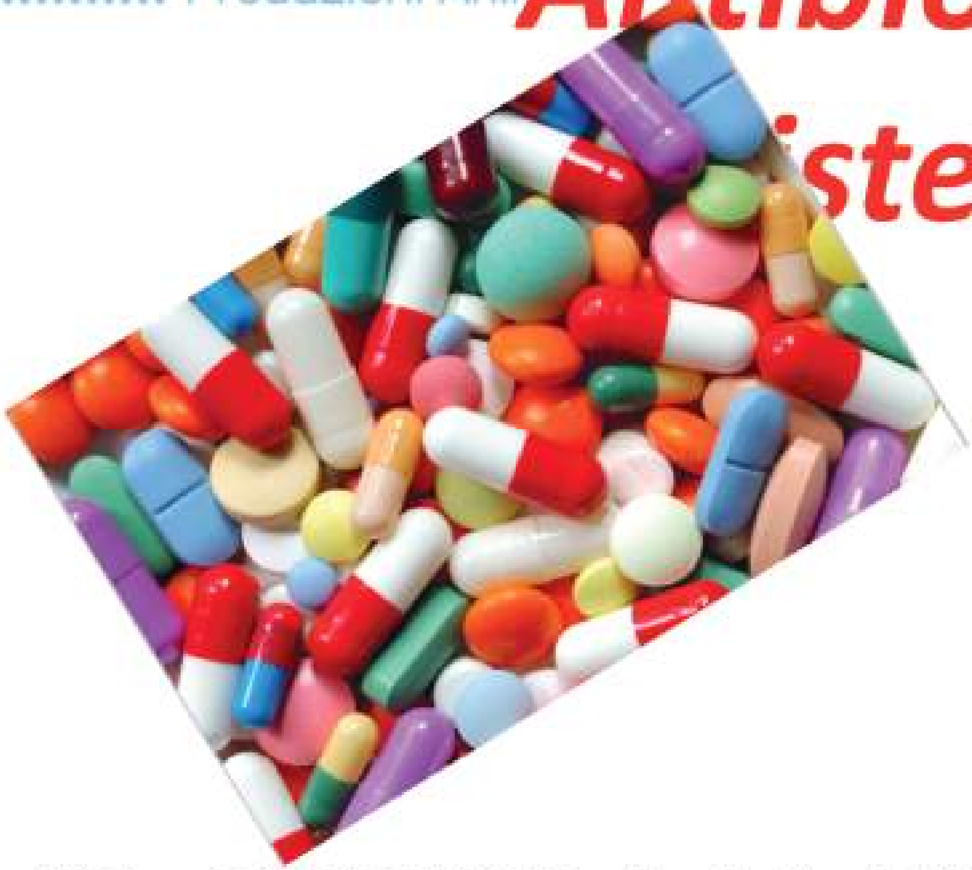
Dipartimento
Medicina Veterinaria
Produzioni Animali

Antibiotico
istenza



PROF : IOVANE GIUSEPPE,ordinario di malattie infettive
Direttore scuola specializzazione
Membro CSS
Membro CNSSV

Antibiotico resistenza: ieri

No. 3713, Dec. 28, 1940 NATURE 837

LETTERS TO THE EDITORS

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An Enzyme from Bacteria able to Destroy Penicillin

B. coli, it was not necessary to crush the organism in the bacterial mill in order to obtain the enzyme from it; the latter appeared in the culture fluid.

E. P. Abraham.
E. Chain.

"There is probably no chemotherapeutic drug to which in suitable circumstances the bacteria cannot react by in some way acquiring 'fastness' [resistance]."

—Alexander Fleming, 1946

Sampling the Antibiotic Resistome

Vanessa M. D'Costa,[1] Katherine M. McGrann,[1] Donald W. Hughes,[2] Gerard D. Wright[1]*

Science **311**, 374 (2006);
DOI: 10.1126/science.1120800

L'antibiot
resistenz
antica

LETTER TO NATURE

doi:10.1038

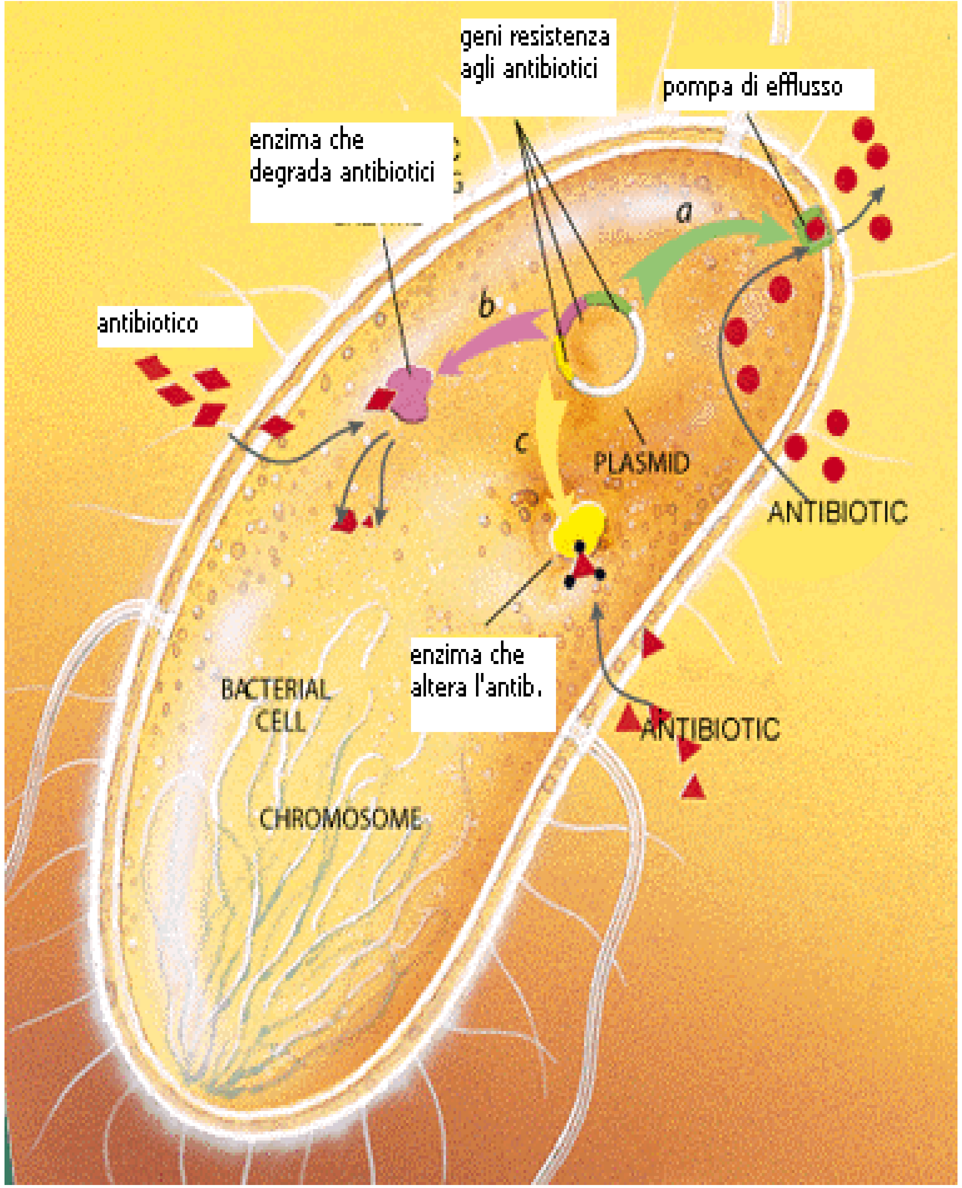
Antibiotic resistance is ancient

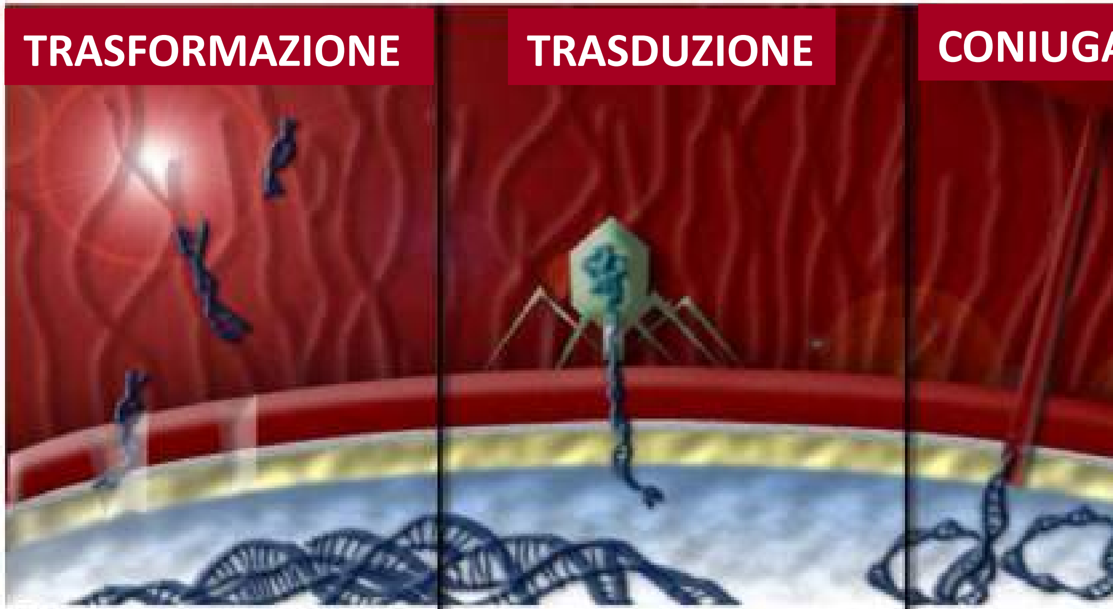
Vanessa M. D'Costa[1,2]*, Christine E. King[3,4]*, Lindsay Kalan[1,2], Mariya Morar[1,2], Wilson W. L. Sung[4], Carsten Schwa
Duane Froese[5], Grant Zazula[6], Fabrice Calmels[5], Regis Debruyne[7], G. Brian Golding[4], Hendrik N. Po

UNIVE
DEGLI
FEDER

Antibiotico resistenza: oggi

Basi genetiche e molecolari dell’antibiotico resist



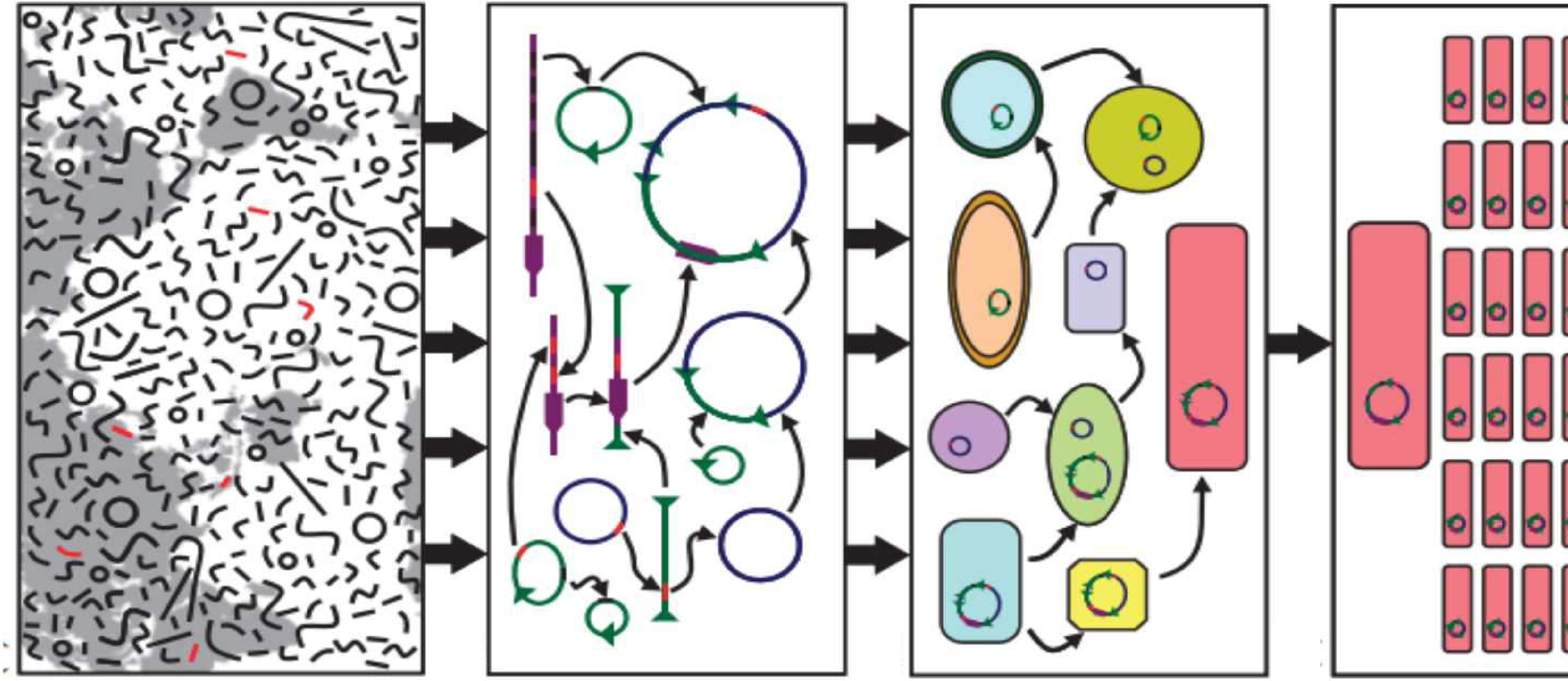


Cattura di piccoli frammenti di DNA dall’ambiente esterno

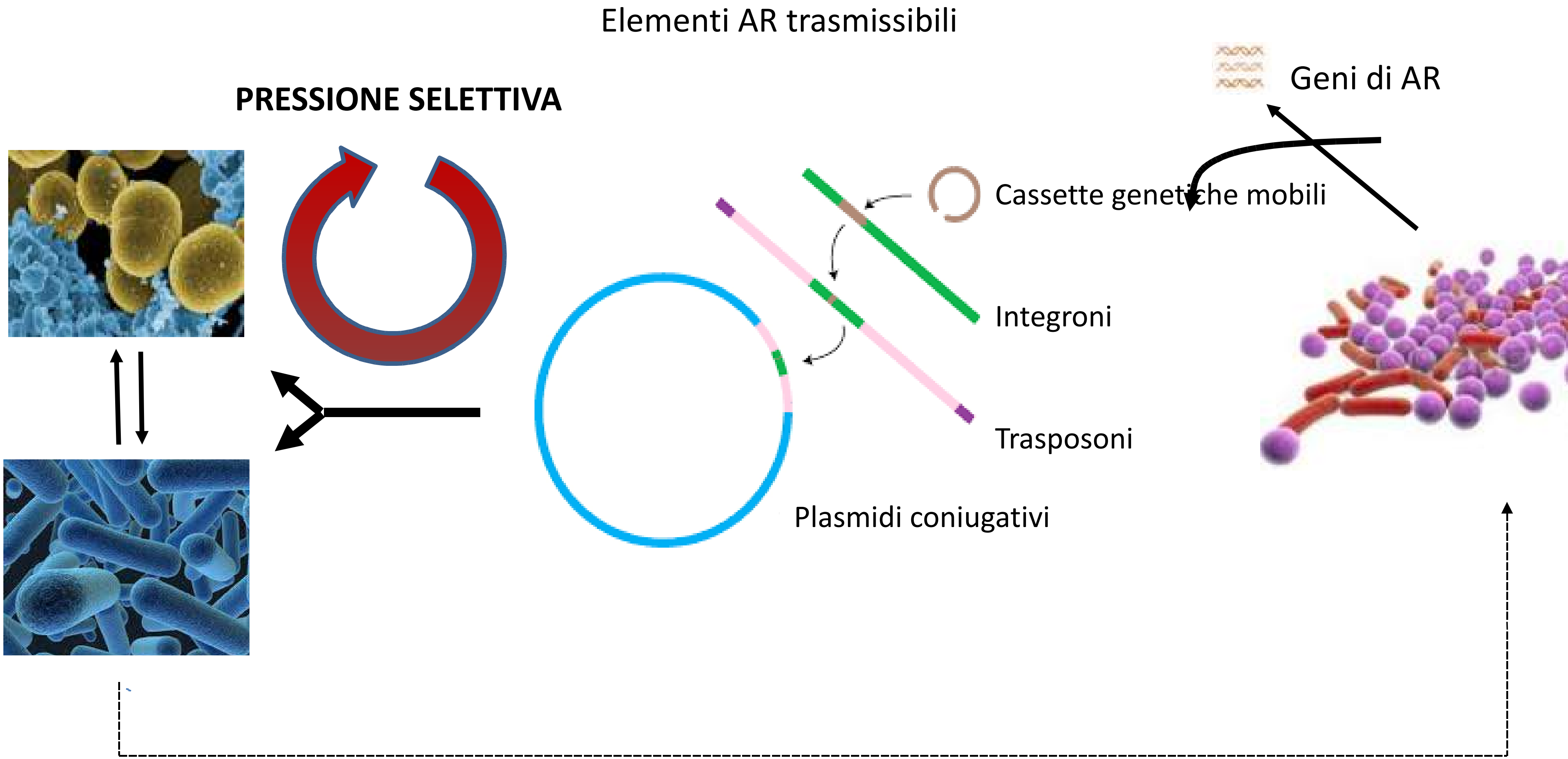
Trasferimento di DNA da un batterio ad un altro attraverso un batteriofago

Trasferime
da un bat
altro attr
pilo tr

Il resistoma

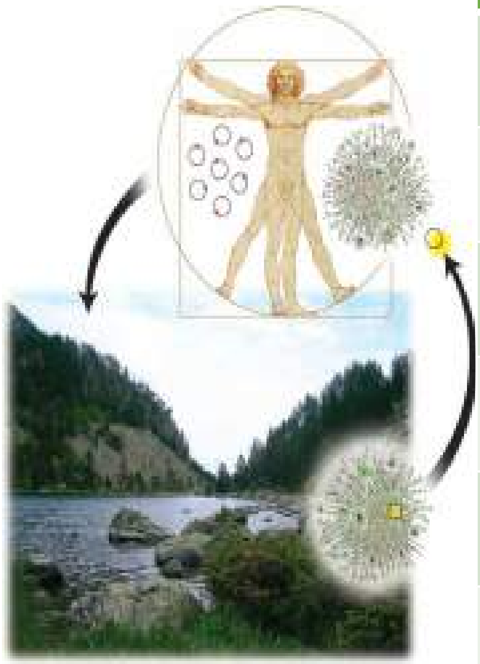


Meccanismi e origini dell'antibiotico resistenza



Adattato da Davies e Davies. Micr
Mol Biol Rev. 2010 doi: 10.1128/M

Dispersione degli antibiotici nell'ambiente



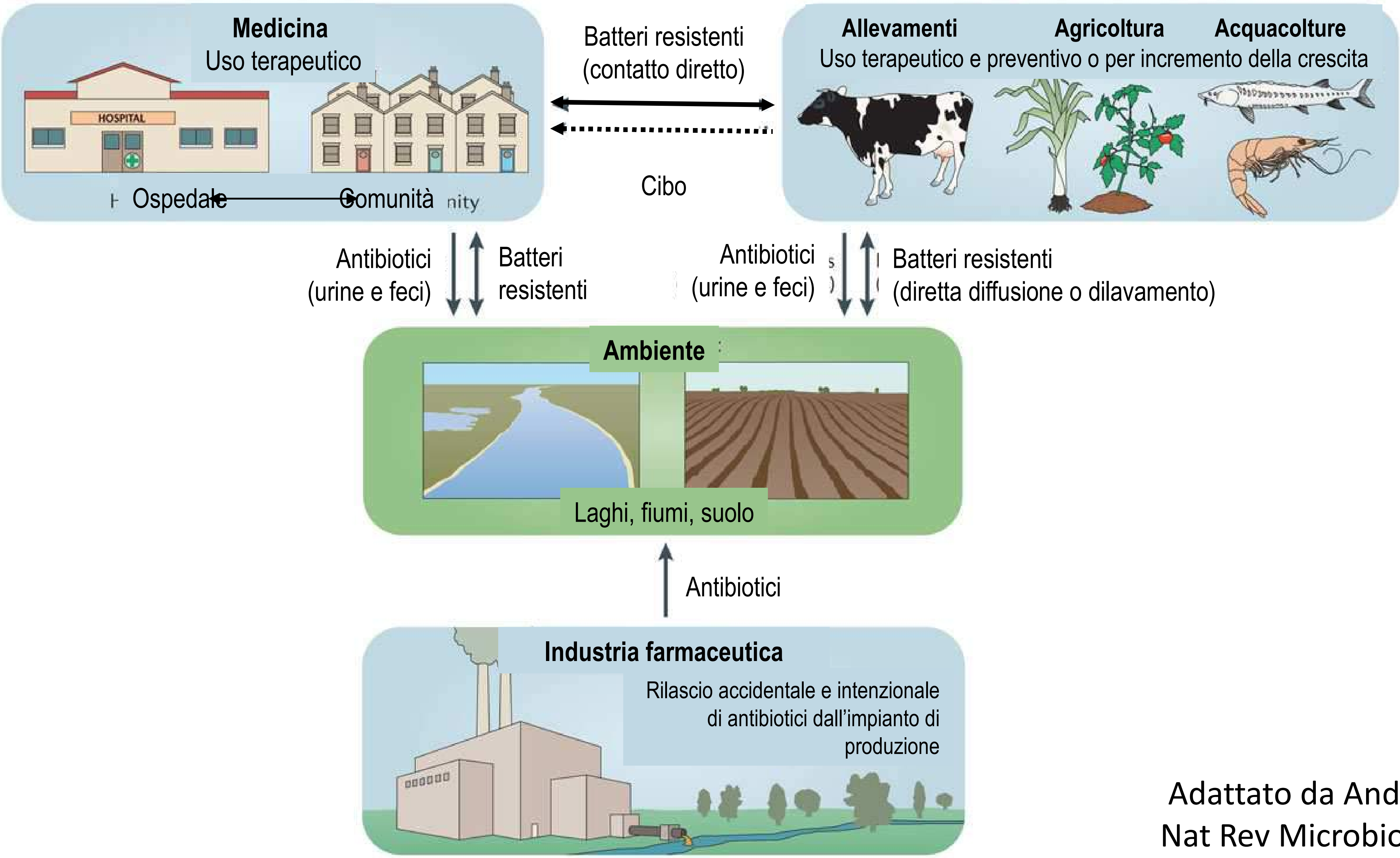
Martínez JL. Science. 2008 doi: 10.1126/science.1159483.

Antibiotico	Persistenza/mobilità	Fanghi	Fiumi	Acqua del suolo	Acqua potabile	Pesci	Suolo	Colture	Esempi di antib
Cloranfenicolo	-/+	nd	✓	X	nd	nd	nd	nd	Cloranfenicol
Fluoro-chinoloni	+/-	✓	✓	x	x	nd	✓	nd	Ciprofloxacin
β-lattamici	+/-	nd	**x**	X	X	nd	**nd**	nd	Amoxicillina,
Macrolidi	+/+	✓	✓	X	nd	nd	nd	nd	Azitromicina,
Sulfamidici	+/+	✓	✓	✓	X	nd	✓	✓	Sulfometazol
Teracicline	+/-	nd	✓	x	X	✓	✓	✓	Tetracicline

nd, non determinato; ✓, rilevato, x, non rilevato

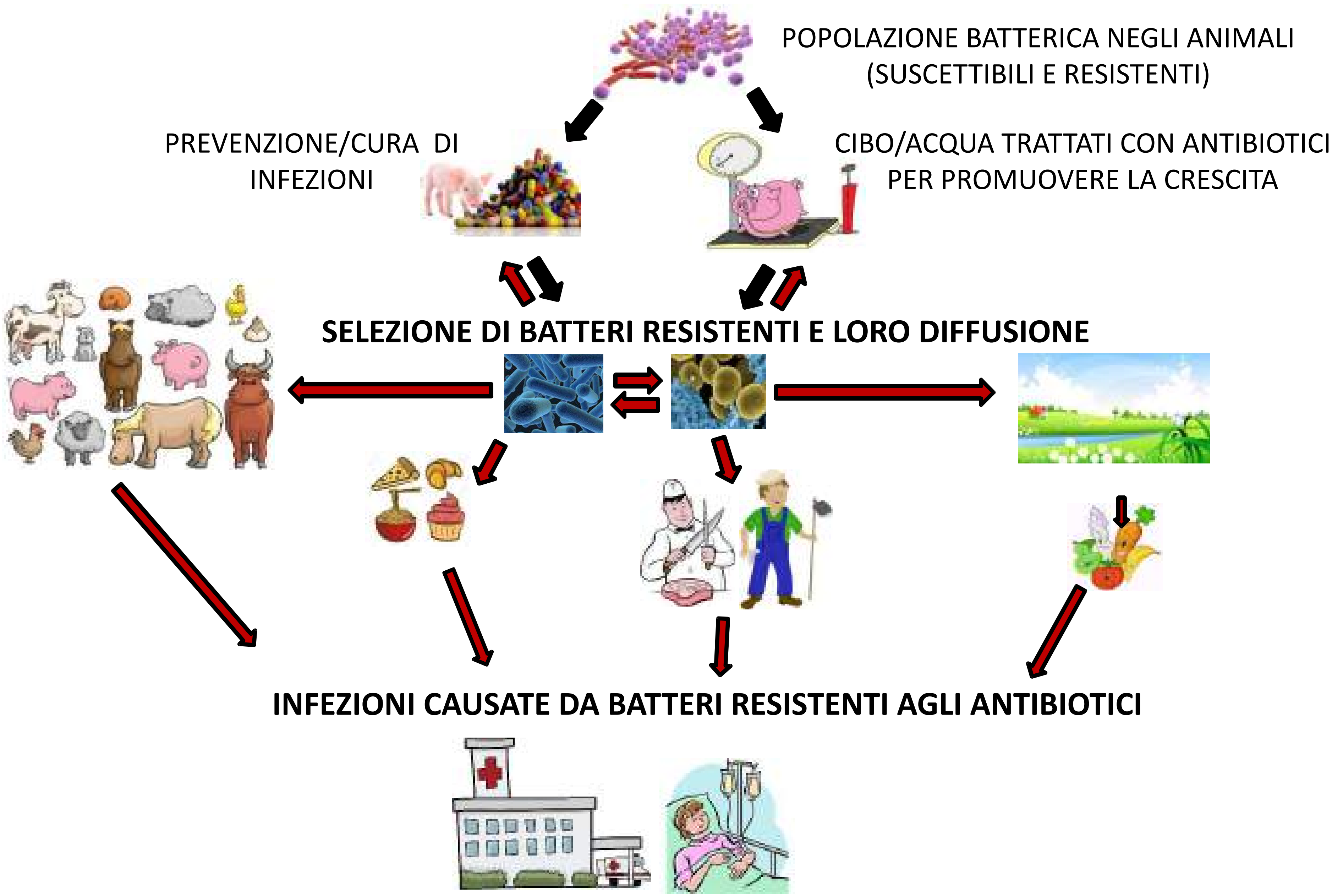
Adattato da Wellington et al., La Dis. 2013 doi: 10.1016/S1473-3099(12)70317-1.

Antibiotico resistenza: dall'ambiente alla clinica

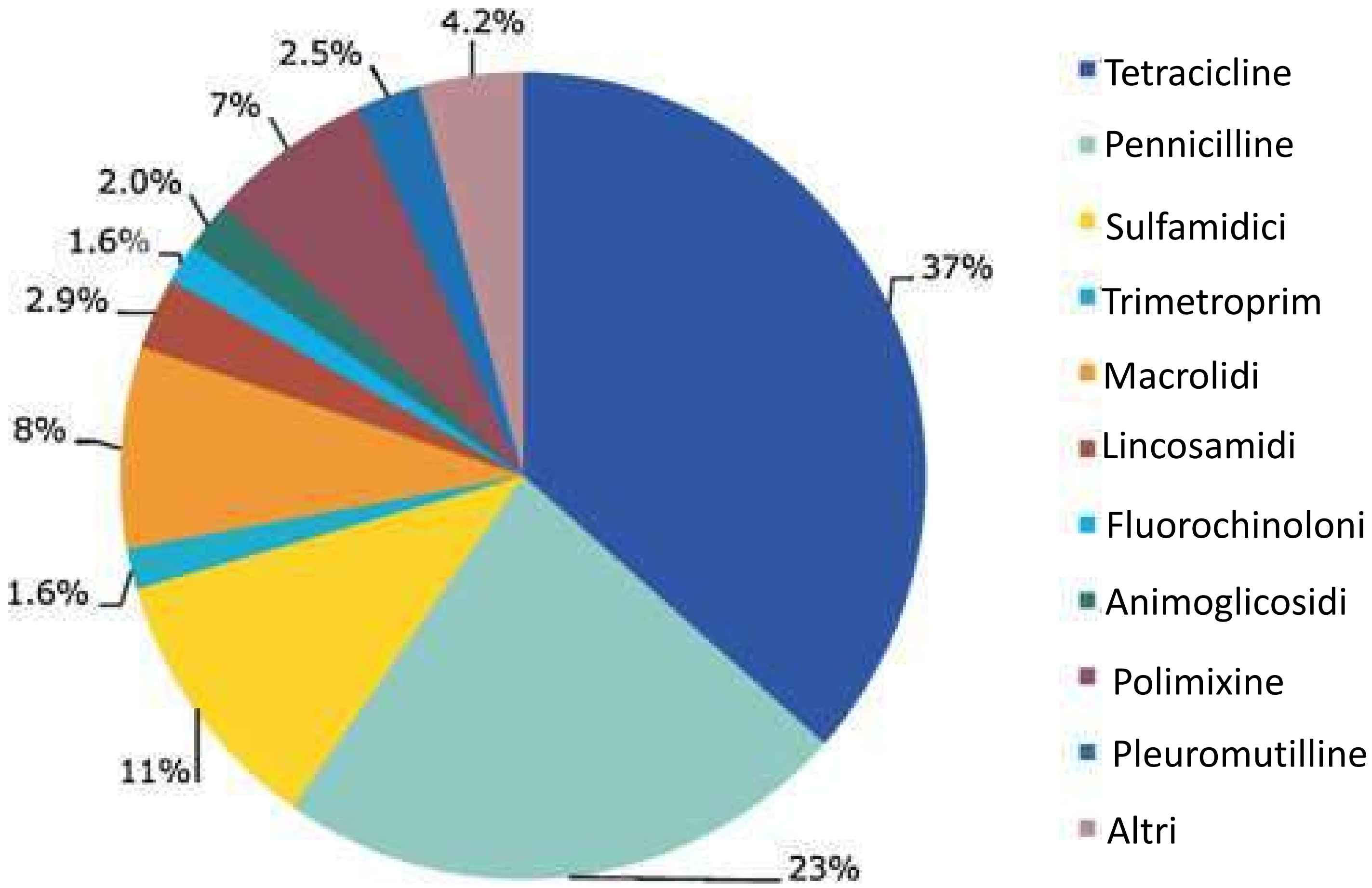


Adattato da Ander
Nat Rev Microbiol.
10.1038/nrmicro32

Batteri resistenti agli antibiotici: dagli animali all'u



Vendita di antibiotici negli allevamenti (1200 ton



Catry et al., 2015. Int J Antimicrob Agents. doi: 10.1016/j.ijantimicag.2015.06.005.

Principali batteri multiresistenti di origine animale/alimentare

Salmonelle non tifoidi e *Campylobacter jejuni* resistenti ai fluorochinolon

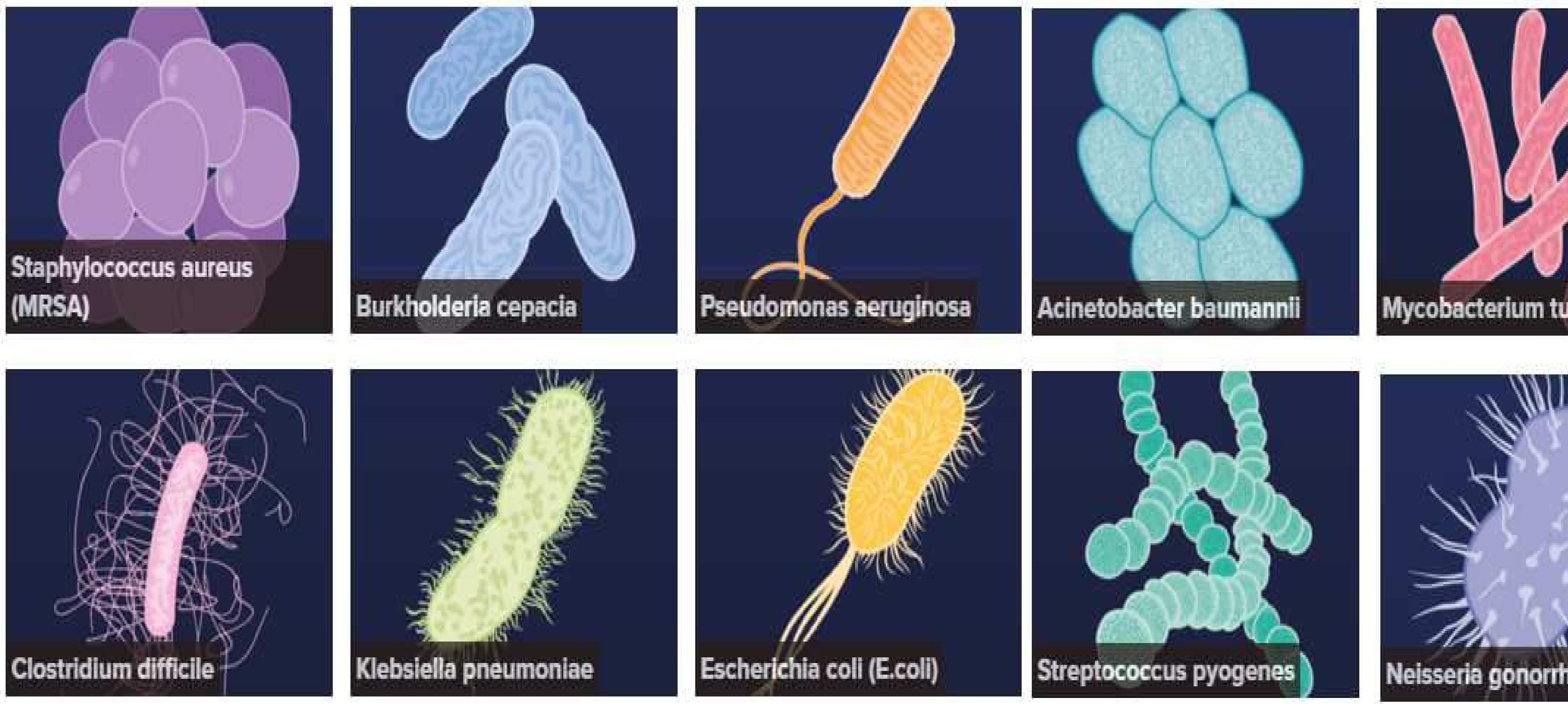
Clostridium difficile

Enterobatteriaceae Resistenti ai β-lattamici (E

Staphylococcus aureus Resistente alla meticillina

Antibiotico resistenza: una minaccia globale

MDR, Multi Drug Resistant (microrganismi resistenti ad almeno uno degli antibiotici di tre o più famiglie diverse
XDR, Extensively Drug-Resistant (microrganismi sensibili solamente ad una o due classi di antibiotici)
PDR, Pan Drug-Resistant (microrganismi resistenti a tutte le classi di antibiotici)



50.000 morti anno -eu 1,5 miliardi euro usa-20 miliardi $

Antibiotico resistenza: i patogeni più critici

E *Enterococcus faecium* (resistenti alla Vancomicina, VRE)
S *Staphylococcus aureus* (resistenti alla Meticillina/Vancomicina, MRSA/VRS
K/C *Klebsiella pneumoniae/Clostridium difficile* (resistenti ai Carbapenemic
A *Acinetobacter baumannii*
P *Pseudomonas aeruginosa*
E *Enterobacter* spp.

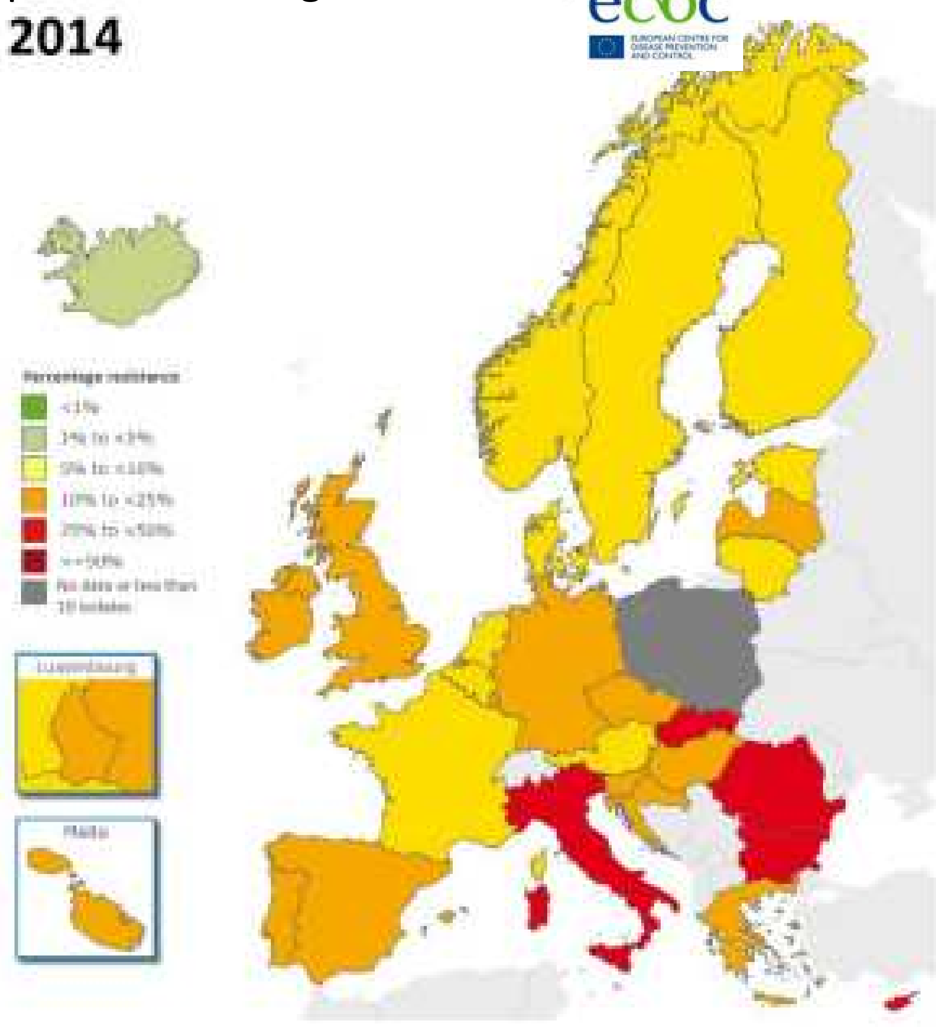
I patogeni ESKAPE sfuggono (*escape*) all'effetto degli agenti antimi
perché resistenti

Boucher HW, et al. *Clin Infect Dis* 2009;48:1-12. "ESKAPE"
Peterson LR. *Clin Infect Dis* 2009;49:992-3. "ESCAPE"

Antibiotico resistenza: sorveglianza 2014

Antibiotico resistenza: *Escherichia coli*

Percentuale di isolati resistenti alle cefalosporine di terza generazione

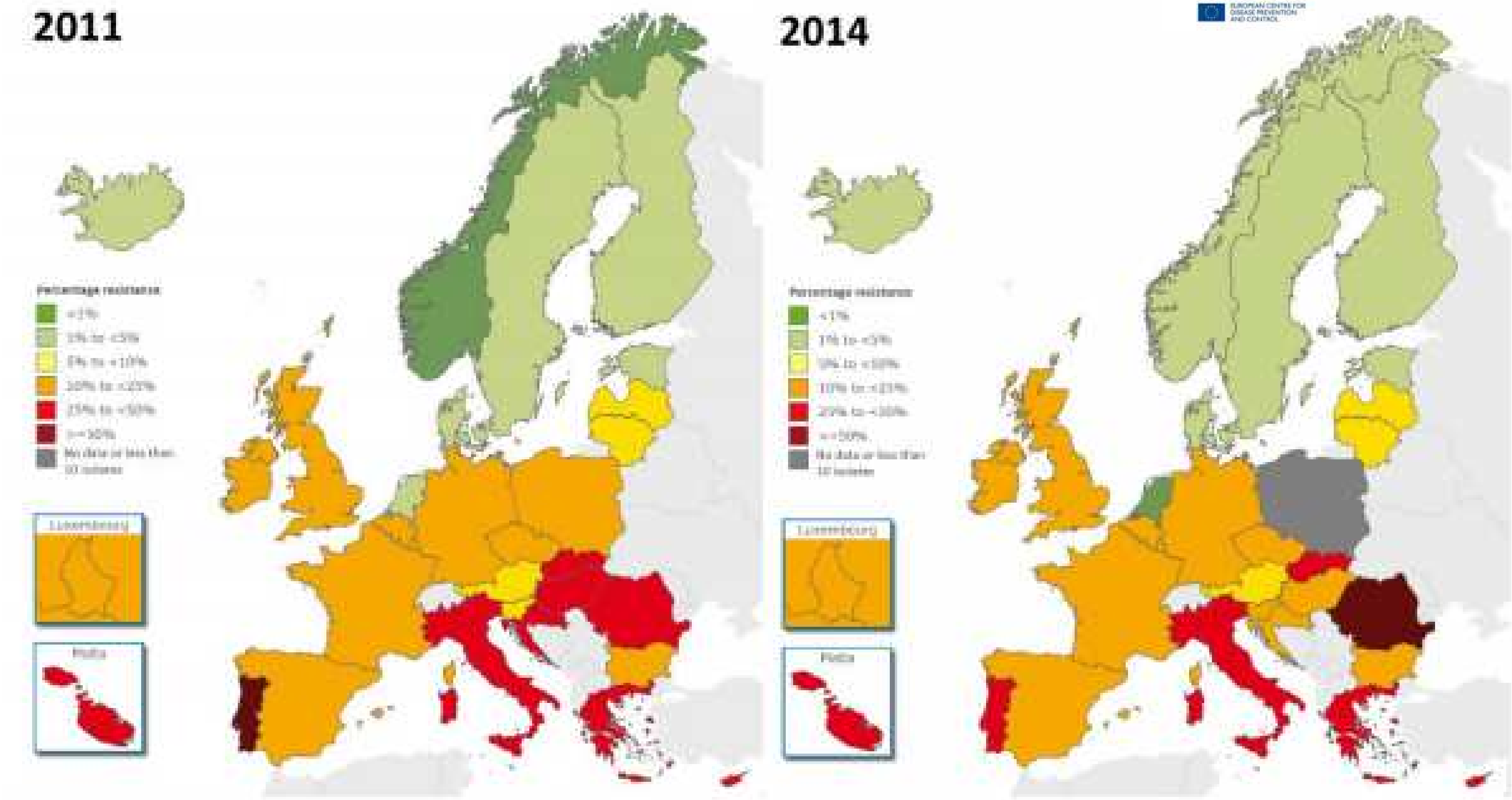


Antibiotico resistenza: *Klebsiella pneumoniae*

Percentuale di isolati resistenti ai carbapenemi

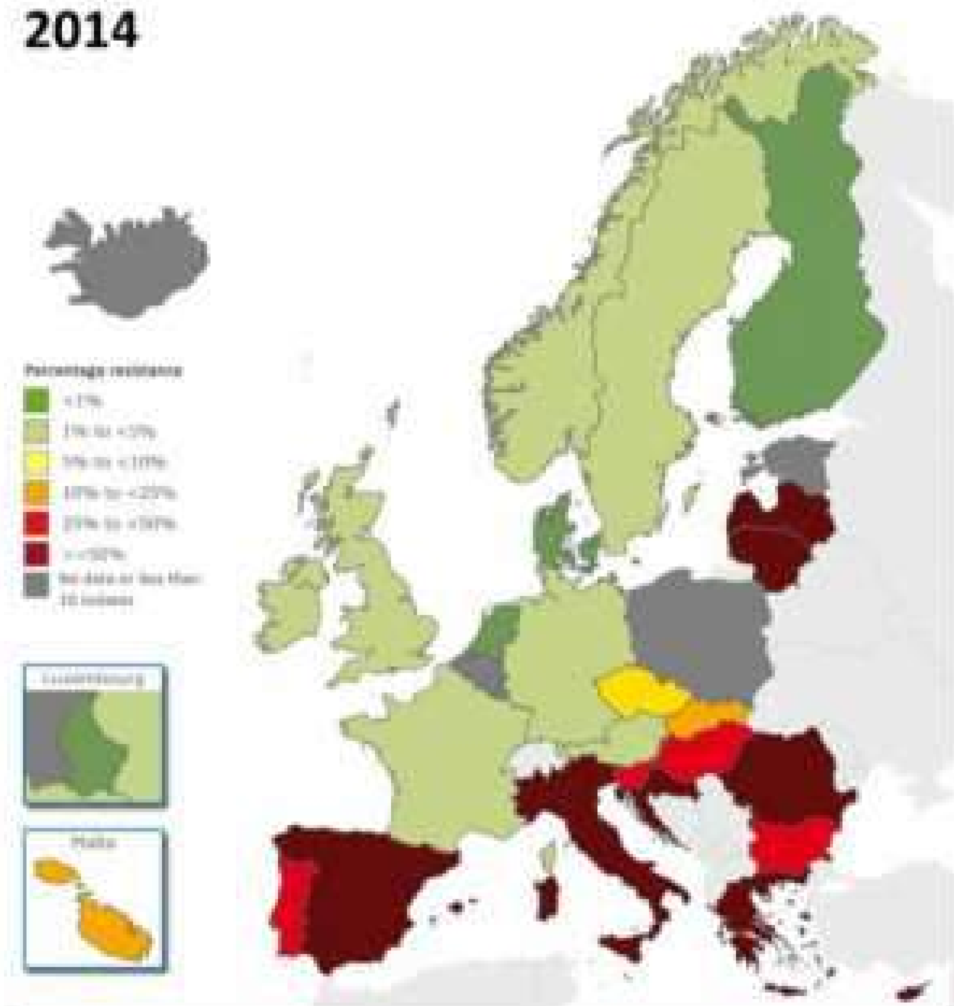
Antibiotico resistenza: *Staphylococcus aureus*

Percentuale di isolati resistenti alla meticillina



Antibiotico resistenza: *Acinetobacter* spp.

Percentuale di isolati resistenti ai fluorochinoloni, aminoglicosidi e carbapenemi



Antibiotico resistenza: che fare?

- 2001: congresso WHO a Ginevra. STRATEGIE PER LA LOTTA ALL'ANTIBIOTICO RESISTENZA
- 2005: WHO SOLLECITA UN'AZIONE SULLA ANTIBIOTICO RESISTENZA
- 2008: il gruppo di lavoro ECDC ed EMEA stilano il RAPPORTO «The bacterial challenge: ti
- 2011: World Health Day
- 2013: DECISIONE N. 1082/2013/UE DEL PARLAMENTO EUROPEO E DEL CONSIGLIO
- 2015: G7 DEI MINISTRI DELLA SANITÀ sulla resistenza agli antimicrobici

Antibiotico resistenza: sensibilizzazione nel

Qualunque utilizzo di agenti antimicrobici ha le potenzialità di selezionare organismi

Antibiotici.
Usali in modo corretto,
mai per curare
raffreddore e influenza.

GIORNATA
EUROPEA
DEGLI ANTIBIOTICI

UN'INIZIATIVA EUROPEA
PER LA SALUTE

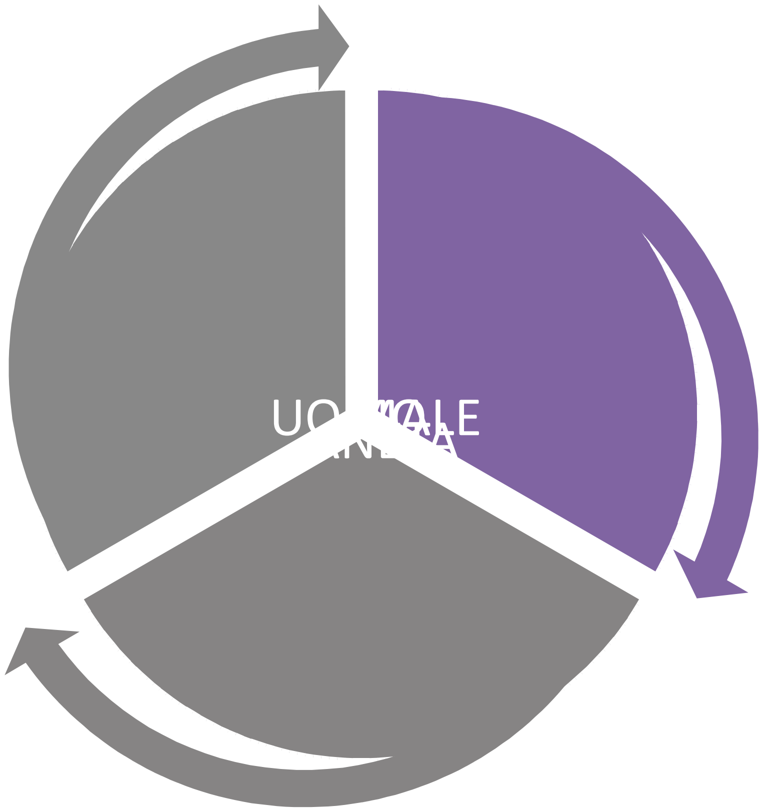
HANDLE
ANTIBIOTICS
WITH CARE

GET
SMART
Know When Antibiotics Work

10 febbraio 2016

One health approach

"Lo sforzo di collaborazione tra discipline diverse - che lavorino a livello locale, nazionale e globale - al fine di raggiungere un livello di salute ottimale per le persone, gli animali e l'ambiente"



Approccio One-Health

World Health /

Un approccio globale ad un problema mondiale

Il piano di azione deve essere attuato a livello nazionale ed internazionale.

Deve coinvolgere tutti i settori rilevanti: salute dell’uomo, animali, agricoltura, ambiente e ricerca.

Il World Health Assembly ha individuato cinque obiettivi:

- migliorare la consapevolezza e la comprensione della resistenza antimicrobica attraverso una **comunicazio** l'educazione e la formazione
- rafforzare le conoscenze attraverso la sorveglianza ed incrementare la ricerca
- ridurre l'incidenza di infezioni attraverso efficaci misure igienico-sanitarie e prevenzione delle infezioni
- ottimizzare l'uso di farmaci antimicrobici nella salute umana e animale
- incrementare gli investimenti per lo sviluppo di nuovi farmaci, strumenti diagnostici, vaccini e altri interven

Approccio One-Health

Un approccio globale ad un problema mondiale

UNA ALLEANZA TRIPART

http://apps.who.int/iris/bitstream/10665/193736/1/9789241509763_eng.pdf?ua=1&ua=1

Antibiotico resistenza

Un approccio globale ad un problema mondiale

Prevenzione delle infezioni microbiche e della loro propagazione
Utilizzo prudente degli antibiotici, favorendo le diagnosi microbiologiche
Queste indicazioni si intendono estese all'industria della salute animale, veterinari e allevatori

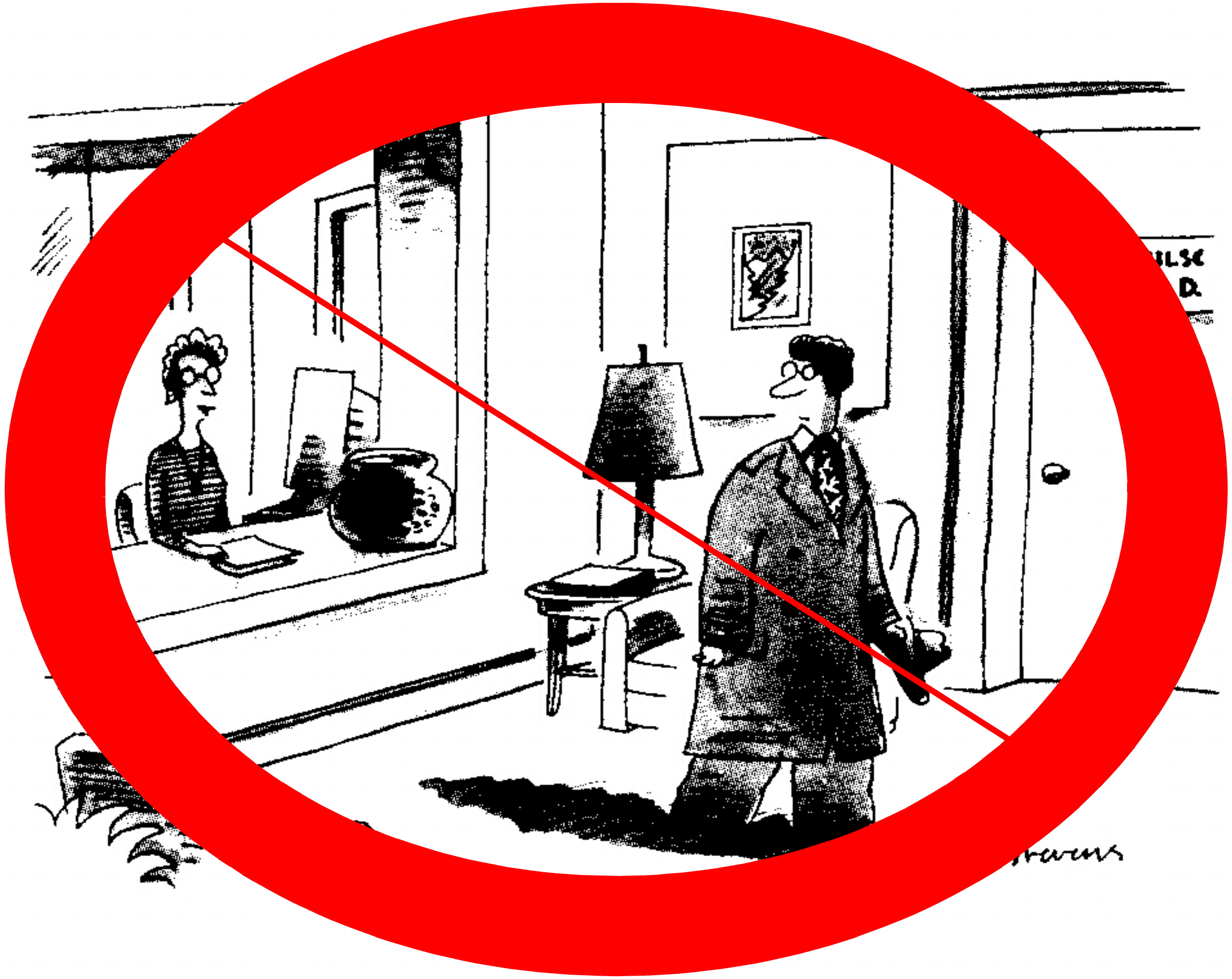
Produzione di antimicrobici di alta qualità in ambito medico e veterinario
Rafforzare la ricerca (sviluppo di nuovi antimicrobici, vaccini, trattamenti antimicrobi alternativi)
Sistema di sorveglianza a livello nazionale ed internazionale, particolarmente sui patogeni di difficile trattamento terapeutico
Sviluppare un network per il rapido scambio di ricerche e dati

Protocolli standard e linee guida per evidenziare la presenza di agenti antimicrobici e residui nell'ambiente (acqua, mangimi per animali terrestri ed acquatici)

One health approach

Tutti dobbiamo cambiare le nostre abitudini sugli antibiotici come

- Pazienti
- Dottori/ricercatori
- Veterinari/padroni di animali domestici
- Genitori
- Divulgatori di informazione



«Non dimentichi di prendere, uscendo, una manciata
dei nostri antibiotici in omaggio.»

Infezioni resistenti agli antibiotici e approccio one health:
una strategia senza confini per combattere i superbatteri

ITALIA [illegible] Ministero

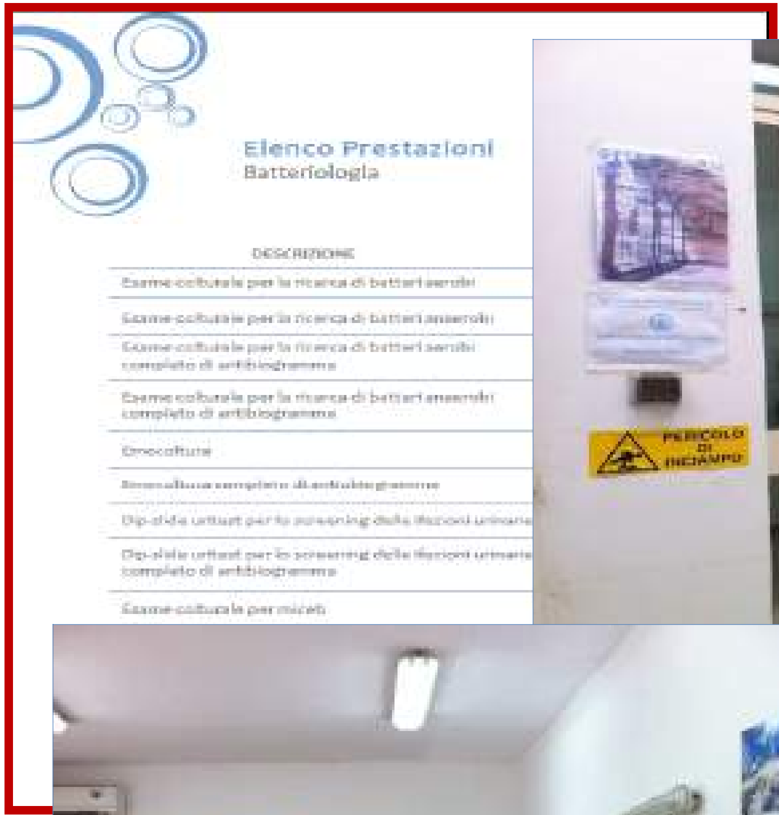
G A P = global action plan

BIOFABEN-Biosicurezza e benessere

Riduzione del 29% settore cunicolo

Dosi antibiotici usati un anno in Italia
6.670 485

Importante il ruolo del
laboratorio di batteriologia
nella pratica clinica veterinaria


Elenco Prestazioni
Batteriologia
DESCRIZIONE
Esame colturale per la ricerca di batteri aerobi
Esame colturale per la ricerca di batteri anaerobi
Esame colturale per la ricerca di batteri aerobi completo di antibiogramma
Esame colturale per la ricerca di batteri anaerobi completo di antibiogramma
Emocolture
Emocoltura completo di antibiogramma
Dip-slide urtest per lo screening delle infezioni urinarie
Dip-slide urtest per lo screening delle infezioni urinarie completo di antibiogramma
Esame colturale per miceti


PERICOLO
DI
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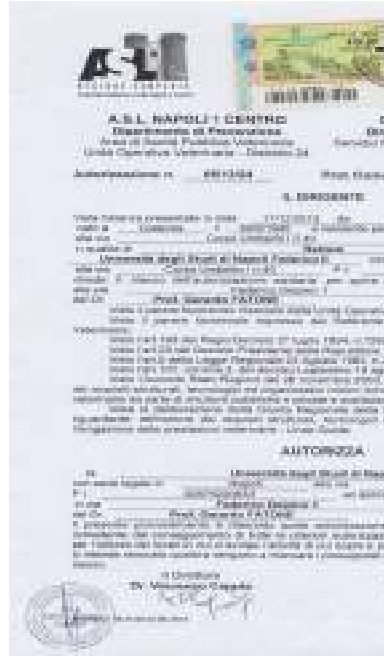
UNIVERSITÀ DEGLI STUDI DI NAPOLI
"FEDERICO II"
Dipartimento di Medicina
Veterinaria e Produzioni Animali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journal homepage: www.elsevier.com/locate/apjtb

Original article http://dx.doi.org/10.1016/j.apjtb.2015.11.012

An update on microbiological causes of canine otitis externa in Campania Region, Italy

Luisa De Martino[1*], Francesca Paola Nocera[1], Karina Mallardo[1], Sandra Nizza[1], Eleonora Masturzo[1], Filomena Fiorito[1], Giuseppe Iovane[1], Piergiorgio Catalanotti[2]

Results: Thirty-one out of 122 dogs were positive for yeast species (25.4%, 95% confidence interval (*CI*): 18.2%–34.2%) with a higher prevalence of *Malassezia pachydermatis* (21/31 isolates, 67.7%, *CI*: 48.5%–82.7%), and a total of 91 out of 122 dogs were positive for bacterial species (74.6%; *CI*: 65.8%–81.8%) with a higher prevalence of *Staphylococcus pseudintermedius* (45/143 isolates, 31.5%, *CI*: 24.1%–39.8%). These

Number and percentage of isolated yeasts from dogs with otitis externa.

Yeasts	No. of isolates	Percent (%)	95% *CI*
M. pachydermatis	21	67.74	48.54–82.68
Candida parapsilosis	4	12.90	4.22–30.76
Candida tropicalis	2	6.45	1.13–22.84
Candida glabrata	1	3.23	0.17–18.51
Candida albicans	1	3.23	0.17–18.51
Aspergillus niger	1	3.23	0.17–18.51
Exophiala spp	1	3.23	0.17–18.51
Total	31		

Ippologia, Anno 21, n. 3, Settembre 2010

Presenza di stafilococchi meticillina-resistenti in cavalli clinicamente sani

Karina Mallardo, Sandra Nizza, Bruna Facello, Emilia Pierni, Eleonora Masturzo,
Ugo Pagnini, Giuseppe Iovane, Luisa De Martino

1 Dipartimento Patologia e Sanità Animale, Sezione di Malattie Infettive, Facoltà di Medicina Veterinaria, Università di Napoli "Federico II"
2 Dipartimento di Struttura, Funzioni e Biotecnologie
3 Medico Veterinario, Libero professionista, Avellino
4 Istituto Zooprofilattico Sperimentale del Mezzogiorno-Portici, Napoli

RIASSUNTO

La meticillina è stata introdotta per la prima volta in medicina umana negli anni '50 per il trattamento di infezioni causate da *Staphylococ* penicillinasi-resistente, La resistenza alla meticillina è mediata da una proteina, la Penicillin binding protein (PBP 2a) che ha una bassa aff antibiotici beta-lattamici. La proteina PBP 2a è codificata dal gene mecA.

Lo scopo del nostro studio è stato quello di documentare la presenza di ceppi di stafilococchi meticillino-resistenti (MRS) isolati da ta nasali equini e del personale addetto al governo degli animali e di determinare la relazione genetica tra questi. Dai tamponi nasali ed sono stati isolati complessivamente 42 ceppi i stafilococchi meticillino-resistenti, di cui *S. xylosus* (47,6%), *S. sciuri* (40,5%), *S. lentus* *S. aureus* (2,4%) e *S. capitis* (2,4%). Tutti gli isolati contenevano il gene mecA come confermato dall'analisi di PCR.

Il nostro studio è un'ulteriore conferma che i cavalli possono fungere da reservoir di MRS e da fonte di infezioni e reinfezioni per

J Vet Diagn Invest 22:77–82 (2010)

Methicillin-resistant staphylococci isolated from healthy horses and horse personne

Luisa De Martino, Maria Lucido, Karina Mallardo, Bruna Facello, Michelina Malla
Giuseppe Iovane, Ugo Pagnini, Maria Antonietta Tufano,[1] Piergiorgio Catalanot

Abstract. Methicillin-resistant staphylococci (MRS) were isolated from nasal swabs of 56 of 159 (35.2%
confidence interval [CI]: 27.9–43.2%) healthy horses. Two nasal swabs were collected from each horse; 43
(27%; 95% CI: 20.5–34.8%) of the cohort were colonized by MRS strains in 1 nostril, while in the remaining
159 (8.2%; 95% CI: 4.6–13.9%), different or identical MRS strains were isolated in both nostrils. Of t
humans in close contact with the horses tested, 4 (13.8%; 95% CI: 4.5–32.6%) were found to be carriers of
All isolates were coagulase negative with the exception of 2 coagulase-positive MRS strains, *Staphyloc*
aureus and *Staphylococcus pseudintermedius*, both isolated from horses. To assay the methicillin resista
susceptibility test to oxacillin with standardized disk diffusion method, a PBP-2a latex agglutination test,
methicillin resistance gene (*mecA*) polymerase chain reaction assay were performed. Pulsed-fiel
electrophoresis patterns of isolates from horses and humans in close contact with the horses revealed simi
The results suggest evidence of transmission between animals, from animals to humans, and vice versa.

Italian Journal of Animal Science 2010; volume 9:e26

PAPER

Antibiotic susceptibility of haemolytic *E. coli* strains isolated from diarrhoeic faeces of buffalo calves

Sandra Nizza, Karina Mallardo, Annarosaria Marullo, Valentina Iovane, Luisa De Martino, Ugo Pagnini

Dipartimento di Patologia e Sanità Animale, Università di Napoli Federico II, Italy

Abstract

We investigated the antibiotic resistance of a collection of 94 strains (55.6%) of haemolytic *Escherichia coli* (*E. coli*) isolated in 169 diarrhoeic faecal samples from buffalo (*Bubalus bubalis*) calves. Bacterial colonies on McConkey and EHLY agar that showed the morphology of *E. coli* were biochemically tested and then, furtherly classified as haemolytic, using PCR-based assays for enterohemorrhagic *E. coli hly* (hly_{EHEC}) virulence gene. When the pathogenic isolates were tested for their susceptibility to 13 different antibiotics, each tested isolate was found to be highly resistant to more than three antibiotics. In fact, absolute resistance (100% of resistance) to penicillin G, lincomycin, neomycin, was detected. Amoxicillin/clavulonic acid and ampicillin were found to be moderately effective against the majority of isolates (46.8% of resistance). Thirty-two (34%) of the haemolytic *E. coli* strains were phenotypically resistant to tetracycline. None of the isolated strains of *E. coli* was resistant to colistin sulfate. We conclude that the high prevalence of antimicrobial resistance detected in our study is a source of concern, and cautious use of antibiotics in food producing animals is highly recommended.

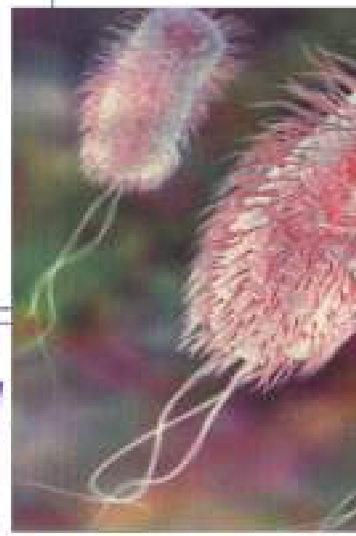
Table 1. Serogroups of *Escherichia coli* isolated from diarrhoeic faecal samples from buffalo (*Bubalus bubalis*) calves.

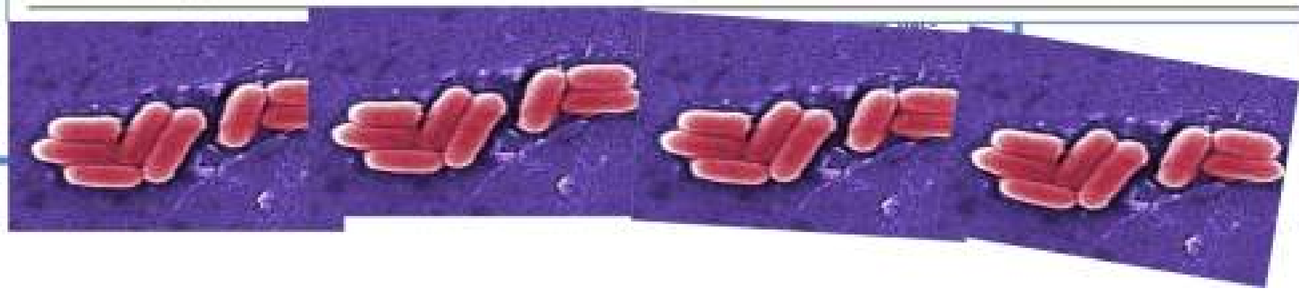
Serotypes of EHEC	Positive strains	%	95% Confidence interval
O157	40	42.5	32.5-53.2
O26	4	4.3	1.4-11.1
O111	4	4.3	1.4-11.1
O128	12	12.8	7.1-21.6
O103	0	0.0	0.1-4.9
ND	34	36.2	26.7-46.8

ND: not detected.

Table 2. Resistance to thirteen antimicrobial agents among 94 haemolytic isolates of *E. coli*.

Antibiotics	No. of resistant isolates	%	95% Confidence interval
Nalidixic acid (NA)	22	23.4	15.6-33.5
Amoxicillin/clavulonic acid (AMC)	44	46.8	36.5-57.3
Ampicillin (AMP)	44	46.8	36.5-57.3
Apramycin (APR)	20	21.3	13.8-31.2
Colistin sulfate (CS)	0	0	0.1-4.9
Enrofloxacin (ENR)	18	19.1	12.0-28.8
Gentamicin (CN)	8	8.5	4.0-16.6
Tetracycline (TE)	32	34.0	24.8-44.6
Trimethoprim/Sulphametoxazole (SXT)	14	14.9	8.7-24.1
Ceftiofur (EFT)	4	4.3	1.4-11.1
Neomycin (N)	94	100	95.1-99.9
Lincomycin (MY)	94	100	95.1-99.9
Penicillin G (P)	94	100	95.1-99.9





Journal of Agricultural Science and Technology A 1 (2011) 997-1003
Earlier title: Journal of Agricultural Science and Technology, ISSN 1939-1250

Lethal Co-infection of Rotavirus and *E. coli* O157:H7 in Mediterranean Buffalo Calves

L. De Martino, F. Fiorito, G. Pisanelli, S. Nizza, K. Mallardo, R. Schettini, S. Montagnaro, G. Iovane and U. Pagnini
Department of Pathology and Animal Health, Section of Infectious Diseases, School of Veterinary Medicine, University of Naples "Federico II", Naples 80137, Italy

Received: April 6, 2011 / Published: November 20, 2011.

Abstract: In this paper, we reported lethal episodes in buffalo calves, due to rotavirus and concurrent infection with *E. coli* O157:H7, in a closed community in Italy. A first detection of group A rotavirus infection was made by using an immunochromatographic assay, the virus isolation was performed on Monkey kidney cells (MA-104), and the rotavirus isolates were G and P characterized by a reverse transcription (RT)-PCR assay using a nested multiplex method. Co-infection with *E. coli* strains was demonstrated by classical bacteriological procedures. The *E. coli* isolates were analysed by Vero cell assay and PCR. This study showed the presence of group A rotavirus of G6-P5 serotypes and verocytotoxin producing or non-producing *E. coli* O157:H7 in faecal samples. So far the concomitant presence of rotavirus and *E. coli* O157:H7 in cases of enteritis in *Bubalus bubalis* in Italy is not reported in the literature, as well as the mortality of buffalo calves probably due at an additional virulence factor, Shiga toxin 1 (*stx1*) gene, of the *E. coli* O157:H7 strains.

Journal of Agricultural Science and Technology A 1 (2011) 997-1003
Earlier title: Journal of Agricultural Science and Technology, ISSN 1939-1250

Lethal Co-infection of Rotavirus and *E. coli* O157:H7 in Mediterranean Buffalo Calves

L. De Martino, F. Fiorito, G. Pisanelli, S. Nizza, K. Mallardo, R. Schettini, S. Montagnaro, G. Iovane and U. Pagnini

Table 1 Results of the PCR of the isolated *E. coli* O157:H7.

Specimen	*stx1*	*stx2*	EHEC O157:H7 (*hlyA*)
1	-	-	+
2	-	-	+
3	+	-	+
4	+	-	+
5	-	-	+
6	+	-	+
7	-	-	+
8	+	-	+

- means negative result; + means positive result.

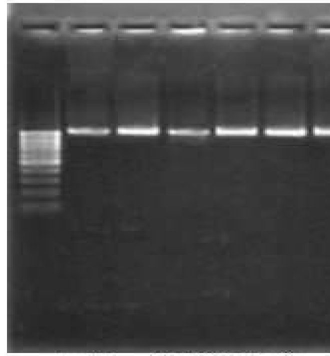


Fig. 1 A representative RT-PCR for Beg9/End9 primers (1,062 bp).

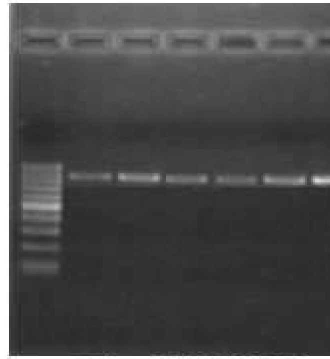


Fig. 2 A representative RT-PCR for Con2/Con3 primers (880 bp).

Molecular BioSystems

Cite this: *Mol. BioSyst.*, 2012, **8**, 1060–1067

www.rsc.org/molecularbiosystems

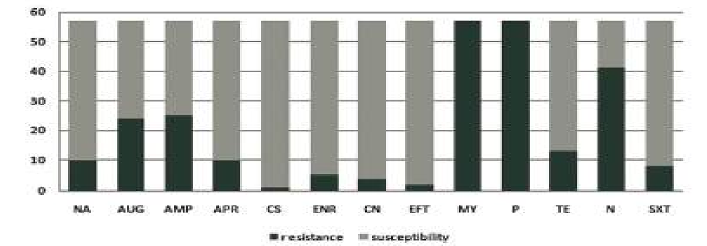
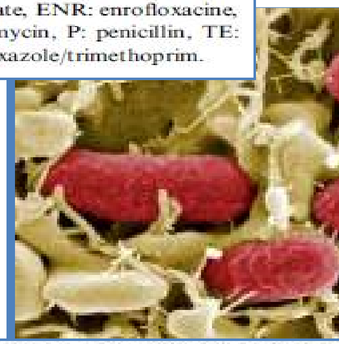
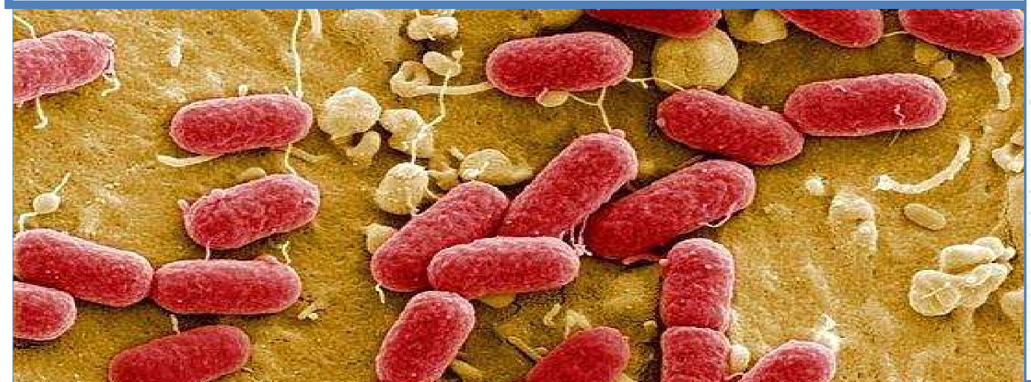


Fig. 1 Number of bacteria resistant to each tested antibiotic, considering 57 isolates. NA: nalidixic acid, AUG: augmentin, AMP: ampicillin, APR: apramycin, CS: colistin sulfate, ENR: enrofloxacine, CN: gentamicin, EFT: ceftiofur, MY: lincomycin, P: penicillin, TE: tetracycline, N: neomycine, SXT: sulfamethoxazole/trimethoprim.

Comparative proteomics to evaluate multi drug resistance in *Escherichia coli*†

Cristian Piras,‡[a] Alessio Soggiu,‡[b] Luigi Bonizzi,[c] Alessandro Gaviraghi,[c] Francesca Deriu,[c] Luisa De Martino,[d] Giuseppe Iovane,[d] Angela Amoresano[e] and Paola Roncada*[e,f]

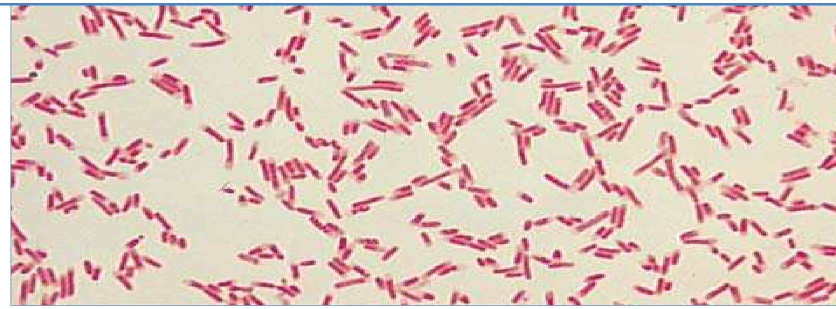




Drug resistance in food-borne bacterial pathogens is an almost inevitable conseq
of antimicrobial drugs, used either therapeutically or to avoid infections in food-
animals. In the past decades, the spread and inappropriate use of antibiotics hav
considerable increase of antibiotics to which bacteria have developed resistance a
bacteria are becoming resistant to more than one antibiotic simultaneously. Und
mechanisms at the molecular level is extremely important to control multi-resista
develop new therapeutic strategies. In the present study, comparative proteomics
characterize membrane and cytosolic proteome in order to investigate the regulat
expression in multi-resistance *E. coli* isolated from young never vaccinated water
highlighted differentially expressed proteins under multi drug resistance conditio
insights about mechanisms involved in resistance, as quorum sensing mechanism
possible novel bacterial targets to develop alternative antibiotic drugs.

Table 1 Antibiotic resistance profile related to samples included in this study. 'R' means resistance to the tested antibiotic. On the basis of the resistance/susceptibility test, samples were classified into C and MR groups. C group: samples 1, 2, 8, 10, 11, and 12 resistant to a maximum of 1 antibiotic, excluding MY, P and N common to all; MR group: 3, 4, 5, 6, 7, and 9

Sample	NA	AUG	AMP	APR	CS	ENR	CN	EFT	MY	P	TE	N	SXT
1					R				R	R		R	
2									R	R		R	
3	R	R	R	R		R	R		R	R	R	R	R
4	R	R	R			R			R	R	R	R	R
5		R	R	R					R	R	R	R	R
6			R						R	R		R	
7	R	R	R	R		R	R	R	R	R	R	R	
8									R	R		R	
9	R	R	R			R	R	R	R	R	R	R	R
10									R	R		R	
11									R	R		R	
12									R	R		R	



Journal of Medical Microbiology (2012), **61**, 438–442 DOI 10.1099/jmm.0.033845-0

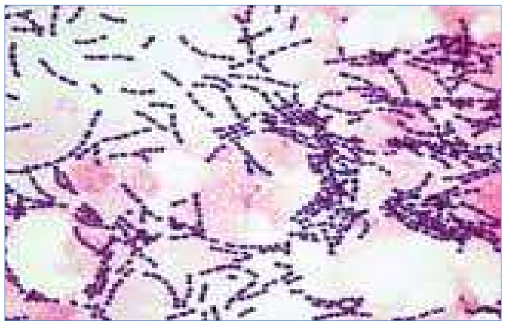
Case Report

Streptococcus constellatus-associated pyoderma in a dog

Luisa De Martino,[1] Sandra Nizza,[1] Claudio de Martinis,[1] Valentina Foglia Manzillo,[2] Valentina Iovane,[1] Orlando Paciello[1] and Ugo Pagnini[1]

Fig. 1. Large nodular lesions on the lumbar re purulent exudates are present.

This report describes a case of chronic and deep pyodermitis in a 4-year-old male dog with a 3-month skin problems history that had been treated unsuccessfully with fluoroquinolone therapy, prescribed by a private medical veterinary practice, without an early diagnosis. Microbiological examination and antimicrobial susceptibility testing were performed in our laboratory (Faculty of Veterinary Medicine) and a diagnosis of *Streptococcus constellatus*-associated pyoderma in the dog was made. A new antimicrobial treatment, with tetracyclines, was designed after the definitive diagnosis and antimicrobial susceptibility testing performed by the Kirby–Bauer disc diffusion method. The dog remained free of clinical illness at completion of therapy. To our knowledge, this is the first case of a canine pyoderma caused by *S. constellatus*, a commensal organism which may also cause pyogenic infections. Furthermore, this study confirms that a fluoroquinolone represents a poor empirical choice for initial therapy of canine pyoderma.



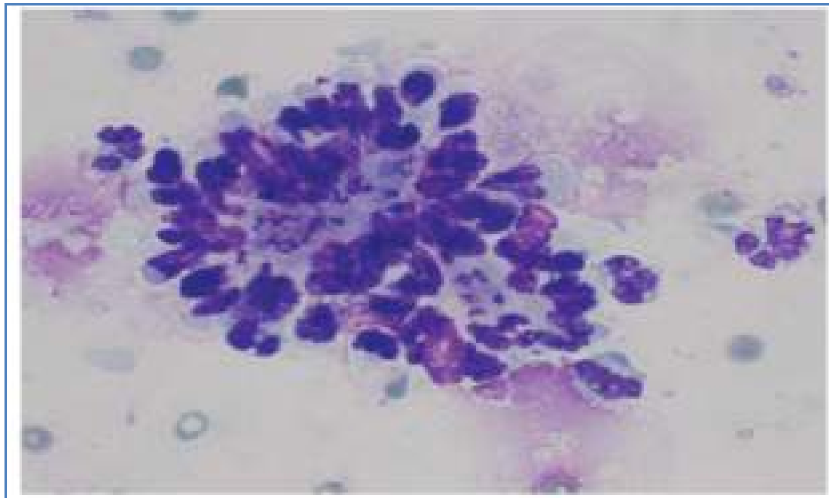


Fig. 3. Photomicrograph of a cytological slide showing several degenerated neutrophils associated with many spherical-shaped bacteria.

Open Journal of Veterinary Medicine, 2013, 3, 131-135
doi:10.4236/ojvm.2013.32021 Published Online June 2013 (http://www.scirp.org/journal/ojvm)

Scientific Research

Penicillin-Resistant *Aerococcus viridans* Bacteremia Associated with Bovine Severe Respiratory Syndrome

Jacopo Guccione[1], Sandra Nizza[2], Karina Mallardo[1], Antonietta Cantiello[2], Filomena Fiorito[2], Antonio Di Loria[1], Luisa De Martino[2*]

ABSTRACT

Aerococcus viridans, a less frequently isolated bacteria, is a gram-positive, catalase-negative coccus, found singly or in tetrads, with biochemical and growth characteristics of streptococci and enterococci. This microorganism, usually susceptible to penicillin, is often found in the environment and is infrequently associated with human/veterinary infections. We described a case of Holstein Friesian female calf, 150-day-old, affected by respiratory emergencies. Following the clinical signs, radiographic analysis and bacteriological/molecular examinations carried out on blood culture, a diagnosis of severe broncho-pulmonary disease associate with a multidrug-resistant *A. viridans* bacteremia was done. The present case highlights the invasive nature of a saprophytic bacterium showing a broad profile of antibiotic-resistance including *β-lactams*. Furthermore, this report confirms that the effectiveness of an antibiotic therapy is based primarily on a sure diagnosis including susceptibility testing.

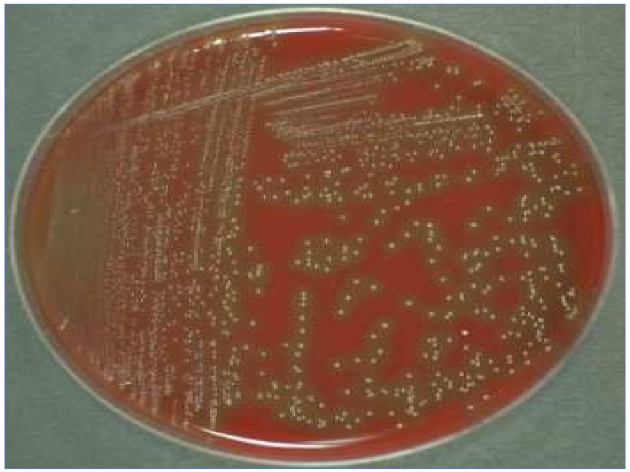


Table 1. Susceptibility of the *A. viridans* strain to sixteen antibiotics.

Category	Antibiotics	[a]Susceptible/Intermediate
Penicillins	Penicillin	R
	Amoxicillin and Clavulanate	R
	Ampicillin	R
Aminoglycosides	Amikacin	R
	Gentamicin	R
	Kanamycin	I
Cephalosporins	Cefotaxime	R
	Ceftiofur	R
	Ceftriaxone	R
	Cefquinome	R
Fluoroquinolones	Enrofloxacin	R
Macrolides	Erythromycin	S
	Tilmicosin	S
Sulfonamides + Diaminopyrimidines	Trimethoprim/Sulfamethoxazole	R
Tetracyclines	Tetracycline	S
	Doxycycline	S

[a]S = Susceptible; I = Intermediate; R = Resistant. (All antibiotic discs are from Oxoid Ltd., except tilmicosin from Santa-Cruz bio

Asian Pac J Trop Biomed 2013; 3(3): 169–173

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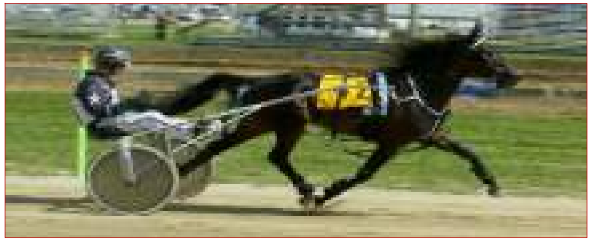
Document heading doi:

A comparative evaluation of methicillin–resistant staphylococci isolated from harness racing–horses, breeding mares and riding–horses in Italy

Karina Mallardo, Sandra Nizza, Filomena Fiorito, Ugo Pagnini, Luisa De Martino*



ABSTRACT

Objective: To investigate the prevalence of methicillin–resistant staphylococci (MRS) which is a potencial risk factor of transmission between animals and humans in different types of horses (harness racing–horses, breeding mares and riding–horses) and to compare the antimicrobial resistance of the isolates. **Methods:** A total of 191 healthy horses, housed at different locations of the Campania Region (Italy), were included in the study. Nasal swab samples were collected from each nostril of the horses. The *mecA* gene was detected by a nested PCR technique. Antibiotic susceptibility was tested for each isolate. **Results:** MRS was isolated from nasal samples of 68/191 (35.6%; 95% *CI*: 28.9%–42.9%) healthy horses. All isolates were coagulase–negative with the exception of two coagulase–positive MRS strains, identified as *Staphylococcus aureus* and *Staphylococcus pseudintermedius*. 2/83 (2.4%; 95% *CI*: 0.4%–9.2%). Interestingly, both coagulase–positive MRS isolates were from harness racing–horses. These horses also presented a significantly higher positivity for MRS (53.3%; 95% *CI*: 40.1%–66.1%) than the breeding mares and riding–horses groups. Antibiotic susceptibility testing showed difference between isolates due to different origins except for an almost common high resistance to aminopenicillins, such as ampicillin and amoxicillin. **Conclusions:** It can be concluded that harness racing–horses may act as a significant reservoir of MRS as compared to breeding mares and riding–horses.

Table 1
Detection of MRS isolated from nasal swabs of horses.

Horse type	Number of horses	Number of carriers	Number of isolates	Positive horses (%)	95% *CI* (%)	MRS
Harness racing horses	60	32	37	53.3	40.1–66.1	*S. sciuri* (12); *S. lentus* (11); *S. capitis* (5); *S. xylosus* (4); *S. aureus* (1); *S. auricularis* (1); *S. cohnii cohnii* (1); *S. hominis* (1); *S. pseudintermedius* (1)
Breeding mares	64	24	30	37.5	26.0–50.5	*S. lentus* (24); *S. xylosus* (4); *S. sciuri* (2)
Riding horses	67	12	16	17.9	10.1–29.6	*S. sciuri* (12); *S. xylosus* (3); *S. lentus* (1)

By the Student–Newman–Keuls Multiple Comparisons test, the prevalence of MRS was significantly different between the three groups of the examined horses. Number in the bracket indicates the number of isolates for each *Staphylococcus* species.

Table 2
Percentage of resistance to 18 antimicrobial ag

Antibiotics	Harness racing–horses		Breeding m
	S. lentus	*S. sciuri*	*S. lentus*
OX	100.0	100.0	100.0
AMC	100.0	100.0	33.3
AMP	100.0	100.0	8.3
IMI	0.0	0.0	16.6
MRP	0.0	0.0	75.0
CEC	0.0	0.0	41.6
CXM	0.0	0.0	66.6
CPR	0.0	0.0	66.6
CRO	9.1	0.0	75.0
FOX	9.1	0.0	66.6
E	18.2	25.0	25.0
MY	100.0	100.0	58.3
TE	72.7	25.0	41.6
DXT	72.7	25.0	41.6
AK	18.2	8.3	0.0
SXT	0.0	0.0	0.0
CS	0.0	0.0	25.0
CIP	27.3	8.3	25.0

OX: oxacillin; AMC: amoxicillin/clavulonic acid
IMI: imipenem; MRP: meropenem; CEC: cefaclo
CPR: cefprozil; CRO: ceftriaxone; FOX: cefoxitin
lincomycin; TE: tetracycline; DXT: doxycycline;
trimethoprim/sulphametoxazole; CS: colistin sul

J O U R N A L   O F   D E R M A T O L O G I C A L   R E S E A R C H   A N D   T H E R A P Y
DOI : 10.14302/issn.2471-2175.jdrt-16-1296   October **2016**

A successful vancomycin treatment of multidrug-resistant MRSA-associated canine pyoderma

Valentina Foglia Manzillo, Francesca Paola Nocera, Luisa De Martino, Manuela Gizzarelli, Gaetano Oliva.
Department of Veterinary Medicine and Animal Production, University "Federico II", Via F. Delpino 1, 80137 Naples, Italy.

Case report. This report describes a case of diffuse pyoderma in a 10-year-old female dog with hypothyroidism. A previous treatment, without an early diagnosis, including cephalosporin associated with prednisolon resulted to be unsuccessfully. After clinical and microbiological examination in our laboratories, a diagnosis of methicillinresistant *Staphylococcus aureus* (MRSA)-associated pyoderma was made. The antimicrobial susceptibility testing evidenced many resistances and susceptibility of the strain only to vancomycin and linezolid. A new therapy against hypothyroidism and associated with an appropriate antimicrobial (vancomycin) treatment, improved and resolved the infection.

Clinical significance. To our knowledge, this is the first case of canine pyoderma caused by a strain of MRSA with a such severe multiresistant profile. MRSA infections present a serious challenge because of the emergence of resistance to numerous conventional antibiotics and the risk factors associated with the transfer of the bacteria to humans, who have a contact with infected pets.

Fig. 1 - A 10-year-old female Fila Brasileiro
alopecia, erythema, erosions, ulcers

Fig. 2 - Dog improvement
of specific treatm

salmonellosi

Comparative Immunology, Microbiology and Infectious Diseases 36 (2013) 101–108

Contents lists available at SciVerse ScienceDirect

Comparative Immunology, Microbiology and Infectious Diseases

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

Prevalence and antimicrobial susceptibility of Salmonella in European wild boar (*Sus scrofa*); Latium Region – Italy

T. Zottola[b], S. Montagnaro[a], C. Magnapera[a], S. Sasso[a], L. De Martino[a,*], A. Bragagnolo[b], L. D'Amici[b], R. Condoleo[b], G. Pisanelli[a], G. Iovane[a], U. Pagnini[a]

[a] Department of Pathology and Animal Health, School of Veterinary Medicine, University of Naples "Federico II" – Via Delpino no 1, 80137 Naples, Italy
[b] Experimental Zooprophylactic Institute of Lazio e Toscana Regions, Diagnostic Section of Latina – Strada Congiunte Destre snc 04100 Latina, Italy

Table 2
Distribution of Salmonella among European wild boars of different sexes and ages that were shot during the 2010–2011 and 2011–20
in the Natural Park Aurunci in the Latium region.

Salmonella ssp.	*N.* of positive animals of different sexes				*N.* of positive animals of different y				
	N. of positive animals/samples studied	Male	Female	UNK	<1	1–2	2–3	3–4	4–
Microbiological assay	54/499	25	23	6	8	23	11	7	0
Serological assay	255/383	122	128	5	19	58	42	60	39

UNK, unknown.

Table 4
Occurrence of antimicrobial drug resistance in 54 Salmonella spp. isolates from 499 European wild boars in the Latium region.

No. of Strains	% of resistance to																% of resistance to drugs				
	A	AC	Cz	Cef	Ctx	S	Gm	N	K	Su	SXT	Nx	Eno	C	T	Cl	0	1	2	3	≥4
54	3.7	1.8	1.8	3.7	1.8	18.5	5.5	0	0	92.5	14.8	1.8	0	0	5.5	14.8	7.4	42.5	33.3	11.1	5.5

Abbreviations. Ampicillin (A, 10 μg); amoxicillin and clavulanic acid (AC, 30 μg); cefazoline (Cz, 30 μg); cefotaxime (Ctx, 30 μg); ceftiofur (Cef, 30 μg); streptomycin (S, 10 μg); gentamycin (Gm, 10 μg); neomycin (N, 30 μg); kanamycin (K, 30 μg); sulphamethoxazole (Su, 300 μg); trimethoprim–sulphametoxazole (SXT, 23.75/1.25 μg); nalidixic acid (Nx, 30 μg); enrofloxacin (Eno, 5 μg); chloramphenicol (C, 30 μg); tetracycline (T, 30 μg); and colistin (Cl, 10 μg).

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Comparative Immunology, Microbiology and Infectious Diseases 36 (2013) 161–168

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Table 3
Salmonella serovars or subspecies isolated from 499 European wild boars in the Latium region.

Serovars	Group	Antigenic formula	Number
S. enterica subsp. salamae II	O:42 (T)	42:z:1,5	9 (16.6%)
	O:41 (S)	41:z:1,5	4 (7.4%)
S. enterica subsp. Diarizonae III b	O:50 (Z)	50:r:1,5,7	3 (5.5%)
	O:61	61:c,z35	1 (1.8%)
	O:61	61:i:e,n,x,z15	2 (3.7%)
	O:17 (J)	17:z10:e,n,x,z15	2 (3.7%)
S. enterica subsp. houtenae IV	O:38 (P)	38:z4,z23:-	2 (3.7%)
	O:40 (R)	40:z4,z23:-	3 (5.5%)
	O:43 (U)	43:z4,z23:-	1 (1.8%)
S. Fischerhuette	O:16 (I)	16:a:1,5	
S. Veneziana	O:11 (F)	11:i:e,n,x	
S. Napoli	O:9 (D1)	9,12:l,z13:e,n,x	
S. Kottbus	O:8 (C2–C3)	6,8:e,h:1,5	
S. Thompson	O:7 (C1)	6,7:k:1,5	
S. enterica subsp. arizonae III a	O:48 (Y)	48:z4,z23:-	
S. Toulon	O:18 (K)	18:l,w:e,n,z15	
S. Typhimurium	O:4 (B)	4,5,12:i:1,2	
S. enterica subsp. enterica	O:4 (B)	4,5,12:i-	
S. Stanleyville	O:4 (B)	4,5,12:z4,z23:-	
S. Burgas	O:16 (I)	16:l,v:e,n,z15	
S. Tennelhone	O:18 (K)	18:r:1,5	
S. Ferruch	O:8 (C2–C3)	8:e,h:1,5	
S. Choleraesuis	O:40 (R)	40:z4,z23	
S. Paratyphi	O:4 (B)	4,5,12:b:1,2	

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[b] Experimental Zooprophylactic Institute of Lazio e Toscana Regions, Diagnostic Section of Latina – Strada Congiunte Destre snc 04100 Latina, Italy

Table 5

Occurrence of antimicrobial drug resistance profiles in 54 Salmonella spp. isolates from 499 wild boars in the Latium region.

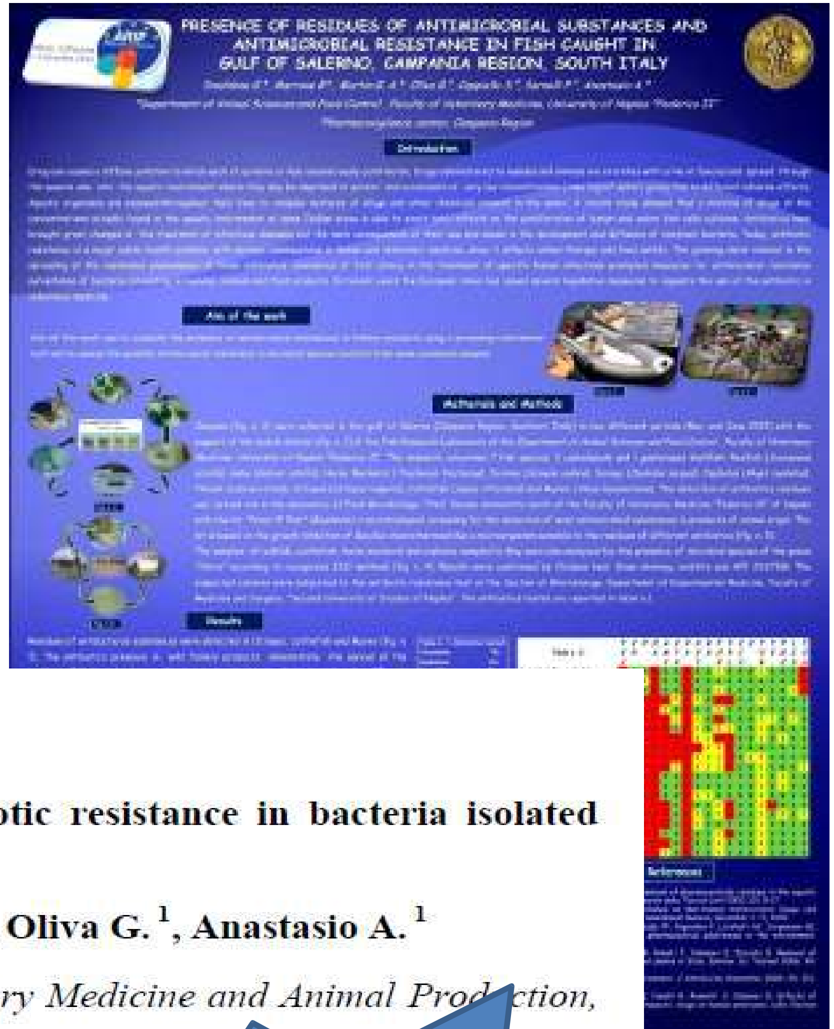
Resistance profile	No. (%) of isolates with the given resistance profile
A; S; Su; SXT; T	1 (2)
A; AC; Su; SXT	1 (2)
Cef; Ctx; S; Su	1 (2)
Cz; Su; SXT	1 (2)
Gm; Su; Cl	1 (2)
Gm; Su; T	1 (2)
S; Su; Cl	1 (2)
S; Su; SXT	1 (2)
Su; Nx; T	1 (2)
Cef; Su	1 (2)
Gm; Su	1 (2)
Su; T	1 (2)
Su; SXT	4 (8)
Su; Cl	5 (10)
S; Su	6 (12)
Su	23 (46)

Abbreviations. Ampicillin (A); amoxicillin and clavulanic acid (AC); cefazoline (Cz); cefotaxime (Ctx); ceftiofur (Cef); streptomycin (S); gentamycin (Gm); neomycin (N); kanamycin (K); sulphamethoxazole (Su); trimethoprim–sulphametoxazole (SXT); nalidixic acid (Nx); enrofloxacin (Eno); chloramphenicol (C); tetracycline (T); and colistin (Cl).

Residui di inibenti e antibiotico resistenza in prodotti ittici pescati nel golfo di Salerno

Poster pubblicato ed esposto all'ARIP (2nd Conferenza Europea sull'antibiotico-resistenza) Vilnius, **Lituania** Ottobre 2012

In collaborazione con il Dipartimento di **Ispezione** della Facoltà di Medicina Veterinaria



Presence of antibiotic residues and occurrence of antibiotic resistance in bacteria isolated from seawater fish and fishery products

Smaldone G[1]., Marrone R.[1], Cappiello S.[2], Martin G. A.[2], Oliva G.[1], Anastasio A.[1]

[1] *University of Naples "Federico II", Departement of Veterinary Medicine and Animal Production, via F. Delpino 1, 80137 Naples (NA) Italy*

[2] *Veterinary pharmacovigilance center, Campania region*

in corso di pubblicazione su BMC Veterinary Research


Porto Masuccio Salernitano

Risultati della ricerca

- Residui di Ab in polipo e seppia (dimostra il rilascio di sostanze inibenti nelle acque reflue e quindi nel mare)
- Resistenza batterica ai glicopeptidi (antibiotici di uso crescente negli ospedali) da parte di Vibrio alginolyticus e parahaemolyticus
- Ceppi resistenti isolati in sgombro e calamaro

N.B. La AR è più pericolosa della presenza di Ab perché può essere trasmessa da animale all’uomo e viceversa (Fonte FAO/OIE/WHO)

PRESENCE OF RESIDUES OF ANTIMICROBIAL SUBSTANCES AND ANTIMICROBIAL RESISTANCE IN FISH CAUGHT IN GULF OF SALERNO, CAMPANIA REGION, SOUTH ITALY

Smaldone G.*, Marrone R*, Martin G. A.*, Oliva G.*, Cappiello S.*, Sarnelli P.°, Anastasio A.*
*Department of Animal Sciences and Food Control, Faculty of Veterinary Medicine, University of Naples "Federico II"
°Pharmacovigilance center, Campania Region

Introduction

Drug use causes a diffuse pollution to which each of us more or less unconsciously contributes. Drugs administered to humans and animals are excreted with urine or faeces and spread through the sewers into the aquatic environment where they may be degraded or persist and accumulate at very low concentrations (μg/l or ng/l) giving rise to different adverse effects. Aquatic organisms are exposed throughout their lives to complex mixtures of drugs and other chemicals present in the water. A recent study showed that a mixture of drugs at the concentrations actually found in the aquatic environment of some Italian areas is able to exert toxic effects on the proliferation of human and zebra fish cells cultures. Antibiotics have brought great changes in the treatment of infectious diseases but the main consequence of their use and abuse is the development and diffusion of resistant bacteria. Today, antibiotic resistance is a major public health problem, with obvious consequences in human and veterinary medicine, since it affects animal therapy and food safety. The growing alarm related to the spreading of the resistance phenomenon of those substances considered of first choice in the treatment of specific human infections prompted measures for antimicrobial resistance surveillance of bacteria circulating in humans, animals and food products. In recent years the European Union has issued several legislative measures to regulate the use of the antibiotic in veterinary medicine.

Aim of the work

Aim of this work was to evaluate the presence of antimicrobial substances in fishery products using a screening colorimetric test and to assess the possible antimicrobial resistance in microbial species isolated from same examined samples.


Fig. n. 1


Fig. n. 2

Matherials and Methods

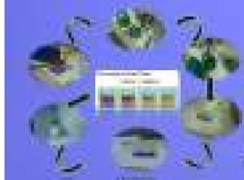


Fig. n. 3

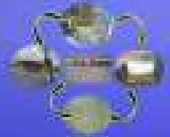


Fig. n. 4

Samples (Fig. n. 1) were collected in the gulf of Salerno (Campania Region, Southern Italy) in two different periods (May and June 2012) with the support of the mobile graves (Fig. n. 2) of the Fish Research Laboratory of the Department of Animal Sciences and Food Control, Faculty of Veterinary Medicine, University of Naples "Federico II". The research concerned 7 fish species, 2 cephalopods and 1 gasteropod shellfish: Redfish (Scorpaena scrofa), Hake (Merluccius merluccius), Horse Mackerel (Trachurus trachurus), Corvina (Sciaena umbra), Sarago (Diplodus sargus), Cephalus (Mugil cephalus), Tbream (Cantharus ...), Octopus (Octopus vulgaris), Cuttlefish (Sepia officinalis) and Murex (Murex brandaris). The detection of antibiotics residues was carried out in the laboratory of Food Microbiology "Prof. Teresa Antonietta Santi" of the Faculty of Veterinary Medicine "Federico II" of Naples with the kit "Premi ® Test" (Diagnostic), a microbiological screening for the detection of most antimicrobial substances in products of animal origin. The kit is based on the growth inhibition of Bacillus stearothermophilus, a microorganism sensible to the residues of different antibiotics (Fig. n. 3).
The samples of redfish, cuttlefish, horse mackerel and seabass sampled in May were also analyzed for the presence of microbial species of the genus "Vibrio" according to recognized ISO methods (Fig. n. 4). Results were confirmed by Oxidase test, Gram staining, motility and API SYSTEM. The suspected colonies were subjected to the antibiotic resistance test at the Section of Microbiology, Department of Experimental Medicine, Faculty of Medicine and Surgery, "Second University of Studies of Naples". The antibiotics tested are reported in table n.1.

Results

Residues of antibacterial substances were detected in Octopus, Cuttlefish and Murex (Fig. n. 5). The antibiotics presence in wild fishery products demonstrate the spread of the residues of these molecules used in human or veterinary medicine in wastewater effluents and then into the sea.
The microbial species isolated were Vibrio alginolyticus (VA), Vibrio parahaemolyticus (VP), Shewanella putrefaciens (SP) and Aeromonas (AE). V. parahaemolyticus was isolated from horse mackerel, redfish and cuttlefish. V. alginolyticus, isolated from cuttlefish and horse mackerel samples, showed antimicrobial resistance against 11 and 8 of the antibiotics tested, respectively (Table n. 2). In all bacterial strains resistance against TEC and VA, drugs belonging to the class of glycopeptides, was observed. TEC is a drug of new generation increasingly used in hospitals. Resistance to VA could be related not only to the use of VA in human medicine but also to a cross-resistance due to the use of Avoparcin, a glycopeptides utilized to improve performance in poultry flocks, which are present in the area near to sampling sites. The sensitivity against C detected in all bacterial strains suggests the limited administration to humans and the compliance on the use of the drug for food producing animals, banned since 1998.

Table n. 1

[illegible]


Fig. n. 5

Table n. 2

[illegible]

Conclusions

The interest on antibiotic residues presence in products of animal origin confirms the attention to food safety issues. However the risk of antibiotic resistance was considered significantly more serious than the risk associated with the presence of antibiotic residues in food during the Joint FAO/OIE/WHO workshop on "Non-human antimicrobial usage and antimicrobial resistance". The antimicrobial resistance to one or more molecules can be transmitted by animal to man and vice versa and the food chain is one of the main route for this transmission. Therefore this topic deserve great attention in the future.

References

- Heberer T. Occurrence, fate, and removal of pharmaceutical residues in the aquatic environment: a review of recent research data. Toxicol Lett 2002; 131: 5-17.
- Joint FAO/OIE/WHO Expert Workshop on Non-Human Antimicrobial Usage and Antimicrobial Resistance: Scientific assessment Geneva, December 1 - 5, 2003.
- Halling-Sørensen B, Nielsen SN, Lanzky PF, Ingerslev F, Lützhøft HC, Jørgensen SE. Occurrence, fate and effects of pharmaceutical substances in the environment. Chemosphere 1998; 36: 357-93.
- Castiglioni S, Bagnati R, Fanelli R, Pomati F, Calamari D, Zuccato E. Removal of pharmaceuticals in sewage treatment plants in Italy. Environ Sci Technol 2006; 40: 357-63.
- Kümmerer K. Resistance in the environment. J Antimicrob Chemother 2004; 54: 311-20.
- Pomati F, Castiglioni S, Zuccato E, Fanelli R, Vigetti D, Rossetti C, Calamari D. Effects of environmental contamination by therapeutic drugs on human embryonic cells. Environ Sci Technol 2006; 40: 2442-7.

Presence of antibiotic residues and occurrence of antibiotic resistance in bacteria isolated from seawater fish and fishery products

Smaldone G[1]., Marrone R. [1], Cappiello S. [2] , Martin G. A. [2], Oliva G. [1], Anastasio A. [1]

[1] *University of Naples "Federico II", Departement of Veterinary Medicine and Animal Production, via F. Delpino 1, 80137 Naples (NA) Italy*

[2] *Veterinary pharmacovigilance center, Campania region*

[3] *Doctor in Veterinary Medicine*

Different seawater fish and fishery products was examined to detect antibiotic residues and to evaluate the presence of several Vibrio strains. In addition bacteria isolated, were successively examined for the incidence of antibiotic resistance. Three antibiotic substances (erythromycin, sulfamethoxazole and trimethoprim) were detected (by screening and confirmatory methods) in Octopus, Cuttlefish and Murex. All Vibrio strains isolated from fish were resistant to Teicoplanin (TEC) and Vancomycin (VA). In Vibrio algynolyticus, isolated in octopus, a resistance against 9 antibiotics was noted.

1. Introduction

Environmental contamination by pharmaceuticals is an important issue. Medical substances may roughly be divided into medical substances used by human or veterinary medicine. The veterinary drugs may further be subdivided into substances used as growth promoters for livestock production, therapeutics in livestock productions, coccidiostatic used for poultry production, therapeutics for treatment of livestock on fields or as feed additives in fish farms.

Drugs administered to humans and animals are excreted with urine or faeces [1] and attend the sewage treatment plant (where present) [2,3]; successively if substances are hydrophilic or are metabolized to a more hydrophilic form of the parent lipophilic substance, will pass the waste water treatment plant and end up in the receiving waters (waste water treatment effluents often discharge to rivers) where they may be are present at very low concentrations but active ingredients are designed to stimulate a response in humans and animals at low doses with a very specific target [4], making the implications for human health and the environment a matter of concern. A recent study showed that a mixture of drugs at the concentrations actually found in the aquatic environment of some Italian areas is able to exert toxic effects on the proliferation of human and zebra fish cells cultures [5]. The main consequences of abuse of antibiotics is the development and diffusion of antibiotic resistance that represent a public health problem, with obvious consequences in human and veterinary medicine, since it affects animal therapy and food safety [6]. The growing alarm related to the spreading of the resistance of antibiotics considered of first choice in the treatment of specific human infections prompted measures for antimicrobial resistance surveillance of bacteria circulating in humans, animals and food products.

Aim of this study was to evaluate the presence of antimicrobial substances and to assess the antimicrobial resistance in bacteria species isolated from seawater fish and fishery products caught in Campania region (southern Italy).

2. Matherials and Methods

Samples were collected in the gulf of Salerno (Campania Region, Southern Italy) with the support of the mobile station of the Fish Research Laboratory of the *Department of Veterinary Medicine and Animal production, University of Naples "Federico II"*.

L’ampio utilizzo della terapia antibiotica empirica-ragionata, non prevede l’ausilio del laboratorio di Batteriologia, quindi non fornisce alcuna indicazione sull’agente batterico responsabile dell’infezione e tantomeno sulla sensibilità di quest’ultimo ai diversi antibiotici.

Nostro obiettivo:

Definire l’andamento delle resistenze alle classi di antibiotici più frequentemente presc
dai medici veterinari sul territorio


III WORKSHOP
DELLA MICROBIOLOGIA VETERINARIA DI NAPOLI
La microbiologia: saperi nel mondo
25 Maggio 2017
Aula Magna Orto Botanico, Via Foria 223 - Napoli
9.00 Registrazione dei partecipanti
9.15 Presentazione della giornata
Giuseppe Iovane, Luisa De Martino
Indirizzi di saluto
Gaetano Manfredi - Rettore dell'Università degli Studi di Napoli "Federico II"
Gaetano Oliva - Direttore del Dipartimento di Medicina Veterinaria e Produzioni Animali
Anna Teresa Palamara - Presidente della Società Italiana di Microbiologia (SIM)
Antonio Limone - Direttore Generale Istituto Zooprofilattico Sperimentale del Mezzogiorno (IZSM)
Paolo Sarnelli - Responsabile Settore Veterinario Regione Campania
PRIMA SESSIONE: Stafilococchi e Antibiotici
10.00-11.30
Moderatori: Giuseppe Iovane, Patrizia Nebbia
Luca Guardabassi - "Antibiotico-resistenza in Staphylococcus pseudintermedius: una crescente minaccia per la salute dei piccoli animali da compagnia".
Stefania Stefani - "S. aureus umani e animali: sono tutti potenzialmente simili?
Discussione
Pausa caffè
SECONDA SESSIONE: Interferenze degli Antibiotici
12.00- 13.30
Moderatore: Alessandro Fioretti, Vincenzo Caputo
Giorgio Galliero - Effetti degli antibiotici sul microbiota intestinale
Adriana Ianieri - Biofilm e meticillino-resistenza
Discussione
Pausa pranzo 13.30 - 14.30
TERZA SESSIONE : Comunicazioni brevi
14.30-15.45
Moderatori: Maria Tempesta, Maria Cristina Ossiprandi, Massimiliano Galdiero
Piera Anna Martino
Bianca Maria Orlandella
Patrizia Robino
Marialaura Corrente
Daniela Pasotto
Patrizia Casagrande Proietti
Luisa De Martino - "Staph.....napoletano!"
Discussione finale e chiusura lavori
SIM

Grazie!