

**SEMINAR ON
TECHNOLOGY MANAGEMENT IN HEALTHCARE SYSTEMS
ON 18TH JULY 1998 AT DEBEL, BANGALORE**

Rajan
In Health Care
Chapter, *we can include some pts.* *AM*
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I am indeed delighted to be with you all, the specialists in Healthcare delivery and participate in the Seminar on "Technology Management in Healthcare Systems". The focal theme of the seminar is very important in the national context. Our healthcare requirements are unique since more than 80% of our total population live in rural areas including tribal areas. If we have to provide health for all by the year 2010, there has to be a mission mode approach for healthcare from the present urban to rural healthcare.

2. **Integrated Healthcare:** I would like to narrate one of my recent experiences in Karnataka State where a dedicated non-governmental organisation namely Vivekananda Girijan Kalyan Kendra in B.R.Hills, Chamaraj Nagar. We met Dr.H. Sudarshan, Chief of this organisation, and saw some of the unique contributions of his dedicated group. He is a qualified medical doctor who narrated an incidence, which touched our hearts.

Dr.Sudarshan in his young age had to face a tragedy. Due to the absence of medical facilities in his village where he lived he could not give immediate medical assistance to his father, with the result his father passed away. He took a resolution in the tender age to become a doctor and serve the tribal rural areas. His dream came true when he obtained his medical degree and soon after he started working in the tribal areas. Initially the tribal population used to be scared of this young doctor fearing a needle prick for an injection or the bitter medicine which a doctor may prescribe for the patients. Very few cases reported to him for treatment from the tribals.

**By Dr.A P J Abdul Kalam,
Scientific Adviser to Defence Minister**

An incident took place which changed the attitude of the tribals towards this doctor. There was snakebite of one of the tribals when he went to forest for collection of firewood. This victim was brought to Dr.Sudarshan for treatment. Immediately, the Doctor went into action with multiple treatment, the tribal was saved. Seeing this selfless act of the life of the doctor, the tribals developed unstinted faith in the doctor. That was the beginning of the mission of this doctor. He also received support from other people which emerged in the form of a 50 bedded hospital with adequate diagnostic facilities. The native tribals also offered willing support in the mission. Dr Sudarshan trained many tribals and employed them as paramedical staff in the hospital.

Dr.Sudarshan also organised the plantation, processing and marketing of medicinal plants and its products in the form of Ayurvedic compositions. He brought mechnisation in the processing technology in the tribal belt. He provided employment opportunities to the handicapped who are actively engaged in manufacturing hospital equipment, wheel chairs, stationery materials and recycling of waste paper. I narrated this incidence here to illustrate how the dedication and missionary zeal can transform the quality of life in villages including tribal areas. India needs many more Sudarshans to serve in villages to provide integrated healthcare to the 80% of our populations.

As we move in the 21st century, it is increasingly becoming clear that providing effective healthcare to all our people is a challenging task. Our technological advancements can provide healthcare in shortest period. The large population, diversified climatic conditions, problem of malnutrition, lack of hygiene and sanitation and inadequate medical equipment/devices and consumables contribute to the incidence of a wide spectrum of diseases in India. Healthcare in general, is becoming highly technology oriented and

naturally becoming cost intensive. Modern healthcare technology has provided varieties of solutions to combat diseases. Today, we have sophisticated diagnostic, therapeutic and rehabilitative tools for successful management of ill health problems of advanced age and traumatic accidents, but in our country, these facilities and technology driven solutions, are available only to a small section of our population. Further, the approach towards, healthcare has been mostly curative in nature not giving enough attention to preventive and promotive healthcare delivery. It has also been urban oriented, may be at the expense of rural sector. Massive public funding to hospital based curative services only at urban areas has adversely affected the cost effective basic rural health services. Hospitals are inherently expensive and when the Government tries to give free medical services only through hospital system, it becomes increasingly difficult to cater to all sections of society.

Public Health Centres (PHCs) do not even have basic medical equipment and stores like a good stethoscope, BP apparatus, ECG machine and surgical tools. Biomedical industries and entrepreneurs should invest in manufacturing these essential tools to be made available to the doctors in villages. While the country invests a large sum in sophisticated medical diagnostic systems such a MRI, ultrasound, echocardiograph, CT scan, gamma camera etc in urban hospitals, the villages need to be provided atleast with essential primary healthcare facilities.

3. SOCIETY FOR BIOMEDICAL TECHNOLOGY:

Considering the above facts, we in DRDO made a modest effort by establishing the Society for Biomedical Technology (SBMT) an interministerial initiative to take the benefits of DRDO research and technology spin offs from Defence laboratories to the commonman for effective medical care. This society is quite young and only 4 years old. Within the short span we have

been able to indigenously develop medical equipment and devices such as external cardiac pacemaker, stress test system, coronary stent, cytoscan, eye laser system, floor reaction orthosis and some diagnostic kits.

I have been interacting with Prof.M R Raju, a nuclear scientist from Los Alamos Laboratory, USA who after living for 35 years in the United States has returned to his native village Peddamiram near Bhimavaram town in West Godavari district of Andhra Pradesh. Prof. Raju has created a computerised data bank on all individuals living in 5 km radius of his village. The data, primarily on health parameters also provide social, economical and other details which are incidental and imperative in the delivery of healthcare. Prof. Raju provides integrated healthcare to the needy villagers including diagnosis and treatment of cervical cancer. The cytoscan developed by this lab is being used by his team. SBMT is assisting his efforts. The results of experiment should spread.

4. INFORMATION TECHNOLOGY AND HEALTHCARE

India is one among the leading nations in the field of information technology. We have the fastest computers in the world, our software engineers our software engineers are considered best by the international computer industry and application of computers have finally been accepted by the mind set of our society. The time is just ripe to integrate through information technology the various aspects of Indian Healthcare system, diagnostics, curative procedures, drug therapy, preventive medicine, public health delivery, indigenous medicine and clinical research. We have developed an integrated medical informatics systems called Dhanwantri. It is installed in the military hospital at Secunderabad. The system will be networked. We are also working on digitization of medical images and their transmission over distances through existing communication infrastructure for real time diagnosis

by medical experts. This experiment can be upgraded on a national scale involving other national agencies. I feel networking of physicians, say about 100 of them covering private clinics and village level health centres, can be a starting step. These district centres can then be connected to a nationwide network including speciality medical centres. The concept of satellite centres need to be developed. SBMT should also try to evolve suitable technologies for an ideal mobile healthcare clinic which is not only curative but also preventive and promotive in nature. We may also develop some specialised mobile clinics for the treatment of certain specific health problems such as malaria or thyroid disorders.

5. PSYCHO NEUROIMMUNOLOGICAL STUDY RESULTS

Doctors generally during the medical practice focus on the body and its physical ailments whereas the psychological component may be missing from the conventional treatment. But as experts in medical research you will agree that a doctor has to treat both body and mind for a total cure of the patient. We had an urge to test the hypothesis using psycho-neuro-immunological study carried out on patients of breast cancer. The study was sponsored by DRDO to be undertaken as a multiinstitutional project by Bangalore Cancer Research Foundation in collaboration with Centre for Cellular and Molecular Biology, Hyderabad, Defence Institute of Physiology and Allied Sciences, and Defence Institute of Psychological Research, Delhi. The study clearly established correlation between the psychological stress profile of patients which are influenced by the social support from spouses and caregivers, with the immune profile. Psychological coping strategies adopted by the patients such as planful problem solving, support seeking styles showed correlation with NK cell activity, T-cells and CD-4 activity. Negative life events and anxiety state were good predictors of IgM (immunoglobulin). Patients who received both conventional treatment including surgery, radiotherapy and chemotherapy

alongwith psychological counseling showed better prognosis (more than 65-70%) as compared to the controlled group which received only conventional treatment. This study clearly demonstrate the importance of a psychophysiological approach in the treatment which would form the norms in therapy and medical practice. The Indian systems of medicine which has an integrated psycho-physiological approach can be made complimentary to allopathic systems to achieve "health for all" goal atleast by the year 2010.

CONCLUDING REMARKS

Five of our laboratories work on life science research and support. We have well known establishments like Institute of Nuclear Medicine and Allied Sciences (INMAS), Defence Bio-Engineering and Electromedical Laboratory (DEBEL), Defence Institute of Physiology and Allied Sciences (DIPAS), Defence Institute of Psychological Research (DIPR), and High Altitude Medical Research Centre (HAMRC). The major task of our life sciences labs are to evolve and ensure the combat capability, optimal health and operational efficiency irrespective of environmental conditions, be it high altitude, desert, underwater or aerospace environment. There is a tremendous potential between health specialists like you and DRDO labs who can work together and share experiences and evolve further joint research areas. Recently, DRDO has formed Life Sciences Research Board with the primary objective of high level research. These five labs, or any relevant technology in healthcare are open to the needy and health community. DRDO consider you to be our partners.

I am glad to note that the seminar is going to deliberate on the important aspects of technology management in healthcare systems. I look forward to the recommendations emerging from the seminar. I wish you all to have a fruitful deliberation and I am happy to inaugurate this important seminar.