01-RC1 HELLER
How to cope with the evidence in a busy environment: reading and using systematic reviews for clinical decision-making

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Introduction

In a busy environment clinical decision-making can be accomplished in two ways: Either we can continue to do this the way we always have or, alternatively, we can try to improve our performance to reflect best practice and best evidence.

Why use an evidence-based approach?

In 1992 Silber demonstrated the benefit of a certified medical training that adopted standardised procedures to optimise patient survival and outcome.¹ To ensure high-quality and safe patient care those involved in medical education have to define and set specific objectives that will ensure medical competence. The resident is required to become a professional member of a medical team, a medical expert, a good communicator with patients and their relatives, an organizer, a lifelong learner and health caregiver.² Historically, the reality of medical training has been characterized by the opposite, which can be summarized by the principle of “see one, do one, teach-one”.³ Naturally quality assurance measures such as “have one” only exist in exceptional cases.⁴ Structured and evidence based learning programmes and teaching under supervision are not currently embedded in the teaching culture of many hospitals.⁵,⁶ If training is acknowledged to be limited to structured guidance in 71% of facilities and “learning by doing” is a reality of training in 50% of hospitals, one can only imagine to what extent evidence-based practice and teaching is implemented into daily practice.⁷

Lack of specific training of medical educators allied to a lack of appreciation of teaching skills are both obstacles preventing the dissemination of an evidence-based teaching culture. Further, in contrast to some other countries, in Germany the remuneration received per case does not include an allowance for postgraduate training activities. This precludes the establishment of both an appropriate staffing complement and a proper evidence-based teaching and learning culture. Remuneration practice following Diagnoses Related Groups (DRG) has possibly worsened the teaching situation: For reasons of cost effectiveness, nowadays many hospitals are staffed exclusively with specialist clinical staff. Thus, postgraduate training programmes are no longer offered because they are associated with additional resource requirements (necessity of supervision, increased diagnostic resources, the cost of dealing with errors, extended length of stay etc.).

Prerequisites for an evidence-based approach

There any many reasons that might explain the lack of adoption of specific current ‘know how’ and skills into hospital practice. In this regard the most striking aspect is lethargy- or the maintenance of established work-practices- that are not modified when new evidence becomes available. Such continuous reappraisal is a way to detect, remedy and improve delivery of clinical care. Often both
consultants and residents may be unaware of deficiencies in their own practice. On the other hand, the busy framework in place for the delivery of complex patient care to a diversity of patients involving an equally diverse range of procedures and equipment offers too little opportunity for concrete practical training.

The knowledge derived from Root Cause Analysis (RCA) is a key to improving patient safety. Analysis of an Intensive Care Unit critical incident reporting system (CIRS)\(^8\) shows that lack of experience and lack of mechanisms of appraisal are significant triggers for safety-related events. Nevertheless measures should be put in place within the organisational structure of an institution to accommodate and redress and weaknesses identified in its team members. Sustainable evidence-based continuing education in medicine has proved successful.\(^9\) This necessarily involves the acknowledgement of the requirement for time to be made available for teaching and training despite the pressures and obligations to be found in a busy working environment. Additionally, fostering of a climate of trust and patient appreciation are valuable preconditions for an individual unit to develop a successful training programme. Furthermore those delivering the training require expertise in teaching and clinical credibility. The quality of evidence-based training not only has a positive affect on the performance of current residents and specialists and, thus, on patient safety, but also facilitates attracting future employees (and patients).

**Who are the teachers?**

The larger the department the more essential it is to develop a streamlined system of learning.\(^10\) However, even in small regional hospital departments enthusiastic teachers are critical to the successful implementation of evidence based medicine (EBM). The teacher should take up the challenge to serve as a role model for the student thereby acting as a stepping-stone to facilitate transition to the next level of knowledge.\(^11\) The fear of some consultants in that they are training potential future competitor is symptomatic of a misplaced departmental management culture, and has no place in the delivery high quality medical practice.

With regard to the quality of patient care, evidence-based teaching and practice should be continuously addressed on a daily basis from undergraduate teaching,\(^12\) to graduate training and beyond.\(^5\) However, the cornerstone for lifelong learning should be established during student training. To meet this target it is not sufficient that consultants with educational duties merely demonstrate their medical expertise.\(^6\) Intrinsc to the continuous learning obligation of the supervisor is that he/she must represent a suitable role model for his/her residents incorporating a positive attitude to teaching. Finally teachers should be familiar with EBM and quality assurance systems as well as with ethical, legal, and business issues relevant to the department’s role.

Nationwide benchmarking results on the quality of postgraduate teaching derived from several European countries are published on a regular basis.\(^13\) The potential to compare the educational quality of one department with another will be crucial to the future physicians’ choice of hospital in which to work and study. Thus, the quality of evidence based learning must be a core element of any department, in particular with regard to demographic transition characterized by shortages in specialists and increasing complexity of patient care.
Social challenge and role models

Evidence based patient treatment can only be achieved sustainably if EBM is accepted and anchored within the department as a fundamental corporate and cultural value. It is not enough to advocate EBM as one item of the hospital’s future aspirations. A further challenge arises from the change in the social environment, especially the shortage of qualified employees in hospitals. In addition, ‘Generation Y’ residents joining our teams are characterised by a decreased willingness of professional performance and a stronger leisure orientation.

To ensure the adoption of evidence based patient treatment today and its further development cultural changes toward adoption of greater accountability, patient safety, and quality are necessary. The critical success factor for implementation of an evidence-based team culture is the performance of the clinical supervisors as role models. Appreciation of teaching and evidence-based practice will contribute towards sustainable implementation.

How to implement an evidence-based approach?

Standard Operating Procedures

Use of algorithms and standard operating procedures (SOPs) are key elements to assist training. The first step is to develop SOPs appropriate to the department’s requirements and demands. Creation of a multi-professional SOP working group for critical appraisal of research data and meta- analyses is an effective way of implementing EBM into a busy working environment. It should be supervised by an individual who has both, clinical and EBM experience. Fellows, residents, nurses, and technicians contribute to the group to add their specific perspective and experience to solving the problems at hand. The group’s members have a second crucial task which is to incorporate the agreed SOPs into daily practice. The SOP group members share and extend their collective goals to incorporate adoption by the rest of the department thus providing the authority to promote wider adherence. Hence, the selection of group members who represent good role models is of paramount importance. In contrast, the casual posting of a SOP via email, conceived and written by a solitary individual, as a new order to be implemented on the instruction of the departmental head will not ensure the team commitment required to ensure its universal adoption.

As soon as this second step is accomplished the third step is easier to achieve. The SOPs already produced and adopted can be incorporated and used as a core-teaching elements during the residency programme or for initial training of new colleagues so they can be employed later on in daily practice. This work will only be successful when the clinic administration authorizes and supports the working group when needed. Ultimately through these measures EBM can be implemented into the department’s routine practice despite the turnover of individual employees, allowing the know-how and safety standards adopted by the department to be maintained, developed and kept up to date.

Journal Clubs

Teaching and implementing critical appraisal of current literature into daily practice is another way of giving life to evidence based practice. Starting a journal club needs a dedicated clinical teacher experienced in critical appraisal. CONSORT guidelines give us excellent questions to ask when assessing the value of literature. At the end of each discussion round there is a question that has to be answered: Is the evidence provided by the paper under discussion robust enough to support a change
in our daily practice? After having organized more than one hundred journal club rounds the author evaluated its reception by the residents.

Figure 1. Importance of CONSORT (19) items as evaluated by the Dresden Anaesthesia Journal Club (dark grey) and implementation into the teaching activities of the Journal Club (light grey). 1 best/ highest, 6 worst/ lowest

The items contributing to the CONSORT guideline discussed in the respective papers are depicted in Figure 1. The most important subjects being discussed during critical appraisal can be seen on the left half. It seems that limitations of the studies, generalisability and definitions of outcome were the most important and thoroughly discussed topics. What also can be taken from the analysis are the deviations from importance to implementation. Deviations of two and more were taken as indicators for future teaching demand. Thus from the analysis onward the schedule of the journal club included seminars on practice and pitfalls of sample size calculation and basics in statistical analysis. Besides critical reading of the literature by all participating residents as one cornerstone of EBM one further visible merit of a journal club is the submission of letters to the editor or literature in review articles on the papers discussed, of which several appeared by the Dresden Journal Club.

Further activities supporting EBM

Besides adoption of SOP and Journal Clubs several other activities help to accommodate the incorporation of evidence into a busy environment and support the reading and use of systematic
reviews for clinical decision-making. These activities include lectures, Mortality and Morbidity conferences, Critical Incident Systems, courses on Crew Resource Management, standardized Patient Care (ACLS, ATLS, ETC) and last, but not least, face to face assessments on a regular basis.

Incorporating EBM activities within the department

In Dresden a holistic resident programme was developed. The particularly new aspect in this programme is the introduction of the Deming- quality cycle (plan- do- check- act) into evidence based teaching. Each iteration of this cycle improves teaching in a way of self forward-feeding with the very particular demands and challenges of the patients and processes in the own hospital. Different workshops incorporating participation of the residents and consultants assessed the needs and responsibilities of such a system to better implement EBM into clinical practice. As a core element a gradual induction, rotation and assessment concept was developed and put into operation. This leads to the production of trained specialist staff within an average of five years. A curriculum that was developed specifically for the clinic highlights to conceptual backbone of the resident programme. A guide outlining the care of the patient accompanies the curriculum. This pocket size booklet, which is updated every two years, includes all relevant SOPs as well as the procedures overseen by the supervisors, starting with the initial preoperative visit and closing with a description of the pain service procedures offered after surgery. The booklet is also available in electronic format.

Figure 2. Employment of the Deming-cycle for the implementation of evidence based practice and continuous improvement of knowledge management. CIRS critical incident reporting system, M & M morbidity and mortality Conference, WG SOP standard operating procedure working group. CRM-crew resource management, ANE WIKI, open knowledge platform of the clinic on SharePoint Server
In addition to the training on the job directly with patients, weekly lectures for the whole department are conducted by the residents prepared under supervision of a consultant. By this means aspects of EBM such as systematic reviews and meta-analyses are disseminated within the hospital. The risk management or SOP working groups will review the consequences of the practical activities currently in place and if necessary incorporate revised standards that can be incorporated into the patient care guide. Between the editions urgent notices are distributed via email and the SharePoint knowledge base by appropriately named "Risk leaflets".

**Key Learning Points**

- Even in a busy environment clinical decision-making can be developed performed and kept up to date by following the principles of evidence-based medicine.
- It takes effort of all supervisors within the department to maintain this approach.
- Dedicated teachers and supervisors as role models as well as the support of the head of the department are of paramount importance.
Bibliography