SUMMARY & CONCLUSION
SUMMARY AND CONCLUSIONS:

This study embodies our observation on the nosocomial infections of newborn and burns in this hospital. An attempt has also been made to study the different factors which lead to high incidence of newborn infection and burns infection.

Infections are a frequent and important cause of morbidity and mortality in hospitalized patients.

In our study 72 newborn infants showed presence of nosocomial infections.

The infection rate was 48%

Total surface infections accounted for 20.83% and septicaemia, meningitis, diarrhoea, together accounted for 79.17%.

The site of infection in order of frequency were

- Septicaemia - 59.72%
- Omphalitis - 18.06%
- Diarrhoea with (thrush and conjunctivitis) - 9.72%
- Meningitis - 5.55%

535
Jaundice 4.17 %
Pustules 1.39 %
Staph. Scalded Syndrom 1.39 %

Out of 72 cases of newborn nosocomial infection male (62.5%) were predominant compared to females (37.5%), with male : female ratio 1.67 : 1. Sixty cases (83.33 %) were having lowbirth weight.

Klebsiella pnemoniae (51.16 %) was predominant organism in septicaemia followed by Coagulase negative Staphylococci (18.6 %). Pseudomonas aeruginosa (16.28 %). Gram negative septicaemia was more predominant (72.09 %) than Gram positive septicaemia (27.09 %).

In surface infections Omphalitis (18.06 %) was commonest followed by diarrhoea and meningitis.

Based on epidemiological study high incidence of Staphylococci was observed amongst nurses and paramedical staff. Phage pattern of Staphylococcus aureus isolated from newborns, staff and environmental sources showed phage type 29 of Grp. I was common in patients and nose of staff. phage type 3A of Grp II was common in patients and staff; while 81, 53 and 47 of grp. III were common in patients, staff and environment.
Pyocine types of *Pseudomonas aeruginosa* isolated from newborns, staff and environment of newborn nursery showed predominance of pyocine type 1 (19.29 %) in patients, staff and environment, followed by pyocine type 6 (14.29 %) in patients and environment.

Pyocine type 8 (10.0 %) in patients and environment

Pyocine type 2 (9.29 %) in patients, staff and environment.

Of 177 strains of *Pseudomonas aeruginosa* isolated from patients, nursery staff and environment 20.9 % strains were nontypable.

Based on antibiogram of organisms isolated from patients, staff and environment it was observed that they are closely related to each other.

Antibiogram of isolates of patients, staff and environment showed Staphylococcus was most sensitive to Gentamycin and showed high resistant to methicillin. *Pseudomonas aeruginosa* was the most resistant to most of antibiotics except polymyxin - B.

Immunoglobulin levels in cord sera of premature showed mean IgG levels 710.4 mg/100 ml and in fullterm 1265 mg/100 ml. Levels of IgM and IgA in cord sera of all newborn were not detected.
Immunoglobulin in septicaemic newborn showed mean IgG 394.71 mg/100 ml. IgM was observed in 5 cases with mean value 23.4 mg/100 ml indicating intrauterine infection.

It was concluded that only premature infants and infants with low birth weight with low levels of IgG are at greater risk to infection. Hospital personnel and environment play an important part in transmission of cross-infection.

Three hundred and twenty five cases of burns of different degree of severity were studied. Females were in maximum number.

The infection rate was 52.92 %.

Invasion of blood stream was seen to be more in second week of hospital stay than in first week. The organisms repeatedly isolated from blood stream in first and second week were Pseudomonas aeruginosa, Coagulase negative Staphylococci, Staphylococcus aureus, followed by Klebsiella pneumoniae.

Burn wound culture showed Pseudomonas aeruginosa was the predominant causative organism (53.76 %) followed by Staphylococcus aureus (44.08 %), E. coli (20.16 %) Coagulase negative Staphylococci (13.97%) Proteus spp. (11.29 %) and
Klebsiella pneumoniae (10.75 %) Betahaemolytic streptococci (7.25 %) Candida albicans (1.61 %).

Staphylococcus was predominant in upper ½ of body while lower half of body showed predominance of gram negative bacilli.

Other samples from burn patients showed predominance of E. coli (41.67 %) in urine, Pseudomonas aeruginosa (48.78 %), in faeces, Staphylococcus aureus and betahaemolytic Streptococci (23.34 %) in sputum.

High incidence of nasal carriage (83.82 %) was observed amongst nurses and paramedical staff. The organisms isolated from hospital environment were Staphylococcus aureus and gram negative bacilli mainly Pseudomonas aeruginosa.

Phage patterns of Staphylococci isolated from patients, staff and environment of burn ward showed phage type 29 of Grp I was common in patient and staff, phage type 3A of Grp. II was common in patient, staff and environment, while phage types 81, 53, 47 of grp III were common in patients wound and environment.

Pyocine typing of Pseudomonas isolated from burn patients, staff and environment showed predominance of pyocine type 1...
(25.77 %) followed by pyocine type 2 (9.91 %), pyocine type 7 (9.91 %) and pyocine type 6 (8.47 %) were seen in patients and environment.

Of 659 strains isolated from patients, staff and environment of burn ward, 15.78 % were non-typable.

It was concluded that hospital strains of Staphylococcus aureus of phage types 29, 3A, 47, 53 and Pseudomonas aeruginosa pyocine type 1 and 2, 6, 7 were prevalent in this hospital environment.

Based on antibiogram of isolates from staff patients and environment of burn ward it was observed that they are closely related to each other.

Host defence of burned patient are compromised to a considerable extent. This compromising effect varies in inverse proportion to the extent of burns. Immunoglobulin levels are depressed reaching a nadir on one to three days after burns and gradually recovering at the end of second week.

The IgG levels were - 628.8 mg/100 ml
IgA levels were - 55.70 mg/100 ml in 45 % to 60 % burn.
IgM levels were - 65.46 mg/100 ml >
C₃ levels were observed below normal (<42 IU/ml).

It was concluded that newborn infants and burn patients are immuno compromised and are prone to infection; and hospital personnel and environment play an important role in transmission of infection. We have concluded that major mode of hospital infection is cross-infection.

In concluding the subject of hospital infection in newborn infants and burns, one has to say that hospital infection is a complex phenomenon with dimensions that are real significant and are continuing and changing.

Infections continue to be a serious problem of world wide scope. Infections seen in the hospital are only the tip of iceberg and extensive and exhaustive studies are needed to explore yet unknown facet of this multifaceted problem.

We probably would never entirely eliminate infections in hospitalized patients, because it is impossible to render human beings bacteriologically sterile. Opportunistic pathogens awaiting their chance in compromised host will always be present in hospitals. It is more reasonable to expect that we may more completely understood the reasons for these infections, prevent most of them and diagnose
quickly and treat them effectively.

Sir William Osler's aphorism that 'Soap, water and common sense are the best disinfectants' applies even today in the context of hospital infection, - [Ananthanarayan and Panikar (1990)].

A ray of hope is seen in the studies of Mary Barber (1961) "With the present knowledge of hospital infection, one has to agree that however, whatever may be the changing pattern, hospital cross-infection has remained a problem of yesterday and today, if enough people take it seriously there is no reason why it should continue tomorrow."