

Chlorhexidine (CHX) Umbilical Cord Care Product Attribute Study

October 2008



Objectives

1. Determine preference of users and service providers for primary containers, applicators, and combinations thereof.
2. Identify any difference in preference depending on the level of income.
3. Assess how packaging affects willingness to pay for the CHX product.
4. Determine preference of users and service providers for packaging options for bundling (CHX product + clean delivery kit).

Study Design

- ACNielsen selected through request for proposal process
- n=165 (90 users and 75 service providers)
- Randomly selected
- Data collected through semi-structured questionnaires in July 2008
- Aushkandi and Bausha unions, Sylhet district
- Data collection team: 5 field investigators, 1 supervisor, and 1 field executive

Respondent Profile (Users)

	Total	New mother	Pregnant women	Relative	Husband
<i>Base: All user categories</i>	90	30	30	22	8
Age (years)					
16-20 years	14.4	16.7	20.0	9.1	0.0
21-25 years	33.3	43.3	36.7	18.2	25.0
26-30 years	20.0	23.3	23.3	13.6	12.5
31-35 years	14.4	10.0	16.7	13.6	25.0
36-40 years	4.4	6.7	0.0	0.0	25.0
Above 40 years	13.3	0.0	3.3	45.5	12.5
Average age	30.2	25.9	26.6	39.9	33.5
Education (%)					
Illiterate	30.0	20.0	26.7	36.4	62.5
Class 1-4	42.2	36.7	40.0	54.5	37.5
Class 5-6	18.9	33.3	20.0	4.5	0.0
SSC	7.8	6.7	13.3	4.5	0.0
Income and Expenditure (Bangladeshi Taka [BDT])					
Average income	8289	8650	8017	8864	6375
Average expenditure	6844	7200	6617	7136	5563

Respondent Profile (Service Providers)

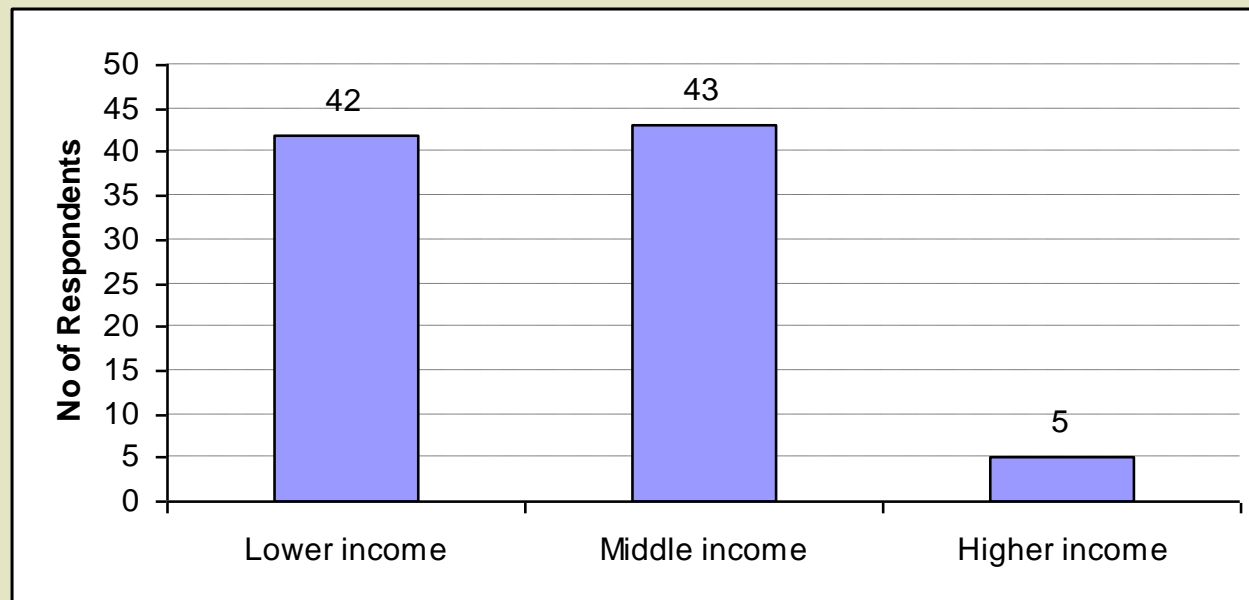
	Total	Trained Birthing Attendant (TBA)	Pharmacist	Family Welfare Visitor (FWV)	Registered Medical Practitioner (RMP)	Village Doctor
<i>Base: All service providers</i>	75	30	15	5	18	7
Duration (in years)						
Average duration in the profession	17	18	16	19	15	17
Average duration in the union	12	14	10	15	12	12
Education (%)						
No education	21.3	53.3	0.0	0.0	0.0	0.0
Class 1-4	9.3	23.3	0.0	0.0	0.0	0.0
Class 5-9	12.0	13.3	0.0	0.0	16.7	28.6
Secondary School Certificate / <i>Dakhil</i>	29.3	0.0	66.7	60.0	38.9	28.6
Higher School Certificate / <i>Fazil</i>	17.3	10.0	26.7	20.0	22.2	14.3
Bachelor of Arts / Bachelor of Commerce / Bachelor of Science / Bachelor of Social Studies	9.3	0.0	6.7	20.0	22.2	14.3
Local Medical Assistant and Family (LMAF) planner	1.3	0.0	0.0	0.0	0.0	14.3
Medical Certification (%)						
RMP	16.0	0.0	0.0	0.0	61.1	14.3
Medical assistant	1.3	0.0	0.0	20.0	0.0	0.0
Nongovernmental organization / National Institute of Population Research and Training (NIPORT) training	1.3	0.0	6.7	0.0	0.0	0.0
Health & Family planning training	8.0	3.3	0.0	80.0	0.0	14.3
No education / No training	32.0	80.0	0.0	0.0	0.0	0.0
Nursing diploma	5.3	13.3	0.0	0.0	0.0	0.0
Gynecologists	1.3	3.3	0.0	0.0	0.0	0.0
Diploma (LMAF)	34.7	0.0	93.3	0.0	38.9	71.4

Number of Users by Level of Income

Lower income = 1,500–6,000 BDT

Middle income = 6,001–15,000 BDT

Higher income = 15,001–30,000 BDT



I. Primary Container



Containers



Nozzle plastic bottle



White plastic bottle



Colored-glass bottle

Most Preferred Container

	Nozzle plastic bottle	White plastic bottle	Colored-glass bottle	Invalid response	Total
Users	73 (81.1%)	7 (7.8%)	8 (8.9%)	2 (2.2%)	90
Service Providers	68 (90.7%)	5 (6.7%)	1 (1.3%)	1 (1.3%)	75
Total	141 (85.5%)	12 (7.3%)	9 (5.5%)	3 (1.8%)	165

The vast majority of users and service providers ranked the nozzle plastic bottle as the most preferred container.

Most Preferred Container by Income Level (Users)

Lower income = 1,500–6,000 BDT, Middle income = 6,001–15,000 BDT, Higher income = 15,001–30,000 BDT

	Nozzle plastic bottle	White plastic bottle	Colored-glass bottle	Invalid response	Total
Lower income	30 (71.4%)	4 (9.5%)	6 (14.3%)	2 (4.8%)	42
Middle income	38 (88.4%)	3 (7.0%)	2 (4.7%)	0 (0.0%)	43
Higher income	5 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5
Total	73 (81.1%)	7 (7.8%)	8 (8.9%)	2 (2.2%)	90

There was not much difference among users in the lower-, middle-, and higher-income levels in regard to container preference.

Reasons for Preferring the Nozzle Plastic Bottle

	Ease of Handling	Shape	Others	Total
Users	51 (70.0%)	20 (27.3%)	2 (2.7%)	73
Service Providers	62 (91.2%)	3 (4.4%)	3 (4.4%)	68
Total	113 (80.1%)	23 (16.3%)	5 (3.5%)	141

The vast majority of users and providers cited “ease of handling” as the reason for preferring the nozzle bottle.

II. Preferred Applicator



Applicators



Dropper



Cotton balls



Square gauze



Round cotton pads



Square cotton pads

Most Preferred Applicator

	Dropper	Cotton ball	Round cotton	Square cotton	Square gauze	Invalid response	Total
Users	43 (47.8%)	30 (33.3%)	13 (14.4%)	4 (4.4%)	0 (0.0%)	0 (0.0%)	90
Service Providers	22 (29.3%)	12 (16.0%)	17 (22.7%)	13 (17.3%)	10 (13.3%)	1 (1.3%)	75
Total	65 (39.4%)	42 (25.5%)	30 (18.2%)	17 (10.3%)	10 (6.1%)	1 (0.6%)	165

Nearly half of users and a third of service providers ranked the dropper as the most preferred applicator.

Most Preferred Applicators by Income Level (Users only)

Lower income = 1,500–6,000 BDT, Middle income = 6,001–15,000 BDT, Higher income = 15,001–30,000 BDT

	Dropper	Cotton balls	Round cotton	Square cotton	Square gauze	Total
Lower income	26 (62.0%)	10 (23.8%)	4 (9.5%)	2 (4.8%)	0 (0.0%)	42
Middle income	16 (37.2%)	17 (39.5%)	8 (18.6%)	2 (4.7%)	0 (0.0%)	43
Higher income	1 (35.4%)	3 (41.7%)	1 (18.8%)	0 (0.0%)	0 (0.0%)	5
Total	43 (47.8%)	30 (33.3%)	13 (14.4%)	4 (4.4%)	0 (0.0%)	90

- Users in the lower-income level most preferred the dropper.
- Users in the higher- and middle-income levels preferred the cotton ball slightly more than the dropper.

Reasons for Preferring the Dropper

	Ease of handling	Looks clean	Others	Total
Users	35 (81.4%)	7 (16.3%)	1 (2.3%)	43
Service Providers	21 (95.5%)	0 (0.0%)	1 (4.5%)	22
Total	56 (86.2%)	7 (10.8%)	2 (3.1%)	65

The overwhelming majority of users and service providers cited “ease of handling” as the reason for preferring the dropper.

Reasons for Preferring the Cotton Ball

	Looks soft	Looks clean	Ease of handling	Total
Users	16 (53.3%)	10 (33.3%)	4 (13.3%)	30
Service Providers	7 (58.3%)	1 (8.3%)	4 (33.3%)	12
Total	23 (55.5%)	11 (26.2%)	8 (19.0%)	42

The majority of users and service providers who preferred the cotton ball cited its “soft appearance” as their reason for preferring the cotton ball.

III. Combination of Container and Applicator



Most Preferred Combination of Container and Applicator

		Nothing	Dropper	Cotton balls	Round cotton	Square cotton	Square gauze	Invalid response	Total
Nozzle plastic bottle	User	2 (4.2%)	12 (25.0%)	25 (52.1%)	7 (14.6%)	1 (2.1%)	1 (2.1%)	0 (0.0%)	48
	Service provider	7 (10.4%)	14 (20.9%)	15 (22.4%)	12 (17.9%)	2 (3.0%)	17 (25.4%)	0 (0.0%)	67
	Total	9 (7.8%)	26 (22.6%)	40 (34.8%)	19 (16.5%)	3 (2.6%)	18 (15.7%)	0 (0.0%)	115
Plastic bottle	User	0 (0.0%)	16 (64.0%)	5 (20.0%)	2 (8.0%)	1 (4.0%)	0 (0.0%)	1 (4.0%)	25
	Service provider	0 (0.0%)	1 (14.3%)	2 (28.6%)	2 (28.6%)	0 (0.0%)	1 (14.3%)	1 (14.3%)	7
	Total	0 (0.0%)	17 (53.1%)	7 (21.9%)	4 (12.5%)	1 (3.1%)	1 (3.1%)	2 (6.3%)	32
Colored-glass bottle	User	0 (0.0%)	11 (64.7%)	1 (5.9%)	3 (17.6%)	2 (11.8%)	0 (0.0%)	0 (0.0%)	17
	Service provider	0 (0.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1
	Total	0 (0.0%)	12 (66.7%)	1 (5.6%)	3 (16.7%)	2 (11.1%)	0 (0.0%)	0 (0.0%)	18
Grand total		9 (5.5%)	55 (33.3%)	48 (29.1%)	26 (15.8%)	6 (3.6%)	19 (11.5%)	2 (1.2%)	165

Most Preferred Combination of Container and Applicator (*continued*)

Predictably, 115 respondents selected the nozzle plastic bottle to combine with an applicator.

- 9 of the 115 respondents (approximately 8%) did not select any applicator.
- 26 of the 115 respondents (approximately 23%) still selected the dropper, even though it is not feasible to use the dropper with the nozzle plastic bottle.

Respondents who selected either the white plastic bottle or colored-glass bottle selected the dropper as an applicator to combine with their container choice.

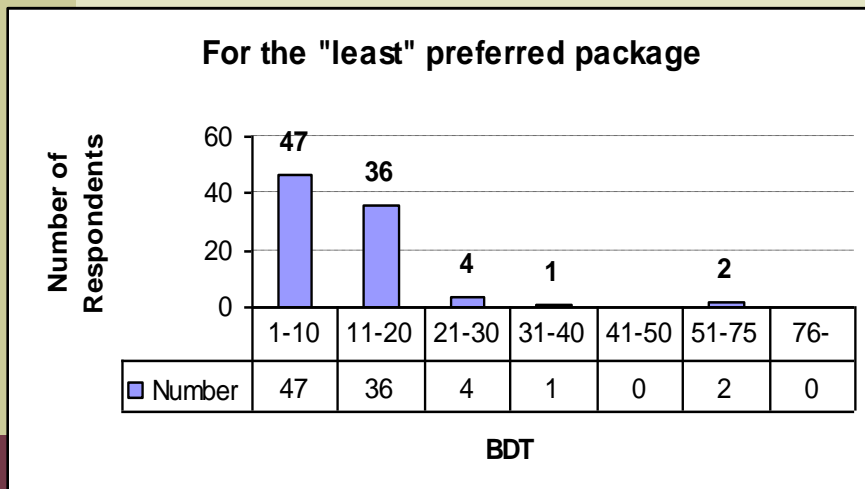
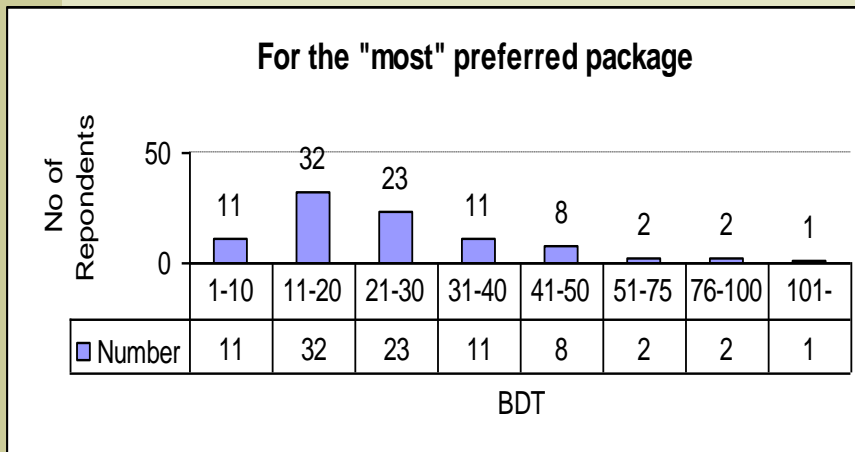
What are the implications of the results?

Implications of Results

- The fact that the respondents preferred the dropper and nozzle plastic bottle due to its ease of handling suggests that they prefer something that they can use without directly touching the CHX.
- The dropper is the most-preferred applicator. Whenever it is possible to combine the dropper with a container, respondents picked the dropper as the preferred combination.
- Some respondents selected the cotton balls instead—or they did not pick any applicator, thinking that combining the dropper with a container (i.e., the nozzle plastic bottle) was not rational.
- The nozzle plastic bottle with no additional applicator appears to be the preferred container option for all respondents.

IV. Willingness to Pay

Amount that respondents are willing to pay for the “most” and “least” preferred package

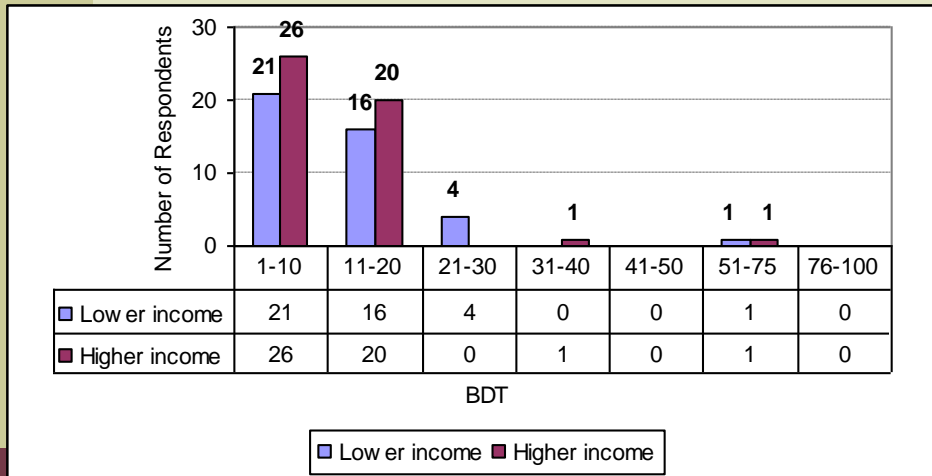
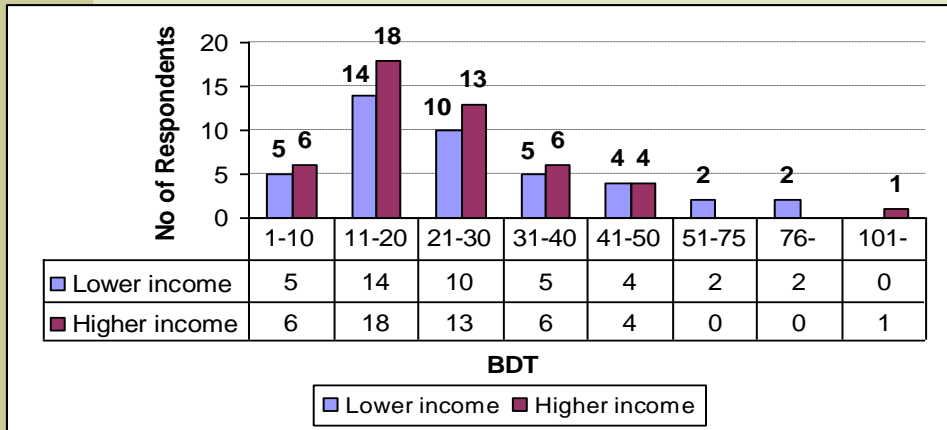


Median Amount (BDT)

	Amount for the most preferred package	Amount for the least preferred package
All respondents	25	15
Users	25	10
Providers	30	20

- Service providers were willing to pay for the CHX product more than users.
- This might be because they considered the CHX product to be a profit-making opportunity.

Amount that respondents are willing to pay for the most and least preferred package by income level (Users)



Median Amount (BDT)

	For the most preferred package	For the least preferred package
Lower income	25	11
Middle income	25	10
Higher income	20	10
All users	25	10

There was not a large difference in willingness to pay among users in the lower-, middle-, or higher-income levels.

V. Packages for Bundling



Packages for Bundling



Transparent plastic bag



Colored-plastic bag



Cloth bag



Shopping bag



String



Colorful ribbon



Cardboard box

Most Preferred Package Option for Bundling

	Transparent plastic bag	Cloth bag	Colorful ribbon	Cardboard box	Total
Users	6 (6.7%)	14 (15.6%)	1 (1.1%)	69 (76.7%)	90
Service Providers	2 (2.7%)	3 (4.0%)	0 (0.0%)	70 (93.3%)	75
Total	8 (4.8%)	17 (10.3%)	1 (0.6%)	139 (84.2%)	165

The overwhelming majority of users and service providers preferred the cardboard box.

Most Preferred Package for Bundling (Users only)

Lower income = 1,500–6,000 BDT, Middle income = 6,001–15,000 BDT, Higher income = 15,001–30,000 BDT

	Transparent plastic bag	Cloth bag	Colorful ribbon	Cardboard box	Total
Lower income	3 (7.1%)	8 (19.0%)	0 (0.0%)	31 (73.8%)	42
Middle income	3 (7.0%)	6 (14.0%)	1 (2.3%)	33 (76.7%)	43
Higher income	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (100.0%)	5
Total	6 (6.7%)	14 (15.6%)	1 (1.1%)	69 (76.7%)	90

Users in the all three income levels cited the cardboard box as the most preferred package option for bundling.

Reasons for Preferring the Cardboard Box

	Good-looking	Kit bags are safe	Pleasant color	Won't get dirty	Others	Invalid responses	Total
Users	28 (40.6%)	15 (21.7%)	7 (10.1%)	11 (15.9%)	5 (7.2%)	3 (4.3%)	69
Service Providers	22 (31.4%)	34 (48.6%)	2 (2.9%)	3 (4.3%)	9 (12.9%)	0 (0.0%)	70
Total	50 (36.0%)	49 (35.2%)	9 (6.5%)	14 (10.1%)	14 (10.1%)	3 (2.2%)	139

- Approximately 40% of users chose the cardboard box because it looks good.
- Nearly half of service providers chose this package option because the clean delivery kit is safe inside the cardboard box.

Discussion Points



Discussion Points (Containers and Applicators)

- Should we use the nozzle plastic bottle as the primary container for the CHX product? What is the general consensus?
- If so, do we want to package the CHX product with or without an applicator (i.e., cotton balls)?
 - Does it matter that the container and application method used in operations research (OR) is slightly different from the one used in the randomized-controlled trials? Is there an adequate level of evidence to support this application method?
 - Do we need to pretest acceptability of the new container/method to users and service providers *prior to* OR?
 - Alternatively, can we test acceptability of users and service providers as part of OR?
 - How will all these affect the overall timeline and other aspects of OR?

Addendum



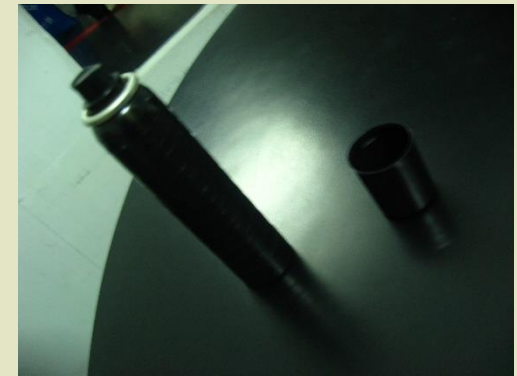
Containers for the Future



Snap-open foil pouch



**Multi-directional
spray bottle**



**Pressurized spray
bottle**

Most Preferred Containers (Future Options)

	Multi-directional spray	Pressurized spray	Snap-open foil pouch	Total
Users	54 (60.0%)	31 (34.4%)	5 (5.6%)	90
Service providers	11 (14.7%)	52 (69.3%)	12 (16.0%)	75
Total	65 (39.4%)	83 (50.3%)	17 (10.3%)	165

Most Preferred Containers (Future Option) by Income Level (Users)

Lower income = 1,500–6,000 BDT, Middle income = 6,001–15,000 BDT, Higher income = 15,001–30,000 BDT

	Multi-directional spray	Pressurized spray	Snap-open foil pouch	Total
Lower income	22 (52.3%)	17 (40.5%)	3 (7.1%)	42
Middle income	29 (67.4%)	14 (32.6%)	0 (0.0%)	43
Higher income	3 (60.0%)	0 (0.0%)	2 (40.0%)	5
Total	54 (60.0%)	31 (34.4%)	5 (5.6%)	90