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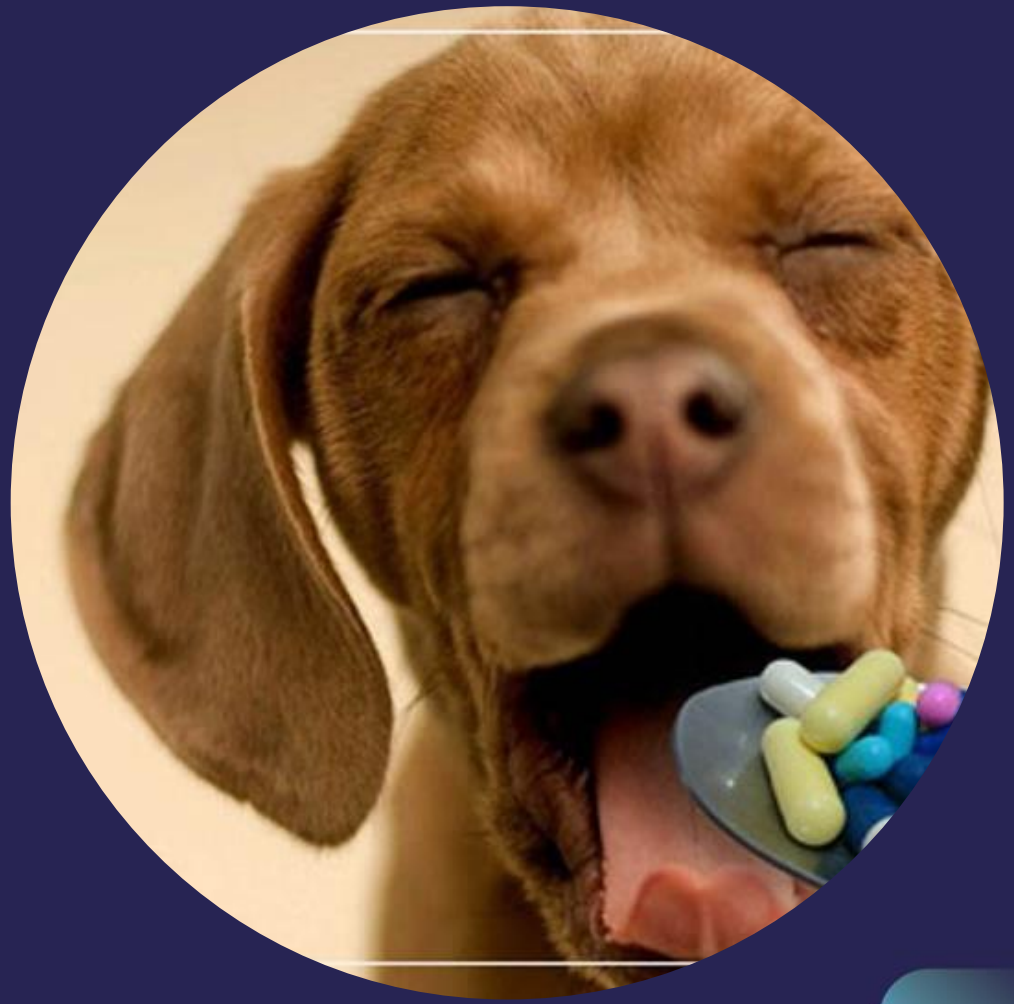
Microbiología Veterinaria



Carolina de Queiroz M. Pereira, MSc

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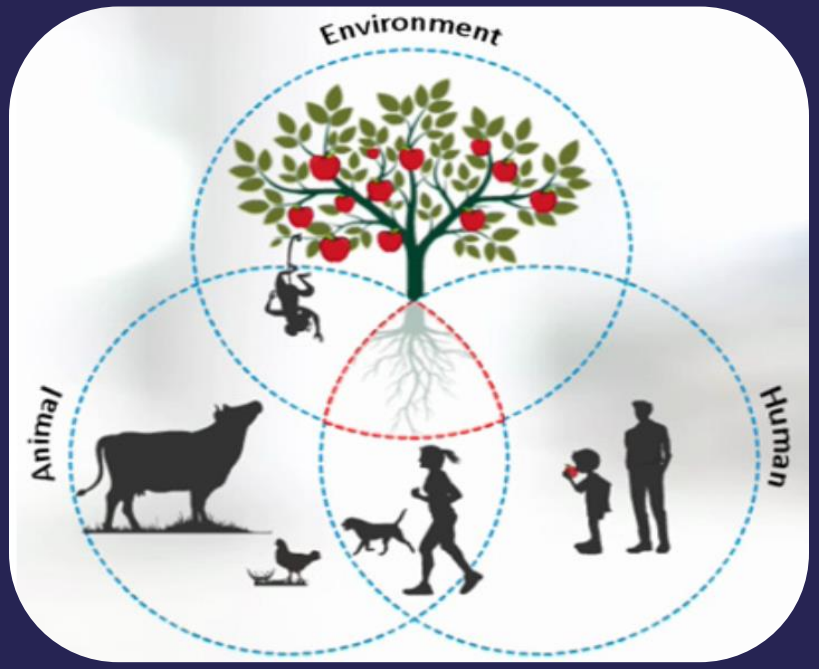
One Health

- El término se refiere a la integración entre la salud humana, la salud animal, el medio ambiente y la adopción de políticas públicas eficaces en la prevención y control de enfermedades.



Food and Agriculture Organization of the United Nations
OIE WORLD ORGANISATION FOR ANIMAL HEALTH
World Health Organization

International instruments on the use of antimicrobials across the human, animal and plant sectors

https://www.who.int/health-topics/one-health#tab=tab_1

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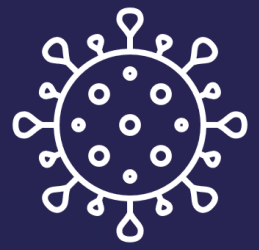
El 75 % de las infecciones emergentes en humanos son transmitidas por animales



El 60% de las enfermedades infecciosas conocidas en humanos pueden ser transmitidas por animales

https://www.who.int/activities/strengthening-global-health-security-at-the-human-animal-interface

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¿Y cómo puede ayudar el laboratorio de microbiología?

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Perros y Gatos

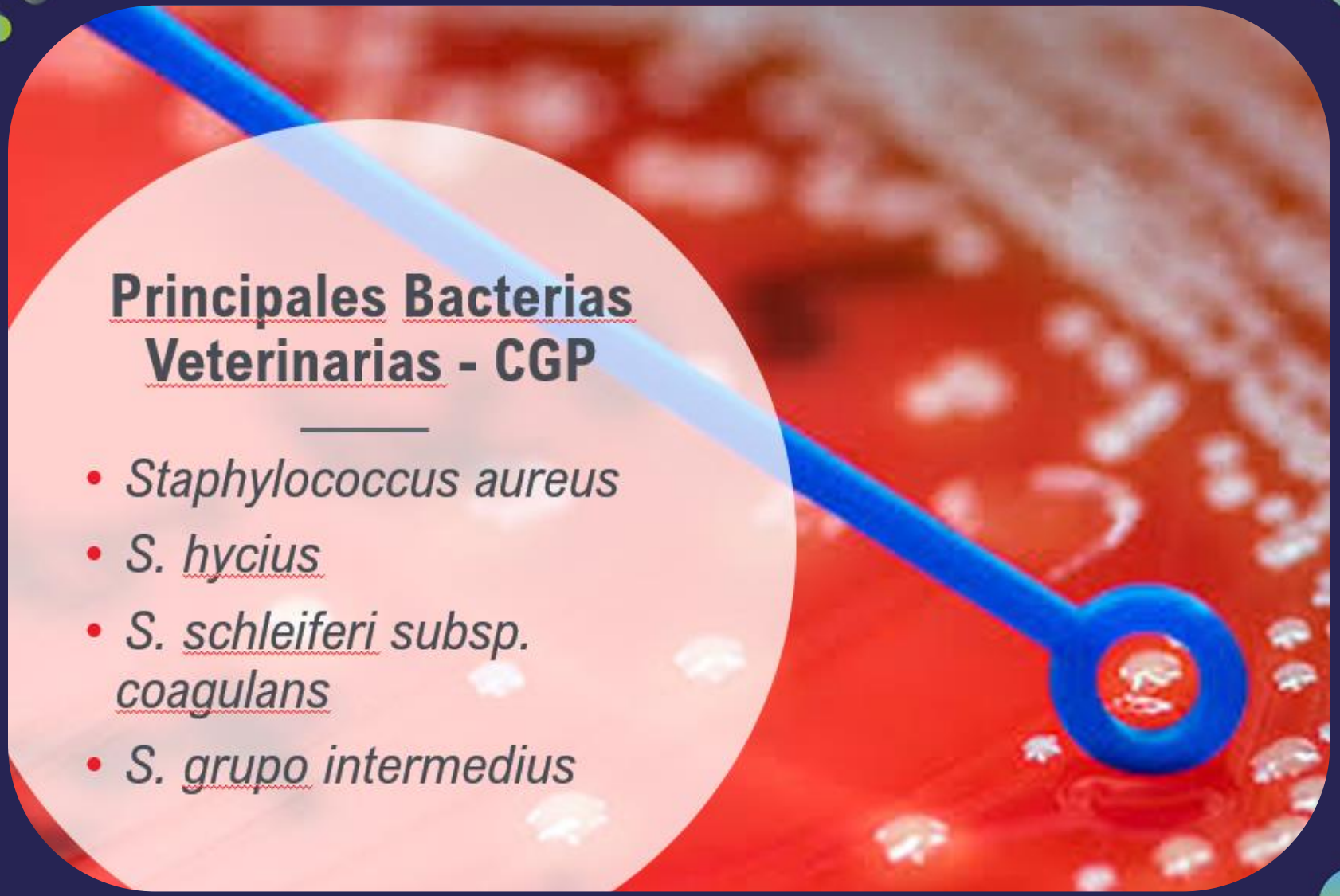
Muestras más solicitadas:

- Orina
- Cultivo Secreción Oido
- Secreciones respiratorias
- Secreciones de herida quirúrgica

Caballos

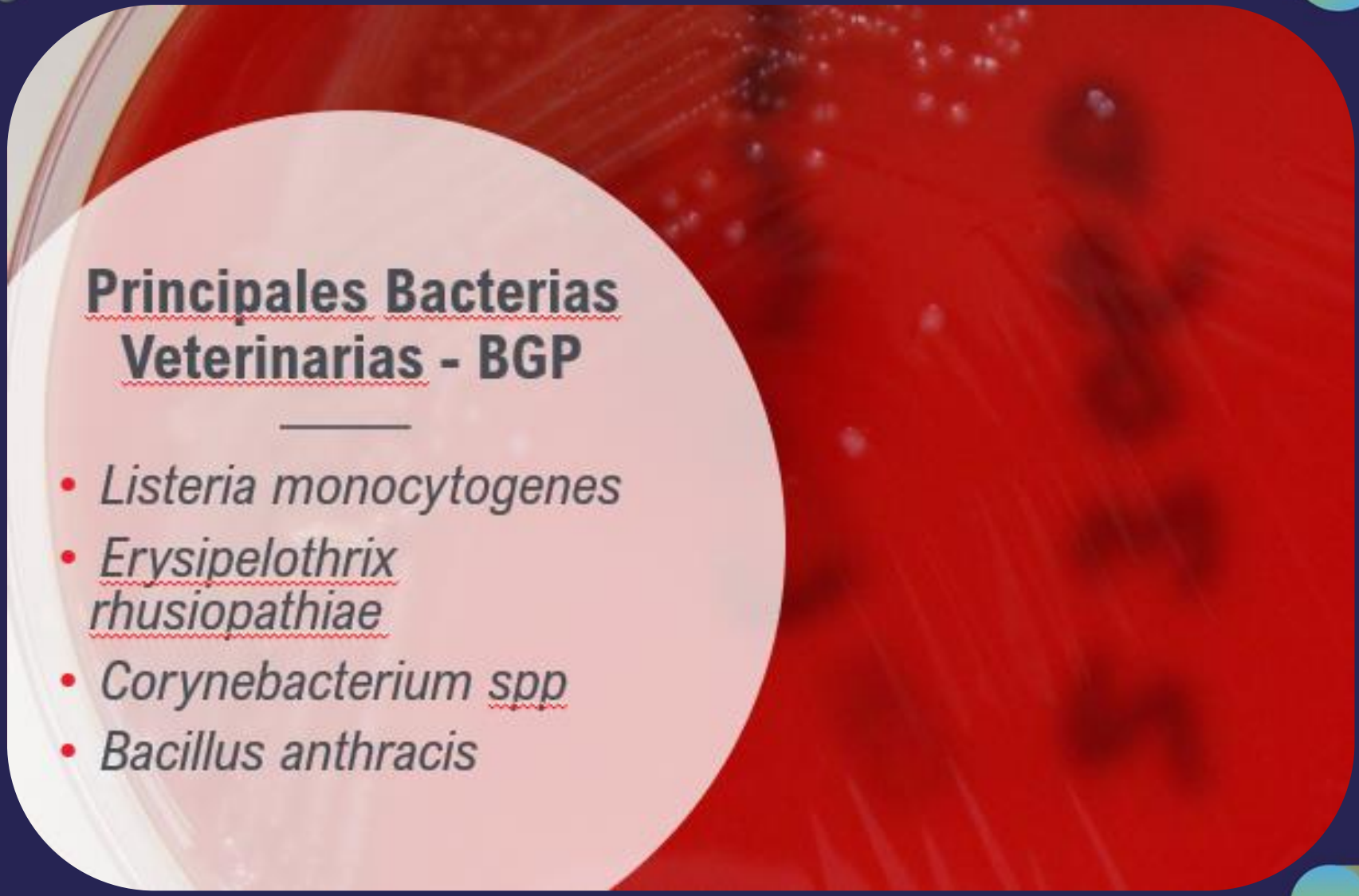
Muestras más solicitadas:

- Secreciones respiratorias
- Lavado uterino
- Secreciones de herida quirúrgica
- Investigación de Crup (*S. equi)*


Principales Bacterias Veterinarias - CGP
• Staphylococcus aureus
• S. hycius
• S. schleiferi subsp. coagulans
• S. grupo intermedius


Principales Bacterias Veterinarias - CGP
• Streptococcus agalactiae
• S. dysgalactiae
• S. zooepidemicus
• S. uberis
• S. equi


Principales Bacterias Veterinarias - BGN
Pasteurella multocida
Burkholderia pseudomallei
Mannheimia haemolytica
Bordetella bronchiseptica
Pseudomonas aeruginosa
Enterobacterales


Principales Bacterias Veterinarias - BGP
• Listeria monocytogenes
• Erysipelothrix rhusiopathiae
• Corynebacterium spp
• Bacillus anthracis

Principales Bacterias Veterinarias - *Mycobacterium*

- *M. bovis*
- *M. avium*
- *M. caprae*

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¿Dónde encontrar más información sobre la identificación de bacterias en veterinaria?

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https://www.vetbact.org/

Species/Subspecies: *Erysipelothrix rhusiopathiae*

Categories: Zoonotic; causes hemolysis

Etymology: Genus name: erysipelas thread.
Species epithet: of red disease.

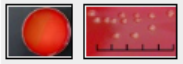
Significance: [Very important]

Taxonomy:

Phylum	Class	Order	Family	Genus
Firmicutes	*Erysipelotrichia*	*Erysipelotrichales*	*Erysipelothrichaceae*	*Erysipelothrix*

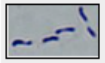
Type Strain: ATCC 19414 = CCUG 221 = NCTC 8163.

Macromorphology (smell): Small transparent nonpigmented colonies (0.2-1 mm in diameter) with a narrow zone of α-hemolysis on blood agar.



Micromorphology: Nonmotile and short rods (0.5 x 1.5-3.0 µm) with rounded ends, which may also grow as long filaments (about 60 µm in length).

Gram +/Gram -: G+



Metabolism: Facultatively anaeroic

Catalase/Oxidase: -/-

Other Enzymes: Hippuricase +, tryptophanase -, urease -.

Biochemical Tests: Citrate -, Voges-Proskauer -.

Fermentation of carbohydrates:

D-glucose	lactose	maltose	L-rhamnose	sucrose
+	+	+	-	(+)
L-arabinose	**cellobiose**	**D-mannitol**	**salicin**	**trehalose**
-	-	-	-	-
glycerol	**inulin**	**raffinose**	**D-sorbitol**	**starch**
-	-	+	-	-

Other carbohydrates: ribose -, xylose -.

Spec. Char.:

Disease:

Hosts	Disease	Clinical picture
Pig	Erysipelas (Diamond skin disease)	Acute and subacute form: Sepsis, sudden death, fever, arthritis, diamond shaped skin lesions Chronic form: arthritis, endocarditis
Poultry	Erysipelas	Sepsis, increased herd mortality, decreased egg production and arthritis.
Humans	Erysipeloid	Red rhomboidal patches on the skin, Note that erysipelas in humans is caused by *Streptococcus* spp.
Sheep	Erysipelas	Polyarthritis in lambs, pneumonia, endocarditits

Diagnostics: Culture after enrichment. Confirmation by MALDI-TOF or biochemical tests.

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Y los antibióticos ?

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Grupos de animales y antibióticos


Cerdos


Vacas


Mastitis Bovina


Aves


Caballos


Perros y gatos

Table 2B. *Pseudomonas aeruginosa*

Horses										
A	(foals)	Amikacin	Aminoglycosides	-	-	-	-	≤ 2	4	≥ 8
Humans										
		Amikacin	Aminoglycosides	30 µg	≥ 17	15-16	≤ 14	≤ 16	32	≥ 64

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Antibióticos específicos veterinarios

Antibióticos
Cephalexin
Ceftiofur
Cefovecin
Doxycycline
Enrofloxacin
Florfenicol
Marbofloxacin
Pradoloxacin

Veterinary Diagnostic Laboratory
Any City, Any Country

Accession #: XYZ1234
Date Received: [day] [month] [YYYY]
Date Sampled: [day] [month] [YYYY]
Date Reported: [day] [month] [YYYY]

Owner: Doe, Jane
Animal Name: Bessy
Animal Species/Breed: Bovine/Jersey

Limited breakpoints are available for cattle in general. Mastitis breakpoints reflect the use of intramammary therapies; systemic breakpoints should be applied cautiously.

Bacteriology Laboratory
Final Report

Aerobic Culture and Antimicrobial Susceptibility Test (MIC)

Site: Milk

Organism ID and MIC

Culture Results: Moderate numbers of *Staphylococcus aureus*

Antimicrobial Agent	*S. aureus*		
	Interpretation*	MIC	Test Range or Comments
β-lactams and combination agents			
Ampicillin	NI	≤ 0.12	No mastitis-specific breakpoints
Ceftiofur	S	0.5	
Cephalothin	NI	4	No mastitis-specific breakpoints
Penicillin†	NI	≤ 0.12	No mastitis-specific breakpoints; human breakpoint available
Penicillin-novobiocin	S	≤ 1/2	
Folate pathway antagonists			
Sulfadimethoxine	NI	32	No mastitis-specific breakpoints
Lincosamides			
Pirlimycin	S	0.5	
Macrolides			
Erythromycin†	NI	4	Human breakpoint
Tetracyclines			
Tetracycline†	NI	≤ 1	Human breakpoint

Use of human breakpoints may be problematic because of differences in pharmacokinetics in cattle, administration (ie, dose, frequency) of antimicrobial agents, as well as the location of the lesion. Laboratories may choose to provide no interpretation, as shown in this example.

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Contents lists available at ScienceDirect

Veterinary Microbiology

journal homepage: www.elsevier.com/locate/vetmic

Prevalence and molecular features of ESBL/pAmpC-producing Enterobacteriaceae in healthy and diseased companion animals in Brazil

Luana C. Melo[a,b], Cíntia Oresco[a], Lucianne Leigue[a], Hildebrando M. Netto[c], Priscilla A. Melville[d], Nilson R. Benites[d], Estelle Saras[b], Marisa Haenni[b,*], Nilton Lincopan[a], Jean-Yves Madec[b]

[a] Department of Microbiology, Institute of Biomedical Sciences, Universidade de São Paulo, São Paulo, Brazil
[b] Unité Antibiorésistance et Virulence Bactériennes, ANSES Laboratoire de Lyon - Université Claude Bernard Lyon 1, Lyon, France
[c] Center of Zoonosis Control, São Paulo, Brazil
[d] Department of Preventive Veterinary Medicine and Animal Health, Faculty of Veterinary Medicine, Universidade de São Paulo, São Paulo, Brazil

Journal of Antimicrobial Chemotherapy Advance Access published December 30, 2016

Journal of Antimicrobia Chemothera

timicrob Chemother
0.1093/jac/dkw531

A-48-producing ST372 herichia coli in a French dog

a C. Melo[1,2], Marine N. G. Boisson[3], Estelle Saras[1], stine Médaille[4], Henri-Jean Boulouis[3], Jean-Yves ec[1] and Marisa Haenni[1]*

e Antibiorésistance et Virulence Bactériennes, Université -ANSES Site de Lyon, 31 avenue Tony Garnier, Lyon 69364, e; [2]Department of Microbiology, Institute of Biomedical ces, Universidade de São Paulo, São Paulo, Brazil; [3]Biopole , ENVA, 7 Avenue du Général de Gaulle, 94704 Maisons- cedex, France; [4]CHUVA, ENVA, 7 Avenue du Général de e, 94704 Maisons-Alfort cedex, France

sponding author. Tel: +33-4-78-72-65-43; Fax: +33-4-78-61-91-45; : marisa.haenni@anses.fr

isolate presented a reduced susceptibility to ertapenem w remaining susceptible to ESCs. This latter isolate was suscep to colistin and tigecycline (Etest, bioMérieux), but prese MICs of imipenem, ertapenem and meropenem of 1.5, 0.75 0.75 mg/L, respectively.

The three ESBL-producing *E. coli* originated from one dog two cats and belonged to ST973, ST68 and ST141 (Table 1). As tected by PCR/sequencing, each isolate harboured a different *bl* M gene, i.e. $bla_{CTX-M-1}$, $bla_{CTX-M-15}$ and $bla_{CTX-M-14}$, located on In IncI1 and IncF plasmid types, respectively, according to the based replicon typing (PBRT; Diatheva, Fano, Italy) and PFGE-S1 followed by Southern blot using adequate probes. One cat had fered from a respiratory tract infection in the last 12 months had been treated with antibiotics (unrecorded molecule), whe the two other animals presented no history of illness, travel or tact with people working in healthcare centres. The two An producing *E. coli* originated from dogs, presented a bla_{CMY-2} located on non-typeable plasmids and belonged to ST55 ST963. Neither of these dogs presented any identified risk fa for being colonized with ESC-resistant bacteria. Altogether, study shows a very weak prevalence of ESC-resistance carria cats (2/227, 0.9%) and dogs (3/166, 1.8%) in a large set of rand chosen animals.

ISSN Eletrônico 2178-3764 *Veterinária e Zootecnia* 1

ETIOLOGIA MICROBIANA E PERFIL DE RESISTÊNCIA BACTERIANA *IN VITRO* EM OTITES EXTERNAS DE CÃES: ESTUDO RETROSPECTIVO EM ANIMAIS ATENDIDOS NA ROTINA DE HOSPITAL VETERINÁRIO (2013 A 2020)

Carolina Magri Ferraz[1,2]
Joyce Natachi Suave Morais[1]
Barbara Loureiro[3]
Jossiara Abrante Rodrigues[4]
Vinicius Longo Ribeiro Vilela[4]
Adriane Costa-Val Bicalho[5]
Rodrigo dos Santos Horta[5]
Hélio Langoni[6]
Fábio Ribeiro Braga[2]
Fernando Luiz Tobias[1]

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J Equine Vet Sci. 2022 Apr;111:103890. doi: 10.1016/j.jevs.2022.103890. Epub 2022 Feb 3.

Streptococcus equi culture prevalence, associated risk factors and antimicrobial susceptibility in a horse population from Colombia

Camilo Jaramillo-Morales [1], Diego E Gomez [2], David Renaud [3], Luis G Arroyo [2]

Affiliations + expand

PMID: 35124153 DOI: 10.1016/j.jevs.2022.103890

Veterinary World
Open access and peer reviewed journal

Vet World. 2021 Jul; 14(7): 1767–1773. PMCID: PMC8404129
Published online 2021 Jul 7. doi: 10.14202/vetworld.2021.1767-1773 PMID: 34475696

Molecular identification of fluoroquinolone resistance in *Salmonella* spp. isolated from broiler farms and human samples obtained from two regions in Colombia

María Paula Herrera-Sánchez,[1] Rafael Enrique Castro-Vargas,[1,2] Luz Clemencia Fandiño-de-Rubio,[2] Roy Rodríguez-Hernández,[2] and Iang Schroniltgen Rondón-Barragán[1,2]

SCIENTIFIC REPORTS
nature research

Sci Rep. 2019; 9: 14025. PMCID: PMC6773701
Published online 2019 Oct 1. doi: 10.1038/s41598-019-50225-w PMID: 31575879

Potential group B *Streptococcus* interspecies transmission between cattle and people in Colombian dairy farms

Claudia G. Cobo-Angel,[1] Ana S. Jaramillo-Jaramillo,[1] Monica Palacio-Aguilera,[2] Liliana Jurado-Vargas,[2] Edwin A. Calvo-Villegas,[2] Diego A. Ospina-Loaiza,[1] Juan C. Rodriguez-Lecompte,[3] Javier Sanchez,[3] Ruth Zadoks,[4,5] and Alejandro Ceballos-Marquez[✉1]

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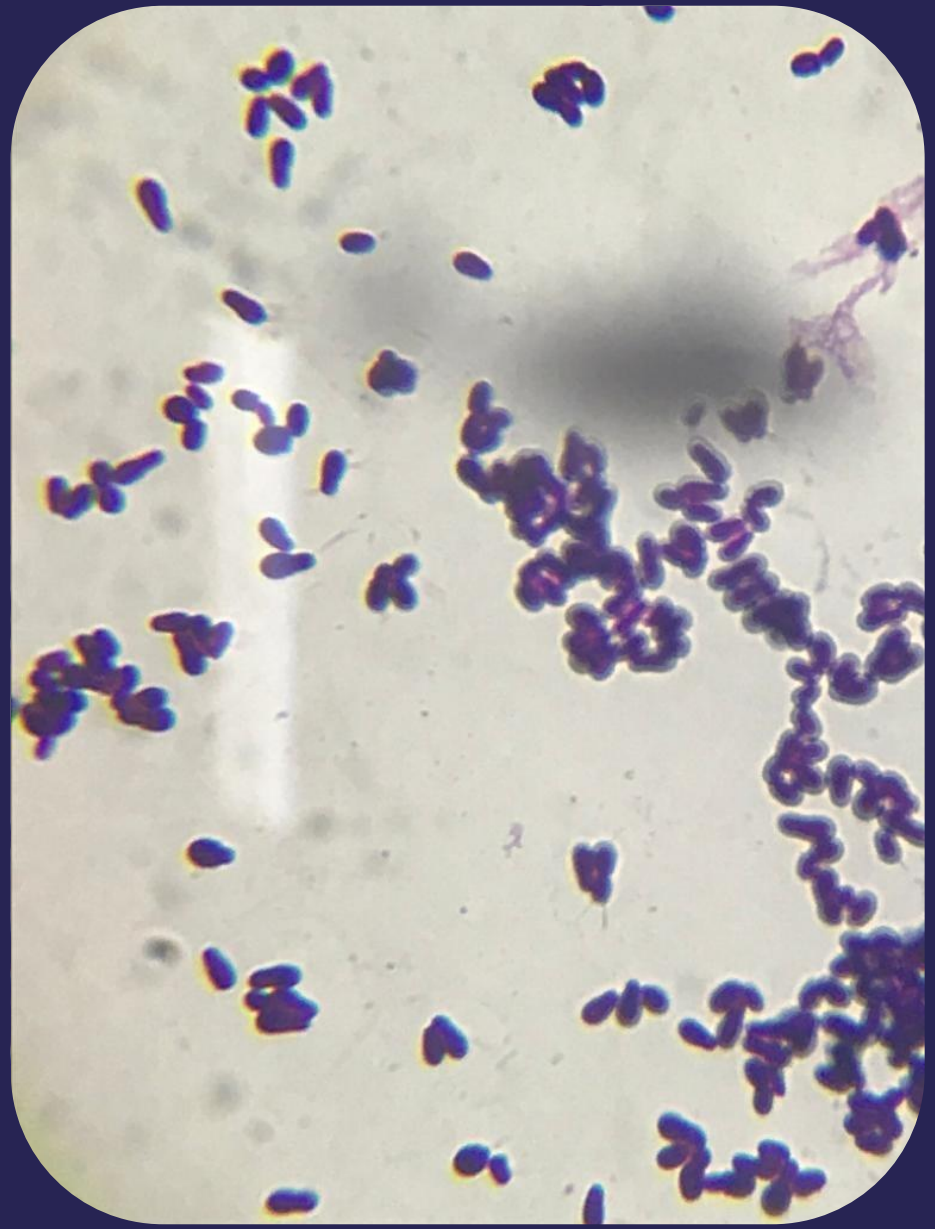
Y los hongos ?

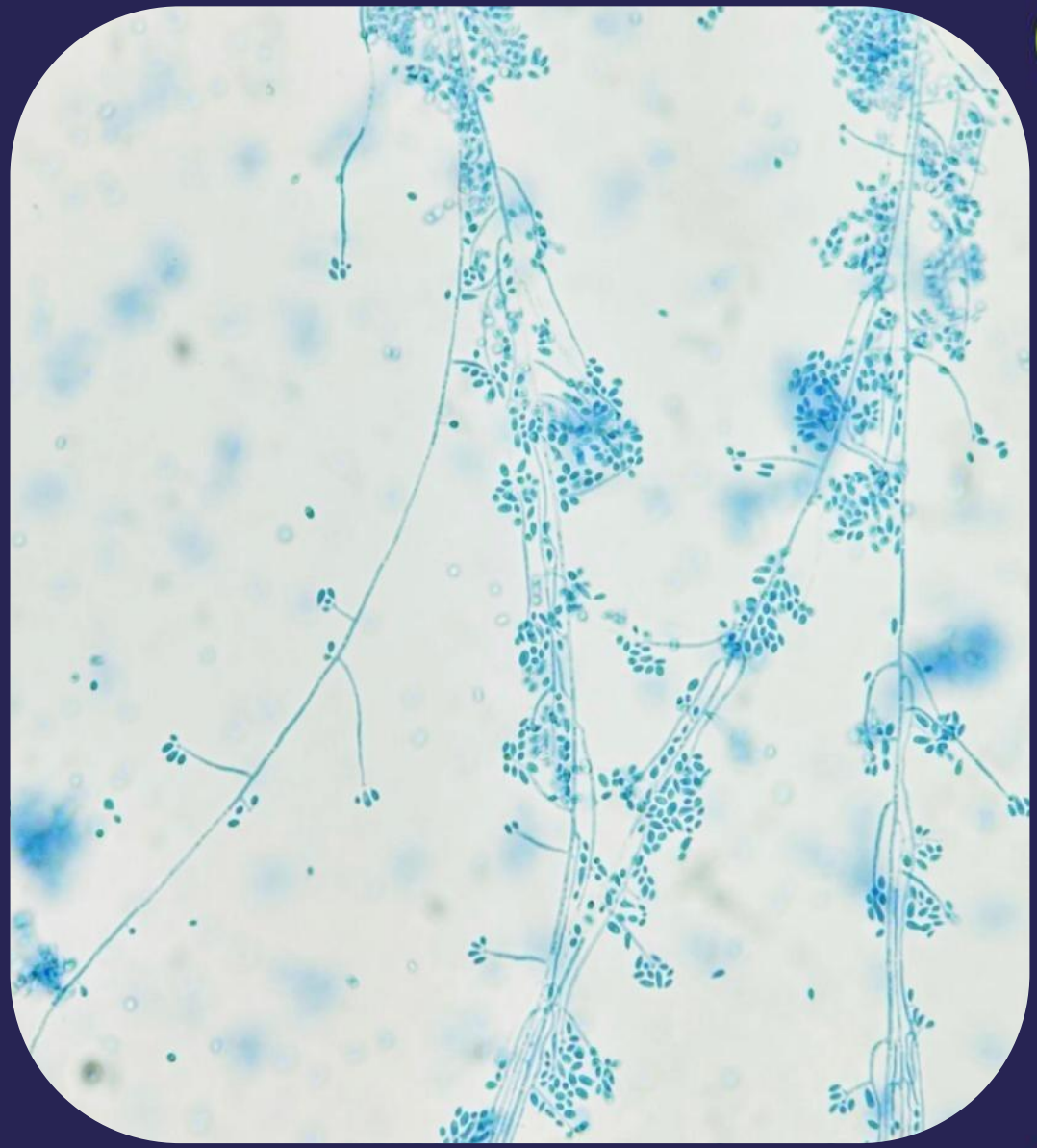
Dermatofitos
Microsporum canis
M. gallinae
Trychophyton equirum
T. mentagrophytes
T. verrucosum

Levaduras
Candida albicans
Cryptococcus neoformans
Malassezia pachydermatis



Hongos filamentosos
Aspergillus spp.

Hongos Dimórficos
Sporothrix schenckii
Coccidioides immitis
Histoplasma capsulatum
Blastomyces dermatitidis



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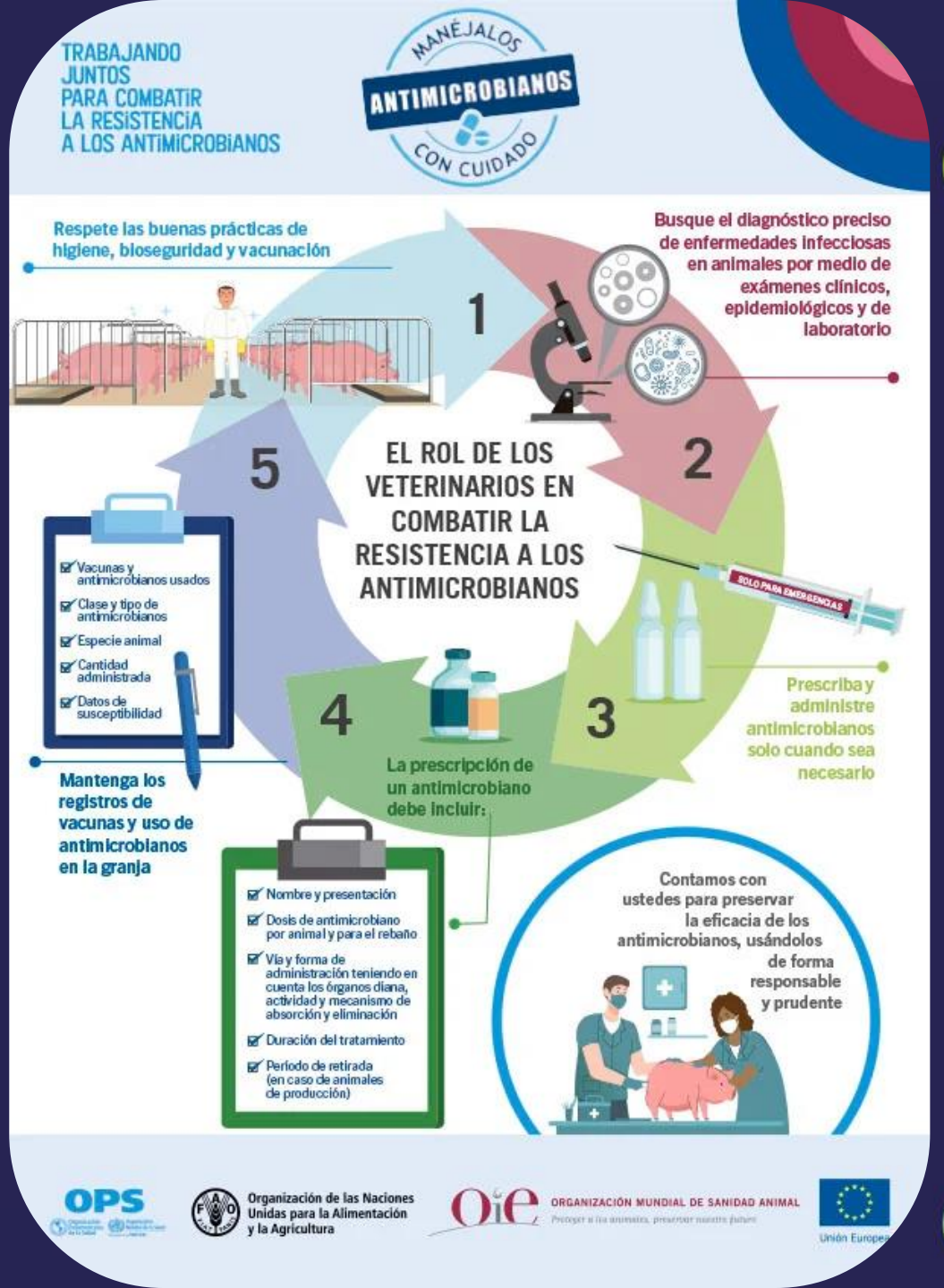
SEMANA MUNDIAL DE CONCIENTIZACIÓN SOBRE EL USO DE LOS ANTIMICROBIANOS

18-24 NOVIEMBRE



https://www.paho.org/es/panaftosa/resistencia-antimicrobiana-produccion-animal

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Gracias por su atención