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Should cost considerations be included in medical decisions? Not so sure...

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Most western healthcare systems are experiencing significant increases in costs that can be attributed to a growing and ageing population that has ever more frequent chronic diseases, and advances in costly healthcare technologies and interventions. These driving factors for increasing costs resonate strongly for intensive care unit (ICU) physicians who see the need for their service grow steadily each year to cope with the rising demands placed upon them. The UK National Health Service (NHS) has required spending increases in real terms of 3.8 % per year throughout its history [1]. This growth is much higher than underlying increases in gross domestic product for the country, with the implication that the status quo is not sustainable in the longer term. This scenario is not unique to the UK and the trend can be seen in many similar western countries.

In the current austere economic climate, the direct consequence of increasing healthcare expenditure to ICU managers and clinicians is stark and obvious. Flat-lining (or reducing) budgets with a simultaneous increase in demand means choices need to be made and choosing based upon cost is difficult. Difficult because clinicians often have neither the training nor the knowledge to base such decisions upon, but also because it forces controversial ethical discussions to be had, sometimes with perverse consequences. However, to contain the costs of care, physicians need to know the costs and indications of each of the investigations/drugs that they order.

Unfortunately, physicians' awareness of the cost of drug prescriptions (or investigations) is generally very poor [2]. A systematic review of 24 articles, the latest being published in 2005, showed an accuracy in cost estimation of 29 % for the articles with the highest quality and of 38 % for those with lowest [2]. A recent multi-centre French study published in *Intensive Care Medicine* by Hernu et al. [3] compared the costs of drugs, blood products, imaging modalities and laboratory tests estimated by a wide sample of ICU physicians with the true costs. Correct estimation was defined as an estimate within 50 % of the true cost. Drug costs were underestimated and, among drugs, the costs of those exceeding 10 € were all underestimated [3]. We suspect that the same physicians who do not know the costs of the most expensive drugs, the ones that they underestimate the most, will carefully consider a difference of 50 % in prices when they buy a new car! Hernu et al. [3] report results similar to those found in other European countries [4, 5]. They also present two clinical situations (septic and haemorrhagic shock) showing how relevant the differences can be between estimated and true costs at ICU, regional, and national level.

The lack of any improvement in physicians' awareness of the costs of drugs over time [2, 3] agrees with the slow and continuous decrease in the percentage of articles in

Fig. 1 Percentages of articles mentioned in PubMed (1990–2015) according to a search conducted using the following words: “intensive care unit or critical care unit” and “cost or economic” (numerator), and “intensive care unit or critical care unit” (denominator)

the ICU field considering economic aspects (Fig. 1). Both demonstrate the lack of interest of physicians for the topic. The main reason for this could be that medical education prioritizes medical aspects of care over and above the costs of diagnosis and therapy. This may explain why junior physicians have a lower level of knowledge than senior physicians [3], who may receive at times cost reports by hospital pharmacy, transfusion service, and imaging and laboratory services. Unfortunately, Hernu et al. [3] did not collect information about hospital reports received by the study participants.

Guidet and Beale [6] suggest that physicians should include cost considerations in medical decision-making and that they should be motivated by benefits for ICU in exchange for savings. The benefits mentioned are all expensive, so a very large amount of money should be saved to have a net cost reduction. Moreover, the suggested restriction of ordering of high cost tests and drugs to senior clinicians [6] may reduce some costs, but can be done only when these are not time-critical interventions. Health information systems could improve knowledge on value for money [7]. Nevertheless, a computerized provider order entry system displaying fees for inpatient medical prescriptions showed only a small decrease in the rate of ordered tests (0.32 per patient-day) [8].

Du and Kahn [9] emphasize that cost-conscious clinical decision-making rarely saves money (because most of ICU costs are fixed), while they can potentially cause harm (with increased costs!). They suggest that the way to reduce ICU costs is to prevent ICU admissions. Nevertheless, in an ICU with a fixed number of staffed beds, reducing the number of ICU admissions is a waste of resources because the fixed costs remain unchanged and no low-risk patients benefit from the higher level of care of ICU. On the other hand, a reduction of ICU beds may be feasible only in countries where there are many [10], and/or should assume a rather high level of the care given by intermediate units and wards in the hospital.

The key point is not cost reduction, but wise use of money through cost-effectiveness [6, 9]. Avoiding ordering inappropriate and unnecessary investigations will reduce the amount of resources expended on any patient and could prevent harm occurring through the inappropriate use of the test or the information it delivers. To control healthcare spending clinical practice guidelines need to take into account cost-effectiveness when making recommendations. The recommendation assessing demand for routine chest X-rays in the ICU [6] is a good example of a cost-conscious guideline.

The Institute of Medicine (USA) defines six domains of quality in healthcare: safe, effective, patient-centred, timely, efficient and equitable [11]. Running a quality service that reduces unnecessary waste and maintains resource for the patients who most need it is a requirement of many of these domains. Finance and quality cannot be dissociated and when they are can lead to disastrous consequences. Clinicians are committed to guarantee quality at the lowest cost. All citizens who pay and benefit from health systems are economic decision-makers in the health sector through their electoral choices, and can address the politicians through these.

Compliance with ethical standards

Conflicts of interest The authors declare that they have no competing interests.

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