The present study is divided into two parts namely retrospective (2004-2008) and prospective (July 2009-December 2009) analysis of septicemia.

PART A

RETROSPECTIVE ANALYSIS OF SEPTICEMIA CASES ADMITTED AT MAJEEDIA HOSPITAL (2004-2008)

3A. AIMS AND OBJECTIVES

- To study the incidence of septicemia in hospitalized patients at Majeedia Hospital.
- To identify the microbial strains responsible for septicemia in hospitalized patients at Majeedia Hospital.
- To observe the pattern of antibiotic sensitivity and resistance among admitted patients of septicemia.
- To study the prevalence of multidrug resistant (MDR) cases of septicemia.
3A.1. Clinical Application

Retrospective clinical chart review on pharmacotherapy of septicemia provides better information for the research opportunities in the areas of epidemiology, bacterial sensitivity and resistance. This helps in selection of suitable antibiotic before the availability of culture report as there is seriousness of the patients and shortage of time.
4A. STUDY DESIGN AND METHODOLOGY

4A.1. Study design

The present study was conducted at Majeedia Hospital (University Hospital, Jamia Hamdard), New Delhi, India. It was a retrospective study covering the period during January 2004 to December 2008.

4A.2. Study population

During the five year period, 5518 patients out of 32327 admissions with clinical presentation of septicemia admitted in different units, namely Medicine, Nursery, Pediatrics, ICU, Orthopedic, Dialysis and Surgery at Majeedia Hospital were evaluated. The research protocol was approved by Jamia Hamdard Institutional Review Board (Approval Letter No. 07/09, JH-IRB dated July 2009) and written informed consent was waived because this was an observational study, so there were no risks involved due to retrospective nature of the study. These data consisted of routine laboratory and procedure results, antibiotic sensitivity and resistance and overall level of health that have been recorded in the subject’s medical record. The waiver of written informed consent has not adversely affected the rights and welfare of the research subjects.

Inclusion criteria included either sex, all age groups and patients with diagnostic criteria of septicemia. Exclusion criteria included patients not admitted in the inpatient hospital ward, patients who expired within four hours of admission and patients classified as do not resuscitate or do not treat. From 1186 septicemia confirmed patients (21.5% of 5518 patients), 1226 bacterial strains were isolated and were evaluated for antimicrobial sensitivity as some had polymicrobial infections. The data collected included the number of patients, number of confirmed cases with their age, sex, culture along with their sensitivity reports.

4A.3. Identification of organisms and susceptibility testing

The processing of blood samples for culture and isolate identification was done by standard methods (Collee et al., 1996). Susceptibility of the bacterial isolates to
different antimicrobials was determined using Kirby Bauer disc diffusion method as per Clinical and Laboratory Standards Institute (CLSI, formerly NCCLS) guidelines (CLSI- M2-A9, 2006). On separate plate of Mueller-Hinton agar medium, controls were tested with same antibiotic discs and zones of inhibition were compared. Antibacterials used to test the susceptibility of organisms were penicillin G (2IU), ampicillin (10μg), amoxicillin (30μg), amoxiclav (20:10μg), cephalexin (30μg), cefuroxime (30μg), cefoxitin (30μg), cefaclor (30μg), cefotaxime (30μg), ceftriaxone (30μg), ceftazidime (30μg), cefoperazone (75μg), gentamicin (10μg), amikacin (30μg), netilmicin (30μg), ciprofloxacin (5μg), ofloxacin (5μg), gatifloxacin (5μg), chloramphenicol (30μg), tetracycline (30μg), erythromycin (15μg) and vancomycin (30μg). Penicillin G, erythromycin and vancomycin were not tested against Gram-negative organisms.

Multidrug resistance was defined as resistance to 3 or more classes of antimicrobial agents (CLSI- M2-A9, 2006).

4A.4. Statistical analysis

Statistical analysis was done by means of Pearson Chi-Square test for trend or Exact test for trend (calculated on actual data), where appropriate. In case of binomial data p-value for independence were calculated. All tests of significance are two tailed and statistical significance was set for p<0.05. All statistical analysis was performed using the Statistical Package for Social Sciences 16.0 (SPSS 16.0, Chicago, IL, USA).