

Contribution of plastic bags to the retention of child immunization cards in Gambella Region and Assosa Zone, Benishangul-Gumuz Region, Ethiopia

Muluken Asres¹, Fasil Tessema²

Abstract

Background: Many vaccines are given more than once, at different ages, and in combinations. Parents are expected to retain immunization cards for their children, however in Ethiopia, the retention of child immunization cards is minimal. For example, the 2005 and 2011 Ethiopian Demographic and Health Surveys showed that 37% and 29% of immunization cards, respectively, were retained. The CORE Group Polio Project developed an innovative approach to keeping home vaccination records for a long time and safely, in the form of a plastic bag designed to hold the immunization card. The pilot project for this innovation was held in Gambella Region and Assosa Zone, Benishangul-Gumuz Region since 2015.

Objective: Evaluate the contribution of plastic bags for holding and retaining child immunization cards in Gambella Region and Assosa Zone, Benishangul-Gumuz Region.

Methods: The study was a household-based cross-sectional survey and the target population was households with at least one child aged under 2 years who had received at least one vaccination dose. A sample of 239 households (120 from Gambella Region and 119 from Assosa Zone in Benishangul-Gumuz Region) were selected randomly from immunization registration records. Up to 12 *kebeles* were included from each region, with at least 10 children per *kebele*. Data were collected using an Amharic language questionnaire and analyzed with STATA version 13.0.

Results: Of all 239 respondents, 139 (58.2%) received the plastic bag for retaining immunization cards, while 100 (41.8%) did not receive the bag. Of the 139 respondents who received immunization cards, 125 (89.9%) utilized the plastic bag. Of those that utilized the bags to hold immunization cards, 50.4% were from Gambella Region and 49.6% were from Benishangul-Gumuz Region. A total of 125 (58.7%) respondents were presented with the immunization card inside the plastic bag, and 88 (41.3%) respondents received the immunization card with no accompanying plastic bag. However, of all respondents who received the plastic bag, 14 (10%) did not put the card inside it. The reasons given by respondents were that it was difficult to put the card inside the plastic bag (seven cases, (58.3%)) and that it was lost/damaged or used for some other purpose (five cases, (41.7%)). A total of 145 (70%) respondents reported that they placed the plastic bag that contains the immunization card in a secure place, such as in a box, and 53 (25.6%) hung it on a wall.

Conclusion: In general, there was 89.5% card retention; 90% of respondents utilized the plastic bag, and 88% of mothers said they would advise others to use the plastic bag. [*Ethiop. J. Health Dev.* 2019; 33(Special issue):31-36]

Key words: Plastic bag, Immunization Card, Retention, Gambella and Benishangul Gumuz

Introduction

Childhood vaccines or immunizations can seem overwhelming to new parents. Vaccine schedules recommended by agencies and organizations, such as the CDC, the American Academy of Pediatrics, and the American Academy of Family Physicians, cover about 14 different diseases (1).

Most child vaccinations are completed between birth and 6 years. Many vaccines are given more than once, at different ages, and in combinations. This means that it is necessary to keep a careful record of the child's shots. Although the health institutions also keep track, staff working at those institutions may change, records may get lost, and the person ultimately responsible for keeping track of a child's immunizations is the parent (2).

A home-based vaccination record is a medical document (more often physical than electronic) issued by a health authority in which an individual's history of vaccinations are recorded (including the name and number of doses of vaccine(s), along with dates given). In contrast to a facility-based record, the home-based record is maintained in the household by an individual or their caregiver (e.g., mother, father, grandparent

and brought to the health clinic/post to be completed by a health worker every time the child is vaccinated (3).

To ensure a timely start to the full infant immunization schedule, home-based records should be given to caregivers at the birth of the child or at the first contact with a health worker after birth. Discussions about home-based vaccination records during pre-natal care provide a unique opportunity for early education of mothers on the role of vaccination in protecting the health of their child. When part of a general child health book, the home-based record directly places immunization in the context of the child's overall health and development, rather than being viewed as an end in itself (2).

According to WHO WHO practical guide for the design, use and promotion of records in immunization programmes guideline for vaccination card, Caregivers should be encouraged to bring the home-based record to every encounter the child has with the healthcare system, including visits when the child is sick and well. However, policies requiring presentation of the record should be considered with care, as some children may drop out of the system if the child is turned away from immunization services because the caregiver forgot the child's record (3).

¹ CORE Group Polio Project, Ethiopia

² Department of Epidemiology, Faculty of Public Health, Jimma University

Vaccination records play an important role in tracking and documenting immunization services and, in some cases, additional health interventions received by individuals. If designed and used properly, the home-based vaccination record can facilitate improvements in caregiver awareness, communication between health workers and caregivers, continuity and coordination of care across health workers, and public health monitoring and reporting(3,4).

CDC records and requirements of immunization recommendation says, keeping up-to-date immunization records for a family, especially children, is important. Keep your child's immunization record in a safe place where you can easily locate it. Bring the record to each of your child's doctor visits (4). According to Lucile Packard Children Hospital, Stanford, think about your child's record as you would a birth certificate and keep it with your other essential documents (1).

Immunization records are often needed for entry into childcare, kindergarten, school, summer camp, and college, or other post-high school training, as well as for future employment and international travel. And when signing up with a new healthcare provider, the provider will often want to see the information. Providers should count only those vaccine doses that are documented on a written record or available on a local computerized immunization information system (registry). Unfortunately, no national organization maintains this information. So, if immunization records are lost or not available, a child may have to repeat vaccine doses.

Research has shown that the primary reasons for missed opportunities for immunization (apart from service delivery gaps) include the caregiver's lack of awareness (or not being adequately informed) of the benefits of vaccines, the recommended vaccination schedule, and/or the date of the child's next vaccination visit. A well-designed home-based record, complemented by appropriate counseling and messaging by health workers, can fill these gaps in caregiver knowledge and may also translate into increasing demand for immunization services, not only for the child in question but for other children in the family and community(3).

The use of a child health card (CHC) has been found to be effective to assess the overall health status of children worldwide. The tool is simple, cost-effective and easy to use, yet standard enough to interpret.

In 2006, Nepal incorporated the CHC into its Health Management Information System. Cards are issued to all children during their first visit for immunization. In Nepal, a CHC is considered a valid and authentic report for immunization. To assess the extent to which CHCs were retained, a community-based cross-sectional study was carried out in 10 village development committees of Kapilvastu district between 15 November and 15 December 2010. A total of 190 households were selected using lot quality assurance

sampling technique. A high retention rate (88.9%) of the CHC was found, while the status of complete immunization was significantly associated with its retention (AOR: 41.92, 95%CI: 2.66-658), $p=0.008$) after adjusting for growth monitoring, ethnicity, place of delivery, antenatal visit, breastfeeding and mother's age.

In addition, a cross-sectional study conducted among mothers with children < 24 months old from Gorkha (Western Hill) and Nawalparasi (Western Terai) districts of Western Nepal showed that retention of the card was 82.2%. Retention of 90.3% was seen among children in the 0 to 12 months age group, whereas it was 74% among children in the 12 to 24 months age group. The reasons for non-retention were that the card was torn by the child/played with by the child (54.6%), followed by the lack of a proper place to keep the card, a lack of awareness of its importance, and the poor quality of the card(5).

In Ethiopia, immunization cards are given to caregivers following the first vaccination of a child. However, various immunization-related household surveys show low retention rates of child immunization cards. For example, the 2005 and 2011 Ethiopian Demographic and Health Survey showed retention rates of 37% and 29%, respectively (6).

Method

The study was conducted in CORE Group Polio Project (CGPP) intervention *woredas*. A household type cross-sectional study design was employed. Target populations were households with at least one child under the age of 2 who had been given at least one vaccination dose. Lists of households of the target population were obtained from the immunization registration books of nearby health centers and health posts.

A sample of 239 households (120 from Gambella Region and 119 from Assosa Zone, Benishangul-Gumuz Region intervention *kebeles*) were selected randomly from the immunization registration books. Up to 12 *kebeles* were included from each region, with at least 10 children per *kebele*. Data were collected using an Amharic language questionnaire and entered into the EPI Database using a double data entry system. Univariate analysis was done using STATA version 13.0.

Data were collected in face-to-face interviews of mothers/caregivers of the index child. Data collectors had completed at least high school education, could speak the local language of the interviewees, and were given two days' training on the objective of the study, interviewing techniques and data quality maintenance and confidentiality issues. Each data collector interviewed at least three households per day and data collection was completed within five days. The questionnaire consisted of questions about the socio-demographic status of households, and the attitudes and practices of respondents in relation to the plastic bags.

Results

A total of 239 respondents were interviewed for this study, of which 223 (94.1%) and 14 (5.9%) were females and males, respectively. A total of 80 respondents (33.5%) were under 25 years of age and 83

(34.7%), 41 (17.2%) and 35 (14.6%) were 25-29 years, 30-34 years and 35 and years or above, respectively. The average age of respondents was 27 years with SD of 0.42 (95% CI 26.30-27.97). In addition, 111 (46.6%) were Muslims and 124 (52.8%) were Christians (Table 1).

Table1: **Socio-demographic characteristics of study participants**

S/N	Variables	Number	%
1	Sex		
	Male	14	5.9
	Female	223	94.1
2	Age		
	< 25	80	33.5
	25-29	83	34.7
	30-34	41	17.2
	35+	35	14.6
3	Religion		
	Muslim	111	46.6
	Christian	124	52.8
4	Region		
	Benishangul-Gumuz	120	50.2
	Gambella	119	49.8
5	Educational status		
	No education	64	26.9
	Informal education	12	5
	Grade 1-4	44	18.5
	Grade 5-8	67	28.2
	Grade 9-12	38	15.9
	Higher education	13	5.5
6	Relation to the index child		
	Mother	215	91.1
	Other	21	8.9

Of the total of 239 respondents, 120 were from Benishangul-Gumuz Region (Assosa, Bambasi, Kurmuk, Menge, Maokomo Special, Oda and Sherkole districts) and 119 from Gambella Region (Abobo, Dima, Gambella Town, Gambella Zuria, Godere, Gog, Itang Special, Lare, Mengesh, Mekoy and Wanthoa districts).

In relation to respondents' education, 64 (26.9%) had

no education; 12 (5%) had informal education; 44 (18.5%) had learned up to grade 4 or below; 67 (28.2%) had completed their education between grade 5 and grade 8; 38 (15.9%) had completed their education between grade 9 and grade 12; and 13 (5.5%) had attended higher education. The relationship between respondents and the index child: 215 (91.1%) mothers and 21 (8.9%) fathers or other family members (Table 2).

Table 2: Status of index child and their vaccination, immunization card and plastic bag

S/N	Variables	Number	%
1	Sex		
	Male	120	50.4
	Female	118	49.6
2	Age		
	<12 months	50	20.9
	12-23 months	189	79.1
4	Does child have vaccination card?		
	Yes	214	89.5
	No	25	10.5
5	Reason for not having vaccination card		
	Lost /burn/spoiled	15	60
	Other (Not aware to keep it, not allowed to take home, able to take home when vaccination completed)	10	40
6	Did you get plastic bag from the HC/HP to put the card inside?		
	Yes	139	58.2
	No	100	41.8
7	How did the mother present the card?		
	In the plastic bag	125	58.7
	Without plastic bag	88	41.3
8	Reasons for not putting the card in the plastic bag		
	Difficult to place inside the plastic bag	7	58.3
	Other (Lost/damaged, or used for something else)	5	41.7
9	Reasons for not getting the plastic bag		
	Not available in the HC/HP	38	39.2
	Do not know the reason	56	57.7
	Other	3	3.1
10	Where do you put the plastic bag that contains the immunization card?		
	In a secured place like in a box	145	70
	Hanging on the wall with the plastic bag	53	25.6
	Other	9	4.4
11	Do you have advise others to use the plastic bag?		
	Advise others to use it	121	87.7
	Do not advise other to use it	17	12.3
12	Why do you recommend others to use it?		
	It helps not to lose vaccination card	109	90.1
	It helps to put vaccination card in for a long time	99	81.8
	It is safe to put vaccination card into	92	76
	It reminds mother of next immunization date	41	33.9
	Other	7	5.8
13	Why do you not recommend others to use it?		
	I do not see any importance	26	43.3
	The plastic bag is not acceptable in the community	6	10
	Other	28	46.7

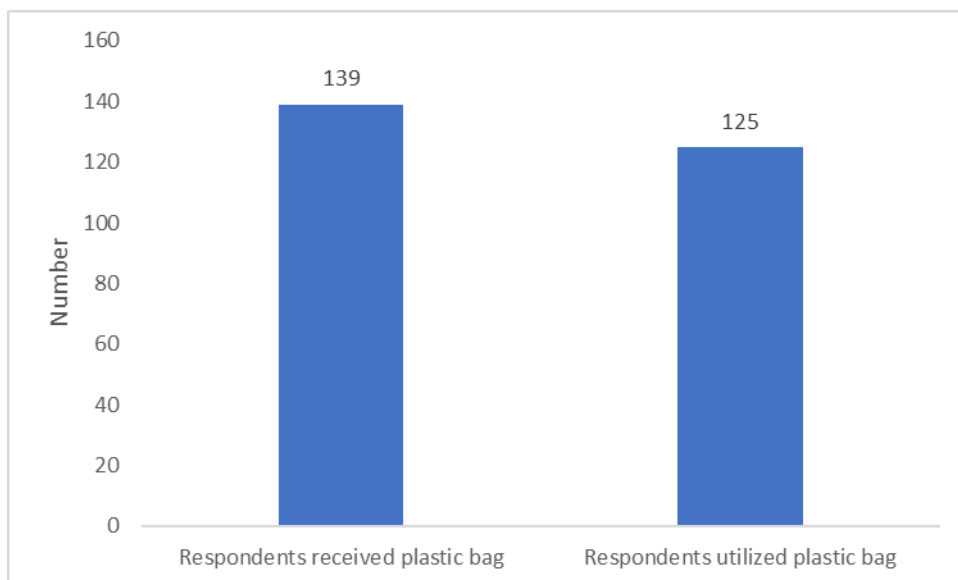


Figure 1: Number of respondents who received the plastic bag for the immunization card, compared to those who utilized it, in Assosa Zone and Gambella Region

Discussion

A total of 239 respondents were interviewed for this study. A total of 214 respondents (89.5%) had a vaccination card and 25 (10.5%) had no vaccination card. The reasons given for having no vaccination card were: 15 (60%) had been lost/burned/destroyed; in five cases (20%), the vaccinator did not allow the caregiver to take it; in four cases (16%), respondents were not aware that they should keep it; and in one case (4%), the card was to be provided when vaccination was completed. This result alone compares favorably with the findings of the 2005 and 2011 Ethiopian Demographic and Health Surveys, in which retention rates of immunization cards were 37% and 29%, respectively (6,7). Another cross-sectional study in Karachi, Pakistan, showed the card retention was 33% (8), and study done in Kampala, Uganda, showed 66% of children had a CHC (9). In a study done in Nepal, only 41% of the mothers produced a CHC at the time of survey. For about 7% of respondents, a CHC was not issued, and only 45% of the respondents who were issued a CHC had retained it (10).

In the present study, of the 239 respondents, 139 (58.2%) had received the immunization card-holding plastic bag, while 100 (41.8%) had not received it. Of those 139 respondents who had received the bag, 125 (90%) were utilizing it as intended. Despite many respondents not receiving the plastic bag, there was a high utilization of it.

Conclusion

Encouraging card retention helps to increase complete immunization coverage, and the introduction of plastic bags to the study areas helped to increase card retention. There was 89.5% card retention in the study areas, and 90% of respondents were utilizing it. A further promising result was that 88% of mothers said they would advise others to use the plastic bag.

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