

Special Article

Reduction of infant mortality in India

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Infant mortality rate (IMR) is regarded as a good indicator of socio economic development and general health status of a country. In recent years it has even been incorporated as an indicator of quality of life, (physical quality of life index).¹ While the infant mortality rate in India registered an impressive decline during the first 5-6 decades of the present century, a significant fall in the last 30 years has not been documented.² The IMR in India continues to be in the range of 120-130/1000³ (with the exception of Kerala where it is around 50/1000).⁴ On the other hand, in many developed countries it is reported as less than 20/1000.⁵

World Health Organisation has recommended that by the year 2000 AD, the IMR should be reduced to below 50/1000.⁶ The government of India has set a target of 60/1000 for IMR to be reached by the year 2000 AD.³ This target has already been reached by Kerala. Several projects throughout India have also demonstrated that this task can be accomplished.⁷⁻⁹ Many lessons can be learnt from Kerala and the successful projects to devise strategies which will help the country to reduce IMR in the context of its present level of

development and health care delivery system.

One major constraint in information on IMR in India is the lack of uniformity and reliability in the system of recording of vital events. Even though the registration of births and deaths is compulsory it is not ensured even in the cities. At present, birth and deaths are registered by the village *Chowkidar* (watchman) who is an official of the revenue department. He does not recognise the importance of recording IMR and is frequently not committed to this job. Correct recording is not ensured because village chowkidar is often illiterate. The information derived from sample registration scheme and a small number of community based projects can be considered to be reliable.⁹⁻¹¹ The latter information suffers from an element of bias because it is obtained from the project areas of medical colleges or projects run by committed voluntary agencies. A number of simple measures using people from the community have been suggested by WHO to generate this useful and basic information.¹² Mere knowledge of IMR is not enough for planning and execution of appropriate intervention strategy. It is also important to understand the various causes of death. Traditionally, the cause specific mortality is documented by professionals who are adequately supported

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by laboratory and pathology services. This is impossible to provide at the community level. It may be worthwhile to seek information after death by conducting a verbal autopsy.⁶ Based on the recall of symptoms and events, it may be possible to determine some of the preventable causes of death. It is feasible to train health workers (semi professionals or non professionals) like multipurpose health workers, health supervisors, mukhya sevikas etc. to use a simple flow sheet to determine the cause of death in majority of instances. Certainly the proportion of infants who die of preventable diseases, like diarrhoea, pneumonia tetanus, burns and accidents, malnutrition etc. can be identified by this technique¹³. In selected ICDS blocks it may be feasible to evolve a system of recording of births and deaths accurately by Anganwadi workers and a system of verbal autopsy to be conducted by health supervisors. Periodic reviews can be undertaken to determine the changing trends and assess the impact of interventions. These regular reviews can also reinforce to the health workers the need for institution of preventive and therapeutic measures which will help to reduce mortality.

Based on the available information and a review of literature it is clear that 50% of the deaths in infancy occur during the neonatal period.¹⁰ The common preventable causes of death in infancy identified are acute respiratory infections, acute diarrhoeal disease, low birth weight, protein energy malnutrition, tetanus neonatorum and communicable diseases like measles, whooping cough,

and typhoid.³

The high infant mortality rate can be reduced by general measure which can only be recommended as medium term and long term plans. These include, increase of gross national product, increasing female literacy, decreasing birth rate and increasing per capita food intake. Although there is no doubt that the above measures would reduce infant mortality rate substantially they are hard to accomplish in a short period of time in the absence of rapid development. At present, India is not experiencing rapid gains in any of the above mentioned areas to justify a prediction that these measures would produce substantial impact on a short term basis.

We believe that meaningful strategies for reducing infant mortality rate substantially (nearly 50% reduction) can be introduced successfully. Several strategies to reduce IMR have been suggested.¹⁴ Many of the important strategies have been reviewed with objectivity by Bhargava et al.¹⁵ Each one of the suggested strategies has a merit. However keeping the constraints of limited resources in mind, the concept of prioritisation becomes relevant. Selection of priorities should be based on four basic questions :

1. How common is the problem ?
2. It is technically feasible to introduce intervention programme ?
3. It is cheap ?
4. Is the intervention culturally and socially acceptable ?

A careful consideration of the above questions can help in deciding the pro-

per channelization of the available resources. In the current state of our technical knowledge, mortality related to several causes can be substantially reduced, and the interventions can be introduced quickly. In recent years the use of oral rehydration therapy has been demonstrated to be a powerful tool in reducing mortality related to acute diarrhoeal disease. 16-18 The incidence of neonatal tetanus (a killer disease) can be dramatically reduced by encouraging the birth attendant to use sterile blades while cutting the umbilical cord and by using simple hygienic measures while undertaking this procedure. This combined with administration of tetanus toxoid during pregnancy is effective. Children with moderate and severe protein-energy malnutrition need not be hospitalised. They have low mortality if provided domiciliary treatment. 21-23 The dangerous diseases like measles and whooping cough can be prevented by timely immunisations. The technical know how for treatment of acute respiratory infections at the community level is being developed.

The observation that infant mortality rate has not registered a decline during the past 30 years should be a matter of great concern to people concerned with child health and welfare. Many conditions responsible for the high mortality are sensitive to simple and cheap interventions which can be very quickly introduced. Therefore the reduction of infant mortality deserves to be a high priority issue.

References

1. Grant James P : A new way of measuring progress in living standards. World Health Forum. 3 : 373, 1981
2. Ramiah T J, Chanana H B : Infant mortality in India : certain trends. Proceedings of a WHO workshop on advanced techniques in neonatal and child health care, Family Planning and MTP New Delhi, Dec. 1979
3. Report of the working group on Health for All by 2000 A.D. Govt. of India, Ministry of Health and Family Welfare, New Delhi, 1981
4. Chopra P : The paradox of Kerala World Health Forum, 3 : 74, 1982
5. Sixth report on the World Health situation 1973-77. Part I global analysis. World Health Organisation, Geneva 1980, p275
6. Development of indicators for monitoring progress towards health for all by the year 2000 AD. World Health Organisation Geneva 1981
7. Kumar, V, Datta, N, Wadhwa SS : Infant mortality in a rural community development block in Haryana. Indian J Pediatr 1982 (under publication)
8. Rao VN, Coyaji BJ, Kulkarni NH : Vadu rural health project. KEM Hospital Research Center, Annual report 1981, p. 11
9. Srinivasa DK, Danabalan M, Anand D : Certain aspects of infant mortality—A prospective study in an urban community. Indian Pediatr 13 : 409, 1976
10. Reddaiah VP, Nath LM : Infant mortality in rural areas of comprehensive rural health services project. Ballabgarh. Indian Pediatr 15 : 547, 1975
11. Gupta SD, Jain TP, Joshi S, Mangal D K : Infant mortality in Rajasthan villages. Indian Pediatr 18 : 101, 1981
12. Lay reporting of health information. World Health Organisation, Geneva 1978
13. Kumar V : Essex B.J. (unpublished observations 1981)
14. Srinivasa DK : Strategies to reduce infant mortality. Indian J Pediatr 1982 (under publication)

1. Grant James P : A new way of measuring

15. Bhargava SK, Mittal SK : The challenge of infant mortality (editorial). *Indian Pediatrics* 19 : 287, 1982
16. Mahalanobis D, Choudhary AB, Bagchi NG, Bhattacharya AK, Simpson TW : Oral fluid therapy of cholera among Bangladesh refugees. *Johns Hopkins Med J* 132 : 197, 1973
17. Rahman MM, Patwari Y, Aziz, KMS, Munshi MH : Diarrhoea mortality in 2 Bangladesh villages with and without community based oral rehydration therapy. *Lancet* 1 : 809, 1979
18. Kumar, V, Monga OP, Jain NK : The introduction of oral rehydration in a rural community in India. *World Health Forum* 2 : 364, 1981
19. Chaturvedi SK. : Delivery pack for TBA's. *Lancet* 2 : 102, 1978
20. Kumar V, Walia I J, Bansal V : Appropriate technology in training of traditional birth attendants. Special publication of ICMR on appropriate technology in primary health care. 1981, p.122
21. Roy AK, Rama Rao AK, Srinivas DK, Ghosh MN : Community level malnutrition. The role of nutrition rehabilitation center. *Indian J Med Res* 72 : 846, 1980
22. Lal S : Monitoring of severely malnourished children and domiciliary management in rural settings by Anganwadi workers under ICDS scheme. *Indian Pediatr* 19 : 409, 1982
23. Shah PM, Junarkar, Khare RD, Dhole VS : Community wide surveillance of at risk* under fives in need of special care. *J Trop Pediatr Env Health* 22 : 103, 1976