

Household costs for community treatment of severe pneumonia in Pakistan

Salim Sadruddin, MBBS, MPH, PhD

Senior Advisor, Child Health – Save the Children

**Presented by Eric Swedberg, Senior Director, Child
Health – Save the Children**

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Evidence Review Symposium
3–5 March 2014, Accra, Ghana**

Outline

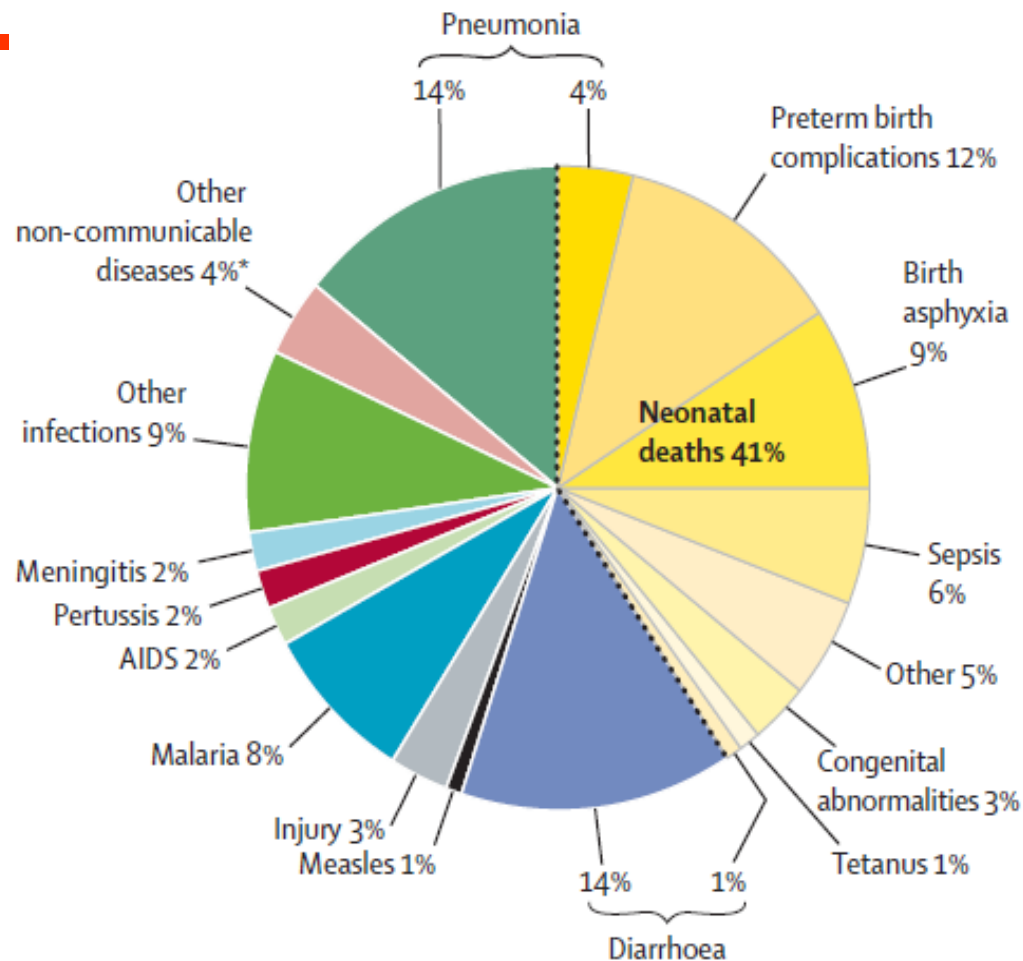
- Background
- Methods
- Results
- Conclusion

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Background

- Globally, 1.3 million pneumonia deaths/year.*
- 18% of all deaths among children under 5 years of age.
- 85,000 deaths/year in Pakistan.



* Fischer Walker CL et al. Lancet 2013

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Background

- Globally, proportion of children receiving appropriate antibiotics for pneumonia is only 42%*.
- Current WHO guidelines recommend:
 - Pneumonia (fast breathing): Trained Community Health Workers (CHWs) treat pneumonia with oral antibiotic;
 - Severe Pneumonia (lower chest in-drawing): give first dose of oral antibiotic and refer to a health facility.
- In many developing countries, this is not feasible or practiced: poor transportation, cost, distance, lack of child care at home, or cultural perceptions.

*Countdown to 2015 report 2013

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Background (contd.)

- Hazir et al. (2008) in Pakistan comparing outpatient treatment with oral amoxicillin and inpatient treatment with injectable ampicillin for severe pneumonia found that outpatient treatment of WHO-defined severe pneumonia is equivalent to the hospital treatment with injectable antibiotics.
- Community treatment of severe pneumonia would result in increased care seeking, treatment compliance, fewer treatment failures and reduce economic burden for families by lowering treatment cost, travel time and opportunity costs.

Study Objectives

- To **increase care-seeking from LHWs** within 24 hours of recognizing ARI symptoms in children in selected clusters of district Haripur.
- To determine whether there is **equivalency in clinical treatment failure rates** among children 2-59 months with **WHO defined severe pneumonia** in clusters receiving community treatment with oral amoxicillin versus children in the control clusters who received standard of care.
- Estimate direct and indirect costs of treatment of severe pneumonia (from a household perspective) for the two treatment arms.

Methods

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Profile: District Haripur, Pakistan

- Total Pop. 856,921 (80% rural)
- 44 Union Councils and 327 Villages
- Study Clusters: 28 Union Councils (pop. 15-25 thousand)
- Study Area Population= 511,569
- Under Five Population = 76,795
- LHWs in Study Area = 511 (Intervention 269 & Control 242)



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National LHW Programme

- Lady Health Worker (LHW) programme launched in 1994.
- Implemented through a female community health worker called LHW - > 100,000 serving currently:
 - Resident of same community she serves;
 - Minimum 8 years of education;
 - Preferably married with children;
 - Serves a population of 1000 or 150-200 households;
 - Linked to the nearest health facility;
 - Supervised by a Lady Health supervisor (LHS).
- Provides maternal, newborn and child health preventive and selective curative services.

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Study design

- Cluster randomized controlled trial (April 2008-December 2009): 28 Union Councils randomized to 14 intervention and 14 control clusters.
- 511 LHWs were enlisted in the study with: 8 - 30 LHWs in each study cluster.
- Children aged 2-59 months who met the study inclusion criteria were enrolled by the LHW.
- Costing study was nested within the larger RCT.
- All severe pneumonia cases enrolled in the RCT during the month of December 2009 were included in the sample.

Case Definition and Management

Case definitions:

2-59 months old child having
cough and/or difficult
breathing

Severe pneumonia: Lower
chest in-drawing

Very Severe Disease: Any
danger sign:

- Abnormally sleepy
- Unable to drink
- Persistent vomiting
- Convulsions

Case management:

Intervention Cluster

- Oral amoxicillin 50 mg/kg per dose, twice daily x 5 days
- Teach parents home care and when to return.
- Follow-up child at home

Control Cluster

- Immediate referral after first dose of cotrimoxazole
- If referral not possible/accepted, continue treatment with oral cotrimoxazole at home

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Study variables

Direct Costs

A. Medical Costs

1. Consultations
2. Medicine & supplies
3. Lab tests
4. Radiology
5. Hospital admissions

B. Non-Medical Costs

1. Cost of Transportation
2. Cost of Food

Indirect Costs

1. Self-reported loss in earnings
2. Cost of time lost during care seeking and child care

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Data collection

- LHWs completed case report forms (CRFs) for a child presenting with lower chest indrawing and notified the study coordination centre via phone.
- Data Collection Assistants (DCA) visited the child within 48 hours to verify diagnosis and treatment by completing a duplicate CRF.
- LHW and DCA continued follow-up on day 2,3,6 and 14 for assessment and recording of clinical outcomes, medicine compliance, medicine change, health provider visits, hospitalization etc.
- On day 14 follow-up DCAs transcribed the data in the costing study questionnaire from the CRFs completed on enrolment and day 2, 3, 6, and 14 follow-up.
- DCAs interviewed head of the household to get information on expenses incurred during the treatment of the child and loss of wages/earnings or time lost during the illness episode for taking care of the child.

Results

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Sample Characteristics

- 423 severe pneumonia cases enrolled during December 2009:
Intervention: 212
Control: 211
- Both treatment groups nearly similar in terms of educational status of parents of enrolled children.
- Average monthly household income:
Intervention - PKR 7844 (median PKR 8400)
Control - PKR 8435 (median PKR 9000).
- 12% households in the intervention group and 17% in the control group earned less than PKR 3000 (USD* 35) per month.

* 1 USD= 85.30 PKR

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Source of care

Intervention

- 198 (93.4%) out of 212 cases enrolled in the intervention group were successfully treated by LHWs with oral amoxicillin.
- Only 14 cases referred for further treatment.
- No case in the intervention group was hospitalized.

Control

- All 211 cases in the control group were referred to the health facilities.
- Care takers of 131 (62%) children sought treatment from private practitioners, 53 (25%) were treated at government health facilities and 11 (5.2%) went to other health providers.
- 6 (2.8%) cases were hospitalized.

Cost of treatment of severe pneumonia episode

Intervention Arm

- Average cost per episode of severe pneumonia attributed to house holds: **PKR 124.30* (\$1.46)**.
- Average direct medical cost: **PKR 110.70 (\$ 1.30)**
- Medicines constituted highest proportion of costs (87%).
- 198 children were successfully treated by LHWs at home, therefore, families incurred minimal expenses on transportation, food, hospitalization, diagnostics etc.
- As amoxicillin was provided free of charge the average cost incurred by the household was: **PKR 21.51 (\$ 0.25)**.

* 1 USD= 85.30 PKR

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Cost of treatment of severe pneumonia episode

Control arm:

- Average cost per episode of severe pneumonia attributed to household: **PKR 648 (\$ 7.60).**
- Breakdown of costs:
 - Medicines: 47.22%
 - Consultation: 6.7%
 - Hospitalization: 5.86 %
 - Transportation and food: 18.42%
 - Lost earnings: 18.53 %
- All 211 children were referred by the LHWs:
 - 98.83 % of the cost borne by the household and average cost incurred per severe pneumonia episode was: **PKR 640.65 (\$ 7.51).**
- The average cost per episode for the 6 hospitalized patients was PKR 4449 (\$ 52.15), i.e. 53% of average household monthly income of the control arm population.

* 1 USD= 85.30 PKR

Conclusion

- The difference of PKR 523.70 (\$ 6.13) between the two groups for treatment of severe pneumonia episode is substantial for the poor households.
- 30 fold difference [PKR 7.90 (\$ 0.25) vs PKR 641 (\$ 7.51)] in average cost between the two treatment groups when amoxicillin cost is deducted from the intervention group estimation.
- Our study shows that extending severe pneumonia treatment with oral amoxicillin to the community level will not only improve access, compliance, and better treatment outcomes (risk difference of 8.9%, Lancet 2011), but also reduce health system costs (less referral and admissions) and economic burden on households.

THANKS

USAID, MNCAH/WHO, Boston University,
University of Edinburgh, LHW Program

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