Integrating Health Promotion and Disease Prevention Interventions With Vaccination in Honduras

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Objective. We sought to review and describe health interventions integrated with immunization delivery, both routine and during national vaccination weeks, in Honduras between 1991 and 2009.

Methods. We compiled and examined all annual evaluation reports from the national Expanded Program on Immunization and reports from the national vaccination weeks (NVWs) between 1988 and 2009. We held discussions with the persons responsible for immunization and other programs in the Health Secretary of Honduras for the same time period.

Results. Since 1991, several health promotion and disease prevention interventions have been integrated with immunization delivery, including vitamin A supplementation (since 1994), folic acid supplementation (2003), early detection of retinoblastoma (since 2003), breastfeeding promotion (2007–2008), and disease control activities during public health emergencies, such as cholera control (1991–1992) and dengue control activities (since 1991, when a dengue emergency coincides with the NVW). Success factors included sufficient funds and supplies to ensure sustainability and joint planning, delivery, and monitoring.

Conclusions. Several health interventions have been integrated with vaccination delivery in Honduras for nearly 20 years. The immunization program in Honduras has sufficient structure, organization, acceptance, coverage, and experience to achieve successful integration with health interventions if carefully planned and suitably implemented.
door-to-door visits. Doses are recorded in registries and vaccination cards and then included in the routine coverage administrative data (the additional oral poliovirus vaccine doses are given regardless of vaccination status). Vitamin A and folic acid doses are also recorded in the forms and cards routinely used in the health facilities. The NVW was held twice a year through 1989. Since 1990, the NVW has been held once a year, and since 2003 it is has been synchronized with Vaccination Week of the Americas (VWA), which is in late April [4].

Building on the success of the EPI in Honduras and the established contact of the health sector with the population during the NVW, the Health Secretary of Honduras has added several health promotion and disease prevention activities to the vaccination delivery, both during routine vaccination and NVW. These activities capitalize on extensive efforts in social and resource mobilization. Annual reports of the NVW are generated to document experiences, including the integration of other interventions with vaccine delivery. The achievement of predefined goals is evaluated by age group at all managerial levels of the health system. At the local level, rapid assessments of coverage (not surveys) are part of the supervisory activities to validate the reported coverage.

This article reviews and describes the health interventions that have been integrated with immunization delivery in Honduras between 1991 and 2009 and discusses the lessons learned from these experiences.

METHODS

We reviewed all annual routine vaccination evaluation reports from the national EPI and reports from the NVWs between 1988 and 2009. To identify the main activities related to integrating another health intervention with vaccine delivery, we interviewed the persons in the Health Secretary of Honduras who were responsible for the interventions integrated with immunization and EPI personnel who worked at the immunization program since its creation.

RESULTS

Since 1991 several interventions have been integrated with immunization service delivery in Honduras. These interventions can be classified as either health promotion and disease prevention or response to public health emergencies (Table 1).

Health Promotion and Disease Prevention

Vitamin A Supplementation

Vitamin A deficiency was first documented in Honduras in 1966, and supplementation was first recommended in 1988. A strategy for provision of micronutrients was developed in 1992–1993, and in 1994 a national micronutrient commission was created. In the same year, as part of a comprehensive childhood care strategy, several departments of the Health Secretary (Maternal and Child Health, Health Promotion, Epidemiology, Nutrition and Food Control) jointly recommended vitamin A supplementation to children aged 6–59 months (100 000 IU for infants aged 6–11 months and 200 000 IU for older children) and postpartum women (200 000 IU). Since 1994, vitamin A supplementation for those age groups has been integrated into routine vaccination delivery and NVWs. Vitamin A supplementation coverage is captured in the same information system used routinely by the EPI to calculate administrative coverage. The United Nations Children’s Fund (UNICEF) donates vitamin A annually for use in routine delivery and NVWs.

From 2003 through 2009, coverage of vitamin A routine supplementation for infants aged 6–11 months was 62%–87%, with an average of 159 646 doses given each year. During the same time period, average coverage of vitamin A among children aged 12–59 months was 90% for the first dose and 40% for the second dose. During 2003–2008, doses administered during a campaign contributed an average of 18% of first-dose coverage among children aged 6–11 months and 61% of first-dose coverage among children aged 12–59 months. The contribution was lower in 2009 due to vitamin A stockouts (Figure 1A and 1B). In addition to being provided to infants, vitamin A was also given to postpartum mothers up to 30 days after delivery during the NVWs and routine immunization sessions. Coverage among postpartum women ranged from 46% in 2006 to 72% in 2008. The NVWs target 8% of the live births for vitamin A supplementation because only those who have not received routine delivery are targeted; usually 5% is reached (Figure 1C).

Folic Acid Supplementation

Folic acid supplements for women of childbearing age were distributed during the 2003 NVW, following a donation by UNICEF, with the aim of reducing congenital malformations. Overall, 77% of these women received the supplements (501 243 tablets); 3 of the 20 health regions achieved coverage >80%. This intervention was not continued after 2003 due to financial problems.

Early Detection of Retinoblastoma

Since 2003, the Health Secretary, in partnership with the Honduran Childhood Cancer Foundation, has included educational activities for the early detection of eye cancer in children aged <5 years as part of NVWs so that cases can be referred to specialists before the tumor has spread outside the eye. Flyers on retinoblastoma have been distributed to 500 000 parents of children vaccinated during NVWs, and posters explaining how to identify possible retinoblastoma have been posted in health units. According to statistics from the Department of Pediatric Oncology of the main reference hospital of the country, for the period 1 July 1995–31 May 2003, which was prior to the early detection of eye cancer campaigns, 43 of 59 (73%) retinoblastoma tumors were detected after extraocular dissemination had occurred; for the period 1 June 2003–31 December 2006, which
was after the campaigns were implemented, 11 of 41 (27%) cases were detected after extraocular dissemination had occurred [6]. This intervention continues to be integrated with immunization during NVWs.

**Breastfeeding Promotion**

In 2007 and 2008, breastfeeding promotion was among the interventions delivered during NVW, in coordination with the National Program of Food Security and Nutrition. Informational flyers and brochures targeted mothers of children aged <6 months in an effort to promote exclusive breastfeeding for infants <6 months. This intervention was discontinued due to financial constraints (posters and training had been supported by UNICEF), and its impact was not quantified.

**Response to Public Health Emergencies**

**Cholera Control Activities**

In 1991 and 1992, a cholera outbreak affecting several Latin American countries led to integration of cholera-related activities in NVWs. During door-to-door vaccination activities, families were given educational material, oral rehydration solution, and sodium hypochlorite and were taught how to prepare safe drinking water. These activities were discontinued after the cholera outbreak stopped.

**Dengue Control Activities**

Since 1991, dengue control activities have been integrated with door-to-door vaccination activities when national dengue emergencies have coincided with the NVW. During the NVW of 2008, the Metropolitan Region of the Central District, where Tegucigalpa, the capital of the country, is located, was identified as the area at greatest risk for dengue. Activities conducted simultaneously with immunization delivery included dengue prevention information delivered through loudspeakers, talks, and educational material; the detection of mosquitoes and larvae in water deposits (pools, buckets, cans, etc); and the elimination of vector breeding containers (tires, eggshells, bottles, cans, etc). These activities required additional workers for dengue activities during NVW.

**Processes to Integrate Other Interventions to Vaccination Delivery**

The following actions were identified as the most important for successful integration of other health interventions with vaccination delivery:

- Close and effective coordination between different programs of the Health Secretary, such as the National Comprehensive Child Health Program, National Comprehensive Women Health Program, National Program for Food Security, and National Dengue Program, and the EPI and other institutions, such as the Honduran Foundation for Childhood Cancer.
- Joint planning at all levels of the health system to address the specific needs of each program and particular technical guidelines for implementation.

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**Figure 1.** Vitamin A supplementation coverage by delivery strategy—routine delivery and national vaccination week, Honduras, 2003–2009. A, Children aged 6–11 months. B, Children aged 1–4 years. C, Postpartum mothers [5].
Timely and accurate programming of supplies (ie, requisition, procurement, and storage) to ensure proper distribution and stock in the network of health units.

Training of health personnel at all levels on the guidelines and technical guidelines and on how to deliver and record each intervention.

Proper adaptation of documentation forms (vaccination cards, health unit registries, and local listings of children by locality) and the computerized information system.

Development of joint technical guidelines for delivery of the interventions with vaccinations in both the routine program and during NVWs. These guidelines cover coordination, planning, programming, training, information systems, implementation, communication and social mobilization, supervision, and monitoring and evaluation.

Formation of a national committee for promotion of NVWs, including active participation of personnel from the different programs, international agencies, and other partners as appropriate depending on the interventions to be integrated with the vaccination. This committee is responsible for defining the social communication strategy and the type of promotional materials to be developed, such as pamphlets, posters, radio and television messages, press releases, informational folders, and radio and television discussion forums involving health professionals.

Progress monitoring conducted systematically by age group and strategy, depending on the intervention.

Joint supervision with personnel from EPI and the other relevant programs prioritizing highly populated areas and areas at risk. The supervision checklist should include elements related to ensuring the quality of the delivery of both vaccinations and the other intervention(s).

For interventions integrated with routine immunization, tasking health personnel in each region with evaluating the progress of implementation every six months. A national EPI evaluation, including evaluation of the interventions integrated with vaccination, is conducted annually.

Yearly documentation of the experience in a written report by health region, including each component, analysis of coverage by health unit and municipality (using an Excel tool developed for this purpose), indicators, financing data, lessons learned, and achievements and weaknesses.

**DISCUSSION**

In Honduras, several health interventions have been integrated with vaccination delivery in both routine delivery and in national vaccination weeks for nearly 20 years. These interventions range from delivering supplements (vitamin A, folic acid) to providing education on various health topics. Integration of vitamin A supplementation with immunization delivery is the best established program, with joint delivery since 1994. Currently the information system captures vaccines and vitamin A supplements administered. Although the impact of integrating vitamin A supplementation with vaccine delivery has not been measured in Honduras, experiences from neighboring countries suggest that this intervention may contribute to reduced vitamin A deficiency in the targeted groups [7]. The early detection of eye cancer educational campaigns are also well integrated with vaccine delivery during the NVWs and have shown impact. As a result of these campaigns, a greater number of intraocular (early) eye tumors have been detected early, contributing to the diminishing number of eyes lost to retinoblastoma [6]. It is likely that increased awareness among healthcare workers following training during NVW also contributes to this success.

On the other hand, some interventions have been sporadic or discontinued, highlighting challenges to sustained integration. Distribution of folic acid supplements and breastfeeding promotion, which were supported by donations or one-time funds.
for printing educational material, were discontinued due to financial constraints.

Following the publication of the World Health Organization/UNICEF Global Immunization Vision and Strategy, which identifies integration as one of the strategic areas of work, linking immunization to other health interventions has been highlighted in the global arena [8]. Theoretically, additional health interventions can take advantage of the reach of immunization services, and in some cases, immunization may be able to take advantage of the interest of the population in other interventions. In Honduras, a critical factor for successful integration has been the high coverage of the immunization program. Another factor is that some of the activities selected for integration are relevant to the local epidemiology at a given time; for example, cholera and dengue activities have been conducted during times of epidemic transmission. Among the lessons learned is that all programs responsible for the health interventions need to be equally involved in all steps of the process, from planning and training of healthcare workers to implementation. For integration to work, all the supplies must be readily available, data collection instruments must be ready (when relevant), and health workers must receive clear guidelines and adequate training on how to deliver each intervention safely.

This article has several limitations. It is based on the review of information available at the Health Secretary. There is no comparison group that allows us to evaluate the impact, including economic considerations, of integrating each health intervention with immunization. Additionally, the lessons learned are based on the educated opinions of the staff of the EPI and other departments of the Health Secretary.

Although we were unable to quantify the cost savings of integrating activities, we believe the implementation of several interventions during the NVW likely saves money, time, and resources. Evaluating the benefits and challenges of integration in Honduras and factors associated with success would allow better assessment of whether other interventions could be included (e.g., anthelmintics). Sharing lessons learned between countries may benefit those planning to integrate other interventions with immunization delivery. The immunization program in Honduras, as in other Latin American countries, has sufficient structure, organization, acceptance, coverage, and experience to achieve successful integration with health interventions, if carefully planned and suitably implemented.

**Note**

**Potential conflicts of interest.** All authors: No reported conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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