POSTOPERATIVE INFECTIONS AND ANTIMICROBIAL RESISTANCE IN VENTRAL MID-LINE INCISIONS IN HORSES FOLLOWING COLIC SURGERY AT THE EQUINE UNIT OF THE "FUNDACIÓ HOSPITAL CLÍNIC VETERINARI" (UAB)

Universitat Autònoma de Barcelona

Ariadna Aliberch Aymar
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Facultat de Veterinària

INTRODUCTION

The emergence and spread of antimicrobial resistance is an increasingly global concern that threatens the ability to treat infectious diseases, both in humans and in animals.

OBJECTIVE

IDENTIFY WHICH BACTERIA ARE MOST FREQUENTLY ISOLATED IN VENTRAL MID-LINE INFECTIONS IN HORSES ADMITTED TO THE EQUINE UNIT OF THE "*FUNDACIÓ HOSPITAL CLÍNIC VETERINARI*" (UAB) AND DETERMINE THEIR RESISTANCE PATTERNS IN ORDER TO ASSESS THE PROPORTION OF MULTI-DRUG RESISTANT BACTERIA.

MATERIALS and METHODS

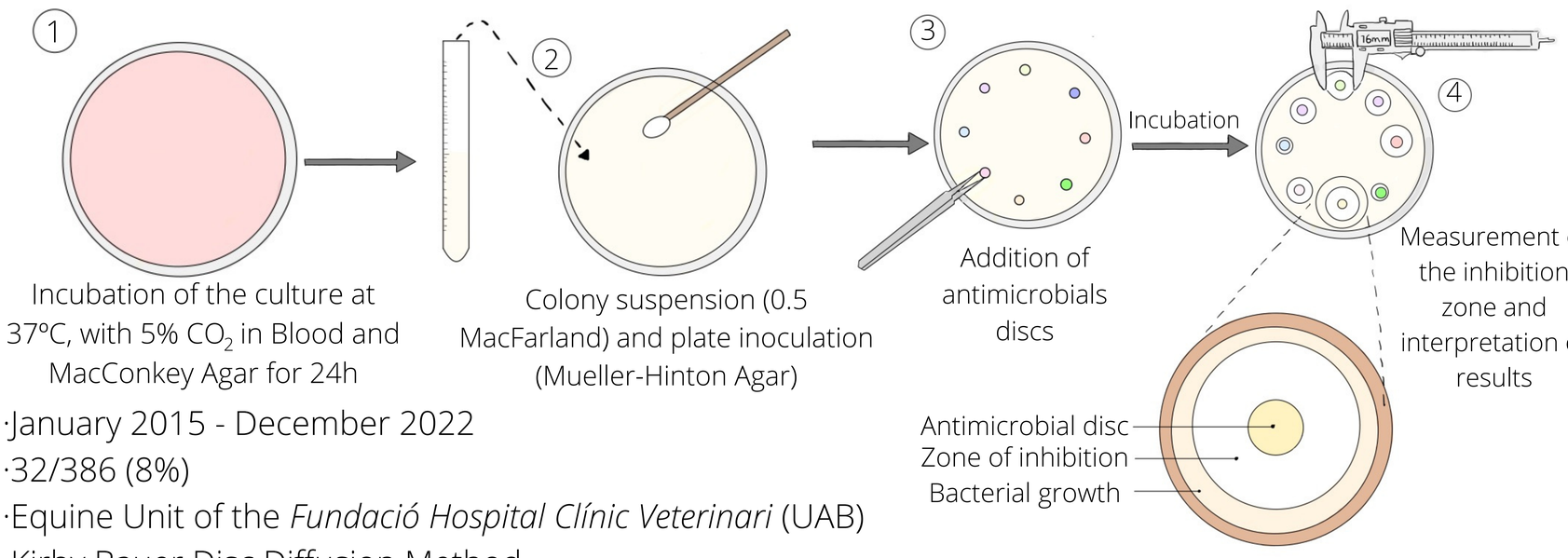

Figure 1. Procedure of Kirby Bauer Disc Diffusion Method (*own elaboration).*

- January 2015 - December 2022
- 32/386 (8%)
- Equine Unit of the *Fundació Hospital Clínic Veterinari* (UAB)
- Kirby Bauer Disc Diffusion Method
- Interpretation: CLSI and EUCAST guidelines

RESULTS and DISCUSSION

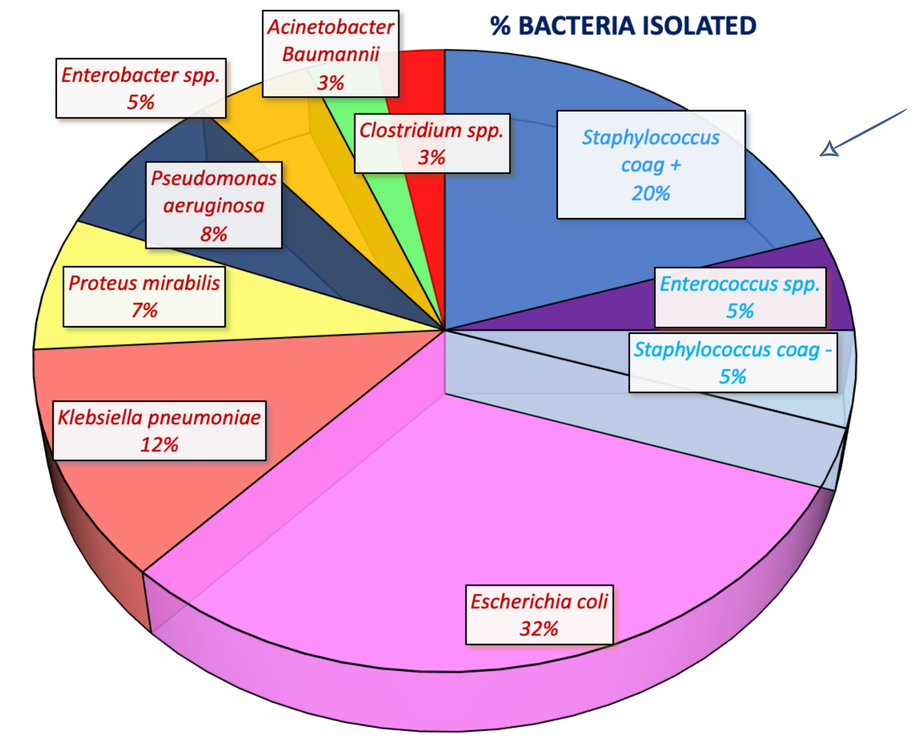

Figure 2. Percentage of bacteria isolated in samples from ventral mid-line incision infections at the Equine Unit between January 2015 and December 2022.

- **64%** Gram negative
- **36%** Gram positive
- Mixed-bacterial growth 31%
- Infections from endogenous origin (42%) (de Lagarde et al., 2020).

↑ Appearance of multi-resistant nosocomial bacteria, such as Methillin-Resistant S. Aureus (MRSA) and E. coli (Torfs *et al.*, 2010).

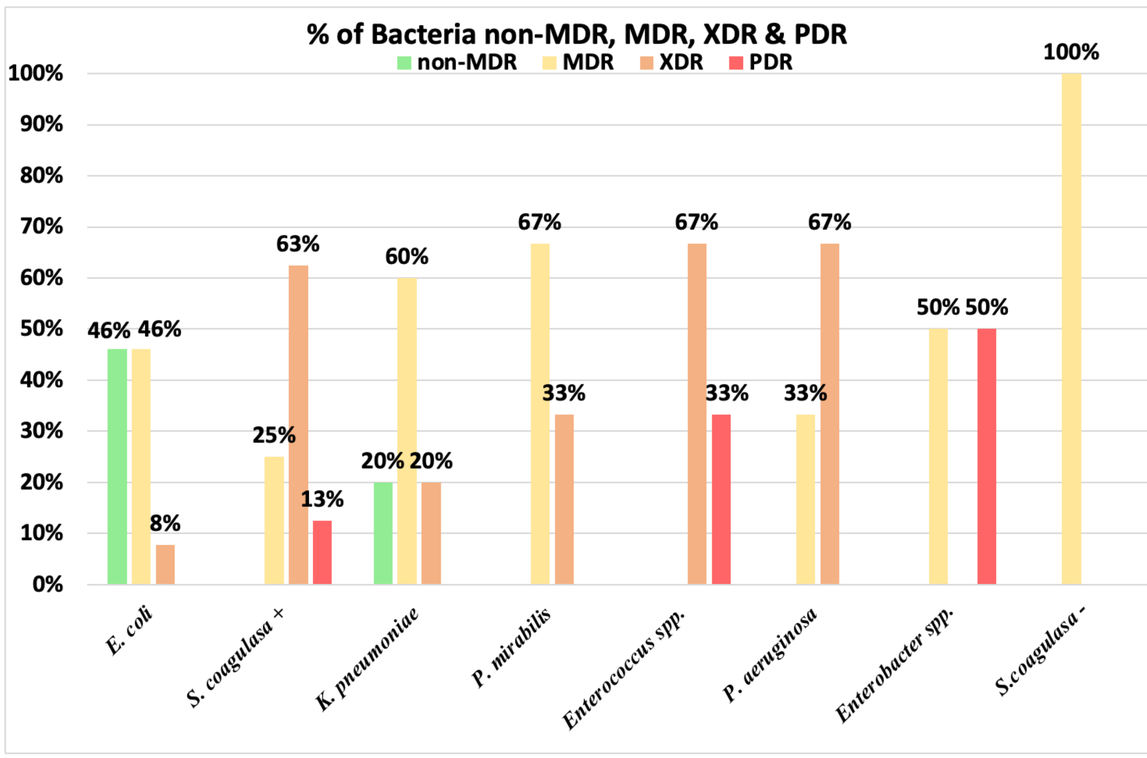

Figure 3. Proportion of non-multidrug-resistant (non-MDR), multidrug-resistant (MDR), extended-resistant (XDR), and pan-resistant (PDR) bacteria isolated in ventral mid-line incision infections.

					Aminoglycosides	Cephalosporins	Fluoroquinolones	Sulfonamides	Penicillins	Rifampicins	Tetracyclins
		nº times tested			78	65	69	40	36	13	46
			nº resistances		34	28	35	27	23	8	26
Bacteria	**nº isolates**			**%**	**44%**	**43%**	**51%**	**68%**	**64%**	**62%**	**57%**
S. coag +	8	71	47	**66%**	54% 7/13	100% 16/16	70% 7/10	86% 6/7	100% 8/8	86% 6/7	25% 2/8
S.coag -	2	18	8	**44%**	50% 2/4	100% 4/4	0% 0/2	0% 0/2	100% 2/2	0% 0/2	0% 0/2
Enterococcus spp.	2	13	9	**69%**	100% 2/2	100% 2/2	100% 5/5	100% 1/1	25% 1/4	0% 0/1	100% 3/3
E.coli	13	105	35	**33%**	8% 6/26	18% 9/33	22% 4/18	54% 7/13	25% 1/4	-	77% 10/13
K. pneumoniae	5	43	19	**44%**	58% 7/12	60% 9/15	0% 0/8	67% 4/6	67% 2/3	100% 1/1	17% 1/6
P.aeruginosa	3	16	9	**56%**	50% 3/6	89% 8/9	100% 7/7	100% 3/3	67% 2/3	-	75% 3/4
P. mirabilis	3	44	28	**57%**	50% 3/6	33% 4/12	89% 8/9	100% 4/4	60% 3/5	-	100% 4/4
Enterobacter spp.	2	7	4	**36%**	75% 3/4	100% 4/4	50% 1/2	100% 2/2	100% 1/1	100% 1/1	50% 1/2

Table 1. Proportion of antibiotic-resistant bacteria isolated at the Equine Unit of the UAB.

Responsable Antibiotic Use

- Follow recomendations in Categorisation of Antibiotic Classes for Veterinary Use (EMA, 2020).
- Least time possible, mostly effective antibiotic (Morley *et al.*, 2005).

Classification of the antibiotics used in the study:

- Prohylaxis: gentamicin → **group C** + sodium penicillin → **group D**.
- Treatment of the Infection: ceftiofur, cefquinome, enrofloxacin → **group B**, gentamicin → **group C**, doxycyclin, TTM-sulfadiazine → **group D**.

CONCLUSIONS

- *E.coli* and S. *coagulasa +,* mostly isolated bacteria in the UAB Equine Unit, with MDR in all bacteria isolated.
- Necessary to carry out similar studies to reduce the spread of multi-resistant bacteria & establish a unique methodology to be able to obtain meaningful comparisons between studies.
- Implement active surveillance and research programs, as well as infection control and antibiotic administration policies, with the aim of slowing down resistance, and raising awareness in society.

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