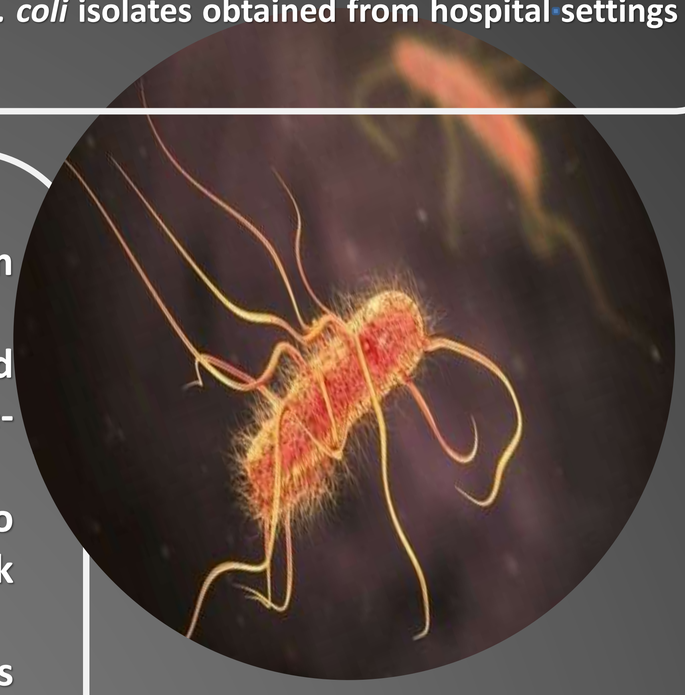
Prevalence and Molecular Characterization of Escherichia coli Strains Isolated from pus Samples

Riyane Rihane 3 , Abla Hecini-Hannachi 1 , Bentchouala Chafia 1,2 , Benlabed Kaddour 1,2
1. University of Salah Boubnider Constantine 3, Faculty of Medicine, Department of Medicine, Constantine, Algeria
2 . Bacteriology Laboratory of Benbadis University Hospital in Constantine, Algeria
3. Molecular and cellular biology laboratory, University of Mentouri Brothers Constantine 1,Constantine, Algeria

Introduction and Objective:

Introduction: ***Escherichia coli*** **(*E. coli*) infections have become increasingly challenging to treat due to rising antibiotic resistance, leading to higher morbidity, mortality, and healthcare costs. Understanding the molecular epidemiology and resistance mechanisms of *E. coli* is crucial for effective infection control and treatment strategies.**

Objective: This study aims to investigate the molecular epidemiology and resistance mechanisms of *E. coli* isolates obtained from hospital settings in Algeria.



Materials and Methods:

Source of isolates: Clinical samples were collected from patients admitted to hospitals in Algeria.

Bacterial identification method: Isolates were identified using Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF MS).

Antibiotic susceptibility testing: Susceptibility to antibiotics was determined for all isolates using the disk diffusion method.

Molecular analysis of antibiotic resistance genes: PCR was performed to detect the presence of antibiotic resistance genes, including CTX, TEM, and SHV.

E C O L I

Results and Discussion:

Overview: Over a 6-month period, 39 *E coli* strains were isolated from pus samples, predominantly from intensive care units(ICU).

Demographic data: Male patients accounted for 65% of cases, with a male-to-female ratio of 1.85. Patients ranged in age from 0 to 10 years.

Prevalent antibiotic resistance genes: CTX, TEM, and SHV were identified as the most prevalent antibiotic resistance genes.

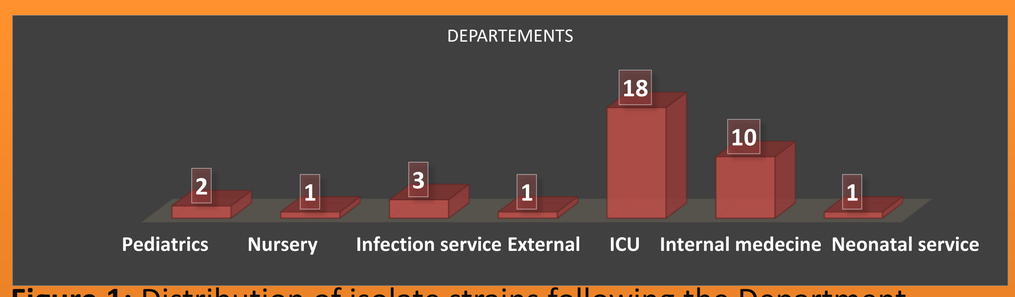


Figure 1: Distribution of isolate strains following the Department.

Discussion: The findings underscore the alarming levels of multidrug resistance in E. coli, particularly in nosocomial infections. Strategies for enhanced patient monitoring, antibiotic stewardship, and infection control are imperative to mitigate morbidity and mortality rates associated with *E. coli* infections.

Conclusion:

This study highlights the increasing challenge of *E coli* resistance and emphasizes the need for robust infection control measures and antibiotic stewardship programs to address this issue effectively.

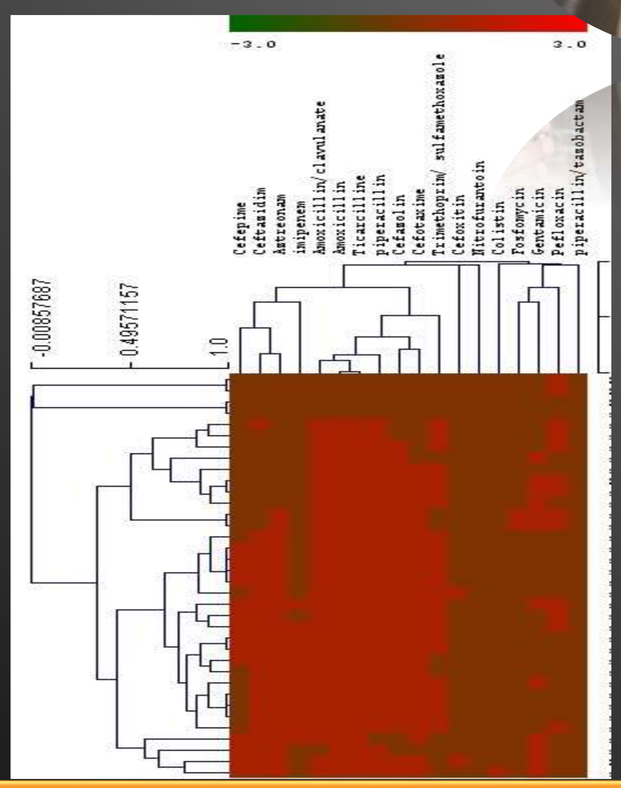


Table : Antibiotic susceptibilities of *E coli Strains;* red color for Resistance, green for non resistance strains