

Original Article

Evidence Based Education System (EBES): Our Achievements and way forward

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Abstract:

Introduction: Till date Medical Educators used to teach as they have been taught. In India; even today a large number of the doctors working as faculty in Medical Colleges are not really trained to teach. Hence, introducing educators to the Evidence Based Education System (EBES) and implementation of EBES curriculum is need of the hour. EBES is the integration of professional wisdom with the best available empirical evidence in making decisions about how to deliver instructions. Therefore, the purpose of study is to develop and implement EBES Curriculum.

Methods: There are various ways to deliver instructions including Evidence Based Medicine (EBM). EBM is the process of systematically reviewing, appraising and using clinical research findings to aid the delivery of optimum clinical care to patients. Here, in Sumandeep Vidyapeeth (SV), we introduced EBM on January 23, 2007 but decided to implement it in phase manner (Phase –I, II, and III). Year wise curriculum for EBM and assessment techniques (Assignments and Annual Examination) was developed. Library resources were enhanced to enable best searches of current literature. We have also sensitized the educators through inhouse, national and international workshops and also through an International Conference.

Results: Batch of first year MBBS for the year 2010-11 gone through the EBM examination and cleared it. Currently, EBM course is being implemented for 2nd year MBBS batch. Faculty feedback for EBM workshop is as follows: Overall rating by the participants for teaching EBM session by the resource persons was 85% from very good to excellent. Rating for searching evidence session was 56% from very good to excellent. However, rating for critical appraisal of the article session was only 44% from very good to excellent.

Conclusion: Based on our findings we conclude that this system is highly effective for delivering teaching instructions and if we will be able to implement for all four years of MBBS then we will very soon achieve the target of not only health for all but also Millennium Development Goals for our area.

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1. Introduction

Nineteenth century was the century of Prevention and Public Health (Water and sanitation and hygiene), 20th century was of Antibiotics /chemotherapy /drug development (early diagnosis and prompt treatment) and 21st century is of innovation, knowledge and knowledge translation into practice through sufficient evidences. Over the past few years there has been a paradigm shift in the way education system has evolved in many affluent countries (1, 2). There has been a shift in terms of both teaching system and curriculum (3). Till date Medical Educators used to teach as they have been taught (4). No formal training programs for educators existed. The teaching crisis we face today is the direct result of the divorce between theory and practice. As Singh et al highlighted the role of Medical

Education Unit (MEU) in faculty development⁴ and also in India every medical college is supposed to have Medical Education Unit, the ground reality is that it is non-functioning in most of the medical colleges. Hence by default it is assumed that doctors are good teachers and time and experience can augment teaching skills and methodologies further (5). However, in fast moving era, the entire system has changed in many parts of the world (6). In India; even today a large number of the doctors working as faculty in medical colleges are not really trained to teach. This is exactly where the Evidence Based Education System (EBES) comes to help medical educators and also it is the need of hour. EBES is the integration of professional wisdom with the best available empirical evidence in making decisions about how to deliver instructions. To put it into a simpler way; teachers opting for methods of teaching that consistently proved more effective than other teaching techniques. Professional wisdom achieved through individual experience and consensus opinion while empirical evidence is achieved through scientifically sound research. Without integration of both (professional wisdom and best evidence), medical education cannot adapt to local circumstances and even cannot operate efficiently where research evidence is absent or incomplete. If we want to understand the nitty-gritty of EBES then we have to understand different teaching methodologies. The different teaching methods are:

- 1) One way Teaching Methods: (Instructor Dominated Methods)
 - a. Lecture
 - b. Resource person's presentation
 - c. Symposium
- 2) Two Way Teaching Methods: (Learner Dominated Methods)
 - a. Case Study
 - b. Problem Based Learning
 - c. Group Discussion
 - d. Role Play
 - e. Brain Storming Sessions
 - f. Demonstrations
 - g. Tours and Field Trips
 - h. Learning by Teaching / Doing
 - i. Collaboration (Group Work)
 - j. Workshops
 - k. Seminars
 - l. Evidence Based Medicine/Dentistry
 - m. Evidence Based Practice
- 3) Teaching through computer (e-learning) / Lab Work Methods

Here, in Sumandeep Vidyapeeth (SV) – a deemed to be university, we are extraordinarily fortunate as Medical Educators to have a Sumandeep as our home of EBES which guides us as we begin to transform our curricula to train tomorrow's doctors. We have adapted Evidence Based Medicine (EBM) and Evidence-Based Practice (EBP) as new teaching methodology for undergraduates. EBM is the reliable, explicit, and judicious use of the best current evidence in making decisions about the care of individual patients (7). In other words it is the process of systematically reviewing, appraising and using clinical research findings to aid the delivery of optimum clinical care to patients (8). While EBP is a process of care that takes the patient and his or her preferences and actions, the clinical setting including the resources available, and current and applicable scientific evidence, and knits the three together using the clinical expertise and training of the health-care providers (9).

2. Materials and Methods

We have adopted EBES on January 23, 2007 and decided to implement it in phase wise manner.

2.1. Phase I

A University Core Committee for EBES constituted in February 2007 followed by EBES Dental College Core Committee which implemented EBE in Dental College by organizing faculty lecture series. In same way in October 2007, SBKS Medical Institute and Research Centre EBES Core Committee formed which organized lecture series in December 2007 to January 2008. In April 2008, SBKS Medical Institute and Research Centre Curriculum Core Committee were formed. University Research Cell was established in the month of June 2008. In the next month, i.e., July 2008 EBE curriculum core committee for Physiotherapy College formulated. In the month of April 2009, SBKS Medical Institute and Research Centre finalized EBM curriculum.

2.2. Phase II

In May 2009, 6 faculty members deputed for advance training of Ethics in Medical Research organized by Indian Institute of Public Health-Gandhinagar. In June 2009, EBES Curriculum Committee for Allied Sciences constituted which adopted and implemented the EBE curriculum in March 2010. In first quarter of 2010, EBES lecture series for faculty was organized. In April 2010, EBES adopted and implemented by constituent institutes of SV (SBKS Medical Institute and Research Centre, Physiotherapy, Nursing, Pharmacy and Management). In October 2010, SV constituted EBES newsletter editorial board. A series of meeting were held during 18-20 October, 2010 with nursing faculty of University of Hull, UK for evidence based nursing education system.

2.3. Phase III

A State level conference on evidence based nursing education system was organized in the month of October 4th-5th, 2010. SV-EBES core committee including authors deputed for training at first international workshop in India on "How to teach EBM" during November 24-27, 2010. Second round of EBES lecture series for faculty and also two EBES workshop for nodal, departmental coordinators and faculty members were organized during December 2010 – October 2011. An international conference and workshop on EBES were organized in the month of March 2011.

Phase III also comprises of review of EBE curriculum for undergraduates, feedback from all stakeholders for acceptability, ease, advantages of EBE curriculum over traditional curriculum, and development of PG curriculum with re-assessment.

The process of development of EBE curriculum and implementation of EBE system in our university is presented as following:

(1) Steps in Development of Curriculum

- University Core Committee for EBES 2007
- Medical College Core Committee OCT 2007
- EBES Curriculum Core Committee April 2008 and
- Finalized Year wise Curriculum and Assessment Techniques in April 2009

(2) Infrastructure

- Learning Resource Centre updated in terms of Books and literature
- Subscribed Cochrane, TRIP database and EBSCO system for searching evidences
- Wi Fi enabled Campus
- Lecture theaters updated

(3) Faculty Training

- Selection of Nodal and Departmental Coordinators
- Team of faculty (6 member) deputed for 1st International Workshop on "HOW TO TEACH EBM" at PGI Chandigarh
- EBES Lecture series
- EBES Workshop for Nodal and Departmental EBES Coordinators
- 1st International Conference on Medical Education of the Future: Strategies and Innovations for Success - An Evidence Based Education System
- 1st International Workshop on "Evidence Based Education System: An Innovation in Teaching"

(4) Components and Assessment Methods (Theory and Assignments)

- First: Ask an answerable question
- Second: Find an Article (the evidence)
- Third: Critically Appraise the evidence
 - (Validity, Impact, Applicability)
 - Is the study valid? (Closeness to the Truth)
 - What were the Results? (Size of Effect)
 - Does it apply to my subject, case, patient?
- Fourth: Apply
- Fifth: Assess

3. Results

Our findings are presented in tables 1 and 2. Batch of 1st year MBBS (2010-11) appeared in and cleared the Exam of EBES and currently it is being implemented in 2nd year MBBS. Perceived Barriers to EBE are

Perceived lack of personal time, Effective literature search, undertaken at the bedside is not feasible in <10 minutes, and Computer on wheels is impossible.

Table 1. EBES Curriculum and Assessment Methods

Year (MBS)	Specific Teaching Hours	Assessment Techniques	Total Marks
First	16	Theory Assignment	30 20
Second	16	Theory Assignment	30 20
Third	13	Theory Assignment	30 20
Final	12	Theory Assignment	30 20

Table 2. Faculty feedback for EBES Workshop

Session	Rating	Percentage
Searching Evidence	Very good to excellent	56
Critical Appraisal of the article	Very good to excellent	44
Overall teaching by resource persons	Very good to excellent	85

4. Discussions

We have selected EBM and EBP for three reasons: 1) There is a wide variation between what is known and what is practiced, 2) There is a wide gap between available current research knowledge and application of knowledge to patient care, and 3) These are scientifically sound, patient focused and thorough and comprehensive methods which incorporate clinical experience (10, 11, and 12). We also believe that these methods help in decreasing the level of diagnostic uncertainty enough to make optimal therapeutic decisions. EBE is a way of rationalizing behaviour and governing the practices of the teaching profession with the primary outcome of interest as improvement in academics. By EBE, learning is enhanced through variety and use of many teaching methods (13). We come to the opinion that logical and rational thinking is our birth Right. Our capacity for this is part of our original equipment, something that comes company fitted. I believe in holistic learning approach through a principle called the “50/30/20” learning philosophy. Fifty percent of the learning happens in the classrooms (one way teaching), 30% through integrated teaching with the help of problem/case based learning by incorporating evidences and 20% through self learning by using information technology (Computers). This principle helps to the students in the art of asking questions and searching for appropriate answers. However, experiential learning via role plays and quasi-reality scenario-based case studies would also be encouraged.

Although India produces 15% of world’s doctors but are they trained in a way to take-up the responsibilities of the current and future era? To me, India needs a new kind of health workforce: expert public health persons and clinicians who also understand the team philosophy, use informatics, apply evidence to the patient and thus improving the quality of care. To produce this kind of breed Medical Council of India must support Medical Colleges to take up this responsibility. Through EBES even by incorporating very few teaching modalities in our existing medical education system we will very soon achieve the target of not only HEALTH FOR ALL but also MILLENNIUM DEVELOPMENT GOALS. However, successful implementation of EBES will require radical changes to the current medical Education System to improve quality and universal access (13). According to Mahatma Gandhi, “you may never know what results come of your actions, but if you do nothing, there will be no results”. So it is better to start rightnow otherwise the cost will only rise with delay.

5. Conclusion

In this regard, so far we have sensitized the educators through inhouse, national and international workshops and also through International Conference, which is hosted by Sumandeep Vidyapeeth. We believe that it will strengthen the ties between classroom teaching and clinical setting. This system is highly effective for

delivering teaching instructions as appreciated by Faculty as well as students. We are looking forward for implementation of EBES Curriculum in postgraduate courses in all constituent colleges and departments and collaboration with international experts in the field of EBE.

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