

Luciana Coelho Tanure¹, Rafaela Tonholli Pinho¹, Érico Macedo Pacheco Alves¹, Bárbara Caldeira Pires¹, Joice Ribeiro Lopes¹, Daniela Teixeira Ribeiro¹, Flávio Henrique Batista de Souza¹, Braulio R.G.M. Couto¹, Carlos Starling²
1- Centro Universitário de Belo Horizonte - UniBH, Belo Horizonte, MG, Brazil; 2 - Lifecenter Hospital, Belo Horizonte, MG, Brazil
Contact: lucianactanure@hotmail.com

Hospital-acquired Infections by Vancomycin-Resistant Enterococcus (VRE): Results in 3 years of Multicenter Study

Background

- Vancomycin-Resistant *Enterococcus* (VRE) is considered one of the main pathogens of hospital-acquired infections (HAI), responsible for high morbidity and mortality rates.
- HAI caused by this bacteria, especially in intensive care units (ICU), are concerning for the health system, given that the microorganism is multi resistant to most antimicrobials available, especially vancomycin.
- Therefore, the present study is built from and analyzes the data of VRE, collected by the Infection Prevation and Control Service of hospitals in Brazil, to clarify: the incidence rate, the gross lethality of these infections and what are the profiles of infected patients.

Methods

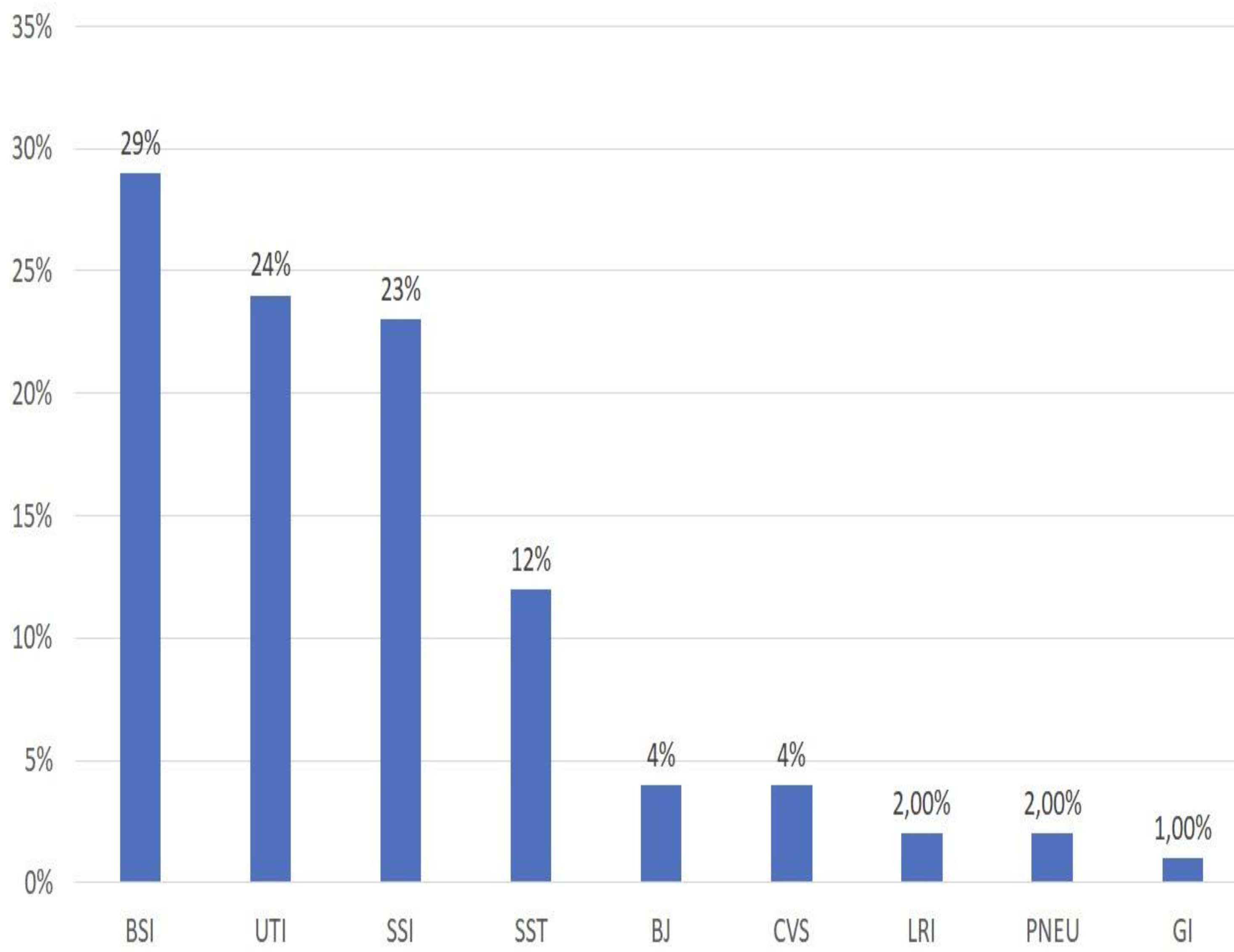
- Collection and analysis of epidemiological data, according to the National Healthcare Safety Network (NHSN) protocol of the Centers for Disease Control and Prevention (CDC), in 10 hospitals in Brazil, between Jan/2017 - Dec/2019.

Results

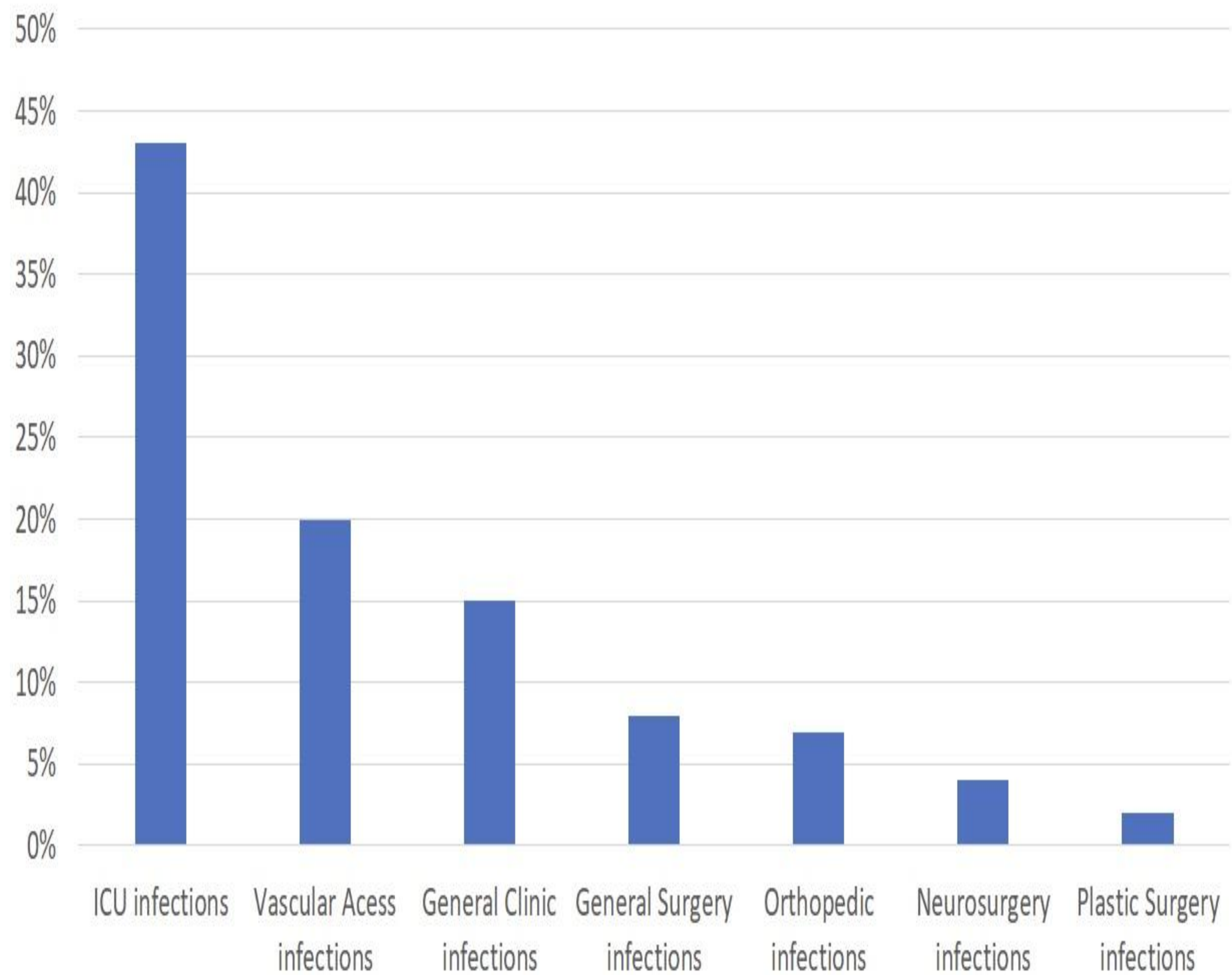
- In three years, 118 VRE infections were diagnosed in the hospitals analyzed: 51 from ICU (43%), 24 from Vascular Access (20%), 18 from General Clinic (15%), 10 from General Surgery (8%) and 15 from Others (13%). #Graph02
- Patients ages ranged from 0 to 93 years, with a mean of 62 years (standard deviation of 20 years) and a median of 66 years.
- Time between admission and diagnosis of infection was 1 to 1001 days, with a mean of 68 days (standard deviation of 25 days) and a median of 59 days.
- The gross lethality for VRE infections was 47/118 (40%).
- The infection sites were: Bloodstream Infections - BSI = 34 (29%); Urinary Tract Infections - UTI = 28 (24%); Surgical Site Infections - SSI = 27 (23%); Skin and Soft Tissue Infections - SST = 14 (12%); Bone and Joint Infections - BJ = 5 (4%); Cardiovascular System Infections - CVS = 5 (4%); Lower Respiratory System Infections, other than pneumonia - LRI = 2 (2%); Pneumonia - PNEU = 2 (2%) and Gastrointestinal System Infections - GI = 1 (1%). #Graph01

Conclusion

- VRE infection is a highly lethal event that usually occurs after two months of hospitalization. The main site of infection is the BSI, with a higher incidence in patients over 62 years or the ones in ICU. Early and accurate investigations of multiresistant microorganisms in a hospital setting are necessary to reduce patient morbidity and mortality.



Graph 01. Percentage of VRE infections by hospital units



Graph 02. Percentage of VRE infections by infection sites

Hospital	BSI	CVS	SSI	UTI	LRI	PNEU	SST	BJ	GI
I	57%	29%	14%	-	-	-	-	-	-
II	33%	1%	2%	33%	1%	-	-	-	-
III	72%	-	-	27%	-	-	-	-	-
IV	40%	-	20%	20%	-	20%	-	-	-
V	67%	-	33%	-	-	-	-	-	-
VI	1%	-	41%	25%	1%	-	17%	-	-
VII	33%	1%	44%	-	-	-	1%	-	-
VIII	12%	-	23%	30%	-	-	23%	11%	1%
IX	-	50%	-	50%	-	-	-	-	-
X	50%	-	25%	25%	-	-	-	-	-
Total	29%	24%	23%	12%	4%	4%	2%	2%	1%

Table 01. Infection sites of VRE infection by hospital