

Child survival strategies and trends in Kerala

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Discussing the child survival strategies and trends in Kerala, it has been pointed out that though Kerala has been considered to be in the forefront in terms of health status, the morbidity rate is paradoxically high in the State. Kerala has the highest literacy rate, specially female literacy, high immunisation rate and life expectancy, low birth rate and infant mortality rate but also low per capita income and daily per capita calorie intake and high morbidity rate. Greater need for systematic research strategies to study the interaction of social determinants with biological intermediate variables to work out viable programmes for child survival and development has been emphasized.

INTRODUCTION

1. The socio-economic development of a country depended mainly on the health and welfare services available for the women and children of the society. It was now well established that a poor state of health retarded the growth of economic development and that inadequate economic development further resulted in a bad state of health. In 1978, the international conference at Alma Ata, institutionalised "primary health care" as the key to achieving health for all by 2000 AD. In May 1979, the UN World Health Assembly endorsed the Declaration of Alma Ata on primary health care and convinced the member countries to formulate comprehensive health policies and strategies to reach the target of health for all by the year 2000 AD. In the early 1980s the United Nations Children's Fund (UNICEF) devised a strategy to bring down the high incidence of

infant and child mortality, maternal malnutrition and infant and child malnutrition (1). This unique strategy on child survival revolution was based on the delivery of child health technology and education at the village level. This strategy is best known by the acronym "GOBI- FFF", representing the component parts of Growth Monitoring Charts (G), Oral Rehydration Therapy(O), Breast-feeding(B), Immunization(I), Family Spacing(F), Food Supplements(F) and Female Education(F).

2. CHILD SURVIVAL PROGRAMMES IN OTHER DEVELOPING COUNTRIES

The programme of child survival and development had been incorporated into the country health plan with the specific objectives of reducing infant and child mortality and eradicating malnutrition among children and women. It was very important to determine

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(based on field reality) which health problems were responsible for a significant number of deaths and disabilities and to identify ways of dealing with these problems according to the local needs and local environment. In the past 4 or 5 years several countries have shown that development in vaccine and delivery mechanism combined with community participation ultimately resulted in satisfactory coverage within a short time. It is worthwhile to add here that before implementing the programme, the infrastructure capacity such as cold chain facilities, transport, office space, manpower etc, had to be carefully reviewed. Based on such a review a schematic presentation can be prepared of the target population, proportionate achievement rate, manpower required, resources, etc. However, it was a known fact that information to assess the exact health status/condition of the children is scarce, fragmentary and inconsistent (2).

3. The knowledge regarding what epidemiological factors contributed to infant and maternal morbidity and mortality in general, was essential before planned improvements can be introduced. The experience in other developing countries revealed that these were due to inadequate health facilities, improper feeding pattern, taboos and social structure and lack of awareness of the people on the importance of basic health (3, 4 & 5). It was essential that before the initiation of any new programme, the community needs have to be properly identified so that the programme can hope to have some chances of success. Without ascertaining the feasibility of initial input, even the modifies programme was unlikely to make the necessary impact (6).

4. It is worthwhile to add here that with the support of UNICEF and other international organisations around 80 countries had sharply accelerated the immunization programme and

112 countries promoted the ORT programmes. The general trend of child survival programme was to focus on immunization and ORT since these two were considered to be the twin engines of the programme machinery. China, with one sixth of the world's children, was expected to achieve the target two years ahead of the scheduled plan. "China had only 439 registered deaths due to measles, diphtheria, whooping cough and polio - a mere 8% of the level in 1952. China's target now was to ensure that 85% mark was reached not just in all provinces but in every individual part of the country before the end of 1990. A foundation for the long-term sustainability of immunization was laid through the introduction, in many cases, of a single insurance known 'EPI' (Expanded Programme of Immunization) contract. For a small fee at birth, parents were guaranteed immunization services for their children up to seven years of age" (7). Countries such as Botswana, Cuba, Egypt, the Gambia, Iraq, Jordan, Oman, Rwanda, Tanzania and Saudi Arabia have reached the target already. Others such as Algeria, Brazil, Kenya, Mexico, Morocco, Pakistan and Turkey have made plans to reach 80%-90% coverage within the next two years (8).

5. SITUATION IN KERALA AND INDIA

The progressive attitude towards health played a major role in reducing sickness and deaths from infectious diseases in majority of the countries (9). This was slowly integrated into the primary health care programme in India also. The Expanded Programme of Immunization (EPI) was implemented in India in 1978 and later it was named as Universal Immunization Programme (UIP). In 1985, Government of India launched the Universal Immunization Programme with the main aim of Immunizing all infants and pregnant women and improving the management of diarrhoeal diseases and also maintaining an effective cold chain system (10).

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The immunization target population and the achievement of India and Kerala are indicated in Table 1. From the Table it can be clearly observed that there is an increasing trend of achievements in DPT, Polio, BCG and TT (16 Years) and a downward trend in Tetanus, Measles, DT, immunization, TT (10 years) during the period 1985-86 to 1988-89. However, the achievements of the annual targets have been in a downward trend in all immunizable diseases with the exception of Measles and TT (10 years and 16 years). In 1986/87 the programme started in three districts of Kerala (Cannanore, Malappuram & Quilon) and in 1987/88 it had expanded to five more districts (Kasargod, Wayanad, Kozhikode, Trichur and Kottayam). The entire Kerala State was covered by this programme benefitting an estimated number of 6.21 lakhs of pregnant women and 6.03 lakhs of infants. Under the programme the State had achieved during 1987/88 the coverage of 98.35% pregnant women with two doses of Tetanus toxoid, 91.4% eligible infants with 3 doses of DPT, 100% for 3 doses of OPV, 84.05% in BCG and 47.7% in measles (11). As regards the components of breast-feeding, data were not readily available in Kerala, though it was believed that a large part of the women practiced the same as compared to India as a whole.

6. Kerala has been considered to be in the forefront in terms of health status but paradoxically, the morbidity rate is high in Kerala. The publication of a study in 1975 on Kerala's development undertaken for the United Nations by the Centre for Development Studies (CDS) attracted global attention and a group of international experts began to promote the "Kerala Model" as an alternative approach to development. But a few social scientists also began to describe Kerala's development as a paradox largely because certain development indicators, such as lower birth and infant

mortality rates and higher life expectancy, were more in line with higher levels of per capita income than were actually warranted by the level of Kerala's per capita income (12). According to the Economic Review 1986, the per capita incomes at constant prices grew only by 0.2 percent per annum between 1970-71 and 1985-86, i.e. from Rs. 596 to Rs. 614. An analysis of food consumption also showed that the daily per capita calorie intake in Kerala was one of the lowest among the States in India (13). During the past 10 years between 1973-74 and 1983-84, there has been a significant and dramatic change in the level of per capita consumption in Kerala.

7. Kerala has an area of 38854 square kilometers and a population of 290.1 lakhs according to 1991 Census. Interspersed with rivers and mountains it has an undulating land surface ascending from the Arabian Sea in the West to the height of the Sahyadri (Western Ghats) in the East. A long settled fertile piece of land in the South West corner of India, it has been growing in population especially during the present century, so much so, that the density of population was about 655 persons per square kilometer in 1981 which is about three times in the country as a whole (15). The birth and death rates which stood at above 45 per 1000 in the early decades of this century came down to 38 and 12 per 1000 respectively in 1965 in Kerala (16). In India as a whole, however, the rates were a little above 40 and 20 respectively. The declining trend in mortality showed an acceleration subsequently, reaching 6-7 in the 1980s (17).

8. It is interesting to note that the infant death rates which stood above 200 in the early years of the century came down to 26 in the rural areas in 1987. The chances of child survival were greater especially as the birth rate had reached 21 in

1987(18). Exercised in mortality control practices based on innovations in the West continued to bring mortality to a low level and increase the life expectancy at birth for males in Kerala to 69 and females to 73, based on mortality experiences in 1984, 85 and 1986 (19). The corresponding expectation of life at birth in India as a whole was estimated as 55. The infrastructural facilities in the health field started building up from the regimes of princely rulers of the erstwhile Cochin and Travancore States (20); these expanded with the starting of the primary health care system in a re-organised pattern with all aspects of child survival, immunization, health education, family planning etc.

9. Kerala had a very high level of unemployment particularly of its educated labour force. The qualitative nature of unemployment in Kerala viz. the incidence of large scale educated unemployment was a real reflection of the high level of education in the State as also due to bottlenecks that prevented proper manpower planning. The mean age at marriage of women in Kerala was estimated as 22 years according to the 1981 Census; the corresponding age at marriage for India was 18 years. This together with a somewhat high level of contraception has been responsible for bringing down the birth rate to low levels in the State (21).

10. While reviewing the existing data on child survival aspects, it has been realised that the data were deficient in quality and quantity. It was therefore imperative to carry out a systematic programme of monitoring and evaluation of the programmes in order to get a true picture. Growth monitoring was not done systematically in the State or in the country. Though various studies and with the introduction of school health programmes, it can be said that, a beginning has been made in this direction.

11. By far the most important component as now-a-days pointed out was the oral rehydration therapy. The lion's share of infant deaths and child deaths (less than one year and 1-4 years respectively) was found to be due to dehydration. A concerted attempt was made through primary health centres, sub-centres, anganwadis and other channels at the grassroot level to inculcate the idea of rehydration even while dehydration was taking place. An ORS packet was made available free of cost at Primary Health Centres and hospitals, a receipt was popularised, in which the gruel water, coconut water or lime juice with salt added or with salt and sugar added was the rehydrating agent. In the State of Kerala, this receipt and ORS were readily welcomed and except in inaccessible places and very backward areas, the treatment was done and children were saved. In the backward States in India (U.P., Bihar, Rajasthan and Madhya Pradesh) however, these attempts have not begun to show results partly because of the difficulty in reaching the people and partly because of lack of female literacy.

12. Diarrhoeal diseases have been classified into Cholera, gastro enteritis and others. In recent years attempts have been made to collect information on these from the various districts in Kerala. The information in Table 2 can be taken as illustrative. Steps have been taken to improve the reporting systems. The case fatality rate (Deaths x 1000)/attacks may show an increase now as the system has yet to improve and also because in far off areas of the States drought and floods took a large toll. Comparative figures for the country as a whole were not available. The trend in attacks and death due to diarrhoeal diseases can be seen from Table 3 which also cannot be considered as complete. A statement of details of preventive measure adopted during 1988-89 is also given therein. It may be remarked here that even from early times the

reporting of Cholera and gastro-enteritis was in vogue in the State as part of the notified diseases; statements were prepared and sent to the Director General of Health Services and Registrar General, Government of India. But only recently these were being evaluated and made more accurate but still much remains to be done in this direction. It is worthwhile to mention here that 4.78 lakhs of ORS sachets were distributed through the ORT programme during the month of April 1988 to March 1989. According to the statistics provided by the Directorate of Health Services out of the distributed ORS sachets 4.23 lakhs were consumed by the beneficiaries. In addition to this massive awareness and training programmes were organised for Anganwadi workers, Teachers, Mothers and Paramedical health workers (29030 Mothers, 507 teachers and 7500 Paramedical health workers were trained in ORT programme).

13. The State was leading the other States in India in literacy (90%) especially female literacy (86%) as seen in 1991. The country had only 52% literacy in 1991. Female education was progressing fast with the implementation of educational programmes under the five years plans. As regards family spacing stress was being laid in this aspect though the couples who planned their families did not give much thought to this. Nearly 50% of the couples were protected by family planning methods but this was largely through sterilization. Adoption of spacing methods by young couples is being encouraged. Because of the practice of breast-feeding, an interval of 2-3 years was usually seen through the first child was born with the minimum time after marriage in a large number of cases. Here, it has also to be remembered that the average age at marriage of females in Kerala remained at about 22 years as worked out from 1981 Census data. The

tendency now was to have only two children to each couple especially to educated ones. The progress of child survival in Kerala over the years can be seen as emanating from the operation of these variables. In the country as a whole, however, these variables do not have much relevance and infant death rate was very high (95 per 1000 in 1987).

14. An item which was also given much importance in the country was the supplementary feeding programmes. There were various schemes like Integrated Child Development Scheme (ICDS), School mid-day meal scheme, Special nutrition programme, Applied nutrition programme and Composite Programme for Women and Preschool children (CPWP), Integrated health package programme, Supply of vitamin A and iron & folic acid to children of various ages. There were also trails to have one supplementary item of food containing all the essential items of nutrition prepared from common cereals in the country. These schemes covered a large part of the country and were accepted by the people. There were however, some lacunae in their implementation; they did not provide food supplements on all days in a week because the institutions may not work on all days; also it was only a supplement that they provided supplement to the main food which was lacking in a very large proportion of cases. Other schemes to meet the latter situation by providing income supplements so as to have atleast two meals a day for poor people were also being carried out in the country successfully. But, again, there will be some periods not covered, some provisions not reaching the people who needed them and so on, so that the full effect and what was expected may not be forthcoming.

15. The ICDS programme was implemented as a package of service mainly intended for the development of children below 6 years age and

pregnant and lactating mother. There were 87 ICDS projects in the State as on 31.3.1991 of which 63 were Central projects and 24 State sector projects. Under the ICDS programme a total of about 7.75 lakh beneficiaries were covered through a new work of 10321 feeding centres. The growth of ICDS and other similar centres in the State of Kerala and the beneficiaries covered during the period 1986-87 to 1990-91 is indicated in Table 4. Similar statistics about the country as a whole were available but not presented here. It may be remarked here and still some parts of the country have to be covered by the scheme. The policy of the Government of India was to cover the whole blocks through a new work of ICDS projects by 2000 AD. The services were implemented through the Anganwadis for every 1000 population. As soon as the ICDS started functioning in a block, other supplementary feeding centres were integrated into it (22).

CONCLUSION

16. To achieve the goals and objectives of child survival strategies the existing inherent socio-economic and socio-cultural factors must be taken into consideration. However, there was a greater need for systematic research strategies to study the interaction of social determinants with biological intermediate variables to work out viable programmes for child survival and development. The experience through this approach will reveal further replicable strategies for the other States in India and developing countries in general to formulate systematic strategic plans to implement meaningful and cost effective programmes.

17. To meet the objectives of any programme, appropriate strategies have to be developed at regional, district, block and panchayat levels according to the local situation. There should be a certain amount of flexibility in the programme

to leave out the areas where the programme targets have reached maximum output and in those areas appropriate services should be provided as and when required. It would be also ideal to stratify the areas based on performance for prioritising the implementation strategies. This would greatly help the re-development of scarce resources or efficient resource mobilization and making adjustments in the programme for extending to the deserving areas. In all the programmes genuine efforts have to be made for establishing sectoral and distributional objectives for maximising the effectiveness of the programme.

18. This examination of the evidence to find out the role of the seven fold strategy in bringing about a reduction in infant and child death rate in Kerala and thereby raise the survival chances cannot be considered as foolproof as the statement of performance required verification. Much more information was necessary to establish the hypothesis. In the context of the country as a whole, also, there was a need to amass all the available official statistics and put them to rigorous examination; the latter analysis had to be made State by State. A beginning had been made in this connection by sending specialised teams from the State EPI Department and Medical Colleges to assess the immunization efficiency independently. The team's report about the districts they visited in the State did not endorse the view that everything went on well here, especially in the matter of completing the dosages for various preventive measures. Evidently sustained motivation was still needed to make the people accept the full doses at the prescribed periods without fail for their benefit. Any amount of health education, motivation among the involved staff and propaganda will not go fruitless if followed in this direction.

19. Due to the success of the State's immunization programme many of the worst

diseases have been effectively brought under control. However, Kerala's record in controlling simpler sickness has not been very good. Here child morbidity was unacceptably high and was mostly related to the quality of the environment. To improve the 'Kerala Paradox' several things should be done and these were not particularly difficult for most Keralites. The construction of water and sanitation facilities or provision of health services was not enough, what was needed was proper public maintenance of these and effective use of water and sanitation facilities supported by improved family hygiene practices. A review of the situation in any case is warranted after a lapse of time. □

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TABLE 1
 IMMUNIZATION COVERAGE FOR INDIA & KERALA 1985/86 TO 1988/89
 TO 1988/89

I. DPT	Target (in 000")		Achievement of annual target	
	India	Kerala	India	Kerala
1985-86	14,044	900	108.1	104.5
1986-87	15,300	600	75.6	85.9
1987-88	16,860	466	97.2	119.4
1988-89	17,822	513	101.7	109.8
II. TETANUS				
1985-86	12,855	550	80.6	108.0
1986-87	15,200	500	76.7	83.7
1987-88	16,540	490	84.9	121.8
1988-89	22,878	621	73.7	105.8
III. POLIO				
1985-86	14,044	650	93.9	122.3
1986-87	15,300	600	67.1	94.4
1987-88	16,860	466	85.0	144.8
1988-89	17,822	513	96.0	114.0
IV. MEASLES				
1985-86	NA	—	NA	—
1986-87	5,700	400	67.5	49.7
1987-88	10,975	396	86.8	78.5
1988-89	15,440	513	80.5	107.8
BCG (Below 1 year)				
1985-86	14,044	650	47.3	37.8
1986-87	15,300	600	72.7	102.7
1987-88	16,918	466	92.8	114.9
1988-89	17,689	513	102.4	107.6
VI. D.T. Immunization				
1985-86	11,190	500	112.0	128.9
1986-87	12,100	600	89.2	56.2
1987-88	10,424	260	89.2	118.5
1988-89	18,142	519	67.6	53.8
VII.				
(a) T.T. (10 years)				
1985-86	5,540	300	82.0	31.2
1986-87	6,700	300	78.7	43.2
1987-88	6,262	153	89.5	63.4
1988-89	9,344	295	84.0	82.4
(b) T.T (16 years)				
1985-86	3,304	200	90.9	32.1
1986-87	4,100	200	84.8	45.0
1987-88	3,891	110	90.5	68.9
1988-89	5,859	211	91.5	94.7

Sources :

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TABLE 2
DISTRICTWISE NUMBER OF ATTACK AND DEATHS DUE TO DIARRHOEAL DISEASES IN KERALA DURING 1985-86 TO 1988-89

DISTRICT	CHOLERA								GASTRO-ENTERITIS						OTHER DIARRHOEAL DISEASES									
	1985-86		1986-87		1987-88		1988-89		1985-86		1986-87		1987-88		1988-89		1985-86		1986-87		1987-88		1988-89	
	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D
TRIVANDRUM	38	3	44	4	63	1	2	-	2731	23	31	17	1797	64	1275	18	40875	4	35681	8	23362	37	79248	90
QUILON	1	-	4	2	62	12	27	3	2	-	N.A	N.A	2471	35	603	9	7968	-	24637	11	16609	-	88845	20
ALLEPPEY	7	-	5	3	75	6	21	1	1645	-	506	1	1339	10	356	12	28588	1	53551	-	63626	3	88470	12
PATHANANT HITTA	N.A	N.A	N.A	NA	NA	NA	NA	NA	776	-	670	-	27	2	1	1	12097	1	22539	-	12102	1	27499	1
KOTTAYAM	1	-	1	-	3	3	2	-	7	-	63	1	651	4	88	2	47651	1	58658	-	68101	-	80370	-
IDUKKI	NA	NA	NA	NA	NA	NA	3	-	1227	-	311	-	-	-	116	3	85887	-	22479	4	22612	-	41002	16
ERKAKULAM	2	1	2	-	6	-	44	3	651	3	533	1	783	2	1250	1	90592	7	100159	2	115102	1	105673	3
TRICHOR	NA	NA	3	-	28	5	47	7	513	-	2050	5	111	6	366	9	27663	-	70330	6	58195	3	94951	11
PALGHAT	NA	NA	NA	NA	77	10	6	4	6350	22	4186	26	7908	96	1352	15	59319	23	75960	11	66413	5	89949	12
MALAPPURAM	NA	NA	NA	NA	NA	NA	8	1	5631	41	18917	18	2973	55	8098	20	55827	6	90469	7	74070	2	114233	37
KOZHIKODE	1	-	10	4	1	-	105	7	309	1	4567	4	874	12	2042	35	13000	-	10817	-	16630	-	32794	129
WAYANAD	NA	NA	NA	NA	NA	NA	NA	NA	5822	2	120	6	41	7	99	8	68225	11	93041	10	79506	25	3805616	
CANNANORE	NA	NA	NA	NA	1	-	18	3	3471	13	7581	2	1659	15	1682	24	24351	-	50005	-	26419	-	39704	16
KASARGOD	11	-	1	-	5	-	12	1	286	8	1396	1	915	3	1344	6	3652	-	14787	-	23130	1	17654	15
TOTAL	61	4	78	13	321	37	295	30	29421	113	44074	62	21549	311	18672	163	565693	54	723113	59	681877	77	868450	278

Source: Statistics obtained from the Directorate of Health Services, Government of Kerala, Trivandrum A-Attacks; D-Deaths.

TABLE 3

STATEMENT ON DIARRHOEAL DISEASES FOR THE PERIOD 1983-84 TO 1989-90 (UP TO JUNE 89)

A:

YEAR	CHOLERA		GASTRO ENTERITIS		OTHER DIARRHOEAL DISEASES	
	A	D	A	D	A	D
1983-84*	-	-	21756	354	558874	45
1984-85	27	2	24174	71	453168	7
1985-86	62	4	29421	113	565693	54
1986-87	78	13	44074	82	723113	59
1987-88	321	37	21549	311	681877	77
1988-89	295	29	18662	163	838450	278
1989-90	5	1	5005	11	191180	34

(upto June 89)

*Note: + During 1983-84, Cholera was included in Gastroenteritis and hence no separate figures available.

PREVENTIVE MEASURES ADOPTED DURING 1988-89

- Anti Cholera Inoculations	- 75164
- Wells Chlorinated	- 413487
- ORS distributed	- 199829
- Medical camps organised	- 1441

Source: Data obtained from the Directorate of Health Services, Trivandrum, Government of Kerala.

TABLE 4

PROGRESS OF I.C.D.S. AND OTHER SUPPLEMENTARY FEEDING CENTRES IN KERALA FROM 1986-87 TO 1990-91

Type of Programme	No. of Centres					No. of Beneficiaries (Rs. lakhs)				
	1986-87	1987-88	1988-89	1989-90	1990-91	1986-87	1987-88	1988-89	1989-90	1990-91
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Special Nutrition Programme	410	470	463	459	471	0.40	0.39	0.40	0.37	0.44
Integrated Child Development	8272	9227	10064	9651	9850	7.82	7.75	7.69	6.60	7.30
Services Development Department Applied Nutrition Programme	1985	1705	1611	1611	1509	0.97	0.98	1.04	1.04	0.97
Composite Programme for women and pre-school children	1790	1652	1652	1550	1433	1.28	1.28	1.22	1.22	1.10
School Meals Programme	8796	13816	13816	10506	9351	19.04	32.00	32.00	20.00	13.80

Source: Economic review 1991, State Planning Board, Government of Kerala.

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