The All Our Babies Cohort: What we can Learn from Longitudinal Follow-up

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Core Calgary Team: Dr. Andrew Lyon, Dr. Donna Slater, Dr. Karen Benzies, Dr. Debbie McNeil
Study Design and Implementation
Why This Study

Life Course Perspective

- 53%
- 19%
Why This Study

Life Course Perspective

- 38%
- 11%
Who We Are

AOB Cohort
Prenatal Care & Women’s Well-Being
N ~3,300
Who We Are

The All Our Babies Study

AOB Cohort
Prenatal Care & Women’s Well-Being
N ~3,300

Prediction of Preterm Birth
Bio-markers of Preterm Birth
N ~1,800
Research Questions

➢ What are barriers and facilitators to accessing prenatal care?

➢ What impact does prenatal care have on women’s well-being?

➢ What proportion of Calgary women have poor mental health and social support?
Research Questions

➢ Whether there are *gene expression patterns* at 18-22 weeks & 28-32 weeks of pregnancy that predict preterm birth?

➢ What is the *relative impact* of genes and environment on the risk of preterm birth?
Recruitment

- Posters and recruiters in clinics

- Calgary Lab Services
  - Contact at prenatal blood tests

- Survey and Evaluation
  - Initial eligibility interviews
Study Timeline

- **Q1**: <24 wks
  - 1st blood sample
  - 18-22 wks

- **Q2**: 32-36 wks
  - 2nd blood sample
  - 28-32 wks

- **Q3**: 4 months
  - Cord blood collected after birth

- Long term follow up.. underway
Collection Methods

- Mailed Questionnaires
- Mobile Phlebotomists
- In-Person Medical Record Checks
What We Asked

Birth

- Prenatal Health
- Pregnancy History
- Exercise and Food
- Life Events
- Birth Outcomes

5 yrs

- Breastfeeding
- Service Utilization
- Lifestyle
- Social Support
- Emotional/Physical Health
- Demographics
- Parenting
- Child Development

Health Record Data
What We Have

- Biological data
- Questionnaire data
- Health record data

Birth

4 months
Participant Engagement

- Regular Contact
- Recognition
- Easy Participation
- Ongoing Communication
Data and Projects
Characteristics Summary

- Prima-parous
- Home Ownership
- Foreign Born
- Married
- Visible Minority
- >60,000 Income
- Post-Secondary Completed

AOB - Calgary - Alberta - Canada
Project Example
(Centre for Applied Genomics)

- Compare term and spontaneous preterm cases
  - Loosely matched

- RNA extraction

- Affymetrix microarrays
Interpersonal violence is associated with poor postpartum mental health

- Bivariate analysis and multivariable logistic regression

<table>
<thead>
<tr>
<th></th>
<th>No Exposure to Interpersonal Violence</th>
<th>Exposure to Interpersonal Violence</th>
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</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>11.8</td>
<td>23.5</td>
</tr>
<tr>
<td>Depression</td>
<td>9.6</td>
<td>21.6</td>
</tr>
<tr>
<td>High Perceived Stress</td>
<td>13.8</td>
<td>24.2</td>
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<tr>
<td>Low Parenting Morale</td>
<td>16.3</td>
<td>29.1</td>
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</table>
Late preterm birth is associated with increased reporting of maternal anxiety

- Bivariate and multivariable logistic regression

<table>
<thead>
<tr>
<th></th>
<th>Late Preterm</th>
<th>Term</th>
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<tbody>
<tr>
<td>Prenatal Anxiety</td>
<td>40.0</td>
<td>27.0</td>
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<tr>
<td>Prenatal Depressive Symptoms</td>
<td>19.5</td>
<td>10.0</td>
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<tr>
<td>Rehospitalized by 4 months</td>
<td>14.5</td>
<td>3.8</td>
</tr>
<tr>
<td>Breastfeeding at 4 months</td>
<td>69.3</td>
<td>81.7</td>
</tr>
<tr>
<td>Anxiety at 4 months</td>
<td>7.6</td>
<td>3.8</td>
</tr>
</tbody>
</table>
Screening tool for post-delivery depression and anxiety on:

- Abuse history
- Relationship quality
- Stress
- Depressive symptoms

Better prediction of depression and anxiety than other one-dimensional tools
High agreement between electronic health records and mothers’ recall 4 months after birth on:

- Infant gender
- Birth weight
- Gestational age
- Multiple births
- Mode of delivery
- Epidural
- Labour induction

Maternal recall = highly valid information source
Future Work
Cohort Maintenance

- Birth
  - Questionnaire data
  - Biological data
  - Health record data
- 1 Yr Q
- 2 Yr Q
- 3 Yr Q
- 5 Yr Q
- 5 yrs
Continuing Analysis

➢ Future projects

- Vaccination Utilization
- Late Talkers
- Prenatal Stress
- Maternal Anxiety
- Adequacy of Prenatal Care
Child Data Centre

- Partnership project to support and manage the use of administrative and research data
  - Access to research data
  - Data access agreements
Child Data Centre

Contact us for access to AOB research data

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