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Editorial

The Impact of New Technology in Health Research :

Medical Education, Bio-medical Research, and Continuing Professional Development

The Department of Health Research (DHR) was created in 2007 with the vision of promoting and coordinating basic, applied, clinical and operational research in areas related to medicine, health, bio-medicine and medical as well as para-professional education through development of infrastructure, human resource and skills in cutting-edge areas. At the same time, the Indian Council for Medical Research (ICMR) has its own network of large number of National Institutes and also a strong and vibrant culture of extramural research in medical colleges and other institutes. These institutions conducting innovative bio-medical research are likely to be further expanded in the future.

The strategies for health research in the 12th Five-Year Plan were proposed to be the following:

Address national health priorities: The key outcome of the efforts of DHR would be to generate intellectual capital, which may have a public health impact. DHR would, therefore, prioritize its research to find cost-effective solutions for health priorities and health system issues facing the country, namely:

1. Maternal and child nutrition, health and survival;
2. High fertility in parts of the country;
3. Low child sex ratio and discrimination against the girl child;
4. Prevention, early detection, treatment, rehabilitation to reduce burden of diseases-communicable, non-communicable (including mental/psychiatric illnesses) and injuries (especially road traffic related), congenital malformation and disorders of sex development;
5. Sustainable health financing aimed at reducing household's out-of-pocket expenditure;
6. Health Information Systems (HIS) covering universal vital registration, community based monitoring, disease surveillance and hospital based information systems for prevention, treatment and teaching;
7. Measures to address social determinants of health and inequity, particularly among marginalized populations;
8. Suggest and regularly update Standard Treatment Guidelines which are both necessary and cost-effective for wider adaptation;
9. Public Health systems and their strengthening; and
10. Health regulation, particularly on ethical issues in research.

Build Research Coordination Framework: Though DHR is the empowered Department on medical and health research, many organizations are engaged in research on related topics, namely the Ministry of Environment and Forest, Departments of Health and Family Welfare, AYUSH, AIDS control, Space, Science and Technology, Biotechnology, Agricultural Research; agencies like ICAR, DSIR, CSIR, NDMA, DRDO and the National Knowledge Network. DHR would play a lead role in research involving human health, bringing all the concerned organizations on one platform to facilitate mutual discussion, resource pooling and prioritization, and avoid duplication, to find innovative solutions to national priorities in a timely manner. Some of these issues will be highlighted in the next issue of the Annals on **'Research in Medical Education'***.

Use of Information and Communication Technology (ICT) in health can be broadly in four areas viz. Education, Research, Referral, and Management of Data. National Knowledge Network (NKN) connects approximate 1500 knowledge institutions in India. NKN was launched in March, 2010. As a network, NKN will continue for 10 years. NKN supports 1 Gbps (Giga Bits Per Second) connection today. NKN encompasses all engineering, science, medicine and agriculture institutions that are engaged in education and research. Using the principle of coherent synergy, NKN expects to provide an ambience in which researchers learn from each other and work on problems that are transdisciplinary in nature.

Health and Education:

When ICT is applied to medical education, it is possible to make high quality education available pan India seamlessly. NKN does just that. In fact, unified effort by practicing medical doctors, clinical and para-clinical researchers, medical research institutions, academies such as National Academy of Medical Sciences and a host of other such institutions from engineering and sciences (especially biosciences) can significantly enhance the effectiveness and reach of medical education.

National Centre for Information Technology (IT) and Telemedicine:

There is an urgent need to incorporate the power of modern computational systems into the biomedical programmes so as to enlarge the scope and reach of telemedicine both for enhancing the quality of health care as also for enlarging the reach of continuing professional development. With the availability of National Knowledge Network (NKN), tertiary care institutions as well as National Academy of Medical Sciences must be connected with a large number of professional institutions.

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The advancing knowledge, innovative and new technologies and skills can thus be widely disseminated.

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The impact of the information and communication technology on innovations in medical education, para-professional education, bio-medical research and cost-effective healthcare (Chapter no. 6)** are based on the major contributions of Dr. S.V. Raghavan, Scientific Secretary, Office of Principal Scientific Advisor to Government of India, New Delhi. This is gratefully acknowledged.

Chairman, Prof. J.S. Bajaj
***** Information and Communication Technology in Health Care in the Report of the Working Group on Tertiary Care Institutions, 12th Five-Year Plan (2012-17), Planning Commission, Government of India.***