EDITORIAL

Evidence-based decision making in occupational health

Evidence-based medicine (EBM) is founded on the appealing paradigm of promoting the identification, appraisal and application of the best practices in health care, supporting doctors in the decision making process. The continuous development of health care presents a solid ground for more effective practices; however, research findings in the health services suggest that there is a gap between evidence and practice [1]. EBM has raised awareness among practitioners and decision makers, but the approach is not followed in everyday practice for several reasons. These include the complex literature organization, its irrelevance to clinical practice, the difficulty in applying its results to the individual patient and the barrier to change. As a consequence, ineffective practices are performed for several reasons, including over-reliance on a surrogate outcome, the love of a wrong pathophysiological model and the need to do something [2].

So far, health service research in occupational health has not provided relevant information about the appropriateness of usual practices. However, there is a growing awareness and pressure that a decision in occupational health practice should be supported by the best available evidence in order to maximize the outcome. In the past few years, Occupational Medicine has hosted papers and editorials dealing with this intriguing topic [3–5] supporting the need to transfer scientific evidence into daily practice. However, as for general practitioners, several obstacles exist when approaching problems according to the EBM principles: lacking skill in formulating answerable questions, insufficient time required to find information and scarce capacity of integrating evidence to make decisions.

Like health care professionals, occupational health professionals must rely on the best available evidence supporting the appropriateness of diagnostic tests and preventive or clinical interventions. Therefore, like in health care, scientific literature is a crucial element of the evidence-based decision making process. The appropriateness of the practice is one of the key elements of any intervention, as was stated 20 years ago by the International Labour Office [6], who suggested that quality-oriented services founded on sound evidence-based practice should be supplied.

The principles of EBM can be adapted in occupational health practice, whose evidence-based decision process can be defined as the current best evidence in making decisions [7]. The decision process consists of an approach requiring the conscientious (to apply the best evidence when possible), judicious (to use recommendation for patients/workers/community), explicit (to transparently demonstrate the reliability of each decision) integration of relevant scientific evidence relating to the stakeholders’ needs. This definition does not replace clinical skills or other abilities, and the experience of professionals, but provides a picture of the relationships among different components of the decision process [8].

The health problem is a key factor in the decision process. Differing from the EBM model, in the evidence-based occupational health model the problem can involve a community of workers or an individual. Circumstances are another key factor: the problem may be approached differently in different settings, depending on the different context and time in which it occurs. Unlike the EBM model, patients’ preferences should be viewed as the preferences of the different stakeholders (the employer, the company management, the representative of the workers, the inspection labour, the trade union and the workers preferences), since interventions cannot be carried out unless the stakeholders’ needs and interests are met. In comparison with clinical research, the research for evidence in occupational health is different both in the evidence searching stage (RCT studies are often unavailable) and in the evidence appraisal stage (evidence alone is not always an adequate guide to action and applicability, and economic evaluation and barriers to implementation should be considered).

The stakeholders’ needs can be translated into action within this framework. This requires starting the traditional five-step EBM process [7], to which an additional step was recently added [9]: (i) transforming the problem into a question; (ii) answering the question based on the internal evidence (the evidence derived from knowledge acquired through education and training, and experience built from daily practice); (iii) finding the external evidence (information from scientific literature) to answer the question; (iv) critically appraising the external evidence for its validity and usefulness; (v) integrating internal and external evidence to answer the question; and (vi) evaluating the decision.

The first step consists of converting information needs/problems into questions to be answered. The evidence-based approach guides professionals in structuring well-built questions that result in patient/community-centred answers. Asking the right question is difficult, yet fundamental to evidence-based practice or skill. The process begins with a patient question or problem. A well-built question usually includes four components, referred to as the PICO. The acronym
PICO identifies the patient/population (P), the intervention (I), the condition/comparison/control (C) and the outcome (O). P indicates a worker or a workers’ group, I includes the intervention or the practice adopted (e.g. medical examination or screening tests, information to workers), C identifies the condition (e.g. exposure to chemicals, ergonomic factors or unexpected excess of health changes) and O represents the outcome (e.g. blood lead reduction or reduction of accidents in the population following the intervention). The four components should be integrated in an answerable question, e.g. ‘in a group of operating room workers (P) exposed to anaesthetics (C), does a training course (I) reduce the levels of urinary anaesthetics at the end of the shiftwork (O)?’ After the second step (answering the question based on the evidence acquired from personal knowledge and experience), the third step involves a well-conducted literature search for finding the best external evidence. Finding relevant evidence requires conducting a focused search (based on the keywords provided by the question) of the peer-reviewed professional literature based on the appropriate methodology. The availability of online databases (such as Medline and the Cochrane Library) has made locating relevant evidence easier and faster. The fourth step consists of the critical appraisal of the evidence for its applicability to the problem, which entails understanding the value of the collected findings and their relevance to the problem. The strengths and weaknesses of the findings should be determined, and the usefulness and applicability of the evidence to the specific patient/population problem should be assessed. The last two steps involve applying the results of the appraisal, integrated with the internal evidence and evaluating the process and the professional performance. The two sources of the information (internal and external) may be compatible or conflicting, leading to a decision depending on multiple factors (including circumstances, settings and the stakeholders’ preferences). Finally, the analysis of the whole process is examined and opportunities for change can be recognized.

The case studies appearing in this issue [10,11] are an example of how the problem is transformed to an answerable question, how the information is searched and appraised, and how the decision is taken. The focus is more on the process than on the outcome (some experts could disagree with the final decision), and the reports aim at providing an approach to an occupational health problem. This model highlights the need for updated information, whose application results in an appropriate decision and addresses some obstacles met across the decision making process. Occupational Medicine welcomes both comments and criticisms on this topic, and submission of problems for which this approach was used. Should the topic raise the interest of occupational health professionals, a new peer-reviewed series, ‘evidence-based occupational health in practice’, could be launched. This series would aim at guiding the decision making process according to the EBM principles largely adopted in different medical specialties, thereby helping readers to develop skills of using research evidence in their practice and making knowledge transfer from research into practice more effective.

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References