Multi-country analysis of iCCM program data

Dr. Theresa Diaz

Senior Health Advisor
UNICEF, NY

iCCM 2014

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Overview

- Background
- Research Objectives
- Methods
- Results
- Key Findings and Conclusions
- Next Steps

Background on iCCM studies/evaluations

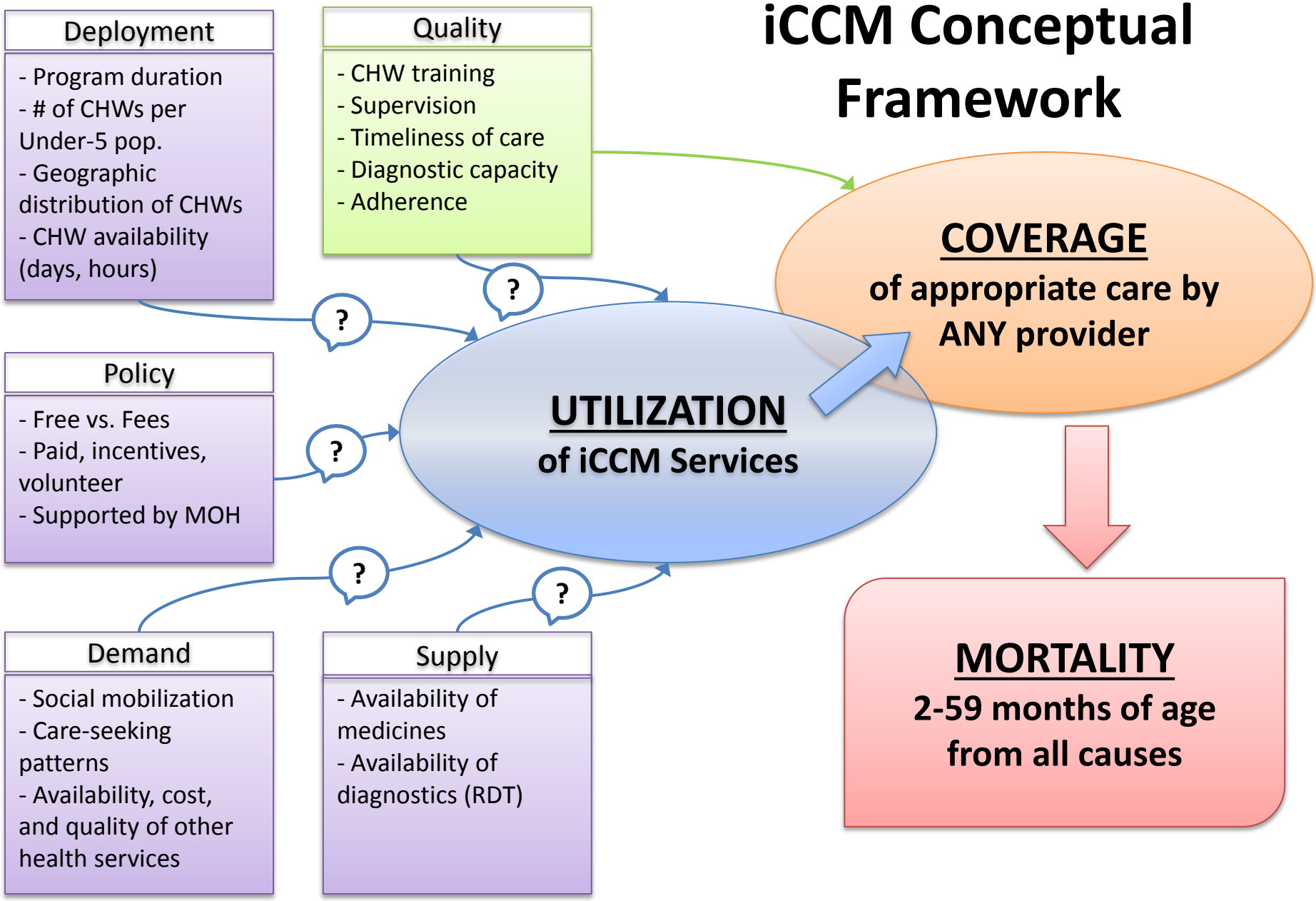
- Most studies and evaluations have been conducted in Asia and are outdated
- Few of these studies have been conducted in sub-Saharan Africa
- However, there are several new studies, most of which are not yet published

Objectives of analysis of most recent African iCCM studies/evaluations

1. To compare areas where iCCM has been implemented, in terms of treatment rates – are there well-performing programs? If so, what are the characteristics?

2. Test associations between iCCM treatment rates and possible determinants of iCCM use

iCCM Conceptual Framework



Selection of studies

- Identification: 22 studies identified through a call to researchers and implementing partners
- Eligibility: 4 studies excluded
  - 1 because no data on number of treatments was available
  - 3 because they did not reflect iCCM as currently recommended (e.g. they provide dual treatment for fever)
- Included: 18 studies retained

Overview of studies

- 18 studies in 12 countries
- Implementation national and study national in 1 (Niger) of 18
- NGO support implementation in 15 of 18
- CHWs are salaried in 7 of 18
- Fees for iCCM in 3 of 18
- CHWs work from a post in 7 of 18
- CHWs selected by community in 16 of 18
- CHWs use RDTs in 10 of 18

Data Collation

- An Excel template to collect information on
  - Study design, methods, program description (e.g. dates of training, how supplies managed, how supervision provided)
  - Routine reporting data (e.g. CHW reporting and supervisor reporting)
  - Cross-sectional surveys of CHWs

Dependent variable definitions

1. **Treatments per child per year**
   - Reported number of treatments by illness **/** population of children under 5 in the targeted area

2. **Percentage of expected cases per child per year treated**
   - Reported number of treatments per child per year / Expected cases per child per year (based on population U5 in study area x incidence)

Dependent variable definitions

3. **Incidence used:**
   - Diarrhea incidence 3.30 (avg regional) (Fischer Walker, Rudan et al, Lancet, 2013)
   - Pneumonia incidence 0.27 (avg regional) (Fischer Walker, Rudan et al, Lancet, 2013)
   - Malaria incidence 1.68 (avg regional) estimates for rural central Africa, high transmission areas (Roca-Feltrer et al, TMIH, 2008)
4. **Adjustments made**:
   - Adjusted for CHW reporting rates
   - For pneumonia, adjusted downward using a fast breathing factor based on implementer studies on accuracy of fast breathing diagnosis among CHWs
   - For malaria, adjusted downward in countries not using RDTs based on the RDT positivity rated (2013 World Malaria Report, WHO)

Independent variables from each thematic area

- Policy – supported by an NGO; CHW salaried; CHW selected by community; number illnesses treated; RDT used, whether fees were charged
- Deployment – health post, ratios of active CHW per 1000 children under 5 and children under 5 per CHW, number of months of implementation at scale
- Demand – none
- Quality – ratio of supervisors per CHW, supervision policy, supervision rates
- Supply - stockouts

Analysis

- Identified “large” differences in treatment rates by independent variables
  - Defined “large” as a difference >70%* (either positive or negative)
- Compared means of dependent variables by independent variables
  - Crosstabs and compare means (ignored statistical test due to small sample)
- Used tables, bar charts, scatter plots, and box plots for visualization

Programs with a relatively high proportion of expected cases of pneumonia, diarrhea, and malaria per year treated through iCCM

Country (study partner)	%	# of illnesses treated
South Sudan (IRC)	33	3
Sierra Leone (IRC)	33	3
Mozambique (Save the Children)	32	3
Uganda Central (UNICEF)	27	3
Sierra Leone (UNICEF)	25	3
Malawi (Save the Children)	24	3
South Sudan (Save the Children)	21	3
Niger (UNICEF)	17	3
Malawi (UNICEF)	9	3
South Sudan (Malaria Consortium)	8	2

Programs with a relatively high proportion of expected cases of diarrhea per year treated through iCCM

Country (study partner)	%	# of illnesses treated
South Sudan (IRC)	30	3
Sierra Leone (IRC)	18	3
South Sudan (Save the Children)	16	3
Mozambique (Save the Children)	12	3
Sierra Leone (UNICEF)	11	3
Malawi (Save the Children)	11	3
Niger (UNICEF)	7	3
Cameroon (PSI)	7	2
Uganda Central (UNICEF)	6	3
Malawi (UNICEF)	4	3

Programs with a relatively high proportion of expected cases of malaria per year treated through iCCM (adjusted for RDT use)

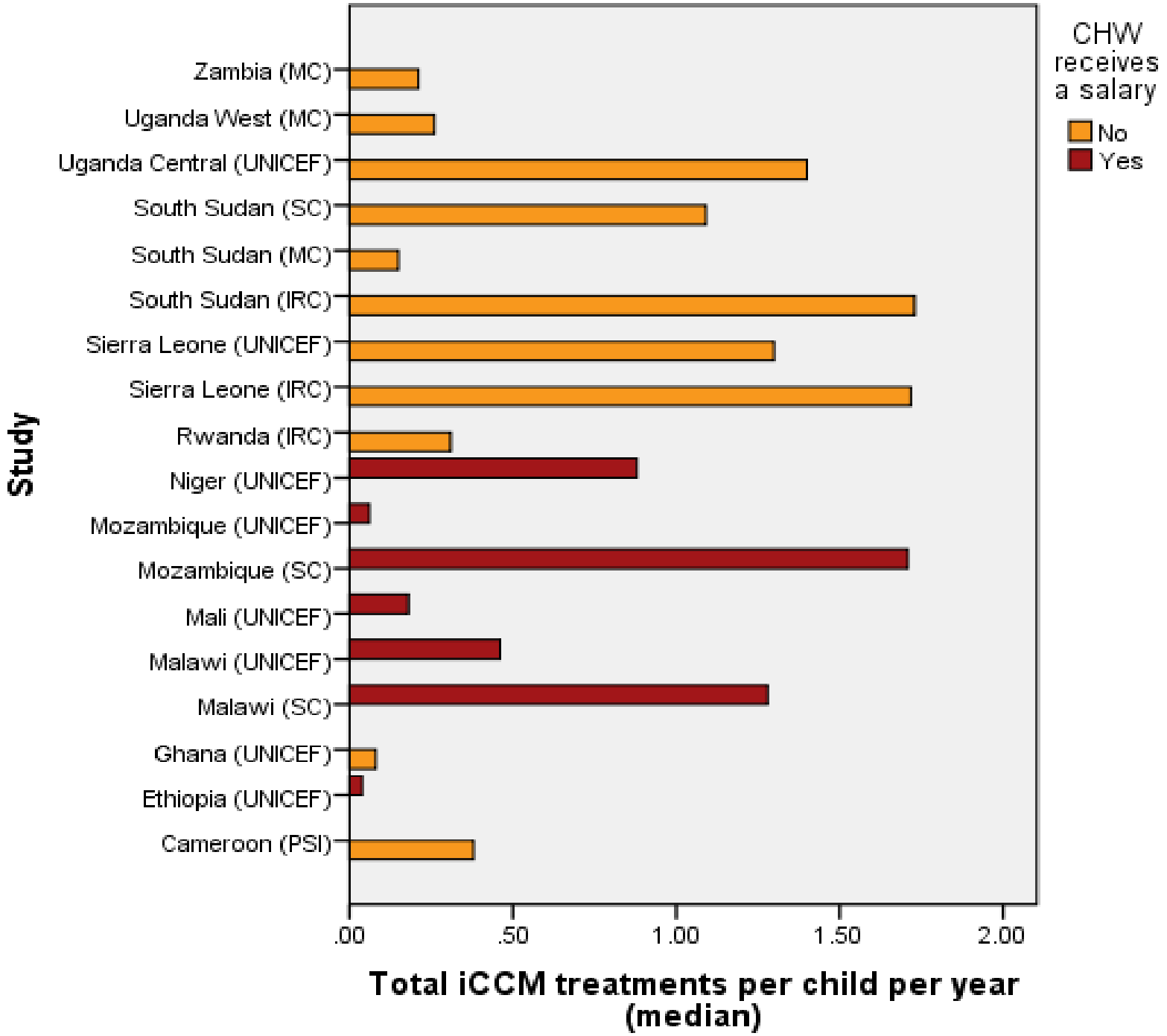
Country (study partner)	%	# of illnesses treated	RDTs
Mozambique (Save the Children)	65	3	Yes
Sierra Leone (IRC)	52	3	Yes
Sierra Leone (UNICEF)	49	3	Yes
Uganda Central (UNICEF)	49	3	No
Malawi (Save the Children)	45	3	No
South Sudan (IRC)	40	3	No
Niger – (UNICEF)	33	3	Yes
South Sudan (Save the Children)	23	3	No
Malawi (UNICEF)	14	3	No

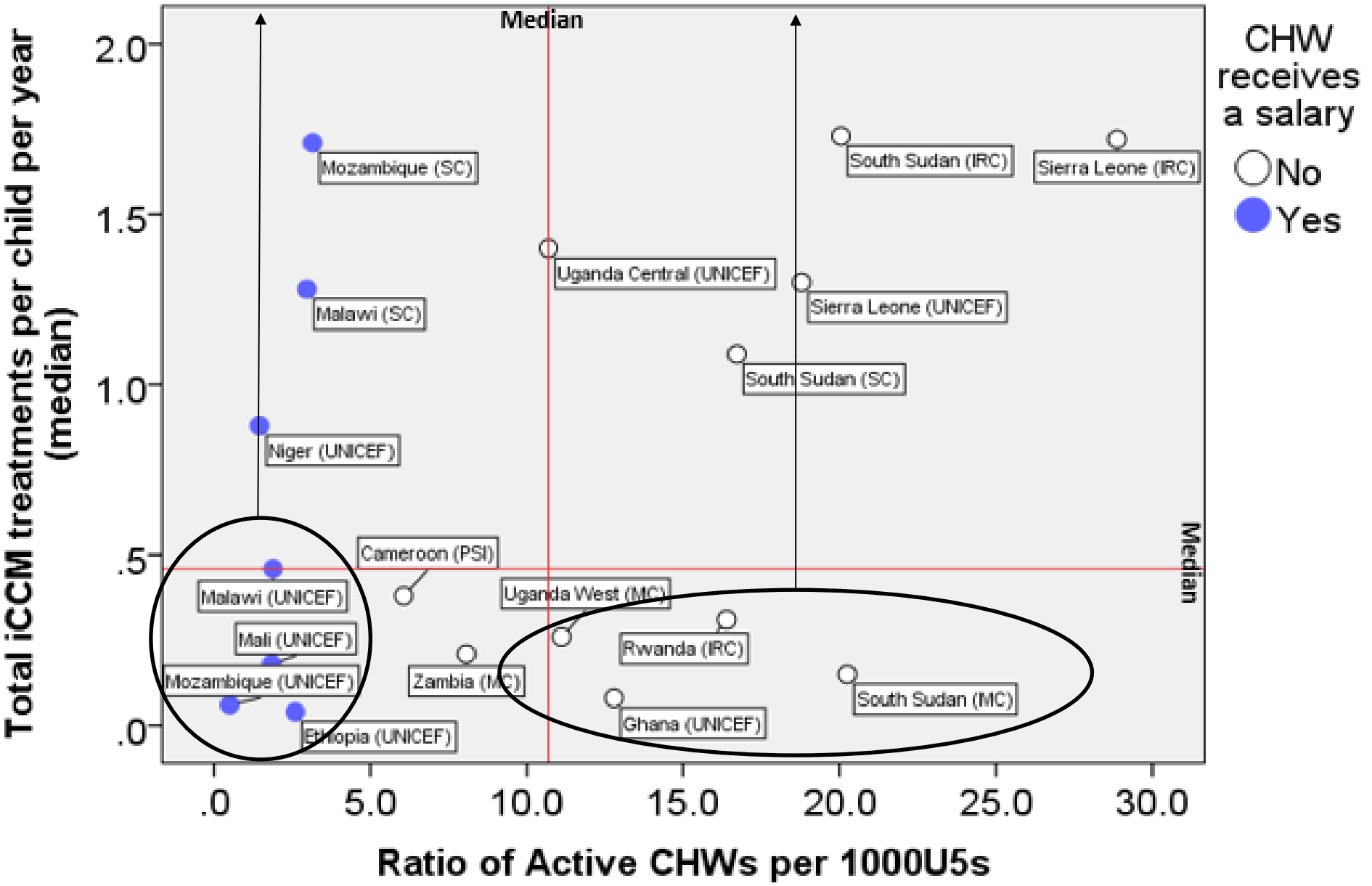
Programs with a relatively high proportion of expected cases of pneumonia per year treated through iCCM (adjusted for fast breathing)

Country (study partner)	%	# of illnesses treated
Uganda Central (UNICEF)	141	3
Sierra Leone (IRC)	96	3
Mozambique (Save the Children)	70	3
Malawi (Save the Children)	63	3
Malawi (Save the Children)	73	3
South Sudan (Save the Children)	63	3
South Sudan (IRC)	59	3
Sierra Leone (UNICEF)	41	3
Uganda West (Malaria Consortium)	37	3

Number of total iCCM treatments per active CHW per month

Country (study partner)	Tx/CHW/Mo	# of illnesses treated	Salaried
Niger (UNICEF)	57	3	Yes
Mozambique (Save the Children)	50	3	Yes
Malawi (Save the Children)	42	3	Yes
Malawi (UNICEF)	22	3	Yes
Uganda Central (UNICEF)	12	3	No
Mozambique (UNICEF)	11	3	Yes
Zambia (Malaria Consortium)	10	3	No
Mali (UNICEF)	8	3	Yes
South Sudan (IRC)	8	3	No


Zambia (MC)
Uganda West (MC)
Uganda Central (UNICEF)
South Sudan (SC)
South Sudan (MC)
South Sudan (IRC)
Sierra Leone (UNICEF)
Sierra Leone (IRC)
Rwanda (IRC)
Niger (UNICEF)
Mozambique (UNICEF)
Mozambique (SC)
Mali (UNICEF)
Malawi (UNICEF)
Malawi (SC)
Ghana (UNICEF)
Ethiopia (UNICEF)
Cameroon (PSI)
Study
.00
.50
1.00
1.50
2.00
Total iCCM treatments per child per year (median)
CHW receives a salary
No
Yes



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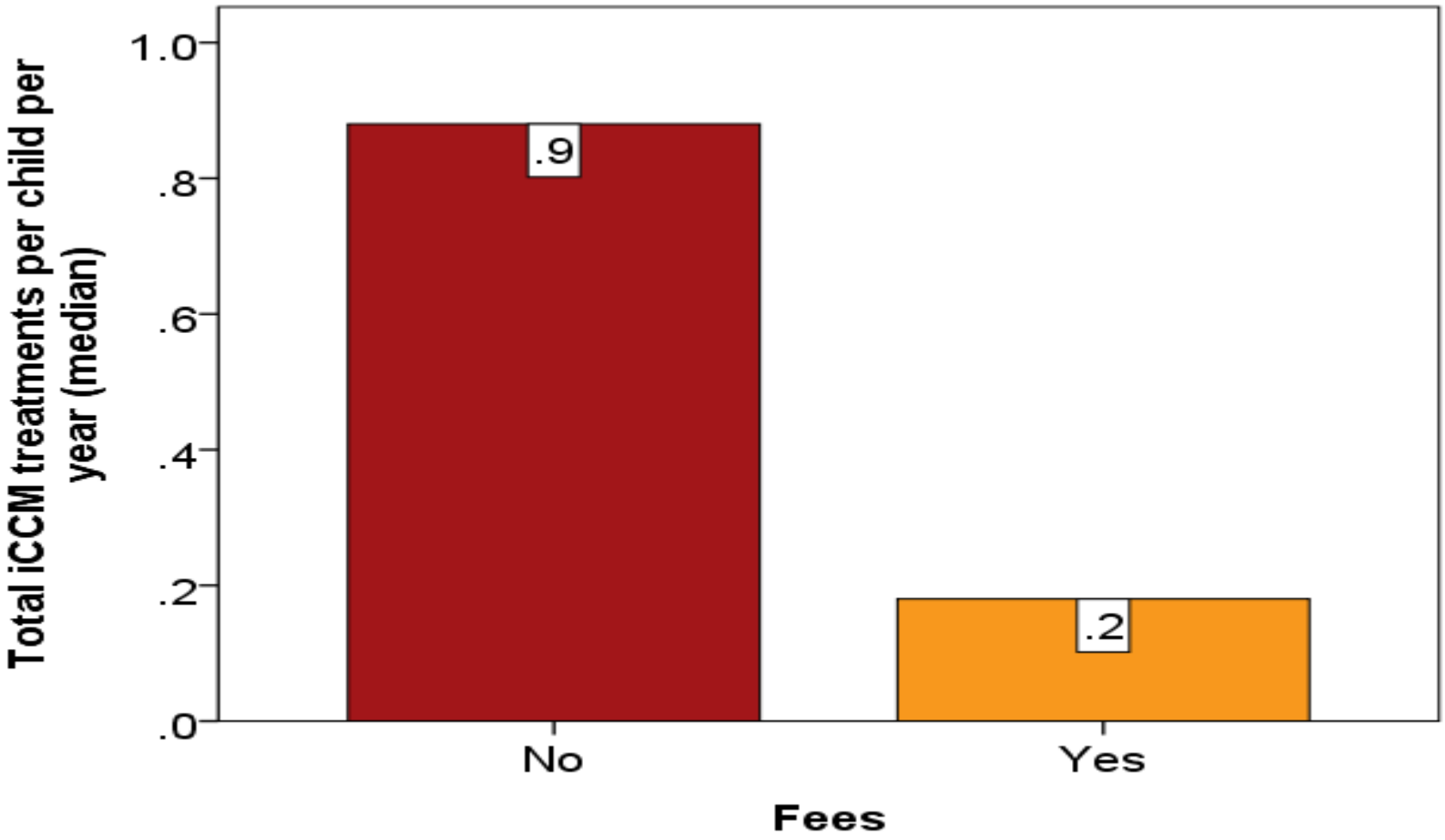
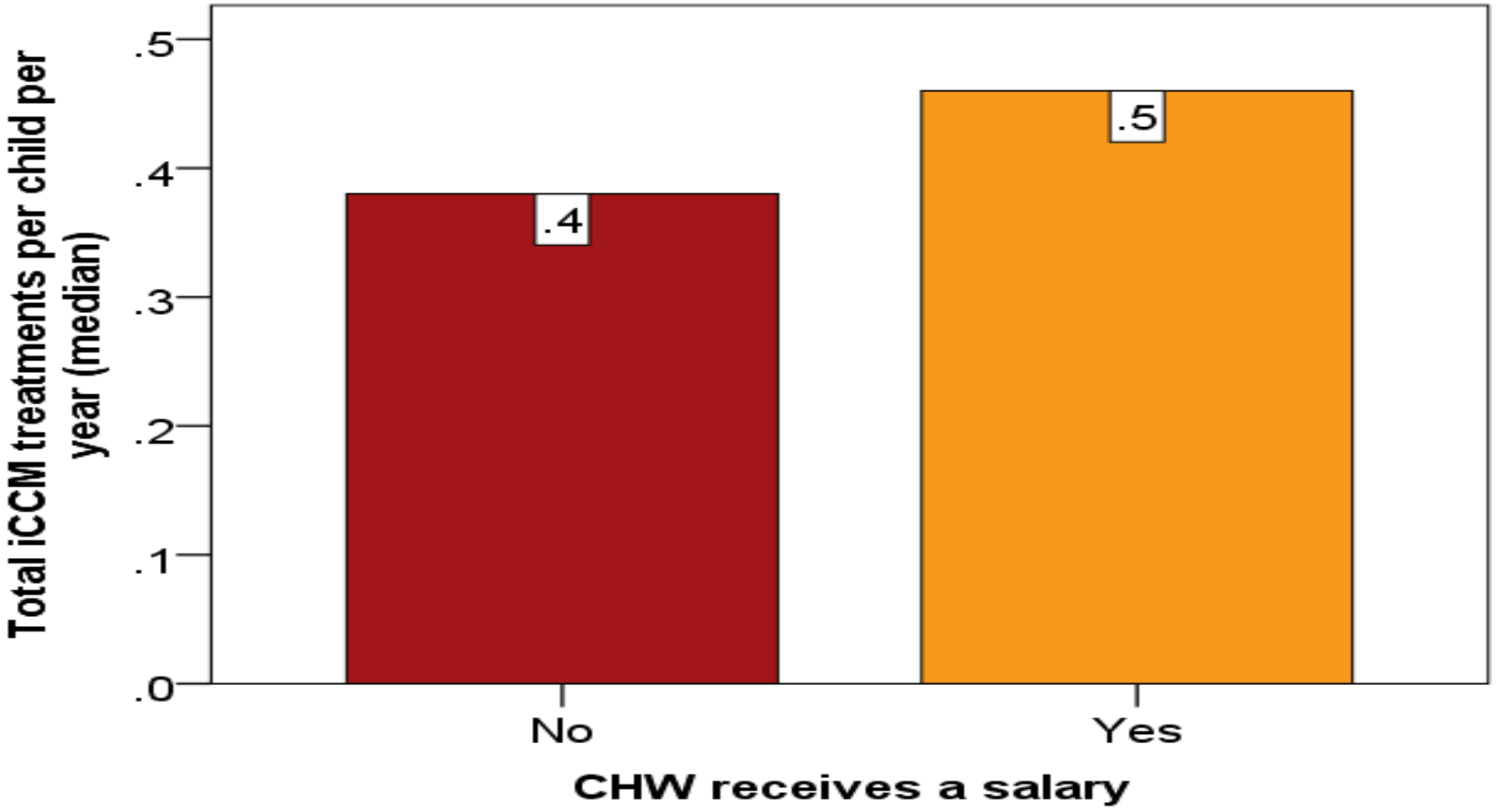
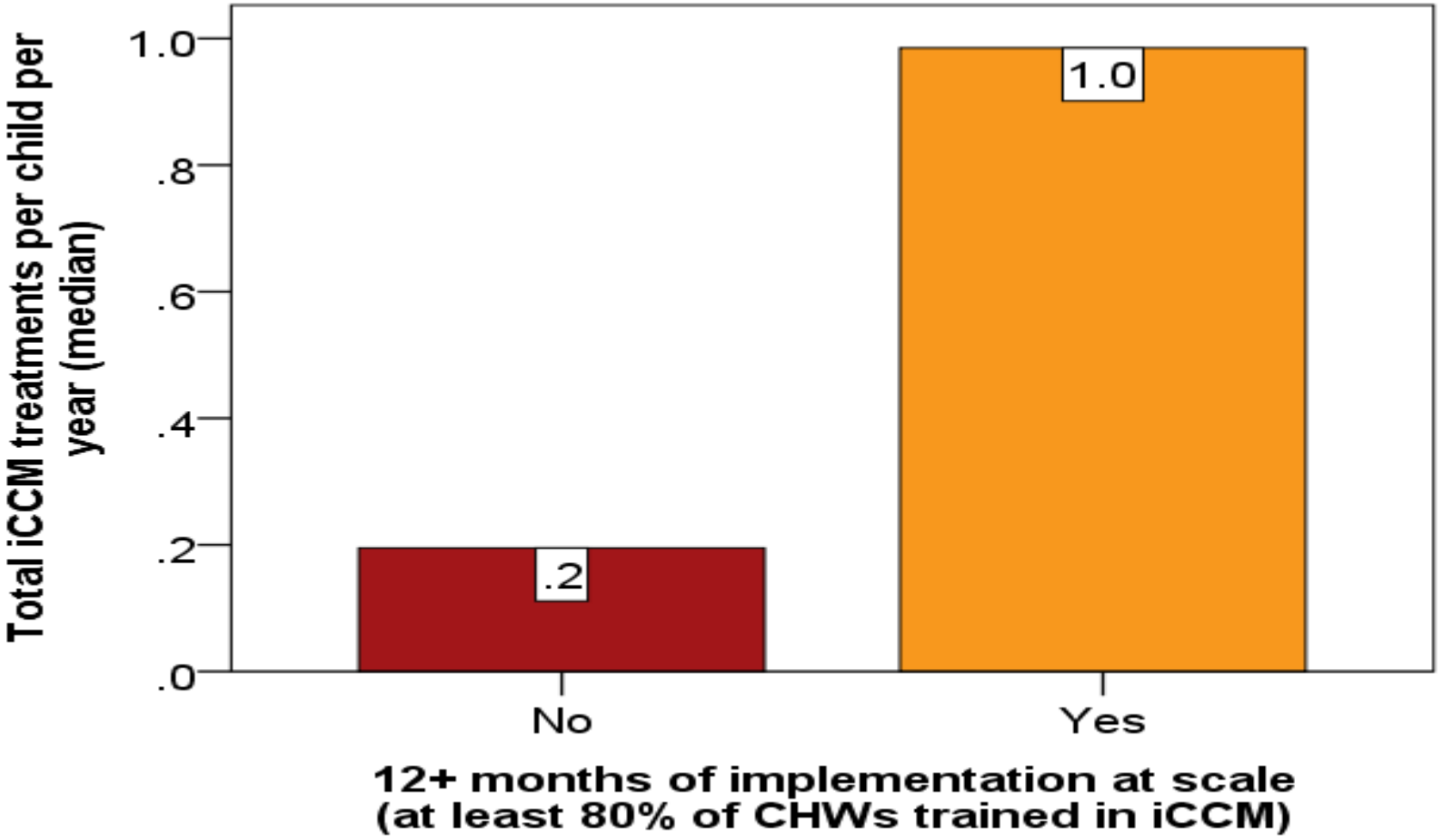
Do not charge fees: Programs without fees had much higher treatment rates



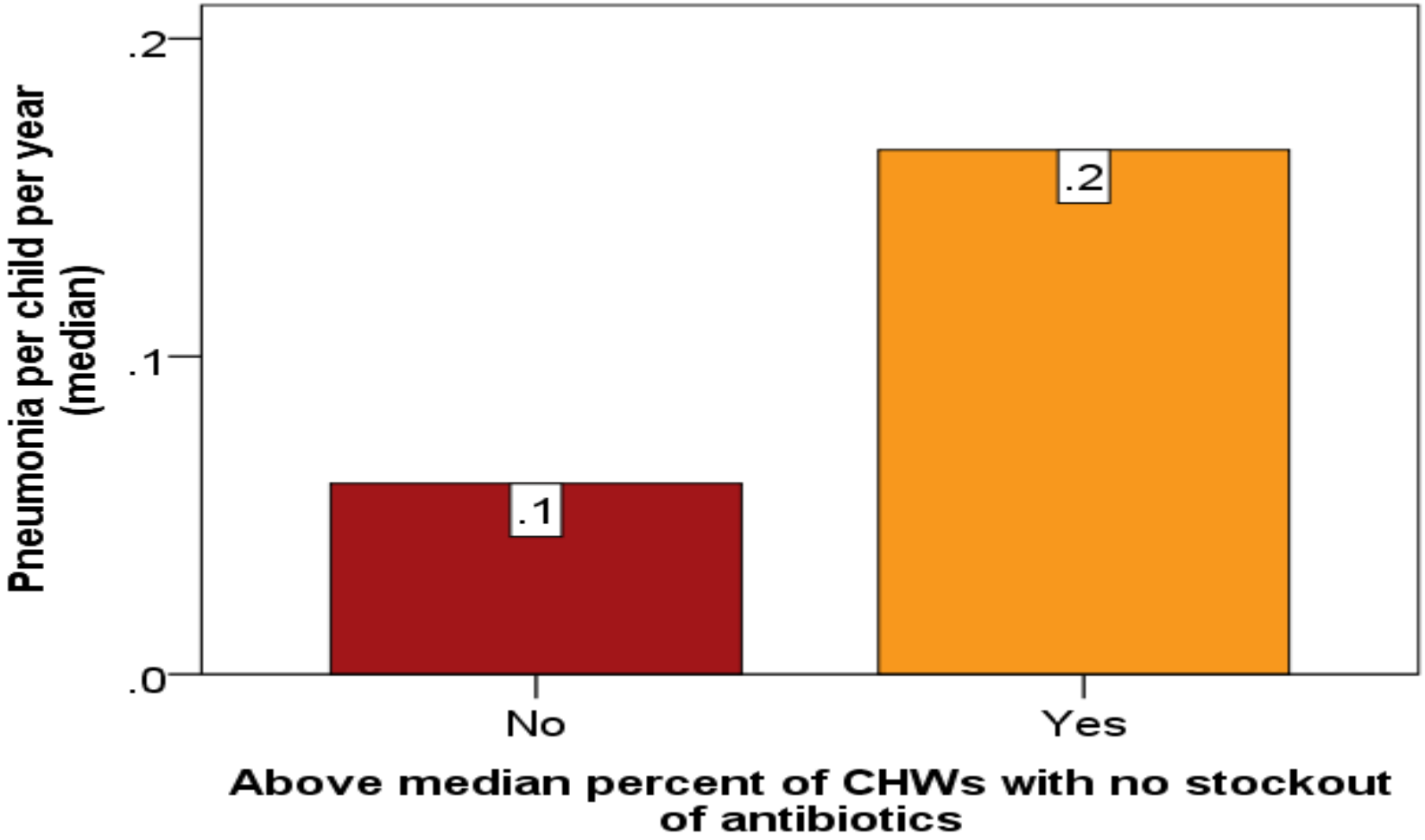
Paid CHWs and volunteer CHWs can both be effective, but how they are deployed & supported & the context in which they work matters



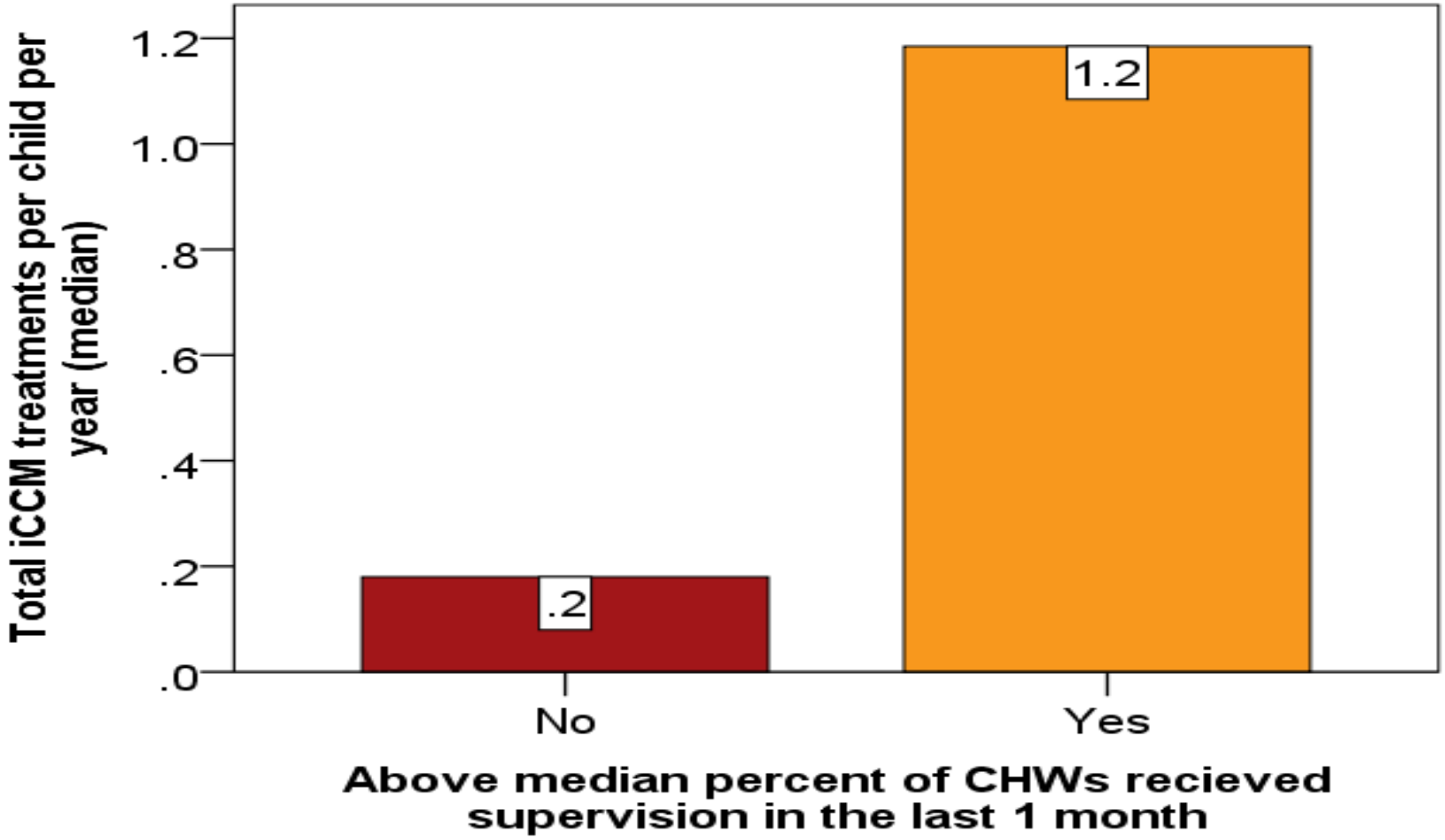
Programs need time to reach scale before they can be effective



Programs need effective supply chain systems. Programs with fewer stockouts had higher treatment rates

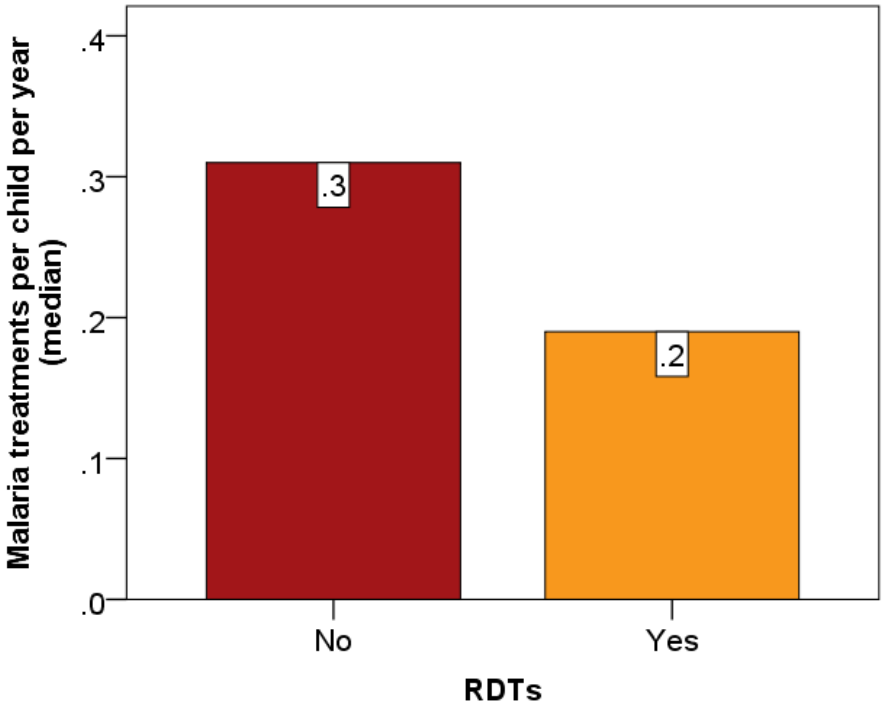


Programs need effective supervision systems. Programs with higher supervision coverage had higher treatment rates

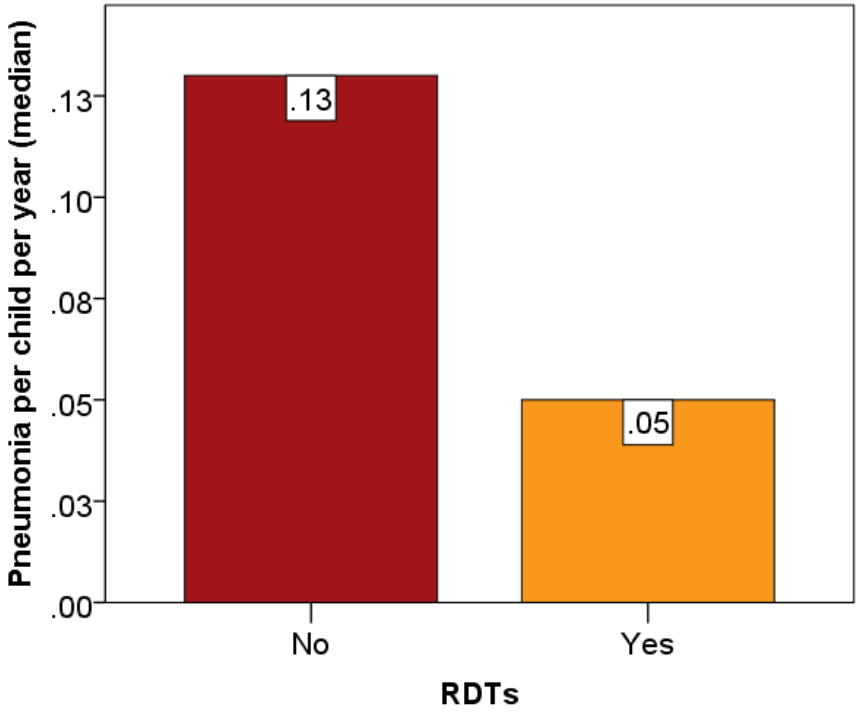


CHWs can and should use Rapid Diagnostic Tests for malaria to improve appropriate treatment for malaria and pneumonia (where malaria is also present)

Malaria

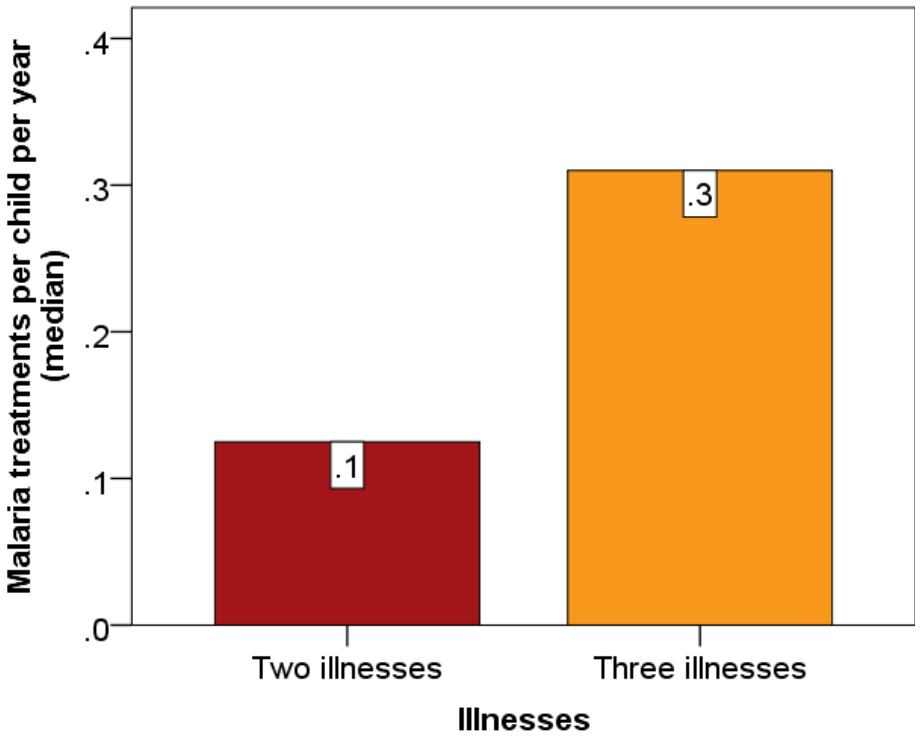


Pneumonia

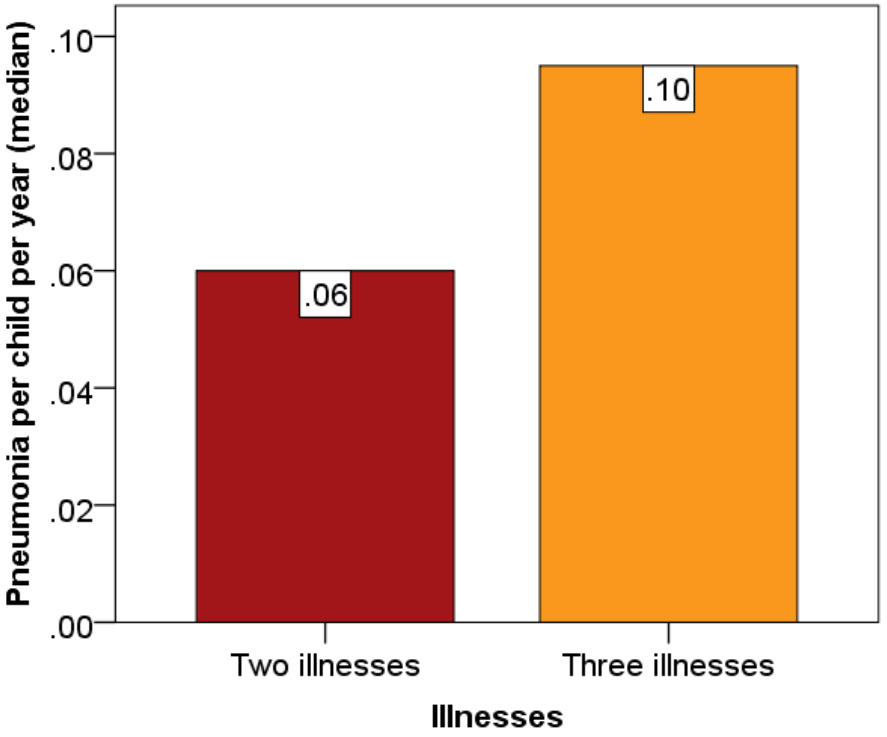


Treating 3 illnesses does not negatively effect utilization for malaria and pneumonia

Malaria



Pneumonia



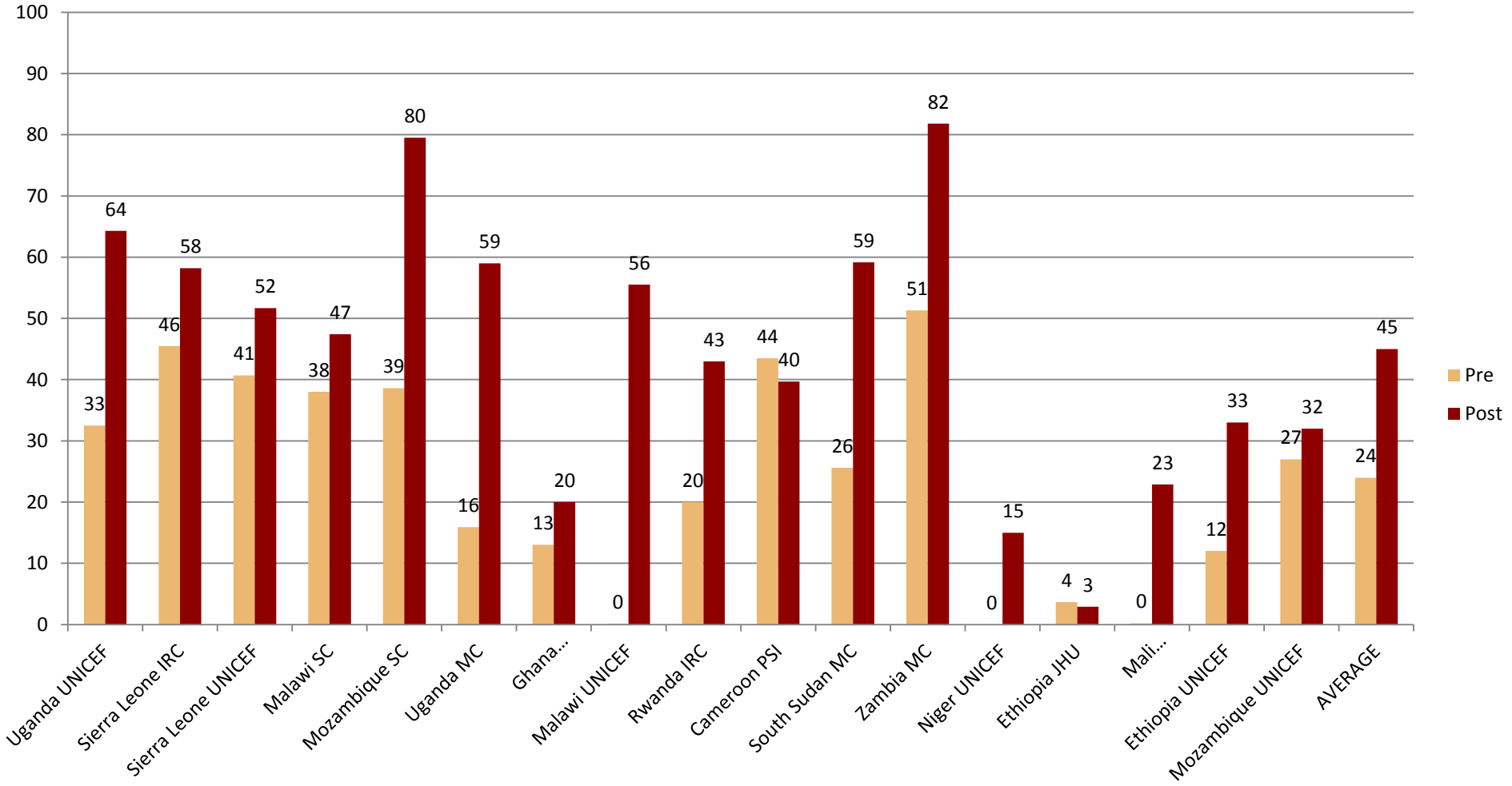
Coverage Data: Source and Definitions

- **Source**:
  - Household Survey – usually conducted at baseline and endline of the evaluation period
  - administered to caregivers of children under 5
- **Recall period**:
  - Two weeks prior to survey
- **Definition:**
  - Percentage of all children with an illness whose caregiver reported the child received appropriate treatment
  - Malaria: Child had fever and received ACT
  - Diarrhea: Child had diarrhea and received ORS and Zinc
  - Pneumonia: Child had cough, fast breathing due to problem in the chest and received an antibiotic

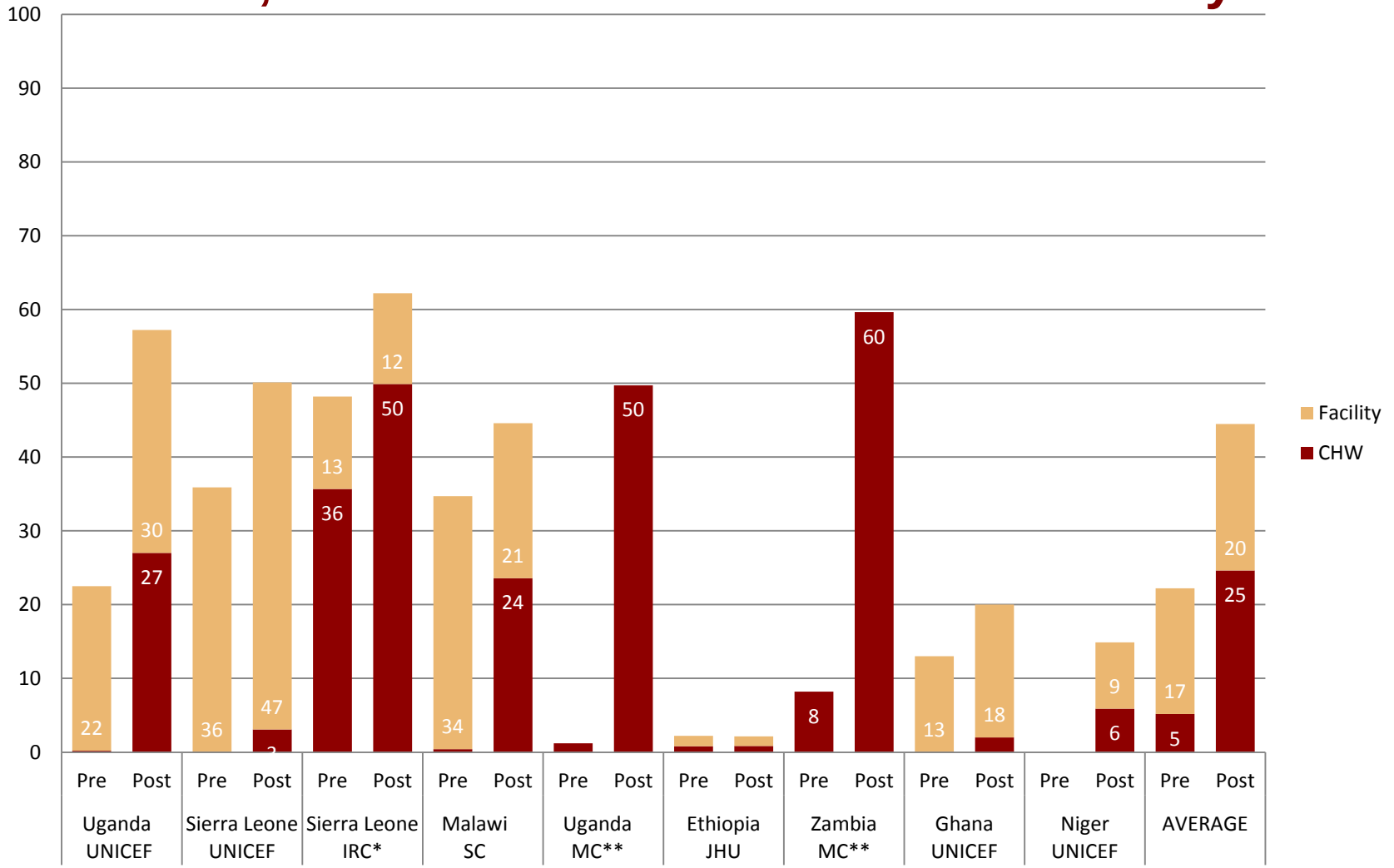
Coverage by Point of Treatment: Source and Definition

- **Source**: Household surveys administered to mothers/caregivers of children under 5
- **Recall period**: Two weeks prior to survey
- **Source of treatment coverage**:
  - CHW Coverage : Treatment for illness by a Community Health Worker
  - Facility Coverage: Treatment for illness by a Doctor, Nurse/Midwife, Medical Assistant or Clinical Officer in a public or private (if data available) facility

Percent of Children under 5 with fever who received ACT



Percent of Children under 5 with fever who received ACT, Source of Treatment: CHW vs Facility



* Figures provided are unweighted, and as result may be slightly higher than total coverage. **No facility level data available/displayed

Malaria Routine Reporting Data Expected Cases Treated with ACT Compared to ACT Coverage from Household Survey

- Strong Association

  2 out 12 programs

  – Mozambique (SC) and South Sudan (MC)

- Lower Coverage But Higher Percent of Expected:

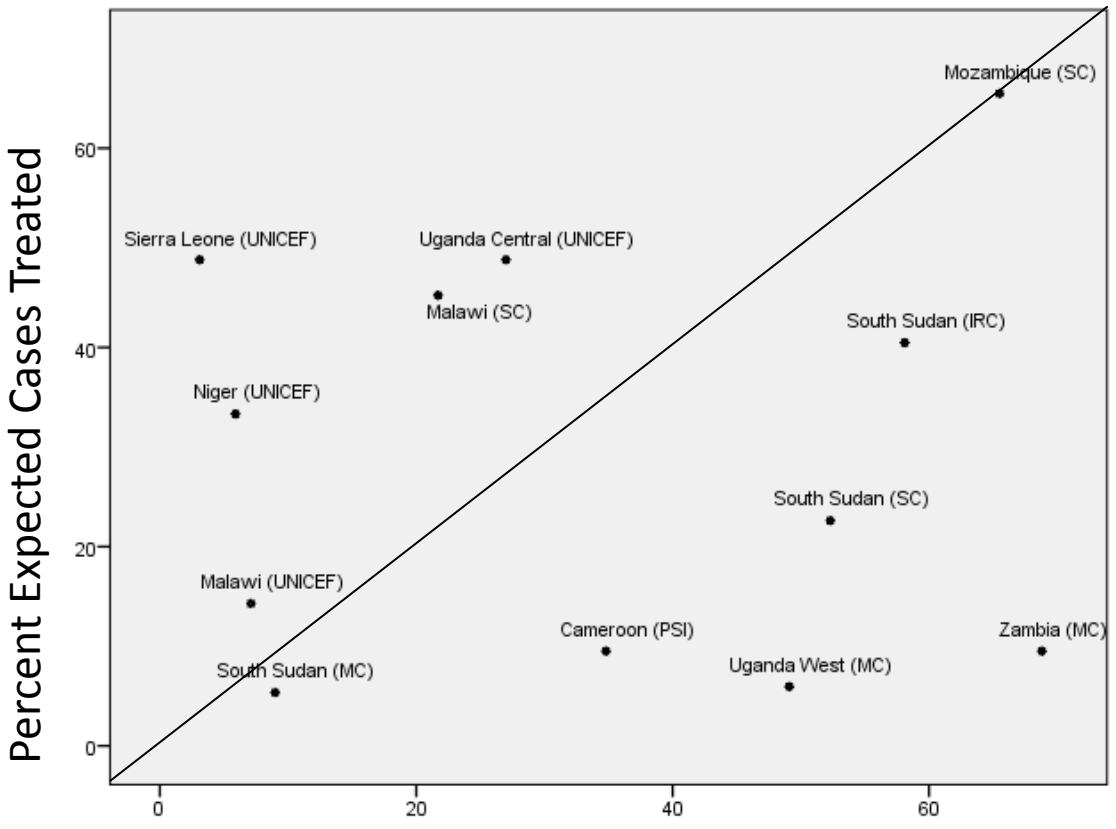
  5 out 12 programs

  – Sierra Leone (UNICEF), Niger (UNICEF), Malawi (UNICEF), Uganda (UNICEF), Malawi (SC)

- Higher Coverage But Lower Percent of Expected:

  5 out 12 programs

  – Zambia (MC), South Sudan (IRC), South Sudan (SC), Uganda West (MC), Cameroon (PSI)



Associations Percentage of Expected Cases Treated From Routine Data & Coverage from Household Survey

- Diarrhea: Strong association some programs (3 out 9). Rest, relatively higher CHW coverage than expected treatment.

- Pneumonia: Strong Association some programs (3 out 11). Rest, relatively lower coverage than expected treatment.

Summary of coverage findings

- Not good concordance between coverage and routine data on utilization (with a few exceptions)
  - Quality of routine data is unknown
  - Coverage measurements only examine the last 2 weeks of coverage and rely on self-report

- Despite this, coverage data shows that CHWs have contributed to increased coverage of treatment for pneumonia, malaria and diarrhea.

Overall Limitations

- Small number of studies (units of analysis) warrants cautious interpretation and prevented statistical hypothesis testing
- Use of regional estimates of incidence rather than country or sub-national specific
- Adjustments (e.g. for fast breathing) applied may not be appropriate for all programs
- Definitions of certain variables (e.g. supervision rates, stock out rates) were not standard

Overall Limitations

Need more data on

- Demand-side determinants (care seeking and demand generation)
- Geographic distribution of CHWs in relation to each other, HF, and the target population
- CHW time available and time spent on various activities

Key findings and Conclusions

- % of expected cases treated
  - Consistent group of programs with high rates
  - Low for diarrhea
  - Middling for malaria but high variation
  - Higher than reasonable to expect for pneumonia suggesting overtreatment with antibiotics
- Treatments per CHW per month
  - High variation reflective of two main types of iCCM programs

Key findings and Conclusions

- **Two main types of iCCM programs**
  - Programs with salaried CHWs, lower CHW to population ratios and government run
  - Programs with volunteer CHWs, higher CHW to population ratios and heavily supported by NGOs

- **Each type has tradeoffs that must be managed in order to achieve high treatment rates**
  - Salaried CHW programs
    - Must maintain or increase caseloads per CHW
    - Under some circumstances may need to increase the number of CHWs in a targeted/strategic way
  - Programs with volunteer CHWs
    - Must by default have lower caseloads per CHW
    - Must balance the benefit and risks of asking for more treatments from each CHW or increasing the number of CHWs with the cost and complexity of managing this

Key findings and Conclusions

- User fees are a major barrier to utilization of iCCM
- Paid CHWs and volunteer CHWs can both be effective but deployment, support, and context matter
- Programs need time to reach scale to be effective
- Programs need effective supply chain systems
- Programs need effective supervision systems
- CHWs can and should use Rapid Diagnostic Tests for malaria
- In the areas where iCCM programs were implemented, iCCM contributed to overall increases in treatment coverage

Recommendations For Program Implementation

- Increase utilization
- Do not charge fees
- Deploy an adequate number of CHWs to serve the population targeted (volunteer programs will need more CHWs per population than salaried)
- Maintain a continuous supply
- Ensure all CHWs are adequately supervised regularly
- Integrate use of RDTs when treating Malaria
- Address 3 illnesses where relevant

To best do the above integrate iCCM into the broader government health system strengthening

Recommendations For Monitoring and Evaluation

- Examine locally non-financial demand barriers and then address them
- Standardize routine iCCM monitoring and integrate with health management information systems
- Regularly review and make better use of routine iCCM monitoring data
- Plan and conduct robust prospective evaluations
- Evaluate programs only after they have had sufficient time to operate at scale (at least a year if not more)

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Thank You!
Any Questions?
UNICEF Mali/2013/Crook