

# Increasing Access to Treatment of Newborn Infections in Resource Poor Settings

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# Newborn Infections: background

- Most common cause of 3.7 million neonatal deaths every year in resource poor settings; ranging from 25% to 50%
- 4-10% of 133 million newborns born every year may have "suspected sepsis" in the neonatal period
- Reasons for low access to treatment :
  - Postnatal care coverage, particularly in the first week, is very low
  - Suspected sepsis is not usually identified by families/health workers
  - Even when suspected sepsis is identified, treatment is not available

# Reaching the newborns in the first week

- Two approaches, with promising results – increasing births at facilities; and taking postnatal care to the home
- A conditional cash transfer scheme to promote facility births in India has increased birth at public health facilities (from 20% to up to 70% in some remote settings)
- Home visits by CHWs to provide home-based newborn care has resulted in improved newborn care practices in pilot projects

# Improving identification of sepsis

- Families often fail to identify illness in the first week of life early: no illness identified in about 50% of early neonatal deaths in urban slums of Delhi
- Health workers in first level health facilities need a simple algorithm to identify severe illness in infants brought to them for illness (Young Infant Study)
- CHWs need a simple algorithm to identify severe illness at home visits (SEARCH/India, Mirzapur/Bangladesh)

# Predictors of severe illness in the first week of life: newborns brought for illness

Symptom/sign	Odds ratio: severe illness
History of convulsions	15.4
History or difficulty feeding	10.0
Temperature $<35.5^{\circ}\text{C}$	9.2
Severe chest indrawing	8.9
Movement only when stimulated	6.9
Temperature $\geq 37.5^{\circ}\text{C}$	3.4
Respiratory rate $\geq 60$ per minute	2.7

# Performance of different algorithms on YIS data: 0-6 days

Algorithm	Sensitivity*	Specificity*
Generic IMCI (1995)	87.7%	66.1%
Weber et al (PIDJ 2003)	79.3%	75.3%
Bang et al (PIDJ 2005)	36.4%	96.5%
<b>NEW IMCI (Lancet 2008)</b>	<b>84.6%</b>	<b>75.1%</b>

\*Combined across sites using a meta-analytic approach

# Identification of severe illness at home visits

- **SEARCH/India:** Presence of two of a set of 7 signs as an indication to treat with antibiotic injections at home
- **Mirzapur/Bangladesh:** Preliminary data shows variation of YIS-IMCI algorithm might work best
- **London consultation:** Further analysis of existing data and new data needed to refine clinical algorithms for diagnosis of suspected sepsis at home visits

# Improving access to treatment of sepsis

Three approaches:

- Promote referral to hospital, strengthen first referral facilities  
**Example** Guna/India: Referral helpline, SNCUs at district level
- Identification of suspected sepsis at home by CHW, outpatient treatment by facility worker  
**Example** Nepal: MINI project, Pakistan: Antibiotic regimes study
- When no access to any facility, treatment by CHW at home  
**Example** SEARCH/ANKUR experience, Sylhet trial

# Evidence: effect of community-based intervention packages on NMR

Intervention package	NMR impact
<b>Community mobilization</b> Makwanpur, cluster-randomized controlled trial	30%
<b>Community mobilization, Home visits for improving practices and identification of illness</b> Hala, pilot: 4 intervention and 4 control clusters Shivgarh, cluster-randomized controlled trial	20% 50%
<b>Community mobilization, Home visits for improving practices and identification of illness, Treatment by CHW</b> SEARCH, one intervention and one control area ANKUR, before-after comparison Sylhet, cluster-randomized controlled trial	60% 50% 33%

# London consultation: key conclusions 1

- Community-based interventions for improving newborn care practices and identification of illness at home have a substantial impact on NMR, including early NMR
- Home visits in the first week are particularly important; with a suggestion that visits in first 2 days may be crucial
- Improved access to treatment of suspected sepsis, either at home or at first level health facilities close to home, has impact additional to the above
- Available evidence does not allow a choice of appropriate antibiotic treatment regime for use at community level

# London consultation: key conclusions 2

- Research studies have shown that CHWs can be trained in identification and treatment of suspected sepsis
- A pilot-scale experience in Nepal: a combination of identification of illness by CHWs and treatment by facility-based workers improved treatment access
- Similar operations research in other settings to identify locally optimal delivery approaches are encouraged

# Policy/programme options

- **Facilitate referral:** CHWs identify illness, facilitate referral using a helpline or other community schemes
- **Outpatient treatment at health facilities:** "Where referral is not possible" used by health workers
- **Community treatment:** As operations research projects in very remote areas with no access to health facilities.
  - Only 1/3 of priority countries allow CHWs to use oral antibiotics
  - A system to ensure well trained, supplied and supervised CHWs is needed

# Increased access to poor quality care is not enough to save lives

- Referral level facilities need to be strengthened to provide adequate care for severe illness
- First level health facilities need well trained (IMCI-where referral is not possible), supplied and supervised HW
- Treatment by CHWs in remote areas requires policy dialogue, and an intense monitoring system for ensuring safety and quality of care

# Research priorities

- Simpler antibiotic regimes for treatment of suspected sepsis: fewer days of injections
- Oral antibiotics for a subgroup of neonates, e.g. pneumonia: fewer neonates who need injections
- Operations research studies to facilitate scale up different delivery strategies for improve access to care
- New research should be done in Africa, not just in Asia