

The Village Health Worker Model: A Strategy for Improving Drug Delivery Access and Overcoming Malnutrition in Mirriah Region of Niger.

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SMO Summer Funding

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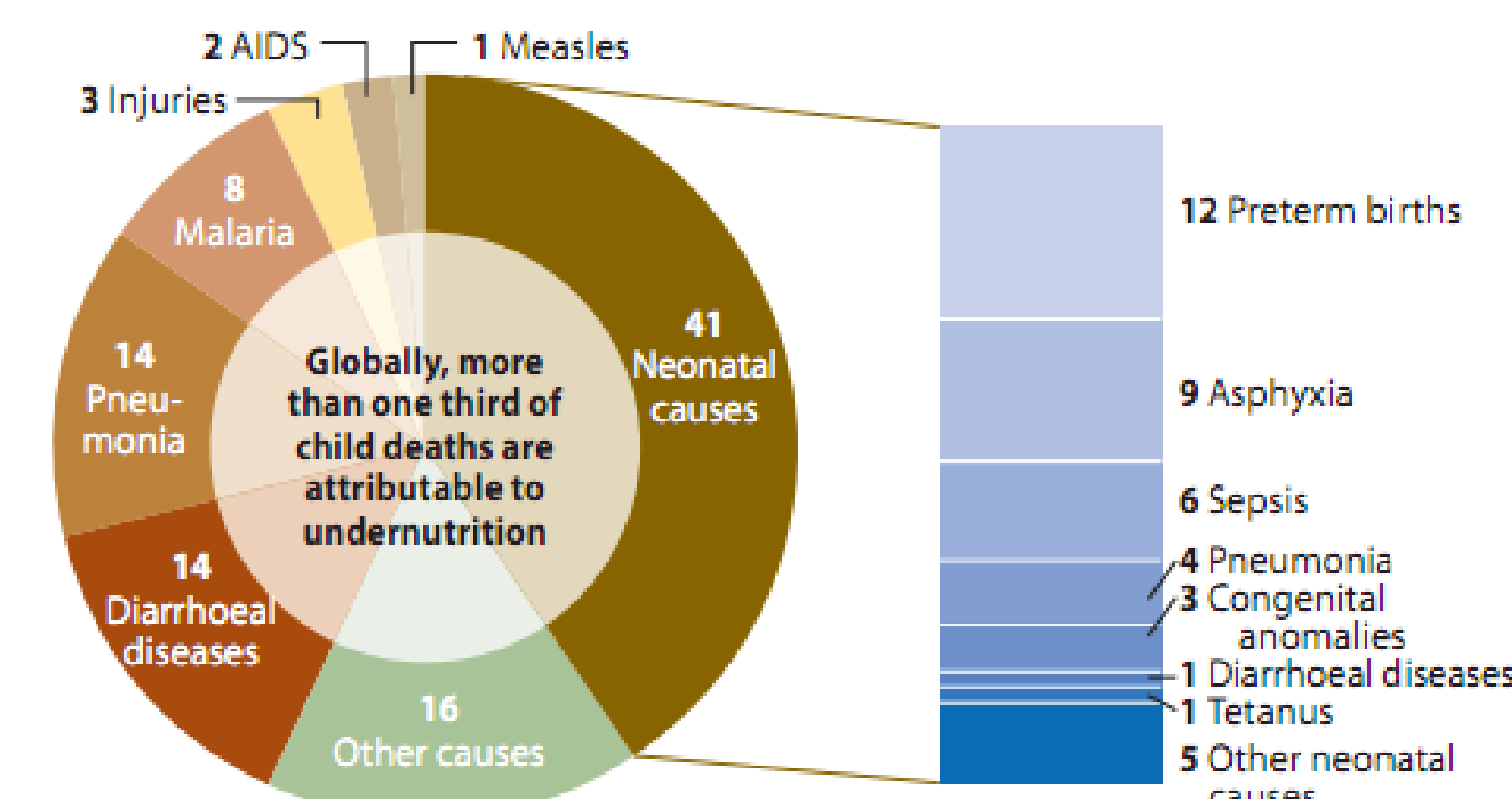
Acknowledgements: HMS SMO Summer Funding; Harambe/GlaxoSmithKline; ALIMA



Introduction

Globally:

Causes of deaths among children under age five, 2008 (Percentage)



Millennium Development Goal 4: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate (1)

UNICEF: "About 80 per cent of health care in developing countries occurs in the home – and the majority of children who die do so at home, *without being seen by a health worker*" (2)

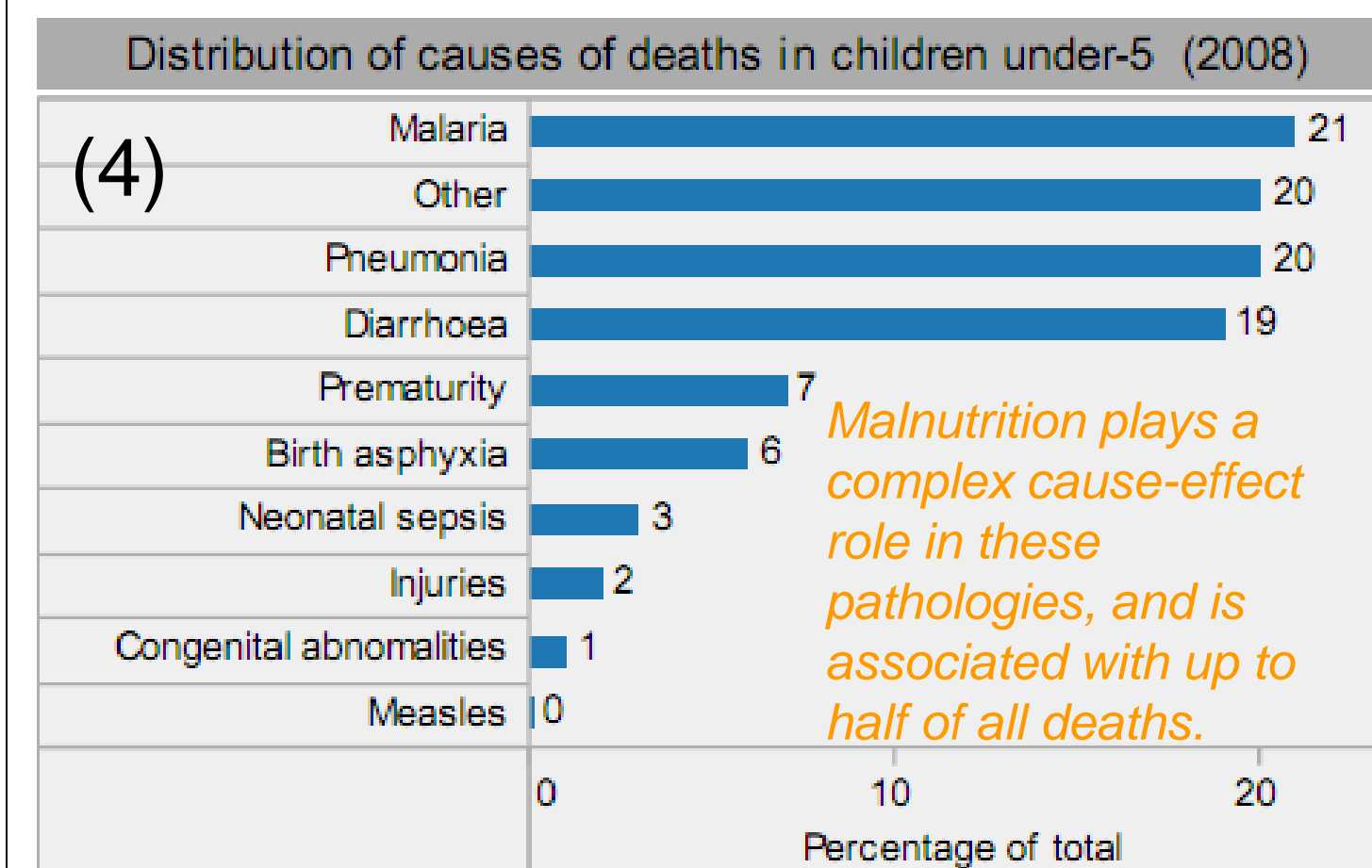


Niger:



Statistics: (3)

- Niger: 167 / 169 (2010 United Nations Human Development Index)
- Under 5 (U5) mortality rate: 167 / 1000 live births in 2008.
- Neonatal mortality rate: 35 / 1000 live births (22% of U5 mortality rate)
- Stillbirth rate: 23 / 1000 live births (11 are intrapartum)
- Adolescent birth rate: 199 births / 1000 women, age 15-19yo



• **The strategy:** decentralize health care through the training of village workers in basic healthcare.

- These community health workers (CHWs) recognize and manage most-prevalent diseases, and educate their communities in healthy living practices.
- Gives health care contact to children who would otherwise have no access to care
- Attempts to fill the gap caused by a vast lack of health care professionals
- **The issue:** Worldwide, use of CHWs worldwide has been quite successful, but there doesn't seem to be a "one size fits all".
 - Areas where CHWs have been implemented differ in the predominating diseases, available resources, and existing top-down support.
 - Niger has a very dispersed population, and is further clouded by a complex sociopolitical environment with frequent terrorist attacks.

• **The existing project:** ALIMA (The Alliance for International Medical Action) is a non-governmental organization (NGO) together with a local Nigerien NGO BEFEN (Bien Etre de la Femme et de l'Enfant au Niger) has set in place decentralized interventions targeting U5 malnutrition in the Mirriah district, Niger, population 1, 000 000.

- Highest rates of severe acute malnutrition (SAM) recorded in Niger.

Goals & Methodology

- **ALIMA's objectives:** Using existing infrastructure -
 - expand the range of interventions targeting U5 mortality.
 - Further decentralize health interventions to the village level
- **Some questions:** Given the large variability in how CHWs have been implemented and the varying success of different projects –
 - what level of medical knowledge would the CHWs be responsible for?
 - how many tasks were reasonable for a CHW to handle?
 - what was the infrastructure necessary to support the CHWs and ensure the most efficient manner that sick children could be transferred to the next level of care?
 - what combination of interventions would be most cost-effective in the long run?
 - was it possible to predict with any certainty the interventions that would be effective in the context of Niger?



Photo courtesy ALIMA

Summer Project

Goals:

- Review existing CHW models worldwide
- Make recommendations for most cost-effective interventions in Niger that involve:
 - Expanding the existing CHW malnutrition programme to include sustainable interventions that will have the highest impact on U5 mortality in the context of Niger
- Construct implementation timeline for project roll-out

Methodology:

- Extensive literature search (PubMed terms including community health worker, village health worker, decentralization)
- Organization & Ministry of Health websites: SAVE, CARE, UNICEF
- Field (semi-structured) interviews (questions emailed in advance) with current heads of mission and field staff
- Brain-storming conferences with ALIMA programme managers

Existing CHW Models

MODEL 1: Basic surveillance

- Verbal referral
- No antimalarials (AMs) or antibiotics (ABs) given, may give ORS
- Prevalent (especially Bangladesh/Brazil)
- No formal study on effectiveness.

MODEL 2: Basic model + Facilitated referral

- CHW can give basic malaria treatment; makes monthly visits to households with U5 children.
- Peru CARE/ENLACE Project (6): referral/counter-referral card system, and use of evacuation brigades
- Evidence shows increase in children brought to health care facilities, unclear whether there was a decrease in mortality.
- Still little evidence for how effective facilitated referrals are.

MODEL 3: Fever management

- Designed to recognize febrile children with or without malaria
- CHW classifies/identifies the fever, treats, counsels on mosquito nets.
- Abundant information on different Africa programmes (Uganda, Malawi, Mali) regarding training.
- Poor/uncharacterized referral systems.
- Impact on mortality unclear/ 'similar' to Model 4.

MODEL 4: Family fever management

- Model 3 but mothers get more training on how to diagnose malaria and often provide the treatment/purchase the treatment from CHW, which the mothers then administer.
- Africa - Burkina Faso, Ethiopia (7): mothers trained to recognize malaria symptoms and administer age-specific treatments according to a simple algorithm
- Apparently clear evidence on the impact on mortality

MODEL 5: CHW malaria management

- Like Model 3 except malaria is diagnosed with a blood smear.
- More common in Latin America/Asia, where there is a reduced transmission of malaria.
- Difficulty of scaling up is noted

MODEL 6: Pneumonia management

- CHW distribute antibiotics for ALRIs.
- The CHW does physical exam for assessing pneumonia
- UNICEF: this model has the strongest impact on mortality (24% reduction)
- Noted difficulty in recognizing chest indrawing, leading to failure to refer.
- Nepal started with this and then managed to scale up; Nepal project used traditional healers too
- India: rudimentary tools used to assess for pneumonia

MODEL 7: Integrated management of childhood illnesses (IMCI)

Prise en charge intégrée des maladies de l'enfant (PCIME)

- Integrated Model for Comorbidities, with use of algorithms
- 3 components: a) Health system improvements, b) family and community interventions, and c) training of health workers (8)
- UNICEF recommends this as the best model for African countries
- Multiple issues: more complicated, training longer periods (months); with increasing complexity of diagnosis, appears to be increased failure to diagnose and/or refer (particularly difficulties with pneumonia)
- The MCE (Multi-Country Evaluation) was done in Brazil, Peru, Tanzania, Uganda and Bangladesh; different components of the IMCI implemented in each country. Selected results (9):
- Uganda: Only Comp. (c); absolute levels of care remained low. Mention the importance of supervision, availability of essential drugs (comp. (a))
- Tanzania: Comp. (a) and (c); IMCI more expensive than routine care BUT more cost-effective
- Bangladesh: All 3 comp; IMCI implementation had no effect on mortality: mortality rate corresponded to 4-2 (95% -4.1 to 12-4) fewer deaths per 1000 live births in IMCI than in comparison areas (p=0-30)
- Training duration of health workers: standard 11 days slightly superior to shortened training period, but accompanying interventions and refresher courses far more important (10)

Selected CHW Successes/Failures

- **Uganda** (11): CHW trained to identify pneumonia were mostly successful; many of the ARI illness concepts were frequently related to 'fever' [Omutsutsa] and were perceived to need antimalarial treatment
- **India ASHA** (12): Identification of four obstacles to programme success:
 - Outcome-based payments
 - The primary health centres understaffed
 - Hierarchy
 - Lack of participation by the community
- **Peru** (13): health promoters are young, male, high school graduates; selected by community but HIGH dropout rate; versus traditional healers are older, male, low education; share beliefs of community with VERY LOW dropout.
- **Zambia** (14): Incorporation of HIV guidelines into the IMCI algorithm, but 97% of the health workers assessed did not mention the HIV guidelines; numerous barriers to non-adherence. (lack time, lack privacy, HIV 'non-emergency')

Conclusions

- Structure:**
- Maximum: 1 CHW per 1000 people (per 200 children)
 - Selected by community, community involvement
 - Integration into existing health infrastructure
 - Active [vs passive] surveillance of households
 - 1 supervisor per 20-25 CHW
 - Need supervisor for overseeing integration of CHW with traditional healer+traditional birth attendant
 - Need cooperation and coordination: community AND Ministry of Health
- Referral:**
- Facilitated referral: Petrol payback; motorcycle ambulances; central coordinating point
- Tasks:**
- Number of tasks: 3, absolute max 4
 - Need to be constructive, not just "education"
 - Improved adherence tools for mothers (family involvement)
 - Household visits (active)
 - Which?
 1. Malnutrition (starting at conception)
 2. Malaria
 3. (?) Likely not pneumonia; possibly ORS (clean water) OR safe (clean) delivery; Dependent on country legislation

- Training:**
- Some interactive training / apprenticeship (role modelling)
 - Refresher course every month / on-going training more important than initial training duration

- Incentives:**
- Staff retention crucial
 - Monetary: grading scale of payment / social status; barter vs money – complications of 'worth'
 - Social status: badge/ t-shirt
 - Career advancement: sanctioned by MoH; diploma
 - Military avoidance

3-phase implementation plan:

Phase 1	Phase 2	Phase 3
Major goals: -Add Malaria (CHW +/- mother) -Decentralize nutrition in CAS (pilot)	Major goals: -Scale up nutrition in CAS -SAM: Using MUAC in and MUAC out -Follow up 'well' SAMs in the villages (pilot?) - +/- Safe delivery kits	Major goals: -Scale up treating well SAMs in villages -Add ORS - +/- safe delivery kits
Minor goals: -improve facilitated referral programme	Minor goals: -Continued improvement referral system	



Photo courtesy ALIMA

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