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Success and challenges of measuring program impacts: An international study of an infant nutrition program for AIDS orphans

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ABSTRACT

The HIV/AIDS epidemic in Zambia threatens maternal survival and jeopardizes the ability for families to care for their children. The Christian Alliance for Children in Zambia (CACZ) operates a program called Milk and Medicine (M&M) that distributes food, formula, and medicine at churches in the compounds. This article reports on a mixed methods study to evaluate the outcomes of the M&M program. On-site interviews with families combined with an analysis of a longitudinal data set were the methods used. The results of the study showed families face continuous hardship including hunger, unemployment, disease, and loss. Families expressed appreciation for the program and its staff and suggested improvements. The longitudinal data review helped researchers to recommend an improved protocol for data management. Improved data will assist researchers in an on-going evaluation to compare the growth rates of children in the study to the Zambian normal growth charts. Lessons learned from this evaluation validated the use of mixed methods design for exploratory research on an emerging program. Lessons were also learned about the difficulty of working in natural settings with political and cultural variations. Future evaluations of the M&M program are expected to shed light on more specific program impacts.

1. Introduction

This program evaluation used a mixed-methods approach to evaluate the Milk and Medicine (M&M) program, listening to caretaker's stories of program impact shared in interviews and focus groups and looking at existing retrospective data records of malnourished infants. Research was conducted in Lusaka, Zambia and designed and led by two social work professors from the United States. This paper reflects the successes and confounding challenges of a program evaluation designed to measure the impact of a community-based and family-focused infant feeding program. The findings reported in this paper led to data collection improvements and program recommendations. Implementation of incremental changes have resulted in more robust data and improved and expanded programs which are reviewed in on-going research and planned for dissemination in future publication.

1.1. The setting

The Milk and Medicine (M&M) program established in 2004 is a service of the Christian Alliance for Children in Zambia (CACZ), a Zambian faith-based NGO established in 1997 by Alliance for Children Everywhere (ACE). ACE is a US based agency that raises funds through philanthropy, non-profit partnerships, and private foundation grants. M&M's goal is to improve infant health and strengthen families to prevent child abandonment and institutionalization. The program utilizes three inter-related strategies: distribution and provision of nutritional supplements for infants living in families, medicine when it is not available to families through other means, and social work support.

The main site of the program is at CACZ office headquarters in a residential area on the outskirts of Lusaka, the capital city of Zambia. The site includes a crisis nursery for infants and a residential home for toddlers, each serving approximately 15 children, as well as offices for social workers and administrators. The social work offices were used for the family interviews and data collection in this study.

Children referred to M&M through the Child Protection Unit of the Police Department, University Teaching Hospital, the Department of Social Services, non-governmental organizations, community health clinics, CACZ's House of Moses crisis care nursery, or

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by word of mouth. At the time of this initial evaluation in April 2009, there were four distribution sites in compounds in and around Lusaka. Tins of powdered formula were distributed to infants under age six months whose caregivers or mothers could not provide nutrition through breastfeeding. After the age of six months, ground nuts to grind then add to porridge were added until 18 months, and only ground nuts were provided from 18 to 60 months.

1.2. Scope of the problem of infant starvation

The United Nations Millennium Development Goals (United Nations, 2012) focused on meeting the needs of undernourished infants and young children, maternal health, and the response to HIV/AIDS. Unfortunately, challenges have persisted (Brinkman, de Pree, Sanogo, Subran, & Bloem, 2010; Lombe & Ochumbo, 2008; Naidoo, Rennert, Lung, Naidoo, & McKerrow, 2010; Peterson, 2009; Sztam, Fawzi, & Duggan, 2010).

Sub-Saharan Africa leads the globe in the impact of HIV/AIDS with 22.4 million mother-infant cases of the 33.4 million worldwide cases (UNAIDS, 2009, p. 11). Approximately 390,000 new infant HIV infections were recorded in the region in 2008, representing 91% of the new infections among all children (p. 21). Roughly 3 million children have contracted HIV/AIDS, with most becoming infected by their mothers during birth or breastfeeding. Chopra, Daviaud, Pattinson, Fonn, and Lawn (2009) stated that annually HIV/AIDS causes thousands of unnecessary maternal and infant deaths in South Africa. They estimate that the maternal mortality rate for HIV positive women is 10 times higher than for HIV negative and that "the top priority for child survival is clearly the prevention of HIV in children ...[and] to address neonatal deaths, which account for a third of child deaths" (p. 37). In Uganda, the relationship between child health, infant nutrition, and maternal HIV status was the focus of a study interviewing 144 HIV positive mothers/caregivers of children under age five (Bukusuba, Kikafunda & Whitehead, 2009; Magezi, Kikafunda, & Whitehead, 2008). The study found multiple factors related to poor childhood nutrition, including low dietary diversity, malaria, poverty, and low education of the mother/caregiver. Findings indicated that "poor nutrition mainly affects children between the ages of one and three years" (p. 1355). In an attempt to reduce mother-to-child HIV transmission, the 2001–2005 programs in Côte d'Ivoire promoted short-term breast feeding and free infant formula for HIV affected families. Becquet et al. (2007) followed 557 children and found that the HIV transmission rate for short-term breast-fed infants was 7% and for formula fed infants 6%, as compared with 22% for long-term breast-fed infants, thus stressing the need for available appropriate nutrition for young children.

Poverty is often closely linked to malnutrition and illness. Between 1991 and 2006 poverty rates in Zambia increased from 49% to 53% and in 2006 rural poverty rates stood at 78% (Central Statistical Office Zambia, n.d.). The UNICEF policy on infant feeding and HIV that were available at the time of this initial program evaluation recommended exclusive breastfeeding for HIV-infected women for the first six months of life unless replacement feeding is, "acceptable, feasible, affordable, sustainable and safe" (UNICEF, n.d., p. 1). The newer World Health Organization guidelines recommend infants for the first six months of life should be breastfed exclusively because it increases the likelihood of survival in sub-Saharan African countries. While HIV transmission is possible, increased access in recent years to anti-viral medications by HIV positive breastfeeding mothers enables them to continue breastfeeding until the infant is twelve months old. The WHO guidelines are a revision from past practices that encouraged women to breastfeed exclusively until 6 months and then stop when they could provide food sufficient and safe for the child (WHO, 2010).

As of the 2012 UN progress report, sub-Saharan Africa failed to make progress to improve the outcomes for infants (United Nations, 2012). According to the *Zambian Country Report* on HIV/AIDS (Chandang'oma, Chabwela, & Banda, 2010) 14.3% of Zambia's population, over 900,000 people, are living with HIV/AIDS (pp. xiii–xiv). Approximately 95,000 of the infected population are children under the age of 14 (UNAIDS, 2008). Women between 30 and 34 have a 26% infection rate, and mother-to-child transmission accounts for 21% of new HIV infections (Chandang'oma, Chabwela, & Banda, 2010, p. 28). Many of those infected are young adults, whose income and roles as parents are critical to the survival of families and society. The loss of parents to AIDS has left more than 600,000 Zambian children as either single (one parent deceased) or double (both parents deceased) orphans (p. 35) and the orphan status of an infant, whether because of maternal death related to childbirth or to AIDS, is closely related to infant malnutrition and death. The estimated under age five years mortality rate for Zambia was 118.8 deaths per 1000 children (p. 9) and 2006 government statistics reported that 54.2% of Zambian children aged three months to 59 months were underweight (Central Statistical Office Zambia, n.d.).

2. Qualitative evaluation

At the request of sponsor funding agencies, the administrative staff of Alliance for Children Everywhere invited two researchers to Lusaka, Zambia to interview M&M caregivers (see Appendix A). The goal of on-site investigation was to interview M&M families, to analyze their responses in the aggregate, and to recommend program improvements. Human subject review processes by colleges of the co-investigators approved the research. The two US based researchers considered both cultural and logistical limitations when designing the qualitative research. The Zambian CACZ staff recruited the participant families and four local social workers who served as interviewers. The researchers did not have direct involvement with the Milk and Medicine program and both were consider objective "external investigators" for the evaluation (Fitzpatrick, Sanders & Worthen, 2010).

2.1. Logistics

All interviews and focus groups were held at the CACZ main office, a site that was familiar to the participants. A CACZ van driver left early each morning for pick-up points around Lusaka and arrived at 8:00 am with eight or nine families consisting of one or two caregivers and several young children. CACZ staff prepared a breakfast for families who settled around the grounds of the agency as they waited for their interview time. The atmosphere of the setting was relaxed with much friendly visiting and laughter among families. CACZ staff provided entertainment and treats for the children. In total 33 families willingly took part in the study and every family who was invited to come for an interview participated. Although families were not aware that there would not be compensation for their participation, each family was given a bag of sustenance food and small gifts for the children as they prepared to re-board the van to go home.

2.2. Design and reliability

Zambian research assistants received an intensive full day training and close supervision during data collection. Caregiver interviews were held in the language most comfortable for the participant: Bemba, Nyanja, Lozi, or English. Each interview was audio recorded, with two caregivers participating in the morning