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DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control

Memorandum

Date August 26, 1983

From Anthony A. Hudgins, Public Health Analyst, Program Evaluation Branch, Division of Reproductive Health (DRH), Center for Health Promotion and Education (CHPE)

Subject Foreign Trip Report (AID/RSSA): Bangladesh, April 8-20, 1983; Contraceptive Logistics Management

To William H. Foege, M.D.
Director, Centers for Disease Control
Through: Dennis D. Tolsma
Acting Director, CHPE

SUMMARY

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On April 8-20, 1983, Anthony A. Hudgins traveled to Dhaka, Bangladesh, and several points within the country for the purposes of (a) planning a national inventory of contraceptive commodities, and (b) establishing a procedure to sample condoms within the country for testing. During the visit an inventory was planned for June 30, 1983 (the end of the Government's fiscal year), and a form and instructions for reporting the inventory were developed. It was recommended that any sampling of commodities be delayed until after the inventory is completed so that the sampling frame can be defined. A three-stage sampling methodology was designed that will be easier to carry out than the one-stage sample originally proposed.

I. PLACES, DATES, AND PURPOSE OF TRAVEL

Bangladesh, April 8-20, 1983, at the request of S&T/POP/AID/W, to provide technical assistance in logistics management to USAID/Bangladesh and the Bangladesh Population Control and Family Planning Division of the Ministry of Health.

II. PRINCIPAL CONTACTS

A. U.S. Agency for International Development (USAID)
1. Suzanne Olds, Chief, Health and Population Division (HPD)
2. Carol Carpenter-Yaman, Ph.D., Population Officer, HPD
3. Md. Kobbad, Logistics Officer, HPD

B. Population Control and Family Planning Division (PCFPD)
1. Jalaluddin Ahmed, M.D., Joint Secretary
2. Col. Hashmat Ali, M.D., Director-General, Implementation

C. United Nations Fund for Population Affairs (UNFPA)
1. Dharam Gupta, Logistics Advisor

III. GENERAL OBSERVATIONS

A. General Findings

This visit was scheduled primarily to address two issues: (a) The design of an inventory of all contraceptives in the country; and (b) the design of a methodology to sample condoms for testing. Although I focused most of my efforts on these two tasks, there are several other findings that need to be reported.

1. The logistics system is not operating within the specified max-min limits. In general, there are smaller stocks at the district level than specified (usually due to lack of space), and larger stocks than specified out at the thana level (usually pushed down by the district to alleviate space problems). Of the two problems, the latter is more problematic. One thana had a 2-year's supply of 1980 pills, and another with very little demand for pills (50 to 60 cycles per month) had 11,400 cycles of pills manufactured in 1978. It is noteworthy that Ray Belsky in his 1982 report, recommends that a maximum of 2 months of condoms be kept at the district and thana (as opposed to the officially specified maximum of 12 and 8 months, respectively) in order to shorten the time between manufacture and use, and therefore to alleviate the alleged deterioration of condoms in the country. This recommendation deserves consideration, but before this policy becomes official the effect on increasing stock outs needs to be considered.

2. The only serious stock out problem (already known to the AID Mission) encountered was in Copper-T IUD's. However, new supplies airshipped into the country were beginning to arrive at the clinic level.

3. Although there is a "regional warehouse" in Chittagong, this facility is not actually functioning as a regional warehouse, but a trans-shipment storage for commodities as they clear the port and await shipment to the central warehouse. Occasionally, two districts (Chittagong and Chittagong Hill Tracts) are supplied directly from this "regional warehouse" at the order of the central warehouse.

4. Only one district warehouse visited (with obvious water problems) had dunnage. The other districts and all of the thanas had no dunnage. Sometimes there was a makeshift arrangement to keep the supplies off of the floor. In the Chittagong regional warehouse there was no dunnage, but we were told that it was not necessary because the floor was very well damp-proofed. It is noteworthy, though, that Belsky, in his report covering a visit exactly 1 year ago, said that dunnage was being used in the warehouse (p. 8).

B. Problems With Out-of-Date Commodities

1. Noriday: There has been considerable concern in the country regarding oral contraceptives that are reaching the end of their stated shelf life. The Director-General of Implementation has issued an order that all oral cntraceptives manufactured prior to 1978 be set aside for the Condemnation Committee and Disposal, and that all 1978 pills be distributed as soon as possible. In my visits to the field (TEMO, both regional warehouses, 3 district warehouses, and 4 thana stores), I found substantial supplies of 1978 pills (but no 1977) in the area supplied by the Khulna regional warehouse. In each location, the 1978 pills had been set aside for immediate issuance. The regional warehouse had no 1978 pills, the two district warehouses in the area had about a 1-month's supply of 78 pills, one thana had about a 3-month's supply, and another thana with very little movement in pills, had many years' supply. Only the national inventory planned for June 30, 1983, will tell the extent of the problem. I feel that with the exception of isolated pockets elsewhere, the problem will tend to be concentrated in the area supplied by the Khulna regional warehouse.

2. Condoms: There has been considerable controversy concerning the usually accepted 5-year shelf life of condoms. It has been alleged that they have only a 3-year safe shelf life in the storage conditions extant in Bangladesh. Condoms at the national and regional warehouses were all of 1981 or 1982 manufacture; at the district and thana levels they had 1981 condoms, with the notable exception of one thana (Pachelaish), with a very low usage of condoms that had part of a carton of 1977 condoms (that they were not distributing) and two cartons of 1978 condoms that they were distributing. Again, the extent of this problem will be better defined by the national inventory.

IV. PROPOSED NATIONAL CONTRACEPTIVE COMMODITIES INVENTORY

Discrepancies between various estimates of contraceptive demand, supply, and use have led USAID/Dhaka to ask for a national inventory of donated supplies. I discussed the procedure for this inventory with the director of logistics of the Family Planning Program and developed a form and instructions (Appendix A). The following points need to be made:

1. The inventory is scheduled for June 30, 1983. This day is the end of the fiscal year for the program and according to the procedures of the program, a regular inventory is scheduled for this day.

2. Two logistics officers have been assigned from the program to USAID/Dhaka for training. The next task for these trainees is to develop a training program for the district storekeepers. If this training is scheduled before June 30, execution of the inventory can be part of the training, and the necessary forms can be distributed. If the training is not scheduled before June 30, instructions and forms need to be given to the district storekeepeers in some other manner, perhaps at some regularly scheduled meeting.

3. The forms should be accompanied by addressed, stamped envelopes, with one copy going to the Program Logistics Office, and one copy coming directly to USAID.

4. Followup on missing reports and tabulating of the data should be done at USAID by Mr. Kobbad.

5. Visits to randomly selected sites should be made by USAID personnel to spot-check the inventory.

6. The inventory will report stock-on-hand of Noriday and condoms by year of manufacture to allow USAID to determine the severity of the problem of out-of-date commodities and to plan any sampling of commodities for testing that needs to be done.

V. SAMPLING OF CONDOMS FOR TESTING

There have been complaints that condoms have deteriorated by the time they reach the end-user. PIACT/Bangladesh and APHA consultant Ray Belsky have hypothesized that the harsh storage conditions of Bangladesh decrease the shelf life of condoms from the normal 5 years to 3 years. A consensus has developed that a sample of condoms need to be drawn for testing. However, there appears to be controversy as to what hypotheses need to be tested and how the sample should be drawn:

(a) AID/Washington apparently wants a sample drawn of each lot (month of manufacture) in the country to test whether there is a bad lot.

(b) USAID/Dhaka wants samples drawn at various levels in the system, and under various storage conditions, to test whether the condoms are deteriorating because of poor handling and/or adverse weather conditions.

(c) Belsky suggests ongoing operational testing by sampling and testing each lot before it is sent to the districts.

Whatever the decision, it should probably be delayed until the results of the inventory (which will also help define the sampling frame) have been tabulated. However, I would like to make several observations and recommendations concerning the sampling methodology.

1. The one-stage discrete sampling methodology suggested by AID/Washington is not feasible because condoms are stacked not by month of manufacture but by year of manufacture. Even if the stacks were by month, the skip-sampling methodology suggested would be an arduous task requiring the opening, counting, sampling, and resealing of many cartons and boxes. The difficulty of the task suggests a multistage sampling methodology.

2. There is considerable mixing of the condoms during normal handling. Each different color is manufactured at a different time, which suggets that cluster sampling would be acceptable. Also, as the carton is moved from place to place, it tends to occupy a different position in the stack and, therefore, the different exposures to environmental damage may tend to balance out, so bias to the sample dependent on position in the stack is probably minimal. The position of an individual box within the carton is always the same, so boxes to be sampled within the shipping carton should be picked randomly.

3. I suggest a three stage sample of each stack. (If there is more than one stack, pick one stack at random.) For example, the following methodology would yield a sample of 480 (4 x 6 x 20): (a) Select four cartons, either by numbering the cartons in the stack and using a random number table, or by choosing one carton on an edge, one with its side exposed and two interior cartons. In the second stage, number each box within the carton selected and select six boxes using a random number table. In the third stage, in each box sample five strips of four condoms each. This methodology will be much easier to follow in the field than the one-stage, random skip-sample. Random number tables for the second and third stage selection are included as Appendix 2.

4. If a geographical sample is desired, the districts should be written down by division, and a systematic sample with a random start performed. For example, if a sample of 10 is required, the first or second should be selected (determined by the flip of a coin), followed by the selection of every other district. This will assure geographical diversity of the sample. A simple random sample of thanas within each district could be done with a random number table or a systematic sample with a random start could be performed depending upon the sample size required.

5. Any time that sampling is done, the boxes should be restocked with fresh stock and resealed.

Anthony A. Hudgins, M.A.S.

APPENDIX 1

Instructions for Conducting the Annual
Physical Inventory of Contraceptive Commodities

On June 30, 1983, the contraceptives at every regional warehouse, district warehouse, and thana store are to be physically counted and the form, "Physical Inventory of Contraceptive Commodities," is to be completed. Estimates will not be accepted. Full cases, boxes, packages, or foil packs are not to be opened for the purpose of this inventory but are to be assumed to contain the proper quantities. Opened boxes or foil packs are to have their contents removed and physically counted. For your information, cases, boxes, and foil packs contain the following quantities unless otherwise marked on the outside of the case:

Item	Quantity		
	Case	Box	Foil Pack
Noriday	600	60	3
Ovral	3,000	-	-
Combination 5	720	60	-
Condoms	6,000	100	-
Emko	36	-	-
NeoSampoon	160	20	-
Copper-T	200	20	-
Lippes Loop	bags of 100	-	-

For example, if a storehouse had 6 cases, 2 boxes, 18 foil packets, and 2 cards of Noriday, the quantity would be as follows:

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 6 x 600 = 3600
 2 x  60 =  120
18 x   3 =   54
 2 x   1 =    2
         3,776 Monthy Cycles of Noriday
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The Inventory Form requires information on Noriday and condoms by date of manufacture (see draft form next page). The following products have the date of manufacture marked on the boxes:

(1) Noriday has the date of manufacture stamped on the case and on the card. It does not appear on the box or foil pack. If you have boxes from different cartons, check one card in each box for the date of manufacture.

(2) Condoms have the date of manufacture written on the case and stamped on the box.

APPENDIX 1 (Continued)

The Inventory is to be completed on June 30, 1983, and the form completed in three copies. The original is to be mailed to _____ in the attached, self-addressed envelope not later than July 10, 1983. The duplicate is to be mailed to _____, also in the other self-addressed envelope, and the triplicate is to be retained at the site.

Upon completing the inventory, Inventory Control Cards (ICC) and bin cards should be adjusted to reflect actual inventory.

PHYSICAL INVENTORY OF CONTRACEPTIVE COMMODITIES

☐ Regional Warehouse

☐ District Warehouse DATE: June 30, 1983

☐ Thana Store

Region _____ District _____ Thana _____

I certify that the following list of contraceptives were physically counted and were on hand at this location at the close of business on the above date.

Signed _____

Title _____

Note: This form is to be completed in 3 copies. Mail the original to _____, the duplicate to _____, and retain the triplicate for your records.

ITEMS:	Quantity On Hand in Usable Condition: Date of Manufacture								Total In Usable Condition	Total Not In Usable Condition (All Years)
	1977 and Earlier	1978 Months (1-6)	1978 Months (7-12)	1979	1980	1981	1982			
1. Oral Pills: (cycles)										
(a) Noriday 1 x 50	.....	.....	.....	....	....	....	....		.....	.....
(b) Noriday 1 x 80	.....	.....	.....	....	....	....	....		.....	.....
(c) Ovral (all years)	.....	.....	.....	....	....	....	....		.....	.....
(d) Combination 5 (all years)	.....	.....	.....	....	....	....	....		.....	.....
2. Condoms: (Pieces)	.....	.....	.....	....	....	....	....		.....	.....
3. Emko Foam: (Vials)	Usable - All Manufacture Dates - Not Usable									
	.....					.....				
4. NeoSampoon: (Tubes)	.....					.....				
5. IUD's: (Units)										
(a) Copper T	.....					.....				
(b) Lippes B	.....					.....				
(c) Lippes C	.....					.....				
(d) Lippes D	.....					.....				
6. Injectables (samples)										
(a) Depo Provera	.....					.....				
(b) Noresterant	.....					.....				

APPENDIX 2

Random Number Tables

A. Selecting 6 of 60 Boxes Within a Carton

For first carton, start with left hand column and continue to use the second, third, etc., column for the second, third, etc., carton to be sampled. Begin again with first column after all 20 columns have been used.

2	1	5	9	6	7	3	10	1	8	3	9	4	7	4	8	5	6	2	10
12	11	15	19	16	17	13	20	11	18	13	19	14	17	14	18	15	16	12	20
22	21	25	29	26	27	23	30	21	28	23	29	24	27	24	28	25	26	22	30
32	31	35	39	36	37	33	40	31	38	33	39	34	37	34	38	35	36	32	40
42	41	45	49	46	47	43	50	41	48	43	49	44	47	44	48	45	46	42	50
52	51	55	59	56	57	53	60	51	58	53	59	54	57	54	58	55	56	52	60

B. Selecting 5 Strips of 25 Strips Within a Box

(Same instructions as above)

5	1	4	3	5	1	2	1	5	2	2	4	3	3	4
10	6	9	8	10	6	7	6	10	7	7	9	8	8	9
15	11	14	13	15	11	12	11	15	12	12	14	13	13	14
20	16	19	18	20	16	17	16	20	17	17	19	18	18	19
25	21	24	23	25	21	22	21	25	22	22	24	23	23	24