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QUALITY OF CARE

There are many definitions of quality of care. One of the best conceptual and operational definitions of quality is the one proposed by the Institute of Medicine: quality of care is "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" [1]. Several attributes of quality are explicit in this definition: First, the "degree to which" means that quality is measurable; second, since the outcomes of a medical intervention are probabilistic, the definition includes the term "likelihood"; third, if we have in mind a "desired health outcome" then we have a goal, a desired standard; and lastly, if we want to improve the health of our patients, it is obvious that we have to know the best possible outcomes given the current state of knowledge, that is, our standard should be "evidence based."

RELEVANCE OF QUALITY OF CARE

Quality of care has important consequences for patients. For example, when a patient with congestive heart failure is admitted into a good quality hospital, the probability of dying is eleven per cent (11%). However, this probability is nineteen percent (19%) in a poor quality hospital. In other words, the risk of dying is almost double, just because of the difference in quality between hospitals. Similar differences occur for other clinical conditions, such as acute myocardial infarction, pneumonia, or stroke. All these differences are clinically relevant and, of course, statistically significant [2]. An obvious implication form these findings is that the quality of care is an ethical imperative, because it is not ethical that our patients have a greater risk of dying, simply because our quality of care is poor.

IMPLEMENTING QUALITY OF CARE

The concept that refers to the activities for improving quality is "Quality Assurance". Quality assurance may be defined as "all of the activities that make it possible to define standards, to measure and improve the performance of services and health providers so that care is as effective as possible."

In an articulated strategy for improving quality, these would be the three steps: First we must define quality, including the standards, norms, and guidelines. This is crucial, because it is impossible to measure something that has not been defined.

Second, we must measure quality, that is, the deviation from the standards. This is also crucial, because we can only improve those aspects that can be measured.

And third, we must try to achieve the standards.

STANDARDS AND INDICATORS

A standard is a professionally agreed level of performance appropriate to the population addressed and within available resources that is observable, achievable, measurable and desirable. From this definition emerge the attributes of a standard.

A standard should reflect the aims of the service, should be consistent with the institutional values, should balance professional and patient interests, should be clear, should be linked to timescales, be realistic within resources constrains, and should be measurable. One way of making standards operational is by developing their indicators.

A clinical quality indicator is a quantitative measure that provides some information about a specific aspect of the delivery or outcomes of clinical care (e.g., the proportion of people who survive following hospital admission due to a heart attack, the time that a patient waits for a procedure, and so on).

There are three types of indicators regarding the domain of care: Structure, Process, and Outcome.

Indicators of structure refer to structural aspects. For example, the number of physicians, nurses, or other professionals needed, the training they need, the number of nurses per bed, the technology available, and so on.

Process indicators refer to the way the resources and knowledge are applied. For example, the diagnostic methods used, the interventions applied, the guidelines and the quality of the guidelines used, and the like.

Outcome indicators refer to the consequences in our patients. For example, remission, adverse events, physical improvement, quality of life, mortality, among many other important patient outcomes.

PRODUCING INDICATORS: AN ACTIVE MOVEMENT

In recent years, the production and use of clinical indicators have increased a lot, and there is now an array of approaches worldwide. For example, the American Agency for Health Research and Quality (AHRQ) has developed several sets of indicators, among them, indicators for inpatient care or safety [3,4].

The American College of Rheumatology, several years ago emphasized the importance of the quality movement, giving the message that rheumatologists need to be prepared. As a result of such an initiative, the ACR has developed standards of care in Rheumatology [5].

For the same reasons, the European League Against Rheumatism (EULAR) has developed indicators. Currently, EULAR is doing an active follow-up of the adherence to the standards of care in Europe [6]. The Arthritis Foundation has developed a set of indicators for arthritis care with a very sound methodology [7]. Some professional societies of different European countries are also developing standards. For example, the Spanish Society of Rheumatology developed a set of standards for quality of care in Rheumatology, combining the best scientific evidence and an expert panel using the Delphi process [8].

INDICATORS: POTENTIAL GAINS

All the efforts to build and apply the indicators make sense if we obtain some gains. Let us suppose that with our current care, we have some level of quality, in terms of percentage of the best possible outcomes. Let's suppose that we know the desired standard, that is, 100%. The potential gains are the gap between the actual and the desired state. To know or measure the degree to which we attain the desired standard we need to use indicators. Some examples of potential gains follow.

For example, in the US, huge variations have been observed in surgical practice rates among rheumatoid arthritis patients across states and between women and men. Procedure rates differed by patient sex, with significantly more arthroplasty performed in women (7.7% vs. 2.3% OR=3.36) and fusion procedures (2.6% vs. 3.4% OR=1.3). However more tenosynovectomy procedures were performed in men (13.9% vs. 5.8%, OR=0.42). These rate differences are not explained by the number of hand surgeons, disease prevalence, or demographic composition of the states. However, men are more likely to receive more aggressive early surgical interventions, and women are more likely to receive end-stage reconstructive surgery [9].

In the UK, a study was designed to examine the adherence to validated quality indicators assessing the quality of allopurinol use in the treatment of gout and asymptomatic hyperuricemia. Three validated quality indicators were developed to assess: 1) dosing in renal impairment; 2) concomitant use with azathioprine or 6-mercaptopurine; and 3) use in the treatment of asymptomatic hyperuricemia. The authors found that the rates of practice deviation for the three individual quality indicators ranged from 25 to 57%. They concluded that one-quarter to one-half of all patients eligible for at least one of the validated quality of care indicators were subject to possible allopurinol prescribing error, suggesting that inappropriate prescribing practices with this agent are widespread [10].

The proportion of patients receiving inappropriate care in the US is high and variable among clinical conditions. For example, in rheumatologic diseases, 73% of patients with low back pain received appropriate care, 57% of patients with orthopedic conditions or osteoarthritis, but only 23% of patients with hip fracture. For other disease specialties, the rates of inappropriate care are also high and variable. For example, only 25% of patients with atrial fibrillation receive appropriate care [11].

These rates of inappropriate care are too large to be ignored. Thus, if we were able to improve the adherence to standards, the potential gains would be enormous.

The potential gains are not only related to outcomes, but could also have an impact on costs. In the US, a comparison among States showed an inverse relationship between costs (annual medicare spending per beneficiary) and quality: the better the quality, the lower the costs [12]. The underlying principle seems very logical: With poor quality, undesirable events increase, so the use of resources increases, and consequently, the cost rises. For this reason, devoting resources for quality improvement must be seen as an investment rather than a cost.

From the above examples, we have to admit that some part of the care provided is appropriate, while some part is inappropriate, in other words, "overuse". But at the same time, some patients need care that they have not received, in other words "underuse" of some procedures. This means, thinking in terms of quality, that in the overuse and underuse areas, there is no quality. If we are able to selectively avoid overuse and move this care to the underuse area, we would

increase quality with the same resources. Thinking in terms of efficiency, the resources used in the overuse area produce nothing or adverse effects. If we are able to use these resources in the underuse area, in which we produce effective care, we would increase efficiency. And thinking in terms of equity, there are patients receiving care that they do not need (overuse) and simultaneously there are patients not receiving the care they need (underuse). So, if we are able to move the care from overuse to underuse, we will improve equity in the access to care.

In summary, the potential indicator gains may improve the quality, efficiency, and equity of the health care systems.

LIMITATTIONS OF THE INDICATORS

The indicators have limitations, as well. The limitations of quality indicators pertain to two main aspects: Methodology and implementation.

In methodology, the first limiting factor is related with evidence. For many indicators, the available evidence about their effects is very limited, and in some cases of poor quality. The use of the best available evidence improves the robustness of the indicator, but synthesis of the evidence is clearly needed and is usually expensive and time-consuming. In developing indicators, the link between the evidence and the indicator should be clear and explicit.

For those indicators for which there is not enough evidence, or if it is poor or contradictory, expert opinion can play an important role in developing the indicators. However, caution should be exercised in selecting experts and their potential biases and conflicts of interest should be considered. A critical issue is the transparency of the level of agreement among experts. To increase the credibility of the indicators, the degree of agreement should be explicit.

In the implementation phase, the use of indicators is also jeopardized. For example, at the level of the indicator itself, innovation in medicine is very rapid, so the indicator can become obsolete rapidly. It is possible that those who developed the indicators were thinking of excellent centers, but other smaller sites would not have some technologies required to use the same indicators. So rigidity, as opposite to flexibility, could be a limitation.

At the organizational level, implementation of the indicators may or may not be limited depending on the values, leadership (authority rather than power), and resources.

At the physician or professional level, implementation depends on the motivational structure of the professionals, the extent to which the organization compensates the motivation of their professionals, and the commitment resulting from the interaction between motivation and compensation.

Some of the limitations of the indicators above mentioned may be better understood with some examples. As an example regarding the limitations due to the evidence, a set of indicators in Rheumatology were developed recently using the best scientific available evidence [13]. In this work, the quality of evidence was classified in 5 levels: from A1, the highest level (evidence from systematic reviews of randomized controlled trials), to D, the lowest level of quality (expert opinion). Each indicator was described in terms of type (structure, process, or outcome), numerator, denominator, and the quality of the supporting evidence.

Eighteen indicators were developed: 10 for process, 5 for structure, and 3 for outcome. Two (11%) indicators were based on good evidence (A2), and four indicators (22%) on acceptable

evidence (B), but 12 (67%) were based only on expert opinion. This means that for many indicators, the best available evidence came from expert opinion.

Among the potential limitation we should condider the obsolescence of the indicators. This limitation may be explored with a study about the obsolescence of clinical practice guidelines, given the fact that many indicators are based on guideline recommendations. According to this study, more than three quarters of the AHRQ guidelines need updating. As a general rule, guidelines should be reassessed for validity every 3 years [14].

Another potential limitation is the adherence of physicians to Clinical Practice guidelines. In a systematic review published in JAMA, the authors found 293 different barriers to physician adherence to clinical practice guidelines, which they categorized as related to knowledge, attitudes and behavior of physicians [15].

According to this study, the amount of potential barriers is not trivial, and they may play a critical role in increasing the difficulties for the effective implementation of the indicators.

CONCLUSIONS

Based on the ideas explored, the main conclusions are:

First, improving the quality of care is an ethical imperative, and a methodological and professional challenge.

Second, for improving the quality of care (patient outcomes), indicators are needed.

Third, to develop indicators is not an easy task, and we should be aware of their limitations.

And finally, if we develop methodologically robust indicators and we apply them in clinical practice, we can improve the health of our patients, the efficiency of our resources, and our professional satisfaction.

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