COMMITTEE FOR MEDICINAL PRODUCTS FOR VETERINARY USE

Reflection paper on the use of fluoroquinolones in food producing animals - Precautions for use in the SPC regarding prudent use guidance -

All fluoroquinolone products

"Official and local antimicrobial policies should be taken into account when the product is used."

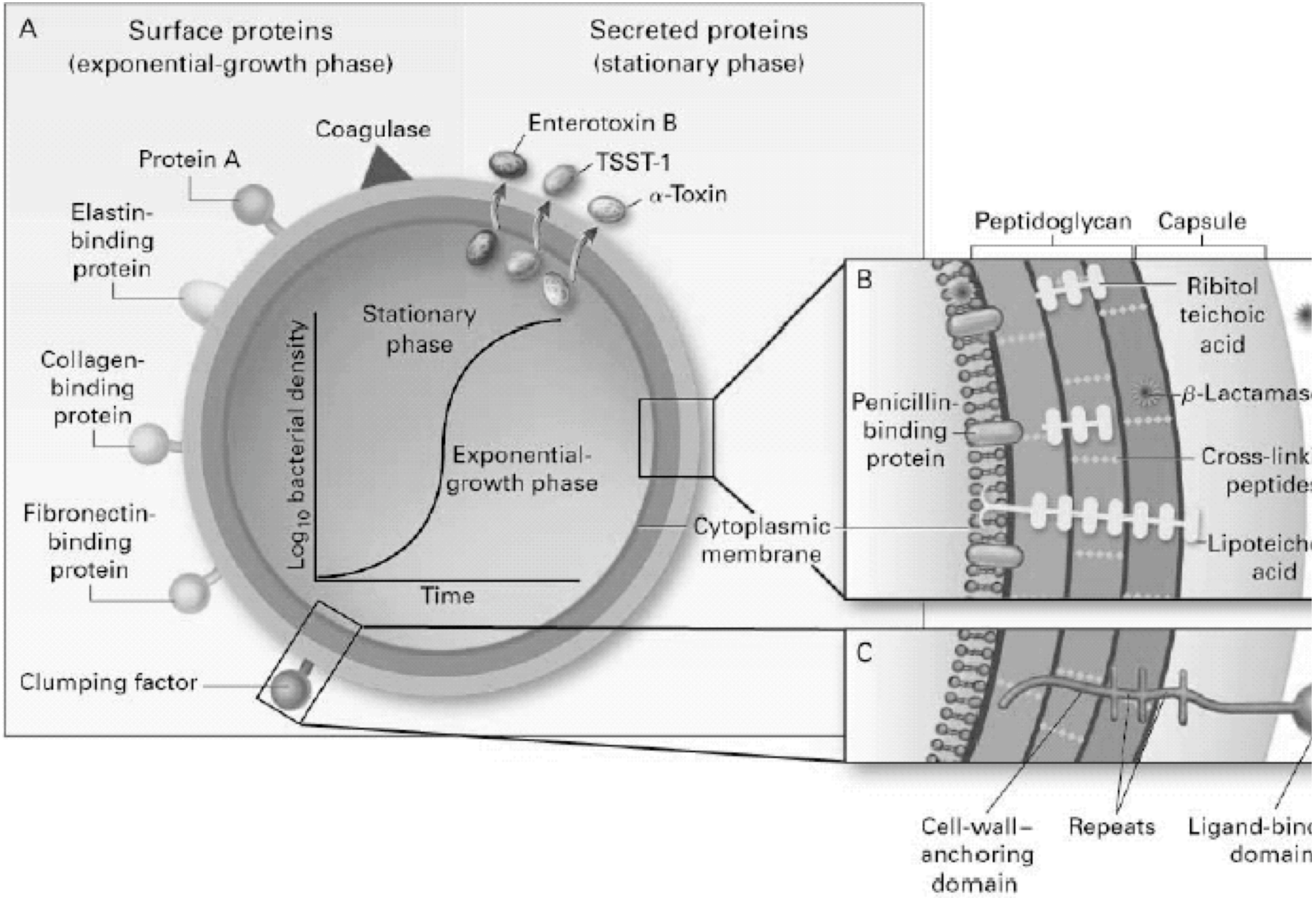
"Fluoroquinolones should be reserved for the treatment of clinical conditions which have responded poorly, or are expected to respond poorly, to other classes of antimicrobials."

"Whenever possible, fluoroquinolones should only be used based on susceptibility testing."

"Use of the product deviating from the instructions given in the SPC may increase the prevalence of bacteria resistant to the fluoroquinolones and may decrease the effectiveness of treatment with other quinolones due to the potential for cross resistance."

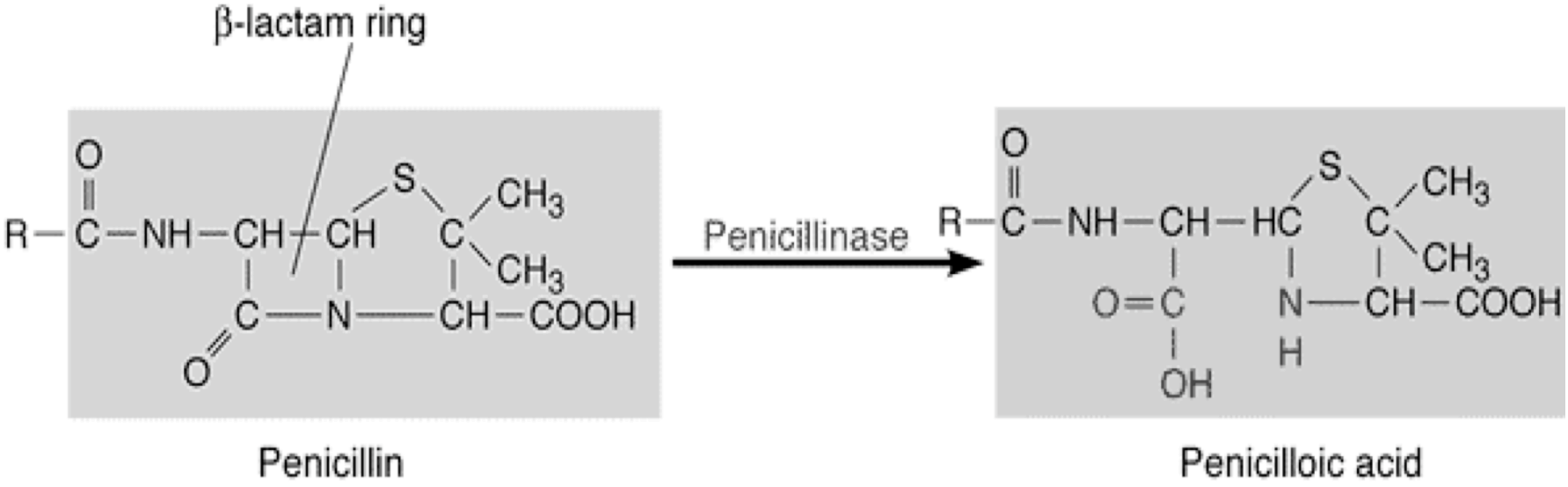
Cefalosporine di III e IV generazione e resistenza

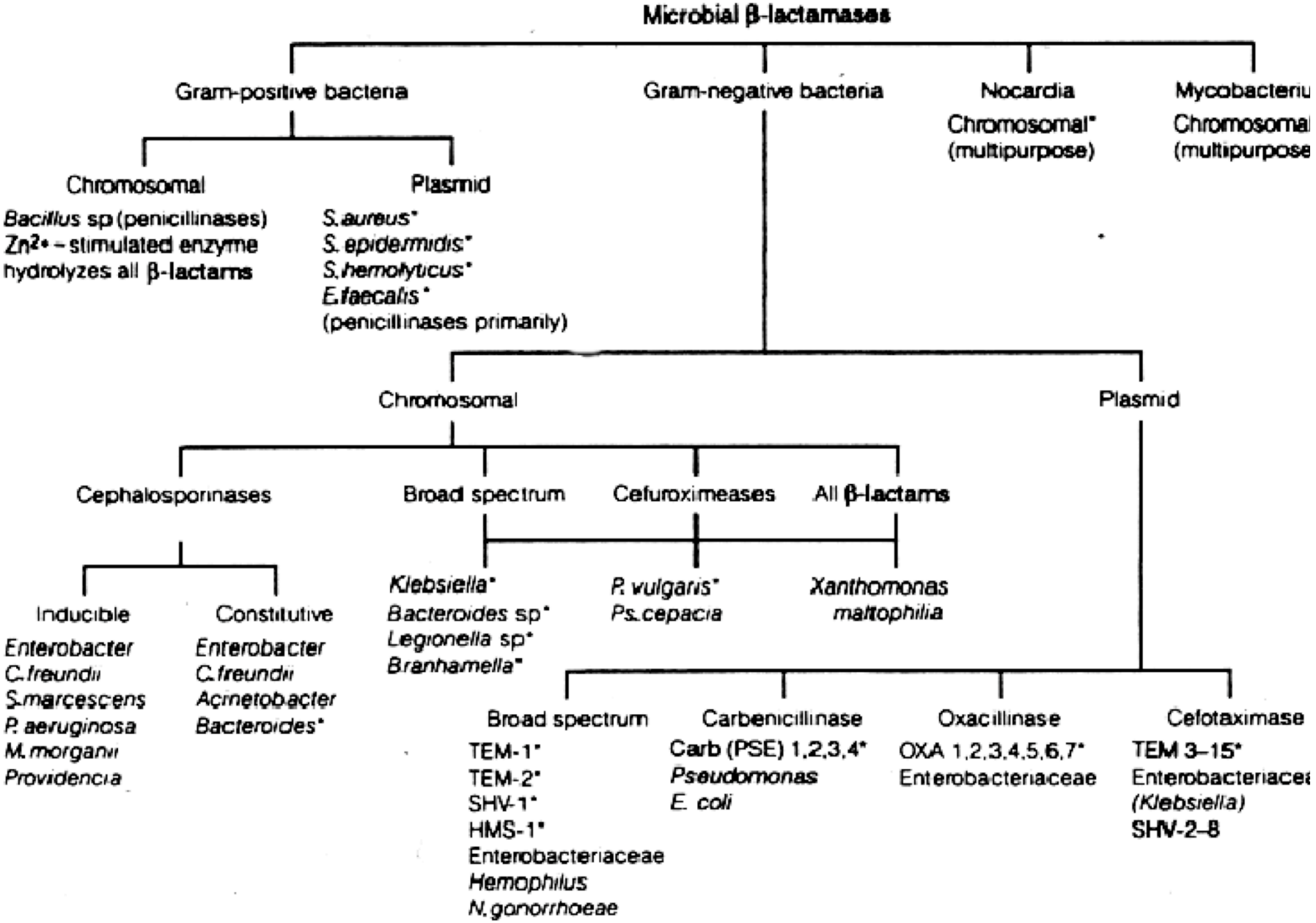
Bacteria in livestock resistant to 3rd and 4th generation cephalosporins are considered as a food safe hazard as they might be human pathogens (e.g. *Salmonella*), or contribute to horizontal spread resistance genes. Furthermore, cephalosporins are listed as critically important antimicrobials for bo human and veterinary use (Joint FAO/WHO/OIE Expert Meeting on Critically Importa Antimicrobials, Rome 2007) and they are widely used in human medicine. The incidence of resistan to 3rd generation cephalosporins in, e.g. *K. pneumoniae* and *E. coli* in human infections is increasi in Europe. Many of these problems in human medicine can be correlated to use of cephalosporins a other antimicrobials in humans, but it is possible that spread from animal reservoirs via food or via t environment contributes to the dissemination of resistance in the community.



Lowy, Frank,*Staphylococcus Infections*. NEJM. August, 1998

RESISTENZA


β-lactam ring
Penicillinase
Penicillin
Penicilloic acid
© BENJAMIN/CUMMINGS



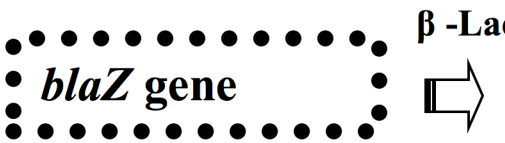
β-lactamases and their distribution in nature. Asterisks indicate that these bacteria a
inhibited by clavulanate, sulbactam, and tazobactam.

Tabella 8.1. Classificazione delle beta-lattamasi

Gruppo di beta-lattamasi	Microrganismo	Enzima	Plasmidio mediate	Inducibili, cromosomiche	Substrato idrolizzato	Inibizione da acido clavulanico
Gram positivi	*S. aureus*	PCI	+	+	Penicilline	+
Cefalosporinasi	*P. areuginosa, C. freundii,*		-	+	Cefalosporine	-
	E. cloacae, S. marcescens					(inibisce Aztreonan
Beta-lattamasi ad ampio spettro	Enterobatteriacee	TEM-1,2, SHV-1, ROB-1, CTX-1, CTZ-1	+	-	Penicilline, cefalosporine	+
Carbenicillinasi	*E. coli, P. aeruginosa*	PSE-1, CARB-3	+	-	Penicilline carbenicillina	+
Cloxacillinasi	Enterobatteriacee	OXAI-7	+	-	Penicilline, cloxacillina	+

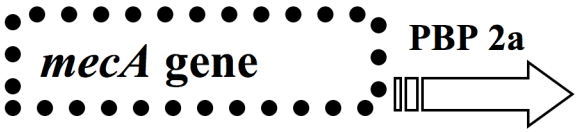
Meccanismo molecolare della resistenza alla meticillina

DEGRADAZIONE ENZIMATICA



Resistenza alle penicilline
(penicillina, ampicillina, etc.)

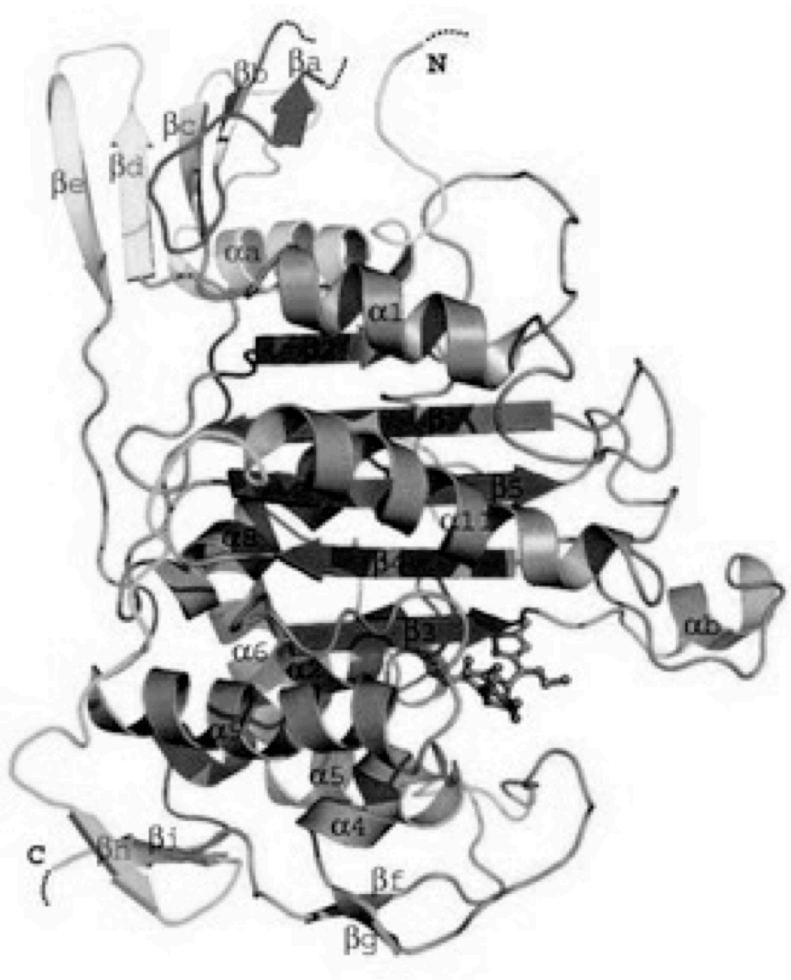
SOSTITUZIONE DEL TARGET

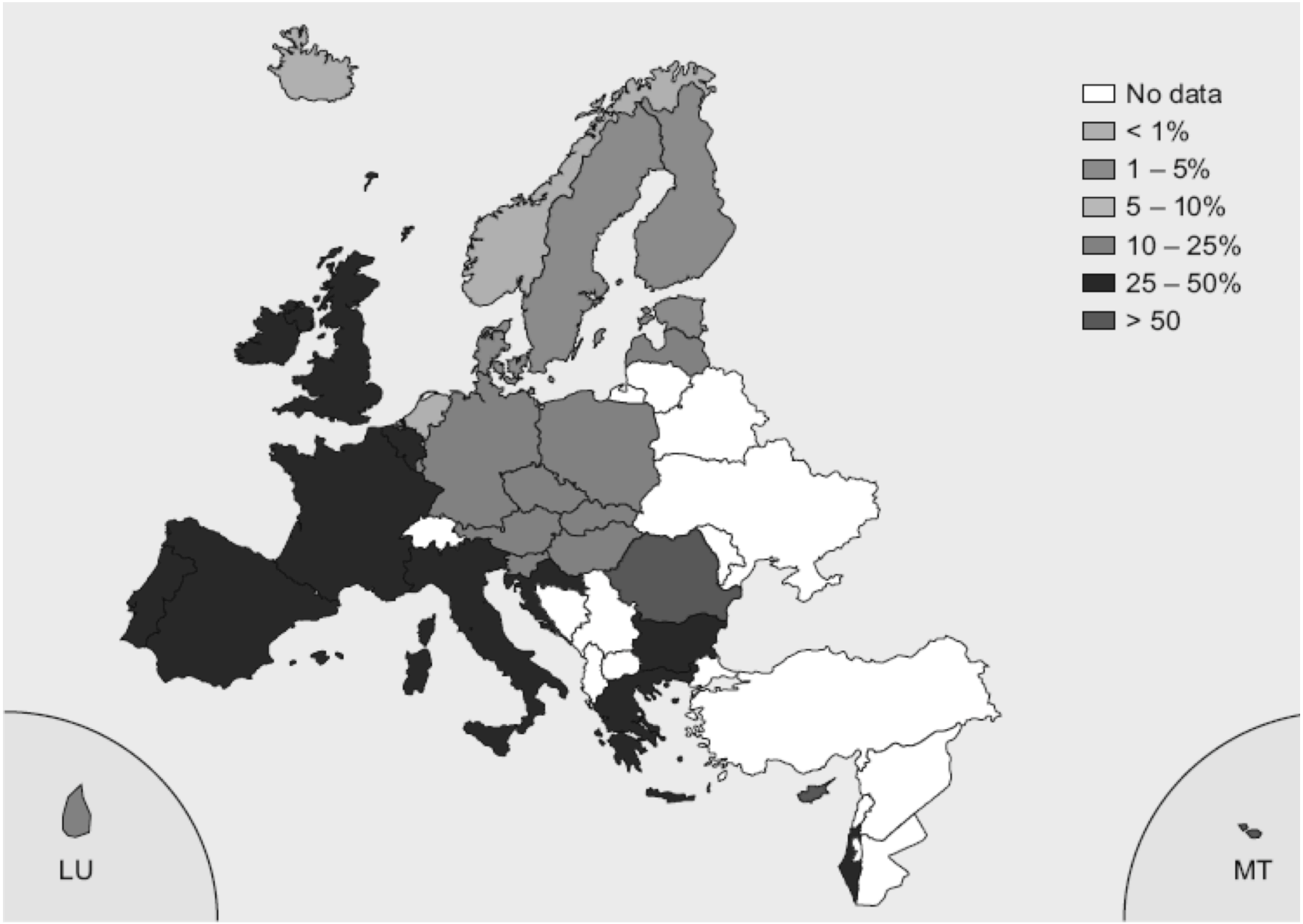


Resistenza alle penicilline penicillasi-resistenti
(cloxacillina, oxacillina methicillina)

ed alle cefalosporine
(e.g. cefalexin, cefadroxil, etc,)

Penicillin Binding Protein




No data
< 1%
1 – 5%
5 – 10%
10 – 25%
25 – 50%
> 50
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Numero di decessi associati alla batteremia da MRSA nel Regno Unito