Maternal morbidity: what we know, what we don’t know

La morbidité maternelle: ce que nous savons, ce que nous ignorons

Véronique Filippi, 2015, Rabat Colloquium
Key messages

1. Several reasons to address morbidity in itself
2. Maternal morbidity is very frequent
3. What we measure is what we know
4. Near-miss is a success story
5. Life time perspective is necessary
6. Population based information needs standardisation and innovation
Why maternal morbidity?

- Mortality is decreasing
- Some conditions do not kill
- Large number of women report illnesses, everywhere
- Focusing on morbidity may lead to different intervention strategies
- Sequelae for surviving women and babies
Maternal morbidity is very frequent

- **Maternal deaths**: 208,000,000
- **Maternal near miss**: 145600000
- **Obstetric complications (31%)**: 64480000
- **Obstetric complications (15%)**: 31200000
- **GBD maternal disorders cases**: 8010300
- **Perceived morbidity (70%)**: 145600000
- **Maternal deaths**: 303000

**Number of pregnancies and morbidity outcomes**
What we measure(d) is what we know
1990-1996
DHS module & validation: failure to measure?

1991-2015
near-miss: a success story

1995-2015
A handful of ground breaking studies

~1995-2015
GBD: good for prioritising but not for maternal health?

2000-2015
Sequelae & Disabilities focus: the new frontier

2010-2015
Standardisation phase
### Problem with DHS and community survey

They rely on self-reports of past events.

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>eclampsia</td>
<td>73%</td>
<td>99.7%</td>
</tr>
<tr>
<td>haemorrhage</td>
<td>61%</td>
<td>95%</td>
</tr>
<tr>
<td>dystocia</td>
<td>68%</td>
<td>91%</td>
</tr>
<tr>
<td>infections</td>
<td>72%</td>
<td>81%</td>
</tr>
</tbody>
</table>

High specificity required to avoid over-estimation.

Around the time of the birth of (NAME), did you have any of the following problems?

- Long labor, that is, did your regular contractions last more than 12 hours?
- Excessive bleeding that was so much that you feared it was life threatening?
- A high fever with bad smelling vaginal discharge?
- Convulsions not caused by fever?
If the true disease prevalence of outcome is 5%, the estimated prevalence will be:

<table>
<thead>
<tr>
<th>Specificity</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80%</td>
</tr>
<tr>
<td>80%</td>
<td>23%</td>
</tr>
<tr>
<td>90%</td>
<td>14%</td>
</tr>
<tr>
<td>95%</td>
<td>9%</td>
</tr>
<tr>
<td>98%</td>
<td>6%</td>
</tr>
<tr>
<td>100%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Source: C Ronsmans “Studies Validating Women's Reports of Reproductive Ill Health: How Useful Are They?” IUSSP Working Paper
Good studies can be done....

Severe maternal morbidity from direct obstetric causes in West Africa: incidence and case fatality rates

A. Pruat, M.-H. Bouvier-Colle, L. de Bernis, & G. Brikart

Data on maternal morbidity makes it possible to assess how many women are likely to need ever permit the organization, monitoring and evaluation of safe motherhood programmes. In the pre-operational definition of severe maternal morbidity and report the frequency of such morbidity with a population-based survey of a cohort of 30,356 pregnant women in six West African countries, questionnaires were the same in all areas. Each pregnant woman had four contacts with the obstetric unit, namely one at 32 weeks of amenorrhea, delivery and 40 days postpartum (women were observed in 1215 women 6.17 cases per 100 live births). This is between areas, from 3.01% in Bamako to 9.05% in Saint-Louis. The main direct causes of severe morbidity were haemorrhage (3.05/100 cases), abdominal labour (2.05/100), and 2 cases of oedema (0.12/100). Hypertensive disorders of pregnancy (0.64/100), 38% cases of stillbirths (0.19/100) and sepsis (0.09 per 100). Other direct obstetric causes accounted for 12.2% of cases very high for stillbirths (33.39%), umbilical rupture (35-40%) and eclampsia (18-4%), if varied from 1.9% for antepartum haemorrhage to 2.7% for acute puerperal sepsis. Pregnant women required essential obstetric care. The high case fatality rates of some complex of obstetric care.

Keywords: Africa, Western; labour complications; mortality; labour complications; epidemiology; risk factors; prospective studies; longitudinal studies.

Maternal morbidity and near miss in the community: findings from the 2006 Brazilian demographic health survey

JP Souza, JC Cecatti, MA Parpinelli, MH Souza, TG Lago, RC Pacagnella, RS Camargo

Objective: To estimate the incidence of maternal morbidity during labour and the puerperium in rural homes and the need for medical attention: A prospective observational study in Gadchiroli, India

Rani A. Bang1, Abhay T. Bang2,3,4,5, Anandi Reddy2,4,6, Mahesh D. Deshmukha, Sanjay B. Baitule2, Varunee Filippp

Objective: To estimate the incidence of maternal morbidity during labour and the puerperium in rural homes, to show the incidence and proportion of women needing medical attention, maternal morbidity and near miss in the community: findings from the 2006 Brazilian demographic health survey.

RESEARCH ARTICLE

Maternal postpartum morbidity in Marrakech: what women feel what doctors diagnose?

Bouchra Assarag, Dominique Dubourg, Abderrahmane Maoula, Bruno Dujardin and Vincent De Brouwere

Abstract

Background: Information about postpartum maternal morbidity in developing countries is limited and often based on information obtained from hospitals. As a result, the reports do not usually reflect the true magnitude of obstetric complications and poor management at delivery. In Morocco, little is known about obstetric maternal morbidity. Our aim was to measure and identify the causes of postpartum morbidity 6 weeks after delivery and to compare women's perception of their health during this period to their medical diagnoses.

Methods: We did a cross-sectional study of all women, independent of place of delivery, in Al Massira district, Marrakech, from December 2010 to March 2012. All women were clinically examined 6 to 8 weeks postpartum for delivery-related morbidities. We coupled a clinical examination with a questionnaire and laboratory tests (hemoglobin).
DHS Biomarkers

- Haemoglobin (anaemia)
- Vitamin A Deficiency
- Blood Pressure
- COPD/Asthma
- HbA1c (diabetes)
- Hepatitis C
- HIV
- Chlamydia
- Gonorrhoea
- Syphilis
- Also screening tools for depression
Maternal Near-miss: a success story

Women who nearly died during pregnancy, labour or post-pregnancy but survive usually because of chance or good hospital care

• Mimic death, but more frequent and positive, and low survival outside facilities
• Many different uses:
  – audits, advocacy, burden, trial outcomes
• Last review includes 82 papers
• Controversy around case definitions
NEED FOR A LONG TERM PERSPECTIVE
Mothers’ mortality: importance of life cycle approach

Maternal survival in original cohort

- **Near Miss**
- **Normal**

<table>
<thead>
<tr>
<th>Months</th>
<th>Survival (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>99</td>
</tr>
<tr>
<td>20</td>
<td>98</td>
</tr>
<tr>
<td>30</td>
<td>97</td>
</tr>
<tr>
<td>40</td>
<td>96</td>
</tr>
<tr>
<td>50</td>
<td>95</td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>
Types of consequences

with examples of **negative** consequences of maternal near miss

- **Physical consequences**
  - infertility
  - impaired functionality
  - depression
  - suicide
  - damaged pelvic structure

- **Psychological consequences**
  - impaired productivity
  - no living child
  - suicide
  - depression

- **Economic consequences**
  - no savings
  - lack of capital
  - debts

- **Social consequences**
  - anaemia
  - marital disharmony
  - household dissolution
  - migration
  - social isolation
  - stigmatization
  - poverty
  - migration
  - impaired functionality

---

London School of Hygiene & Tropical Medicine
STANDARDISATION AND INNOVATION
What is maternal morbidity?

• Recent change from a mirror of maternal mortality definition to an all encompassing definition

• *Definition*: any health condition attributed to or complicating pregnancy, childbirth or following pregnancy that has a negative impact on the woman’s wellbeing or functioning (WHO)
Systematic reviews and meta-analyses

Global, regional, and national trends in haemoglobin concentration and prevalence of total and severe anaemia in children and pregnant and non-pregnant women for 1995–2011: a systematic analysis of population-representative data

Gretchen A Stevens, Mario M Finucane, Luz Maria De-Regil, Christopher J Penczek, Seth R Plaseman, Francesco Branca, Juan Pablo Pera-Roses, Zulfiqar A Bhutta, Majid Ezzati, on behalf of Nutrition Impact Model Study Group (Anaemia)*

Summary
Background Low haemoglobin concentrations and anaemia are important risk factors for the health and development of women and children. We estimated trends in the distributions of haemoglobin concentration and in the prevalence of anaemia and severe anaemia in young children and pregnant and non-pregnant women between 1995 and 2011.

Prevalence of symptoms of vaginal fistula in 19 sub-Saharan Africa countries: a meta-analysis of national household survey data

Mathieu Mahieu-Giroux, Véronique Filippi, Sékou Samadouougou, Marcia C Castro, Nathalie I

Summary
Background Vaginal fistula is a serious medical disorder characterised by and the bladder or rectum, which results in continuous leakage of urine of Saharan Africa is uncertain. We estimated the lifetime and point prevalence of vaginal fistula in 19 sub-Saharan Africa countries.

Identifying Regional Variation in the Prevalence of Postpartum Haemorrhage: A Systematic Review and Meta-Analysis

Clara Calvert*, Sara L. Thomas, Carine Ronsmans, Karen S. Wagner, Alma J. Adler, Veronique Filippi

London School of Hygiene and Tropical Medicine, London, United Kingdom

Abstract
Objective: To provide regional estimates of the prevalence of maternal haemorrhage and explore the effect of methodological differences between studies on any observed regional variation.
Identifying Regional Variation in Maternal Haemorrhage

Source: Calvert et al.

- 11% prevalence.
- There was substantial heterogeneity between studies.
- In a meta-regression, together geographic region, management of deliveries and method of blood loss measurement explained 30% of variation.

<table>
<thead>
<tr>
<th>Method of Blood Loss Measurement</th>
<th>aOR</th>
<th>[95% CI]</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectively</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjectively</td>
<td>0.53</td>
<td>[0.34-0.82]</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Both</td>
<td>2.25</td>
<td>[0.93-5.40]</td>
<td></td>
</tr>
<tr>
<td>Not stated</td>
<td>0.35</td>
<td>[0.20-0.60]</td>
<td></td>
</tr>
</tbody>
</table>
Call for action

Target exists for maternal mortality but not for maternal morbidity - severe limitations in the morbidity data that we have, how we capture and analyse it.

We need more...

- Population-based studies
- Standardisation
- Full morbidity Spectrum
- Co-morbidity and life time perspective
- Equity
- Trends
- Innovation (tools, topic, analysis)
Thank you