

## Editorial

# The Costs of Hospital Infection Control in a Developing Country

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In the early 1970s, a significant proportion of US hospitals voluntarily developed infection control programs. At that time, there were no economic incentives for those programs,<sup>1</sup> but there was a consensus that, ethically, healthcare providers had to do everything possible to reduce the risks of nosocomial infections to their lowest possible level. However, in the late 1970s, medical costs began to rise considerably, and this led ultimately to changes in the methodology of reimbursement of hospitals. At this point, there was a certain economic pressure to determine the economic gains or losses of nosocomial infection control programs. The question was promptly addressed by controlled studies that evaluated the direct costs of hospitalization in particular categories of nosocomial infections<sup>2,3</sup> and by different methods for estimating the costs of hospital infections.<sup>4,5</sup> In addition, the infection control programs were validated in US hospitals by the SENIC project. This study demonstrated that up to one-third of nosocomial infections could be prevented by effective control programs.<sup>6</sup>

In developing countries, the economic and ethical aspects of nosocomial infections are closely connected and cannot be analyzed independently. This is a consequence of the responsibility of governments for all healthcare programs. Funding for immunization, control of endemic diseases, supplementary food for pregnant women and infants, and primary healthcare and funding for hospital care come from the same budget. There are private hospitals and health insurance, but less than 10% of the population can pay for it.

Currently, when third-world countries are afflicted

by a serious economic crisis and available resources for healthcare are severely limited, the decision of how much must be spent in each program is a huge problem for health administrators. Each cent added to a specific health program comes from the budget of another equally important one. In this setting, the economic aspect of healthcare plays a crucial role, and we may argue that the only ethically correct decision is to allocate resources in programs that show socially useful cost-benefit rates. Furthermore, an efficient economic follow-up of a particular program would permit the early detection of resource waste within the program.

Paradoxically, in developing countries, there are very few studies focusing on the economic aspects of healthcare in general and on hospital infection control in particular.

The article by Cavalcante et al in this issue of the *Infection Control and Hospital Epidemiology*<sup>7</sup> discusses some important aspects regarding the control of nosocomial infections in a developing country. One of the most important topics is the overuse of antibiotics. This is not a problem restricted to developing countries; there is some evidence that the magnitude of the problem is larger in the third world.<sup>8,9</sup> An effective infection control program may result in substantial improvement of proper antibiotic use. This is particularly true for antibiotic prophylaxis of surgical wound infection, where educational programs can significantly reduce the overuse of antibiotics.

There are several other strategies that are being performed with success in some Brazilian hospitals, such as the use of preprinted forms where physicians

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have to justify the prescription of certain antibiotics, the restriction of selected antibiotics, or the selective report of in vitro antibiotic susceptibility that is being done with new or nonformulary cephalosporins and other  $\beta$ -lactam antibiotics and quinolones. These approaches should be instituted in third-world hospitals because they can result in cost savings and may contribute to the prevention of early resistance to new antibiotics.

On the other hand, the lack of control programs has resulted in a wide dissemination of methicillin-resistant *Staphylococcus aureus* (MRSA) in Brazilian hospitals. In 1990, the rate of MRSA in *S aureus* isolates from six Brazilian hospitals ranged from 38% to 78%,<sup>9</sup> leading to a significant increase in vancomycin use. There is an urgent demand for studies evaluating costs and benefits of control programs for MRSA in Brazilian hospitals. Likewise, other measures that result in cost savings without increasing the rates of nosocomial infections must be implemented. However, it is essential for the costs to be assessed with adequate methods. The findings of Cavalcante et al are impressive, but they did not show how cost data were obtained, rendering it difficult to reproduce this model in other third-world countries.

The development of sensitive, simple, and reliable techniques for evaluation of costs and benefits of nosocomial infection control and other healthcare programs is an extraordinary challenge for develop-

ing countries. Without an adequate methodology, each decision can cause serious damages to populations that already are destitute of basic healthcare

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