THE BURDEN OF PRETERM BIRTH WORLDWIDE

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World Health Organization

NCPNN Meeting
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The World Health Organization

- 1 Headquarter (global policies)
- 6 Regional offices (adapt global policies to regional needs)
- 147 country offices (advise MoHs and provide assistance)
Department of Reproductive Health and Research (RHR)

- One of the two WHO Departments with an explicit mandate on research
- Technical cooperation with countries
- Improving Maternal and Perinatal Health Team
Why does maternal and newborn health matter?
International commitment

- UN Millennium development goals (2000):
  - Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio.
  - Reduce by two thirds, between 1990 and 2015, the under-five mortality rate.

- The Partnership for Maternal, Newborn and Child Health (2005)
Estimated distribution of causes of 530,000 maternal deaths for the year 2000

Indirect causes 20%

Haemorrhage 25%

Other direct causes 8%

Unsafe abortion 13%

Obstructed labor 8%

Eclampsia, 12%

Infections 15%

(World Health Report, 2005)
Progress towards achievement of MDG 4

(Lawn et al., *Lancet*, 2005)
Estimated distribution of direct causes of 4 million neonatal deaths for the year 2000

- Preterm: 27%
- Asphyxia: 23%
- Sepsis/pneumonia: 26%
- Diarrhoea: 3%
- Tetanus: 7%
- Other: 7%
- Congenital: 7%

(Lawn et al., *Lancet*, 2005)
Number of neonatal deaths by causes at different gestational ages at delivery

<table>
<thead>
<tr>
<th>Duration</th>
<th>Prematurity</th>
<th>Asphyxia</th>
<th>Infection</th>
<th>Congenital malformation</th>
<th>Unknown</th>
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<tbody>
<tr>
<td>28 weeks</td>
<td>7</td>
<td>1</td>
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<tr>
<td>29 weeks</td>
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<td>30 weeks</td>
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<td>31 weeks</td>
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<td>3</td>
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<td>34 weeks</td>
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<td>2</td>
<td></td>
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<td>37 weeks</td>
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<td>2</td>
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<td>1</td>
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<td>39 weeks</td>
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<td>2</td>
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<td>41 weeks</td>
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<td>42 weeks</td>
<td>1</td>
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</table>

What can be done?

- WHO convening power: equitable research
  - Define lines of research that will benefit health systems globally
  - Coordinate research efforts from the laboratory to the health system
  - Make research accessible for researchers from low income countries and institutions
  - Stimulate alternative thinking
The purpose of the collaborative is to support and enhance international networking among researchers in preterm birth and the establishment of multinational research projects on preterm birth.
PREBIC meetings

- 2003, USA
- 2004, Denmark
- 2005, USA
- 2006, Geneva
- 2007, Geneva
- 2008, Geneva
- 2009, Geneva
On-going activities

- Systematic reviews
  - Global rates
  - Country rates
  - Gene variants and risk of PTB
  - Biomarkers of PTB
- Preterm Birth Genome Project
- Multicountry Study on Maternal and Perinatal Health
WHO Multicountry study on Maternal and Perinatal Health

observations on 420 health facilities and nearly 350,000 deliveries
The global burden of preterm birth: a WHO systematic review

Systematic review: citations flow chart

Citations identified (Titles and/or abstracts) 64,586

Excluded 59,960

Full-text evaluation (Articles and reports) 4,626

Reasons for exclusion
- 92% – no relevant data
- 6% – sample size < 200
- 2% – other reasons

Excluded 2,046

Included 2,580

Reasons for exclusion
- 57% – no relevant data
- 15% – sample size < 200
- 11% – no dates reported
- 17% – other reasons
Reported morbidities (n=3215)

✓ Hypertensive disorders of pregnancy (16.3%)
✓ Haemorrhage (11.1%)
  ✓ postpartum - 2.7%
  ✓ antepartum / intrapartum - 2.2%
  ✓ placenta praevia - 1.8%
  ✓ abruptio placenta - 2.6%
  ✓ other haemorrhage / unspecified - 1.8%
✓ Abortion (10.7%)
✓ Preterm delivery (8.3%)
✓ Stillbirth (6.3%)
✓ Diabetes in pregnancy (4.4%)
✓ Anaemia in pregnancy (4.3%)
✓ Ectopic pregnancy (3.0%)
✓ Perineal tears (2.6%)
✓ PROM (2.6%)
✓ Uterine rupture (2.1%)
✓ Postpartum sepsis (1.6%)
✓ Depression (1.9%)
✓ Obstructed labour (1.8%)
Results: coverage

- Data were available:
  - 97/179 countries (54%)
  - 120 million births (87%)
- Modeled-based estimates:
  - 85 countries
    - Africa: 29
    - Asia: 25
    - Europe/North America: 9
    - Latin America and the Caribbean: 22
Results: Global burden of preterm

12.6 million preterm births per year
Preterm birth rate: 9%
Preterm birth rates

North America: 11%

Europe: 6%

LAC: 8%

Asia: 10%

Africa: 11%

Oceania: 6%
Number of preterm births

North America: 480,000

LAC: 860,000

Africa: 3,600,000

Oceania: 35,000

Europe: 460,000

Asia: 7,200,000
The way forward

- Reliable country estimates (MOD report)
- Monitoring rates to assess the reported increase of preterm birth
- Region/country-specific causes of preterm birth
- Management options
- Advocate/establish standardized methodology to collect and report data on preterm birth
Thank you for your attention!
Thank you

SAME SKY, SAME WOMAN

TAKE COURAGE, JOIN HANDS, STAND BESIDE US
Trends in developed countries

FIGURE 3
Global burden of preterm birth: challenges

- Developed countries
- Developing countries
  - Lack of data
  - Differentials in definitions, method of assessment
  - Hospital vs population-based estimates
WHO systematic review on maternal mortality and morbidity

- To contribute to mapping the global burden of reproductive ill-health:
  - To provide a comprehensive, standardised and reliable tabulation of available data on maternal morbidity
- To provide up-to-date data for maternal mortality estimates
- To provide case-fatality rates
Systematic review: Methods

- Studies published/unpublished reporting incidence/prevalence of morbid conditions
- 10 electronic databases – database-specific searches
- Other searches: abstracts, reference lists, MoH web pages, etc.
- No language restrictions
Systematic review: Methods

- Specially designed data-extraction form (48 questions in 5 modules)
  - I. General characteristics of study
  - II. Prevalence/incidence of maternal morbid conditions
  - III. Maternal mortality
  - IV. Quality assessment of morbidity reports
  - V. Quality assessment for mortality reports
- Classification according to ICD-10
Systematic review: Data on preterm

36. Other conditions

36a) Type of condition

____________________

WHO code

36b) Does the study include a definition of the condition?

____________________

WHO code

36c) If definition is included, please specify:

____________________

____________________

36d) Does the study describe the diagnostic procedure?

____________________

WHO code

36e) If diagnostic procedure is described, please specify:

____________________

____________________
Preterm birth update

- Update from 2002 until September 2007
- Process to select the best available estimate per country
  - Nationally representative
  - Community-based
  - Hospital-based
- Regression model - variables
# Characteristics of estimates

<table>
<thead>
<tr>
<th>Characteristics of estimates</th>
<th>Africa</th>
<th>Asia</th>
<th>LAC</th>
<th>ENA</th>
<th>Oce</th>
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</table>

LAC: Latin America and the Caribbean; ENA: Europe/North America; Oce: Oceania
Strengths

- First analysis to map the global burden of preterm birth
- On the basis of a large SR, rigorous methodology, comprehensive search
- Standardized data-extraction form
- Coverage of 87% of all birth worldwide
Limitations

- Lack of nationally representative estimates
- Lack of population-based data in Africa
- Hospital-based estimates
- Quality of the primary reports:
  - Heterogeneity in definition and assessment of gestational age
  - Singleton vs all pregnancies
  - Multiple different sources
Conclusions

- Preterm births is a public health challenge with 12.6 Million births per year born preterm (9%)
- The burden is disproportionately distributed: 85% in Africa and Asia
- Discrepancies within developed areas: North America presents highest rates while Europe presents lowest rates