A nosocomial infection also called ‘hospital acquired infection’ can be defined as an infection acquired in hospital by a patient who was admitted for a reason other than that infection or an infection occurring in a patient in a hospital or other health care facility in whom the infection was not present or incubating at the time of admission. This includes infections acquired in the hospital but appearing after discharge, and also occupational infections among staff of the facility. Nosocomial infections occur worldwide and affect both developed and resource-poor countries. Infections acquired in health care settings are among the major causes of death and increased morbidity among hospitalized patients. They are a significant burden both for the patient and for public health. A prevalence survey conducted under the auspices of the World Health Organization (WHO) in 55 hospitals of 14 countries representing 4 WHO Regions (Europe, Eastern Mediterranean, South-East Asia and Western Pacific) showed an average of 8.7% of hospital patients had nosocomial infections. At any time, over 1.4 million people worldwide suffer from infectious complications acquired in hospital. The highest frequencies of nosocomial infections were reported from hospitals in the Eastern Mediterranean and South-East Asia Regions (11.8 and 10.0% respectively), with a prevalence of 7.7 and 9.0% respectively in the European and Western Pacific Regions. The most frequent nosocomial infections are infections of surgical wounds, urinary tract infections and lower respiratory tract infections. The study by WHO and others have also shown that the highest prevalence of nosocomial infections occurs in intensive care units and in acute surgical and orthopedic wards. Infection rates are higher among patients with increased susceptibility because of old age, underlying disease, or chemotherapy.

Risk stratification:
Acquisition of nosocomial infection is determined by both patient factors, such as degree of immunocompromise, and interventions performed which increase risk. The level of patient care practice may differ for patient groups at different risk of acquisition of infection. A risk assessment will be helpful to categorize patients and plan infection control interventions. Hand washing products, insufficient knowledge of staff about risks and procedures, too long a duration recommended for washing, and the time required.

Prevention:
Prevention of nosocomial infections is the responsibility of all individuals and services providing health care. Everyone must work cooperatively to reduce the risk of infection for patients and staff. This includes personnel providing direct patient care, management, physical plant, provision of materials and products, and training of health workers. Infection control programs are effective provided they are comprehensive and include surveillance and prevention activities, as well as staff training. There must also be effective support at the national and regional levels.

National or regional programs
The responsible health authority should develop a national (or regional) program to support hospitals in reducing the risk of nosocomial infections.

Hospital programs
The major preventive effort should be focused in hospitals and other health care facilities. Risk prevention for patients and staff is a concern of everyone in the facility, and must be supported at the level of senior administration. A yearly work plan to assess and promote good health care, appropriate isolation, sterilization, and other practices, staff training,
and epidemiological surveillance should be developed. Hospitals must provide sufficient resources to support this program.

Infection Control Committee
An Infection Control Committee provides a forum for multidisciplinary input and cooperation, and information sharing. This committee should include wide representation from relevant programs: e.g. management, physicians, other health care workers, clinical microbiology, pharmacy, central supply, maintenance, housekeeping, training services. The committee must have a reporting relationship directly to either administration or the medical staff to promote program visibility and effectiveness. In an emergency (such as an outbreak), this committee must be able to meet promptly. It has the following tasks:

- to review and approve a yearly program of activity for surveillance and prevention
- to review epidemiological surveillance data and identify areas for intervention
- to assess and promote improved practice at all levels of the health facility
- to ensure appropriate staff training in infection control and safety
- to review risks associated with new technologies, and monitor infectious risks of new devices and products, prior to their approval for use
- to review and provide input into investigation of epidemics
- to communicate and cooperate with other committees of the hospital with common interests such as Pharmacy and Therapeutics or Antimicrobial Use Committee, Biosafety or Health and Safety Committees, and Blood Transfusion Committee.

Infection control professionals (infection control team)
Health care establishments must have access to specialists in infection control, epidemiology, and infectious disease including infection control physicians and infection control practitioners (usually nurses). In some countries, these professionals are specialized teams working for a hospital or a group of health care establishments; they may be administratively part of another unit, (e.g. microbiology laboratory, medical or nursing administration, public health services). The optimal structure will vary with the type, needs, and resources of the facility. The reporting structure must, however, ensure the infection control team has appropriate authority to manage an effective infection control program. In large facilities, this will usually mean a direct reporting relationship with senior administration. The infection control team or individual is responsible for the day-to-day functions of infection control, as well as preparing the yearly work plan for review by the infection control committee and administration. These individuals have a scientific and technical support role: e.g. surveillance and research, developing and assessing policies and practical supervision, evaluation of material and products, control of sterilization and disinfection, implementation of training programs. They should also support and participate in research and assessment programs at the national and international levels.

Infection control manual
A nosocomial infection prevention manual, compiling recommended instructions and practices for patient care, is an important tool. The manual should be developed and updated by the infection control team, with review and approval by the committee. It must be made readily available for patient care staff, and updated in a timely fashion. Prevention of nosocomial infections requires an integrated, monitored, program which includes the following key components: limiting transmission of organisms between patients in direct patient care through adequate hand washing and glove use, and appropriate aseptic practice, isolation strategies, sterilization and disinfection practices, and laundry controlling environmental risks for infection protecting patients with appropriate use of prophylactic antimicrobials, nutrition, and vaccinations limiting the risk of endogenous infections by
minimizing invasive procedures, and promoting optimal antimicrobial use surveillance of infections, identifying and controlling outbreaks prevention of infection in staff members enhancing staff patient care practices, and continuing staff education. Infection control is the responsibility of all health care professionals — doctors, nurses, therapists, pharmacists, engineers and others.

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