Trends and drivers in PPH morbidity and mortality

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What is postpartum haemorrhage (PPH)?

- PPH is defined as a blood loss of 500 ml or more within 24h
- PPH is the leading cause of maternal death worldwide

- The majority of PPH-associated severe morbidities and deaths could be avoided by the use of prophylactic uterotonics during the third stage of labour, and appropriate treatment (uterotonics, TXA, IV fluids, blood products, surgical intervention)
Rates of Postpartum Haemorrhage

<table>
<thead>
<tr>
<th>PPH (Blood loss ≥ 500 ml)</th>
<th>Severe PPH (Blood loss ≥ 1000 ml)</th>
<th>Refractory PPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall rate: 6.09%</td>
<td>Overall rate: 1.86%</td>
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</tr>
<tr>
<td>Mode of delivery (VD: 10.8%; CS: 8.6%)</td>
<td>Study sample size (N≤1,000: 3.7%; N&gt;1,000: 1.8%)</td>
<td></td>
</tr>
<tr>
<td>Study sample size (N≤1,000: 11.9%; N&gt;1,000: 6.1%)</td>
<td>Assessment (objective: 3.04%; subjective: 1.68%)</td>
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</tbody>
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In research

- WHO CHAMPION trial (N=30,000; VD): 9%
- WHO AMTSL trial (N=12,227; VD): 13%
- WHO CHAMPION trial: 1.45%
- WHO AMTSL trial: 2%
- WHO CHAMPION trial: 16% of PPH

In clinical practice:

- PPH is not always reported in the records
- Cross sectional study in Nigeria: PPH rate 2.2%
- WHO MCS: PPH rate 1.2%
Causes of Postpartum Haemorrhage

Responsive PPH vs Refractory PPH in women bleeding ≥ 1000 ml and receiving additional uterotonics (WHO CHAMPION trial)
PPH Severe maternal outcomes (SMO)

- Severe bleeding is related to severe maternal morbidity

- Severe maternal morbidity from PPH has long-term effects on woman’s health, with consequences such as severe anaemia, renal failure and infertility, and on psychological wellbeing

- Maternal near-miss + maternal deaths = SMO

- PPH maternal near-miss include:
  - hysterectomy
  - blood transfusion
  - admission to ICU
  - hypovolemic shock
PPH Severe maternal outcomes (SMO)

- 42 Nigerian public tertiary hospitals, 2012-2013
- 354 PPH SMO/2087 PPH cases (17%)
  - Maternal near-miss: 251 (70.9%)
  - Maternal death: 103 (29.1%)
  - 83.9% were brought to the hospital in critical condition and during evening shift (56.5%)

### Maternal characteristics

<table>
<thead>
<tr>
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<th>SMO %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 20-35</td>
<td>74.86%</td>
</tr>
<tr>
<td>Pregnancies 2/5</td>
<td>54.80%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>42.37%</td>
</tr>
<tr>
<td>Social class low</td>
<td>64.69%</td>
</tr>
<tr>
<td>Place of residence &gt;5km</td>
<td>61.30%</td>
</tr>
<tr>
<td>Registration status: unbooked</td>
<td>64.97%</td>
</tr>
</tbody>
</table>

**Survival** was better among women who had either
- cardiovascular
- coagulation dysfunction

**Maternal death** was most likely in women with:
- neurological (80.8%)
- renal (73.5%)
- respiratory (58.7%) dysfunction
Severe maternal outcomes (SMO)

- 42 Nigerian public tertiary hospitals
- 354 PPH SMO/2087 PPH cases (17%)
  - MNM: 251 (70.9%)
  - MD: 103 (29.1%)
- 83.9% were brought to the hospital in critical condition

Maternal death was most likely in women with PPH resulting in:
- neurological (80.8%)
- renal (73.5%) or
- respiratory (58.7%) dysfunction

and survival was better among women who had either
- cardiovascular or
- coagulation dysfunction
Factors associated with PPH SMO

- Availability, accessibility and appropriateness of emergency obstetric care are recognized factors that determine survival from haemorrhage when it occurs.

- **87.8% of the OH deaths judged to be possibly avoidable**
  - 33.8% delay in seeking care
  - 66.2% administrative factors
    - Lack of appropriately trained doctors
    - Delays in inter-institution transport
    - Lack of blood
    - Delays to overburdened services

- **Factors associated with SMO:**
  - Availability of trained medical personnel who could trigger the PPH bundle of care to avert severe maternal morbidity or death at the earliest sign of deterioration of a woman’s clinical condition
  - Timely intervention with life-saving treatment
  - Treatment initiation before referral
Progress in the area of PPH

- **PPH Prevention:**
  - A heat-stable uterotonic that is as effective as oxytocin, is now available and included in the WHO EML
  - WHO recommendations on PPH prevention updated

- **PPH Treatment:**
  - Bundle for the treatment of PPH due to uterine atony in hospitals and PHCs, and in community if implemented by a skilled health personnel. (First response bundle: uterotonics, fluids, TXA, uterine massage)
  - E-MOTIVE trial to assess bundle’s feasibility, acceptability, and effectiveness

- **PPH refractory:**
  - WHO recommendation on UBT for PPH updated
  - New purpose-designed UBT
  - Research evaluating effectiveness of different UBTs
Remarks

- Early diagnosis, adequate surveillance for prompt identification of any signs of deterioration, and timely intervention are essential to determine survival from PPH.

- PPH is a worldwide problem, we need to work together to make a change.