SIR DORABJI TATA SYMPOSIUM SERIES

A series presenting the status reports on tropical diseases in India

Volume 1: Status of Tuberculosis in India - 2000
Volume 2: Status of Malaria in India - 2001
Vaccine Research in India
Volume 3 : Diarrhoeal Diseases: Current Status, Research Trends and Field Studies - 2003

13

Diarrhoeal Diseases

Current Status, Research Trends and Field Studies

Editors

D. Raghunath
Principal Executive
Sir Dorabji Tata Centre for Research in Tropical Diseases, Bangalore

R. Nayak
Professor and Chairman
Department of Microbiology and Cell Biology
Indian Institute of Science
Bangalore

Sponsored by
Sir Dorabji Tata Trust
Society for Innovation and Development
Indian Institute of Science, Bangalore

On behalf of
Sir Dorabji Tata Centre for Tropical Diseases
in Conjunction with
Department of Microbiology and Cell Biology
Indian Institute of Science
Bangalore

Tata McGraw-Hill Publishing Company Limited
NEW DELHI

McGraw-Hill Offices
New Delhi New York St Louis San Francisco Auckland Bogotá Caracas
Kuala Lumpur Lisbon London Madrid Mexico City Milan Montreal
San Juan Santiago Singapore Sydney Tokyo Toronto

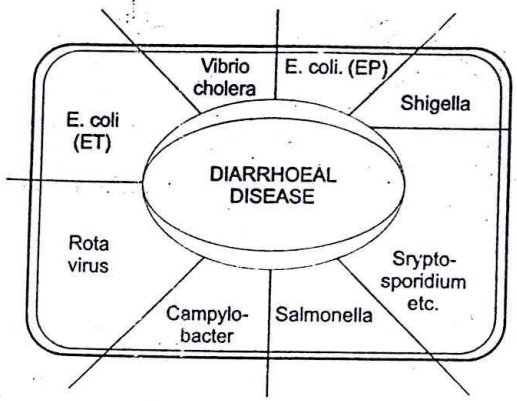
The Community Health Paradigm in Diarrhoeal Disease Control

DR. RAVI NARAYAN, *MD, DTPH, DIH*

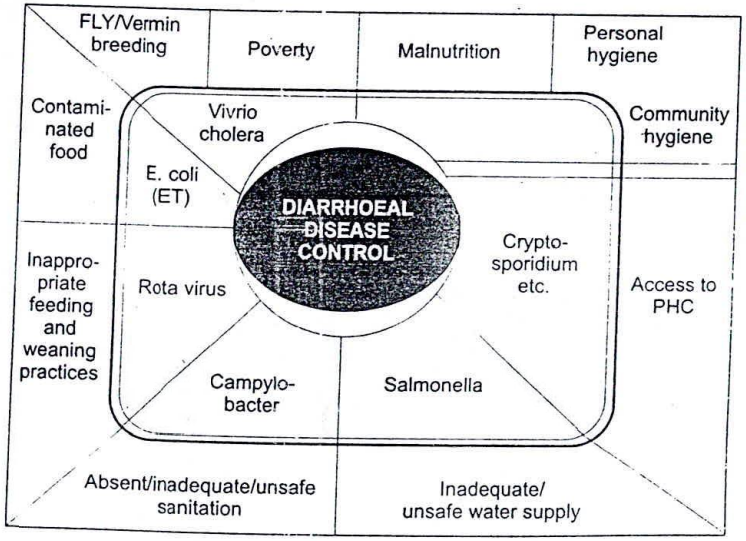
Community Health Adviser,
Society for Community Health Awareness,
Research and Action, Bangalore
e-mail: sochara@vsnl.com

SOME REFLECTIONS

- Diarrhoeal diseases both acute or chronic continue to be a major public health problem all over the world but especially so in the so called developing countries, where their occurrence also becomes reflective indicator of the state of health and sanitation of the community and the well being of their children.
- In India, it is a major public health problem among the under-five age group and it has been estimated that a third of the total paediatric admissions are due to diarrhoeal diseases and up to 17 per cent of all deaths in indoor paediatric patients are diarrhoea related.
- A study carried out in rural and urban areas of 11 states in the country in 1991, found diarrhoea episodes of 1.5 per child per year (urban) and 4.7 per child per year (rural), perhaps an underestimate. SRS estimates have shown that out of a child mortality of 26.5 per 1000 children under-five, about 20 per cent deaths are due to diarrhoeal diseases.
- The classical biomedical approach which has dominated public health and medical research in the country has focussed on the agent factors including a large range of viruses, bacteria and other parasitic infections. Extensive studies have been done on rotaviruses; *E. coli* (both enterotoxigenic and enteropathogenic), *Shigella*; *Campylobacter jejuni*; *Vibrio cholera*; *Salmonella* and *Cryptosporidium*.
- This case centred specific pathogen oriented epidemiology seeks to identify high risk affected or susceptible individuals and offers them some treatment or protection and prevention. Thus leading to the quest of drugs for treatment and prophylaxis or vaccines for prophylaxis.



- There is however an urgent need to move from an 'individual oriented' strategy to a population oriented strategy that seeks to control the determinants of incidence in the population as a whole.
- For diarrhoeal diseases taken together as a whole, these population based or social determinants are increasingly being understood. They include:
  - ⇒ Poverty
  - ⇒ Malnutrition
  - ⇒ Poor personal and community hygiene
  - ⇒ Inadequate or unsafe water supply sources
  - ⇒ Inadequate or absent sanitation facilities
  - ⇒ Inappropriate feeding and weaning practices



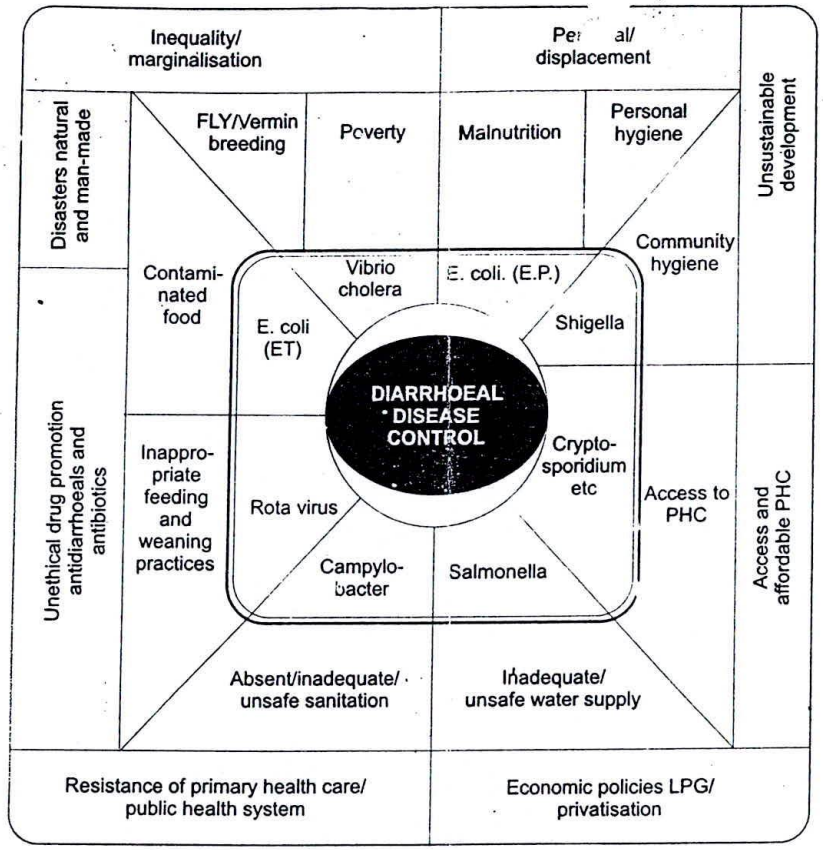
  - ⇒ Contaminated food
  - ⇒ Fly breeding in association with human or animal faeces
  - ⇒ Inadequate health education or awareness building measures, or
  - ⇒ Lack of access to basic or primary health care
- This wider understanding of the determinants of diarrhoea diseases should help to shift the focus of community based diarrhoeal disease control strategies from oral rehydration and rational therapy including reduction in the misuse or overuse of irrational anti diarrhoeals in the market; to more social and community oriented strategies that include
  - ⇒ Better environmental sanitation
  - ⇒ Provision of safe water supplies
  - ⇒ Measures to improve food, milk, and water hygiene
  - ⇒ Health education focussed specially on vulnerable groups including women and children
  - ⇒ School health as a focus of health-hygienic habits building strategies
  - ⇒ Vector control

Individual	*Population*	*Community*
Clinical Medicine Diagnosis Treatment Prophylaxis	⇔ Public health	⇔ Community health
	✪ Safe Water Supply	✪ Tackle Poverty/ Marginalisation
	✪ Better Environmental/ Sanitation	✪ Poverty Alleviation Programmes
	✪ Improve Milk/Food/ Water	✪ Environment and Health Campaigns
	⇔ ✪ Personal/Community Hygiene	⇔ ✪ Hia/Eia of Development Strategies
	✪ Health Education	✪ Pro-Poor/Pro-People Economic Policies
	✪ School Health	✪ Counter Commercialisation of Health Care
	✪ Vector Control	

HIA/EIA Health and Environmental impact assessment.

- With increasing involvement of the behavioural sciences researchers in problem or situation analysis, which would include
  - ⇒ Knowledge, attitude, practice surveys
  - ⇒ Anthropological and ethnographic studies
  - ⇒ Community dynamics and political economy studies
  - ⇒ Operations and action research

Further understanding of the socio-economic-cultural-political (SEPC) realities and context of the diarrhoea problem in the community and the country will emerge.



There is urgent need for researchers to move beyond the biomedical paradigm with its focus on molecular biology, intracellular pathogens and specific 'magic bullets' be they drugs or vaccines to a more wide angled, multidisciplinary socio-epidemiological research strategy that focusses on population and community determinants of the incidence of disease.

- This comprehensive SEPC analysis will help us to understand the social risks and community determinants of the diseases which will include
  - ⇒ Poverty, inequality and social marginalisation
  - ⇒ Migration and displacement
  - ⇒ Ecologically hazardous or unsustainable development
  - ⇒ Structural, operational and technical resistances of the public health and primary health caresystem
  - ⇒ Development strategies without health impact assessment

  - ⇒ Ne economic policies that downsize government funding or ... ivatise, liberalise or commercialise public health services affecting access and affordability
  - ⇒ Finally commercialisation of medicine that will develop 'a vested interest in the abundance of ill health' including diarrhoeal disease promoting unethical, irrational remedies all as components of the problem
- The late Prof. Geoffrey Rose calls this shift the population strategy — "an attempt to control the determinants of incidence, to lower the mean level of risk factors, to shift the whole distribution of exposure in a favourable direction. In its traditional public health form, it has involved mass environmental control methods; in its modern form it is attempting (less successfully) to alter some of society's norms of behaviour".
- He goes on to add that its advantages are "radical; large potential for population; and behaviourally appropriate while its disadvantages are small benefit to individual (the prevention paradox); poor motivation of the subject; poor motivation of the physician; and a worrisome benefit-risk ratio".
- The need of the hour is to move not only from the individual strategy to a population strategy (which is definitely the first step) but an even more urgent additional paradigm shift from 'population' to community/people, where they become the centre of the action or programme initiative and solution.

Individual	⟺	Community
People as Patients	⟺	People as Participants
Drugs/Vaccine/Or.	⟺	Education/Social Process/ Basic Needs
Providing Service	⟺	Enabling/Empowering Strategy
Intracellular Moleculr Biology	⟺	Socio Epidemiology

Source : CHC 1987.

- Unless we are able to make these shifts in our perceptions of the problems, research in the country will continue to be 'part of the problem' and not 'part of the solution'. The laboratory to the field transfer of high quality ongoingresearch in the country awaits this paradigm shift.
- A new partnership awaits to be operationalised. The partnership between the medical/laboratory researcher; the public health

engineer; the social scientist; the communi[illegible]lth activist; and the empowered community. Only such a partnership can ensure that diarrhoeal disease control strategy will begin to make a dent on the problem.

IS THE RESEARCH COMMUNITY IN OUR COUNTRY READY TO ACCEPT THIS CHALLENGE?

Community Aspects of Diarrhoeal Disease Control

Nerges F. Mistry[1], Tannaz J. Birdi[2], Noshir H. Antia[3]

The Foundation for Medical Research and
The Foundation for Research in Community Health
Worli, Mumbai

Water related infectious diseases encompass a wide spectrum of etiological agents ranging from the ubiquitous coliforms that cause diarrhoea to the hepatitis and Chlamydia, hook-worms and guinea worms, schistosomes, leishmania and filaria to the recently identified members of the *Mycobacterium avium* complex. Whilst diarrhoeal diseases are the single largest cause of mortality in infants and children in India (1.5 million children under five years), morbidities from water related infections have a profound effect through causation of under/malnutrition as well as affect the IQ of chronically affected children. It is computed therefore that India loses about Rs. 36,600 crore per year due to water related diseases. The subject of controlling water borne infections is inseparable however from the more overwhelming problem of chronic water scarcity that a majority of our population faces from year to year. Though the 9th Five Year Plan aims to provide drinking water at Rs 40,000 crores, 2,00,000 villages continue to have acute drinking water problems.

The Ministry of Water Resources in a report of 1999 documents a drop in water availability of about 66% (expressed as cubic metres per person per year) between 1951 and 1999. This ever increasing shortfall is due to pollution, over use, lack of conservation practices and increasing population. M.S. Swaminathan berates industries particularly for drawing water indiscriminately and feels that much of the problem is because there is no "Ground Water Act" in place. Nevertheless the seven water pollution control laws that are in place today are confusing and many a times contradictory.

1. Senior Scientist, The Foundation for Medical Research
Trustee, The Foundation for Research In Community Health
2. Senior Scientist, The Foundation for Medical Research
3. Director and Trustee, The Foundation for Medical Research
The Foundation for Research in Community Health