PREBIC Community

- Perinatal Obstetricians
- Neonatologists and Pediatricians
- Reproductive Biology Scientists
  - Molecular biologists, immunologists, microbiologists
- Geneticists, Genetic epidemiologists
- Epidemiologists
- Pharmacologists
- Leaders of various research foundations interested in studying preterm birth
  - March of Dimes, Burroughs Wellcome, Johnson & Johnson
Initial Goals:

• Generate a forum for
  – international projects
  – future collaborations
  – scientific progress based on fruitful discussions
  – generate research funds
  – exchange of ideas
  – collaboration and friendship

• The final product was to be scientific

• Protocols owned by all participants
PREBIC History

Michigan, March 2003
Organizer: Dr. Claudia Holzman

Denmark, June 2004
Organizers: Dr. Poul Thorsen,
Dr. Ida Vogel

Lake Arrowhead, Los Angeles, CA
March 2005
Organizer: Dr. Cal Hobel
PREBIC

• 4th - 9th Workshops (2006-2011)

• World Health Organization, Geneva, April

• Organizers
  – Mario Merialdi
  – Ram Menon
  – Calvin Hobel

Sponsored by March of Dimes and WHO
PREBIC Annual Meeting at WHO
Understanding Preterm Birth

Prevalence/Risk Factors

Screening for high risk pregnancies

Intervention/Translational Research

Prevention of Preterm Birth

Improve Pregnancy and Birth Outcomes and Optimize Infant Health

PREBIC Goals
PREBIC Goals

- Describing prevalence and risk factors for preterm birth
- Understanding preterm birth
- Forming consortia to engage in research, especially genetic research
- Educational activities
- Translational Research – Community activities
PREBIC Achievements So Far

Prevalence/Risk Factors

Epidemiology of preterm birth
Worldwide incidence of preterm birth

The worldwide incidence of preterm birth: a WHO systematic review of maternal mortality and morbidity

Stacy Beck,\textsuperscript{a} Daniel Wojdyla,\textsuperscript{b} Lale Say,\textsuperscript{c} Ana Pilar Betran,\textsuperscript{c} Mario Merialdi,\textsuperscript{c} Jennifer Harris Requejo,\textsuperscript{d} Craig Rubens,\textsuperscript{e} Ramkumar Menon\textsuperscript{f} & Paul FA Van Look\textsuperscript{c}

(Submitted: 14 January 2009 – Revised version received: 18 April 2009 – Accepted: 18 April 2009 – Published online: 25 September 2009)
PREBIC Achievements So Far

Understanding Preterm birth

Systematic reviews
Genetics working group
Biomarker working group
Pathways working group
Systematic Reviews

• BMI as a risk factor for PTB

• Genetic contribution to PTB

• Systematic review of biomarkers of preterm birth
  • In press

• Systematic review of viral infections in preterm birth
  • In preparation

• Other systematic reviews are planned and some of them are underway
Maternal BMI and preterm birth: A systematic review of the literature with meta-analysis

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Systematic Review and Meta-Analyses of Preterm Birth Genetic Association Studies

Synopsis of Preterm Birth Genetic Association Studies: The Preterm Birth Genetics Knowledge Base (PTBGene)


Received: June 4, 2009
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Published online: May 20, 2010

Original Paper
Public Health Genomics
DOI: 10.1159/000294202

Public Health Genomics
PTBGene provides a comprehensive, unbiased, publicly available and regularly updated collection of published association studies performed on Preterm Birth phenotypes. Eligible publications are identified via systematic searches of MEDLINE and EMBASE. The database can be searched via several mechanisms (see below). For each gene, summary overviews are provided displaying key characteristics for each publication, including links to genotype distributions of the polymorphisms studied, random-effects allelic meta-analyses, and Forest plots. Please contact us to report errors in the presentation of study details or to notify us of publications that should be included.
Preterm Birth Genome Project (PGP)

1. Create a community of researchers to identify PTB susceptibility genes

2. Pool resources from multiple investigators to conduct Genome Wide Association Studies (GWAS) across multiple geographic populations
   - Detailed phenotypic and environmental data
   - Establish a large pool of replication samples
   - Deep re-sequencing of genes with significant/interesting findings in GWAS
PREBIC Goals

Screening for high risk pregnancies

Genomics and Proteomics
  Biomarkers
  Clinical indicators
What can we learn about preventable or modifiable risk factors for late preterm birth (34 – 36 6/7 weeks) that may vary by country?

Variables to be collected:
- Age at first birth
- Gravidity and parity
- Pregnancy history – prior preterm birth
- Interpregnancy interval
- Method of conception
- Smoking
- Obesity (BMI)
- Gestational age at delivery
- Indication for delivery
- Cesarean section or vaginal delivery
- Maternal age, race, ethnicity
Epidemiology Working Group

• Data currently available from Asia, Africa
  • Global Survey on Maternal and Perinatal Health (Jim Zhang)

• Variables from US, Canada and Western Europe will be included
  • US Data – Michael Kramer, Josh Garn, Carol Hogue (Emory)
    • US Birth Certificate Data 2003
    • Pregnancy Risk Assessment Monitoring System
  • Canadian Data – Suzanne Tough, Amy Metcliffe, Tharsiya Nagulesapillai (Alberta)
    • Maternity Experiences Survey from Statistics Canada
    • Discharge Abstract Database from Canadian Institute for Health Information
  • Euro Peristats – Jennifer Zeitlin (Inserm, Paris)
    • Continuing to learn about available data
Epidemiology Working Group

• Short Term Outcomes:
  • Create population-based data globally on late PTB
  • Establish base rate of late PTB and cesarean section for epidemiologic surveillance
  • Access incidence of late PTB from elective cesarean section
  • Develop country-specific variation in preventable risk factors for late PTB

• Long Term Outcomes
  • Reduce Preventable Preterm Births as part of the PREBIC collaborative (Yogesh Shah, Iowa)
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Thank you!