

AGEING AND HEALTH HAZARDS IN RURAL NORTHERN INDIA

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ABSTRACT

This paper aims to study the prevalence of diseases during ageing in different socio-economic and demographic groups of society. The study is based on a sample of about 267 aged persons (>60 years) collected through a survey entitled "Ageing and Health Conditions in Rural Area - A Sample Survey 1990" from the rural areas of the Varanasi district of Uttar Pradesh, a northern province of India. The socio-behavioural problems have been found to play a significant role in determining the health conditions of the aged people. Illiteracy and poverty have been found to have their own impact on health during ageing. It is also noted that due to an adverse familial relationship with aged people, many stress-related disorders occur which may result in the bad health of elderly. Demands for old age pensions has been made by most of the elderly people in the area under study.

High fertility and declining mortality are the major factors responsible for population increase in most countries of the world, especially the developing ones. Longevity has significantly increased in the last few decades due mainly to modernisation, improved facilities of sanitation and better health care^{7,12}. Besides a human aspect, these factors are resulting in a higher numerical presence of elderly people, thus leading to a higher dependency ratio. Demographers, researchers, policy makers and responsible citizens have started to think about the aged population and its problems because of the demographic and economic imbalances caused by this segment of the population.

A number of countries, for example China, have attained remarkable success in reducing the rate of population growth, but they have not yet been able to sort out all the problems associated with the process of ageing. Numerous

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authors have conducted research in this area^{3,13, 17 20,21 23, 26}. The study of gerontology is still in its infancy in many of the developing countries, especially India^{1,4,11,22,24}. This may be due to the fact that the problem of the ageing is not yet very visible in India. However, since 1941 the life expectancy at birth in India has risen from 32.1 to 58.8 years for males and 31.0 to 59.7 years for females (Table 1).

TABLE 1
PATTERN OF LIFE EXPECTANCY AT BIRTH AND AGE-DEPENDENCY RATIO

Census Year	Sex	Expectancy at Birth	Aged Dependency Ratio
1941	M	32.1	8.6
	F	31.0	8.6
1951	M	32.5	9.6
	F	31.7	10.3
1961	M	41.9	10.3
	F	40.6	10.3
1971	M	47.1	10.9
	F	45.6	11.3
1981	M	54.8	11.8
	F	52.0	12.3
1991	M	58.8	13.4
	F	59.7	13.3
1078*	M	-	21.3
	F	-	19.3
1990*	M	-	24.6
	F	-	22.3

*Based on the sample data of the area under study.

Source, Census of India, 1991, Provisional Population Totals, Series-1.

The aged population cannot be viewed as a homogeneous group¹⁵. Instead, it should be classified into several categories based on the level of age, activity, morbidity rates, and general health condition of elderly persons to facilitate an intensive study of the incidence of disease, loss of memory, and other related complications. Stress and disorder diseases, like high blood pressure, coronary thrombosis, cerebrovascular accidents, diabetes, diabetes mellitus, asthma, peptic ulcer, and ulcerative colitis become common in old age. A social outlook and the quality of relationship with sons and daughters largely decide the economic factors

which, in turn, determine the health of elderly persons. These socio-environmental conditions of old age are common^{2,5,8,19,25}.

Due to a high illiteracy rate, the non-response and ignorance about specific diseases in rural India is very high and it is, therefore, very difficult to work on the epidemiological problems of the elderly population. Yet, on the basis of primary data collected on "the health condition of elderly people", an attempt has been made in this paper to shed some light on the relationship between ageing and the health in the rural northern region of India.

METHODOLOGY

This paper is based on a study of the elderly population in the rural areas of the Varanasi district of Uttar Pradesh, a northern province of India. The data were collected through a survey entitled "Ageing and Health Condition in Rural Area - A Sample Survey 1990" conducted under the auspices of the Centre of Population Studies, Banaras Hindu University, Varanasi, India. Four villages were randomly sampled from a pool of 19 villages in Varanasi district that were also studied previously in another sample survey entitled "Rural Development and Population Growth (RDPG) 1978". Along with a detailed information about the socio-economic factors of household, data were also collected about the aged persons. In our study, a household is defined as a group of persons who live together and normally take food from a common kitchen. This definition includes migrants who normally stay outside but claim the household to be their own. The basic instrument of data collection was a personal interview method.

A survey of households to investigate the socio-demographic characteristics, old age problems, health problems, attitude of family members, and the level of support from the community was also conducted. In this survey, there were 309 elderly persons, where an elderly or aged person is defined as a person who is at least 60 years old. The terms 'elderly' and aged are used interchangeably in this paper. The elderly were interviewed through a structured questionnaire. Due to the inaccuracy and/or unreliability of information, 42 of the 309 cases were excluded from the analysis, thus reducing the valid sample size to 267. It should be pointed out that the meaning and interpretation of the concept of old age vary from one society to the other. In India, for instance, the retirement age from a government job is 58 years, while in the United States it is 60 years, with a possibility of extension. Since agriculture is their main occupation, most rural people in India are self-employed and, unlike regular labor force, they are not subject to any age of retirement.

The region of study Varanasi district lies between parallels of 24° 56' and 25° 35' north longitude and 82° 5' and 83° 24' east meridian of longitude.

Geographically, the region is mostly Gangetic plain, quite fertile, and densely populated with a very low per capita income. Compared to the country as a whole, the illiteracy rate is very high in this region with about 61 per cent of the females and 40 per cent of the males being illiterate⁹.

Due to a shortage of industries, factories and other employment sources, the region of study is a labor-dispensing area, sending migrant labor force to large cities, like Bombay and Calcutta, through a chain-type migration. Most of the migrants return to their villages after retirement or completion of their contracts. Due to a lack of subsidies for the aged people in the non-organized sector, the elderly usually get jobs in organized sector. Many of the aged persons continue in the same caste-oriented occupations such as barber, blacksmith, and cobbler that they used to engage in prior to reaching age sixty. Some of them even do hard and labor-intensive work such as pulling rickshaw, digging canals, and constructing roads.

The extended family system is the dominant form of family, especially among upper castes, in most rural areas including the one under study in this paper. Under the extended family system, the tangible property is divided among the male siblings only. The earning members of the family are accorded a higher status and given greater power in family matters due to their earning capacity and economic contribution to the family. When a family is divided, older members stay with one of the sons, usually the youngest or the oldest.

The changing social structure is also visible in the study area. The service sector has diminished while the manual labor sector, where most of the elderly find jobs, has expanded. The caste-based occupations are disappearing and there is no elaborate system for helping the elderly find suitable alternative employment. Many of the elderly are self-employed. They own small businesses and cottage industries by mainly relying on raw material such as tobacco, leather, and beetle nuts for making products for general consumption by rural as well as urban masses.

The Eastern Uttar Pradesh area is transforming due to an impact of surrounding urban areas. This transformation has created problems for the elderly, particularly the ones not in very good health. Most of the development programme in this region is geared toward young adults and there are no voluntary organizations for the elderly persons to join. The welfare agencies and programmes are non-existent. There is no integrated universal health care system and the health facilities are usually provided by the government or private agencies and charities. The elderly need certain amenities such as health care, nutrition, and a sense of belonging, but the type and amount of treatment they receive mainly depend on the 'culture' of the family. The elderly are usually

neglected by the family members unless they are well-to-do, or still earning members.

Besides other information, a detailed information on the health related problems of the aged persons was collected and categorized as follows:

A. Unhealthy Group: This category included those aged persons who were either suffering, or had suffered, from one or more of the following diseases:

- I. Chest problems such as asthma, tuberculosis, bronchitis, and pain.
- II. Cardiovascular, neurological, and psychiatric problems such as hypertension, diabetes, depression, and anxiety.
- III. Gastro-intestinal problems such as peptic ulcer, gastric, indigestion, dysentery, and hernia.
- IV. Eye and ENT problems such as conjunctivitis, pharyngitis, trachoma, and deafness.
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- V. Urinary tract problems such as urinary tract infection, stone, and prostate problem.
- VI. Miscellaneous health problems such as skin, dental, and joints problem.

B. Healthy Group: This category included those aged persons who said they had no physical or mental ailment, or problem, of any sort.

In this paper an aged person is described as "unhealthy" if he/she had either suffered or was suffering, at the time of survey, from at least one of the diseases mentioned above, otherwise, the person is described as "healthy". Further, the health condition of an aged person is termed as "good" if he/she reported his/her health condition to be good or he/she was not suffering from any of the above mentioned diseases at the present time, otherwise, the health condition is termed as 'bad'. In a sample of 267 persons, 152 were males and 115 females, giving a sex ratio of about 757 females per 1000 males a lower estimate than the sex ratio of 862 females per 1000 males found for all ages combined in the area under study. The numbers of males and females in the three broad age groups, 60-69, 70-79, and 80 and more, were 81, 39, 32, and 84, 25, 6, respectively.

PROFILE OF AGEING AND HEALTH STATUS

Table 2 shows that about 51 per cent of the elderly had 'bad' health status. Of males, about 37 per cent had 'bad' health status, whereas among females, the percentage of 'bad' health status was about 70 per cent. In response to the question on their present health status, a majority of females indicated they were in 'bad' health. It is found that the present health condition of the aged people is significantly associated with sex (chi-square = 26.96, d.f. = 1; $p < .05$). This implies that, over the age of 60, the health condition of females deteriorates more in comparison to their male counterparts, particularly in the region under study. It is also observed that after age 60, the health status (either good or bad) is uniformly distributed over the ageing span (chi-square = 0.17, d.f. = 2). This means that the proportion of unhealthy people in the society is almost similar in the age groups 60-69, 70-79, and 80-89. This result, however, requires further examination. Nevertheless, with a small sample size, no generalizations can be made.

TABLE 2
DISTRIBUTION OF AGED ACCORDING TO AGE AND PRESENT HEALTH STATUS

Age Group (in years)	Health Status						Grant total
	Male			Female			
	Good	Bad	Total	Good	Bad	Total	
60-69	54 (66.7)	27 (33.3)	81 (100.0)	25 (29.7)	59 (70.3)	84 (100.0)	165 (61.8)
70-79	23 (58.9)	16 (41.1)	39 (100.0)	9 (36.0)	16 (64.0)	25 (100.0)	64 (24.0)
80+	19 (59.4)	13 (40.6)	32 (100.0)	1 (16.7)	5 (83.3)	6 (100.0)	38 (14.2)
Total	96 (63.2)	56 (36.8)	152 (100.0)	35 (30.5)	80 (69.5)	115 (100.0)	267 (100.0)

Figures in parentheses show the percentages.

a. Chi-square = 26.96, df = 1 between sex and health status (good and bad).

b. Chi-square = 0.17, df = 2 between age group and health status (good and bad).

Table 3 shows the distribution of aged persons according to their present health status with respect to appetite, digestion, memory, vision, sleep, and mental status. The table shows that after sixty years of age, about 35 per cent of the males and 14 per cent of females had the same appetite as before, while about 26 per cent males and 44 per cent females experienced a considerable loss in

appetite, and that the effect of ageing on males was much less pronounced than on females with regard to the appetite (chi-square = 18.09, d.f. = 2, < .05). Similar findings were observed with regard to their digestive system (chi-square = 22.68, d.f. = 2, p < .05). This shows that during ageing the appetite and digestive systems are sex-selective. They have their impacts upon females to a considerable level compared to males. The memory condition was found to deteriorate during ageing. A clear gender differential was observed in relation to the memory condition (chi-square = 22.43, d.f. = 2). About 28 per cent of the males and 46 per cent of the females reported 'much loss of memory' during their sixties compared to when they were below sixty.

TABLE 3
DISTRIBUTION OF AGED ACCORDING TO THEIR HEALTH CHARACTERISTICS

Health Characteristics	Sex	Present Position			Total	x ²	df
		Same as before sixties	Little less than before sixties	Much less than before sixties			
Appetite	M	53 (34.9)	59 (38.8)	40 (26.3)	152 (100)	18.9	2
	F	16 (13.9)	48 (41.7)	51 (44.4)	115 (100)		
Digestive Condition	M	51 (33.6)	61 (40.1)	40 (26.3)	115 (100)	22.69	2
	F	11 (9.6)	56 (48.7)	48 (41.7)	115 (100)		
Memory	M	40 (26.3)	69 (45.4)	43 (28.3)	152 (100)	23.43	2
	F	11 (9.6)	51 (44.3)	53 (46.1)	115 (100)		
Vision	M	32 (21.1)	69 (45.4)	51 (33.5)	152 (100)	16.13	2
	F	8 (6.9)	43 (37.4)	64 (55.7)	115 (100)		
Sleep Status	M	48 (31.6)	51 (33.6)	53 (34.8)	152 (100)	0.25	2
	F	34 (29.6)	37 (32.2)	44 (38.2)	115 (100)		
Mental Status	M	83 (54.6)	26 (17.1)	43 (28.3)	152 (100)	0.72	2
	F	68 (59.1)	16 (13.9)	31 (27.0)	115 (100)		

M = Male; F = Female Figures in parentheses show the percentages.

Similarly, the 'vision condition' of an aged person was also reported to be gender selective (chi-square = 16.13, df = 2). It was found that about 21 per cent of the elderly males and 7 per cent females had a vision condition similar to when they were below sixty years of age. About 45 per cent of the males and 37 per cent of the females reported only slight loss of vision. The sex differential of vision condition shows that about 44 per cent of the males reported significant loss of vision in the process of ageing, which is considerably less than that for females (56%).

Table 3 also reports a changing pattern with respect to gender in sleep related condition. About 42 per cent of the elderly suffered from insomnia, due to factors such as the ageing itself, family problems, and mental tension. With regard to mental stress, about 55 per cent of the males and 59 per cent of the females reported no change in their life despite ageing. About 17 per cent of the males and 14 per cent of the females indicated they had 'little or no' mental stress, while 28 per cent of the males and 27 per cent of the females had 'quite a bit' mental stress. However, sleep status versus gender (chi-square = 0.25, d.f. = 2) and mental stress versus gender (chi-square = 0.72, d.f. = 2) were not found to be significantly associated. That is, these two factors have a similar impact on males and females during ageing.

From the distribution of aged persons according to sex, age group, and type of disease as a result of ageing, it is found that 68 per cent were suffering, or had suffered, from one or more diseases during their sixties. The incidence of illness after the age of sixty is slightly higher among females (about 77%) than males (about 61%). The sex differential was also noted according to the type of the disease. Among the unhealthy males, about 30 per cent were found to have suffered from chest problems, compared to 37 per cent of the females. In rural areas, the prevalence of cardiovascular and urinary diseases was comparatively lower among females - only about 11 per cent of females were suffering or had suffered, from each of these two diseases. This may be due to the fact that females live comparatively tension-free lives in the village; or it may be that the rural people work hard and eat simple food¹². The percentage of people who suffered from gastro-intestinal problems was as low as 23 per cent and 16 per cent among males and females respectively.

Table 4 also shows some sex differential with regard to the impact of diseases. There was a significant difference in the occurrence of a disease according to sex (chi-square = 7.91, d.f. = 1). Further, it is reported that after age sixty, certain diseases occur more frequently than others. It is evident that of those belonging to the age group 60-69 years, about 65 per cent were suffering, or had suffered, from at least one disease. Consequently, it can be said that the incidence of contracting diseases increases as the age advances. Although it is observed

that there is a rise in the percentage of the unhealthy elderly over the span of 60 to 80 years age group, it was found to be statistically insignificant (chi-square = 3.03, .d.f. = 2). This is consistent with the result already reported in Table 2 that the prevalence of disease during the span of 60 and above is uniformly distributed among both the aged males and females.

TABLE 4
DISTRIBUTION OF AGED ACCORDING TO AGE, SEX AND TYPE OF DISEASES

Variables	Diseased (A)	Type of Diseases						Healthy (B)	Total
			II	III	IV	V	VI		
Age									
60-69	107 (64.8)	40 (37.4)	19 (17.8)	18 (16.8)	38 (35.5)	17 (15.9)	36 (33.6)	58 (35.2)	165 (61.8)
70-79	45 (70.3)	14 (31.1)	6 (13.3)	12 (26.6)	14 (31.1)	10 (22.2)	7 (15.6)	19 (29.7)	64 (24.0)
80+	30 (78.9)	7 (23.3)	2 (6.7)	5 (16.7)	9 (30.0)	2 (6.7)	7 (23.3)	8 (21.1)	38 (14.2)
Sex									
M	93 (61.2)	28 (30.1)	17 (18.3)	21 (22.6)	35 (37.6)	19 (20.4)	21 (22.6)	59 (38.8)	152 (56.9)
F	89 (77.4)	33 (37.1)	10 (11.2)	14 (15.7)	26 (29.2)	10 (11.2)	29 (32.6)	26 (22.6)	115 (43.1)
Total	182 (68.2)	61 (33.5)	27 (14.8)	35 (19.2)	61 (33.5)	29 (15.9)	50 (27.5)	85 (31.8)	267 100.0

Figures in parentheses show the percentages.

- Note: (i) *A person may suffer from many diseases and therefore the frequencies of different types of diseases in different cells are the results of multiple answers,
(ii) $\chi^2 = 3.03$ (between age and diseased); d.f. = 2
(iii) $\chi^2 = 7.91$ (between sex and diseased); d.f. = 1

OCCUPATION AND EDUCATIONAL LEVELS DURING ADULTHOOD AND HEALTH STATUS DURING AGEING

Table 5 shows that about 71 per cent of the respondents were illiterate, while the remaining 29 per cent had some schooling. Among the illiterates, about 69 per cent were found unhealthy. Of this 69 per cent, about 40 per cent reported to be suffering, or to have suffered, from chest diseases, and about 11, 16, 29, and 13 per cent reported to be suffering, or to have suffered, from second, third,

fourth, and fifth type of diseases, respectively. It is interesting to note that the percentage of unhealthy aged among the illiterates is slightly lower than those with the primary or middle school education and the percentage of unhealthy among the highly educated is much lower in comparison to other educational groups. This may be due to the fact that highly educated persons have a knowledge of preventive measures about various diseases while the illiterates, mostly the farmers, live a tension-free life and eat simple, unprocessed and -' chemical-free food.

TABLE 5
DISTRIBUTION OF AGED ACCORDING TO EDUCATION, OCCUPATION (BELOW AGE SIXTY), AND TYPE OF DISEASE

Vari-ables	Dis-eased	Type of Disease						Heal-thy	Total
		I	II	III	IV	V	VI		
Education									
Illiterate	130 (68.8)	52 (40.0)	14 (10.8)	21 (16.2)	38 (29.2)	17 (13.1)	39 (30.0)	50 (31.2)	180 (70.8)
Primary & Middle	43 (79.6)	7 (16.3)	11 (25.6)	10 (23.8)	19 (44.2)	10 (23.3)	11 (25.6)	11 (20.4)	54 (20.2)
High Schools & above	9 (37.5)	2 (22.2)	2 (22.2)	4 (44.4)	4 (44.4)	2 (22.2)	0 (0.0)	15 (62.5)	24 (9.0)
Occupation									
Agriculture & Ag. labour.	32 (66.7)	11 (34.4)	2 (8.3)	7 (21.9)	7 (21.9)	7 (21.9)	5 (15.6)	16 (33.3)	48 (18.0)
Business or House hold Indus.	33 (76.7)	11 (33.3)	14 (42.4)	16 (48.5)	11 (33.3)	3 (9.1)	11 (33.3)	10 (23.3)	43 (16.1)
Service	32 (60.5)	9 (28.1)	5 (15.6)	5 (15.6)	19 (59.4)	9 (28.1)	5 (15.6)	21 (38.6)	53 (19.8)
Others (including housewife)	85 (69.9)	32 (37.2)	9 (10.5)	10 (11.6)	24 (27.9)	10 (11.6)	29 (33.7)	38 (30.1)	123 (46.1)
Total	182	61 (335)	27 (14.8)	35 (19.2)	61 (33.5)	29 (15.9)	50 (27.5)	85	287

Figures in parentheses show the percentages.

Note: $\chi^2 = 12.3$ (between education and health status), d.f. =2. $\chi^2 = 3.13$ (between occupation and health status), d.f. « 3.

A higher proportion of unhealthy individuals among the low educated elderly as compared to illiterate may be due to their involvement in occupations like household industry or business where the risk of exposure to a particular disease remains high. The relationship between education and the type of disease is found to be statistically significant (chi-square = 12.30, d.f. = 2). The occupation and health status have a well recognized relationship. Health is governed by physical, chemical, and biological factors. Some chemicals take longer to have their impact on the body, while others take a shorter time. The effect of biological agents on health differentials can be studied in conjunction with other physical and chemical factors related to the occupation of a person^{10,14,19}

Table 5 also shows the distribution of aged persons according to types of disease and occupation performed during the younger years. It was found that, of the 18 per cent aged people, whose prior occupation was agriculture-related, about 67 per cent were unhealthy. Among these 67 per cent, about 34 per cent were suffering, or had suffered, from chest problems. It may be due to the fact that among men, a majority belongs to the agricultural category, while among women, a majority belongs to the housewives category. Of the 16 per cent who were engaged in cottage industries, or in businesses, before reaching age sixty, about 49 per cent were suffering, or had suffered, from gastrointestinal problems. In all, about 77 per cent were suffering, or had suffered from at least one of the diseases belonging to this occupational group.

This finding is consistent with the pattern noted above in relation to education and the type of disease. It is a well-known fact that the businessmen in developing countries like India do little physical work while making a living, and this may be one of the causes for the prevalence of diseases falling under the second category which accounted for about 42 per cent of all the diseases. Of the 20 per cent of the elderly persons, whose prior occupation was service (private or government), about 60 per cent were unhealthy, and of these unhealthy individuals, about 59 per cent were reported to be suffering or had suffered, from eye problems. This may be due to that fact that servicemen do the type of work which requires mental concentration putting heavy pressure on eyes.

Looking at 'other' occupations, the fifth type, including mostly housewives, it is noted that about 70 per cent of the elderly in this group, had suffered from at least one serious disease. Of these 70 per cent, about 37 per cent had suffered from chest problems. Due to the high rate of illiteracy among females in the study region, most of them are housewives with the kitchen work remaining their primary occupation as long as health permits. Housing conditions in the villages are very poor. Females live within the four walls of the home in an environment polluted by dust and smoke. They spend most of their time in the kitchen preparing food on traditional makeshift stoves (called chullah) using cow dung cakes and firewood

which produce a lot of air pollution in the house.

These conditions adversely affect, not only the females, but also infants and babies resulting in high infant mortality rates. The chest and eye problems are directly related to the unhygienic conditions. Table 5 clearly indicates that there is a definite relationship between the health condition of the aged persons and their primary occupations before reaching age sixty. The relationship between occupation and the type of disease is not statistically significant (chi-square = 3.13, d.f. = 3).

FAMIAL RELATIONS AND HEALTH STATUS

Familial relations have been found to play an important role in the health evaluation of population in general, and the elderly in particular. These relations may be evaluated in several ways. One way to associate health with relational identities is to observe the incidence of diseases under certain types of familial circumstances. Unsavory and unpleasant familial relations create stress and stress-related problems which in turn cause various health problems¹⁶. In this paper, questions were asked regarding the 'family members' behavior' and 'satisfaction with sons, and daughters' during and after the age of sixty. Domestic felicity or a lack of it, depends on the relationships among the family members. A lack of felicity intensifies the feelings of the old people causing them mental agony and avoidable physical, diseases.

Table 6 shows the distribution of aged persons according to the type of disease they suffer from and behavior of their family members towards them. About 28 per cent of the elderly reported 'bad' behavior from their family members, and of these 28 per cent about 75 per cent were found unhealthy. About 52 per cent of these unhealthy were found suffering, or had suffered, from chest diseases, and about 18 per cent reported to have suffered from diseases of the second type (cardiovascular, neurological, psychiatric). The table also shows a lower incidence of disease among the elderly in families where the behavior of the family members is good towards their aged. About 6 per cent of the aged were unable to answer this question. Statistically, a significant association is observed between the two factors (chi-square = 6.37, d.f. = 2).

Another important factor, showing the relationship between familial culture and health of the elderly, is the level of satisfaction with sons and daughters. It was found that about 21 per cent of the aged persons were not satisfied with the achievement of their sons, and of these, a majority were found unhealthy (Table 6). Among the unhealthy, about 47 per cent were found suffering from chest diseases, 40 per cent from eye and ENT, and 24 per cent from urinary diseases. However, it should be mentioned that the level of satisfaction may be overstated

by the elderly due to the fact that in rural areas, a majority of the aged persons hesitate to give any statement against their sons for reasons related to their economic dependence on them. Needless to say, the dissatisfaction with the achievement of children produces stressful conditions resulting in bad health. However, the extent of satisfaction and the prevalence of disease are not found to be associated (chi-square = 1.08, d.f. = 2).

TABLE 6

DISTRIBUTION OF AGED ACCORDING TO FAMILY BEHAVIOUR, SATISFACTION WITH THEIR SONS AND TYPE OF DISEASE

Varl- able*	Die- eased (A)	Type of Disease						Heal- thy (B)	Total
		I	II	III	IV	V	VI		
Family Behavio ur									
Same at before age of 60	82 (617)	15 (18.3)	8 (98)	12 (14.6)	29 (354)	13 (15.9)	17 (20.7)	51 (38.3)	133 (49.8)
Changed for better than before	25 (59.5)	12 (48.0)	5 (20.0)	7 (35.0)	7 (350)	10 (40.0)	5 (20.0)	17 (40.5)	42 (15.7)
Changed and worse than	60 (80.0)	31 (51.7)	11 (18.3)	13 (217)	22 (36.6)	5 (8.3)	25 (41.7)	15 (20.0)	75 (28.1)
Cannot say	15 (88.2)	3 (20.0)	3 (20.0)	3 (20.0)	3 (20.0)	1 (6.7)	3 (20.0)	2 (11.8)	17 (6.4)
Level of satisfactio n									
Highly satisfie d	37 (72.5)	11 (29.7)	5 (13.5)	11 (29.7)	8 (21.6)	3 (8.1)	13 (35.1)	13 (25.5)	51 (22.5)
Satisfied	102 (79.1)	30 (29.4)	19 (18.6)	16 (15.7)	32 (31.4)'	19 (18.6)	23 (22.6)	27 (20.9)	129 (56.8)
Unsatisfie d	38 (79.2)	18 (47.4)	3 (7.9)	6 (15.8)	15 (39.5)	6 (15.8)	9 (23.7)	10 (20.8)	48 (20.7)
Total	177	59 (33.3)	27 (15.3)	33 (18.6)	55 (31.1)	28 (15.8)	45 (25.4)	50	227*

Figures in parentheses show percentages.

- Note: i. 'The information is not applicable for 40 cases as these aged have no son.
 ii. $X^2 = 6.37$ (between family behaviour and hearth condition); d.f. = 2.
 iii. $X^2 = 1.08$ (between level of satisfaction and health condition); d.f. = 2.

AGED AND THEIR NEEDS

A question regarding their needs was asked of the aged to elicit their view on how to improve the well-being of elder citizens of the society. About 62 per cent reported that they did not need anything more from their family because whatever was available to them at the moment was sufficient. This high percentage of 'contented' aged persons may be due to the fact that a majority of them hesitate to make any unfavorable statement about their family members because of their emotional and economic dependence on them for their well-being. About 4 per cent stated that the family must be a cooperative unit so that peace, progress and happiness may be ensured.

Most of the elderly mentioned that unity is strength. About 13 per cent reported that they needed proper care from their kin with regard to food and clothing. Many of the aged were found worried about the modernist ideas of the new generation which, in their view, were breaking the joint into nuclear families. In their opinion, a nuclear family system is not good for the aged because in such families the elderly become superfluous and unwanted.

Due to an increased cost of living, and low wages, the nuclear family usually feels insecure. Field experience shows that the new generation does not care for the wisdom of the elders, whereas the aged people fail to cope with the fast changing realities of their lives. When asked what kind of help do they expect from their villagers, some became angry and said they did not need anything from their folks and fellow beings. They lament the destruction of the culture of cooperation and togetherness. About 25 per cent reported feelings of hopelessness and that the villagers cannot do anything for the aged people. Thus, they expected no improvement in their social life. However, about 9 per cent seemed hopeful and thought all was not lost, and through mutual cooperation, it was still possible to create a congenial ethos.

About 24 per cent of the aged reported no change in the community life of the village, whereas about 42 per cent said deterioration was conspicuous and that the socio-cultural change was happening for the worse. About 10 per cent saw no hope of help from government as they find the government to be indifferent to the needs of aged people, while about 10 per cent wanted the employment opportunities to increase immediately and substantially so that their sons and daughters could earn their livelihoods. A strong demand for old age pension was made by aged people - about 75 per cent reported that the old age pension must be given to the aged for sustenance.

CONCLUSIONS AND RECOMMENDATIONS

The dismissal of people from life follows a distribution skewed to the right where it ends. With an increasing life expectancy, the proportion of the aged persons in India is increasing. The socio-environmental problems have been found to play a significant role in determining the health conditions of the aged persons. Health hazards of the aged people are found to depend on the occupation they had during their adulthood; and illiteracy and poverty have their own impact on health during the old age. Due to the poor economic condition of people in the region under study, in particular, and in northern India in general, the demand from the aged people for financial support in the form of some kind of old age pension from the government was loud and insistent. If such an arrangement is made, it will certainly offer relief to the old people and help them live in peace.

Due to adverse familial relations within the family, several stress disorders occur which may lead to bad health. Thus, it is a matter of primary importance for the society to treat its aged persons in a manner that will not create feelings of guilt among the elderly for living a long life. The health condition of the aged women in rural areas is deplorable, calling for special attention. The housing conditions must be improved and smokeless stoves must be provided so as to prevent occurrence of incurable diseases at various stages of life. The mobile health care units could prove to be very useful in improving the condition of the aged and the ageing society. To generalise any results and/or statement of this study, some more areas should be covered using a larger sample survey.

TABLE 7

DISTRIBUTION OF AGED ACCORDING TO THEIR EXPECTATION OF AIDS FROM VARIOUS SOURCES

Source of Aids	Type of Aids*				Total**
	I	II	III	IV	
Family	155 (62.2)	11 (4.4)	32 (12.9)	51 (20.5)	249
Villagers	63 (25.3)	23 (9.2)	59 (23.7)	104 (41.8)	249
Government	26 (10.4)	183 (73.5)	16 (6.4)	24 (9.7)	249

Figures in parentheses show the percentages.

*For each source type of aid, I, II, III and IV have different meanings.

**18 aged persons were unable to say anything.

सारांश

प्रस्तुत लेख का उद्देश्य समाज के विभिन्न सामाजिक-आर्थिक और जनांकिकी समूहों में वृद्धावस्था के दौरान होने वाले रोगों के बारे में अध्ययन करना है। यह अध्ययन उत्तरी भारत के उत्तर प्रदेश राज्य के वाराणसी जिले के ग्रामीण क्षेत्रों में वृद्धावस्था और स्वास्थ्य स्थितियाँ—एक सैम्पल सर्वेक्षण, 1990 नामक सर्वेक्षण के अन्तर्गत किया गया था तथा यह 60 वर्ष से अधिक आयु वाले लगभग 267 वृद्ध व्यक्तियों के एक सैम्पल पर आधारित है। यह पाया गया कि वृद्ध व्यक्तियों की स्वास्थ्य स्थिति पर अपना अलग ही प्रभाव पड़ता है। यह भी देखने में आया है कि बूढ़ों के साथ प्रतिकूल पारिवारिक संबंधों के कारण अनेक तनाव संबंधी दोष भी उत्पन्न हो जाते हैं, जिनके परिणाम—स्वरूप वृद्धावस्था में उनके स्वास्थ्य पर बुरा प्रभाव पड़ता है। अध्ययन के अन्तर्गत चुने गए क्षेत्र में अधिकांश वृद्धों द्वारा वृद्धावस्था में पेंशन की माग की गई थी।

REFERENCES

1. BASU, A. AND K. BASU (1987) The Greying of Populations: Concepts and Measurements. *Demography India*, Vol. 16: No. 1, pp. 79-89.
2. BENFANTE, R., D. REED, AND J.A BRODY (1985) Biological and Social Predictors of Health in an Ageing Cohort. *Journal of Chronic Diseases*, Vol. 38, pp. 365-395.
3. BENJAMIN, B. (1989) Demographic Aspects of Ageing. *Annals of Human Biology*, 16(1), pp. 185-235.
4. BOSE, AB. AND K.D. GANGRADE (1968) The Ageing in India: Problems and Potentialities. Citizenship Development Society, Abhinav Publications, New Delhi, India, 16:pp. 132.
5. BRODY, J.A. AND E.L. SCHNEIDER (1966) Diseases and Disorders of Ageing: An Hypothesis. *Journal of Chronic Diseases*. 39:pp. 871-876.

6. BRODY, J.A. (1988) A Vision From Here to 2020. In American Association of Retired Persons. Health, Longevity and Vitality. Washington, D.C.
7. BRODY, J.A. (1989) Towards Quantifying the Health of the Elderly. *American Journal of Public Health*. 89, 6:pp. 685-686.
8. BUTLER, R.N. (1989) Biological Markers of Overall Ageing. *American Journal of Public Health*, 79, 6: pp. 687.
9. CENSUS OF INDIA (1991) Provisional Total, Series-I, Paper 1:40, Registrar General of India, New Delhi.
10. DAVIS, M. AND A. ROLAND (1980) Occupational Disease Among Black Workers: An Annotated Bibliography, Berkeley.
11. GULATI, S.C. (1989) Demographic Determinants of the Ageing Process: A Crosscountry Analysis. *Demography India*, 18, 1 and 2: pp.211-225.
12. GURALNIK, J.M. AND G.A. KAPLAN (1989) Predictors of Healthy Ageing. Prospective Evidence from the Alameda Country Study. *American Journal of Public Health*, 79: pp. 698-702.
13. IMHOF, A.E., I.E. KLOKE AND K. PLICHTA (1988) Life Planning the Consequences of the Steadily Increasing Life Span from 1650 to 2000. Faced with Longer Life Span, Do We Need Life Plan? *Zeitschrift fur Gerentaligie*, 21,4:pp.193-197.
14. JAMES, C.R. (1989) Exposure to Occupational Hazards Among Hispanic Blacks and Non-Hispanic Whites in California. *American Journal of Public Health*, 79.
15. TOSHIO, K. (1987) The Ageing of Populations. Populi, New York, 14,3.
16. LONGINO, C.G. (1988) A Population Profile of Very Old Men and Women in the United States. *Sociological Quarterly*, 29,4.
17. MARCIL-GRATON, N. AND L. JACQUES (1987) Being Old Today and Tomorrow) A Different Proposition. *Canadian Studies in Population*, Edmonton, Canaded to 2:pp. 237-241.
18. PAMELA, K. AND D.L WINGARD (1989) The Effect of Occupation Parental Roles on Mortality: The Alemeda Country Study. *Public Health*, 79, 5:pp.607-612.
19. PARK, J.E. AND K. PARK (1989) Preventive Medicine in Ob Geriatrics. *Textbook of Preventive and Social Medicine*, Ppp.321-322.

20. PRESTON, S., C. HIMES AND M. EGGERS (1989) Demographic Conditions Responsible for Population Ageing. *Demography*, 26, 4:691-704.
21. QIAO, X. (1987) A Population Ageing Model and Explanations. *Renkou Yanjiu*, 6:pp.30-35.
22. RAJAN, S.I. (1989) Ageing in Kerala: One More Population Problem? *Asia-Pacific Population Journal*, Bangkok, 4, 2:19-48.
23. RAMOS, L.R., P. RENATO AND A. KALACHE (1987) The Ageing of Population: The Brazilian Scene. *Revista de saude Publica*, Sao Paulo, Brazil, pp.211-224.
24. SARKAR, B.N. (1989) Demography of Aged People. Indian Academy of Social Sciences, Survey Research Centre, Calcutta, India, 16.
25. SARIN, M. (1990) Women and Environment: Health for the Millions. *Voluntary Health Association of India*, 16, 4: pp.7-9.
26. THOMPSON, J. (1987) Ageing of the Population: Contemporary Trends and Issues. *Population Trends*, London, England, 50:pp. 18-22.

**EVALUATION OF NATIONAL PROGRAMME FOR PREVENTION OF NUTRITIONAL BLINDNESS
AND NATIONAL NUTRITIONAL ANAEMIA PROPHYLAXIS PROGRAMME IN SELECTED STATES
OF INDIA**

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ABSTRACT

The present study was undertaken with the objective to evaluate National Programme for Prevention of Nutritional Blindness (NPPNB) and National Nutritional Anaemia Prophylaxis Programme (NNAPP) in the States of Maharashtra, Tamil Nadu, Orissa and Uttar Pradesh. The findings of the present study revealed that both of these national programmes were given a low priority at all levels in terms of procurement and distribution of drugs, implementation and monitoring of the programme activities. The allocation of budget at the central level was found to be inadequate in comparison to the number of eligible beneficiaries to be covered. No Information, Education and Communication (IEC) material was available, and storage facilities for the drugs were inadequate at State and district level.

In India, the National Programme for Prevention of Nutritional Blindness (NPPNB) due to vitamin A deficiency was initiated in the year 1970 under which mega doses of vitamin A solution are distributed every six months to children 1-5 years of age¹.

The National Nutritional Anaemia Prophylaxis Programme (NNAPP) was also initiated in 1970. Under this programme 100 tablets of iron and folic acid (IFA) (containing 60 mg of elemental iron and 500 mcg of folic acid) are distributed to pregnant, lactating mothers and acceptors of family planning methods, while to the children in the age group of 1-5 years, one hundred IFA tablets (containing 20 mg elemental iron and 100 mcg folic acid) are given per year. For very young children in the age group of 1-2 years, who cannot swallow tablets, **IFA** liquid is distributed². Both of these national health programmes are funded by the Government of India and are implemented by the respective State Governments through their health infrastructure.

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Research studies have shown that the vitamin A deficiency and iron deficiency anaemia continue to be a major nutritional problems in the country^{3,8}.

A multicentric collaborative study undertaken by the Indian Council of Medical Research in nine States revealed that there was a little difference with regard to the prevalence of anaemia between the supplemented group (88.1%) and the unsupplemented group (87.5%) indicating thereby that the iron and folic acid supplement given was not adequate and possibly the compliance was low³.

Results of an evaluation study on the NPPNB conducted by the National Institute of Nutrition in eight States of the country also highlighted that the coverage of the target population was poor⁴.

In 1987, the Ministry of Health and Family Welfare, Government of India, set-up a task force to assess the status of procurement and distribution of IFA tablets and vitamin A solution under the national programmes in order to recommend interventions which could improve the implementation of the two programmes. The objectives of the present study were to assess the existing procurement and distribution system of IFA tablets and vitamin A solution so the the Government of India can strengthen the implementation of NNAPP and NPPNB.

METHODOLOGY

The present study was conducted during 1990-91. The interview technique was used to study the procurement and distribution of IFA tablets and vitamin A solution being distributed under the two national programmes. Functionaries were interviewed in the Central Ministry of Health and Family Welfare, New Delhi, and at the State, district, primary health centre (PHC) and sub-centre levels. Amongst the beneficiaries of the two programmes, only antenatal mothers and children below 5 years (their mothers), were interviewed for the receipt and consumption of IFA tablets and vitamin A supplements respectively.

Four States namely Maharashtra, Tamil Nadu, Orissa and Uttar Pradesh were selected for the study. These States were selected as they had varied health infrastructures and were in different stages of socio-economic development. The three medical store depots (MSDs) located at Delhi, Bombay and Madras, which supplied IFA and vitamin A supplements to these States (after their procurement from pharmaceutical companies on behalf of Government of India) were also studied.

In each State, one district with the Integrated Child Development Services (ICDS) scheme was randomly selected. In the district selected, 2 PHCs (one with

ICDS scheme and another without ICDS) and in each PHC, 2 sub-centres were selected for the detailed study. In each sub-centre eight antenatal mothers and eight under five years' children (their mothers) were interviewed about the receipt and consumption of IFA tablets and vitamin A solution by their children.

RESULTS

Observations at Central Level

It was found that there were no defined objectives for the NNAPP and NPPNB due to vitamin A deficiency. The targets for coverage of beneficiaries were distributed to the States depending on their previous year's performance. These were decreased or increased by the Government of India without consulting the State Governments.

Table 1 gives the eligible beneficiaries available in 1989-90 and the quantity of drugs procured for them. Results showed that the IFA tablets were procured for 22 million adult and 30 million child beneficiaries while the eligible target were 48 and 96 million respectively. Similarly, the vitamin A supplement was procured for 30 million beneficiaries against an eligible population of 96 million.

TABLE 1
PROCUREMENT OF DRUGS FOR BENEFICIARIES

Beneficiary	Eligible Target	Quantity of drugs procured* for eligible beneficiaries
Mothers for IFA (pregnant and lactating 6%)	48 M	22 M
Children for IFA (children below 5 years 12%)	96 M	30 M
Children for vitamin A (children between 1 -< 6 years 12%)	96M	30 M

*1989-90: Population 800 M

Table 2 depicts targets and achievements under the two programmes. It was found that at times the reported coverage of beneficiaries by States was more than the actual number of doses provided to them. This is evident for vitamin A supplement coverage during 1987-88 and 1988-89. This indicated that the beneficiaries were given inadequate doses and were reported as fully covered.

TABLE 2
TARGETS AND ACHIEVEMENTS UNDER NPPNB AND NNAPP

(Figures in millions)

Year	IFA				Vit. A	
	Mother		Children			
	Target	Achievement	Target	Achievement	Target	Achievement
1985-86*	14.00	18.05***	14.00	17.16***	24.96	24.40***
1986-87*	18.64	14.47	19.43	12.82	28.97	30.24***
1987-88*	22.00	18.65	22.00	18.50	30.00	46.62***
1988-89*	22.00	21.09	30.00	21.61	30.00	41.47***
1989-90	22.00	11.23*	30.00	12.24*	30.00	23.25*
1990-91**	20.05	N.A.	35.00	N.A.	30.00	N.A.

*Achievement till December 1989.

**Annual targets calculated from April to March month.

***Indicates more than 100 per cent achievement.

Table 3 depicts the combined budget allocated to NNAPP and NPPNB. It was found that a budget of only 90.7 million rupees was sanctioned by the Government of India. It was revealed that this was a major constraint for the total coverage of the eligible target beneficiaries under the two programmes.

TABLE 3
COMBINED BUDGET ALLOCATED FOR NNAPP AND NPPNB BY GOVERNMENT OF INDIA

(Rs. in lakhs)

Year	Budget allocated	Revised budget sanctioned
1985-86	350	450
1986-87	430	580
1987-88	500	611
1988-89	700	700
1989-90	800	907
1990-91	830	N.A.

The cost of the IFA tablets (large), IFA tablets (small), IFA liquid and vitamin A supplement was Rs.11.49 per 1000, Rs.4.94 per 1000, Rs.2.99 per 50 doses and Rs.23.00 per 50 doses respectively (Table 4). It was found that the cost of these nutrient supplements remained static during 3 years, i.e. from 1988-89 to 1990-91, although the cost of labor, ingredients of drugs, transportation increased by about 20 per cent. This indicated that possibly, the quality of drugs was

compromised. An independent study conducted earlier by Indian Council of Medical Research revealed that more than 30 per cent of IFA tablet samples had inadequate amount of folic acid³.

TABLE 4
COST OF DRUGS (IFA AND VITAMIN A)

(in Rs.)

Year	Cost of IFA and Vitamin A Supplements			
	IFA(L)*	IFA(S)**	IFA(liq)***	VIT.A****
1988-89	11.11	4.75	2.90	23.73
1989-90	11.11	4.75	2.99	23.73
1990-91	11.49	4.94	2.99	23.00

IFA (L) = Iron and Folic Acid (large)
 IFA (S) = Iron and Folic Acid (small)
 IFA (liq) = Iron and Folic Acid (liquid)
 Vit.A = Vitamin A

* Per Tin of 1000 IFA large tablets (10 beneficiaries)
 ** Per Tin of 1000 IFA small tablets (10 beneficiaries)
 *** Per bottle of IFA liquid 100 ml (1/2 beneficiaries)
 **** Per bottle of vitamin "A" solution 100 ml (50 beneficiaries)

<u>Cost of Coverage per beneficiary</u>		<u>Drug</u>
i.	Re.0.46/beneficiary	Vit. A
ii.	Re.0.49/beneficiary	IFA (S)
iii.	Rs.1.14/beneficiary	IFA (L)
iv	Rs.5.98/beneficiary	IFA (liq.)

Results revealed that cost of coverage of each beneficiary by vitamin A solution was Re.0.46. IFA paediatric tablet Re.0.49. IFA adult tablets Rs.1.14 and IFA liquid Rs.5.98. It was found that the coverage of children by IFA liquid was least cost effective. However, the expenditure incurred on purchase of this drug increased nearly 5 times during the year 1987-88 to 1989-90 (Table 5). This was possibly because the policy makers were not aware of this fact.

Observations at State Level

Observations highlighted that the States were not consulted for distribution of targets for coverage of beneficiaries. The States population and eligible beneficiaries present were not considered while allocating targets (Table 6). The State of Uttar Pradesh which has a higher population was given a less target (30 million) for adult beneficiaries as compared to Maharashtra (37 million). The

targets were increased or decreased without consulting the concerned State authorities. The States with good health infrastructure and performance received higher allocation as compared to other States.

TABLE 5
(EXPENDITURE INCURRED IN IFA (S) AND IFA (LIQ.))
(Figures in Total Numbers)

Year	Expenditure Incurred	
	IFA (S) Rs.	IFA (Liq.) Rs.
1987-88	97,06,917	65,54,111
1988-89	1,16.02,975	1,62,85,348
1989-90	1,30,17,921	2,81,36,022

Note: The quantity of IFA (Liq.) procured constantly increased during three years.

TABLE 6
TARGETS AND ACHIEVEMENTS FOR THE YEAR 1980-00 UNDER NNAPP AND NPPNB
(In Million)

	Uttar Pradesh		Maharashtra		Orrisa		Tamil Nadu	
	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
IFA (I)	30.00	23.56	37.00	33.44	8.36	9.90	13.40	12.11
IFA (s)	26.00	23.50	32.50	30.46	20.00	17.80	30.00	26.80
Vrt A	26.00	16.85	32.50	31.63	20.00	20.50	32.69	27.36

It was found that the States did not receive the allocation of targets to be covered under two programmes at the beginning of the year which delayed distribution of targets by State to the various districts and further, by districts to the peripheral health institutions.

Observations at the Medical Store Depots

Each State received IFA tablets and vitamin A through the MSDs located in their region. The Government of India ordered pharmaceutical companies to supply the specific quantity of IFA and vitamin A to the MSDs as per the targets for the coverage allocated to the States catered by them. It was found that the States did not receive the allocated quota of IFA supplements and vitamin A although their respective MSDs had adequate stocks of these drugs. The MSDs waited for the instructions from the Government of India to release the drugs to the

State Government and instructions were not received by MSDs in time due to bureaucratic procedures.

Observations at the District and PHC Levels

It was found that the targets were not distributed according to population catered by a health unit. Also, the number of doses in each packaging of IFA tablets and vitamin A was not considered while distributing the targets for coverage. Ideally the targets should be distributed in multiple of 10 or 50, but it was found that this was not done (Table 7).

TABLE 7

TARGETS AND ACHIEVEMENTS FOR COVERAGE OF BENEFICIARIES
UNDER NNAPP AND NPPNB OF PHC AJANTA, DISTRICT. AURANGABAD,
MAHARASHTRA

Year	Target Beneficiaries	Achievement Beneficiaries	Percentage
IFA (Large)			
1987-88	1,472	1,786	121.33
1988-89	1,565	1,789	114.31
1989-90	1,729	2,149	124.29
IFA (Small)			
1987-88	1,476	1,456	98.64
1988-89	1,420	1,512	106.48
1989-90	1,520	1,482	97.50
Vitamin A			
1987-88	1,409	94	6.67
1988-89	1,420	888	62.54
1989-90	1,518	1,856	122.27

Health institutions near the State headquarters/district headquarters were distributed more IFA and vitamin A drug as compared to those located at a distance. In all the States, there was no organized system of distribution of drugs from the State headquarters to the various districts and further to the peripheral health institutions.

Observations at Beneficiary Level

The distribution of IFA tablets to pregnant mothers at the sub-centre was done at the time of administration of tetanus toxoid (TT) injection. Vitamin A solution was generally distributed using the camp approach. The eligible children were collected and vitamin A was given to all on the same day.

It was found that at times less quantity of IFA and vitamin A was received by the health institutions but the achievements of coverage of beneficiaries by the supplements was shown to be more which indicated that inadequate doses were given to the beneficiaries and were reported as fully covered (Table 7).

The IFA tablets were available only in tin packs which had 1000 tablets each. The beneficiaries were distributed 30 tablets at a time usually either in loose form or wrapped in paper.

Haemoglobin estimation of pregnant mothers was done for those who attended the sub-centre clinic for receipt of tetanus toxoid and antenatal care. However, only 100 tablets were provided to them irrespective of their haemoglobin levels. It was found that rare cases, vitamin A was also administered to pregnant mothers, for treatment of night blindness, who were in their third trimester of pregnancy. The peripheral health functionaries were not aware of possible toxic effects of mega dose of vitamin A on the foetus.

On validation of reported coverage of pregnant mothers as per the records (within last 15 days), only 70 per cent of beneficiaries were found to have received the IFA tablets. It was observed that about 40 per cent of the IFA tablets distributed were not consumed by the beneficiaries due to discolouration, forgetfulness, side effects (like constipation, gastric irritation) and destruction of the outer coating by ants. Similarly, nearly 20 per cent of the vitamin A was lost during process of administration to children due to spilling or rejection. Although, a spoon was provided with each bottle of vitamin A solution, the lid of the bottle was commonly used for administration of vitamin A as it was found to be more convenient and practical in the field conditions.

Proper storage of the drugs at the health institutions was found to be either absent or poor at both, the State and district levels. The drugs were stored at any available space *e.g.* corridors, verandah, open ground, etc. The inventory control, the first in first out principle, was also not exercised. The manufacturing date and expiry date were not maintained and were considered for inventory control as the staff was untrained and was not oriented to its utility.

Monitoring of the two programmes was given a low priority at all the levels. No supervisory visits were undertaken to validate the reported achievements by the peripheral health functionaries. The maintenance of records by the peripheral workers was poor and no printed registers were available for the same. Uniform guidelines to record the coverage of beneficiaries were either absent or if present, differed from State to State.

No Information, Education and Communication (IEC) material was present and inadequate health education was provided by the peripheral health functionaries to the beneficiaries for dietary consumption of foods rich in iron or vitamin A (for children).

No inservice training was provided to the health functionaries at various levels about the significance of the iron deficiency, anaemia and nutritional blindness due to vitamin A deficiency and national programmes for their prevention and control.

The findings of the present study revealed that NNAPP and NPPNB due to vitamin A deficiency were given a low priority at all levels in terms of procurement and distribution of drugs, implementation and monitoring of the programme activities. The allocation of budget at the central level was found to be inadequate in comparison to the number of eligible beneficiaries to be covered. No IEC material was available, and storage facilities for the drugs were inadequate at State and district levels.

Government of India accepted some of the recommendations of this study to improve the activities of the two programmes. The actions were taken which included the discontinuation of IFA liquid (as it was found to be least cost effective), higher allocation of funds for these two programmes and IEC materials were produced for distribution to the States.

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यह अध्ययन महाराष्ट्र, तमिलनाडू, उड़ीसा और उत्तर प्रदेश राज्यों में संचालित राष्ट्रीय पोषणात्मक रक्ताल्पता रोगरोधक कार्यक्रमों का मूल्यांकन करने के उद्देश्य से किया गया था। इस अध्ययन से प्राप्त निष्कर्षों से पता चलता है कि आवश्यक दवाइयां मुहैया कराने और इनका विवरण करने तथा निष्कर्षों से पता चलता है कि आवश्यक दवाइयां मुहैया कराने और इनका वितरण करने तथा कार्यक्रम संबंधी गतिविधियों के क्रियान्वयन एवं प्रबोधन के संदर्भ में सभी स्तरों पर इन दोनों ही राष्ट्रीय कार्यक्रमों को अल्प प्राथमिकता दी गई थी। इन कार्यक्रमों के अर्न्तगत कवर दिये जाने वाले पात्र लाभानुभोगियों की संख्या को देखते हुए केन्द्र द्वारा आबंटित बजट राशि भी अपर्याप्त पायी गई थी। राज्य और जिला स्तर पर किसी प्रकार की सूचना, शिक्षा एवं संचार सामग्री उपलब्ध नहीं थी और दवाइयों के भण्डारण हेतु आवश्यक सुविधाएं भी अपर्याप्त पाई गई थी।

REFERENCES

1. MINISTRY OF HEALTH AND FAMILY WELFARE, GOVERNMENT OF INDIA (1991) Policy on Control of Nutritional Anaemia. Government of India Press, pp. 6-10.
2. MINISTRY OF HEALTH AND FAMILY WELFARE, GOVERNMENT OF INDIA (1991) Policy on Management of Vitamin A Deficiency. Government of India Press, pp. 4-9.
3. MINISTRY OF HEALTH AND FAMILY WELFARE, GOVERNMENT OF INDIA AND UNICEF (1989) Report of the Meeting on Prevention and Control of Nutritional Anaemia. ICMR Printing Press, New Delhi, pp. 50.
4. SRIKANTIA, S.G. (1981) Vitamin A Deficiency Prevention Programme. In: Ed. Gopalan C. Combating Undernutrition. Basic Issues and Practical Approaches. Nutrition Foundation of India, Vashima Printers, India, pp. 353-356.
5. ICMR TECHNICAL REPORT SERIES NO. 26, NEW DELHI (1977) Studies on Preschool Children. Report of the Working Group, pp. 17-21.
6. SOOD, S.K. (1984) Nutritional Anaemia in the Developing World. Challenges in the Management and Control. In: Eds. Ahuja MMS, Human A Progress in Clinical Medicine, India, pp. 251-256.
7. BASU, R.N., SOOD, S.K., RAMACHANDRAN, K., MATHUR, M. AND RAMALINGASWAMI, V. (1973) Etiopathogenesis of Nutritional Anaemia in Pregnancy. A Therapeutic Approach. *Am. J. Clin. Nutr.* 26, pp.591-596.
8. AGARWAL, D.K., AGARWAL, K.N., AND ROY CHOUDHARY, S. (1988) Targets in National Anaemia Prophylaxis Programme for Pregnant Women. *Indian Pediatr.* 25 pp. 1108-1115.
9. GOPALAN, C. (1986) Vitamin A Deficiency and Child Mortality. In: Ed. Gopalan C. Combating Undernutrition, Basic Issues and Practical Approaches. Nutrition Foundation of India, . Printers, India, pp. 357-361.

A STUDY OF AVERAGE LENGTH OF STAY OF PATIENTS IN SAFDARJUNG HOSPITAL, NEW DELHI

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ABSTRACT

This paper identifies the controllable factors which have impact on average length of stay of in-patients in a large hospital and suggests measures to control the same so as to reduce the average length of stay of in-patients for maximum utilisation of the existing available resources in the hospital. The study reveals that non-Delhi in-patients, rural inpatients and patients admitted in the weekend stayed more. Further, the study recommends definite written policies and procedures for admission in the hospital, admission scheduling system, and strengthening of medical information system for smooth functioning of the hospital.

The average length of stay (ALS) indicates the average number of days a patient has been hospitalised³. It has become imperative to have a closer look at ALS, as today the hospital is a costly resource and the hospital is also over crowded due to non-regionalisation of hospital services and the availability of super specialised services, specially in large general hospitals. The target of 1 bed/1000 population has not been reached even today. There are various factors, one being average length of stay of patients in hospital and the same is being attempted in this paper.

OBJECTIVE

The objective of this study was to identify all the controllable factors which have effect on ALS and control the same in such a way that there occurs optimal decrease in ALS and maximum utilisation of existing available resources for treating more number of in-patients within the existing resources.

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METHODOLOGY

This study was carried out in two stages during January- December 1988 in general medicine department of Safdarjung Hospital, New Delhi. The sample frame for the first stage was 9691 discharged case records, who utilised 5386 patient days, belonging to 17 Major Diagnostic Categories (M.D.C.) of International Classification of Diseases Adopted (ICDA) code 8 and for the second stage it was 728 discharged case records belonging only to Diagnostic Related Category of Ischaemic Heart Disease code 410-414 of I.C.D.A. code 8.

These two dissimilar and similar categories were chosen to note the variation in resource utilisation by these categories so as to make comparisons between them. A 10 per cent sample of 969 and 73 case records represented a manageable and a true representative of the discharged case records.

FINDINGS

As there was no waiting list for in-patients, the ALS was dependent on channel of hospitalisation in the study 'A' and in-patients admitted through O.P.D. stayed the longest 6.7 days as compared to other channels viz casualty and follow up clinic (least for F.U.C-5.4 days) (Table 1) but not in study B as cases belonged to emergency nature of disease.

In both the studies ALS of non-Delhi in-patients was longer 6.8 days and 6.0 days as compared to Delhi 5.7 and 5.3 days respectively (Table 1). Also rural patients stayed longer 6.6 days as compared to their urban counterparts (Table 1).

When the day of hospitalisation was at weekends the ALS was more as compared to week days e.g. Saturday had 8.0 days and Sunday had 8.6 days (Table 2) in the study 'A' only.

Similar variation was seen in monthwise admissions. From January to April, ALS was high but in summer months it was less (Table 2).

The male utilised more hospital days (6.1 days) in the study 'A' (Table 1) whereas the female utilised more hospital days (6.9 days) in the study 'B'.

Similarly married stayed for longer (6.2 days) [Table 1] in the study 'A' whereas unmarried stayed for longer (10 days) in the study 'B'.

In both the studies, the ALS of in-patients was depending upon which disease category he belonged (i.e Medical Diagnostic Category-M.D.C). The longest ALS was 12.1 days for in-patient of M.D.C. 3 (Endocrine, Nutritional, Metabolic and Immunity disorders) and shortest was for in-patient M.D.C. (complications of pregnancy and child birth) (1.6 days) in the former study. In the latter study 414 disease code in-patients had 5.5 days, the lowest ALS, whereas 410 disease code, it was 8.3 days, the highest ALS (Table 3 and 4).

In-patients admitted with confirmed diagnosis, the ALS was shorter 5.5 days as compared to the undiagnosed cases 9.4 days. (Table 5).

Condition at the time of discharge affected the ALS. In-patients improved who stayed longest (7.1 days) as compared to those who did not improve (3.3 days) and who died (4.4 days) (Table 3).

In-patients who left hospital on clinicians advice had longer ALS (6.4 days) as compared to those who went LAMA (left against medical advice) (3.9 days) and absconded (1.6 days) (Table 5).

Another factor which affected ALS was the delay; time spent in start of treatment and in getting investigations done. The mean delay in the study 'A' was 1.31 hrs. (Table 5) but there was no delay in the study 'B'. It was difficult to calculate the exact delay as the exact time of ordering and exact time of receiving the reports was not reported still an attempt was made.

In the study 'A', 443 in-patients took routine pathological investigations and delay occurred for 59 in-patients (13.3%) whereas specialised services were utilised by 55 cases and delay occurred for 31 (56.3%) cases.

Routine microbiological services were taken by 75 cases and delay occurred for 15 (20.15%) in-patients and 37 in-patients took specialised services and delay occurred for 29 cases (78.3%).

Similarly, 547 in-patients took routine biochemistry investigations and delay occurred for 264 cases (48.2%) whereas 221 in-patients took specialised investigations and delay occurred for 102 cases (46.1%).

TABLE 1

**ALS (DAYS) OF DISCHARGED CASES (1988) IN MEDICAL DEPARTMENT OF
SAFDARJUNG HOSPITAL**

STUDY 'A'

	Number	P.D.	ALS
Channel			
OPD	170	1144	6.7
F.U.C.	10	54	5.4
Casualty	790	4638	5.8
<u>State wise</u>			
	706	4039	5.7
Delhi	264	1797	6.8
Non-Delhi			
Sex	648	3978	6.1
Male	322	1858	5.7
Female			
<u>Residence</u>			
	768	4052	5.2
Urban	202	1334	6.6
Rural			
Marital Status			
Married	825	1530	6.2
Single	145	806	5.5
Agewise (in yrs)			
14-19	124	732	5.9
20-29	210	881	4.1
30-39	140	763	5.4
40-49	126	820	6.5
50-59	162	921	5.6
60 and above	208	1279	11.8

PD = Patient Days

ALS = Average Length of Stay

TABLE 2

**ALS (DAYS) OF DISCHARGED CASES (1088) IN MEDICAL DEPARTMENT ACCORDING TO
DAYWISE AND MONTHWISE**

	Number	P.O.	ALS
<u>Daywise</u>			
Monday	159	956	6.0
Tuesday	110	799	7.2
Wednesday	129	774	6.0
Thursday	136	848	6.2
Friday	118	977	8.2
Saturday	114	918	8.0
Sunday	65	564	8.6
<u>Monthwise</u>			
January	77	552	7.15
February	74	445	6.0
March	76	536	7.0
April	77	578	7.5
May	84	436	5.1
June	84	528	6.2
July	80	378	4.7
August	111	662	5.9
September	84	504	6.0
October	88	481	5.4
November	78	403	5.1
December	69	361	5.2

PD = Patient Days

ALS = Average Length of Stay

The radiological investigations were taken by 118 in-patients and delay occurred for 38 (32.2%) cases.

DISCUSSION

The following factors were noted which could be controlled to decrease ALS. The in-patients who were admitted through OPD were not acute cases and many were hospitalized for investigations, research purposes, observation and insistence of patients, so they stayed longer⁸.

TABLE 3

**ALS (DAYS) OF DISCHARGED CASES (1988) IN MEDICAL DEPARTMENT ACCORDING
TO 17 M.D.C. AND CONDITION AT TIME OF DISCHARGE**

17 M.D.C.				CONDITION AT TIME OF DISCHARGE								
				IMPROVED			DIED			UNCHANGED		
	Number	P.D.	ALS	(I) Number	P.D.	ALS	(D) Number	P.D.	ALS	(U) Number	P.D.	ALS
1	195	1121	5.7	125	971	7.7	22	59	2.6	48	75	1.5
2	21	252	12.0	11	175	15.9	5	48	9.6	5	46	8.7
3	29	352	12.1	21	260	12.3	8	24	3.0	10	93	9.3
4	37	312	8.4	25	247	9.8	6	18	3.0	5	37	7.4
5	7	32	4.5	5	24	4.8	2	9	4.5	-	.	-
6	65	630	9.6	42	437	10.4	13	163	12.5	9	108	12.0
7	268	1526	5.6	194	1275	6.5	25	67	2.6	50	78	1.5
8	165	806	4.8	114	660	5.7	16	59	3.6	35	66	1.8
9	19	102	5.3	8	59	7.3	2	3	1.5	9	61	6.7
10	51	341	6.6	29	240	8.2	9	42	4.6	13	73	5.6
11	3	5	1.6	2	4	2.0	-	-	-	-		-
12	1	8	8.0	1	8	8.0	-		-	-		-
13	2	13	6.5	1	7	7.0	1	6	6.0	-		-
14	5	36	7.2	2	18	9.0	3	18	6.0	-		-
15		-	.		-	-			-	-		-
16	40	147	3.6	25	101	4.0	11	39	3.5	5	29	5.8
17	60	153	2.4	47	112	2.3	2	2	1.0	8	29	3.0
Total	97	5386	6.0	645	4598	7.1	125	559	4.4	200	679	3.39

I = Improved; D = Died; U = Unchanged

PD = Patient Days

ALS = Average Length of Stay

TABLE 4

ALS (DAYS) OF DISCHARGED CASES (1988) IN MEDICAL DEPARTMENT ACCORDING TO CODE WISE AND AGEWISE

N = 73

Code	Number	P.D.	ALS
410	28	233	8.3
411	2	8	4.0
412	5	18	3.6
413	3	16	5.3
414	35	193	5.5

Age Code	40-49			50-59			60 and above		
	No.	P.D.	ALS	No.	P.D.	ALS	No.	P.D.	ALS
410	-	-	-	6	48	8.0	23	185	8.4
411	1	4	4.0	-	-	-	1	4	4.0
412	-	-	-	1	3	3.0	3	11	3.0
413	3	15	5.0	-	-	-	-	-	-
414	5	18	3.6	10	49	4.9	20	126	-
									6.3
Total	9	37	4.1	17	100	5.8	47	326	7.0
Percentage	12.3			23.2			63		

The non-Delhi and rural in-patients stayed longer because they could not attend OPD repeatedly from outside; they waited to get all of their reports, till they felt well enough to leave and also specialized services were only available in big city hospitals. There was no discharge policy.

Less number of in-patients were hospitalized on weekends, so the demand for beds was less, OPDs were closed on weekends and also laboratory facilities were closed. Consequently these in-patients stayed longer. But this discrepancy was not noted in the latter study as all cases belonged to emergency nature of disease who got all facilities on priority basis⁸.

TABLE 5

**ALS (DAYS) OF DISCHARGED CASES (1988) IN MEDICAL DEPARTMENT ACCORDING TO
CONDITION AT TIME OF HOSPITALISATION**

	Number	P.D.	ALS
Condition at time of hospitalisation			
Known	224	1248	5.5
Unknown –	226	2131	9.4
Confirmed	520	2457	4.7
- Unconfirmed			
Deaths			
*Upto 24 hours	71	611.55 hrs.	8.6
Less than 48 hours includes*	116	138	1.18
More than 48 hours	84	541	6.4
Way patient left hospital			
Physician advice	841	5383	6.4
LAMA	107	423	3.9
Absconded	22	36	1.6
Mean delay in start of treatment in hours = 1.31			

In winter months January to April the in-patient load was less, less demand on hospital beds and ALS of these in-patients was high. In summer months due to heavy in-patient load as a result of outbreak of infectious diarrheal diseases, the ALS was less. In July it was least 4.7 days due to epidemic of acute gastroenteritis, the demand for hospital beds had increased very high. But this variation was not noted in the study 'B' as all cases belonged to emergency nature of the disease⁶.

Age of in-patients did have an effect on ALS. Though there was no linear rise of ALS in the former study as cases belonged to all 17 Major Diagnostic Category out of 210 in-patients (21.6%) who belonged to age group of 20-29 years most of them were from M.D.C. 1 of Infectious Diseases which were hospitalized for shorter duration depending upon the nature of disease. Whereas in age group of 60 and above most of cases out of 208 (21.4%) belonged to M.D.C. 7 (Diseases of Cardiovascular System) which were of emergency in nature and took longer to convalescence due to old age but in latter study a linear rise was noted from age 40 to 60 years and above as in-patients belonged to similar category and as age advanced the ALS increased as older patients took longer to convalescence and rehabilitate themselves⁷ (Table 4).

The males utilised more hospital days in the study 'A'. Males hospitalised were more than females because they were the bread winner of the family but this variation did not occur in the latter study and females utilised more hospital days as condition was life threatening⁷.

The unmarried in-patients stayed for shorter duration as the responsibility to stay in hospital had to solely bear upon themselves alone in the study 'A'. But in the study 'B' the unmarried stayed for longer because the disease was life threatening⁵.

In both the studies ALS was affected with illness in which in-patient was presented to the hospital, the ALS was 6 days in the former study. The disease categories which had more number of in-patients had shorter ALS depending upon the nature of the disease viz. M.D.C. 1 had 195 cases (20%), MDC 7 (Diseases of Circulatory System) had 208 cases (27.6%) and MDC 8 (Diseases of Respiratory System) had 168 cases (17.6%) and ALS were 5.7 days, 5.6 days and 4.8 days respectively similarly for the latter study code 414 (other forms of chronic Ischaemic heart disease) had 35 in-patients (47.4%) and 410 (Acute Myocardial Infarction) had 28 in-patients (38.3%) and their ALS were 5.5 days and 8.3 days respectively⁴.

In the study 'A' the cases which were confirmed had longer ALS because this was due to the time spent in getting investigations done. But this was not noted in the study 'B' as only optimal time was spent in getting investigations done on priority basis due to emergency nature of the disease².

The in-patients who improved had stayed longer because it was the time spent in getting investigations done and also till they felt satisfied to leave the hospital. These people on an average stayed 2.7 days longer than unconfirmed cases. The in-patients whose condition remained unchanged had ALS of 3.3 days.

Also the in-patients who went LAMA (left against medical advice) or absconded wasted hospital resources. They were either dissatisfied with their treatment or were medico-legal cases and were frightened of the police¹.

In pathological services the delay caused on an average an in-patient to stay was 1.7 days extra in the hospital as compared to those cases who had no delay in routine investigations whereas for specialised investigation 4.6 days extra were spent in sending the sample and 3 days in receiving the report.

For routine microbiology investigations in-patients spent 1.4 days extra in former (time from ordering and sending of the sample) and 1.2 days extra in latter (time from sending of sample to receiving of report) as compared to those who did

not have delay whereas 1.4 days extra in former and 2.7 days extra in latter were spent by in-patients who took specialised investigations.

Whereas in-patients who took routine biochemistry investigations the extra time spent in former was 1.39 days and in latter 1.46 days and for specialised investigations it was 1.25 days and 1 day respectively.

In radiological investigations the in-patients took 2.7 days extra as compared to those who did not have the delay.

RECOMMENDATIONS

1. In order to avoid unnecessary admissions there should be definite written policies and procedures.
2. Hospital Admission Scheduling System should be formulated which could forecast the pressure on hospital resources daywise and monthwise and help in proper scheduling of in-patients admissions and discharges.
3. Certified Hospital Admission Programme (CHAP) is another way by which only those in-patients who really need admissions would be hospitalised by the use of computer analysis.
4. By strengthening of medical information system (M.I.S.) hospital admission and surveillance programme could be formulated. This would provide professional reviews of hospital admissions.
5. Medical records are to be updated correctly and filed systematically.
6. By preparing systematic pre-discharge plan so as to decrease the unnecessary delay in discharges.
7. Ownership of the hospital determines the length of stay in the hospital. When the services offered are free of cost in Government hospitals, there is a tendency for misutilisation of hospital stay, hence, a reasonable fee should be charged on the services.
8. Medical-audit is to be performed periodically and personnel found doing irregularities are to be checked.
9. Formulation of Utilisation Review Committee which would periodically evaluate the hospital services which will ultimately control unnecessary services.

10. Separate hospital Award could be made for terminally ill patients so that main wards resources are not utilized for them.
11. Clinicians and laboratory personnel need to write exact time of ordering of investigations, sending of sample and receiving of reports so that delay could be exactly pin pointed and remedial action can be taken.
12. Hospitals of indigenous system of medicines be established in more number so that patients having faith in them could be diverted.

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प्रस्तुत लेख में एक बड़े अस्पताल में अंतरंग रोगियों के ठहरने की औसत अवधि को प्रभावित करने वाले नियन्त्रक कारकों का पता लगाने के साथ-साथ रोगियों को अस्पताल में उपलब्ध सेवा-सुविधाओं का कम समय में अधिकतम लाभ देने के लिए अंतरंग रोगियों के ठहरने की औसत अवधि को कम करने संबंधी नियन्त्रक उपाय भी सुझाए गये हैं। अध्ययन से प्राप्त निष्कर्षों से पता चलता है कि दिल्ली से बाहर से आने वाले अंतरंग रोगी, गांवों से आने वाले अंतरंग रोगी और सप्ताहान्त में भर्ती होने वाले रोगी ही अस्पताल में अधिक समय तक ठहरते थे। इसके अतिरिक्त अध्ययन में रोगियों की भर्ती संबंधी निश्चित लिखित नीतियां बनाने, उन्हें भर्ती किए जाने की प्रक्रिया, प्रवेश तालिका प्रणाली, और अस्पताल के सुचारु संचालन के लिए चिकित्सा सूचना प्रणाली को सुदृढ़ बनाने संबंधी सिफारिशें भी की गई हैं।

REFERENCES

1. ALTMAN, I. (1965) Some Factors Affecting Hospitals Length of Stay, *Hospitals*, Vol.39 No 14, July 16, pp. 46.
2. AVERY, JONES (1984) Length of Stay in Hospitals. *The Lancet*, Feb.8, p.301 -322.
3. DAVIES, L. AND MACAU LAY (1969) Hospital Planning and Administration, WHO, Geneva, pp.26-35, 101-121, 185-194.

4. GUPTA, J.P. AND ANAND, T.R. (1970) Factors Affecting Utilisation of Hospital Bed - A Study of Surgical Department of Large Delhi Hospital, *Hospital Administration*, Vol. 13, No. 2 and 3, June-Sep. pp. 94-107.
5. HUNT, L.B. (1973) The Elderly in Hospital, Recent Trends in Use of Medical Resources, *British Medical Journal*, London, Dec. 22, Vol. 4 Supplement, pp.83-85.
6. JENSEN, G. AND RICHARD, K. (1984) Cyclical Behaviour of Hospital Utilisation and Staffing, *Health Services Research*, Vol. 19, No. 2, June, pp. 161-166.
7. PEARSON, R.C. *et al.* (1968) Hospital Caseloads in Liverpool, New England and Uppasalon - An International Comparison, *The Lancet*, Sept. 7, Vol. 2, pp. 559-566.
8. PRIMAVESI, C. (1968) A Study of Some Factors Affecting Patients Length of Stay of Hospitalisation Quoted in Abstracts of *Hospital Management Studies* Vol.5, No. 18, pp. 312.

EVALUATION OF MCH SERVICES PROVIDED BY AN URBAN HEALTH CENTRE****

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ABSTRACT

This article evaluates the existing MCH services in the field practice areas of Urban Health Centre, Shivaji Nagar, Bombay, so as to improve the health status of women in reproductive age group and children below five years of age. The findings of the study reveal that acceptance of family planning is appreciable but there is much scope for improvement specially in regard to late acceptance of family planning and \ terminal methods. The study has also observed that there are socio-cultural and behavioural barriers like female literacy, poverty, low status of women etc. which affect the MCH services. The study suggests that IEC activities, involvement of NGOs and private practitioners will go a long way in improving immunisation coverage.

The urban population of India is growing at an alarming rate. The decade 1971-81 registered a growth rate of 3.8 per cent per annum for urban population compared to 1.8 per cent per annum for rural population. It is observed from 1991 census that growth rate of urban population has been much larger than the projected one. By the year 2000, it is estimated that about 330 million will live in urban areas out of which about 40 per cent will live in slums.

As per the 1991 census, Bombay's population has reached 10 million and 50 per cent of its population belongs to the underprivileged residing in slum or slum like areas. The living conditions in the slum area are extremely poor characterized by overcrowding, and poor environmental conditions. People living

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****HSR Project, Coordinated by NIHFW, New Delhi and Funded by the World Health Organization.

in these areas are sometimes living under subhuman living conditions which are at times more pathetic than the conditions prevailing in rural areas. There is no dearth of health care facilities in terms of hospitals, beds, equipments, sophisticated treatment methods and highly specialised health manpower still the health status of a large proportion of population specially mothers and children in urban areas remains very poor.

Women in reproductive age group and children who constitute vulnerable section of the population form about 62 per cent of total population of India (40% children below 15 years and 22% women in reproductive age group i.e. 15 to 45 years). In India, it is estimated that about 100,000 women die each year in process of reproduction, the maternal mortality rate being 3/1000 live births annually. Similarly out of 23 million livebirth taking place; about 2.2 million children in India die before the age of one year and about 1.7 million die between the ages of one and four. Amongst the children who escape the clutches of death, many suffer from various diseases and are in sub-optimal condition of health. In addition sizeable number of babies are born dead and there is no record of such cases. Maternal health and survival of child are interrelated. Mother's health is the key to the health of her family and therefore, foundation of community and social progress. The basic situation of women and children in India poses greatest challenge to the achievement of the goal of 'Health for all by 2000 AD'. Considering the above facts the Government of India in its policy and strategy has decided to make maternal and child health as main thrust area of health care system.

Realising the problems faced by urban poor, a committee was formed by the Government of India under the chairmanship of S.V. Krishnan. This committee has proposed the establishment of health post in areas where at least 40 per cent of the population lives in slums or slum like areas. Before the recommendations of Krishnan Committee came, Urban Health Centres were functioning and they were responsible for giving comprehensive health services to a definite geographic area which are under the Department of Preventive and Social Medicine of medical colleges.

The Urban Health Centre in Shivaji Nagar is responsible for giving comprehensive health services to approximately one lakh population. The urban health centre not only offers services but also serves as a model for undergraduate, postgraduate teaching and training.

Competent care of women and children at Urban Health Centre would help women to have safer pregnancies and healthier babies. Thus, there is a need to carry out health system research on MCH services provided by Urban Health Centre so as to rectify the gaps or lacunae existing in the programme.

OBJECTIVE

To study the existing MCH services in field practice area of an Urban Health Centre with a view to improving the health status of women in reproductive age group and children below five years of age.

METHODOLOGY

The study was carried out in an urban field practice area (urban health centre) Shivaji Nagar (Deonar), Bombay which caters to a population of approximately 100,000. This was a diagnostic study. The focus of this study was at two levels: (i) health status of community served by the Urban Health Centre; and (ii) performance of MCH related activities at Urban Health Centre.

Sampling

Baseline household survey was carried out to collect information on socio-economic, demographic, morbidity and mortality pattern in last one year in children below five years of age and women in reproductive age group. There were approximately 18,600 households being utilised for residential purposes in the study area. Out of them 10 per cent of the households were selected by a systematic random sampling to give a valid estimate of data with reasonable level of accuracy. A total of 1,857 households were covered under the sample.

FINDINGS

Organisation/Design. The goal, objectives and targets are the basic requirements for running an organisation efficiently. The study reveals that no serious effort has been made to clearly define and spell out the objectives and targets at different levels. There are many administrative, operational and social factors which are affecting the MCH services offered by an Urban Health Centre. At present majority of the activities related to maternal and child (MCH) care are centre-based and a very minimal outreach approach is there. It was observed that this was because of no provision of outreach staff for Urban Health Centre in the form of male and female multipurpose workers and others. The two posts of medico-social workers are filled but majority of their time is spent on conducting centre-based activities and other social welfare activities. In view of this, it is recommended that there should be provision of outreach staff as per the MCI recommendations for staffing pattern for rural health centres. Bombay Municipal Corporation has started implementing the World Bank aided India Population Project V. Under this project, the health posts are established which are responsible for offering family welfare services to the population of 60,000 with outreach approach. At present the health post is established and its office is in one

of the rooms of UHC. It is under the administrative control of public health department of BMC. If the same infrastructure of health post in terms of manpower is brought under the administrative control of UHC under the Department of Preventive and Social Medicine, it will definitely help in improving the efficiency, enhancing accountability and avoiding duplication of services. It is recommended that there should be two health posts catering to 50,000 to 60,000 populations for the urban field practice area of Urban Health Centre and they should be completely under the administrative control of Urban Health Centre.

In Urban Health Centre emphasis is on curative service. There is too much of pressure on Urban Health Centers to give curative services so that necessary weight age could not be given to preventive and promotive services. The model recommended is establishment of two municipal dispensaries which are adequately staffed and equipped in the catchment area so that the load of curative services will be less and Urban Health Centre will act as a nodal centre and it will be able to play its role of acting as a model unit for undergraduate, postgraduate and paramedical teaching and training. Thus, concentrated efforts will be needed from the concerned people to make policy makers aware of the need to bring about organizational and administrative changes in the existing set-up.

Community Participation: Community participation is widely recognized as the basis of primary health care on this account UHC is not up to the mark. Community participation in delivery of MCH services is of low order except involving few community members in school feeding, immunization and Balwadi programmes. Religious and other important leaders are not involved in planning and implementing the various programmes of UHC.

Intersectoral Coordination and Networking: Health is vitally connected with the socio-economic status of the individual and community. UHC is expected to play a dominant role and to contribute to community development with the ultimate objective of improving quality of life. Unfortunately the relation between different agencies working in that area is not at all conducive to unified development efforts. In the existing situation the staff at UHC is concerned with giving medical services. Engineering and sanitation department are under the control of BMC. Education Department is concerned with educating children upto 7th standard. Each department works in isolation and there is real coordination between various departments who are involved in improving the quality of life. In view of this it is suggested that there is a need for intersectoral coordination and the first step for this will be forming a health committee which will have representatives from various departments and having dialogues and working together for improving the health status of community.

Second step will be networking with various non-governmental organisations and general practitioners in urban field practice area which is an important alternate health sector. It will be not possible for Urban Health Centre to deliver the goods alone unless and until it realises the role of multiple agencies both public and private involved in providing health and community development services. It is very essential to identify the private practitioners and other agencies providing MCH and other services given by them. There is a need to coordinate the various activities by networking with them. It is recommended that private practitioners in the area should be trained by conducting the update workshops to sensitise them in providing MCH services and obtain their assurance to provide feedback of the services rendered.

Role Clarity: There is no role clarity among the different functionaries at the centre specially grassroot workers like residents, lecturers and other paramedical and labour staff.

Accountability. In urban health centre, it was observed that there was no fixed responsibility for the activities of the centre. This resulted in unaccountability on the part of the staff. Thus it is very essential that staff member is given certain amount of authority so he or she is liable to show results. If the individual fails to accomplish the expected objectives then he or she is answerable to the superiors.

Supervision: Supervision is to ensure by various methods that duties are performed effectively. This presupposes a clear statement and understanding of expectation, both by workers and supervisors. Supervision is providing support to the workers so that they perform better. Supervision at UHC is to be strengthened. Well motivated workers also tend to be lax if there is no supervision. Supervisory staff should realise the importance of supervision and should view this activity as a very important activity.

Monitoring is to be done for ensuring the implementation plan is being executed as per schedule and to detect the problems. It is suggested that periodic meetings with all functionaries should be held at UHC to review the progress of the various programmes as per the targets laid down.

Training and Retraining: The need of the hour is training and retraining of staff so that they know the purpose of their work and then only their efforts can be directed in achieving the objective.

Management Information System: There is a lot of scope for improving the management information system. The present information system is mostly health information system. A well designed management information system (MIS) can form the basis of decision-making. It has application and importance at different

levels of organisation. At the top management level, it is related to the process of periodic revision of objectives of the organisation and identification and allocation of manpower and material resources necessary for achieving these objectives. At the level of management control, it is related to the process by which the management ensures that available resources are used effectively and efficiently and evaluates performance. At the level of operational control, MIS is related to the process of implementation. Performance evaluation is one of the fundamental purposes of MIS. Such periodic evaluation is essential to ensure a proper functioning of the UHC to keep a watch on effectiveness and efficiency.

Such evaluation is essential to ensure a proper functioning of the organisation to keep a watch on effectiveness and efficiency. Without MIS it is not possible to know whether the organisation is achieving the objectives or not. Unless the problems are identified, decision-making, corrective action will not be possible nor will it be possible to know if such corrective action has succeeded. Feedback is thus possible with MIS. Record, reporting i.e. proper documentation are inherent parts of MIS. There is a lot of scope for improvement on this front also. In short there is a lot of scope in strengthening MIS component of Urban Health Centre.

Referral and Follow-up: The UHC has to be sustained by integrated, functional and mutually supportive referral systems for the necessary secondary or tertiary care. This will lead to progressive improvement of comprehensive health care for all and special care at higher referral level. Referral must be a two way process and it should be need-based. Referral procedures have to be laid down clearly and care and follow-up of the patient has to be taken in the community. The existing referral system at the UHC needs to be developed so that the total care of patient and follow-up in community is ensured. Follow-up is the weakest link in the whole set-up of UHC whether it is under five clinic, ANC clinic, immunisation or referrals. Follow-up is the backbone of all comprehensive activities at the centre and it is essential that a system has to be developed so that follow-up is done in various clinics where comprehensive health services are offered.

Under Five and Antenatal Services: Immunisation coverage is not acceptable in regard to coverage of measles vaccine and booster doses. It should be compared with expected coverage and actual coverage. IEC activities will have to play a very important role here. Involvement of NGOs and private practitioners will go a long way in improving immunisation coverage. Pockets with low coverage need to be identified and measures should be taken to improve the performance in such areas.

The ineffective contribution of the under five services towards health promotion and malnutrition prevention in the present study is disappointing.

Disinterest of mothers regarding periodic follow-up and their inability to put the knowledge and information regarding child rearing received in the clinics into practice are the likely key factors in this regard.

The situation can be changed with active participation of mother in conducting under five clinics. Growth monitoring should become one of the various components delivered in the clinics, that can help mother understand the needs of her child. Health and nutrition education are the most effective tools to achieve the objectives.

Screening for highrisk mothers and children is necessary for reducing complications and improving survival.

In relation to under five clinic and antenatal clinic it was observed that quite a sizeable number of beneficiaries are from non-catchment areas. It is recommended that medical relief should be open to all but special services like under five clinics and antenatal clinics, the beneficiaries should be from catchment area so that follow-up can be done. A system has to be developed by which correct and complete addresses of beneficiaries are recorded. A linkage needs to be established between the antenatal clinics and under five clinic. At present it is observed that very few newborn babies of women attending antenatal clinic are getting registered for an under five clinic. Special efforts have to be made in this direction so that majority of the babies are registered for under five clinic. In view of malnutrition in pregnant women as well as in under five it is suggested to have the nutritional supplementation programmes for the high risk groups and study the effect of it on nutritional status.

Ensuring proper maternal care and nutrition during pregnancy and lactation through ANC and PNC services, with inclusion of nutrition education and supplementation and anaemia correction will effectively contribute in decreasing the incidence of low birth weight babies and ensuring better growth prospects for the child. Factors responsible for home deliveries need to be identified and eliminated.

Baby friendly health initiatives need to be adopted by all concerned with newborn and infant care. Safe motherhood and child survival scheme should be initiated vigorously at war footing in the present community. All these effort will go a long way in ensuring better acceptance of colostrum and breast feeding in the community.

Acceptance of family planning is appreciable but there is much scope for improvement especially regarding late acceptance of family planning and emphasis on terminal methods. A cafeteria approach and good follow-up services and

measures to assure child survival will have a positive impact in this regard.

Information, Education and Communication: Information, education and communication activities have long been recognised for their potential to motivate the adoption of family planning and increase the utilisation of health services. At UHC, the IEC activities are of rudimentary nature. It is suggested that there should be establishment of IEC cell in the UHC which not only functions at UHC, but goes out in various localities of urban field practice area. Urban health centre is identified by community as a centre for medical relief and immunisation services with the result that many other MCH activities were not utilised by the community. A well planned and coordinated activities will not only improve the health awareness and acceptance of family planning but will improve the utilisation of the services provided by UHC.

IEC activities are important in relation to reaching out to individuals, families and community. For the attainment of HFA/2000 an informed community and community participation is essential. The community must accept the responsibility in planning, implementation and evaluation. It must become conscious of the health determination in the environment and gain control over them. At the individual level a health consciousness associated with necessary changes in life style and behavioural patterns are necessary. All this can take place provided IEC activities are taken up energetically by the staff at UHC.

Improving the quality of life, environmental sanitation and standard of living are the long-term measures. It was observed that there are many socio-cultural and behavioural barriers which affect the MCH services like illiteracy specially female illiteracy, poverty, low status of woman, etc. The absence of proper implementation of long-term measures like provision of education and economic uplift, the present status of maternal and child health suffers. Educational attainment of woman is one of the best indication of modernisation and state of women in society. The status of female education is not very encouraging in this study. There is a tremendous scope for further improvement in education for both men and women. The community lacks facilities for higher education. Besides this various responsibilities and restrictions led upon the women by the society find the women to be in role of housewife whose world revolves around the institution called home. This needs to be changed. Education alone will bring about economic upliftment and empowerment of women.

Economic status needs a much necessary boost as the community lacks local job opportunities and very low level of higher education among the people make job acquisition in organised sector difficult. The situation is really worse in women with only 6.4 per cent women are engaged in any earning occupation. Religious beliefs and taboos have a large share in women unemployment next to

lack of education in women.

Providing job opportunities, both for men and women as per their educational qualification and skills or still better creating jobs in the community itself by setting up small scale industries, will make the women and their families financially secure.

Thus for providing better prospects for child growth and survival, nongovernment and voluntary organisations local and religious leaders may be involved in this sector along with government/municipal agencies.

It is envisaged that if above recommendations are implemented then Urban Health Centre will be able to really play its due role in improving the quality of life of the community.

सारांश

प्रस्तुत लेख में बम्बई के शिवाजी नगर में स्थित शहरी स्वास्थ्य केन्द्र के क्षेत्राभ्यास क्षेत्रों में प्रदत्त मातृ-शिशु स्वास्थ्य सेवाओं का मूल्यांकन करने का प्रयास किया गया है, ताकि प्रजनन आयु वर्ग की महिलाओं और पांच वर्ष से कम आयु के बच्चों के स्वास्थ्य स्तर में सुधार लाया जा सके। अध्ययन से प्राप्त निष्कर्षों से पता चलता है कि परिवार नियोजन अपनाने के संबंध में यद्यपि सराहनीय प्रगति हुई थी, किन्तु देर से परिवार नियोजन के स्थायी अथवा अस्थायी उपायों को अपनाने वाले लोगों के बारे में प्रयास करने की आवश्यकता है। अध्ययन से यह भी पता चला है कि महिलाओं का साक्षरता स्तर, निर्धनता और महिलाओं का निम्न स्तर आदि ऐसी महिलाओं का साक्षरता स्तर, निर्धनता और महिलाओं का निम्न स्तर आदि ऐसी सामाजिक-सांस्कृतिक एवं व्यवहारात्मक रुकावटें हैं, जो मातृ-शिशु सेवाओं को प्रभावित करती हैं। अध्ययन में यह सुझाव दिया गया है कि सूचना, शिक्षा एवं संचार गतिविधियां तथा गैर-सरकारी संगठनों और प्राइवेट चिकित्सकों की भागीदारी से इम्यूनाइजेशन कवरेज को सुधारने में चिरस्थायी सफलता प्राप्त हो सकती है।

**A STUDY ON ACCIDENT AND EMERGENCY
SERVICES OF ESI HOSPITAL
NEW DELHI**

R.K. Sharma* and P.V.V. Prasad**

ABSTRACT

This paper attempts to analyse the changes in the organisational set-up and management practices in order to improve the operational efficiency of A&E department of ESI Hospital, New Delhi. There were a number of organisational flaws which need to be corrected and most of the managerial practices have to be changed drastically to suit the policies and standards spelt out by different committees from time to time. Both qualitative and quantitative services can be improved within the available resources if appropriate changes are brought out.

Industrialisation has brought many positive contributions like increased personal income, greater social wealth and improved services to the society. Industrial activities also carried the inherent risks of adverse health consequences for the workforce and the general population, either directly or indirectly, through exposure to harmful agents or practices. Estimates based on the current occupational injury rates in a number of countries suggest that on an average there are 32.7 million occupational disorders and 146,000 deaths per year³.

According to Census of India 1981, working population constituted 247 million (38 per cent) out of total of 685 million and out of which factory workers constitute 2.9 per cent. The occurrence of industrial injuries in factories as reported in National Commission on Labour indicated the rate of fatal injuries has risen from 0.09 (1951) to 0.15 (1979), whereas non-fatal injuries has risen from 29.84 (1951) to 63.87 (1979) per 1000 workers employed¹.

Indian Council for Medical Research (ICMR) has reported prevalence rate of upto 34.1 per cent for silicosis in Bihar mines, 45 per cent for pneumoconiosis in coal mines and 8.4 per cent of byssinosis in textile workers⁴.

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At least three and half million people on our planet die every year as a result of injury caused by violence, accidental or intentional². According to the WHO report, about 700,000 lives are lost through the accidents caused by motorcycles, cars, buses and trucks on the roads and problem has increased manifold where W.H.O. selected the theme for its World Health Day-7 April 1993 as:"Accident Prevention", and propagated the slogan: "Handle Life With Care: Prevent Violence and Negligence"³.

METHODOLOGY

This study has been conducted over a period of three months from January-March, 1994. Retrospective study includes period from 1989 to 1993. The whole study has been divided into two phases, namely preparatory, and data collection. During preparatory phase rapport building with the concerned staff, developing research tools and pretesting of research tools were completed and in the data collection phase, data have been collected through interview schedules. Simple random sampling technique was employed to select staff working in the A&E department and the sample constituted 50 per cent and for the selection of beneficiaries, fixed random sampling has been employed and the sample constituted 160 beneficiaries out of 1720 cases attending A&E department over a period of 45 days. Observation technique has also been employed to have information to substantiate quantification.

EMERGENCY SERVICES UNDER ESI SCHEME

The ESI Medical Services Scheme in Delhi when started in the year 1952 made no provision for the emergency medical care. Consequent upon the transfer of basic responsibility of the scheme for Delhi Administration to the **ESI** Corporation itself, the authorities had thought for a way out from increasing pressure of emergency cases and set-up their own hospital in 1971 at Basaidarapur. Though the hospital had converted ground floor for A&E services later separate building was provided way back in 1978 along with provision for separate medical and paramedical staff. All these developments were the result of increasing demand from the beneficiaries and also rise in industrial injuries. It has been evident from the fact that as per the available records A&E services had a workload of 44,461 cases in 1986 which has now increased to 55,178 by 1993. At present, the emergency medical care services under the ESI Delhi are being provided at ESI Hospital, Basaidarapur, and Indira Gandhi Hospital, Jhilmil. Besides, such services are also available at regional dispensaries at Moti Nagar, Shahdara, Factory Road and Subzi Mandi. Accident and emergency services of ESI Hospital, Basaidarapur are unique in the sense that these are catering to a specific group of population but at the same time treating of accident and emergency cases from general public also.

STAFFING PATTERN

The various categories of staff currently posted at A&E department of ESI Hospital, Basaidarapur, is shown in Table 1.

TABLE 1
STAFFING POSITION AT A&E DEPARTMENT OF ESI HOSPITAL, BASAIDARAPUR (1993)

S.No.	Staff categories	Sanctioned posts	In position
1.	Additional Medical Superintendent (Casualty)	1	1
2.	Casualty Medical Officers	8	6
3.	House Surgeons	5	3
4.	Assistant Nursing Superintendent	1	1
5.	Nursing Sisters	5	3
6.	Staff Nurses	24	18
7.	Admission-cum-enquiry clerks	.*	4
8.	Nursing Orderlies	16	14
9.	Dressers	4	3
10.	Stretcher Bearers	3	3
11.	Laboratory Technicians	.*	3
12.	ECG Technicians	.*	4
13.	Plaster Technicians		4
14.	Ambulance Drivers	6	6
15.	Ambulance Attendants	3	3
16.	Sweepers	6	6

Source. Office of Additional Medical Superintendent (Casualty).

*No sanctioned posts for A&E Department in particular, however, staff is provided from the general pool of hospital.

Table 1 shows that there has been a shortage of professional categories of staff which are important in rendering medical care and other services in the A&E department. Shortage of such categories, obviously, may be hampering efficient delivery of services to serious emergency cases. Though A&E department has been accorded departmental status, still it has a heavy dependence for manpower on main hospital. As such, without adequate support from main hospital, the services in A&E department will result in standstill.

Various specialities with their respective bed strength at A&E department are given in Table 2.

TABLE 2

SPECIALITIES AND NUMBER OF BEDS AVAILABLE IN A&E DEPARTMENT		
Sl. No.	Specialities	Number of Beds
1.	Medicine	13(10+3)*
2.	Surgery	3
3.	Paediatrics	10
4.	Orthopaedics	8(6+2)**
Total number of beds in A&E Department		34

*Three beds are exclusively reserved for staff of ESI Scheme.

**Two beds are shared between surgical and orthopaedics patients as per requirement. Note: Gynaecology and obstetrics emergency got separated from A&E department from September 1990.

It may be mentioned here that A&E department has no beds for specialities like; Gynaecology and Obstetrics, Ophthalmology and Oto-rhino-laryngology. However, the patients requiring the services of such specialities other than Gynaecology and Obstetrics are attended by calling the doctor on emergency duty from respective specialities.

FINDINGS

Intra-Institutional Linkages

The A&E department has to seek the services of various other departments of the hospital for its effective and efficient functioning as it has not

been planned as a self-contained unit. It has a heavy dependence upon the main hospital for various specialities, laboratory test, X-ray, operation theatres and intensive care services. This is indicative of the fact that many patients visiting A&E department have to wait for their turn along with other patients in the main hospital.

Inter-Institutional Linkages

The A&E department has been receiving the patients from variety of sources - both internal and external. Once the patient has reported to A&E department, it has two options, either to send the patient back home after providing all the necessary treatment as deemed fit or refer the patients for further investigations and treatment to other institutions due to non-availability of required facilities at ESI hospital, Basaidarapur.

Dependence

The A&E department has to seek the services of various other departments of the hospital for its effective and efficient functioning. For specialities like Medicine, Surgery, Orthopaedics and Paediatrics, close linkage exists between the main hospital and A&E department. It is because of the fact that medical officers with required specialisation of these specialities are available in A&E department on round the clock basis. On the other hand, linkage is unsatisfactory with the Ophthalmology and Oto-rhino-laryngology (ENT) departments because of non-availability of concerned medical officers from these disciplines in A&E department for all the twenty-four hours basis. Accordingly, whenever an emergency case, belonging to aforesaid specialities reports to A&E department, the concerned medical officers have to be called from the respective wards of the hospital. Naturally, the time factor plays an important role in this regard which may prove fatal in some cases reporting to A&E department. However, this observation is an outcome of circumstantial rather than empirical evidence.

Due to total lack of Intensive Care Unit (ICU) in the main hospital as well as in A&E department, the patients approaching under critical conditions, are attended firstly in the CMO's room and later on by transferring such cases to respective emergency wards of A&E department or by referring them to some other hospitals. Intensive Cardiac Care Unit (ICCU) located in the main hospital is at considerable distance from A&E department without any direct approach. This has been a problematic area to provide life saving services to such patients. A combination of host of associated attributes such as erratic availability of trolleys, wheel chairs and nursing orderlies play a vital role in this regard.

There are no 'Operation Theatres in A&E department and these are located at a considerable distance in the main hospital. The transfer of cases to OT is another area which requires urgent attention. Besides, OT services in the main hospital are available to the emergency patients only after 3.30 P.M. Prior to these hours, the OTs are busy with indoor and routine hospital patients. As such, a majority of the cases, reporting to A&E department and requiring operative procedures have to wait till the time mentioned above. More so this practice is made applicable on cent per cent basis for orthopaedics cases. This delay ultimately affect the image and services of A&E department. As such, it is considered essential that A&E department should have its own operation theatre and if it is not possible as an immediate measure, the authorities should at least consider the possibility to provide a minor operation theatre in which operative procedures under local anaesthesia could be undertaken. This would enable quick disposal of patients at the level of A&E department and would reduce dependence on main hospital and result a decline in the cases presently falling under the category of kept under observation (KUO).

Likewise, the radiology services are stationed in the main hospital and quite far off from A&E department. The emergency patients have to face difficulty in getting X-ray investigations done. The A&E department has only one portable X-ray machine which is meant for bed ridden emergencies without a full time X-ray technician attached to it. As such, whenever this machine is to be operated, the services of X-ray technician has to be requisitioned from the radiology department. Neither the providers of services nor the beneficiaries are satisfied with the present system of radiological investigations. Since the authorities are planning to shift paediatrics emergency from A&E department, it should now be possible to provide at least one room for X-ray. Correspondingly, full-time X-ray technicians will have to be posted in A&E department. The authorities of A&E department have strongly advocated the case of availability of X-ray machine in the same premises.

Regarding laboratory services, once again there is a dependence on the main hospital firstly for the morning shift and secondly for certain investigations in evening and night shifts. However, the A&E department is able to undertake the workload of laboratory investigations for evening and night shifts on its own.

The Central Sterile Supply Department (CSSD), Medical Stores and Laundry are again located in different buildings and contact with these services is poor due to lack of communication facilities. Due to inadequacy of passage, difficulties are encountered in transferring the procured items from the concerned departments to A&E department.

Referral System and Practices

The dispensation of scheme provides attachment of Insured Persons (IPs) and their family members (i.e. beneficiaries) to peripheral ESI institutions known as 'parent dispensaries' for availing of routine ambulatory medical care on prescribed hours. Beyond these hours, there is again a provision of regionalised emergency dispensaries, over a group of parent dispensaries, where the medical aid is arranged for beneficiaries on round the clock basis. Accordingly, as per the system devised the beneficiaries of the scheme are expected to exhaust the channel of parent and emergency dispensaries for routine medical care or non-emergent sickness episodes before approaching A&E department. As such, majority of cases reporting to A&E department, with some exceptions, are expected to have referral slips from peripheral dispensaries of the scheme. Besides, there are other sources too such as; the private practitioners and general hospitals.

The services planned at A&E department, inclusive of the main hospital, are of five types; viz. (i) provide treatment and send patients back to their home at the first contact point i.e. Casualty Medical Officers, (ii) keep the patients under observation (KUO) at A&E department for prescribed hours, (iii) admit the patients at A&E department, (iv) admit the patients and transfer them to the concerned wards of main hospital, and (v) refer those patients to other hospitals for whom facilities are not adequate either at A&E department or in the main hospital.

Against the planned referral system as mentioned above, it has been observed that a sizeable percentage of beneficiaries have been reporting directly to A&E department without approaching their parent and emergency dispensaries. The reasons for not approaching the parent and emergency dispensaries by beneficiaries, before reporting to A&E department, are: (a) ignorance of beneficiaries about their parent and emergency dispensaries allocated, (b) beneficiaries being informally instructed by Medical Officers of parent and emergency dispensaries to go to A&E department; and (c) proximity between A&E department and place of work or residence of beneficiaries. The effective catchment area cover by A&E department shows that out of 41 ESI dispensaries the maximum beneficiaries have been coming from five to six dispensaries located in and around Basaidarapur area of West Delhi. This substantiates the observation regarding proximity between A&E department and work of place or residence of beneficiaries to its logical conclusion.

It is also worth mentioning here that perhaps the authorities, working at different levels of ESI medical care scheme, themselves have taken a soft option of this effect. If the A&E department starts insisting upon referral slips from peripheral dispensaries except for accident and medico-legal cases, its workload

is bound to come down considerably which in turn can enhance efficiency of the department. It is, obvious, from the fact that around 13 per cent of cases have been disposed off at the level of Casualty Medical Officers. This is indicative of the fact that these cases have not necessarily the symptoms of emergencies. Such cases would have been attended as well as treated at the level of parent or emergency dispensaries, provided they would have approached the same. This observation is made under the assumption that the peripheral parent and emergency dispensaries of the scheme are fully equipped to deal with minor casualties often encountered by the industrial worker and their family members. Another set of sizeable percentage of cases which have been kept under observation cannot also be necessarily categorised as emergencies. This is because of poor screening at the level of Casualty Medical Officers.

The A&E department has beds for some specialities but has no separate provision for certain emergencies. Due to this, A&E department has to depend upon other institutions not under the control of ESI scheme. In the absence of 'Isolation Ward' within A&E department and even in the main hospital, the patients suffering from infectious diseases are to be referred to infectious disease hospital (IDH), Kingsway Camp. Further, the serious cases suffering from neurological disorders, severe burns and cardiac disorders once again have to be referred to other hospitals after administering necessary life saving measures available with A&E department. Next to above, the glaring example is of non-availability of blood bank either in the main hospital or in A&E department. Thus, the blood has to be arranged, on payment basis, for the patients, requiring blood transfusion, from the private blood banks. Thus, one of the basic requirements of having a 'Blood Bank' or 'Blood Storage' facility attached to A&E department is non-existent in the instant cases.

Deployment of Manpower

Based on the experience gained in organising emergency medical care, the ESI authorities realised that such services cannot be rendered effectively by deploying the staff from the main hospital. As a result, authorities created a separate cadre for nursing and para-medical staff for emergency services.

An overall analysis of data, on staffing pattern of A&E department has shown that around 25 per cent of the sanctioned posts of different categories have been vacant in the year 1993. The shortage has been mostly in the essential and critical categories like; Casualty Medical Officers, House Surgeons, Nursing Sisters and Staff Nurses.

It may be mentioned here that the vacant positions in A&E department reflects upon the apathy of higher authorities of the scheme towards the

emergency services. The basic philosophy behind organising emergency services, as a part of hospital set-up on the round the clock basis, has been to provide speedy attention and immediate treatment to the needy cases. In performance of this obligation, there are three basic requirements; viz. (a) availability of personnel belonging to different categories, (b) special training of such personnel to handle accidents and emergency cases, and (c) commitment and zeal of the personnel posted in A&E department to serve the humanity. Since a sizeable number of sanctioned positions are kept vacant this itself reflects upon the efficiency and effectiveness of the services rendered by A&E department. It would not be out of place to mention here that as per the recommendations made by various expert groups, it is mandatory that all staff members, posted in A&E department, irrespective of their categories, must be specially trained in emergency life saving procedures like cardio-pulmonary resuscitation. As against the above stated requirement, three Casualty Medical Officers and alone Nursing Sister, none of the other categories, working in A&E department, have been given any such special orientation training. Thus, emergency services are being rendered by those staff members who have not been thoroughly trained as how to deal with accident and emergency cases.

The notable feature about the requirement of manpower inputs in A&E department has been dependence for certain categories from common pool of the main hospital. The categories whose controlling officers are other than an Additional Medical Superintendent (Casualty) have their own implicit and explicit commitment in the main hospital. Moreover, some of them consider their posting in A&E department as punishment. This attitude of these categories itself is an indicator of their motivation to render services in A&E department. It is by virtue of their experience in the main hospital they handle and treat each emergency case as routine.

It is worth mentioning here that the medical officers are available in A&E department for the specialities of medical and paediatrics on round the clock basis. A similar provision has not been made with regard to specialities of orthopaedics and Surgery. Rather the medical officer on emergency for these specialities are supposed to attend out-patient department in the main hospital from 9 a.m. to 1 p.m. Regarding the specialities of ophthalmology and oto-rhino-laryngology, the A&E department has no provision of medical officer on emergency duty. Such medical officers are required to be called from their respective wards in the main hospital as and when any emergency relating) these specialities reports to A&E department.

It is also interesting to mention here that there are differentials in the working hours of medical officers on emergency duties belonging to different specialities. While the medical officers attached with specialities of paediatrics and

Surgery have been performing emergency duty for 24 hours, but the remaining ones are expected to discharge the duty on 12 hours basis. Besides, all medical officers irrespective of their speciality, are bound to attend emergency calls from the general wards located in main hospital. The shortage of professional, firstly as against the sanctioned posts and secondly sanctioned posts itself being less, is primary reason for arrangement.

It may be noted here the workload of patient care has been maximum in morning shift It has been by and large, equal in evening and night shifts. However, the deployment of Casualty Medical Officers i.e. one Casualty Medical Officer and one House Surgeon (Junior Resident) has been the almost same in all the shifts.

Regarding the deployment of staff nurses in each shifts, it varies according to their total availability for duty. On an average two to three staff nurses are posted in night shift, three to four in evening shift and six to seven in morning shift. During morning shift staff nurses are also provided each emergency wards of medicine, surgery, paediatrics and orthopaedics.

Lastly, it has been observed that the category of dresser is not available for the night shift. The requirement of dressing in the night shift is managed with the help of group D employees.

MAJOR PROBLEMS

Major deficiencies, as noticed at A&E department of ESI hospital, Basaidarapur, when compared with recommendations made by various expert working groups, are as follows:

1. The policies, procedures and manuals regarding functioning and maintenance of A&E department are not available in properly documented shape. However, instructions and guidelines are being issued in the form of circular/memorandum from time to time. It is not possible both for old and new staff members to keep track of frequent changes that have been introduced on aforesaid aspects.
2. Bed strength of A&E department in relation to total bed strength of the main hospital has been on lower side as compared to the recommendations made by Jain Committee (1968) and Siddhu Committee (1979).
3. Dependence on the main hospital for the services of specialists and para-professional staff members.

4. Lack of facilities in relation to radiological and operation theatre.
5. Limited facilities for treatment of patients suffering from cardiological disorders, neurological disorders, burns and snake bite.
6. Absence of isolation area/ward recommended as per the standards was found absent and such patients are being referred to other hospitals.
7. No triage area in order to manage mass casualties in case of disaster conditions.
8. Lack of training on life saving procedures for staff members posted in A&E department.
9. Ambulances utilised as carriage vehicles for non-ambulatory patients and for procurement of blood.
10. Absence of blood storage/blood bank facility.
11. Periodic review of morbidity and mortality of patients approaching A&E department is not being done. There is no emergency medical committee to review the medical records. A Death Review Committee was formed in 1991 comprising a Physician, Surgeon, Orthopaedician, Deputy Nursing Superintendent and a Medical Record Clerk, but the committee so far has met only once.
12. Poor communication facilities within the complex.
13. Lack of life saving equipments like artificial respirator and defibrillator.

Conclusions and Suggestions

Emergency services of a hospital is a point of major impact, even more than that of out-patient department. It provides an important service and is most vulnerable to criticism. The impact of emergency services is such that the reputation of a hospital rests to a large extent on the efficient functioning of this department. That emergency services should, therefore, be considered a vital service of the hospital, both organisationally and administratively, and good emergency services are essential elements in the contribution of hospitals to the total health picture of the community given the fact its discrete nature of service to the affected population.

Some of the major conclusions that emerged out of the study are; despite the fact that A&E department is very much part of the main hospital but various expert committees opined that it should be a self-contained one with fullfledged facilities whereas the subject under our study, by all means dependent on the main hospital.

The post of Additional Medical Superintendent (Casualty) has been administratively assigned the duty of arranging medical care without delegating him formal powers (or) authority and he should be a full-time officer without assigning him miscellaneous activities.

There is a strong case for immediate recruitment of vacant posts both in main hospital as well as in A&E department to overcome shortage of manpower. Duality of control over A&E staff members have to go away and they should come under the command of one person heading A&E department to run the department in a more planned and systematic manner. Regular training for the staff be accorded high priority which will infuse confidence among the personnel and state of preparedness to overcome any eventuality.

Referral system must be followed and strengthened in order to disperse cases at all levels and to utilise the services on a priority basis, non-emergency and non-ESI cases reporting to A&E department can be thoroughly discouraged. Empowering the Additional Medical Superintendent (Casualty) with requisite financial and administrative powers can put him in firm control of departmental affairs and he can elicit excellent cooperation and coordination from staff.

Reporting system further needs to be changed drastically. At the moment there is a systematic failure at every level in record-keeping. The importance of past records was not felt among the staff in order to utilise the data in preparing prospective plans for the organisation.

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प्रस्तुत लेख में नई दिल्ली के ई एस आई अस्पताल के दुर्घटना एवं आपातकालीन विभाग की प्रचलनात्मक क्षमता में सुधार लाने के लिए इस विभाग के संगठनात्मक ढांचे और प्रबन्धकीय अभ्यासों में किए गये परिवर्तनों का विश्लेषण करने का प्रयास किया गया है। ऐसी अनेक संगठनात्मक कमियां हैं, जिन्हें दूर करने की आवश्यकता है तथा प्रबन्धकीय अभ्यासों में भी परिवर्तन लाने की आवश्यकता है ताकि इस प्रक्रिया को विभिन्न समितियों द्वारा समय-समय पर की गई सिफारिशों तथा नीतियों के अनुकूल बनाया जा सके। यदि समुचित ढंग से परिवर्तन लाये जाते हैं तो उपलब्ध स्रोत-सीमा में रह कर ही सेवाओं में गुणात्मक तथा मात्रात्मक सुधार लाया जा सकता है।

REFERENCES

1. MOHAN, DINESH (1987), Occupational Hazards: Health For The Millions, *Voluntary Health Association of India (VHA)*, Oct. 1987, Vol. XIII, No. 4, pp. (2-7).
2. *SEHAT*, April 1993, p. 22.
3. *SWASTH HIND*, March-April 1993.
4. QADEER, IMRANA AND ROY, DUNU (1987), Work, Health and Wealth, Health for The Million, *Voluntary Health Association of India (VHA)*, October, Vol. XIII, No.4, pp. 28-31.