

Commentary

Nondrug costs of therapy in acute care – are they important?

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Abstract

Drug acquisition costs are only a proportion of the total costs associated with drug therapy. The relevance of these costs are often not appreciated. However, they impact on the Intensive Care Unit via resources and quality of care. Increased indirect care by medical and nursing staff has the potential to adversely affect patient outcome. Redirecting staff to their primary role and reducing indirect patient activities will increase quality and allow more patients to be treated. Costs and resources are increasingly important in health care provision.

Keywords drug costs, indirect costs, patient care, personnel costs

This issue of *Critical Care* includes an article by van Zanten and colleagues [1] on the nondrug costs associated with the administration of intravenous antibiotic therapy. The study highlights the fact that the acquisition costs (the costs of the drug itself) are only a proportion of the total costs. The additional costs of administration may be up to 53% of the daily costs of antibiotic therapy. There is no reason to doubt the results of this detailed study, which included accurate measurement of costs.

A more important philosophical question is what are the relevance of these costs? The more sanguine among us may well argue that the nurses and doctors are on the intensive care unit (ICU) anyway, and therefore their costs are not relevant. However, costs have a direct link with three other areas that have an impact in the ICU, namely resources, quality of care and the impact on the gross spending on health care in the country.

There is no doubt that spending within any area of health care, including the ICU, has limitations. This is well illustrated by the recent introduction of drotrecogin alfa (activated) in severe sepsis [2]. Although the cost per treatment might seem high, cost-effectiveness studies have provided justification for its use [3,4]. In contrast are the findings of a study that addressed the use of respirators to prevent acquisition of

tuberculosis by hospital workers [5]. It showed that with use of a simple mask, costing approximately €7.5 each, 41 years would have to pass for one worker to acquire tuberculosis, yielding a cost-effectiveness ratio of €0.85–15 million. In other words, despite its low cost it gave poor value for money.

Every cost implies the use of resources, be they staff, drugs, or equipment. Cost can vary from city to city or from country to country but the resource use may well stay the same. So, although the study conducted by van Zanten and coworkers [1] reports the results in cost units, there are implications for the use of resources. For example, the cost of a nurse in France may be €48 000 per annum, whereas it is €6500 per annum in Hungary (Guidet B, Csosmos A, personal communication). However, the resources remain constant. Thus, the preparation costs reported in the study by van Zanten and colleagues represents a proportion of the use of resources. Although the proportion may not be large, it is important for us to reflect on what we require of a nurse or doctor's time in the ICU environment. For example, the increased use of pharmacy additive services will decrease the time that nursing staff spend on indirect patient care, thereby allowing an increase in the time available for direct patient care.

We believe that this time would best be employed in direct patient care. Taking the argument to extremes, if only 50% of

a nurse's or doctor's time were spent in duties other than direct patient care, then this must have a deleterious effect on the care of the patient, difficult though this may be to prove.

This effect could well be defined under the heading of quality of care, which is, as yet, difficult to quantify. A good example of the effect of diminished quality of care is illustrated by an elegant study of the effect of quality of nursing care on duration of weaning from mechanical ventilation [6]. That study demonstrated that as the quality of nursing care was reduced the duration of weaning was increased, but when the quality of nursing staff was improved the weaning time dramatically decreased. However, improvement in quality is only possible via the increased cost (and resource use) associated with this change.

Finally, it is clear that the demand for health care resources (and thus cost) is outstripping the supply in most countries throughout the world [7]. The implication of this is the necessity of ICUs to utilize their resources wisely. This is not a short-term problem that will have an effect within the next year, but rather over the next few years most countries will be reforming their health care services in an attempt to limit costs escalating. ICUs will not be immune from this, and it is therefore in our own interests to take responsibility for using resources wisely. Our objective should not be to reduce cost *per se* but to reduce wasted resources so that we will have the ability to treat more patients. We can only achieve that if we are willing to accept that this role is as important as our better defined clinical role.

In conclusion, although the time spent on nondrug costs of intravenous antibiotic therapy may seem relatively insignificant, consideration of the costs and resources are important if we are to give the most benefit to the greatest number of patients in the future. The subjects of cost and resource use are now beginning to be recognized by more clinicians and not dismissed as being outside the remit of our function as clinicians. Perhaps, then, the eloquent words of Sir Winston Churchill are relevant: "We are not at the end, nor at the beginning, we are not at the beginning of the end but perhaps we are at the end of the beginning".

Competing interests

None declared.

References

1. van Zanten ARH, Engelfriet PM, van Dillen K, van Veen M, Nuijten MJC, Polderman KH: **Importance of nondrug costs of intravenous antibiotic therapy.** *Crit Care* 2003, **7**:R184-R190.
2. Bernard GR, Vincent JL, Laterre PF, LaRosa SP, Dhainaut JF, Lopez-Rodriguez A, Steingrub JS, Garber GE, Helterbrand JD, Ely EW, Fisher CJ Jr, Recombinant human protein C Worldwide Evaluation in Severe Sepsis (PROWESS) study group: **Efficacy and safety of recombinant human activated protein C for severe sepsis.** *N Engl J Med* 2001, **344**:699-709.
3. Angus DC, Linde-Zwirble WT, Clermont G, Ball DE, Basson BR, Ely EW, Laterre PF, Vincent JL, Bernard G, van Hout B, PROWESS Investigators: **Cost-effectiveness of drotrecogin alfa (activated) in the treatment of severe sepsis.** *Crit Care Med* 2003, **31**:1-11.
4. Manns BJ, Lee H, Doig CJ, Johnson D, Donaldson C: **An economic evaluation of activated protein C treatment for severe sepsis.** *N Engl J Med* 2002, **347**:993-1000.
5. Adal KA, Anglim AM, Palumbo CL, Titus MG, Coyner BJ, Farr BM: **The use of high-efficiency particulate air-filter respirators to protect hospital workers from tuberculosis. A cost-effectiveness analysis.** *N Engl J Med* 1994, **331**:169-173.
6. Thorens JB, Kaelin RM, Jolliet P, Chevrolet JC: **Influence of the quality of nursing on the duration of weaning from mechanical ventilation in patients with chronic obstructive pulmonary disease.** *Crit Care Med* 1995, **23**:1807-1815.
7. Anderson GF: **In search of value: an international comparison of cost, access, and outcomes.** *Health Aff (Millwood)* 1997, **16**:163-171.