Challenges of Health Care Systems in a Low Income Country: Maternal referrals in Rural Tanzania

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Tanzania - Profile

Area: 945 000km²

Population: 45 million
Rural area residence: 70%
Per capita income: 473 $

Annual growth rate: 3%

Infant mortality rate: 68/1000

Total fertility rate: 5.7

MMR: 454/100,000 live births
## Tanzania - indicators

<table>
<thead>
<tr>
<th>Health system building block</th>
<th>Indicator</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human resources</td>
<td>% available</td>
<td>36</td>
</tr>
<tr>
<td>Health information system</td>
<td>% of birth registration</td>
<td>16</td>
</tr>
<tr>
<td>Financing</td>
<td>Health expenditure as % of GDP</td>
<td>10</td>
</tr>
<tr>
<td>Service delivery (DHS, 2010)</td>
<td>% attend ANC at least once</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td>% deliver in the health facilities</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>% deliver by CS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>% attend post natal care</td>
<td>35</td>
</tr>
</tbody>
</table>
Health care structure

• Primary health care system
  – Pyramidal in shape
  – Lower facilities at the base
  – Higher facilities at the apex

• RCH services

• Emergency obstetric and neonatal care
Counselling of pregnancy danger signs

- Vaginal bleeding
- Severe headache or blurred vision
- Severe abdominal pain
- Swollen hands and face
- Fever
- Baby stops or reduce moving
- Excessive tiredness/breathlessness
Referral - pregnancy and delivery

• Referral indications according to RCHC-4, Tanzania
  – Category A & B – Pregnancy risks
  – Category C – Complications during pregnancy
  – Complications during labour and delivery
Previous studies ...

• Poor instructions, compliance and outcome
  – Screening and counseling for anemia and hypertension
  – Half of the referred women did not arrive at the hospitals
  – A number of women died before reaching hospitals

(Urassa et al., 2002, 2003 & 2006)
Aim of the study

• To assess community and health service factors affecting the quality of maternal referrals in Rufiji district
Health facilities:
- 2 Hospitals
- 4 RHCs
- 52 Dispensaries
Methods for the sub-studies

Maternal referral in Rufiji rural district

- **FGD**: 85 community members, 11 H/W
- **Indepth interviews**: 6 women & family members
- **Community survey**: 1118 women’s knowledge
- **Observations HF**: 435 women, 31 H/W
- **Longitudinal follow up**: 1538 maternal referral to hospitals
Findings

Qualitative study on maternal referrals in rural Tanzania: Decision making and acceptance of referral advice

Research article
Rural Tanzanian women’s awareness of danger signs of obstetric complications

Effectiveness of maternal referral system in a rural setting: a case study from Rufiji district, Tanzania

Research article
Quality of antenatal care in rural Tanzania: counselling on pregnancy danger signs
Process of decision making

Health worker advise referral to hospital

- Woman informed
  - Husband informed
    - Husband’s parents informed
      - Woman’s parents informed
        - Relatives of both sides informed
          - Going to referral hospital
          - Not going to referral hospital

Key: Solid arrows are for emergency referral and dotted arrows are for elective referral
Factors influencing referrals

- Perceptions of risk and complications
- Previous experience of referral

“...was told she had twins. But when she went there she had only single baby ... these are liars (laughter). Sometimes they say the baby is abnormally presented. But when you go there, the lie is good” (FGD young women)

- Cost of transport
- Cost of living at the hospital
- Perceptions of quality of care
Aware of 0, 1, 2 or ≥3 danger signs

Number of known danger signs

- 0: 48.9%
- 1: 25.4%
- 2: 14.1%
- ≥3: 11.5%
# Likelihood of being aware of ≥ 1 danger signs

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Multivariate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>OR</strong></td>
<td><strong>95% CI</strong></td>
</tr>
<tr>
<td>Education level (Not to school vs. ≥Secondary school)</td>
<td>5.8</td>
<td>1.8-19</td>
</tr>
<tr>
<td>Antenatal information of risk/complication (No vs. Yes)</td>
<td>2.6</td>
<td>1.8-3.8</td>
</tr>
<tr>
<td>Age (≤19 vs. ≥40)</td>
<td>2.3</td>
<td>1.2-5.2</td>
</tr>
<tr>
<td>Number of deliveries (1 vs. ≥5)</td>
<td>2.2</td>
<td>1.3-3.8</td>
</tr>
<tr>
<td>Place of delivery (Home/roadside vs. Health institution)</td>
<td>1.4</td>
<td>1.1-1.9</td>
</tr>
<tr>
<td>Number of antenatal care visits (≤3 vs. ≥4)</td>
<td>1.4</td>
<td>1.1-1.9</td>
</tr>
<tr>
<td>Month booked antenatal care (≤3 vs. ≥4)</td>
<td>0.89</td>
<td>0.64-1.2</td>
</tr>
</tbody>
</table>
Maternal referral compliance

Total referral to hospital
n=1538

Indications group

Demographic risks
n = 1079 (70%)

Prenatal complications
n = 189 (12%)

Postnatal complications
n = 2 (0.1%)

Historical obs. risks
n = 186 (12%)

Natal complications
n = 82 (5.3%)

679 (63%)
65 (35%)
83 (44%)
18 (36%)
0 (0)

Did not comply
845 (55%)
Perinatal deaths and reasons for non-compliancy

• No elevated risk for perinatal deaths among women not complied (OR=1.2; 95% CI: 0.64-2.2)

• Reason for non-compliance
  – Financial constraints
  – Difficult to get transport
Clients counselled on pregnancy danger signs

- Vaginal bleeding
- S-headache/blurred vision
- Severe abdominal pain
- Swollen hands and face
- Fever
- Baby stops/reduce move
- Tiredness/breathlessness

Percent

Clients counselled on pregnancy danger signs

- Vaginal bleeding: 50%
- S-headache/blurred vision: 40%
- Severe abdominal pain: 30%
- Swollen hands and face: 20%
- Fever: 15%
- Baby stops/reduce move: 10%
- Tiredness/breathlessness: 5%
Clients informed of 0, 1-4 or ≥5 pregnancy danger signs

![Bar chart showing the percentage of clients in different categories based on the number of pregnancy danger signs informed by different healthcare providers: Nurse auxiliary, MCHA, Public health nurse, Registered/enrolled nurse.](chart.png)
# Likelihood to be informed

≥ 1 danger sign

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</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td>Occupation (Peasant vs. Other)</td>
<td>1.5</td>
</tr>
<tr>
<td>Number of ANC visits (First- vs. Re-visit)</td>
<td>1.5</td>
</tr>
<tr>
<td>Gestational age ( -27 vs. 28-)</td>
<td>1.4</td>
</tr>
<tr>
<td>Cadre (Nurses vs. other cadres)</td>
<td></td>
</tr>
<tr>
<td>Nurse assistants</td>
<td>3.7</td>
</tr>
<tr>
<td>MCHA Aides</td>
<td>2.3</td>
</tr>
<tr>
<td>Public health nurses</td>
<td>2.5</td>
</tr>
</tbody>
</table>
Conclusions

• **Community**
  – Own risk calculation
  – Poor compliance with referral advice

• **Women**
  – Not actively involved in referral decisions
  – Low awareness of pregnancy danger signs
  – Poor compliance with referral advice

• **Health worker**
  – Inadequate counselling of danger signs
  – Poor adherence to referral guidelines
Recommendations

• Women and the community
  – Increase formal education
  – Increase awareness of danger signs
  – Introduce transport and self-financing schemes
  – Reduce poverty, improve infrastructure
Recommendations

• Health workers
  – Improve quality of health education and counselling during visits
    – Supportive supervision
    – Training and upgrading

• Policy makers
  – Review of the existing referral guidelines to take consideration of community views
Acknowledgement

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ASANTE SANA!!