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## Fifty Years of Primary Health Care: The Kerala Experience

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During the last 50 years, the state of Kerala, home to the Malayalam speaking people, has made significant gains in all domains of health. Most indices of health used for international comparisons come close to those of industrially developed, high-income countries. These achievements have been registered against the backdrop of low income, high population density and very high levels of unemployment among the educated. However, high levels of female literacy that stand close to 90 percent, rapid gains on the sanitation front and an extensive network of modern medical care institutions, both in rural and urban areas, have served as push factors in accelerating health development. Figure 1 summarises the dramatic gains in health indicators that Kerala achieved between 1956 and now.

The unique feature of Kerala's development is the narrow differences that exist between rural and urban areas. Visitors to Kerala characterise the entire state as a "rur-ban" continuum. It is difficult to guess as to where a town ends and a village begins. The external symbols of prosperity reflect an improved lifestyle that ensures safe water, access to toilets, better telecommunication facilities, improved roads and quick access to other amenities like schools, colleges and hospitals. The narrow, rural-urban differences that we perceive in Kerala are also demonstrated when the indices are compared among the 14 districts of the state. As Table 1 reveals, all the indices vary within a small range: even the district with the

poorest indicator fares much better than the Indian average.

### Health care in Kerala

During the last 50 years, the health infrastructure of the state has shown significant growth in terms of manpower, beds and institutions. In 1960, there were only about 1,200 registered doctors under modern medicine; the number currently stands over 36,000. About 8,000 doctors are presumed to be working outside the state; another 2,000 doctors of Kerala registration are believed to be working in different Indian states. On the assumption that we have over 25,000 modern medicine practitioners currently serving Kerala, the ratio works out to one doctor for 1,250 people. Allied systems of health care contribute another large manpower pool, though their contribution to institutionalised care is only marginal. When primary health centres (PHCs) are considered, we see that the number has increased from 369 in 1960 to 1,356 in 2004. The provision of PHC facilities has far outstripped the increase in population, which rose only by a factor of two.

A major development in Kerala's health scene is the virtual domination of the private sector. Though information on infrastructure in the private sector is far from complete, more than 70 percent of beds and institutions are in the private sector and over 70 percent of professionals serve in the private sector. Private hospitals dominate the tertiary care sector, both in

terms of manpower and interventional facilities.

Even deliveries, which used to take place almost exclusively in government hospitals, are increasingly occurring in the private sector. The Directorate of Health Services no longer influences health outcomes nor does it play an effective watchdog role. Health care has been turned into a commodity transaction and is increasingly dictated by monetary considerations. Doctors and hospitals are frequent targets of attack from the public and media. The momentum that was created in the 1960s and ably sustained in the 1970s and 1980s of the last century has gone and Kerala no longer stands first in certain indices of PHC.

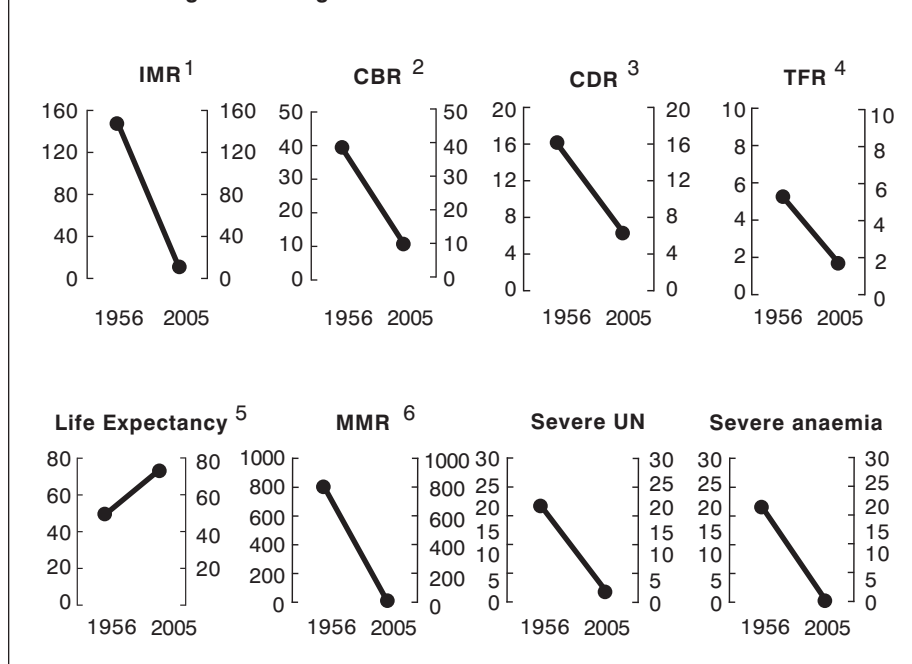
### Emergence of non-communicable diseases

It is well known that populations in developing countries are experiencing both demographic and health transitions. Kerala has almost completed its fertility transition. No data, however, are available on the nature and profile of the transition in health in Kerala. Health Action by People (HAP) has been gathering birth and death information in a large rural community, for the past many years. Cause of death was deter-

### CONTENTS

● Fifty Years of Primary Health Care: The Kerala Experience – C.R. Soman	1
● Foundation News	5
● Health and Nutrition Education of the Community: Choosing the appropriate channels – C. Gopalan	6
● Nutrition News	8

**Figure 1: Changes in selected health indicators: 1956-2005**



Source: 1-6 (SRS)

**Table 1: Selected health indicators in different districts of Kerala - 2005**

District	Complete ANC	Institutional delivery	Complete immunization	% low birth weight	IMR
Trivandrum	72	99.5	81.6	11	12
Kollam	90	99.0	90.6	12	8
Pathanamthitta	85	99.4	91.4	18	8
Alappuzha	93	100.0	97.4	12	8
Kottayam	92	99.4	79.1	16	14
Idukky	82	93.3	90.8	15	20
Ernakulam	90	99.4	93.4	18	12
Thrissur	89	99.2	90.5	13	9
Palakkad	86	93.4	75.1	16	12
Malappuram	79	88.0	59.8	17	10
Kozhikode	93	98.9	90.9	17	14
Vayanad	90	97.8	82.3	30	22
Kannur	90	99.4	84.7	15	14
Kasargode	75	96.7	87.4	15	10

Source: Human Development Report Kerala 2005 (Government of Kerala)

mined by relying on medical records and, wherever needed, questioning the close relatives of the deceased. Investigators had the help of a verbal autopsy instrument. They were given adequate training in its administration. A registry of deaths and births is being maintained. Data for three years were collated and analysed. Figure 2

summarises the relative contributions of the principal during the years 2001-2003 in our study population.

Different causes were grouped under eight major classes and compared the results with that of the USA (Table 2).

There is a striking similarity

between the USA and rural Kerala in the burden of deaths from circulatory and degenerative diseases (47 percent vs 50 percent). Also, similar is the contribution of infectious diseases, which remain quite low – at or below 5 percent of all deaths. The most striking difference is in cancer mortality. Though there is evidence that cancer incidence is increasing in India, currently, the burden remains low in rural Kerala.

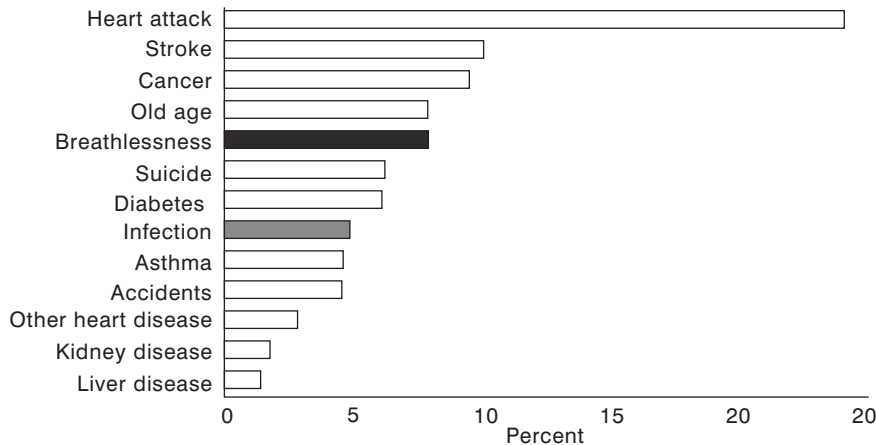
Table 3 summarises pertinent data on age-standardised death rate from selected causes in rural Kerala and a few developed countries; data from Kerala confirmed the popular perception that heart attacks are on the increase.

Only Scotland, among the countries chosen, has higher cardiovascular mortality than rural Kerala. Ischemic heart disease (IHD) mortality in Kerala is nearly three times higher than that in France! Even the United States fares better than Kerala in IHD mortality. The differences in stroke mortality are not as striking. A matter of great concern is the poor state of mental health of people, reflected by an alarmingly high suicide rate. The suicide rate among women in Kerala is higher than that reported from other countries.

Death rates were calculated on the basis of socio-economic class. The differences in death rates from heart attacks are quite small between the four social classes (Table 4). Though, the lowest socio-economic class had a slightly higher mortality rate, this was not statistically significant. However, the lowest socio-economic classes had much higher mortality from suicides, strokes and infections, totally along expected lines.

An attempt was made to estimate the burden of coronary heart disease using the data on death. According to the data, the number of annual deaths from heart attacks in Kerala would be in the range of 45,000-52,000. The report on vital statistics for Kerala estimated that there were over 49,000 deaths from heart attacks in Kerala during the year 2004. In India, the reported mortality after a heart attack is around 25 percent. On that assumption, it is estimated that every year in Kerala, over 180,000 persons suffer heart attack. The median age of the first heart attack in men in India is estimated as

**Figure 2: Principal causes of death in rural Kerala 2003-2005**



Source: Ongoing studies (Dr C.R. Soman)

**Table 2: Profile of cause of death in rural Kerala and United States of America**

Condition	Kerala rural	USA*
Infections and parasitic diseases	05.0	4.5
Neoplasm	10.2	23.6
Circulatory & degenerative disease	47.0	50.7
Complications of pregnancy	0.0	0
Perinatal conditions	0.6	0.5
Injury & poisoning	11.1	6.3
Ill defined causes including old age	11.4	2.2
Chronic obstructive lung disease	6.7	3.7
All other	8.6	7.3

Source: On going studies (Dr C.R. Soman) Country statistics from World Health Statistics Annual 1997-99 (online ed.), WHO \*Data pertains to year 1995

**Table 3: Age standardised death rate from selected causes – rural Kerala and selected countries**

	All cause	CVS	IHD	CVA	Suicides	Cancer	
Netherlands	Total	551.5	194.6	81.0	44.5	8.7	159.2
	Male	725.4	260.0	118.9	49.6	11.9	213.9
	Female	429.0	146.4	52.9	40.5	5.6	124.0
USA	Total	577.7	215.8	106.5	34.8	10.5	143.4
	Male	722.5	270.8	143.5	37.0	17.5	175.6
	Female	462.8	172.2	77.9	32.8	4.0	121.1
Scotland	Total	660.8	268.5	150.4	67.8	11.0	173.8
	Male	829.0	341.1	209.5	73.6	16.9	214.3
	Female	535.2	212.9	105.9	63.0	5.2	148.4
France	Total	489.3	134.4	39.8	33.1	16	147.2
	Male	671.7	178.5	60.4	39.9	24.5	213.4
	Female	345.2	100.8	23.9	27.9	8.3	96.8
Varkala (Kerala)	Total	620.9	226.3	135.3	31.62	31.65	35.05
	Male	748.4	296.8	212.0	27.4	41.18	37.6
	Female	498.1	157.7	61.3	35.7	22.47	32.6

Source: Country statistics from World Health Statistics Annual 1997-99 (online ed.), WHO

51 years and Kerala is no exception.

### Prevalence of Type 2 diabetes and cardio-vascular risk factors in rural and urban Kerala

Currently, health action by people has undertaken a cross-sectional study

on the prevalence of Type 2 diabetes and a few cardio-vascular risk factors in selected rural and urban communities. The rural community studied forms part of the population under long-term surveillance. The urban communities were selected from Trivandrum city and represented residents of hous-

ing colonies. The profile of the study population is given in Table 5.

In every age group, there were more women than men. This was expected since participation in the study necessitated the presence of the subject for the whole forenoon. Many men could not afford to forego a day's wages for the study. However, even among men the response rate was only just under 70 percent. All study subjects were administered a questionnaire regarding personal and family details. Self reported diabetes was recorded and all non-diabetic subjects were administered the oral glucose tolerance test, using 75 gm glucose.

Diagnosis of diabetes was made on the basis of internationally accepted criteria. The data relating to the prevalence of Type 2 diabetes in rural and urban areas are presented in Table 6.

The picture that emerges is quite disturbing. The expected rural-urban difference does not exist in Kerala. The prevalence, even in rural areas of Kerala, is similar to or higher than that reported from urban India.

The prevalence of diabetes among men reaches a peak at 36 percent when they are 50 and continues to remain at that level during the remaining decades. At every age, more men have diabetes. In women, the prevalence of diabetes increases steadily with increasing age. The gap in diabetes prevalence between the sexes narrows with increasing age but persists even in the eighth decade. On the basis of the observed prevalence, an attempt was made to estimate the current burden of diabetes in Kerala. The age-standardised prevalence (for Kerala's age structure) works out to 14.9 percent in men and 13.2 percent in women. In absolute terms, it translates to approximately 16 million males and 14 million women suffering from Type 2 diabetes. The term "diabetes capital of India" suits Kerala. The social, economic and development costs of the burden of diabetes has not been appreciated by the government or the health community. Added to the burden of diabetes is the high prevalence of impaired glucose regulation – the combination of Isolated Impaired Fasting Glucose (IIFG), Isolated Impaired Glucose Tolerance (IIGT), or a combination of both. Our estimates reveal that the prevalence

SESclass	Heart attack	Stroke	Cancer	Suicide	Accidents	Infection	Allcause
1	116.6	57.6	50.7	43.9	21.9	30.2	521.3
2	123.4	51.2	48.3	33.1	26.8	25.6	511.6
3	123.5	51.4	44.3	27.5	22.7	23.5	486.2
4	111.2	38.4	56.2	30.2	17.8	17.8	480.7

Source: Population registry for lifestyle diseases-ongoing studies

of Impaired Glucose Regulation (IGR) is about 70 percent of the prevalence of Type 2 diabetes mellitus in Kerala. If factor IGR is also considered in the calculations, Kerala has at least 51 million people with impaired glucose metabolism.

### Prevalence of hypertension

All subjects recruited for the survey of Type 2 diabetes had their blood pressure measured with an advanced electronic digital blood pressure unit. Two measurements were made, with the subject in the sitting posture, relaxed and with right arm resting on a table; the average of two readings taken at four-minute intervals was recorded. Prevalence of hypertension was calculated as the sum of those who were already diagnosed by a physician to have hypertension and those in whom resting blood pressure exceeded 139/89 mm of Hg (either or both). The age-related prevalence of hypertension is given in Table 7.

The prevalence of hypertension is higher than that of Type 2 diabetes, both in men and women at every age. Unlike in Type 2 diabetes, after the age of 50 more women have hypertension. As expected, the prevalence

of hypertension is much higher in the diabetic than in the non-diabetic population. The proportion of persons with doctor-diagnosed hypertension is much lower than that of previously diagnosed diabetes. The high burden of cardio-vascular deaths in Kerala is best understood against the backdrop of high prevalence of diabetes and hypertension, and other risk factors that are presented in Table 8.

The data in Table 8 show that overweight and obesity have already emerged as significant health problems in Kerala. The data for BMI is quite consistent with the prevalence information on diabetes and hypertension. Even when we use the cut-off level of 25 for estimating overweight; nearly 50 percent of rural women are overweight. The prevalence was slightly less among urban women – 42 percent vs. 48.3 percent. Significantly, fewer men suffer from overweight, a feature quite consistent with previous reports. Naturally, the proportion of high-risk individuals increases substantially, if we reduce the BMI cut-off to 23, a more sensible estimate for calculating risk in our population.

Nearly 70 percent of adults in the age group 30-70 years have serum

cholesterol above 200 mg/dl. If we use the cut-off level of 239 mg/dl, more than 30 percent subjects are at high risk. The high prevalence of hypertension has already been discussed. The proportion of subjects with elevated triglycerides is much less than those with high serum cholesterol. However, the prevalence of hypertriglyceridemia is higher among urban residents. Smoking is an exclusive male habit in Kerala. Nearly 37 percent of males in rural Kerala are smokers, while the proportion is a little lower, at 31 percent in the urban areas.

### Saturated fat intake in Kerala – our observations

Dietary intake of nearly 2,000 persons, both in rural and urban areas, was studied to estimate the contribution of fat energy – particularly from saturated fats to the overall energy intake in Kerala (Table 9).

At every level of energy consumption, fat contributes at least 30 percent of total energy. Seventy percent of the fat energy is derived from saturated fat at every level of energy consumption. The same pattern is seen in rural men, urban men and urban women, respectively. The comparison with the recommended level is shown in Figure 3. It is probable that the distorted profile of dietary fat, loaded heavily in favour of saturated fats, almost exclusively provided by fresh coconuts and coconut oil (less important) is the principal reason for the observed hypercholesterolemia.

The mean serum cholesterol in Kerala population (both rural and urban subjects) exceeds 230 mg/dl, and is

Age (years)	Rural		Urban	
	Male	Female	Male	Female
20-29	15	37	69	165
30-39	97	323	181	386
40-49	205	487	294	417
50-59	239	347	248	342
60-69	189	262	162	190
70+	43	62	57	69
Total	788	1518	1011	1569

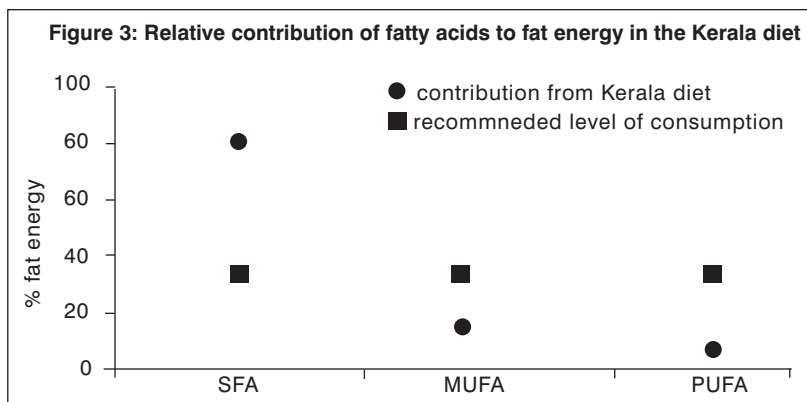
Source: Prospective rural & urban epidemiology study ongoing

Age (years)	Rural		Urban	
	Male	Female	Male	Female
20-29	6.7	5.4	0	1.2
30-39	10.3	7.1	8.3	8
40-49	21.9	14.4	25.2	17.3
50-59	31	22.2	32.7	30.4
60-69	28.6	37.8	40.7	27.9
70+	19	31.7	43.1	38.5

Source: Prospective rural & urban epidemiology study ongoing

Age (years)	Male	Female
20-29	5.5	4.8
30-39	21.5	15.5
40-49	32.8	30.8
50-59	49.7	53.5
60-69	59.8	64.1
70-79	59.2	80.9
Total	41.4	38.1

Source: Ongoing studies (Dr C.R. Soman)



Source: Ongoing studies (Dr C.R. Soman) (Based on 2,635 diet surveys)

Risk factor/disease	Rural		Urban	
	Male	Female	Male	Female
BMI $\geq$ 25	33.6	48.3	32.1	42.9
BMI $\geq$ 23	55.0	58.8	52.7	63.3
S. Cholesterol $\geq$ 200	68.9	73.8	68	73.7
S. Cholesterol $\geq$ 240	31.9	38.2	31	36.7
Blood pressure $\geq$ 140/90	44.4	42.4	37.7	36.7
Triglyceride $\geq$ 150	21.6	11.7	37.1	21.6

Source: Ongoing studies (Dr C.R. Soman)

Energy centile	Total	SFA	MUFA	PUFA
10	30.13	21.7	5.12	1.12
50	31.64	23.2	4.04	1.62
90	35.12	25.7	5.16	2.02
Mean	32.28	23.5	4.56	1.77

Source: Ongoing studies (Dr C.R. Soman)

much higher than reported levels from the rest of India.

## Conclusion

The dramatic decline in mortality and fertility that Kerala witnessed in the second half of the 20th century has created new problems for the state. The proportion of aged people exceeds 10 percent of the population. Rapid changes in lifestyle have contributed to an alarming increase in non-communicable diseases. The prevalence of Type 2 diabetes, hypertension, over-weight and obesity, and cardio-vascular diseases has assumed alarming proportions. The state of Kerala has not yet taken note of the magnitude or the developmental consequences of the burden of non-communicable

diseases. Fortunately, interventions needed for controlling these are not expensive, high technology interventions. Simple dietary and lifestyle interventions like exercise, increased consumption of fruits and vegetables and abstinence from tobacco and alcohol can make a substantial dent in the problem of non-communicable diseases in Kerala.

*The author is Chairman, Health Action by People, Trivandrum, Kerala*

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2. Government of Kerala. Human Development Report, Kerala, 2005.
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# FOUNDATION NEWS

## ● Symposia

NFI organised a two-day symposium on “Nutrition and Bone Health” on July 31 and August 1, 2007 at India International Centre, New Delhi. Several outstanding speakers from India and abroad attended the Symposium, which was inaugurated by Dr R.K. Srivastava (Director-General, Health Services, Government of India). The Proceedings of the Symposium will be printed as a supplement of the *Indian Journal of Medical Research* in the near future.

## C. Ramachandran Memorial Lecture

On the occasion of its Annual Foundation Day, Dr V. Prakash, Director CFTRI, Mysore will deliver the C. Ramachandran Memorial Lecture at NFI on November 29, 2007. Following on this, a two-day symposium on “Food Technology for Better Nutrition” will be held on November 30 and December 1, 2007 at India International Centre, New Delhi.

## ● Study Circle Lecture

“Neonatal and Child Mortality in India: Regional Differences and Time Trends” by Dr Prema Ramachandran, (Director, Nutrition Foundation of India) on September 28, 2007.

## ● Proceedings

The Proceedings of the Symposium on “Primary Health Care – New Initiatives” held on November 30 and December 1, 2006 has been published. It is also available on the NFI website: [www.nutritionfoundationofindia.res.in](http://www.nutritionfoundationofindia.res.in)

# Health and Nutrition Education of the Community: Choosing the Appropriate Channels

C. Gopalan

In the ultimate analysis, the strength of a nation depends upon its "human capital". This, in turn, depends upon: a) the health and nutritional well-being of its people; and b) their educational status. Unfortunately, in large sections of India's population, these essential requirements for ensuring the quality of human resources are currently weak. The problem is not merely one of lack of resources. There is also lack of information and motivation, and a reluctance to abandon entrenched practices. This is why, it is so important to harness the imaginative use of appropriate channels of communication to convey essential educational health and nutrition messages to the sizeable crucial segments of our population. We had discussed this subject briefly in an earlier communication<sup>1</sup>. Some suggestions for such appropriate channels of communication are discussed in greater details in this paper.

## 1. The School System

Children of school age (six to 18 years) constitute a sizeable segment of India's population. These are the citizens who will shape the future of the nation and are, therefore, the most important and crucial segment of the population.

School students, teachers, parents and families of the students together constitute the "School System". A meaningful school system should aim not only at education of children in the three Rs, but also in training and motivating them for productive citizenship. Such a school system could become a powerful tool in the promotion of national development. The Nutrition Foundation of India has earlier demonstrated that the rural school system can become an effective medium for imparting nutrition and health education to the entire community<sup>2</sup>.

The school is a logical entry point for community health and nutrition education for the following reasons:

- With the increasing outreach and inclusiveness of Sarva Shiksha Abhi-

yaan and the School Mid Day Meal Programme, more and more children are expected to come within the school system.

The school "system" encompasses students, teachers and parents; in other words, the whole community.

- Young children are more ready to assimilate new or unfamiliar health and sanitation information, and the whole family learns these 'school lessons'. School children could function as agents of change and the messages, which they carry, are likely to get better hearing and acceptance from parents and from the community than those from hired government personnel.

- Preventive health check-ups can be more readily arranged in schools rather than house-to-house.

- Mass media can be effectively used in schools to convey health messages.

The development of such an effective school system will call for ensuring that the schools are well equipped, with a proper environment, preferably with modern audio-visual aids for education, along with well-trained, mission-oriented and motivated teachers.

## School Health Service

Even at the time when the Second Five-year Plan was being drawn up, Shri Jawaharlal Nehru had constituted a School Health Committee with Smt Renuka Ray as Chairman. I had the privilege of being the Secretary of this Committee. The recommendations of this Committee were well received but, unfortunately, due to the competing claims of several other programmes for priority, the proposed programme did not make headway. Smt Indira Gandhi reiterated the importance of the School Health System in 1981. In her address at the inauguration of the National Heart Institute, she made a forceful plea for compulsory medical check-up services for school children.

A comprehensive school health service would be one which is not confined only to the medical inspection and health care of the children, but which

will be used as a means of ensuring the health of the school community. Such a health delivery system will be largely prevention-oriented and will naturally lay great emphasis on health education. More than 30 years ago, I had pleaded for a mobile comprehensive school health service, which could serve as a "second front" (adjunct to the primary health care system) for the promotion of community health<sup>3</sup>. Despite lip service to this concept, no programme in this direction has been instituted at the national level.

## Mid Day Meal Programmes

Mid Day Meal Programmes in schools have had a long and chequered history in India. A well-organised Mid Day Meal Programme involving several thousands of school children was being implemented in the 1940s by the Madras Corporation at the time when Smt. Tara Cheriaan was the Mayor. This Programme languished after some years. It was revived in parts of Tamil Nadu after Independence. The late Chief Minister of Tamil Nadu, Shri M.G. Ramachandran gave a further fillip to the programme by ensuring that it covered the entire state. This programme is still continuing with the support of the Tamil Nadu government. The Andhra Pradesh government instituted a School Meal Programme, but it had to be discontinued because of wide-spread corruption in its implementation.

These Mid Day Meal Programmes have been largely looked upon as the means of providing at least one square meal a day for poor school children. Indeed, the Tamil Nadu programme initiated by Shri M. G. Ramachandran was inspired by his own experience as a poor child. So these programmes, in their present form, are purely in the nature of "supplementary feeding" programmes beamed to poor children, with no educational component for improving the sanitation and dietary habits of children and their households. The beneficiaries of these programmes are still children of the poor and lower middle classes. This concept is quite unlike the massive School Meal Programme carried out in Japan, which was structured as an educational tool beamed to the affluent as well as to the poor; the school meal time was preceded by a short discourse on food ingredients and diets of good nutritive value.

Today, more than ever before,

with the rising incidence of childhood obesity among the well-to-do, and continuing under-nutrition in the poor, every child and every family requires proper nutrition education regarding dietary habits. In the present context, a school meal programme will make far more sense and command far greater support and prestige if presented as a health-cum-education vehicle.

The recent decision of the Government of India (following on the Supreme Court's ruling) to institute a Mid Day Meal Programme in schools is welcome. In Delhi, the Nutrition Foundation of India has been playing an important role in ensuring that these school meals conform to nutritional and food safety standards. However, the focus of this programme has been mainly to improve enrolment and retention of children in schools. While this is worthwhile in itself, there is great potential for giving this programme an added focus... as a health-cum-nutrition education programme, which will have a spin-off effect on household diets as well.

At best, the school mid day meal supplies just one-third of the daily nutrient requirement of the child, and, this too just for 200 days in the year. It is also possible that in many poor households these mid day meals become a substitute and not a supplement to home meals. Under these circumstances, the Mid Day Meal programme cannot be expected to make a significant impact on the nutritional status of children. This has been the experience in Tamil Nadu, where a Mid Day Meal Programme has been in operation for several years. Overall, the nutritional status of school children has shown no significant improvement in this time period.

If the school meal programme is to be the entry point for improving nutritional status as well as dietary habits, in the long term, the meal served in the school should be wholesome from the nutritional point of view, and should be based on traditionally acceptable and locally available food items. The objective is to ensure that this "school meal model" becomes a means of improving household diets. This purpose will not be achieved if school meals consist of pre-prepared foods handed out by foreign agencies; and most certainly it will not be achieved by such unscientific means as "sprinkling" an arbitrary cocktail of synthetic micronutrients. There is

a real danger of the Mid Day Meal programme (like the supplementary feeding Programme of the Integrated Child Development Services – ICDS – system being hijacked by multinational commercial forces for the promotion of their products. This must be strictly guarded against. NFI has been insisting that school meal programmes should include, apart from cereals, at least 50 gms of non-tuber vegetables. Mid day meals can then serve as a vehicle for nutrition education and improvement in the household diets of the community.

### **Parent-Teacher Associations**

Motivated parents are essential for the success of any activity within the school system. Active Parent-Teacher Associations should be encouraged to hold monthly meetings to discuss ways to improve the well-being of the community. This approach will give parents and families a sense of "ownership" of the school programmes, thus, making the school an asset to the community.

Home Science colleges (nearly 400 in the country) with active departments of Food and Nutrition, and the Departments of Preventive Medicine in Medical Colleges can play important roles in health and nutrition education in the community, through participating in meetings of the parent-teacher associations of local schools, as part of their practical training.

### **A National Health Scout Movement**

This national movement would be structured along the same lines as the National Cadet Corps (NCC). Both boys and girls would be enrolled, and suitable training programmes would be drawn up to sensitise students to our major health and nutrition problems. They can be trained to be "agents for change", to promote health and nutritional well-being in their families and in the community. National Health Scouts could spearhead a health and nutrition revolution nationwide by helping to change lifestyles and dietary practices in each local area. On a wider canvas, the instruction modules would include first aid, healthy lifestyles and dietary practices, and environmental hygiene and good citizenship. This approach would help to "seed" the community with effective catalysts for change, who can effect a beneficial revolution from within the community itself.

In 1985-86, Shri Rajiv Gandhi initi-

ated the Jawahar Navodaya Vidyalaya programme to establish and manage co-educational, residential schools covering classes VI to XII. Today there are 509 of these institutions spread over 34 states and union territories and these schools cater to 1.58 lakh students. The National Health Scout Movement could be set up in these institutions, first as a pilot project. These institutions could serve as the vanguard of a movement of effective utilisation of school health services and for the promotion of health and nutritional well-being of our population.

### **Public-private Partnership**

Already there is a network of government workers in the health sector and in the education sector in each community. The involvement of private and Non-Governmental Organisation (NGO) entities as partners of the government will provide the crucial "bridge" between health and education, so that each can enhance the other more meaningfully.

College students, private volunteers, corporate sponsors, NGOs and (perhaps the most important), the community's own child "health scouts" can ensure that public-private partnership uplifts the nutritional and health status of the community as a whole.

A well-organised school system can serve as a powerful 'second front' for the promotion of community health care, while simultaneously inculcating civic sense among the students. It has tremendous untapped potential to help promote healthy lifestyles in the students and their families – a very important achievement, especially in the context of the growing menace of major chronic degenerative diseases resulting from flawed lifestyles.

## **2. Non-formal Education Channels**

### **A programme beamed to adolescent girls**

A considerable proportion of the adolescent girls of rural communities are today not captured by the school system. Many of the girls either do not enter school or drop out after the first few years. Adolescent girls are a crucial segment of our population.

A programme focusing exclusively on adolescent girls is absolutely essential. Adolescent girls constitute a crucial segment of our population. These are the mothers-to-be, who will not only usher in the next generation

but also shape it. Today, they are a neglected section of the population. The programmes I am suggesting would include sensitive areas of sex education and promotion of healthy sex habits. The Nutrition Foundation of India has prepared 'Training Modules' on 'Education for better living for rural adolescent girls'. The Foundation has in fact carried out an education programme for rural girls in Rajasthan using the modules, with very encouraging results<sup>4</sup>.

Such programmes should be replicated and extrapolated to cover the entire country, so as to make timely interventions and investments in the health and well-being of these future mothers and homemakers.

### 3. Counselling of newly-married couples

Many teenage boys and girls enter into marriage completely ignorant of the challenges posed by married life. Our Family Planning programmes have not been a shining success because they are beamed to women who have already had two to three children. There is considerable controversy with regard to sex education at the school level. There can be no controversy with regard to programmes of health and nutrition education, including sex education, for newly-married couples. Such an education programme could help in promoting wholesome lifestyles. These programmes can be organised through special counselling cells located in our Primary Health Care Centres.

### 4. Nutrition education for mothers

Pregnant and lactating women are an important group in need of nutrition education. These women attend antenatal or immunisation clinics in hospitals and primary health centres. The waiting time could be fruitfully utilised in giving them audio messages on nutrition education; wherever possible they could be given audio-visual messages.

These women also assemble in sub centres/anganwadis on health and nutrition day and on immunization day. These occasions should also be used for providing nutrition education using pre-recorded audio or video messages, backed up with interpersonal communication by the staff of these centres (Anganwadi workers of the ICDS, Accredited Social Health Activist,

and Auxiliary Nurse Midwife).

### 5. Health centres at work places

Studies carried out by the Nutrition Foundation of India have shown a very high incidence of obesity and degenerative diseases in the staff engaged in large governmental, semi governmental and private institutions<sup>5</sup>. Sedentary lifestyles and bad dietary habits are the culprits. This situation can be corrected by timely advice in health education centres located in these institutions. This is being done in the United States, for instance, in a big way, with facilities for yoga being sometimes provided for office staff even outside office hours. In-house exercise areas and equipment, recreational facilities, and the availability of wholesome food items to the employees can also benefit the employers, who will have a healthier and more efficient workforce with less absenteeism related to ill health.

#### ***A national centre for promotion of nutrition education***

All the education programmes suggested above can be directed and coordinated by "A National Centre for the Promotion of Nutrition Education". Such a centre should be able to identify key scientific nutrition messages of practical value appropriate to the various population groups of the country. In order to bring about improvement in household diets across the country, it is not enough merely to generate messages; it is even more important to ensure that these messages reach the target population. It is important that experts in communication methodologies ensure that these messages are presented to the people in a manner that will help to change their attitudes and dietary practices. The modern tools of communication technology and audio-visual aids should be appropriately utilised, and all available channels for communication, such as schools, public institutions and the media should be effectively used. In a vast country with wide regional differences and disparities in economic status, the education programme should be tailored so as to be appropriate for the intended target group.

With the combined inputs of the students and faculty of the nearly 400 Home Science Colleges with active departments of Food and Nutrition, and the hundreds of Medical Colleges with Departments of Preventive Medicine,

with the expertise of communication and media professionals, and in partnership with NGOs which are already working at the grassroots, this proposed national centre should be able to organise a sustained programme of nutrition education, not only to impart knowledge but, more importantly, to bring about changes in attitudes, lifestyles and dietary practices.



These programmes cannot be expected to yield dramatic results in the short term. Changing the dietary habits and lifestyles of people is by no means an easy undertaking. Nutrition education programmes specially tailored for and beamed to crucial vulnerable groups should be continued as a permanent activity. There must be periodic evaluation of the impact of these programmes. On the basis of these evaluations, some of the inputs may need improvements and modifications. It is only with such sustained nutrition education of the community, that we may succeed in ensuring that health and nutritional well-being becomes a 'People's Movement'.

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## **NUTRITION NEWS**

● The 10th Asian Congress of Nutrition held at the International Convention Center, Taipei, Taiwan on September 9-13, 2007 was attended by 1,521 delegates, 750 international participants from 30 countries.

● The 39th Annual Meeting of Nutrition Society of India will be held at National Institute of Nutrition, Hyderabad on November 15-17, 2007.