

Do we need other guidelines?

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Our space came into existence by the Big Bang, a huge explosion of the singularity. Nowadays we are living in the middle of the second explosion, explosion of information and guidelines. During our professional lives we are looking for information all the time and the ability to find information quickly and efficiently and to process it correctly is highly appreciated. Guidelines are a form of already preprocessed information.

There are **clinical practice guidelines** on different issues everywhere. More than 2000 medical guidelines (anaesthesiology 11, critical care medicine 3) are currently represented in the National Guidelines Clearinghouse (www.guideline.gov), an American public resource for evidence-based clinical practice guidelines. There are plenty of American guidelines concerning anaesthesia and intensive/critical care medicine developed by different societies, respected are for instance American College of Cardiology / American Heart Association (ACC/AHA) 2007 Guidelines on Perioperative Cardiovascular Evaluation and Care for Non-Cardiac Surgery (2) or AHA Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care (3). In Europe there are four common European guidelines of the European Society of Anaesthesiology (ESA) (e.g. Guidelines for safety and quality in anaesthesia practice in the European Union) (1); then exist guidelines developed by individual national expert societies. Briefly, there is an inflation of guidelines.

The situation is even worse because there are not only clinical practice guidelines but also other tools including clinical decision rules and clinical

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cal pathways grouped as evidence-based clinical algorithms (4). In addition, different diagnostic, therapeutic and prognostic scoring systems are often applied, too. What to do not to get lost in this jungle? Moreover, do we really need other, totally new guidelines to add or do we need some common European guidelines at all?

All these tools are products of **evidence-based medicine (EBM)**. It is "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients" (5). EBM is a continuous ongoing process of accurately assessing and integrating the weight carried by various levels of available evidence. This evidence comes especially from randomized controlled trials (RCT) comparing outcome in exactly defined groups of patients. Other sources of evidence include increasingly often meta-analyses of RCTs but also weaker observational studies, case series and expert opinions. EBM changes the way in which we decide from subjective decision making driven exclusively by individual experience to objective decision making supported by available evidence. EBM should thus help us provide efficient, safe and cost-effective care but should always be used only in conjunction with personal clinical experience. It must be recognized that available evidence is gained from populations but applied in individuals. Nowadays EBM is so widely accepted that some compare it to a new ritual (6) or even to a religion (7).

How widely is EBM practised? In the internal medicine Michaud et al. found in 1990s that > 60% of therapeutic clinical decisions were supported by RCT evidence (8). Very similar situation could exist in cardiology, known for the highest number of randomized trials and guidelines arising from them (e.g. there are 349 guidelines regarding cardiovascular diseases in National Guidelines Clearinghouse). In anaesthesiology and intensive care medicine, however, there are much fewer guidelines because evidence from RCT is frequently lacking due to many reasons. To name only a few: heterogeneous populations, life-saving interventions making randomization difficult, rare events. Therefore decisions are based mostly on thorough knowledge of the science and on the clinical sense.

Practising good anaesthesia is a science, skill and art. Becoming an anaesthesiologist requires reading through several meters of books in pregraduate as well as in postgraduate education as can be documented by the Reading list recommended for candidates preparing for the European Diploma in Anaesthesia (9). Such a comprehensive education predominantly in pathophysiology and relevant pharmacology together with knowledge of pathological conditions should allow to the anaesthesiologist to reach correct decisions in most cases. Each anaesthesiologist must also master necessary

skills, e.g. airways management, invasive monitoring or regional blocks. For mastering these skills the anaesthesiologist needs instructions, i.e. step-by-step descriptions how to do it. The art of anaesthesia resides in the person of the anaesthesiologist who should be friendly, cooperative but assertive, really a good spirit of the operating theatre, with sound clinical sense for the patient. Does such a highly educated and skilful expert really need clinical practice guidelines?

I am convinced the answer is yes because clinical practice guidelines can really help him make qualified decisions in defined clinical situations. In my opinion, the main reason for guidelines is that in the middle of information explosion nobody can master the whole specialty he works at and more to keep his knowledge updated all the time. For instance, in PubMed there are 75 anaesthesiological journals indexed (10) (22 with impact factor in Journal Citation Reports) (11). Nobody can read through such a huge amount of pages. This high number of publications documents that current knowledge in the field is extremely comprehensive. In addition, it is necessary to follow not only the main area of interest but also the progress in related fields relevant for anaesthesiology, such as specific topics in pharmacology, cardiology, surgery or blood coagulation, because current clinical problems are extremely interconnected.

This requirement to follow a wide area of research is possible to document for instance at the problem of perioperative management of patients with stents implanted into the coronary arteries. The decision making in these patients is quite challenging because there are many factors in the play including the type of the stent, time elapsed since implantation, antiplatelet therapy, risk of bleeding vs. risk of thrombosis, comorbidities and their therapy. Incorrect decisions can have fatal consequences. In contrary to the intuition it was demonstrated that surgery performed soon after stent implantation can have catastrophic outcome as well as premature discontinuation of dual antiplatelet therapy (12). Nobody, who is not particularly interested in such a vast area of problems associated with stents, can follow the progress in this field. Anaesthesiologist not involved in the management of these patients has therefore frequently not enough knowledge for a qualified decision making. Thus, guidelines recommending management of such patients could be useful. However, due to the rapid development of interventional cardiology and associated pharmacotherapy they must accordingly be adjusted at short intervals. Consequently, it is vital to identify all other areas where clinical practice guidelines are urgently needed, i.e. areas where either uncertainty regarding the correct approach or unreasoned outcome affecting variability exists.

Clinical practice guidelines are systematically developed statements that aim to help physicians and patients reach the best health care decisions (13). Guidelines should be clear, unequivocal, valid, reliable and applicable. They are based on systematic reviews of existing knowledge and recommend what should and should not be done in specific clinical situation. They can help to standardize care and improve health outcomes as well as outcome assessment. However, there are many inherent problems some of which are discussed.

The development of guidelines is mostly a long-term and expensive process. Scottish Intercollegiate Guidelines Network (SIGN), an organization aiming to improve the quality of health care for patients in Scotland, sets the proper time necessary for particular guideline development as long as 30 months (14). It is obvious such guidelines may be precisely polished but need not reflect the most recent knowledge given the current rate of progress in medicine. On the other side, some argue that in spite of the long preparation the quality of guidelines is not high enough. More so, some even state the quality of guidelines is declining. Regarding high cost of guidelines development and implementation they are worth only for specific diagnostic and treatment modalities, which can be expensive or which can substantially affect patients' fate, to justify the resources invested.

Other important question is the volume of guidelines which can be either too general if they are short or in opposite case they can restrict the care in an unduly manner. Authors of the guidelines usually aim to specify precisely when and how they can be applied. This approach, however, makes guidelines progressively more and more comprehensive. This can nicely be documented on the AHA guidelines for cardiopulmonary resuscitation. Each newer version is bigger. The first standards and guidelines, already published by AHA in 1974, had 31 pages (15), the following ones in 1980 - 56 pages (16), in 1986 - altogether 87 pages (17), in 1992 - 127 pages (18), in 2000 - 384 pages (19), the latest issue in 2005 - 211 pages (3). However, most people do not like to study thoroughly such thick publications dedicated to the relatively narrow topic. Thus, it may be expected such guidelines can be understood in a distorted way and not followed appropriately.

The fact that people do not read guidelines thoroughly is seen with beta-blocker administration recommended in ACC/AHA 2007 Guidelines on perioperative cardiovascular evaluation and care for noncardiac surgery (3). According to these Guidelines beta-blockers should be continued in patients undergoing surgery who are already receiving them; or beta-blockers should be given to patients at high cardiac risk owing to the finding of ischemia on preoperative testing who are undergoing vascular surgery (both

indications are of class I, i.e. treatment is beneficial, useful and effective). However, many anaesthesiologists believe beta-blockers should be given to all patients at risk of cardiac complications (!) undergoing non-cardiac surgery. Perhaps it could be caused by inclusion of perioperative beta-blocker therapy into the set of quality-of-care measures used for instance by the National Quality Forum, an organization evaluating a quality of delivered health care in USA (20). Each diagnostic or treatment strategy may be used as a measure of quality only in the case when its indication is of class I (definitely indicated) or of class III (definitely contraindicated) that is not valid for routine beta-blocker administration.

Ambiguity surrounding beta-blocker administration in perioperative setting documents that clinical practice guidelines in anaesthesia and intensive care are often based on relatively weak evidence. This can be illustrated on the set of 46 recommendations made by 44 critical care and infectious disease experts representing 11 international organizations in Surviving Sepsis Campaign guidelines for management of severe sepsis and septic shock (21). Majority of these recommendations (27, i.e. almost 60%) are suggested with strength of grade E, i.e. evidence is supported at the best by non-randomized trials, studies with historical control group, case series or expert opinion, while only 5 recommendations are of grade A, i.e. their evidence is supported by large, randomized trials with clearcut results (21).

Clinical practice guidelines are always only as good as their implementation into everyday clinical practice. They should not be in contradiction with personal experience because this can substantially delay desired change of clinical practice. It is necessary to identify barriers to implementation and to study how to overcome them. The implementation requires time as well as financial costs and need to be controlled and evaluated.

Finally, the last important issue associated with guidelines to be mentioned here is a legal problem. Clinical practice guidelines are not the same as standards of care. Guidelines recommend what should and should not be done in specific clinical situations while standards of care describe how an average, prudent provider in a given community would manage the patient under the same or similar circumstances (22).

To summarize, clinical practice guidelines can be useful in situations in which a sufficiently educated anaesthesiologist does not have enough good information to make a qualified decision for the particular patient. These gaps of knowledge should be identified and relevant clinical practice guidelines developed. It will be the task of the ESA Permanent Task Force for Clinical Practice Guidelines suggested by the Focus Group on Guidelines constituted from the elected national representatives of personal ESA members in

individual European countries, who were interested in this area. In advance, through the cooperation of particular national societies a database of potentially useful already existing national guidelines similar to the National Guidelines Clearinghouse will be set up on the platform of the ESA.

In conclusion: "The art of medicine is the ability to integrate, adjust and individualize knowledge and to apply the available evidence at the bedside." (Gordon D. Rubinfeld of the Division of Pulmonary and Critical Care Medicine, Harborview Medical Center, University of Washington, Seattle, Washington, USA) (23). However, "personal clinical experience, principles of physiology, understanding of patients values, and expert opinion should not be ostracized from the physicians's armamentarium." (John J. Marini of the Department of Medicine, University of Minnesota, St. Paul, Minnesota, USA) (23). Only together these approaches form the knowledge-based medicine (24).

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