

Category : **Infections + antimicrobials**

**A175 - Comparison of admission versus critical care acquired MRSA, VRE and C. Diff on patient mortality, critical care length of stay and costs**

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**Introduction:**

To compare the impact of admission versus critical care acquired MRSA, VRE and C.Diff on critical care patient mortality, LOS and costs over a 9 year period. Critical care patients are most at risk of nosocomial infection (NI), morbidity and mortality due to underlying co-morbidities, acute disease processes and increased use of interventions<sup>1,2</sup>. However, many patients are at risk of NI pre-admission to the critical care unit which also impact on patient outcomes. Limited data exist on the impact of admission versus critical care acquired NI on patient mortality, length of stay (LOS) and costs.

**Methods:**

- Retrospective analysis of adult (aged ≥18 years critical care patients (stay ≥48 hours)
- Admitted to one of three critical care units at one Central London hospital between Apr 2011–Jun 2020

**Results:**

18,864 patients were admitted to critical care during the study period. 40.2% of patients were female, mean patient age was 57.9 years with an overall patient mortality of 15.8%. Testing for MRSA, VRE and C.Diff occurred in 18,596 (98.5%), 1943 (10.4%) and 4814 (25.5%) of patients respectively. Both pre admission and critical care acquired NI increased patient mortality in VRE and C. Diff as well as length of stay and costs across all NI groups.

**Conclusion:**

This study underlines the variable impact of pre-admission versus critical care acquired pathogens on patient outcomes and impact on critical care patient care and costs. This study reinforces the importance of optimal pre-admission and critical care infection control procedures to reduce excess critical care mortality, LOS and cost.

**References:**

- 1.European Centre for Disease Prevention and Control. Incidence and attributable mortality of healthcare-associated infections in intensive care units in Europe, 2008-12. (2017) www.ecdc.europa.eu
- 2.Dasgupta, S., et al (2015) Nosocomial infections in the intensive care unit: Incidence, risk factors, outcome and associated pathogens in a public tertiary teaching hospital. *Ind Jnl of Crit Care Med.* 19(1)14-20.

**Image :**

Nosocomial Infection	Total Incidence	Pre-Admission Acquired				Critical Care Acquired				No Nosocomial infection	
		Incidence	Mortality	Median LOS	Excess Costs*	Incidence	Mortality	Median LOS	Excess Costs*	Overall Mortality	15.4%
MRSA	388	128 (32.9%)	8.5%	5 days	£1932**	260 (66.6%)	14.6%	7 days	£5796**	Median LOS	4 days
VRE	428	233 (54.4%)	29.2%	5 days	£1932**	195 (45.4%)	27.0%	14 days	£19,320**	Median costs per LOS	£7,728
<u>Cdiff</u>	314	154 (49.1%)	21.4%**	6 days	£19,320**	160 (50.9%)	11.9%**	14 days	£19,320**	*calculated per patient LOS compared to no NI. ** significant difference (p<0.05)	

*Infection Incidence, Mortality, Length of Stay and Costs*