



**malaria
consortium**
disease control, better health

Community Health Worker rational use of antibiotics in iCCM and caregiver adherence, rural Zambia

Helen Counihan

Health Systems Research, Vancouver 16 Nov 2016

Contents

1. Introduction
2. Study methodology
3. Study results
4. Key messages

Introduction

- Community based health services, such as integrated community case management (iCCM), can increase access to effective healthcare
- Use simple tools to diagnose common childhood illnesses – including respiratory timer for pneumonia
- Suspected pneumonia cases treated with antibiotics
- Some concern as to the safety of such use by CHWs and risk of resistance



Introduction

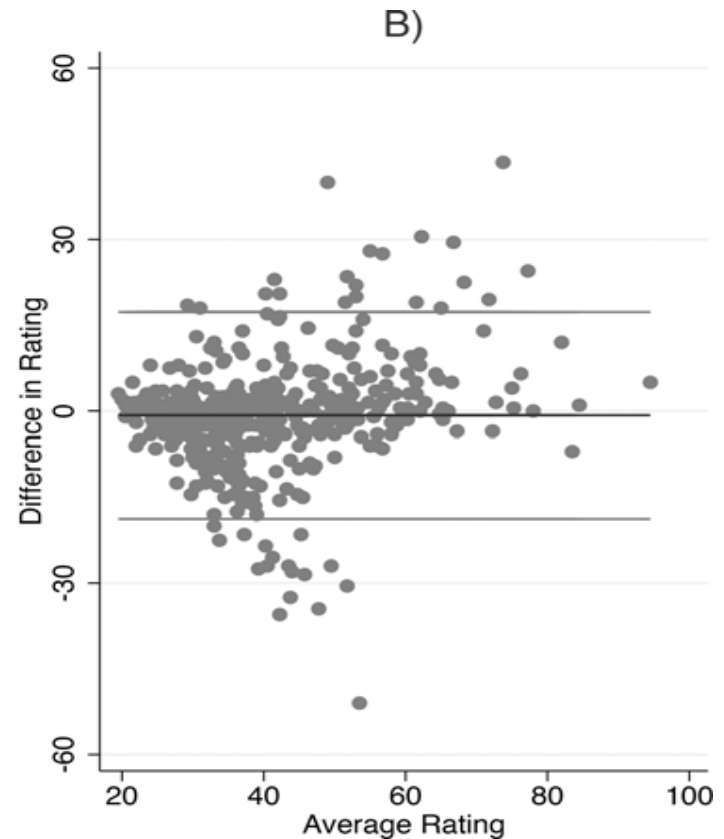
- iCCM programme in rural Luapula province, NE Zambia started in 2010
- Implementation included specially designed training and clinical algorithms for CHWs, with supportive supervision
- Included dispersible amoxicillin tablets, with packaging that was colour coded, age-specific, plus dosage diagram
- Focused community engagement activities to promote appropriate care of sick children and iCCM services
- Study to look at CHW quality of care and rational use of antibiotics by CHWs and caregivers, 2012

Study methodology

- 1,497 CHW consultations (total 90 CHWs) directly observed by field researchers and cases where the respiratory rate was measured were videoed
- Each of 537 videos collected was subsequently re-assessed by two pairs of experts to obtain a reference standard assessment of the respiratory rate
- Antibiotic prescription by CHWs was then compared to the expert assessment of cases with and without fast breathing
- 55 caregivers of children given antibiotics by CHWs were followed up to assess adherence through a structured interview and pill count
- Also in-depth interviews conducted with 9 of observed CHWs and 6 focus group discussions (3 with CHWs, 3 with caregivers)

Results – quality of care for pneumonia in iCCM

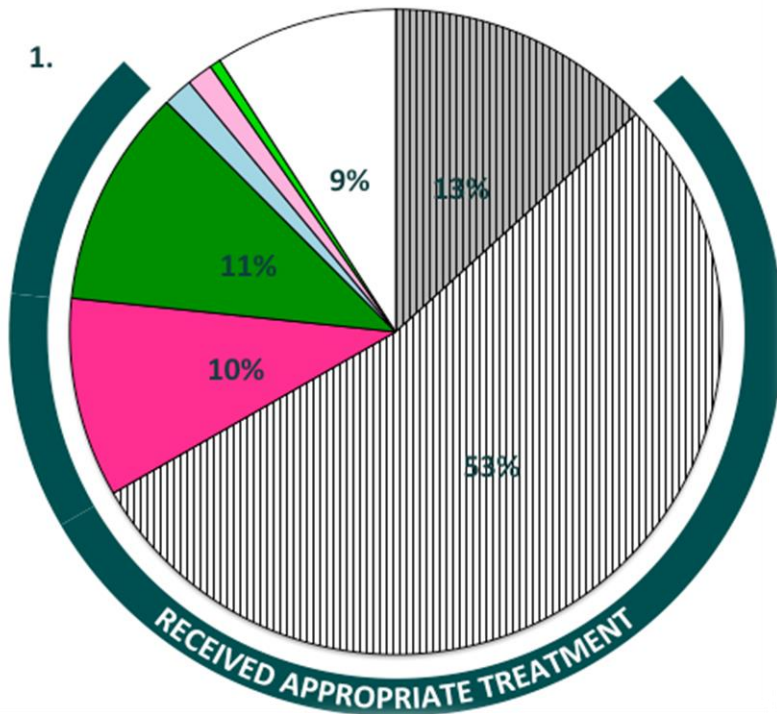
- Results showed that CHWs were capable of measuring respiratory rates and providing appropriate treatment, with 81% and 78% agreement respectively between CHWs and experts



Relationship between expert and CHW respiratory count for all children

Results – rational use of antibiotics by CHWs

- 74% [69,79] of children received appropriate treatment
- 65% [55,74]* of antibiotics were correctly prescribed for fast breathing (suspected pneumonia)



Normal breathing:

- ▨ Antibiotics given
- ▨ No antibiotics

Fast breathing:

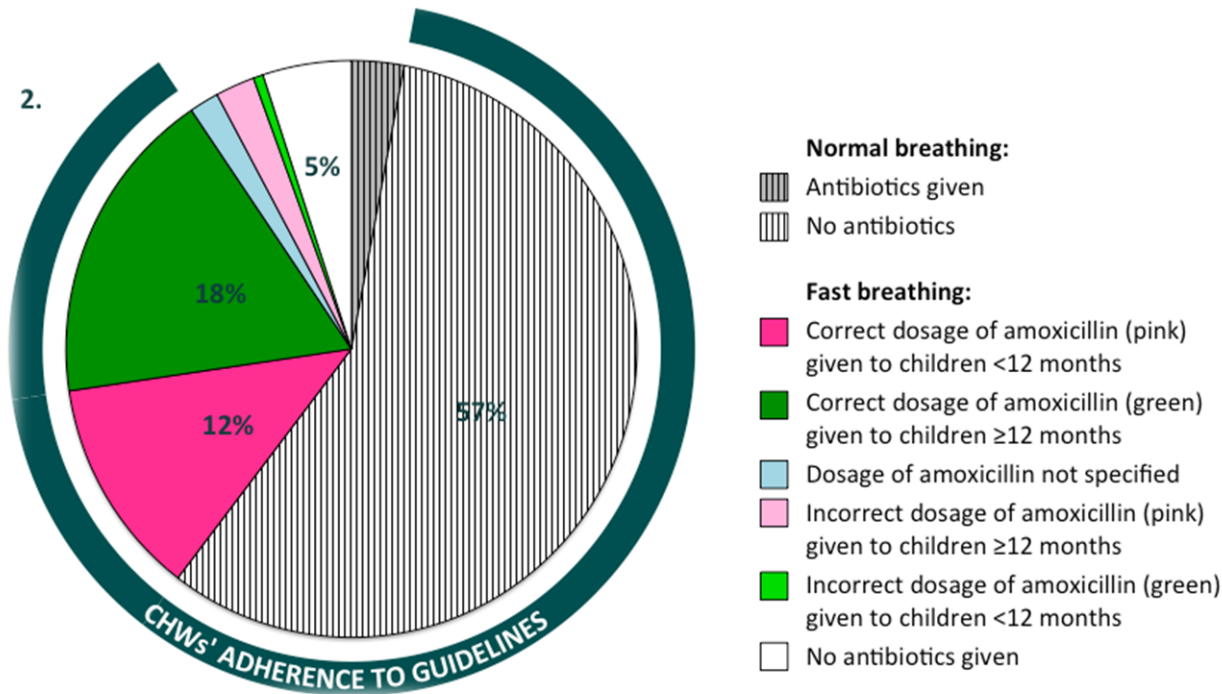
- Correct dosage of amoxicillin (pink) given to children <12 months
- Correct dosage of amoxicillin (green) given to children ≥12 months
- Dosage of amoxicillin not specified
- Incorrect dosage of amoxicillin (pink) given to children ≥12 months
- Incorrect dosage of amoxicillin (green) given to children <12 months
- No antibiotics given

*Incorrect dosage given could be due to stockouts. Stockouts not assessed as part of study

Children who received appropriate treatment as per gold standard assessment of respiratory rate

Results: rational use of antibiotics by CHWs

- CHWs adhered to guidelines for 92% [87,95] of children
- Qualitative data indicate that CHWs have a good understanding of pneumonia diagnosis and treatment, and CHWs' treatment decisions were not influenced by pressure from caregivers to get drugs



CHWs adherence to treatment guidelines as per their assessment of respiratory rate

Results – caregivers use of antibiotics

- 66% [50,79] of children completed full five day course of amoxicillin (pill count)
- Self-reported adherence is high for the correct number of doses given per day (93% [82,96]), but only 54% [36,64] gave treatment three times a day for five days
- Adherence for three times a day, for three or more days is far higher at 76% [63,85]

Key messages

- CHWs are capable of assessing respiratory rate and prescribing appropriate treatment
- Improved tools for pneumonia diagnostics would strengthen rational use of antibiotics
- A 3 day rather than 5 day course of antibiotics could improve caregiver adherence, reducing risk of resistance and cost. However additional evidence is needed to support use of a short course of antibiotics for pneumonia in Africa

Research Uptake – Links with Policy

- Collaboration with Child Health within Ministry of Health throughout study
- Presented preliminary results at dissemination event in Lusaka May 2013 with key stakeholders including MoH at central and local levels
- Research brief also shared later
- Zambia now has adopted iCCM as national policy including use of antibiotics to treat suspected pneumonia
- Findings recently published in two journal articles:
 - Sinyangwe *et al*, 2016. PLOS ONE: Assessing the Quality of Care for Pneumonia in Integrated Community Case Management: A Cross-Sectional Mixed Methods Study.
 - Graham *et al*, 2016. BMC Public Health: Rational use of antibiotics by community health workers and caregivers for children with suspected pneumonia in Zambia: a cross-sectional mixed methods study

Acknowledgements

Co-researchers: Kirstie Graham, Chomba Sinyangwe, Sarala Nicholas, Rebecca King, Samuel Mukupa, Karin Kallander, Mark Montague, James Tibenderana, Prudence Hamade.

Others: The CHWs and caregivers who participated in the study; the health facility staff and Ministry of Health in Luapula; Dr Penelope Kalesha, Child Health in Ministry of Health.

The study was conducted through COMDIS-HSD, a Research Programme Consortium funded by the UK government. It was conducted alongside implementation of iCCM in Luapula Province in Zambia, funded by CIDA (now Global Affairs Canada). However, the views expressed do not necessarily reflect the funders' official policies



Thank you

malaria
consortium
disease control, better health

www.malariaconsortium.org