Pediatric Morbidity and Mortality at Yala Sub-Country Hospital

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Take Home Points

• The leading causes of under-5 mortality are preventable and treatable
• U5M at YSDH can be reduced using existing resources

Outline

• Background
• Child Mortality
• Methods
• Results
• Discussion

Child Health

• MDG #4: Reduce Child Mortality by 2/3 between 1990 and 2015
• Kenya has made progress
  – U5MR: 115 in 2002 to 73 in 2012
  – IMR: 75 in 2002 to 49 in 2012

Improved Indicators

• Antenatal care
• Hospital Deliveries
• Immunization campaigns
• Insecticide treated nets
• Malezi Bora “Good Nurturing”
• Still behind on MDG 4

Disclosures

• None
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Child Mortality in Kenya

Preventable and Treatable

• 2010: 188,928 under-5 deaths
• Top causes of death
  – Diarrhea, 20%
  – Pneumonia, 16%
  – Malaria, 11%
  – Prematurity, 10%
  – Birth Asphyxia, 10%

Disproportionate Burden

Siaya County

• 1 in every 9 children born in Siaya County dies before their first birthday
• 1 in every 6 does not survive to age five

Child Mortality: Crisis

• Stagnating child mortality rates
• Devolution and shifting responsibilities
• End of Millennium Development Project
• Solutions are needed at all levels

Purpose

- Describe the morbidity and mortality of patients ages 0 to 15 years admitted to Yala Sub-Country Hospital

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Design

- Retrospective assessment of Pediatric Ward discharges from January 2013 to December 2013

Patient Data

- Admission date
- Discharge date
- Age
- Sex
- Diagnoses
- Mortality

Included patients

- 900 Patients
- 883 with admission data
- 876 with complete data
- 874 less than 15 years old
- 17 Missing data: Admission Date 15
- 7 Missing data: Age 3
- 2 Older than 15 years
- 4 Sex
**Patient Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (%)</td>
<td>447</td>
<td>427</td>
<td></td>
</tr>
<tr>
<td>Mean age (range), y</td>
<td>3.15 (0.13)</td>
<td>3.54 (0.13)</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Mean duration, d</td>
<td>2.6</td>
<td>2.8</td>
<td>ns</td>
</tr>
<tr>
<td>Under 1 years (%)</td>
<td>89 (20)</td>
<td>73 (17)</td>
<td>ns</td>
</tr>
<tr>
<td>Under 5 years (%)</td>
<td>351 (78)</td>
<td>325 (76)</td>
<td>ns</td>
</tr>
</tbody>
</table>

**Discharge Diagnoses**

- Malaria: 56%
- Anemia: 11%
- Diarrhea: 6%
- Pneumonia: 7%
- Meningitis: 3%
- Upper Respiratory Tract Infection: 2%
- Malaria Infection: 3%
- Malaria: 5%
- Dehydration: 2%
- Malnutrition: 3%
- Sepsis: 0%
- Asthma Exacerbation: 1%
- Other: 10%

**Most Frequent Diagnoses by Month (Excluding Malaria)**

- Anemia
- Pneumonia
- Gastroenteritis/Diarrhea
- Malnutrition
- Meningitis
- Malaria
- URTI
- Dehydration
- Burn

**Malaria Admissions**

- Malaria:
- Min. Temp., C
- Rainfall, mm

**Mortality**

<table>
<thead>
<tr>
<th>Mortality 0-15 years</th>
<th>Infant Mortality</th>
<th>Under 5 Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malnutrition</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Anemia</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Malaria</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Not listed</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Abscess</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Burn</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Asphyxia</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gastroenteritis</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Septis</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dehydration</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

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• Report provides critical information about pediatric admissions
• May inform new approaches to preventing pediatric morbidity and mortality

Limitations

• Missing data
  — Omitted or destroyed
• Cause of death
  — Chart review would be useful

Relevance to Providers

• Western Kenya has a disproportionate burden
• The leading causes of death nationwide are readily preventable and treatable
• National guidelines exist
• What are current quality assurance activities?

Areas of Improvement

• Review malnutrition and anemia mortalities
• Missed opportunities for parent education
• Consider “flexing up” staff during rainy seasons
• GE Foundation and NMF should offer more than medical students
  — Physicians, nurse managers, administrators

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Acknowledgements

• Prof. Odero
• Yala Sub-County Hospital
• GE-NMF
• #teamyala