 (28.6) |
| Any psychiatric ED visit without admission | 961 (18.2) | 900 (26.0) |
| Any psychiatric inpatient admission | 239 (4.5) | 331 (9.6) |
| **Medical comorbidity in 2 years prior to delivery** | | |
| Chronic medical instability (cADG category 5) | 1276 (24.2) | 1030 (29.8) |
| Major ADGs, mean (SD) | 1.04 (1.02) | 1.23 (1.09) |
| **Antenatal care and selected birth outcomes** | | |
| Prenatal ultrasounds, mean (SD) | 1.76 (1.23) | 1.95 (1.32) |
| Prenatal visits, mean (SD) | 13.5 (6.79) | 17.1 (8.84) |
| Family physician involved in antenatal care | 3228 (61.2) | 2500 (72.3) |
| Gestational age >36 weeks at birth | 4706 (89.3) | 3076 (89.0) |
| Newborn in special care unit | 974 (18.5) | 790 (22.9) |
| Infant death < 28 days after delivery | 35 (0.7) | 31 (0.9) |
| **Non-mental health outpatient service use between delivery and ED presentation** | | |
| Non-mental health family physician visit | 3109 (59.0%) | 2674 (77.4%) |
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