



a decade in communicable disease control and child health

Community Case Management of Pneumonia in Zambia: Factors Which Determine Rational Use of Antibiotics

Dr Kirstie Graham

30th May 2013



PREVENTION



DIAGNOSIS



TREATMENT



RESEARCH

Pneumonia

Worldwide:

- Pneumonia is the leading cause of death of children.
- Responsible for approximately **1.2 million deaths** of children under 5 each year.

In Zambia:

- In 2010, **14%** of mortality of children under 5, equal to **6720** deaths.

Justification

- ICCM has great potential to reduce the burden of pneumonia, especially in hard to reach populations.
- Increasing levels of antibiotic resistance is of concern.
- Community health workers (CHWs) offer opportunity to improve rational use of antibiotics.
- Combat resistance **AND** maximise access.

Aim

To provide evidence on the rational use of antibiotics at the community level to inform further implementation of ICCM.

Objectives: to understand the factors that influence rational prescription and antibiotic use for management of pneumonia at community level.

Jointly funded by CIDA
and COMDIS-HSD (UK Aid)

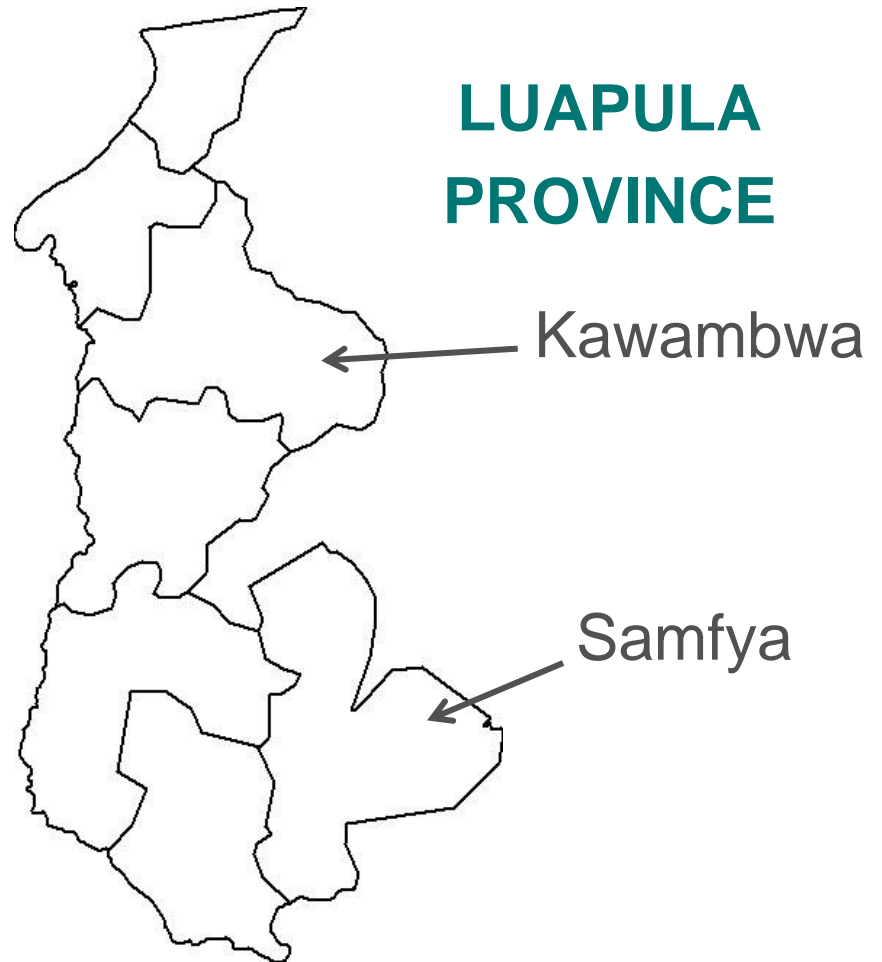


Study setting

ZAMBIA



**LUAPULA
PROVINCE**



PREVENTION

DIAGNOSIS

TREATMENT

RESEARCH

Study components

Cross-sectional study:

- Observation of CHW consultations (including video).
- Follow-up of all caregivers whose children were prescribed antibiotics during the observation period.
- Focus group discussions and key informant interviews with CHWs and caregivers.

Data collected

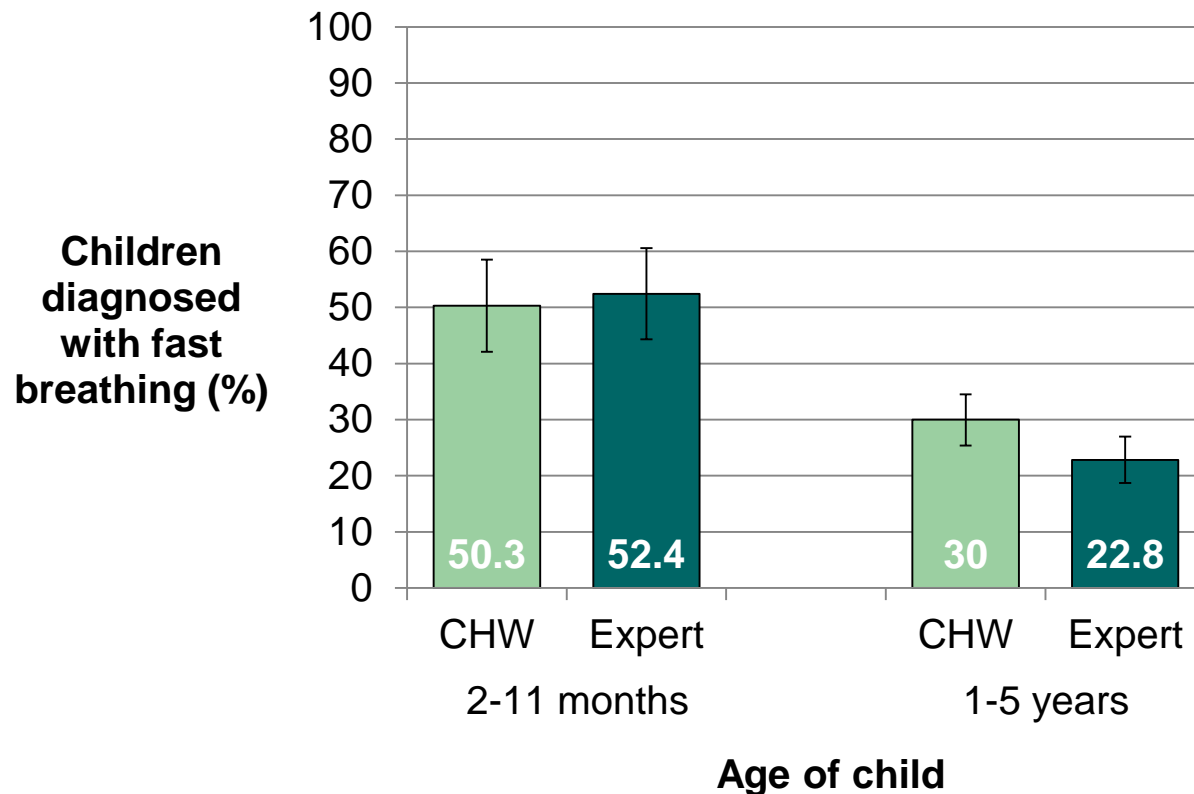
- **56** Caregiver interviews – conducted on day 6
- **1497** CHW consultations observed (6 weeks)
- **698** videos of respiratory rates recorded, measured and verified (IMCI/ICCM Master trainers identified by Child Health Unit)
- **9** CHW key informant interviews
- **6** FGDs with CHWs and caregivers



Preliminary findings: CHW observation

- **538 videos** included in analysis.
- 160 videos excluded: poor video quality, missing information or if child was unstable, crying or breastfeeding
- Mean no. of observations per CHW was **166**, ranging from 103 to 210
- Mean age of participants was **25.6 months**, range from 1 to 67 months
- Observations: **49.6%** male vs. **50.4%** female children

Comparison of respiratory rate counts



Respiratory rate counts continued...

- **68.2%** and **54.1%** of the CHW counts **within 5 and 3 breaths** of the expert count respectively.
- **No significant difference** between expert and CHW respiratory counts ($p = 0.1091$).

Classification of fast and normal breathing

Comparison of CHW and expert classification:

- 2-11 months: **>50 breaths** per minute
- 1-5 years: **>40 breaths** per minute

Cohen's Kappa test: **strong** agreement between CHW and expert classification (0.6325 and 0.5155)

Sensitivity and specificity were similarly high:

- 2-11 months (74.2% and 83.1%)
- 1-5 years (80.5% and 82.8%)

CHW adherence to ICCM guidelines

Prescription of antibiotics:

- 202 children were prescribed antibiotics.
- **170 (84.2%) correctly prescribed** according to CHW defined fast breathing
 - 2-11 months: 89.5% correctly prescribed
 - 1-5 years: 80.9% correctly prescribed
- Significant association between **CHW assessed fast breathing and receiving amoxicillin** ($p=0.01$)

CHW adherence to ICCM guidelines

As per CHW assessment;

- **90.7%** of children received appropriate treatment for their condition.
- Of all children with fast breathing, **89%** received an antibiotic.

Correct dose of antibiotics prescribed?

- **17** of the older children received the lower dose of amoxicillin.
- **3** of the younger children received the higher dose of amoxicillin intended for older children.

Appropriate treatment received

As per expert assessment (gold standard);

- **78%** of children received appropriate treatment for their condition.
- Of all children with fast breathing, **75.3%** received an antibiotic.

Learning

- **No significant difference** between expert and CHW respiratory count.
- **Strong** agreement between CHW and expert classification of fast breathing.
- **Majority** of children requiring antibiotics received them.
- Inappropriate use of antibiotics was **minimal**.



a decade in communicable disease control and child health

www.malariaconsortium.org

Thank you



PREVENTION



DIAGNOSIS



TREATMENT



RESEARCH