

Sustainability: Using positive deviance/hearth to address childhood malnutrition in Burundi

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Faculty Disclosure

Faculty Name	Paulette A. Chaponniere, PhD, MPH, RN
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Goals and Objectives

- Session Goal:
 - Describe the factors which are key to sustainability in community development.
- Session Objectives:
 1. Describe the two components of Positive Deviance/Hearth (PD/H).
 2. Describe the Rambo Kibondo project in Burundi: context, implementation and PD/H results.
 3. Identify how PD/H applies Leininger's Cultural Care Theory.
 4. Discuss the relevance of PD/H to childhood obesity in USA.

Introduction

- ❖ Malnutrition is one of the main underlying causes of morbidity and mortality rates among children under 5 years in resource-poor countries.
- ❖ International agencies frequently import supplements such as milk and oil to give to families of malnourished children. This is unsustainable.
- ❖ A shift from community needs to community assets promotes sustainability (Kretzman & McKnight, 1993).

Burundi(East Africa)

- Civil war (1993-2001)
- Health indicators are among the worst in the world:
 - life expectancy : 50 years (2007)and 59.5 (2014, est.)
 - infant mortality rate: 166 deaths per 1,000 live births (2007) and 63.4 per live births (2014 est.)
 - maternal mortality rate: 800 per 100,000 live births (2010)
 - over 80% of Burundi's estimated 8.3 million people live on less than \$1.25 per day or \$600.00 per year (2012 est.) (Central Intelligence Agency, 2014; World Relief Corporation, 2008, p. 29, 35)

“Ramba Kibondo” Child Survival Project

- A 5 year time series study implementing two main interventions simultaneously: *care groups* and *positive deviance/hearth (PD/H)*.
- Focus: Community Integrated Management of Childhood Diseases (C-IMCI) using cross-cutting strategies, e.g., participation in MOH immunization campaigns, use of treated mosquito nets, tippy tap construction, referrals to the nearest Ministry of Health (MOH) health center and data collection. (Chaponniere et al., 2010, ii)
- Theoretical framework: Leininger’s Cultural Care Theory

Project description

- Location: Kibuye Health District
- Population: $N = 87,269$; $n = 24,376$ under 5
- Time frame: September 30, 2007 – September 30, 2012
- Managed by World Relief Inc.
- Funding:
 - State Department Cooperative Agreement with the Government of Burundi # GHN-A-00-07-00011-00. Kibuye Health District, Gitega Province, Burundi (\$1,500,000.00)
 - World Relief, Inc., Baltimore, MD (\$520,000.00)

Program objectives related to malnutrition

1. Increase % of children age 6-23 months fed according to a minimum of appropriate feeding practices from 25.6% to 50%.
2. Increase % of children who completed the Hearth program achieve sustained adequate (200-600 grams) or catch-up (over 700 grams) growth for at least 2 months after Hearth to 60%.

Methodology

- *Design:* Time series, with data collection occurring *at baseline, midterm and end of project*
- *Sampling:* Lot Quality Assurance Sampling (LQAS) parallel sampling
- *Tools:*
 - *Quantitative:*
 - KPC 2000 survey (Knowledge, Practice and Coverage), adapted
 - Rapid Catch 2007
 - *Qualitative focus groups* with mothers, community elders and stakeholders
 - Data was collected at same time period to account for seasonal variation in food availability
- *Analysis:* EPI INFO and theme identification

Strategy I: Care Groups

- a group of 10-15 volunteer community-based health educators who met every two weeks for training, supervision, support and data collection.
- volunteers became neighborhood resource people for an integrated package of health education and referral services.

Strategy II: Positive Deviance/Hearth (PD/H)

- “process that identifies affordable, acceptable, effective and sustainable practices that are already used by at-risk people and do not conflict with the local culture.” (McNulty, 2005, p. 5).
- encourages sustainability as women learn how to combine foods that they already have in their kitchens.
- A “*hearth* is usually a home setting in which mothers of malnourished children are taught the healthy practices of their neighbors.” (McNulty, 2005, p. 14)



Fig 1: Well-nourished child

Evolution of PD/H

- Approach first used by Wishik and Van Der Vynckt (1976)
- Term “positive deviance” coined by Zeitlin (1990)
- Term “hearth” added by Wollinka et al. (1997)
- Newer studies are using the term “positive outliers” instead of positive deviance (Sharifi et al., 2013)

Leininger's Cultural Care Model

- Nurses are expected to be culturally competent.
- Leininger proposes that, when faced with a health belief or behavior, nurses are to determine:
 - Can the belief/behavior be preserved as it contributes to maintaining health?
 - Does a small change need to be negotiated to achieve better health outcomes?
 - Does it need to be re-patterned because it is not have beneficial results?



Implementation

1. Strengthen the health infrastructure

- ❖ Local communities identified leaders who were grouped into care groups.
- ❖ Care groups were trained and supervised by health promoters who had followed an intensive training program.
- ❖ Health promoters were supervised by community health nurses.
- ❖ Community health nurses managed rural health centers to which mothers and children were referred.

2. PD/H: Preservation

- ❖ Health promoters identified impoverished children who were well-nourished and inventoried the nutritional practices their parents were using.
- ❖ Parents were encouraged to continue these practices.



Fig. 2: Data collection

PD/H: Negotiation

- ❖ Care group members taught mothers of malnourished children how to incorporate the affordable and culturally appropriate practices discovered during the inventory.
- ❖ Community and religious leaders incorporated health messages in their activities.



Fig. 3: Mothers using PH/D practices

3. Promote new health behaviors: Repatterning

Care group members visited their neighbors to reinforce new health behaviors, such as hand-washing using a tippy-tap, and, placing tippy-taps near latrines and kitchens.



Fig .4 :Using a tippy tap



Evaluation

Midterm

- PD/H was modified so that only one mother per care group monitored the children. She was given the title of *maman lumière* (mother of light or mentor mother).
- Health promoters were incorporated into government county health teams so that field data could be analyzed jointly.

Final evaluation

- 2,853 volunteers trained to promote healthy behaviors among their neighbors
- 23 health promoters and 4 supervisors trained.
- 265 church leaders incorporated health messages in sermons
- 80% of homes were visited twice a month
- Child survival indicators showed strong improvements: diarrhea and malaria rates decreased and immunization coverage increased.

Results for malnutrition

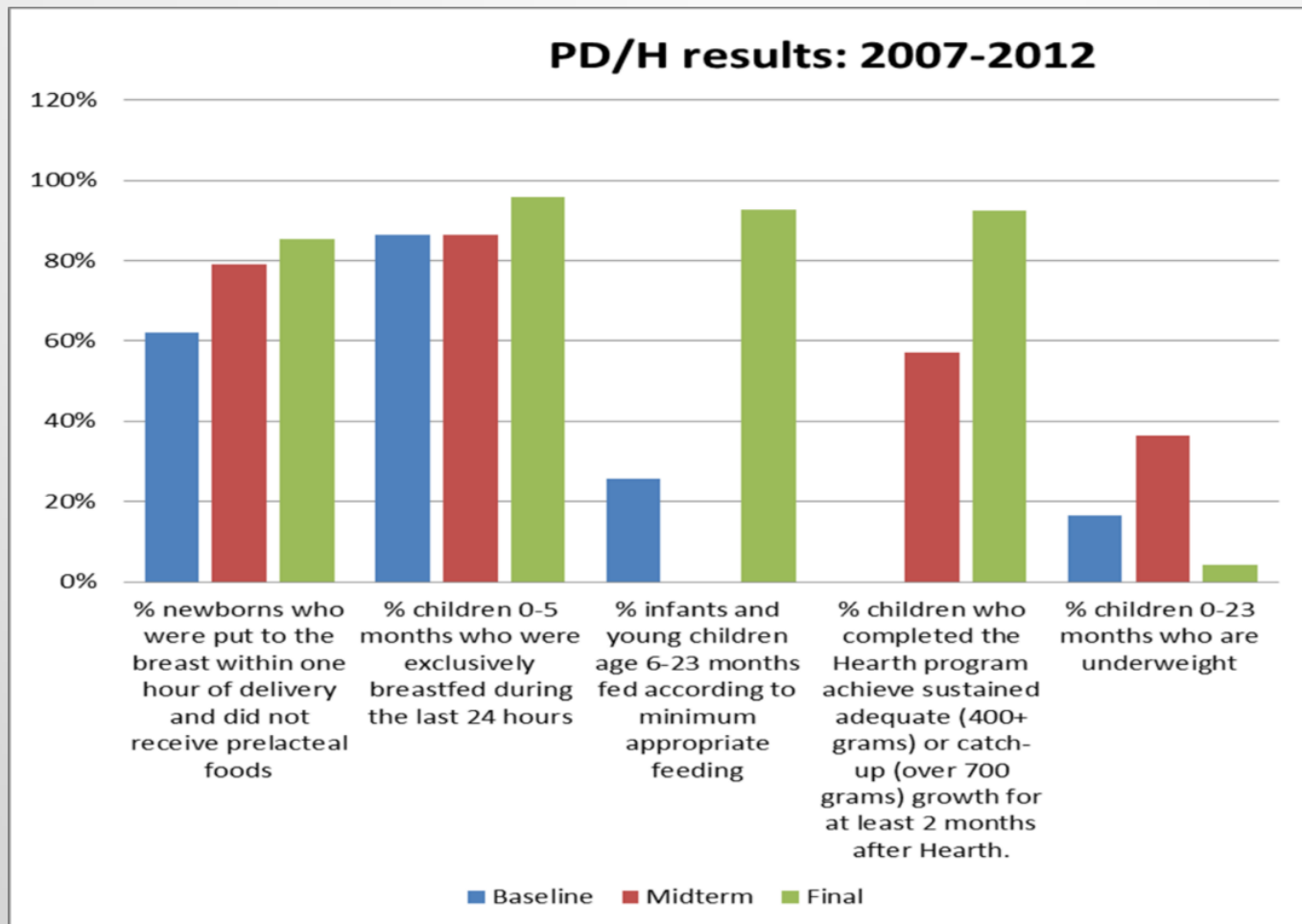


Fig. 5: PD/H results 2007-2012

Rapid Catch Indicators (nutrition): Final Evaluation

Sample Type: LQAS Parallel Sampling				
Indicator	Numerator	Denominator	Percentage	Confidence Interval
Percentage of children age 0-5 months who were exclusively breastfed during the last 24 hours	92	96	95.8%	91.79 – 99.81%
Percentage of children age 6-23 months who received a dose of Vitamin A in the last 6 months: card verified or mother's recall	87	96	90.6%	84.76 – 96.44%
Percentage of children 0-23 months who are underweight (-2 SD for the median weight for age, according to the WHO/NCHS reference population)	4	96	4.2%	0.19 – 8.21%
Percentage of infants and young children age 6-23 months fed according to a minimum of appropriate feeding practices	89	96	92.7%	87.50 – 97.90%

Table 1: *Rapid Catch* indicators for nutrition (2012)

Sustainability

- MOH community health workers were members of the care groups.
- Health center staff and local elected officials were involved in supervising care groups and in analyzing data to take timely action.



Fig. 6: Care group members with MOH personnel after a joint training session

Unexpected outcomes

- MOH instituted a new policy that PD/H was to be used by all organizations responding to childhood malnutrition.
- MOH is testing the care group model to impact childhood diseases at the grassroots level.
- Model strengthened community cohesion during a post-conflict situation., for example, Batwa had become active in care group activities.

Conclusions

- Embedding PD/H into care group activities created a supportive context which fostered behavior change.
- Malnourished children were able to maintain weight gain for more than 2 months when their mothers used PD nutritional practices.
- Applying the principles of Leininger's cultural care theory was foundational to sustainable change.

Recommendations

- As PD/H has been replicated in other countries, nurses could modify it as an intervention for childhood obesity.
- When working with population groups or individuals, nurses who want to promote sustainable change need to shift their approach to an asset-based perspective rather than a needs-based one.

Limitations

- MOH personnel were not consistently available to participate in evaluation activities.
- Terrain conditions made it difficult to reach remote villages.
- Data collection using the LQAS strategy was incorrectly implemented at mid-term. Health promoters were re-trained and sent out to re-collect data. Field supervisors implemented more frequent monitoring.
- Culturally, volunteerism is not valued. Income generation was added to the next phase of the project.



Thank you!

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