SUMMARY AND CONCLUSIONS
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The microbiological investigations on 1858 clinical specimens obtained from suspected nosocomial transmission yielded 478 isolates. Gram-negative organisms outnumbered gram-positive isolates. Specimens like pus and sputum had predominance of gram-positives while urine and blood yielded more gram-negative organisms in culture. Nosocomial occurrence of Enterobacter spp. was established by its isolation in 37 cases. Enterobacter cloacae was found to be more prevalent than any other Enterobacter species. The antibiogram exhibited high degree of resistance to older generation of β-lactam antibiotics and aminoglycosides while increasing trend of resistance to cephalosporines and newer β-lactams threatens to disrupt therapeutic approaches.

Enterobacter spp. appear well adapted for survival and proliferation in the new millennium. The genus Enterobacter will continue to increase in medical significance in near future owing to its role in nosocomial infection. Options for control of these organisms require meticulous attention to principles of antisepsis, which may reduce the occurrence of the relatively infrequent outbreaks that are traceable to human vectors or environmental contamination.

Selective decontamination of the gastrointestinal tract and avoidance of the use of agents that lower the gastric pH to reduce oropharyngeal colonization are rational, but unproven. Such approaches require controlled clinical trials.
The evidence that *Enterobacter* spp. including multiplication of resistant strain, are increasingly important etiologic agents in community-acquired pneumonia in Spain and are responsible for soft tissue and urinary tract infections in otherwise healthy individuals in North America, is indeed disquieting. Community-acquired infections have been largely overlooked, and very limited data exists in this area.

The changing taxonomy of the genus *Enterobacter* has expanded the number of species recognized without a concomitant increase in our knowledge of the pathogenicity, disease spectra, and resistance patterns of newly described species. Of paramount concern is the needed redefinition of species assigned to the genus *Enterobacter*, which, when completed, should allow for better species identification and association of pathogenic types with disease. The increasing level of antimicrobial resistance, seen in the major species of this genus, is a sign of future problems in the treatment of serious *Enterobacter* infections.

If resistance to imipenem and the fluoroquinolones begins to appear, physicians will be left with a dwindling armamentarium of antimicrobial agents to treat infections caused by strains with ESBL activity.

Many other fundamental questions remain unanswered. What pathogenic mechanism(s) sets *Enterobacter* spp. apart clinically from other gram-negative enteric bacilli? What favours the survival and transmissibility of the organism in solutions and on surfaces of caterers or medical devices? What are the mechanisms and factors favouring the emergence of resistance to “fourth generation” cephalosporins, carbapenems, and fluoroquinolones? Can
further emergence of resistance be minimized? What control or controls the expression of the inducible β-lactamase in Enterobacter spp.? Only with additional basic research innovative approaches may be designed for therapy and ultimately for prevention.

When hospital (ICU) outbreaks of Enterobacter infections occur, isolation and barrier protection should be implemented. Hand washing by health care workers between contacts with patients will prevent transmission of these (and other) nosocomial bacteria. This is particularly true in ICUs. Prior antibiotic administration is a major factor for colonization and secondary infections with these multiple-antibiotic-resistant organisms. Clinicians are well advised to avoid unnecessary administration of antimicrobial agents or to avoid unnecessary prolonged administration. For surgical prophylaxis, administration of antibiotics for longer than 24 hours rarely is justifiable.

Education programs for physicians and hospital personnel regarding risk reduction for transmission of Enterobacter and other nosocomial pathogens should be implemented in every hospital. This is usually the responsibility of the infection control team.

Appropriate antibiotic prescription, proper monitoring of bacterial resistance and good infection-control practices are among the most important measures that should be in place in each hospital. Laboratory microbiologists, infectious diseases clinicians, pharmacists, hospital epidemiologists, and hospital administrators can help. Funding should be sufficient to permit attaining a reduction in bacterial resistance and a reduction in the transmission of nosocomial pathogens among patients.
Finally, the common occurrence of *Enterobacter* spp. in contaminated water bodies with or without faecal origin warrants a close monitoring. It could open new vistas in understanding growing reputation of *Enterobacter* spp. as nosocomial pathogen.

*To the best of my knowledge no scientific and medical data from Chhattisgarh region is available to quantify the prevalence of members of the family *Enterobacteriaceae* in various clinical infectious disorders, especially in suspected cases of hospital-acquired infections. It would be further significant and shall act as an indicator for increasing infectious status of hitherto uncommon organisms like *Enterobacter*. The study on bacteriological index of water sample shall help in monitoring the state of water-pollution and safety of sources of drinking water. This study is also expected to give impetus to the microbiological research, which is presently in its nascent stage in Chhattisgarh region. It promises to open new vistas and encourage studies on issues, which directly relate to the health and well being of the people of Chhattisgarh region.*