

SOCIAL MARKETING: A STUDY OF RETAILERS' KNOWLEDGE ABOUT CONDOM IN DELHI

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ABSTRACT

Social marketing is the strong instrument available for enhancing contraceptive availability and use. And the retailer has the key role to play. For the retailer to play the significant role of promoter and provider of contraceptives, he/she must have adequate knowledge about condom. This study was conducted in the Union Territory of Delhi to assess the retailers' knowledge about condom, covering a sample of 252 retailers from four zones of MCD. The study concludes that the retailers selling socially marketed condoms had very poor knowledge about the proper method of use of condom, its storage and disease prevention benefits.

The term 'Social Marketing*' means serving social purposes through marketing techniques. Social marketing in family planning means promoting, distributing and selling a contraceptive product to consumers through existing retail outlets at a relatively low and subscribed price to achieve a recognized social goal, *i.e.* expanding contraceptive use¹.

Social marketing has some inherent advantages over the wastage-prone health services. It at least recovers some of the government costs on family planning. Men and women who want to plan their families may not be sick and not like to visit the health facilities. Users of contraceptives often do not like to divulge certain personal information to the health functionaries. Moreover, in the developing countries, health services are poorly equipped, overcrowded and inaccessible to many people specially in the rural areas and the supplies of contraceptives in the primary health centres are often irregular.

(As a part of National Family Welfare Programme, social marketing of Nirodh was launched in 1968 with the help of six large reputed consumer goods, pharmaceutical and oil companies, both in public and private sectors. India's condom marketing is the first **and** the largest programme in the world. It was

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intended to make this contraceptives available within easy reach to every couple and take it deep into the rural areas.

In the Union Territory of Delhi, ITC Limited and Reliance Bulk Drugs and Formulations are marketing Nirodh, and Mala-D is marketed by the Hoechst India Limited through chemists. In addition, Pariwar Sewa Sanstha and Population Services International are selling their own branded products of condom and oral pills²)

The study was conducted to assess the extent of involvement of retailers selling socially marketed condoms with the specific objective of ascertaining the retailers' knowledge about condom as a contraceptive.

METHODOLOGY

Study Area

Area under the jurisdiction of the Municipal Corporation of Delhi was considered as the study area.

The lists of retailers were obtained from the marketing companies and two voluntary organisations. In the Union Territory of Delhi, ITC is selling Nirodh through five wholesalers and the Hoechst Pharmaceutical Limited is also selling Mala-D through five wholesalers. The two voluntary organisations *i.e.* Pariwar Sewa Sanstha and Population Services International sell their own brands of condoms and oral pills directly to the retailers through their own sales representatives. All the lists received from different sources were combined and from the combined list, lists were made for each of the twelve zones of MCD and grouped into four main categories *i.e.* chemists, general stores, grocers and others (others included paan bidi shops, confectioneries, book stalls, etc.). These lists constituted sampling frame for each zone.

In the first stage, four zones were selected out of the twelve MCD zones. In the second stage, a random 10 per cent of the retail outlets was sampled using random number tables. In cases where the sample failed to yield a minimum of twenty outlets of a category, all the existing outlets in that category in the particular zone were taken up for the study. To ascertain the knowledge of the retailers, they were administered a semi-structured schedule containing questions relating to condom as a contraceptive method *i.e.* relating to mode of action, side effects, effectiveness and proper use and contraindications.

FINDINGS

Out of the total of 252, 23 (9.1 per cent) retailers admitted having not ever seen condom although they had it in their premises.

178/252 retailers (70.6 per cent) had no idea as to what substance a condom is made of. Out of the remaining 74 respondents, 60 (23.8 per cent) said that it is made from the rubber like material and remaining 14 (5.6 per cent) said that the condom is made of latex. Difference of knowledge regarding the substance of which condom is made of, between chemists and non-chemists (general stores, grocers and others pooled together) was found to be significant (Table 1).

TABLE 1
RETAILERS CATEGORYWISE BREAK-UP OF RESPONSES TO THE QUESTION
WHAT SUBSTANCE A CONDOM IS MADE OF?

Category	Do not know	Rubber-like material	Latex	Total
Chemists	39 (48.7)	29 (36.3)	12(15)	80
Gen. Stores	57(77.0)	16(21.6)	1(1.4)	74
Grocers	65(83.3)	12(15.4)	1(1.3)	78
Others	17(85.0)	3(15.0)	0	20
AH	178(70.6)	60(23.8)	14(5.6)	252

Note: i. Chi square value 35.41 df=3 difference in responses by various categories found to be significant at 5 per cent level of significance.
ii. Figures In brackets are the percentages of total.

The retailers were also asked about the proper method of use of condoms.

225 out of total of 252 (89.3 per cent) retailers said that they did not know about the proper method of condom use. Of these 40 thought that there was no method in use of condom and it is just to be put on. Of the remaining 27, 19 suggested that the tear of condom should be pressed to express air, 6 simply said that one should avoid tear in the condom. Only 2 (0.8 per cent), both being chemists, could mention that the condom should not be unrolled before putting it

on (Table 2).

The big majority 231/252 (91.7 per cent) of retailers did not know about proper method of condom use. 21/252 (8.3 per cent) of the retailers could tell only one of the instructions for condom use.

145/252 (57.5 per cent) retailers could properly explain how the condom use prevent pregnancy. The remaining had no idea.

TABLE 2
BREAK-UP OF RETAILERS' RESPONSES TO THE QUESTION ABOUT THE PROPER METHOD OF CONDOM USE

Category	Do not know	Press tear to express	Should not get torn	Not to unroll before putting it on	Total
Chemists	65(81.3)	10(12.5)	3(3.8)	2(2.5)	80
Gen. Stores	68(91.9)	6(8.1)	nil	nil	74
Grocers	72(92.3)	3(3.8)	3(3.8)	nil	78
Others	20(100)	nil	nil	nil	20
All	225(89.3)	19(7.5)	6(2.4)	2(0.8)	252

Note : Figures in brackets are the row percentages.

TABLE 3
KNOWLEDGE OF RETAILERS ABOUT HOW CONDOM USE PREVENTS PREGNANCY

Category	Could tell how condom prevents pregnancy	Did not know	Total
Chemists	59(73.7)	21(26.3)	80
Gen. Stores	41 (55.4)	33(44.6)	74
Grocers	40(51.3)	38(48.7)	78
Others	5(25)	15(75)	20
	145(57.5)	187(42.5)	252

Note: i. Chi square value 18.66, df=3 and P value less than 0.05 ii. Figures in brackets are the row percentages.

25 per cent of the others category, 51.3 per cent of grocers, 55.4 per cent of general stores retailers and 73.7 per cent of chemists knew how the condom use prevented pregnancy. (Chi square value found to be significant at 5 per cent level with regard to the right answers by the four categories of retailers.) When the non-chemists categories were pooled together and applied chi square test, $p < 0.05$ i.e. the level of knowledge between chemists and non-chemists was found to be significantly different. Few had some misconceptions also as one of the retailers said that it is lubrication which prevents pregnancy and the lubrication could also cause abortion. It is notable that this respondent was a chemist in a chemist shop (Table 3).

TABLE 4
KNOWLEDGE OF THE RETAILERS ABOUT THE DISEASE PREVENTION BENEFIT OF CONDOM USE

Category	Not knowing	Knowing	Total
Chemists	34(42.5)	46(57.5)	80 74
Gen. Stores	39(66.2)	25(33.8)	78 20
Grocers	41 (52.6)	37(47.4)	
Others	13(65)	7(35)	
All	137(54.4)	115(45.6)	252

Note: i. Chi square value is 9.743, df=3 is significant at 5 per cent level of significance $P < 0.5$. ii. Figures in brackets are the row percentages.

When asked whether a condom has any other use, (45.6 per cent) could mention spontaneously its disease prevention benefit. However, sexually transmitted diseases were not mentioned in particular and disease prevention was stated as general one. On further probing and asking about any new specific disease prevented through condom use, 194 (77 per cent) named the disease AIDS (Table 4).

DISCUSSION

The retailers surveyed did not have adequate knowledge of the contraceptives they are dealing with. The overwhelming majority (99 per cent) did not know how to store condom?. 42.5 per cent of the retailers included in the study, could not tell how the condom prevents pregnancy. 54.4 per cent of retailers did not know about the disease prevention benefit of the condom use.

Only 11/252 (8.3 per cent) could mention only one of the 425 Instructions for the condom use. Common instructions given on the product packets are: i. to put condom on erect penis; ii. not to unroll condom before putting it on; and iii. to hold the nipple of the condom while unrolling the condom. Only 18.6 per cent were aware of the date expiry in case of condoms. This finding was however better than that of study in Madhya Pradesh by Regional Health Office, Bhopal in 1974, in which 94 per cent of the dealers had no knowledge of expiry date in condoms³.

Thus the retailers were not adequately equipped to guide their customers of condom. In fact only 6/252 (2.4 per cent) retailers said that their condom customers ever ask about the proper method of condom use. It is well recognised that the method failures in case of condoms are mainly due to improper use and lack of users knowledge about the method. And more active involvement of the retailers can be better ensured by educating and providing correct information about the contraceptive methods to the retailers and through retailers the prospective consumers. Training programme for the retailers can involve marketing companies, voluntary organisation and association of chemist and druggists.

Distribution of pamphlets will also help in educating the retailers. The pamphlets should contain information about the product in the pictorial form, indicating the correct use of the methods and the common mistakes committed by the users. Information about the method of use may be printed on the product packets, and also, a leaflet may be inserted in the product packets.

सारांश

गर्भनिरोधकों की उपलब्धता एवं प्रयोग को बढ़ावा देने के लिए सामाजिक विपणन एक ठोस साधन है। खुदरा विक्रेता इसमें महत्वपूर्ण भूमिका निभाते हैं। गर्भनिरोधकों के प्रयोग को प्रोत्साहित करने और ग्राहकों के लिए इनकी आवश्यकता सुनिश्चित कराने में महत्वपूर्ण भूमिका निभाने के लिए खुदरा विक्रेताओं को गर्भनिरोधकों के बारे में पर्याप्त जानकारी होना आवश्यक है। गर्भनिरोधकों के बारे में खुदरा विक्रेताओं के ज्ञान का आंकलन करने के लिए इस अध्ययन का संचालन दिल्ली संघ राज्य के अर्न्तगत दिल्ली नगर निगम के चार क्षेत्रों के 252 खुदरा विक्रेताओं के एक सैम्पल पर किया गया था। अध्ययन विक्रेताओं को भी निरोध के प्रयोग की सही विधि, इसके भण्डारण और इनके प्रयोग से रोग नियन्त्रण संबंधी लाभों के बारे में बहुत कम जानकारी प्राप्त थी।

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UTILIZATION OF SANITARY LATRINES IN RURAL NORTH INDIA

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ABSTRACT

A house to house survey on latrine utilization was conducted in a rural area of Haryana. All the houses (126) of a small village and (114) houses of a larger village were surveyed. Information on rate and pattern of latrine utilization was collected on a pretested interview schedule. Latrine utilization was significantly better in the larger village as compared to the smaller village. In both types of villages the sanitary latrines use rate in lower caste families was low as compared to higher caste families. In smaller village, use rate was similar in literate and illiterates while in the larger village use rate was better (78%) among people educated upto high school or above as compared to (63%) families with educational level of middle standard or below. The latrine construction programme was found to be reasonably successful, particularly in larger villages.

Even after the completion of ambitious international drinking water supply and sanitation decade (1981-90) barely 3 per cent of rural Indian population has access to sanitary latrines and water-borne diseases continue to take a heavy toll of human lives¹. More than 30 years back, sanitary latrines were constructed in some North Indian population on an experimental basis. But it failed and the latrines were not used for the intended purpose. Instead, people stored fodder or cowdung cakes in the superstructure. It was said that the intervention went against the traditional habit of open field defecation where people went chatting with each other³.

Now., the government has built some latrines again in few villages of Raipur Rani block, district Ambala in 1991-92. With the experience of earlier failure and a hope of success of this programme the present study was conducted to assess the extent of utilization of these latrines in two types of setting - small villages and large villages.

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MATERIALS AND METHOD

The study was conducted during 1994-95 in Raipur Rani block - the field practice area of Department of Community Medicine, PGIMER, Chandigarh. The study villages were chosen purposively out of a list of 18 villages in Raipur Rani block where the scheme was operative. The two villages - one smaller and the other larger were those where a weekly visit was regularly paid by departmental team members. In smaller village - Kheri (population 1300) all the houses were surveyed by a female social worker - 58 had latrines and 68 did not. Of the 855 houses in the larger village - Raipur Rani - the community health centre headquarters village, 61 families out of 280 where latrines were installed and 53 families out of 575 where not installed were selected for the study through systematic random sampling. The aim was to interview around 100 families - 50 with and 50 without latrines. Few additional families were sampled to account for refusal or non-coverage. A pretested interview schedule was used to record information regarding identification data, socio-demographic data, status of latrine maintenance and data on utilization of latrine. The information was recorded on the schedule by the social worker after interviewing the head or any adult member of the selected family. Chi-square test was used for analysis.

RESULTS AND DISCUSSION

It was observed in a conference on rural sanitation organized in New Delhi, India in 1956 that prevalent environmental sanitation habits of natives differed from those of larger villages near the town. It was said that a village with many well established communication channels with the outside world would be more likely to accept new ideas on sanitation than would an isolated village. The readiness with which new ideas are accepted in a village is directly proportional to the degree of communication with the outside world. It was suggested that the whole programme of environmental sanitation had to be altered to suit villages of different sizes⁴. Even 40 years after the conference, the results of our study vindicate these observations.

Significantly more of the families in Raipur Rani (49; 80%) used the latrines for the intended purpose as compared to 19 (33%) in Kheri ($\chi^2 = 21.35$, d.f. = 2, $p < 0.001$). Some families in both the villages used the structure as store (8; 14% in Kheri and 5; 8% in Raipur Rani) or left it vacant (12; 21% in Kheri and 2; 3% in Raipur Rani). Others used it as bathroom or for urination (15; 26% Kheri and 4; 6% Raipur Rani). In rest, the structure was incomplete (Table 1). This reflects that acceptance of latrines was better in the former as compared to the latter. In fact significantly more of the families in the larger village had constructed the latrines on their own even before the current programme was initiated by the government. This indicates that the latrines had become a felt need in larger

villages. In significantly more families in Raipur Rani - the larger village, the latrines were used regularly by all members (48%) as compared to only 7 per cent in Kheri - the smaller village.

TABLE 1
UTILIZATION OF SANITARY LATRINE IN A LARGE AND A SMALL VILLAGE

Purpose of Latrine Use	Kheri (%) n=58	Raipur Rani (%) n=61
Latrine	19 (32.7)	49 (80.3)
Urination only	7 (12.1)	1 (1.6)
Store	8 (13.8)	5 (8.2)
Vacant	12 (20.7)	2 (3.3)
Bathroom	8 (13.8)	3 (4.9)
Not applicable	4 (6.9)	1 (1.6)

X²-21.36; df. - 2, p < 0.001

Promotion of sanitary latrines in rural areas had been tried earlier in India by the government. But such experiments largely failed and the superstructure was often used for other purposes viz. storing fuel wood and cowdung cakes². In our study also these practices were reported more often in smaller village as compared to the larger village. Many families in the smaller village had left the structure as vacant and unused. This indicates that the observation made in the above mentioned conferences held 40 years back, is valid that differential approach should be tried for villages of different sizes. The scheme should better be launched first in large roadside villages e.g. the block headquarters. Smaller villages where the acceptance of the latrines is likely to be lesser or delayed should be taken up later when the larger villages of the area are covered.

In many families, it was the women who shouldered the responsibility of cleaning the latrine (29; 50% Kheri and 21; 34% Raipur Rani). Participation of men in this activity was reported in 17 (28%) families in Raipur Rani as compared to only one family in Kheri. Sweepers were employed in 15 (25%) families in Raipur Rani and 3 (5%) in Kheri. Rest were not using the latrine. Majority used broom (26; 45% Kheri and 45; 74% Raipur Rani) and water (35; 60% Kheri and 49; 80% Raipur Rani) for cleaning the latrine. Use of phenyl/detergents was reported more in Raipur Rani (27; 44%) as compared to 5 (9%) in Kheri.

In Raipur Rani, use rate was 74 per cent in scheduled caste (SC) families (14/19), 69 per cent in backward caste (BC) families (11/16) and 92 per cent in high caste (23/25). The only minority family was using the latrine, in Kheri, the use rate was 7 per cent in SC (1/14) 17 per cent in BC (2/12), 50 per cent in high caste (12/24) and 50 per cent (4/8) in minority (Table 2).

TABLE 2
CASTE WISE LATRINE USE RATE IN A LARGE AND A SMALL VILLAGE

Caste	Kheri (N = 58)		Raipur Rani (N = 61)	
	Users (n = 19)	Non-users (n = 39)	Users (n = 49)	Non-users (n = 12)
Scheduled	1	13	14	5
Backward	2	10	11	5
High	12	12	23	2
Minority	4	4	1	-

$\chi^2 = 3.91$; d.f. = 1, $p < 0.05$ (Raipur Rani)

$\chi^2 = 10.17$, d.f. = 1, $p < 0.01$ (Kheri)

literacywise the use rate was 13 per cent in illiterates and 17-30 per cent in literate people ($p > 0.05$) in Kheri. In Raipur Rani, the use rate was 63 per cent among people educated upto middle standard while it was 78 per cent among people educated upto high school or above ($\chi^2 = 9.80$, d.f. 1, $p < 0.01$).

Castewise use pattern and latrines needs to be studied further. Education and socio-economic status of high caste vs. low caste families might have played a part in it. In the smaller village, latrine use rate was similar among individuals with different educational level. On the other hand in the larger village use rate was higher among people with education level of high school and above. This indicates that literacy facilitates acceptance of latrines. However, this explanation appears to operate in large village setting only. In smaller villages, even the literate people could not go against the family or societal norm of open field defecation.

Table 3 shows that in Kheri, the use rate was 49 per cent (16/33) among families where the water source was within the house while it was 12 per cent (3/25) in families where the water source was outside ($p < 0.05$, d.f. = 1, $\chi^2 = 6.7$). In Raipur Rani, the use rate was 93 per cent (13/14) in families where the water

source was in the house and 77 per cent (36/47) where the water source was outside ($p > 0.05$).

TABLE 3
AVAILABILITY OF WATER SOURCE WITHIN THE HOUSE AND LATRINE UTILIZATION

Availability of water source in the house	Kheri*		Raipur Rani	
	User	Non-user	User	Non-user
Yes	16	17	13	1
No	3	22	36	11
Total	19	39	49	12

* χ^2 6.7, d.f. - 1, $p < 0.06$ (for Kheri); $p > 0.05$ (for Raipur Rani)

In both types of villages, presence of water supply in the house appeared to facilitate the latrine use. It is natural also because the pour flush design of the latrine requires sufficient amount of water. With the present situation of water scarcity all over India, particularly in villages, people do not allocate water from their stock for flushing the latrine. Instead, they prefer to use the other alternative available source which does not tax the water stored in the house i.e. open field defecation. Thus, latrine construction in villages should not be seen in isolation. The issue of water supply should also be considered.

In Kheri, among the 25 families in poor or lower middle class use rate was 16 per cent (4/25) while in 33 higher class families use rate was 46 per cent ($\chi^2 = 5.69$, d.f. = 1, $p < 0.05$). In Raipur Rani, among lower middle or middle class families use rate was 78 per cent (40/51) while it was 90 per cent (9/10) in higher class families (Table 4).

Thus, latrines use rate was significantly better in families from higher social status in the small village setting. In large village there was no such difference in the latrine use rate in different social classes. It indicates that in the smaller village affluent families could go against the societal norm of open field defecation. In larger village, however, even poor strata families were using the latrines indicating thereby that the society on the whole has overcome the initial barrier of inhibitions against latrine use.

TABLE 4
SOCIAL STATUS OF THE FAMILY AND LATRINE UTILIZATION

Social Status	Kheri*		Raipur Rani	
	User	Non-user	User	Non-user
Lower and lower middle class	41	21	4	2
Middle, upper middle and high	5	18	45	10
Total	19	39	49	12

* χ^2 5.69, d.f. = 1, $p < 0.05$ (for Kheri); for Raipur Rani $p > 0.05$

In Kheri, among families where the latrine was constructed in the courtyard use rate was 43 per cent (17/40), whereas in families with latrine outside the house it was 12 per cent (2/15) (χ^2 5.09, d.f. = 1, $p < 0.05$). In Raipur Rani, the use rate was 83 per cent (39/47) for - in house latrines and 71 per cent (10/14) for latrines built outside the house (Table 5).

TABLE 5
LOCATION OF LATRINE AND ITS UTILIZATION

Location of Latrine	Kheri		Raipur Rani	
	User	Non-user	User	Non-user
Within the house	17	23	39	8
Outside	2	15	10	4
Total	19	38	49	12

$p > 0.05$ in Raipur Rani, for Kheri $\chi^2 = 5.09$, d.f. = 1, $p < 0.05$

(in one family in Kheri water source details were not mentioned)

Agewise, in Kheri, the latrines were not used for infants. For other age groups use rate was 15-23 per cent ($p > 0.05$). In Raipur Rani, the latrines were used for infants also. Use rate was the highest in 1-4 years age group (82%), 68 per cent in 15-34 years and 46 per cent among people aged upto 55 years or above ($\chi^2 = 20.26$, d.f. = 5, $p < 0.05$).

Agewise and sexwise, there was no difference in the latrine use rate for individuals in the smaller village setting. On the other hand, in the larger village use rate of latrines was significantly more in younger age group as compared to older people indicating thereby that the younger generation accepted the latrines more enthusiastically and the old generation people stuck to the age old habit of open field defecation.

Sexwise the use rate was better for females in the larger village. In males the highest use rate was in 1-4 years age group whereas in females it was so in 15-34 years. Thus, it appears that for young females it was accepted that they use indoor latrines. In fact, many respondents' remarked that even in villages it was not safe for girls and women to go out

Overall, among 61 selected families in Raipur Rani where latrine was installed in 29 (48%) all the members were using the latrine regularly while among 58 such families in Kheri only in 4 (7%) all the members were regular users ($p < 0.01$).

In Kheri, among males the overall use rate was 16 per cent (range 11-17%) whereas in females it was 22 (range 18-29%). In Raipur Rani, the overall use rate in males was 61 per cent (range 44-86%) and 73 per cent in females (range 43-86%). Among males the highest use rate was in 1-4 years age group while in females it was so in 15-34 years.

Many families in Raipur Rani (21; 35%) had built the latrines even before the current scheme while in Kheri only 4 (7%) had done so ($X^2 = 13.58$, d.f. = 1, $p < 0.001$).

Thus, our study results indicate that the sanitary latrine programme has not been entirely a failure this time. Reasonable acceptance has been witnessed, particularly in larger villages.

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ढरियाणा के एक ग्रामीण क्षेत्र में सुलभ शौचालयों की उपयोगिता का आंकलन करने के लिए घर-घर जाकर एक अध्ययन किया गया था। एक छोटे गांव के सभी 126 घरों और एक बड़े गांव के 114 घरों में यह सर्वेक्षण किया गया था। एक पूर्व-परीक्षित अनुसूची के आधार पर शौचालय की उपयोगिता दर तथा उपयोगिता शैली के बारे में सूचनाएं एकत्र की गई थी। छोटे गांव की तुलना में बड़े गांव में शौचालयों की उपयोगिता अपेक्षाकृत अधिक पाई गई थी। उच्च जाति के परिवारों की तुलना में निम्न जाति के परिवारों में शौचालयों की उपयोगिता दर दोनों प्रकार के गांवों में निम्न पाई थी। छोटे गांव में शिक्षितों अशिक्षितों में शौचालयों की उपयोगिता दर समान पाई गई थी, जबकि बड़े गांव में मिडिल या इससे कम शिक्षा प्राप्त परिवारों में शौचालयों की उपयोगिता दर (63%), हाईस्कूल या इससे कम शिक्षा प्राप्त व्यक्तियों की तुलना में अधिक (78%) पाई गई थी। विशेषकर बड़े गांवों में शौचालय निर्माण कार्यक्रम पर्याप्त रूप से सफल पाया गया था।

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A STUDY OF BLOOD BANK SERVICES IN A DISTRICT HOSPITAL OF HARYANA

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ABSTRACT

This paper presents blood bank services in a district hospital in Haryana. The study revealed that blood bank services were functioning under the overall control of the Chief Medical Officer (C.M.O.) of the district. Although the staff members actually available were well qualified and experienced, there was a general shortage of staff under various categories. There were problems in regard to accommodation as well as certain important equipment. The services rendered by the blood bank include blood collection; storage; blood grouping; testing for Malaria, Syphilis, Hepatitis - B and HIV infections; and issuing the collected blood after cross matching. It was processing only the whole human blood as there was no facility for preparation of blood components at the blood bank. While the collection of blood from voluntary donors had increased to 27 per cent of total requirement during 1994 from 10 per cent in 1992, the requirement of blood for patients admitted in the district hospital was met mainly by the replacement donors. The mean turn-around time, which was found to be one and half hours in urgent requirements of blood, was on a higher side. To overcome the shortcomings in the existing system, the authors have suggested a number of measures such as filling up of the vacant posts of the staff; establishment of a separate cadre of blood bank personnel; providing adequate training to the personnel; and necessary accommodation, ancillary facilities, equipment and other items, streamlining the existing system of purchase and supply; increasing the voluntary blood collection; strictly enforcing quality control measures and recognition of Transfusion Medicine as a separate speciality of medical science.

The demand for blood on the blood banks is increasing at a fast pace all over the world, on one hand due to advancements in medical science, while on the other hand, technological advancements and rapid urbanisation have increased the number and variety of accidents with consequent rise in the requirement of blood to save human lives.

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Blood transfusion is a direct source for transmission of diseases like Hepatitis-B, Malaria, Syphilis and H.I.V. infections/AIDS¹². This risk necessitates the maintenance of the strictest standards and rigorous quality control by the blood banks. Standards for blood bank services in India have been laid down by an expert committee appointed by the D.G.H.S (Govt of India) in 1987³. The legal framework has been provided by the Rules under the Drugs and Cosmetics Act (1940), amended from time to time⁴. As per the information given by N.A.C.O., only 57 per cent of blood banks in the government sector are licensed⁵.

The process of handling of blood in terms of procurement processing, preservation and its distribution requires a certain level of managerial skills to meet the requirement efficiently and effectively. The development of blood banking and transfusion services is a difficult task which succeeds only when there is a well defined organisational structure and clear understanding of the responsibilities assigned to everyone working in this service.

The blood bank is now regarded as an integral and vital supportive service within a hospital. Review of literature related to blood bank services revealed that a very few studies on the subject have been done in a district hospital in our country as yet. Since the district hospital is an important secondary level care institution where many specialities are functioning and has the demand for blood and its products, therefore, the present study was undertaken.

The objective of the present study was to study the infrastructure and functioning of blood bank services in a district hospital in order to streamline and strengthen these services in the rural health care delivery system of our country.

METHODOLOGY

The study was descriptive in nature and conducted at the blood bank of the district hospital, Faridabad in Haryana State. It mainly focused on the C.M.O of the district, Senior Medical Officer (blood bank), three laboratory technicians, fifteen treating doctors of various specialities in the hospital, sixty blood donors and twenty events each of blood collection, storage and its testing. The study sample was selected using a simple random sampling technique. Data were collected through study of records, interviews and observations. While studying the records, observations were also made using different checklists and in addition to conducting interviews using semi-structured interview schedule. The tools were constructed by reviewing the relevant literature as well as in consultations with experienced blood bank officers. Data were collected between June and August, 1995. The blood bank records were also studied for three years from January 1, 1992 to December 31, 1994.

The tools prepared for the study were pre-tested and suitable corrections were made.

RESULTS

The blood bank of the district hospital, Faridabad, was providing blood banking services to all the hospitals (in government and private sectors), nursing homes, government health centres and private clinics in the district and was also providing HIV antibody testing facilities to all the blood banks in Gurgaon and Rewari districts of Haryana State. It had, therefore, sufficient workload in and around Faridabad district

The blood bank services were functioning as an independent unit under the overall supervision of the CMO of the district and under immediate control of the Senior Medical Officer of the blood bank. Although the staff members actually available were well qualified, experienced and suitably trained, there was a general shortage of staff under various categories. The posts of blood donor organiser/ social worker and laboratory assistants were not even sanctioned (Table 1). The personnel posted in the blood bank were drawn from any department of the district hospital or any other hospital or health centre under the State Government as there was no separate cadre for them in the blood bank services.

The blood bank occupied an area more than 100 sq. metres and also had most of the rooms required for the functioning of a blood bank. Most of the furniture and general items, laboratory equipment and standard laboratory were available, as prescribed. Some of the facilities not available were a separate donor recruitment room, uninterrupted supply of electricity and water, air conditioners, alarm device in refrigerators, telephone link, refreshment facility for blood donors and facilities for preparation of blood components (Table 2). There was no separate vehicle for exclusive use by the blood bank services, but an ambulance under the control of the hospital administration was shared by the blood bank with the rest of the hospital.

The normal working hours of the blood bank were from 8.30 a.m. to 2.30 p.m. on all the week days. Beyond these hours on week days and on Sundays and holidays, it was functioning only for emergency purposes.

The total annual budget sanctioned for the blood bank services for the financial year 1995-96 was approximately rupees four lakhs and was separate from the total budget sanctioned for the district hospital, Faridabad.

The purchase of equipment and items of general use for the blood bank was always done at the level of the Directorate General of Health Services

(D.G.H.S), Govt of Haryana, Chandigarh. This was very time consuming due to bureaucratic delays. However, purchase of laboratory reagents, chemicals and consumable like blood collection bags, disposable syringes, etc. was done at the level of the district C.M.O. The HIV test kits were directly supplied by the National AIDS Control Organisation, Government of India. The supply system at the level of the district CMO and the direct supply from NACO was without delays.

TABLE 1

STAFF STRENGTH AT THE BLOOD BANK, DISTRICT HOSPITAL, FARIDABAD

Sl.No.	Category	No. of posts sanctioned	No. actually posted and working
1	Blood Bank Officer/ Senior M.O.	1	1
2	M.O.	1	ML
3	Nurse	1	Nil
4	Blood donor organiser/ Soda! worker	Nil.	Nil.
5	TechAsstt/Senlor Lab. Tech.	3	Nil
6	Lab. Tech.	4	3
7	Lab. Asstt.	Nil	Nil
8	Lab. Attendant	4	Nil
9	Clerk Cum Storekeeper	1	MI
10	Attendant/Bearer	1	1
11	Sweeper	1 (full time)	1 (part time)

The study of the records of the blood bank done for the period from January 1, 1992 to December 31, 1994 revealed that the requirement of blood was mainly met from replacement donors (relatives or friends of the patients) and the balance of requirement was met from voluntary donors and borrowings from Red Cross Blood Bank at Delhi. No professional (paid) donor was accepted as per the State Government policy (Table 3). A total number of 1002, 1519 and 1354 blood units were collected by the blood bank during 1992, 1993 and 1994 respectively. Three outdoor collection camps were organised in 1992 and nine each in 1993 and 1994. The number of units of blood tested for the above

TABLE 2
INFRASTRUCTURE FACILITIES AT THE BLOOD BANK, DISTRICT HOSPITAL, FARIDABAD

S.No	Item	Norms given by the Rules'	Actually present
1.	Accommodation		
1.1	Total area	More than 100 sq.m.	More than 100 sq.m.
1.2	Rooms for blood collection, laboratory, doctor's office	Separate	Separate
1.3	Donor recruitment room	Separate	Nil
1.4	Lighting and ventilation	Proper	Proper
1.5	Supply of electricity and water	Un -interrupted	Interrupted
1.6	Power generating set	Not mentioned	3.5 KV set
1.7	Airconditioning of blood collection room and laboratory	Yea	No
2.	General Items		
2.1	Items necessary for blood collection i.e. weighing machine, B.P. Instruments, stethoscope, donor beds etc.	Sufficient no.	Sufficient no.
2.2	Refrigerator for blood collection room (with alarm device)	One	One present (without alarm device)
2.3	Oxygen cylinder with mask, gauze etc.	Present	Present
2.4	Tray containing sufficient emergency drugs	Present	Present
3.	Refreshment services for blood donors	Present	Nil
4.	Laboratory facilities		
4.1	Refrigerator (with alarm device)	No. as per requirement	Two present (without alarm device)
4.2	Autoclave	No. not mentioned	Shared with hospital
4.3	Equipment for testing the blood	Sufficient no. as per requirement	Sufficient no.
4.4	Lab. reagents (including HIV Hb. testing kits)	All standard reagents for blood bank	Present
4.5	Records of various activities	Present	Present
5.	Direct telephone link	Not mentioned	Nil
6.	Computer services	Not mentioned	Nil
7.	Scientific books/literature related to blood banking	Not mentioned	Present

*Rules framed under the Drugs and Cosmetics Act (1040)

infections were 562,1278 and 1113 during the three years respectively. The blood units borrowed from Red Cross Blood Bank at Delhi were not tested at the study blood bank for these infections since those had already been tested. The number of blood units issued by the blood bank to all its beneficiaries were 947, 1426 and 1335 during the three years respectively.

TABLE 3
NO. OF UNITS OF BLOOD COLLECTED FROM VARIOUS SOURCES FROM 1992 TO 1994

Year-> Source	No. <u>1992</u> (%)	No. <u>1993</u> (%)	No. <u>1994</u> (%)
Replacement donors	461 (46)	861 (56.6)	748 (55.2)
Voluntary donors	101 (10)	417 (27.4)	365 (27)
Borrowed from IRCS Blood Bank, New Delhi	440 (44)	241 (15.8)	241 (17.7)
Total No. of blood units	1002	1519	1354

In the study sample of sixty blood donors, it was found that there were 67 per cent replacement donors, 33 per cent voluntary donors and there was no professional donor. While the detailed medical history was taken from each of the donors in the study group, complete physical examination of each donor was not done and hemoglobin estimation of each donor was also not done before every blood donation.

The mean pre-donation waiting time per donor was found to be 25.5 minutes. Sterile, disposable blood collection bags were used and proper aseptic measures were taken before venipuncture in each of the twenty collection procedures studied. Refreshments after donation were provided to the donors only at the voluntary blood donation camp and not at the blood bank.

The temperature inside the refrigerator used for storage of blood was more than 6°C on 20 per cent of the different occasions when it was observed.

ABO grouping and Rh typing was done in all the twenty blood samples studied. The mandatory tests prescribed for detecting Malaria, Syphilis, Hepatitis-B and HIV infections/AIDS were being done on each of the blood samples studied. Samples of blood were not sent to any reference laboratory outside the blood bank

for external quality assessment

While the personal protection measures like wearing of gloves, mask and apron were being taken by the staff working in the blood bank laboratory, proper measures for waste disposal from the blood bank were not universally being taken by the personnel at the blood bank studied.

The collected blood, which had undergone all the mandatory tests and had not expired, was issued only after proper grouping and cross-matching with the recipients blood had been done.

The mean turn around time, which is a good measure of assessment of the quality of services rendered by a blood bank, was found to be twenty two hours in routine requisitions and ninety minutes (one and half hours) in urgent requisitions for blood.

Regular medical audit of the blood bank services studied was not being done. Although its license had expired on December 31, 1993, it had not been renewed till August 1995 and the blood bank was continuing its normal operations without a proper, valid license.

DISCUSSION

From the study findings, it was apparent that the blood bank services at the district hospital, Faridabad, were functioning as a separate unit under the overall control of the CMO of the district and under immediate control of a Senior Medical Officer. In the descriptive study of blood bank services in Delhi, Qadiri (1978)⁶ had found that nine out of thirteen blood banks studied were working as independent units within their hospitals, under the immediate control of blood transfusion officers.

Though the blood bank under study did fulfil some of the requirements for accommodation, general items, laboratory equipment and reagents as prescribed under the Rules of the Drugs and Cosmetics Act (1940)⁴ it did not have some of the important infrastructure facilities like a separate donor recruitment room, air conditioners, alarm device in refrigerators, provision of refreshment for donors, etc. Makroo and Kumar (1993)⁷ had also found that although 24 out of 26 blood banks in Delhi were licensed, some of them did not fulfil the criteria as per the Drugs and Cosmetics Act (1940).

As regards staff strength in the blood bank under study, it was apparent that there was deficiency of staff under various categories when compared by the number of posts sanctioned by the State Government This was similar to the

finding of Makroo and Kumar (1993)⁷ in which they found that 23 out of 26 blood banks in Delhi did not have adequate number of technical personnel. Also, there was no separate cadre of medical and paramedical staff for the blood bank at the district hospital. Moreover, the post of blood donor organiser/social worker for the blood bank was not even sanctioned by the State Government although the post was prescribed way back in 1968 by the Working Group on hospitals⁸.

Due to lack of testing of the collected blood for transfusion transmitted diseases beyond the normal working hours, freshly collected blood was not available for the use during evening and night shifts and on Sundays/holidays. This was an important aspect requiring immediate attention of the management, since the hospital served the needs of patients of this important industrial district located along the national highway having high traffic density.

The fact that the budget for the blood bank services studied was separate from the district hospital budget was a good trend and should be maintained. The guidelines of the W.H.O. regarding budget for these services also state that it should be separate and between 0.5 to .5 per cent of the total budget of the hospital⁹.

The supply of equipment and items of general use, which was done by the DGHS (Government of Haryana), was very time consuming due to bureaucratic delays and was affecting the functioning of the blood bank services at the district hospital.

The license of the blood bank had not been renewed for almost two years as a result of deficiency of some of the staff and other facilities which have been prescribed under the Rules of the Drugs and Cosmetics Act (1940)⁴. An analysis of the current status of licensing of blood banks in our country in 1994 shows that 43 per cent of the blood banks in the government sector were un-licensed⁵. This requires strengthening and modernisation.

The requirement of blood for the patients admitted in the district hospital, Faridabad, was met mainly by replacement donors. While the collection from voluntary donors had increased from 10 per cent in 1992 to 27 per cent during 1993 and 1994, no professional donor was accepted. This was in contrast to the findings by Qadiri (1978) in which he had found that 61.9 per cent of the total blood collection in Delhi was from paid donors. The findings of Makroo and Kumar (1993)⁷ showed that 43 per cent of blood required in Delhi in 1991 was collected from replacement donors, 39.4 per cent from paid donors and only 17.5 per cent from voluntary donors/Red Cross blood bank.

The mean turnaround time, which was found to be one and half hours in

urgent requirements of blood, was on a higher side than it should be in case of an emergency. Since urgent requisitions for blood are done in life threatening situations, blood should be made available in the shortest possible time.

SUGGESTIONS

Remedial measures suggested removing the constraints and bottlenecks identified in the existing system at the blood bank are as follows:

Improving the Organisational Pattern and Infrastructure Facilities

- i. Filling up of the vacant posts of the staff.
- ii. Establishment of a separate cadre of blood bank personnel.
- iii. Providing adequate training to the blood bank personnel.
- iv. Providing necessary accommodation, ancillary facilities, equipment and other items to the blood bank.
- v. Streamlining the existing system of purchase and supply at the level of the DGHS (Govt of Haryana) and making it time bound and result-oriented.

Increasing the Voluntary Blood Collection

This can be done by managing a vigorous and effective blood donor recruitment programme through I.E.C. campaign and opening of static and mobile blood collection counters.

Strictly Enforcing Quality Control Measures

This can be done by taking legal measures by suitably amending the Drugs and Cosmetics Act (1940) for enforcing quality control for the procedures of donor selection, blood collection, storage, testing and distribution of blood.

Recognition of Transfusion Medicine as a Separate Speciality of Medical Science

This shall go a long way in improving the functioning of blood bank services. It is required due to the following reasons :

- i. Increasing demand for blood and its products on the blood bank services.

- ii. Lack of sufficiently qualified and trained blood bank personnel (both medical and paramedical) in adequate numbers.
- iii. Lack of recognition and appreciation by other medical professionals and the health/hospital administrators for the quantity and quality of work being done by the blood bank personnel.
- iv. Increasing risk of transfusion transmitted diseases including HIV Infections/AJDS necessitating the use of 'safe' blood.
- v. Transfusion of medicine has already been recognized as a separate speciality in most of the developed countries of the world in the last 30-40 years.

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प्रस्तुत लेख में हरियाणा के एक जिला अस्पताल की ब्लड बैंक सेवाओं पर प्रकाश डाला गया है। अध्ययन से पता चलता है कि ब्लड बैंक की सेवायें जिला मुख्य चिकित्सा अधिकारी के नियन्त्रण में चलाई जा रही थी। यद्यपि, उपलब्ध स्टाफ सुशिक्षित एवं अनुभवी था, किन्तु विभिन्न श्रेणियों के स्टाफ की आमतौर पर कमी पाई गई थी। स्टाफ के लिए आवासीय सुविधाओं के साथ-साथ कुछ जरूरी उपकरणों के बारे में समस्याएं भी पाई गई थी। ब्लड बैंक द्वारा दी जा रही सेवाओं में: रक्त एकत्र करना, भण्डारण, रक्त की ग्रुपिंग, मलेरिया, सिफलिस, हेपाटाइटिस-बी और एच आई वी संक्रमण संबंधी रक्त परीक्षण और रक्त का मिलान करके रक्त जारी करना आदि सेवायें शामिल हैं। यहां केवल मानवीय रक्त ही संसाधित किया जाता था तथा ब्लड बैंक में रक्त के अन्य घटकों को तैयार करने की सुविधा नहीं थी। रक्त की कुल मात्रा की आवश्यकता की दृष्टि से यद्यपि स्वैच्छिक रक्त प्रदाताओं से एकत्र किए जाने वाले रक्त की मात्रा की आवश्यकता की दृष्टि से यद्यपि स्वैच्छिक रक्त प्रदाताओं से एकत्र किए जाने वाले रक्त की मात्रा में 1992 की 10 % प्रतिशत की मात्रा से 27 % की बढ़ोतरी हुई थी किन्तु जिला अस्पताल में भर्ती रोगियों को आवश्यक संबंधी मध्यक समयावधि डेढ़ घण्टा पाई गई थी, जो अपेक्षाकृत बहुत अधिक थी। वर्तमान प्रणाली की कमियां को दूर करने के लिए लेखक द्वारा कई एक सुझाव प्रस्तुत किए गये हैं। जिनमें रिक्त पदों को भरा जाना, ब्लड बैंक कार्मिकों के लिए एक अलग काडर बनाया जाना, कार्मिकों को पर्याप्त प्रशिक्षण देना और आवश्यक आवासीय सुविधा की व्यवस्था करना,

सहायक सुविधाएं, उपकरण और अन्य साज सामान उपलब्ध कराना, क्रय और आपूर्ति संबंधी वर्तमान प्रणाली को सुप्रवाही बनाना, स्वैच्छिक रक्त प्रदाताओं की संख्या में वृद्धि करना, गुणवत्ता नियन्त्रण उपायों को कड़ाई से लागू करना और ब्लड ट्रॉसफ्यूजन को चिकित्सा विज्ञान की एक अलग विशेषता के रूप में मान्यता देना आदि।

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JOB SATISFACTION OF STAFF NURSES WORKING IN A LARGE METROPOLITAN HOSPITAL

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ABSTRACT

Job satisfaction is a multi-dimensional construct influenced primarily by work characteristics, workers attributes and group relationships. Among other factors efficiency of nursing service largely depends upon job satisfaction that a nurse derives from her work. The specific factors contributing to job satisfaction was studied among 75 staff nurses working in a large Delhi hospital using Muthayya 's Job Satisfaction Scale. The job satisfaction was expressed in terms of percentage of nurses who scored above mean value. 53 per cent of nurses in general ward and 48 per cent of nurses in specialty wards had their score value exceeding mean value, indicating a higher degree of dissatisfaction. A frequency distribution of select variables showed that the contributing factors were lack of technical information (53%), lack of facilities in work place (93%), lack of promotional avenues (76%) and low emoluments (71%). A low chi-square test showed no statistical significance in the levels of job satisfaction between general ward and specialty ward nurses.

Job satisfaction is a positive emotional state resulting from the appraisal of one's job or job related experiences. It is a multi-dimensional construct⁵ an attitude which is the result of many specific attitudes, influenced by three primary factors related to a person's work environment⁰, namely, work characteristics (specific job factors) both actual and perceived features of the job and its rewards; worker attributes (individual characteristics) includes demographic characters, emotional well being and personality characteristics; group relationships, social interactions, family life, and general life satisfaction, etc. Like any other organisational sector, a general feeling of satisfaction from work is a logical of job expectation of a nurse too. Among other factors the efficiency of nursing service largely depends on job satisfaction that a nurse derives from her work³. Hence, it is important to study specific factors contributing to their job satisfaction. Moreover if health care administrators are to provide effective health care, they must avoid

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consequences of nurses job dissatisfaction which results in high levels of job turnover, absenteeism, poor quality of nursing services, ultimately affecting quality of patient care. The objective of this study was to assess the levels of job satisfaction among staff nurses and their attitude towards their current job.

MATERIALS AND METHOD

The study was conducted in a large hospital (bed strength = 1500). The indoor units of the hospital were stratified into general and specialty wards and a random sample of four general wards and four specialty wards were taken up for the study. All the staff nurses working in these eight units were included in the study. The sample included 35 nurses from general wards and 41 nurses from specialty wards. All the nurses were administered job satisfaction scale. Except for one, all 75 nurses returned the instrument

The instrument used for measuring job satisfaction in this study had 34 items. Job satisfaction scale originally developed and validated by Dr B.C. Muthayya⁷. Except for two items, all other items were found to be satisfactory to be applied to nurses working in a hospital environment. Each item is scored on a four point scale, depending on the subjects agreement/disagreement on a particular item. A higher value of score indicated a higher level of dissatisfaction (Max. score 48).

A frequency distribution of select variables from Dr B.C. Muthayya's Job Satisfaction Scale was obtained. The mean job satisfaction score, its standard deviation, were derived and expressed in terms of percentage of nurses whose score was above mean, mean + 1 SD and mean score + 2 SD. A chi-square test was applied for assessing statistical significance between scores obtained by general ward and specialty ward nurses.

RESULTS

Characteristics of Subjects

All the staff nurses were females, 71 per cent of them married, 99 per cent had GNM (General Nurse Midwifery) as their professional qualification. Their mean age was 29.9 years (SD 5.5) and mean years of experience was 4.8 years (SD 3.6). The differentials in age, marital status and years of experience for the general and specialty wards is given in Table 1.

Attitude Towards Current Job

A frequency distribution of select variables from Dr B.C. Muthayya's Job

Satisfaction Scale was obtained. These variables relate to attitude towards various aspects of job, such as preference for the job, work role, work environment interaction with supervisors and monetary aspects (Table 2).

TABLE 1
GENERAL PROFILE OF NURSES WORKING IN GENERAL WARD AND SPECIALTY WARD

General Profile	Nurses Posted in		Total
	General Ward n=34	Specialty Ward n=41	n=75
Age			
Mean	28.6	31.8	29.9
SD	4.6	6.0	5.5
Marital Status (Marital in %)	63.0	78.0	71.0
Years of Experience			
Mean	4.4	5.2	4.8
SD	3.6	3.5	3.6

Forty six per cent of nurses felt that there is enough opportunity for independent thought and action whereas 48 per cent disagreed with this count Seventy one per cent felt that they have a clear idea about the expectation of their superior officers regarding their work performance; 81 per cent agreed to the fact that they are free to talk to their supervisors whenever there is a problem pertaining to their job. However, 76 per cent were not satisfied with promotional avenues in their current job.

Fifty three per cent of nurses found themselves at a disadvantage position due to lack of required technical information, whereas 41 per cent of nurses felt they are not. An overwhelming 93 per cent of nurses felt that more facilities should be provided to work more effectively. Whereas 33 per cent agreed to the fact that there is too little authority to carry out assigned job responsibilities while 55 per cent disagreed with this statement. A majority of 71 per cent of nurses felt that the pay for the type of job they are doing is less. However, only 11 per cent felt that they should change their present job.

TABLE 2
ATTITUDE TOWARDS CURRENT JOB

Selected variables from Job Satisfaction Scale	Responses of Nurses In per cent			
	I Agree	II Disagree	III Not sure	IV Not appl
1. Satisfied with opportunities of promotion	23	76	-	1
2. Feeling that job has enough opportunity for independent thought and action	46	48	6	-
3. Feeling that you have a dear idea of expectation of your superior officer regarding your work performance	71	09	20	-
4. The fact that you are free to talk to someone superior whenever you have some problem	81	17	-	2
5. Feeling that you have a good chance to get ahead in the and become fairly well off	72	17	11	-
6. Finding yourself at a disadvantage due to lack of technical information to carry out your duties	53	41	04	2
7. Feeling that more facilities should be provided for working effectively	93	07	-	-
8. The fact that you have too little authority to carry out responsibilities assigned to you	33	55	12	-
9. Feeling that pay for the type of job you do is lower compared with the pay for similar jobs in other departments	71	22	04	3
10 Feeling that you should change your present job.	11	72	17	-

Job Satisfaction

Fifty three per cent of nurses in general ward and 49 per cent of nurses in specialty ward had their score value above mean. Nine per cent of nurses in general ward and 20 per cent of nurses in specialty had a score above mean + 1 SD indicating a higher degree of dissatisfaction (Table 1 and 3).

TABLE 3
PERCENTAGE OF NURSES IN GENERAL WARD AND SPECIALTY WARD
WHO SCORED MORE THAN MEAN VALUE

Score	General Ward n=34 %(*)	Specialty Ward n=41	Total n=75
More than mean	44.0 (15)	29.0 (12)	35
More than mean + One Std Deviation	6.0 (2)	20.0 (8)	13
More than mean + Two Std Deviation	3.0	0	03

* Values within brackets indicates absolute numbers Chi-square
test value = 2.6418 ; p > 0.05

DISCUSSIONS

The results of the study indicate that 53 per cent of nurses in general ward and 49 per cent of nurses in specialty ward had the job satisfaction score value above mean indicating a higher degree of dissatisfaction with the current job. However, the nurses in specialty ward experienced a higher degree of dissatisfaction as 20 per cent of them had score above mean + one standard deviation (compared to 9 per cent among general ward nurses). However, there was no statistical difference in the job satisfaction scores obtained by both category of nurses. The contributing factor as expressed by nurses were lack of technical information (53 per cent), lack of facilities at work place (93 per cent), lack of promotional avenues (76 per cent) and low emoluments (71 per cent). However, majority of 72 per cent nurses felt the need to continue with the present job.

There is a limited literature documenting job satisfaction of staff nurses working in Indian hospital. Rama Roy* (1971) conducted a survey to study the level of job satisfaction in 4 government hospitals of Calcutta by administering Wood's Job Satisfaction Scale on 167 staff nurses. The study found that majority of nurses were satisfied with their jobs. The nurses were found to be dissatisfied with supervisory practices, work environment and promotional avenues. Among studies done abroad, Weissman *et al.*⁸ (1981) in a study designed to investigate organizational determinants of job turnover, found that nurses viewed autonomy as the most important determinant of job satisfaction. Currani *et al.*¹ (1985) used a 22 item questionnaire based on Friederick Herzberg's theory to study the differences in the level of job satisfaction among nurses working in home health care and those working in hospitals. The study found that neither of them

experienced job satisfaction regardless of the work setting.

Larsens et al.⁴ (1981) in his study found that Job satisfaction is significantly effected by respondents job expectation and various components of work situation. Geinzberg² (1981) concluded that nurses job satisfaction would be best improved by their participation in clinical decision making and development of a career structure to reward experience and competency.

IMPLICATIONS

Efficiency in nursing services among other factors depends on job satisfaction of nurses. The study Identified that a near majority of nurses have a higher degree of dissatisfaction with their current job. The information so obtained can assist administrators in identifying those components that would enhance job satisfaction. Their focus should be on more attractive working conditions, better pay scales, better promotional avenues and In service/on the job training for updating technical knowledge and skills. These measures will go a long way in enhancing job satisfaction and better quality of patient care.

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कार्य-संतुष्टि एक बहु-आयामी रचना है जो मूलतः कार्य के स्वरूप, कार्यकर्ताओं के गुणों और पारस्परिक संबंधों से प्रभावित होती है। अन्य बातों के साथ-साथ नर्सिंग सेवाओं की कार्यक्षमता मुख्यतया व्यावसायिक संतुष्टि पर निर्भर करती है, जो नर्सों को अपने कार्य से प्राप्त होती है। मुथैया के कार्य-संतुष्टि स्केल की सहायता से दिल्ली के एक बड़े अस्पताल में कार्यरत 75 स्टाफ नर्सों की व्यावसायिक-संतुष्टि को, मध्यम मूल्य से अधिक स्कोर प्राप्त करने वाली नर्सों की प्रतिशतता के रूप में व्यक्त किया गया है। जनरल वार्डों में 53 % नर्सों और विशेष वार्डों में 48 % नर्सों द्वारा मध्यक-मूल्य से अधिक स्कोर प्राप्त किया गया था, जिससे असंतोष के उच्च स्तर का संकेत मिलता है। चयनित चरों के वारंवारता वितरण से पता चलता है कि तकनीकी सूचना का अभाव 53 % , कार्य-स्थल पर सुविधाओं का अभाव 93 % पदोन्नति के अवसरों का अभाव 76 % और कम परिलब्धियां 71 % , उनकी व्यवसायिक-संतुष्टि में योगदान देने वाले कुछ प्रमुख घटक थे। एक अल्प-कार्य-स्क्वायर परीक्षण से पता चलता है कि जनरल वार्डों और विशेष वार्डों की नर्सों के व्यावसायिक संतुष्टि स्तर में कोई अधिक संख्यात्मक अन्तर नहीं था।

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**MATERIALS MANAGEMENT SYSTEM IN CENTRAL
DRUG STORES UNDER NEW DELHI
MUNICIPAL COMMITTEE**

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ABSTRACT

This paper presents materials management system followed in central drug stores under New Delhi Municipal Committee. The inventory control of drugs is also described in this paper. The study has revealed that although the drugs are made available with adequate infrastructure and knowledgeable service providers yet the efficiency in the system needs to be improved. To bring about changes in the stores this paper offers suggestions to follow certain modern tools and techniques of materials management like forecasting, value analysis, ABC analysis, VED analysis, etc. for streamlining the supply of drugs for providing efficient patient care.

Materials are any equipment, apparatus or supplies used by an organization or institution. These are essential resources to achieve the objectives of a health care organization. Out of the total budget on health, 60 per cent of the funds are devoted to manpower while the remaining 40 per cent are used for materials. In case of non-availability of adequate materials, the manpower deployed goes waste. Therefore, for effective health care services, it is necessary that right materials at right time at right place in right quantity and of right quality should be made available. Materials management is concerned with planning, organizing and controlling the flow of materials from purchase to the service point for distribution. It has been a neglected area though materials management has always been existing in health sector. India is committed to attain the goal of health for all by 2011-2016 AD through the universal programme of comprehensive services, adopting primary health care approach. Now in health care sector materials management is developing as a process with a vast scope of application. The health and family welfare programme has materials management system to provide essential drugs and contraceptives even to remote

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peripheral service point on a regular basis. If the system malfunctions, then the whole programme suffers. Therefore, the programme managers have been quick enough to identify materials management as a crucial component of their health and family welfare programme. Initially, it was viewed as simply drugs and contraceptives distribution and resupply network. The functions and principles of the materials management must be strictly followed as improper functions of materials management has increased the complexity and responsibility of already overworked staff, resulting in insufficient activities in a crucial service area. Keeping the importance of drugs supply in view, the study has been designed with the following objectives:

OBJECTIVES

1. To study the functioning of central drug stores of New Delhi Municipal Committee (NDMC);
2. To study the procedures followed in purchase and receipt of medical stores by the hospitals and dispensaries;
3. To study the system of inventory control, storage facilities and distribution of medical supplies to the place of actual usage; and
4. To suggest essential drugs to the hospitals of New Delhi Municipal Committee and streamline the materials management system of the stores.

SCOPE

The study has been confined to the allopathic drugs and vaccines only as they contribute to a primary role in the services of a health care organisation. Various principles of materials management, *i.e.* planning, procurement, quality control, inventory control, receipt and inspection, storage and disposition pertaining to drugs have been studied in detail. The concept of essential drugs in the New Delhi Municipal Committee has also been studied.

Selection of Central Drug Stores

A central drug store which is representative of other general drug stores has been selected for the study. It was thus decided to select central drug stores NDMC, a large government central drugs stores, offering multi-disciplinary specialities to its clients of various drug stores in Union Territory of Delhi for conducting the study for the following reasons:

1. New Delhi Municipal Committee is the second largest municipal committee in New Delhi. It is catering to a larger population of New Delhi. The central medical stores, NDMC is situated in Moti Bagh, New Delhi, and is catering to the needs of all the institutions coming under NDMC. Thus materials management is obviously a system of prime importance to be given a critical look.
2. There is no private or paying system in the NDMC and as such, the pattern, nature and type of activities in the field of medial supplies can be considered as representative of the need of a well established materials management system in the stores.
3. Comprehensive procedures and patient care activities in various health institutions under New Delhi Municipal Committee ask for constant supplies of medicines, equipment, etc. which could be possible only when there is proper materials management system in drug stores.
4. Similar studies have already been conducted in other government medical stores except central drug stores under New Delhi Municipal Committee.

METHODOLOGY

To study the materials management system of central drugs stores of NDMC in New Delhi, a scientific evaluation of all aspects of materials management has been done. Various functions like planning and forecasting, purchasing, receiving and inspection, inventory control, stock and distribution, value analysis and disposal have been analyzed. Having selected the drugs stores with due permission of administrator of NDMC the study was divided into phases as per Gnatt Chart. The study was initiated to follow a logical sequences leading to accomplish the objectives of the study. To study the organisation and function of stores a period of seven days was devoted to familiarise the investigator with the organisation and procedures followed in the stores. The study was carried out in the central stores of NDMC, Moti Bagh, New Delhi. The stores manager and medical superintendents were taken into confidence about the study.

In retrospective study a schedule covering all the elements of materials management of drugs and vaccines was distributed to the manager of the stores. Two sets of schedules regarding preparation of essential drugs and formulary and VED analysis were distributed to all the specialists of the hospital. ABC analysis was carried out on all the 542 drugs indented during 1990-91. All the drugs were subjected to the study of lead time, quality control, availability, local purchase and budget allocation in detail.

In prospective study a period of three months was spent from January to March 1993. It comprised study of material of drugs and vaccines through indents, stock registers and vouchers. Ten drugs were selected from the list of vital drugs and studied for their quality control, expiry date, label and availability. Layout of the store, staffing pattern and cold chain maintenance were studied in detail. Finally the distribution and condemnation procedures were studied in detail.

FINDINGS AND DISCUSSION

Procurement of Drugs

The procurement of drugs in NDMC is centralised. The headquarter at Palika Bhavan, New Delhi, is responsible for laying down the procedures and procurement of all the drugs for all the health institutions under NDMC. Stores procedures and policies are clearly laid down. The entire management of procurement is entirely in the hands of health professionals. The purchasing is done on a specified rate contract. The purchase sub-committee decides finally about the items, rate and demand. A comparative statement is prepared and the statement is sent to the finance department for due approval. After the approval by the sub-committee the supply orders are sent to the vendors. To know the annual demand in CMS a list of drugs is sent to the different health institutions in a form of circular. In return they send the requirement to the CMS. The drugs are selected on the basis of the lowest cost, proprietary item and quality. The vendors are selected on the basis of healthy competition among the reputed ones in the market. There is a policy of procuring 20 per cent of the items from the government suppliers. Weighted point method and cost ratio method can be applied which are given more attention to determine objective standards and procedures to evaluate the existing system. In today's environment where resources are limited it is necessary for every manager to budget the use of available resources very carefully. Techniques of forecasting and qualitative and quantitative analysis should be done in the stores while planning for the annual demand of drugs.

There is also a local purchase system confined mainly to the hospital under NDMC. It has shown a rising trend in the years 1991-92, 1992-93 and 1993-94. The local purchase can be limited to a great extent if care is taken to forecast and plan in advance the requirements of drugs. It has been seen the cost deduction suggestions are useful indicator of supplier involvement in the purchasing process. One of the aims of the relationship is implementation of 'value analysis which is not followed in NDMC. The concept of group purchasing should also be followed in the purchasing system which will further lead to reduction in the budget on health in NDMC.

Quality Control

The purpose of quality control in health care of organization is to make certain to each drug reaching a patient is safe, effective and acceptable. For the purpose of health care organization, the most important characteristics of a drug are identity/purity/potency/uniformity and availability. Regarding the procedure of ensuring quality control there are stated policies and practices aimed at ensuring drug quality. Only approved quality firms are decided and mentioned in tender clause. Warranty aspect is taken into account. The usual procedure is to pick up the sample against complaint and send for chemical analysis to Drug Controller of India. The sub-committee is the only organ responsible for quality control. All the samples of intravenous fluids were sent for chemical analysis in 1993. All the samples were found to be as per the quality standard. The most popular method of quality control of drugs is statistical quality control. It should be followed in the NDMC store. It evaluates the magnitude of variation to chance causes and detection of assignable causes of product quality which can be clearly shown by statistical centre chart. Finally Total Quality Management (TQM) has to be followed in the stores covering both technical and management activity from drug selection to patient use.

Inventory Control

Inventory is the stock in hand at any given time in the organisation. Maintaining an inventory in the stores assures that the correct drugs are available at right time in right locations. The total amount of inventory held at any time can be substantial and its maintenance is costly, therefore, efficient inventory management is crucial. Inventory control is the process of deciding what and how much of various drugs are to be kept in the stock at optimum overall cost to the health system. The responsibility of inventory control in NDMC lies with the stores manager. So far modern tools and technique of inventory management have not been utilised in the stores. These can be discussed as ABC analysis/VED analysis/interpretation of ABC and VED analysis/lead time/buffer stock/economic order quantity (EOQ)/Reorder level. In the retrospective study only ABC analysis, VED analysis, lead time and availability of drugs could be done.

ABC Analysis

All the 542 drugs were listed with the help of stores pharmacist from the stock registers. All the drugs were arranged in a descending order of their annual consumption value. A cumulative list of annual consumption was prepared. On the basis of percentage of total cost, drugs were classified into A, B and C categories. Accordingly there were 86 items in group A, 125 items in group B and 331 items in group C as shown in Table 1.

TABLE 1
ABC ANALYSIS OF THE DRUGS DURING 1992

items		Annual Consumption		
Category	Total number	% of ail items	Value in Rs.	% of total consumption
A	86	16	5137533.88	70
B	125	23	1467866.86	20
C	331	61	733933.40	10
Total	542	100	7339334.14	100

Thus in 1992, 16 per cent of the items consumed 70 per cent of the budget 23 per cent of the items consumed 20 per cent of the budget and 61 per cent of the items consumed 10 per cent of the budget. A items consuming 70 per cent of the budget should be purchased more periodically whereas C items having low annual value consumption should be provided annually. Further all the drugs were grouped into numbers according to their annual consumption and percentage of total annual value. It was seen that the first ten drugs account as much as 24.3 per cent of total budget. It also showed that the first 40 items account for almost half of the budget, i.e. 52.1 per cent The top 10 items can be seen in Table 2. It indicates that the top 3 items are antibiotics. This shows the morbidity pattern in NDMC. The patients with infectious disease must be on the top among ailments. So a lot of emphasis has to be given on procurement, purchasing, distribution and storage of these drugs.

The top ten items cost Rs. 1785440.93 (24,3%) of total budget of Rs.7339334. It is therefore seen that keeping a tight control over purchase, stocking and distribution of these ten items is going to give NDMC a grip of 24.3 per cent of their annual budget on drugs. It was observed that no such control over these items was practiced. All the 542 drugs have the same guidelines for procurement in NDMC. From above it can be seen clearly that ABC analysis should be done in the stores. All the drugs procured should be grouped according to their annual consumption and final purchases should be done accordingly. A lot of budget can be saved by following such a technique.

VED Analysis

This analysis is based upon the critical value of an item and its effect on the functioning of the institution. V stands for those items without which the institution cannot function or comes to grinding halt e.g. oxygen, emergency drugs.

E stands for essential items without which an institution can function but may affect the quality of service to some extent D stands for desirable items. It is desirable to keep these items but without them the institution's functioning will not suffer. A schedule covering all the 542 items was given to each specialist of the NDMC hospital Moti Bagh, New Delhi. They were asked to mark each drug according to the above mentioned criteria. After this a final list was prepared. This was the most acceptable VED analysis achieved for use in central drugs stores of NDMC. The details of VED analysis can be seen in Table 3.

TABLE 2
THE DESCRIPTION OF TOP TEN ITEMS

Items	Name of the items	% of total budget
1-3	Tab erythromycin 250 mg Cap ampicillin 250 mg Tab cotrimoxazole plain	10.7
4-6	Tab baralgan Cap tetracyclines Tab nidazest 5 mg (Ethynyl oestradiol)	6.8
7-10	Dextrose 5% Cap amclox Tab desferol Cap Raricap	6.8
Total		24.3

TABLE 3
VED ANALYSIS

Category of Drugs	No. of Drugs	% of total drugs
V: Vital	116	21
E: Essential	172	32
D: Desirable	254	47

It is seen from the above table that 21 per cent of the drugs *i.e.* 116 items should be ensured all the times in the stores. They are vital to run the organisation. They should be tackled at the top level of management for their

continuous supply and strict supervision. They should never be out of stock and should have optimum buffer stock.

Lead Time

It denotes the average duration of time in days between placing an order and receipt of material when determining the quantity of any item to be ordered, one has to take into consideration the lead time.

Internal Lead Time

The time taken to review the demand, trade enquiries, tenders, quotations and final approval from the competent authority.

External Lead Time

It is the time taken by the supplier to supply the materials after it receives the supply order from an organisation. Table 4 shows the lead time in NDMC stores in respect of drugs.

TABLE 4
LEAD TIME IN DAYS IN NDMC STORES

Month	Int lead time	Ext lead time	Total time
November 1992	180	13	193
December 1992	180	28	208
January 1992	180	58	238
Average	180	33	213

The average lead time is 213 days while internal average lead time is 180 days and external average lead time is 33 days. It can be seen that a lot of time is spent *i.e.* 6 months by the NDMC authorities to undergo enquiries, quotations, demand and preparation of comparative statement of drugs. While the same procedures can be practised in the stores itself.

Availability of Drugs

For this study 10 items were selected from the list of vital drugs as a result of VED analysis. The percentage of availability is good. The main reason for drug

out of the stock was long internal lead time. The consumption was also on the higher side as compared to previous years. But in successive years the availability is on much higher side due to adequate internal lead time of about 2 to 3 months as compared to 6 to 7 months in 1992.

RECOMMENDATIONS

During the course of study a number of lacunae in the materials management system in central drugs stores became evident. The following recommendations were made with a view to streamlining the materials management system of drugs in the central drugs stores of NDMC for better patient care in the existing environment:

1. Standardization of materials management is necessary in an organization. In the stores the materials management will be very much simplified if it can standardize and reduce the variety of drugs. A good example is to follow the concept of essential drugs by WHO by making a drug formulary for the stores.
2. Proper planning by following the tools and techniques of forecasting e.g. times series analysis of different drugs should be carried out in stores so that urgent purchase at higher cost is minimized. In purchasing of drugs factors like quantity, quality and urgency and essentiality of the items must be taken into account. Modern methods like group purchasing weighted point method and cost ratio method in selection of suppliers must be taken into account.
3. The popular method of statistical quality control must be followed in the stores.
4. The system of bin card and Kardex system should be practised in the stores.
5. Principles and practice of work study must be followed for distribution, especially in dispensing process.
6. There should be an induction training programme for the pharmacist and store hand about the latest developments in the field of pharmaceutical management.
7. The concept of essential drugs as described by World Health Organisation should be followed in the purchase sub-committee. As it is going to have a great impact on cutdown of budgetary expenditure on health, variety of

trade names should be deleted in the drug list. All the purchase should be done by generic names. Same generic names should also be written on prescription slips of the patients by the doctors. A formulary identical to suggested list of essential drugs should be prepared at the time of drugs selection in the purchase sub-committee. This should be circulated to all the health institutions under NDMC.

8. There should be some fixed percentage of budget on quality control of drugs. A separate team for inspection should be deputed both at the central stores and distribution places.
9. The local purchase should be minimised at both the hospitals. Vital drugs *i.e.* injection oxytocin and injection should never be purchased locally frequently in place like maternity hospital. It is advisable that thorough considerations must be given in the purchase sub-committee while selecting the drugs taking into account the status of the item.
10. There should be a separate place for receiving supplies in the stores. The corridor on the first floor should never be loaded with huge amount of supplies *i.e.* IV fluids and surgical dressings. As it leads to a lot of difficulty in distribution of supplies to the indentors.
11. The stores should be well ventilated with exhaust facility in all the rooms. More facility of fire extinguisher is needed in the stores.
12. The cold chain maintenance was upto the standard. The only lacunae was lack of disposable syringes for immunisation to the children.
13. The techniques of ABC and VED analysis should be followed while preparing for the annual demand. The importance of lead time consideration should also be realised while preparing for the supply orders to the firms. All the AV items should be present all the time in a year. First 40 items calculated by ABC analysis should be given separate grading.
14. The method of distribution should be at a separate counter in the dispensary. All the tablets should be given in proper envelopes not on OPD slips.
15. It is advisable if NDMC has its own pharmacy in some premises so that lot of budget expenditure can be saved by indigenous making of syrups, ointments and other medicaments.

16. There should be a computer in the stores as it will lead to lot of economy in both time saving, paper work and effective materials management

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प्रस्तुत लेख में नई दिल्ली नगर पालिका के अन्तर्गत केन्द्रीय औषध भण्डार में यह लागू उपादान प्रबन्धन प्रणाली पर प्रकाश डाला गया है। इसे लेख में औषधियों संबंधी माल-सूची नियन्त्रण प्रणाली पर भी ध्यान केन्द्रित किया गया है। अध्ययन से पता चलता है कि यद्यपि, औषधियां पर्याप्त संरचनात्मक ढांचे तथा अनुभवी सेवा प्रदाताओं द्वारा उपलब्ध कराई जाती है, फिर भी वर्तमान प्रणाली में और सुधार किए जाने की अत्यन्त आवश्यकता है। औषधियों की आपूर्ति को सुप्रवाही बनाने तथा रोगियों को कुशल ढंग से परिचर्या सेवाये प्रदान करने की दृष्टि से भण्डारण व्यवस्था में आवश्यक परिवर्तन लाने हेतु लेखक द्वारा कुछ उपाय भी सुझाये गये हैं, जैसे उपादान प्रबन्धन संबंधी आधुनिक तरीकों को अपनाना अर्थात् माल की आवश्यकता का पूर्वानुमान करना, मूल्यपरक विश्लेषण, ए बी सी विश्लेषण तथा वी ई डी विश्लेषण आदि तकनीकें।

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