La posizione associativa
In tema di

Hospital Infection Control
Position Paper: Hospital Infection Control

The term *nosocomial infections* refers to infections acquired during hospitalization, with symptoms usually occurring within forty-eight hours after admission.

The origin of nosocomial infections can be attributed to the following:

- Bacterial flora already present in the patient;
- Microorganisms from the environment through transmission from:
  
  carriers colonized at admission, admitted to wards without undergoing surveillance, isolation or eradication of the germ(s);
  
  patients who have developed the infection but who have not been isolated;
  
  contact with contaminated objects and surfaces;
  
  medical personnel, usually via their hands;
  
  invasive procedures such as the installation or maintenance of a device(1).

### Data on the Incidence of the Problem

The current *probability of infection in health-care facilities is relatively high*, and the risk of death is not negligible.

Data from the European Centre for Disease Prevention and Control (ECDC) indicate that 4 million such infections occur in Europe every year, causing around 37,000 deaths.

In Italy, the figure ranges from 450,000 to 700,000 infections per year (an incidence of 5%–8%), resulting in between 4,500 and 7,000 deaths.

According to a study carried out by the *Global Patient Safety Challenge: Clean Care Is Safer Care*, at any one time more than 1.4 million people in the world are suffering from nosocomial infections. In developed countries, there is an incidence of 5%–10% in the total number of inpatients.

### Related Costs

Hospital infections are also a major economic challenge for public health-care systems due to the impact they have upon health-care costs(2).
For example, infection by MRSA (methicillin-resistant *Staphylococcus aureus*) prolongs the average hospital stay by four to fourteen days, producing an increase in variable costs from between €10,000 and €36,000 per patient(3).

In Italy, the resources absorbed by the handling of nosocomial infections amount to 0.8% of GDP, generating additional health-care spending of about €1 billion. The cost, associated mainly with the increase in the number of days of hospitalization, can vary from €4,000 (for a patient hospitalized in the department of medicine) to €28,000 (for a patient in intensive care)(4). In fact, the highest frequency of nosocomial infections can be found in intensive care units, making the need, from an economic standpoint, for a program of infection control even more urgent in these departments.

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<th>Risk Factors</th>
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<td>The increase in infection-related health activity is the result of a gradual increase in specific risk factors such as antibiotic pressure and the greater complexity of patients’ conditions. Despite their strong impact, both socially and economically, the surveillance systems and programs currently deployed for the prevention of nosocomial infections are quite dishomogeneous and, in many situations, do not exist at all.</td>
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<td>There are two main discriminating factors in this critical situation. The first relates to the chronic lack of funds for a serious policy of prevention, along the lines of those adopted in other Northern European countries, particularly in terms of an effective screening process. The second concerns the lack of accurate knowledge and widespread awareness on the part of health-care operators who are apparently unable to see the problem, in its complexity, as a factor that impacts on all health-care processes, be that at regional or hospital level.</td>
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<td>Another crucial element to consider is the emergence of bacterial strains resistant to antibiotics, given the widespread use of these drugs as a prophylactic or a therapeutic regimen.</td>
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<td>Among the Gram-positive strains of bacteria, those with greater resistance to antibiotics are methicillin-resistant <em>Staphylococcus aureus</em> (oxacillin), coagulase-negative methicillin- resistant staphylococci, beta-lactam- and multidrug-resistant pneumococci, and vancomycin-resistant Enterococci.</td>
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<td>Among the Gram-negative bacteria, the most worrying problems are now represented by the spread of enterobacteria, especially the carbapenemase-producing <em>Klebsiella pneumoniae</em>, the Enterobacteriaceae-producing extended-spectrum beta-lactamases (ESBLs; e.g., <em>Klebsiella pneumoniae</em>, <em>Escherichia coli</em>, <em>Proteus mirabilis</em>), as well as high-level resistance to third-generation cephalosporins among species of Enterobacter and <em>Citrobacter freundii</em>, the observed multiresistant <em>Pseudomonas aeruginosa</em>, Acinetobacter and <em>Stenotrophomonas maltophili</em>(1).</td>
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<th>What Can Be Done to Tackle Hospital Infections</th>
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<td>An evaluation of reports published worldwide indicates that nosocomial infection rates could potentially be reduced by anything from 10% to 70%. The most significant effect would be obtained at the level of catheter-related bloodstream infections. According to some estimates, at least 20% of all nosocomial infections of this kind could be prevented(5).</td>
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In Italy, indications and recommendations in this regard have been given (6, 7), but the problem of implementing the necessary measures in different hospitals remains the same (8). In addition to this problem, the lack of a common approach to the methods of detection of nosocomial infections creates a widespread lack of homogeneity, which is not conducive to the adoption of common approaches.

For there to be a solution to the problem of health-care-associated infections, corporate directorates should entail, within a specific prevention program, the implementation of active surveillance systems capable of avoiding both the inception and the spread of hospital infections.

It is therefore necessary to set up special control programs at the national, regional, and local levels to ensure the implementation of such measures as a serious policy of prevention-assisted screening to minimize the risk of infectious complications, in the same way that it is necessary to deploy strategies—in specialized facilities, both at hospital and territorial levels—that can lead to the savings and efficiencies that only a serious screening-assisted prevention policy can produce.

Today, thanks to research, development, and data from industry experience gained in various fields, we can address this issue with innovative solutions that can minimize the impact of nosocomial infections, both in terms of the risks to patients and operators and in terms of costs related to the onset of the same. Currently employed medical devices are increasingly able to prevent any possible contagious infections that can occur during their usage. Likewise, in in-vitro diagnostics, there are solutions that make it possible to identify accurately the organisms responsible for infections and to avoid the transmission that could cause serious problems within the health facility.

From an economic point of view, this is an investment which not only can be amortized over time but which can also help cut costs associated with the treatment of infections acquired in hospitals.

An adequate and concerted plan of prevention and the correct use of available tools are integral to the growth of a health system that pursues the primary objective of public health and patient care.

June 2011

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