Lifelong learning is an essential goal of education as a means to improve the quality of life for an individual, culture or a society. A medical qualification, whether undergraduate or post graduate is no longer regarded as a lifelong certificate of competence; to keep abreast of newer developments in any field of medicine, a doctor has to find some method of keeping himself updated. The need for continuing medical education (CME) has been well documented and is now widely accepted. Many of the physicians have to spend money as registration fees, to participate in various accredited CMEs and number of courses or programs are available on payment of course fees (which at times may be very expensive and may deter the physician to take part) for any health professional to undergo professional development. The range of methods adopted in CMEs may vary widely from formal lecture based paradigms to small group discussions or practical sessions and distance learning programs.

Distance education is a relatively new concept which not only has the ability to train a large number of personnel in a short time in a cost effective way but can also attend to skills of health care without diluting the quality. Distance education hence certainly encourages the physician to undergo professional development in an affordable way.

To maintain, encourage and evaluate quality in all forms of CME, a set of educational criteria viz Harden’s CRISIS criteria were described. CRISIS is an acronym for seven criteria which contribute to the effectiveness of CME:

- Conveniences—makes voluntary participation easy
- Relevance—reflects the user’s day today role and requirements in medical practice
- Individualisation—to suit the individual needs
- Self assessment for self remedy
- Interests—to arouse attention and encourage learner participation.
- Speculation and—to recognize grey areas
- Systematic—to offer a planned program

Ever since its description in 1982, this CRISIS model has been applied widely and proved to be effective at various areas. If we evaluate ‘Distance Education’ with these ideal criteria, it fulfills almost all of them and can be considered as an ideal paradigm. Distance Education on a Relevant theme can Conveniently be imparted to the professional to suit his/her Individual needs in a Systematic way which can create Interest in him/her and encourages him/her to do Self assessment to realize that professional development has taken place.

**Distance education for health professionals' training**

India, like many other countries, was committed to the Alma-Ata declaration of 1978 to provide Health for All by 2000 AD (HFA/2000). Training of health professionals was an essential prerequisite for the achievement of the goals of HFA/2000. HFA has been a serious concern in most of the developing countries, as the set goal has not been accomplished and strategies are being constantly designed and tried out to keep pace with the changing health scenario. In India, both the Government as well as the health administrators have expressed their serious concern even now about adopting alternative strategies for achieving this gigantic task. Even though four decades have elapsed after the development of concept of distance education, only a few countries have initiated Distance Education for training.

In India, health courses offered through distance education are few and offered by a limited number of institutions. Examples include a 1991 course on Health and Family Welfare Management for District Health Officers offered by National Institute of Health and Family Welfare; PG Diploma as well as M.Phil. in Hospital Administration offered by Christian Medical College, Vellore in collaboration with BITS, Pilani, Rajasthan and Tulane University (USA); A two year medical Laboratory Technician training Course offered by Christian Medical Association of India. Indira Gandhi National Open University (IGNOU) has launched a B.Sc. Nursing program for in-service diploma holder nursing professionals which has been successfully running for more than a decade. A PG Diploma in Maternal & Child Health (DMCH) for medical officers/private practitioners in collaboration with the World Health Organization has also been launched by IGNOU in recent years.

**Strategies for training through distance education**

Distance education systems have emerged all over the world to cater to the growing demands for education, including professional education, to provide opportunities at a cheaper cost, and meet the continuing education requirements of professionals. The methodology of distance education often involves a multi-media approach to design, develop and execute
autonomous learning programs through self-instructional materials, both in print and electronic media forms. Distance study allows self pacing for convenience and also facilitates learners having control over their learning. The various media used for distance education delivery include among others, print materials, audio and video programs, radio and television programs, tutoring and counseling, field visits, laboratory practicals, extended contact programs, and teleconferencing (telemedicine).2

Telemedicine is defined as “the use of telecommunication technology (involving, audio, video and graphic data) to develop health care services, health education and administrative services to sites that are physically distant from the host or the educator.” Several reasons have spurred the growth of telemedicine in India. The country is geographically large with many towns and villages located in remote rural areas. Few medical facilities exist to serve large population that resides in the villages. India has 80% of its main health care centres located in cities that host only 30% of its population. These percentages reveal a dismal health care scenario where only 20% of India’s quality health care facilities cater to 70% of Indians confined to rural communities.6

India’s rural population is more vulnerable than its urban counterpart based on three particular reasons: late discovery of ailments, transport time to urban health care facilities and inexperienced primary health care providers in rural areas. Telemedicine offers the potential to address these concerns and save the patient extra costs associated with treatment such as travel and living expenses.7 Telemedicine has opened a new world of health care delivery by building clinical bridges between patients and available health care, albeit contingent upon the cost development of ancillary infrastructure and services. With its educated medical practitioners and an emerging technological industry, the country has the opportunity to create a multitude of products and services to cater to this evolving area. Given proper access and awareness, India seems poised to incorporate telemedicine beyond its current rudimentary projects to large scale programs that can serve as a model for itself and the developing world. The INSAT satellite system established in 1983 created one of the world’s largest domestic communication systems with seven satellites and 130C band transponders linking many hundred earth stations in remote and rural areas along with thousands on very small aperture terminals (VSAT). This infrastructure enables the country to reach over 65% of Indian land masses and 80% of its population.6

Challenges and Issues

It was only in the mid-eighties that distance education in the health sector began to be implemented in the countries of the developing world. Though, as noted above, a few countries including India have initiated distance professional health education, there is not adequate data to assess its impact of the programs at this time. It is still our belief that the most important challenge of training and reorientation of middle and junior level health workers of Government organizations and NGOs can be best met through open distance learning programs. Application of modern communication technology would be extremely useful and cost-effective in achieving the training targets within stipulated time frame. The future challenge includes provision of qualitative need-based health education and training programs to a variety of heterogeneous clients.

Special considerations/reservations for successful application of distance education programs for health professionals2

1. Since health sciences deal with life and death of humans and are therefore more skill-oriented rather than more knowledge-based, it is felt that providing basic beginning or early training in the field of health may not be feasible through distance learning. Being an innovative and flexible system, and having the ability to respond to emerging training and educational needs, distance education is more appropriate for in-service training of health personnel.

2. The academic programs have been confined to a limited area of health education and training. In order to meet the diversified and emerging needs, the programs and courses have to go beyond medical graduates to include a wide variety of need-based functional areas ranging from simple awareness programs to more complicated skill-oriented courses on epidemiology and health economics.

3. Application of sophisticated communication technology has to be done cautiously, keeping in view clients needs, cost, media behavior, infrastructure and facilities at the receiving end. In the developing countries including India, audio and television programs seem to be more feasible and promising.

4. More practical-oriented courses need to have compulsory built-in face-to-face components; and work centers or practice centers at grassroots level with required instructional provisions would be more feasible than regular study centers.

Recent advances in information technology have attracted several challenges and opportunities to the ways in which individuals are educated and trained through distance learning in particular through online instruction. This internet based form of distance education delivery has changed the landscape of how instruction is designed, delivered and evaluated. In addition, distance education has redefined the role of instructor in the learning process.
Although online instruction is seen by many as a breakthrough in teaching and learning by offering all kinds opportunities through exchange of information and expertise in distant and disadvantaged locations, it still has its share of problems. The changing nature of technology, the complexity of networked systems, lack of stability in online learning environments, limited understanding of how much students and teachers need to know to successfully participate, are the definite disadvantages associated with its use. Additional threats include – commercialization of education, reductions in the standard, isolation of students and teachers and possibility of devaluation of university degrees. There are studies available in literature comparing a traditional face to face format with online instruction. Although it was documented that student satisfaction was slightly more positive for patients in a traditional paradigm, no difference existed in the quality of learning that took place between the two methods.

**Distance education in anaesthesia using simulations**

Simulation refers to the artificial representation of a complex real-world process with sufficient fidelity to achieve a particular objective, usually for the purposes of training or performance testing. With the available of inexpensive computer technology of recent years, there has been a resurgence of interest in the usage of simulation technology in the field of anaesthesia, where applications range from scientific modeling to clinical performance appraisal in the setting of crisis management.

Anaesthesia is a skill oriented specialty dealing mainly with life saving manoeuvres, pain alleviation methods etc. Simulators are being employed increasingly in Teaching and Training of anaesthesia in recent years as they are well suited for training the novices in various skilled procedures which cannot be made to be learnt on humans without causing risk to the patients. Simulators can conveniently be combined with any of available paradigms of distance education for the continuous professional development of the professionals serving in remote areas. In addition the practice of teleconsultation or teleconferencing can not only be optimally utilized during CMEs but can also be used in cases of necessity or emergent morbid conditions to save lives on the operating room table or on critical care bed.

In conclusion, it is worth noting that distance education has tremendous potential for providing education and training programs to different categories of medical personnel as a means of helping achieve the national goals of education to cater to the needs of the society at large. In addition to the national agencies such as MHRD, MHFW and IGNOU, international agencies such as WHO and UNICEF, and NGOs like ISA, IMA and many other societies need to play increasingly prominent roles in facilitating the achievement of national targets.

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Editor

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