THE PREVALENCE OF LOW BIRTHWEIGHT 
BY MATERNAL CHARACTERISTICS IN 
RURAL TANZANIA

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IHI
Introduction

• Estimated 20 million (15%) of all births are underweight
• Among those 95% are from Africa and Asia
• 14% is estimated the prevalence of LBW in sSA (Unicef, 2007)
• In Tanzania 7% among all births (DHS, 2004-5)
• The LBW have been documented as risks:
  • Poor neurons-sensory, Cognitive, Behavioral development, Morbidity and mortality
Background cont. . .

- LBW has been pointed out as an obstacle in achieving MDG (UN, 2004)
- LBW has been used as an indicator & summary for both long term and short term health problems
  - Maternal malnutrition
  - Ill health, hard work
  - Poor pregnancy health care
Cont...,

- However, data collected are subjected to bias
  - Majority of births are take place outside HF
  - Mother’s reports are subjected to recall bias
  - Vital registrations are incomplete
  - Data are limited especially in rural areas
Objective

• To estimate the prevalence of LBW
• To explore the seasonality in LBW
• To assess association between maternal characteristics and LBW
Methods

• The study was conducted in Ifakara DSS
• The Interview was conducted during routine DSS household visitation
• Involved all singleton live births reported in 2006
• The information on BW were extracted from child health card, Antenatal card, or verbal report from the mother
  • Assess on reported BW was done:
    • Heaping
Cont...

- SES, quintiles were constructed basing on asset ownerships
- The maternal age at birth was computed based on date of delivery outcomes and birth date
- The cut off point for LBW was 2.5 kg
Data analysis

- Stata version 10 was used for analysis
- Maternal age was categorized as adult (20 and above) and teen ages (less than 20)
- The seasons were divided into 2
  - Farming (January- May)
  - Post harvest (June-December)
- SES, quintiles were constructed based on asset ownerships
- Cross tabulations and logistic regression were used to assess association
Results

• The total of 3041 live births were registered
• 50% weighted soon after birth
• 91% birth weight extracted from child health card
• Among those 13% were delivered outside the health facilities
• The prevalence of LBW was 9%
• The mean BW is 3.1 and the median is 3.1
• Maternal age range 13-49 (mean 25, std 7)
• 20% were teenage mothers
Results...

• There is a suggestion that there is a seasonality of low birth weight

• The odds of having LBW baby are increased by 40%, if the last two months of the pregnancy coincided with the period of intensive work in the field

• Teen age mothers experienced significant number of LBW than adult (20 and above)

• The LBW decrease with SES of the HH
## Results

<table>
<thead>
<tr>
<th></th>
<th>Under weight N</th>
<th>Under weight %</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-19</td>
<td>50</td>
<td>16.0</td>
<td></td>
</tr>
<tr>
<td>20-49</td>
<td>85</td>
<td>6.9</td>
<td>$P&lt;0.001$</td>
</tr>
<tr>
<td><strong>Mean Age (sd)</strong></td>
<td>26.6 (7.0)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Mean BW (sd)</strong></td>
<td>3.1(0.53)</td>
<td></td>
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<tr>
<td><strong>SES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Quintile</td>
<td>25</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td>Second Quintile</td>
<td>33</td>
<td>12.1</td>
<td></td>
</tr>
<tr>
<td>Third Quintile</td>
<td>27</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>Fourth Quintile</td>
<td>25</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td>Fifth Quintile</td>
<td>25</td>
<td>7.8</td>
<td>$P=0.049$</td>
</tr>
<tr>
<td><strong>Months</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Before Harvest</td>
<td>86</td>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>Post Harvest</td>
<td>49</td>
<td>10.9</td>
<td>$P=0.06$</td>
</tr>
<tr>
<td>Total</td>
<td>135</td>
<td>8.8</td>
<td></td>
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</tbody>
</table>
# Multivariate Analysis

<table>
<thead>
<tr>
<th>Socio Demographic characteristics</th>
<th>Unadjusted OR</th>
<th>Adjusted OR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95% CI</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline: 15-19</td>
<td>1</td>
<td></td>
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<tr>
<td>20-49</td>
<td>0.37 (0.26-0.55)</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td><strong>SES</strong></td>
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<tr>
<td>Baseline: 1 Quintile</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Second quintile</td>
<td>0.97 (0.54-1.73)</td>
<td>0.92</td>
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<tr>
<td>Third Quintile</td>
<td>0.49 (0.27-0.90)</td>
<td>0.022</td>
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<tr>
<td>Fourth Quintile</td>
<td>0.58 (0.31-1.06)</td>
<td>0.058</td>
</tr>
<tr>
<td>Fifth Quintile</td>
<td>0.59 (0.32-1.09)</td>
<td>0.097</td>
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<tr>
<td><strong>Months</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline: Post harvest</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Farm Work</td>
<td>1.31 (0.95-1.86)</td>
<td>0.06</td>
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</table>
Discussion

- Estimation of incidence of LBW is facing the challenge
- The BW were capture the close from the day of event
- Significant proportional were reported to be weighted soon after birth compared to the global estimates of un weighted (74%)
- Estimated incidence is higher vs national 7 (DHS 2004-05)
- Maternal age is predictor of LBW
- The LBW mark with field activities during pregnancies, maralia transmission.
Conclusion

• The prevalence of LBW in study population is predicted with etiological factor of young maternal age
• Seasonality of low birth weight associated with field activities, and high malaria transmission during pregnancies
• These results call for diversification of economic activities, teenage pregnancies as important issues to be addressed, the adequate maternal weight gain recommended
• Acknowledgement
  – DSS Community
  – IHI staffs
  – CDC
  – STI
  – Novartis Foundation
End

Thank you