Implementation of ChildPIP Mortality Audit Programme in 16 outreach district hospitals with the support of the Red Cross Air Mercy Service (2009-2011)

Dr Jeroen van Lobenstein
Paediatrician, HOD
Stanger Regional Hospital
Content presentation

- Background of Child Health in South Africa
- Area 3 in Northern KZN South Africa
- Outreach plan
- ChildPIP
- Outreach outcomes
- Outreach programme
  lessons learnt
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World: 8.8 million child deaths each year

Why?

For these 4 causes, ~ 53% of deaths are malnourished children

AIDS is much bigger proportion in Southern Africa.

Where do these children die? 

- 51% Africa
- 32% South Asia
- 1% Industrialised world

UN Millennium Development Goals (MDGs) 1990-2015

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empowerment of women
4. Reduce child mortality by two thirds in 2015
5. Reduce maternal mortality rate by three quarters in
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop global partnerships for development
Numbers and trends of under-5 mortality 1990-2008

Reduction 22%

Reduction 44%

Reduction 40%

South Africa:
U5MR: 67/1000 births, Rank 52

Our neighbours:      † (rank)
Mozambique  130 (20)
Zimbabwe     96  (38)
Swaziland    83  (43)
Lesotho      79  (45)
South Africa 67  (52)
Namibia      42  (65)
Botswana     31  (83)

Best:
Liechtenstein  2  (193)

Worst:
Afghanistan   275 (1)
South Africa: progress to MDG 4

Under-5 mortality was increasing till 2005 but remained unchanged since (UNICEF data 2008)

Why poor outcome?
Programmes

- Excellent programmes:
  - IMCI
  - RTHC
  - KMC
  - Immunization schedule
  - EDL
  - PMTCT
  - HIV guidelines

- Significant funds allocated to health
Why poor outcome?
More than quadruple disease burden

Quintuple disease burden:
1. Pre-transitional diseases related to poverty and malnutrition (communicable diseases)
2. Emerging chronic diseases related to ‘modern’ lifestyle (non-communicable diseases)
3. Injuries
4. HIV/AIDS
5. Poor quality of services rendered by health care workers with poor accountability due to lack of M&E


Estimated death by group, SA 2000
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Area 3 districts:
- Uthungulu
- Zululand
- Umkhanyakude

South Africa

KwaZulu-Natal
Aera 3
Health Facilities

- Population of 2.3 million people
- Rural

- 16 District Hospitals
- One referral hospital: Ngwelezana Hospital-LUDWMH complex
  - Nursery: 75 beds including 16 NICU beds
  - Paediatrics: 75 beds including 3 PICU beds

- Paediatric Specialists: x3
  - None in district hospitals
  - 3 Paediatricians in referral complex
    1. Overall Head and Head Neonatal Unit
    2. HIV services and specialist clinics
    3. Head Child Health (Outreach) and Head Paediatric Unit
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Area 3
Child Health and Outreach Services

Goals:
- To support development of paediatric services using principles of Clinical Governance
- To support and coordinate Child Survival Strategies and Programs

Activities:
- Regular outreach visits for:
  - Teaching ward rounds
  - Quality improvement of paediatric services via implementation of death auditing programme ChildPIP
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ChildPIP
Child Healthcare Problem Identification Programme

Mortality review process designed to assess and improve quality of care by:

1. Ensuring all inpatient deaths are identified
2. Assigning a medical cause to each death
3. Determining the social, nutritional and HIV context of each child who dies
4. Determining modifiable factors in the care of each child who dies

Data analysis and submission using Child PIP software
(Local M&E and Annual National ChildPIP Report: ‘Saving Lives’)

Child PIP
Saving lives through joint learning
Mortality
Is the tip of the iceberg
Mortality
Addressing avoidable death
The power of modifiable factors
Where and who

<table>
<thead>
<tr>
<th>Location</th>
<th>Clinical personnel</th>
<th>Administrator</th>
<th>Caregiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward</td>
<td>Oxygen not given to child with severe pneumonia</td>
<td>No pulse oximeter for child with severe pneumonia</td>
<td>Child’s ‘patient held record’ left at home</td>
</tr>
<tr>
<td>A &amp; E</td>
<td>Inadequate assessment of shock</td>
<td>No triage system in A&amp;E</td>
<td>Declined consent for life-saving procedure</td>
</tr>
<tr>
<td>Transit</td>
<td>Severity of condition incorrectly assessed at referring facility</td>
<td>Referral pathways not clear</td>
<td>Caregiver not available to accompany child</td>
</tr>
<tr>
<td>Clinic</td>
<td>IMCI guideline not followed in child with severe gastroenteritis</td>
<td>Inadequate antibiotics at clinic</td>
<td>Caregiver refused treatment at clinic</td>
</tr>
<tr>
<td>Home</td>
<td>Caregiver not assessed and managed for HIV&amp;AIDS</td>
<td>No electricity</td>
<td>Caregiver delayed seeking care</td>
</tr>
</tbody>
</table>
How to improve quality of care

Audit loop

1. Identify deaths
2. Characterise the deaths
3. Attribute causes of death and find modifiable factors
4. Determine the size and nature of the problem
5. Suggest solutions
6. Implement plans
7. Evaluate implementation
ChildPIP
What is needed

- Monthly data collection admission book (all patients):
  - Age
  - Nutritional status
  - Diagnosis
  - Outcome
- More detailed data collection of each death
- Monthly multidisciplinary mortality meetings
- Regular data capturing and analysis in ChildPIP software
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Outreach
Number of visits

- ± 45 visits annually
- 25% by car and 75% via AMS flights
- All 16 district hospitals were visited
- Average annual number of visits per site: 2.8
- Time spent on site: 1.5-6.0 hours
- Activities:
  - Ward rounds
  - Tutorials
  - Distribution of guidelines and admission tool
  - Attendance of mortality meetings
  - ChildPIP software assistance
  - Meetings with hospital management
  - Situational assessments: facility, equipment, staff, protocols
Outreach
Feedback received

- **Ward staff:**
  - ‘feeling of recognition and support’
  - ‘motivated to fight for change again’
  - ‘able to gain new knowledge’
  - ‘not aware of treatment options previously’
  - ‘mortality meetings expose flaws in hospital systems’
Outreach
Number of active ChildPIP sites Area 3

ChildPIP Area 3:
Number of participating hospitals Jun 2009 - Jun 2011

TOTAL Lineair (TOTAL)
Outreach
ChildPIP Area 3: number of included deaths and admissions
Outreach
ChildPIP Area 3: numbers May 2009 – Dec 2011

- Total admissions 18334
- Total deaths 1404
- In hospital mortality rate 7.7%
- Audited deaths 1329
- Total modifiable factors 3705
- Modifiable factors per death 2.8
## Outreach

ChildPIP Area 3: analysis admission data May 2009 – Dec 2011

<table>
<thead>
<tr>
<th>Age Group:</th>
<th>Deaths</th>
<th>IHMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 28 days</td>
<td>98</td>
<td>5.8</td>
</tr>
<tr>
<td>28 days - 1 year</td>
<td>791</td>
<td>11.4</td>
</tr>
<tr>
<td>1 - 5 years</td>
<td>340</td>
<td>5.7</td>
</tr>
<tr>
<td>5 - 13 years</td>
<td>165</td>
<td>4.8</td>
</tr>
<tr>
<td>13 - 18 years</td>
<td>8</td>
<td>6.6</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>2.1</td>
</tr>
<tr>
<td>Total</td>
<td>1404</td>
<td>7.7</td>
</tr>
</tbody>
</table>
## Outreach
ChildPIP Area 3: analysis admission data May 2009 – Dec 2011

<table>
<thead>
<tr>
<th>Weight category</th>
<th>Deaths</th>
<th>IHMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;= 3rd Centile</td>
<td>319</td>
<td>3.8</td>
</tr>
<tr>
<td>&lt; 3rd Centile</td>
<td>256</td>
<td>12.6</td>
</tr>
<tr>
<td>Severe Malnutrition</td>
<td>271</td>
<td>24.9</td>
</tr>
<tr>
<td>Unknown</td>
<td>383</td>
<td>12.1</td>
</tr>
<tr>
<td>Total</td>
<td>229</td>
<td>8.4</td>
</tr>
</tbody>
</table>
## Outreach

**ChildPIP Area 3: data analysis of deaths May 2009 – Dec 2011**

<table>
<thead>
<tr>
<th>HIV status</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>315</td>
<td>23.7</td>
</tr>
<tr>
<td>Exposed</td>
<td>430</td>
<td>32.4</td>
</tr>
<tr>
<td>Infected</td>
<td>335</td>
<td>25.2</td>
</tr>
<tr>
<td>No result</td>
<td>38</td>
<td>2.9</td>
</tr>
<tr>
<td>Not tested (but indicated)</td>
<td>28</td>
<td>2.1</td>
</tr>
<tr>
<td>Not tested (not indicated)</td>
<td>51</td>
<td>3.8</td>
</tr>
<tr>
<td>Unknown</td>
<td>132</td>
<td>9.9</td>
</tr>
<tr>
<td>Total</td>
<td>1329</td>
<td>100</td>
</tr>
</tbody>
</table>
Outreach

<table>
<thead>
<tr>
<th>Main cause of death:</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acute diarrhoea</td>
<td>313</td>
<td>23.6</td>
</tr>
<tr>
<td>2. Pneumonia, ARI</td>
<td>205</td>
<td>15.4</td>
</tr>
<tr>
<td>3. Septicaemia</td>
<td>203</td>
<td>15.3</td>
</tr>
<tr>
<td>4. TB: Pulmonary</td>
<td>78</td>
<td>5.9</td>
</tr>
</tbody>
</table>
Outreach

<table>
<thead>
<tr>
<th>Responsible for modifiable factors:</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Personnel</td>
<td>2170</td>
<td>58.6</td>
</tr>
<tr>
<td>Administrator</td>
<td>316</td>
<td>8.5</td>
</tr>
<tr>
<td>Caregiver</td>
<td>1219</td>
<td>32.9</td>
</tr>
<tr>
<td>Total</td>
<td>3705</td>
<td>100</td>
</tr>
</tbody>
</table>
## Outreach

**ChildPIP Area 3: data analysis of deaths May 2009 – Dec 2011**

<table>
<thead>
<tr>
<th>Was death avoidable:</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>491</td>
<td>36.9</td>
</tr>
<tr>
<td>Not Sure</td>
<td>392</td>
<td>29.5</td>
</tr>
<tr>
<td>No</td>
<td>391</td>
<td>29.4</td>
</tr>
<tr>
<td>Unknown</td>
<td>54</td>
<td>4.1</td>
</tr>
<tr>
<td>Total</td>
<td>1329</td>
<td>100</td>
</tr>
</tbody>
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Area 3 outreach programme
Strengths

- **Motivation of local staff:** recognition of work done
- **Better understanding** by referral unit of circumstances in referring district hospitals
- **Improved and shorter communication lines:** leading to better referrals
- **Improved quality of care:** several hospitals managed to implement admission tool with better admissions and more holistic care as a result
- **Standardisation of care:** iv-pumps, saturation monitor ordered and protocols distributed
- **AMS:** professional support
- **M&E:** area 3 data of paediatric admissions and mortality was collected and submitted to national ChildPIP database
- **Mortality audits:** mortality meetings successfully implemented as quality improvement tool in all 16 district hospitals and the audit system proved to be sustainable when outreach services stopped
Area 3 outreach programme
Sustainability without programme driver

Number of sites having Mortality Audit Meetings (M&M) and submitting data

Outreach Paediatrician left
Area 3 outreach programme
Sustainability without programme driver

Number of sites having Mortality Audit Meetings (M&M) and submitting data

Outreach Paediatrician left
Area 3 outreach programme
Weaknesses

- **Sustainability**: drop in number of sites active in ChildPIP data submission mainly due to:
  - **Computer illiteracy**: staff in district hospitals need regular and time consuming on-site computer support
  - **Computer upgrade**: all DOH computers recently replaced
  - **Lack of district support**: district MCWYH programme manager overburdened and struggle to support sites

- **Time constraints:**
  - Outreach responsibility on top of running of department
  - Outreach generates work: admin time for reports writing, telephonic follow up, feedback to hospital management, etc to enhance impact
  - Travelling despite AMS support time consuming

- **Cancellation of flights**: poor weather conditions (summer storms) led to occasional last minute outreach cancellations
Area 3 outreach programme
Conclusions / Recommendations

- Outreach programme important for staff moral in district hospitals
- Outreach important for referral institution to create understanding of conditions in its referring district hospitals
- Implementation of practical guidelines like admission tool in district hospitals leads to improved quality of medical care
- ChildPIP is excellent programme for quality improvement via mortality audits in rural hospitals and can be implemented with support of outreach clinician
- But new post for technical support officer ChildPIP / PPIP for area 3 should be created as per example of Mpumalanga and Free State Provinces to assist MCWYH programme managers with ChildPIP support
- Outreach on scale of 3 districts is fulltime job
- Outreach in area 3 would not be possible without well organised air transport
Thank you

http://www.childpip.org.za/

Few annual reports and software CDs available after presentation