

# The potential sources of transmitting of hospital acquired infection by routine devices in adult ICU in Alrass general

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## Background

- Hospital acquired infections reflect as a major global safety concern for both patients and health-care professionals (1)
- The most populations under the risk are patients in Intensive Care Units(ICUs), burn units, undergoing organ transplant and neonates (2).
- Recording to the CDC's National Nosocomial Infections Surveillance (NNIS) system criteria, the three common Device-associated infections are catheter-associated urinary tract infection (CA-UTI), IV catheter-related bloodstream infection (IV-CRBSI), and ventilator-associated pneumonia (VAP) (3).

## Methodology

- This is an observational study using cross-sectional study design.
- The samples were collected using amies transport media from adult ICU, three swabs were taken from the surfaces of indwelling urinary catheter, mechanical ventilation device and central venous catheter used by each 12 patients. The samples size included a total of 36 swabs.
- The samples were then cultured immediately on blood agar and MacConkey agar then incubated at 37C for 24h .
- Each isolated bacteria was identified by using microbiologic technique: gram stain and biochemical tests.
- For further identification we used microScan WalkAway96 pulse .

## Results

- Twenty-three bacteria were isolated from a total of 36 swabs collected from three different devices.
- out of 23 bacteria isolates , nine species were identified. The most bacteria isolated were Klebsiella pneumoniae (18.37%), Acinetobacter baumannii (11.48%), Staphylococcus epidermidis (4.59%), Staphylococcus haemolyticus ( 4.59%), E.coli (4.59%), Serratia marcescens (2.3%), Pseudomonas luteola (2.3%), Kocurio kristinae (2.3%) and Photorhabdus luminscens (2.3%).

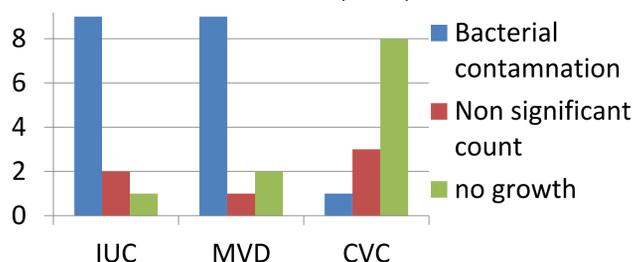


Figure.1 Distributions of bacteria among the three devices

## Results

The figure .1: shows that the indwelling urinary catheters were the most contaminated device, twelve bacteria were isolated from nine swabs ( 75%), tow swabs were non significant count ( 16.7%), and only one swab was no growth (8.3%). Following by mechanical ventilator device, ten bacteria were isolated From nine swabs ( 75%), one swab was non significant count ( 16.7%), and tow swabs were no growth (8.3%). Finally, the least contamination device were central venous catheters with only one swab with significant growth (8.3%).

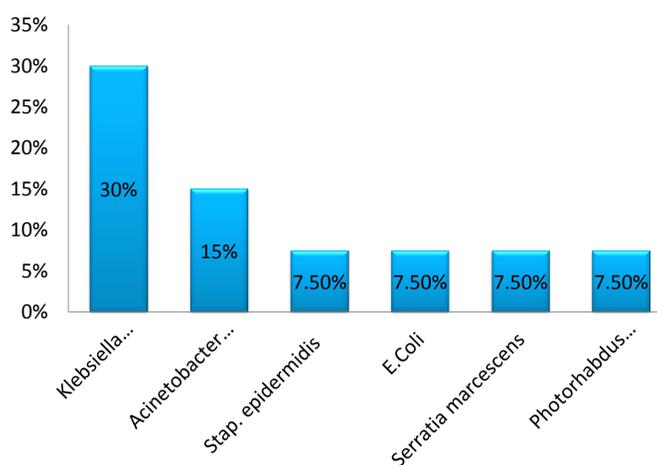
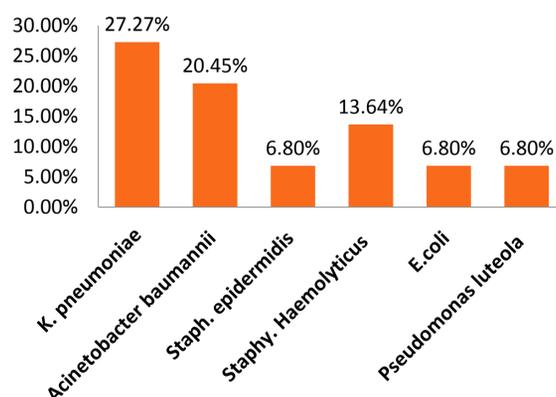
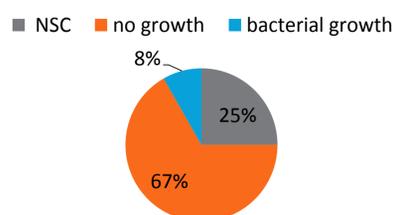


Figure.2 The percentage of bacteria found on mechanical ventilator devices .



Figur.3 The percentage of bacteria found on indwelling urinary catheters



Figur.4 The figure shows that, most swabs taken from CVC were negative ( no growth ) ( 67%), and about 25% were non significant count. Overall, one swab found with significant contaminated with Kocurio kristinae (8%).

Bacteria	Antibiotic used	Percentage
Enterobacteriaceae	Amp\sulbactam	70%
	Ceftazidime	90%
	Amikacin	60%
	Ciprofloxacin	90%
	Imipenem	70%
	Pip\tazo	70%
	Trimeth\sulfa	90%
Acinetobacter - baumannii	Amp\sulbactam	100%
	Ceftazidime	100%
	Amikacin	100%
	Ciprofloxacin	100%
	Imipenem	100%
	Pip\tazo	100%
	Trimeth\sulfa	80%

Table.1 : Resistance pattern of most isolated bacteria found in the routine devices to different type of antibiotics

## Conclusion

- This study detects a high contaminations of routine devices and resistant organisms, and appropriate interventions are necessary to reduce these rates .
- Indwelling urinary catheters were the most contaminated devises followed by mechanical ventilator devices and lest one were central venous catheters.
- The most organisms we isolated are resemble to those reported by the infection control in Alrass general hospital as a most causative organisms of Hospital acquired infections .
- depending on these results we suggest that the routine devices used in intensive car unite in Alrass general hospital may consider as a sources of transmitting of Hospital acquired infections .

## Reverences

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