Introduction
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Transmission of infection from one individual to another occurs easily when a large number of sick people are under one roof.

Historically, hospitals have a notorious reputation for infection. The hazards of puerperal sepsis and the horrors of septic infection in the pre-Listerian era have been well documented; admission to hospital in the mid 19th century was associated with the fear of gangrene and death.

Since that time, surgical and medical techniques have developed dramatically, basic standards of building and hygiene have greatly improved and the identification and treatment of most infecting micro-organisms has become possible. Despite such changes infections acquired in hospitals remain a major cause of morbidity and mortality, leading directly or indirectly to an enormous increase in the cost of hospital care and to the emergence of new health hazards for the community. Although the pattern of serious systemic infections treated in our hospitals has changed from predominantly community acquired illness in the 1940's and 50's to a preponderance of nosocomial infections in the 1990's, management of infection still remains a major preoccupation of hospital staff. Advances in biomedical technology and therapeutics are producing greater number of highly susceptible patients requiring treatment in hospitals and this is aggravated by the occurrence of transferable resistance to antibiotics in pathogenic bacteria and the emergence of new pathogens transmitted by a variety of routes.

Today there are a substantial number of patients in the wards who are admitted to the hospital for non-infectious conditions; who have received effective but potentially immunocompromising or immunosuppressive treatment or have been subjected to invasive procedures and have acquired infection in the hospital that is often resistant to most common antibiotics.
Despite half a century of availability of powerful antibiotics, infections remain almost as important a problem in our hospitals today as they ever were. Yet, in the last fifty years there has been a major change in the kind of infections commonly found in the hospital. This extent of change is perhaps most visible in the large tertiary care center and in the burgeoning private sector hospitals in the larger cities.

The term nosocomial comes from the Greek nosokomeion, (nosos = disease; komeion = hospital).

Definition:

Hospital acquired infection (HAI) or nosocomial infections can be defined as any clinical infection that was neither present nor in the incubation period when the subject entered the hospital and caused by micro-organisms acquired during a stay in a health care set up after 48 to 72 hours of admission in hospital.

HAI is an important cause of morbidity and mortality among hospitalized patients thus becoming a serious and significant hazard in health care facilities all over world. The global burden of HAI can be gauged from the fact that it has been recognized as the fourth most important cause of death after heart disease, cancer and stroke. Some developed countries have considered prevention and control of nosocomial infections as one of the goals of the year 2000. Present estimate world over suggests that a total of more than 1.4 million people are suffering from HAI (Chandrasekhar, 1992). In India, as there is no central reporting system, national statistical data on infection in hospitals are not available, but ample evidence exists to indicate the magnitude of the problem (Ashok Rattan, 1992).

Inspite of being preventable, nosocomial infections in India have been largely ignored. The scarcity of published information in developing countries is due
to a lack of awareness and an underestimation of the problem. Research and control programmes have not kept pace with the awareness.

The problem of nosocomial infections has been reviewed by the Ministry of Health and Family Welfare, Government of India from time to time. Despite the fact that importance of prevention and control of nosocomial infection has been recognized at the highest level, the exact incidence of hospital acquired infections in our country is not known.

A variety of pathogens are responsible for causing HAI. Aerobic bacteria such as *Escherichia coli*, *P. aeruginosa*, *Enterococcus faecalis*, *S. aureus*, Coagulase negative Staphylococcus, Enterobacter spp, Proteus spp, Serratia spp, Legionella spp, Salmonella spp, Shigella spp, Mycobacterium spp. Acinetobacter spp, *Clostridium difficile* and *Helicobacter pylori*; Anaerobic bacteria such as Bacteroides spp, *Clostridium perfringens* and Peptostreptococci; Viruses (Rota virus, RSV, Cytomegalovirus, Herpes simplex virus, Influenza, Parainfluenza, Adenovirus, Rhino virus, HIV Hepatitis B, Hepatitis C, Rubella, Papilloma virus), Fungi (Candida sp, Aspergillus sp, Torulopsis, *Pneumocystis carinii*, Cryptosporidium), Parasites (*Toxoplasma gondii*, *Isospora belli*). As tuberculosis is a significant problem in India, consequences of a combination of tuberculosis and HIV infection can be devastating.

The infections most commonly acquired in hospitals are surgical site infections (SSI) or postoperative wound infections (PWI), infections of the urinary and respiratory tract and bacteraemia. Postoperative wound infection (PWI) remains the commonest nosocomial infection next to urinary tract infection (UTI) and constitute about one-fourth of nosocomial infections. According to various studies from different countries the incidence of postoperative wound sepsis or surgical site infections (SSI) ranges mainly between 3 and 21% (Mandal et al, 1997; Kam and Mak, 1993; Emmerson, 1996; Murphy et al, 2000; Pavia et al, 2000; Aavitsland et al, 1992; Kotisso et al, 1998; Anvikar et al, 1999). In India the
incidence rate of postoperative wound sepsis in different hospitals varied from 10-33% (Rattan, 1992).

Approximately 50% of the surgical wound infection rates found in literature are substantially underestimated because often these infections develop after patients have been discharged from hospital (Emori et al, 1993). Further, many surgical procedures are performed in the outpatient setting, where surveillance for infection is rarely performed.

Surgical wound infections are an important cause of increased morbidity and significant mortality. In the developed countries 1 in 10 of the nosocomially infected die of infection and another, 3 in 10 are believed to contribute significantly to the mortality of patients. They are associated with extended hospital stay varying from 5 to 24 days and additional hospital costs. Surgical wound infection increased the duration of hospital stay by 62 to 113% and cost of hospitalization by 20 to 98%. Unless rapid therapy is instituted a high mortality rate of 60 to 80% has been reported. Eighteen percent of the patients who develop PWI have residual disabilities that persist for more than 6 months. This results in loss of earning and hardships to patients and their families.

In order to bring nosocomial surgical site infection under control a multipronged approach is necessary to delineate various pathogens involved, overlapping clinical manifestations and interacting risk factors responsible for morbidity and mortality due to PWI.

Therefore, an understanding of the agents involved requires a systematic approach to diagnose HAIs in the hospital admitted patients, isolation of the pathogens to determine their prevalence and recognition of the factors which will ultimately influence the control of HAI. Preventive strategies can be evolved based on data gathered from different wards in the hospital. This will result in meaningful control measures at the regional level of this global problem.
In India, except for incidence rates, limited data is available from different health care centres regarding epidemiological surveillance of surgical site infections. There is lack of information regarding the types of hospital infections prevalent in JIPMER hospital and also prevalence of aerobic and anaerobic bacterial pathogens causing infection among hospitalized patients. Information on prevalence of antibiotic resistance among nosocomial pathogens is also lacking. These lacunae are due to lack of understanding and absence of systematic documentation.

This study was designed to address some of these issues, especially aerobic and anaerobic bacteriologic agents involved in SSI among postoperative patients in the general surgery ward of JIPMER hospital. An attempt was made to identify predominant nosocomial infections, the pathogens and their drug resistance pattern. This study may elicit information regarding the source of surgical site infections and their transmission among patients in this hospital and will enable us to take up appropriate control measures.