Background: The gastrointestinal tract of humans is a major reservoir of ESBL producers and it serves as a site for the horizontal spread of resistant genes. The carriage of these species is related to the hospitalization and antibiotic consumption.

Methodology: 100 faecal samples were processed to culture and identify the normal flora of gut and were subjected to antibiotic susceptibility test. ESBL detection was carried out by screening test and phenotypic confirmatory double disc diffusion test.

Results: ESBL carriage rate in E. coli and Klebsiella were 31.5% and 29.03% respectively. High degree of resistance to antibiotics and high ESBL carriage rate was observed in strains isolated from patients with prior antibiotic treatment.

Conclusion: Increased prevalence of high resistance and ESBL carriage in Enterobacteriaceae.
Amongst 31 Klebsiella isolates 9 (29.03%) strains were ESBL producers. Similarly in Klebsiella, ESBL producing strains were more resistant to antibiotics like Cefuroxime (88.88%), Ciprofloxacin (77.77%), Cefotaxime (100%), Ofloxacin (55.55%) as compared to ESBL non-producing strains which were resistant to Cefuroxime (47.83%), Ciprofloxacin (68.19%), Cefotaxime (26.09%), Ofloxacin (50%).

Out of 31 Klebsiella species isolated 13 (41.93%) were isolated from patients with prior antibiotic treatment. Out of these 13 Klebsiella species, 7 (53.84%) were ESBL producers. And 18 (58.06%) strains were isolated from patients with no prior antibiotic treatment out of which 2 (11.12%) were ESBL producers.

Klebsiella species isolated from patients with prior antibiotic treatment were significantly more resistant to antibiotics like Cefuroxime (84.62%), Ciprofloxacin (76.93%), Cefotaxime (61.94%), Tetracycline (30.77%) as compared to strains isolated from patients with no prior antibiotic treatment which was resistant to Cefuroxime (33.33%), Ciprofloxacin (33.33%), Cefotaxime (33.33%), Ofloxacin (22.22%), Tetracycline (27.77%).

DISCUSSION:
E. coli and Klebsiella species are normal inhabitants of the gut but they are possible endangerous sources for several infections such as urinary tract infection, bacteremia, septicaemia etc. Present study showed faecal carrier rate of E. coli was 60.83% and Klebsiella species was 25.83% which were the most common organisms isolated among hospitalized patients.

This study showed that 31.5%(23/73) were ESBL producing E. coli. These 23 ESBL producing E. coli isolates were subjected to antibiotic susceptibility testing against oral antibiotics. It showed that 100% strains were resistant to Cefotaxime, 77.77% to Ciprofloxacin, 88.88% to Cefuroxime. They were all sensitive to Cefotaxime and Amoxycylav. Out of 31 isolates of Klebsiella species, 13 were isolated from patients with history of prior oral antibiotic treatment within one month of sample taken out of which 53.84% were ESBL producers. Majority of these strains were resistant to Cefotaxime, Ciprofloxacin, Cefuroxime and all were resistant to Amoxycylav.

In a study by Kassu Desta, et al., E. coli (79.7%) and Klebsiella pneumoniae (19.5%) were one of the most significant organisms isolated from hospitalized patients and reported 45% (106/235) of ESBL producing E. coli from 267 patients. This shows that the prevalence rate of ESBL producing strains in our set up was less as compared to the percentage reported in other parts. In all strains of E. coli, 88% strains were resistant to Cefuroxime, 93% resistant to Amoxycylav, 99% to Cefotaxime, 99% to Ceftazidime, which is corresponding to present study. Their study also showed 16.9% ESBL producing Klebsiella. In all strains of Klebsiella, 80% resistivity to Amoxycylav, 95% to Cefotaxime, 100% to Ceftazidime, 48% to Ciprofloxacin was reported.

Similarly a study by Siddabathuni Aruna, et al., have reported 42.03% of ESBL producing E. coli in their study carried out on 138 patients. In their another study they showed 88.6% (39/44) of ESBL producing E. coli isolated from patients with definite history of prior antibiotic use. 

Similarly in Klebsiella species 29.03% of strains were ESBL producers Among these, 55.55% strains were resistant to Ofloxacin, 77.77% to Ciprofloxacin, 88.88% to Cefuroxime. They were all resistant to Cefotaxime and Amoxycylav.

Similarity in Klebsiella species 29.03% of strains were ESBL producers. Among these, 55.55% strains were resistant to Ofloxacin, 77.77% to Ciprofloxacin, 88.88% to Cefuroxime. They were all resistant to Cefotaxime and Amoxycylav. Out of 31 isolates of Klebsiella species, 13 were isolated from patients with history of prior oral antibiotic treatment within one month of sample taken out of which 53.84% were ESBL producers. Majority of these strains were resistant to Cefotaxime, Ciprofloxacin, Cefuroxime and all were resistant to Amoxycylav.

It was observed that the normal gut flora especially E. coli and Klebsiella species show moderate to high resistance to majority of oral antibiotics and also higher prevalence of ESBL producing strains. This finding is important because colonization with MDR Gram-negative bacteria, especially ESBL producers can act as a source of infection in these patients.

Recurrent infections and cross transmission of ESBL genes can occur due to colonization of ESBL producers. The cross transmission of resistant strains in hospital might be attributed to poor hand hygiene practice, infection control measures, multibed rooms and crowded patients in a single room. Identification of patients carrying ESBL producing Enterobacteriaceae in hospitalized patients and adoption of subsequent preventive measures is suggested to prevent cross transmission and reduce morbidity and healthcare cost.

CONCLUSION
The selective antibiotic pressure leads to amplification of carriers carrying resistance genes. Admissions to intensive care units and high dependency areas may lead to colonization by such organisms. Use of invasive methods for treatment and diagnosis may increase the risk of colonization. This can lead to further spread of bacteria to other patients. It can be prevented by taking measures like hand hygiene by hospital personnel, isolation of patient in single room.

Measures can be taken to reduce the rate of carriage of ESBL by avoiding the inappropriate usage of antibiotics, strict infection control policy, prohibiting sale of antibiotics without prescription and guiding people about the hazards of overdose of antibiotics. Carriage of such ESBL producing organism is a potential risk for transmission and spread of infection particularly in healthcare settings in developing countries where infection control is inadequate.

REFERENCES
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