Feasible Behavior Change Strategies to Improve Newborn Survival in Rural Papua New Guinean Communities

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For INMED Course Healthcare Leadership and Management

October 2021

Summary: Simple changes of behavior in delivery practices and newborn care could reduce newborn mortality significantly in rural Papua New Guinea, but an approach to promoting behavior change among the relevant stakeholders should take into consideration various theories, frameworks, and perspectives on behavior change, as well as proven strategies in similar settings.

Behavior Change Theories

Many theories and theoretical frameworks have been advanced to explain how humans change their behavior (Davis et al., 2015). One that is particularly useful for the topic of this essay is the Behavior Change Management (BCM) approach used to successfully promote healthy newborn care practices in Shivgarh, India (Kumar et al., 2010, 2015). In addition, the Social Cognitive Theory (Bandura, 2004) is likely to be helpful in Papua New Guinea, which has over 800 tribes who largely have communal rather than individualistic cultures. Finally, the practical understanding and principles of behavior change approaches outlined in the book Switch by Chip Heath and Dan Heath (Heath & Heath, 2010) would likely be adaptable to any culture.

The Behavior Change Management approach involves first of all recognizing that when common newborn care practices are not scientific and do not lead to statistically good outcomes, this is not due to a lack of care on the part of the parents and other stakeholders. In addition, changing their behavior cannot be accomplished by simply telling them that they should change to a different behavior because scientists have found it to be better. (If only behavior change in any community were this easy!) Instead, the activists must research the underlying beliefs and understandings that lead people to make these choices, and then meet them where they are to explain the new practices in analogies and stories that they can relate to. In the case of the Shivgarh project, they set aside a rationalistic, scientific persuasive approach and worked with community members to craft messages that resonated with religious and sociocultural values.

The Social Cognitive Theory of behavior change incorporates the following aspects: knowing the risks and benefits of given health practices, feeling that one is able to change their behavior (self-efficacy), what one can expect the outcomes to be forgiven health practices (or lack thereof), the goals and plans that people have, and what the perceived and real barriers and facilitators are to making the changes (social pressure etc.).

The book Switch uses an analogy to categorize behavior change approaches: a Rider (reason, analysis) on an Elephant (feelings, motivation, laziness) going along a Path (environment, social inputs). Within these three there are subcategories, such as the principle of breaking down a desired change into one simple, clear step to get around the Elephant's natural laziness and the Rider's analysis paralysis.

The Problem

The specific problem to be addressed in this paper is the neonatal mortality caused by non-evidence-based newborn care practices used in rural Papua New Guinea during many home

deliveries (and hospital deliveries, but this would require a different behavior change intervention). About half of deliveries in PNG occur at home (UNICEF, 2013), and most of these are attended by untrained or briefly trained persons such as female relatives or traditional birth attendants. The three main causes of newborn mortality (defined as death before the 28th day after birth) are prematurity / low birth weight, failure to breathe spontaneously at birth, and infections. When deliveries in rural PNG are complicated, the transfer to a higher facility is often difficult due to rugged terrain, poor infrastructure, finances, and lack of understanding by decision-makers (Burnet Institute, 2009; Kirby, 2011).

The Solutions

All of these can be reduced if certain actions are taken to either prevent or treat the problem (Bhutta et al., 2014).

These actions include:

- Keeping all newborns warm, even in warm climates, and especially babies weighing less than 2.5kg.
- Helping prevent premature birth through prenatal care that treats genital tract infections.
- Giving the mother steroid injections in cases of threatened premature labor, to mature the baby's lungs.
- Rubbing newly born infants to dry and stimulate them.
- Providing positive pressure ventilation to asphyxiated newborns via bag-mask devices if available or mouth-to-mouth resuscitation if not.
- Ensuring that the hands of the birth attendants and the mother are clean before touching the birth canal or the baby, and that the cord is cut with a new razor blade.

- Keeping the newly born infant skin-to-skin with the mother for at least an hour after birth, and longer for small babies.
- Exclusive and early breastfeeding
- Educating mothers and community members about danger signs in the newborn.
- Helping families and communities establish emergency funds and transport plans to prepare for emergency cases.
- Prenatal care: treat STIs and UTIs; steroids for threatened PTL
- Encouraging community to help women work less hard in pregnancy, especially in the third trimester and postpartum period
- Preventing unwanted pregnancies and early marriage

The Setting

Papua New Guinea is a diverse tropical country made up of islands, coast, mountains, swamp, and rainforest. Transport and infrastructure are recurring challenges for health care and many other areas. More than 80% of the population lives in rural areas with very limited health care facilities and personnel. There are 800 plus tribes, each with different customs and language. Most people speak at least some Tok Pisin (Pidgin), and many speak at least some English. The functional literacy rate is low (Asia South Pacific Association for Basic and Adult Education (ASPBAE) Australia Ltd, 2011). PNG people are strong and resilient. They respect input from Westerners due to the history of missions but are also preferring more and more to have locals trained up to take over leadership and other roles. They have experienced dramatic changes in the last 200 years, and their current experience bridges simple subsistence farming by hand in remote villages, all the way to college graduates in the cities, living in modern houses, driving Land Cruisers and running businesses and government agencies.

Stakeholder Perspectives

The stakeholders in this behavior change project would include expectant and postpartum mothers and fathers; their relatives; health volunteers; village birth attendants; professional health staff at facilities; government health officials; local leaders such as pastors, chiefs, and influential women.

Expectant and postpartum mothers would likely have the greatest motivation to take steps to safeguard their newborn's lives, but they would sometimes be limited by their youth in cultures that respect the elders' wisdom, as well as their vulnerability as women in (usually) patriarchal tribal systems, as well as the vulnerabilities that can accompany pregnancy, being in labor, and recovering from childbirth.

Expectant and postpartum fathers would also be highly motivated to take care of their babies' health, but frequently in PNG, reproductive issues are not talked about openly, and things like menstruation are often considered polluted and shameful. So that would be a challenge to address delicately.

The relatives of the newborns would often be the birth attendants for home birth, and the care companions for any birth setting. They would likely carry on the clan and tribe's traditions related to birth, so their involvement and beliefs should be woven into the project as well.

Community leaders may be opinion-shapers and should be enlisted to promote good practices.

Health volunteers and professionals should be consulted for their perspectives on current newborn care practices and underlying beliefs and should be trained in best practices so that they can also promote them in the community.

And an effective project should include the National Department of Health, the Provincial Health Authorities, and relevant politicians, in order to learn from their perspectives, connect with their resources, and help ensure the longevity of the program.

Change Strategies

The diagnostic process to refine the problem would include:

- Interviews with professionals working in the newborn health field (NGOs, provincial health, universities) regarding current newborn care practices and beliefs in rural home deliveries, and their ideas for improvement
- Interviews with mothers and community members in several diverse villages, regarding current newborn care practices and beliefs in rural home deliveries, and their felt needs in this area
- Observing a few rural home deliveries if possible
- Qualitative synthesis of above interviews and observations
- Survey of current work being done by NGOs or health services to address the problem

The next step would be to draft a behavior change project. It should include the following:

- The targeted behaviors
- The key people who need to do the behaviors
- A grassroots approach, founded on iterative participatory research
- Cultural sensitivity and awareness, a la Kumar et al (Enculturating Science article and Behavior Change for Newborn Survival article). Research what the current newborn care practices are in each locale, identify highest priority changes to aim for, research

best cultural ways to promote behavior change for each behavior. Utilize cultural values and realities such as communal nature of the societies, quid pro quo habits within clan and tribe relationships. Learn what social influences most often affect people's behaviors. According to Kumar, *"One of the key reasons for the failure of interactions to translate into behavior change is our failure to recognize that the content, context, and process of interactions need to be designed keeping in mind an organized community system with a very different worldview and beliefs. In order to improve the adoption of scientific best practices by communities, we need to adapt them to their culture by leveraging existing beliefs, practices, people, context, and skills."* (Kumar et al., 2015)

- Creative means of presenting information on the current and desired behaviors (to reach the "Rider")
- Identifying ways to make certain behaviors easier and more popular (the "Path")
- Identifying brief but emotion-inspiring ways to motivate people to change (the "Elephant")
- Identifying simple steps to make changes easier to understand, remember, and do

<u>Possible specific strategies and tools to use include:</u>

- Explain to men the reasons for taking better care of their women and babies. Gently break down taboos about reproductive topics.
- Use videos due to low literacy rate and widespread use of demonstration and imitation for teaching/learning (Global Health Media, also create local ones)
- Look at positive outliers

- Tell stories! (Hinyard & Kreuter, 2007)
- Work with radio stations and TV stations to get free or subsidized airtime
- Work with well-respected people (or types of people) to promote healthy practices
- Work with existing networks of health care workers, village birth attendants, community health volunteers, pastors, chiefs, prominent women, business leaders, etc.
- See if some modest income-generating project can be incorporated to support the health educators/activists, e.g., selling clean delivery kits, mobile phone credit
- Integrate with rural supervision visits by health department personnel? Or with other visits by NGOs, e.g., clean water projects, pap smears and birth control implants, coffee-growers extension workers etc.
- Integrate with broad primary health education and care provision (e.g., some men have asked why health projects always focus on maternal-child health)
- Raise funds as locally as possible, e.g., local businesses, politicians
- Seek out and develop/educate/encourage/equip champions in each locale
- Address the rider—scientific facts
- Address the elephant—simple small actions, arouse passion/motivation,
- Address the path—adapt the surroundings to make it easier to do the actions
- Shikake triggers ("embodied trigger[s] for behavior change to solve social or personal problems") (Matsumura et al., 2015)
- mHealth—text messages to pregnant and postpartum mothers; reminder texts to health volunteers and professionals
- Consultation phone number 24/7 answered by specially trained nurses/midwives etc. to assist with complicated cases.

- Women's groups: "A recent review on women's groups facilitated by workers to discuss and solve related problems showed a significant effect on reducing neonatal mortality by 20%. (Bhutta). The "self-help group (SHG) model is a promising institutionalized and demand-side social platform for scaling up family health interventions." (Ruducha, 2014)

A few pilot villages would be selected based on their willingness to participate and based on informed professionals' opinion that they have a high need for the intervention. Pre- and post-intervention surveys would be undertaken to determine the rate of usage of the target behaviors and the undesirable behaviors. If funding, time, and staffing allow the newborn mortality before and after would also be measured, although the sample size may not be sufficient to detect a significant impact. Some projects use metrics such as "perceived newborn morbidity" to estimate the effect of the intervention.

In conclusion, effective change management for health practices to improve newborn survival in rural Papua New Guinea should take into consideration the cultural beliefs and practices and worldviews, as well as the perspectives of all the relevant stakeholders. It should be informed and shaped by proven behavior change theories and strategies. While behavior change is not easy, and can be complex, if we use careful planning as well as iterative implementation, village babies' lives can be saved through simple, feasible steps.

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