CRDL

Fondation CERDEL

2 Impasse Clesca (Lalue)
Port-au-Prince - HAITI
Tél : 509- 36 16 47 71
Courriel : cerdel.ht@gmail.com

www.fondationcerdel.org

Vitamin A supplementation coverage of children in Haiti

June N Pierre-Louis

July 2018

Introduction

Haiti is a priority country for vitamin A supplementation (VAS) (UNICEF, 2018). The under-five mortality rate of Haiti is just below the World Health Organization cutoff (70 deaths per 1000) for vitamin A deficiency as a public health problem. During the period 2005-2016, under-five mortality fell from 89.8 to 67[1] (UNICEF Global Database, 2017). Historically, the country has had VAS coverage under 50% (low coverage). During the period 2005-2016, two-dose coverage[2] was greater than 50% only once−in 2012 (UNICEF Global Database, 2018). One-dose coverage for any six month period has never exceeded 80% (high coverage).

This analysis of data collected in 2005 during the evaluation of 2004 Child Health Weeks (CHW) compares VAS coverage during CHW and VAS recorded by health centers and community rally posts, and an immunization campaign in the twelve month period preceding 2004 CHW.[3] Demographic predictors of VAS coverage were determined by delivery strategy.

Methods

Caregivers of a representative sample of 1,188 children 12 to 59 months of age were shown a vitamin A capsule and asked about children's receipt of a vitamin A capsule during CHW (CHW coverage); and children's health and immunization cards where routine health center/rally post and campaign VAS dates are recorded (recorded coverage) were examined. Data were collected

[1] Lower and upper uncertainty bounds are, respectively, 52.1 and 87.8.
[2] Two vitamin A doses spaced about 6 months apart each year between the ages of 6 months and 5 years
[3] A measles and polio immunization campaign took place between May and October 2004.

on the child's age, gender, residence (rural, urban), and the number of children under five in the household.

Three Departments were studied, representing the South (Département des Nippes), the North (Département du Nord-Ouest), and the West, including the metropolitan area of Port-au-Prince (Département de l'Ouest).[4] One urban and one rural commune were randomly selected in each of the three Departments studied. In each selected commune, *sections communales* were sampled proportional to population size and one locality was randomly sampled in each *section communale* sampled. Associations between demographic factors and VAS coverage by delivery strategy were analyzed by univariate logistic regression by Department and for the three departments aggregated. Odds ratios (OR) with 95% confidence intervals were calculated to determine whether demographic variables predicted VAS coverage. SYSTAT was used for the statistical analysis.

Results

CHW and recorded VAS coverage

31% of children in the study population participated in 2004 CHW and 48% had an immunization or health card at home at the time of the survey. 2004 CHW VAS coverage was

[4]The Center did not hold CHW in 2004 because of insecurity.

24% and up-to-date recorded coverage on health or immunization cards was 23%. One-dose coverage in the preceding 12 months (CHW or recorded) was 39%.[5]

Predictors of coverage

Residence predicted CHW VAS coverage in the South. Among children who participated in CHW, children residing in urban areas in the South were more likely to have been reported to have received a vitamin A supplement during CHW than children in rural areas (CHW OR: 2.12; 95% CI, 1.32, 3.41).

Among children who had a health or immunization card available at home, the age group of the child predicted recorded coverage in all three Departments. One- and two-year-old children were more likely to have an up-to-date VAS record than three- and four-year-old children (South OR: 1.87; 95% CI, 1.08, 3.25; West OR: 2.05; 95% CI, 1.13, 3.69; North OR: 2.04; 95% CI, 1.09, 3.84; three Departments OR: 1.67; 95% CI, 1.19, 2.36).

The number of children under five in the household was associated with recorded coverage in the South and the West. In the South, children living in households with more than one child under five were less likely to have a VAS record (OR: 0.37; 95% CI, 0.18, 0.73) while in the West, children living in households with more than one child under five were more likely to have a VAS record (OR: 1.71; 95% CI, 1.01, 2.90).

[5]UNICEF's one-dose estimate was 55% for 2004 (UNICEF, 2018).

Discussion

This study analyzed predictors of VAS coverage by delivery strategy. The 2004 CHW produced disparities between urban and rural areas in the South. There were no disparities in VAS coverage by age for 2004 CHW; both younger and older children under five were reached equally by CHW. In contrast, VAS during routine care at health centers and rally posts and the 2004 immunization campaign produced age disparities in VAS coverage, but no disparities between urban and rural areas.

Disparities in VAS coverage between urban and rural areas have been observed globally as well as for VAS provided in conjunction with immunization activities, which reaches younger children more often than older children in the under-five age group (UNICEF, 2005). In Haiti the urban rural disparity may be explained by logistical and health infrastructure barriers to access in rural areas and the age disparity, by the immunization schedule for children under five. Child immunizations are normally completed during the first year of life.

Children missed by one health intervention are often missed by other interventions. Haitian children in rural areas and three and four year olds were also significantly less likely to have an immunization or health card as well as children living in households with more than one child under five in the South, and in households with only one child under five in the West. The latter two groups of children were disproportionately missed for VAS by health centers and rally posts and by the 2004 immunization campaign.

The survey data showed that most individual children received VAS during CHW or had a VAS record. There was little overlap in coverage by the two delivery systems; the two strategies reached different groups of children and complemented each other. Both CHW and health center/immunization campaign delivery contributed meaningfully to VAS coverage. The mass distribution of VAS during CHW reaches inaccessible populations by addressing bottlenecks that may occur in coverage at health centers and community rally posts, including access, absence of trained health workers, and quality of care (Chopra, et al., 2012). Haiti's national policy is to provide VAS during CHW and during routine care for children (IAB, 2011). All three VAS strategies−CHW, health centers/rally posts, and immunization campaigns−are implemented by NGOs (MI, 2013).

Low VAS coverage in Haiti is a result of low CHW coverage in some rural areas and low health center/rally post and immunization campaign coverage of three and four year old children. The number of children under five in the household predicted recorded VAS in the South and the West. Children living in households with multiple children under five in the South and with one child in the West tended to not have an up-to-date VAS record.

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