

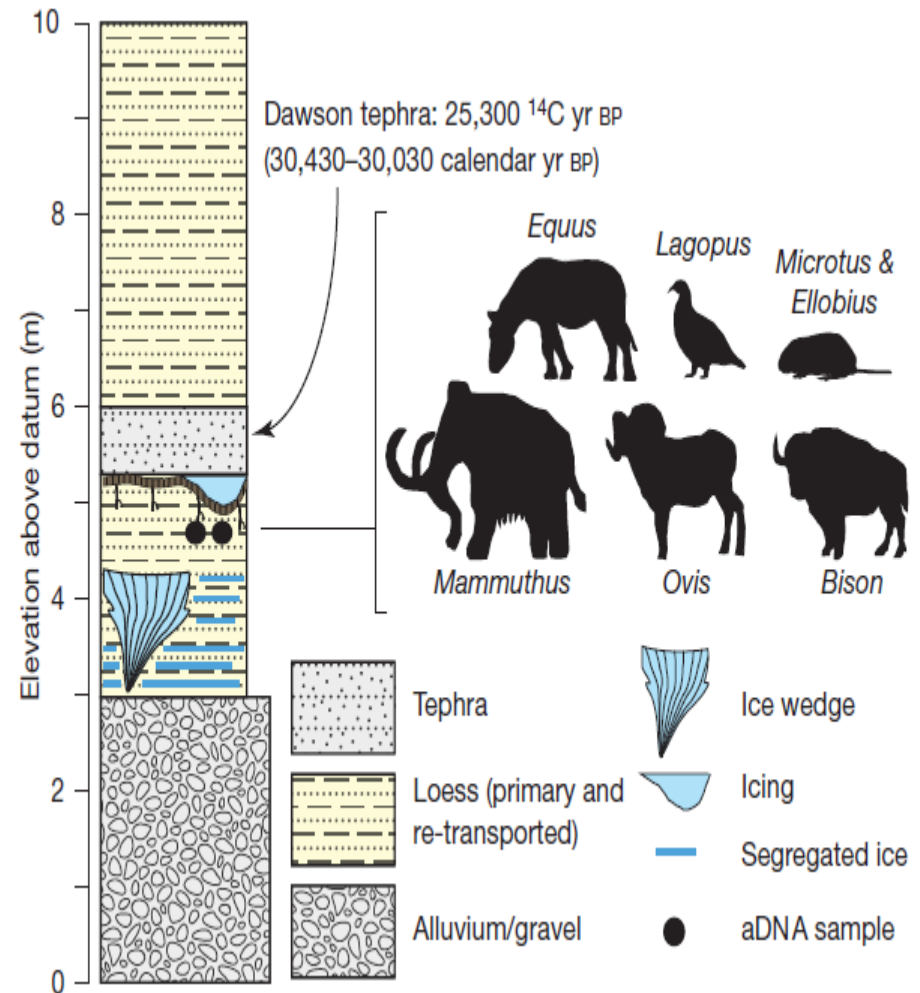
ANTIBIOTIKARESISTENZEN IM GESUNDHEITSWESEN - ANTIMICROBIAL STEWARDSHIP

Alumni – Vetsuisse Fakultät Bern

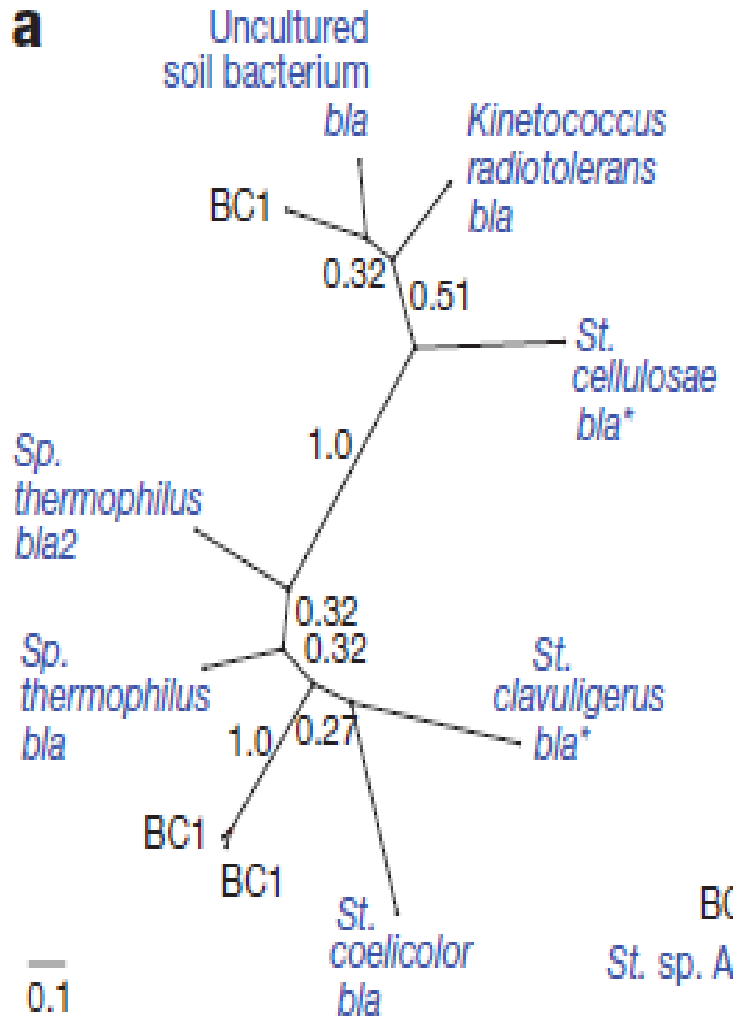
28. April 2016

Dr Rami Sommerstein
Oberarzt Infektiologie / Spitalhygiene

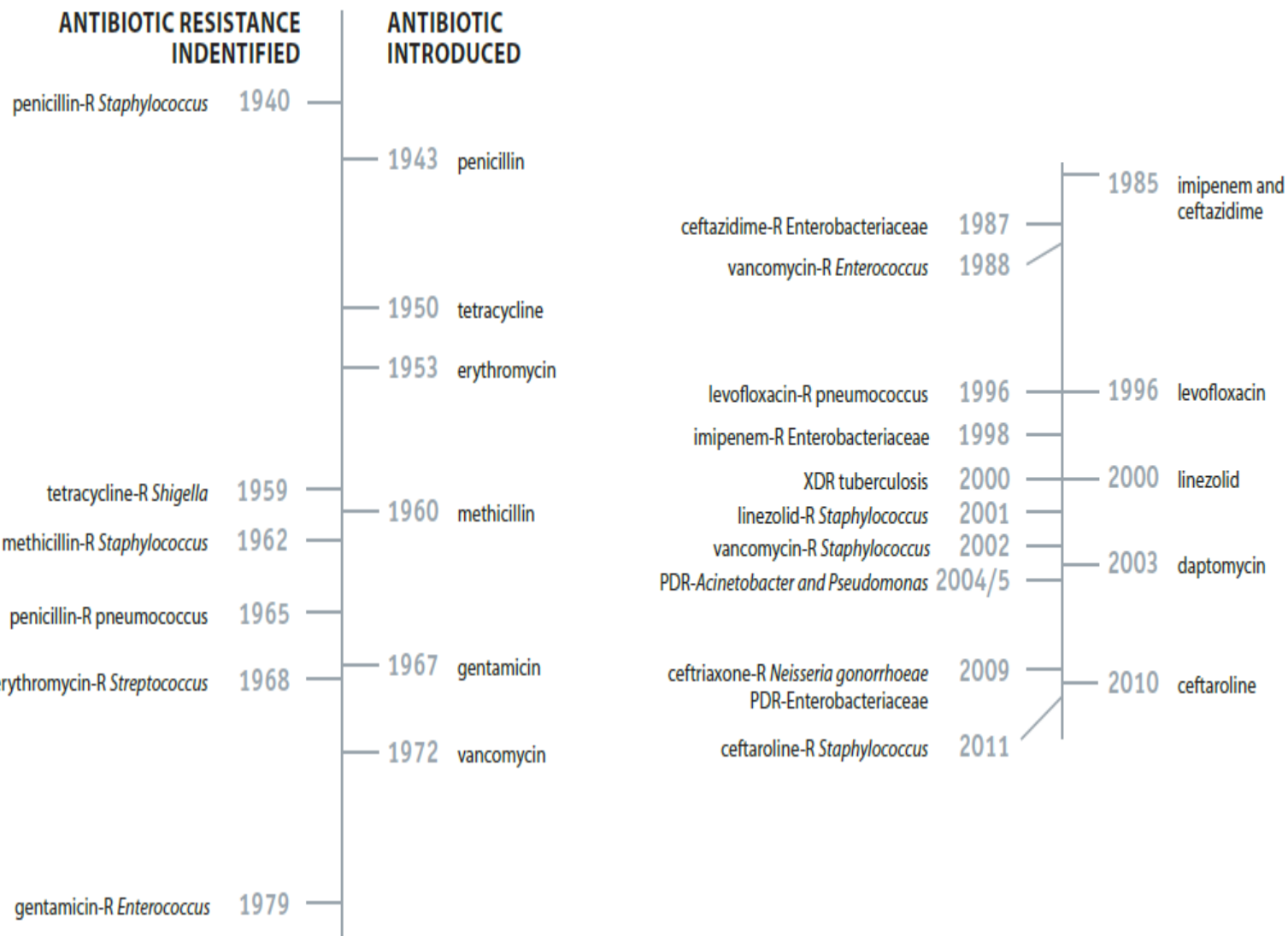
ANTIBIOTIKARESISTENZ = MODERNES PHÄNOMEN ?



Genetic diversity of ancient antibiotic resistance elements



Bla Beta-Laktamase
BC1 Beaver Creek site 1



Dates are based upon early reports of resistance in the literature. In the case of pan drug-resistant (PDR)-*Acinetobacter* and *Pseudomonas*, the date is based upon reports of healthcare transmission or outbreaks. Note: penicillin was in limited use prior to widespread population usage in 1943.



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

**ANTIBIOTIC RESISTANCE THREATS
in the United States, 2013**

EBOLA ?

Journal of Hospital Infection 89 (2015) 179–185



Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevierhealth.com/journals/jhin



Outbreak Artikel 2015

72 Patienten von Erreger betroffen

35 Klinische Infektionen

21 Todesfälle während Hospitalisation

(Mortalität = 60% !)

ANTIBIOTIKARESISTENZ !

Large hospital outbreak of KPC-2-producing *Klebsiella pneumoniae*: investigating mortality and the impact of screening for KPC-2 with polymerase chain reaction

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A. Knaust^c, C. Lübbert^g, I. Möller^d, A.C. Rodloff^{c,f}, B. Schweickert^a,
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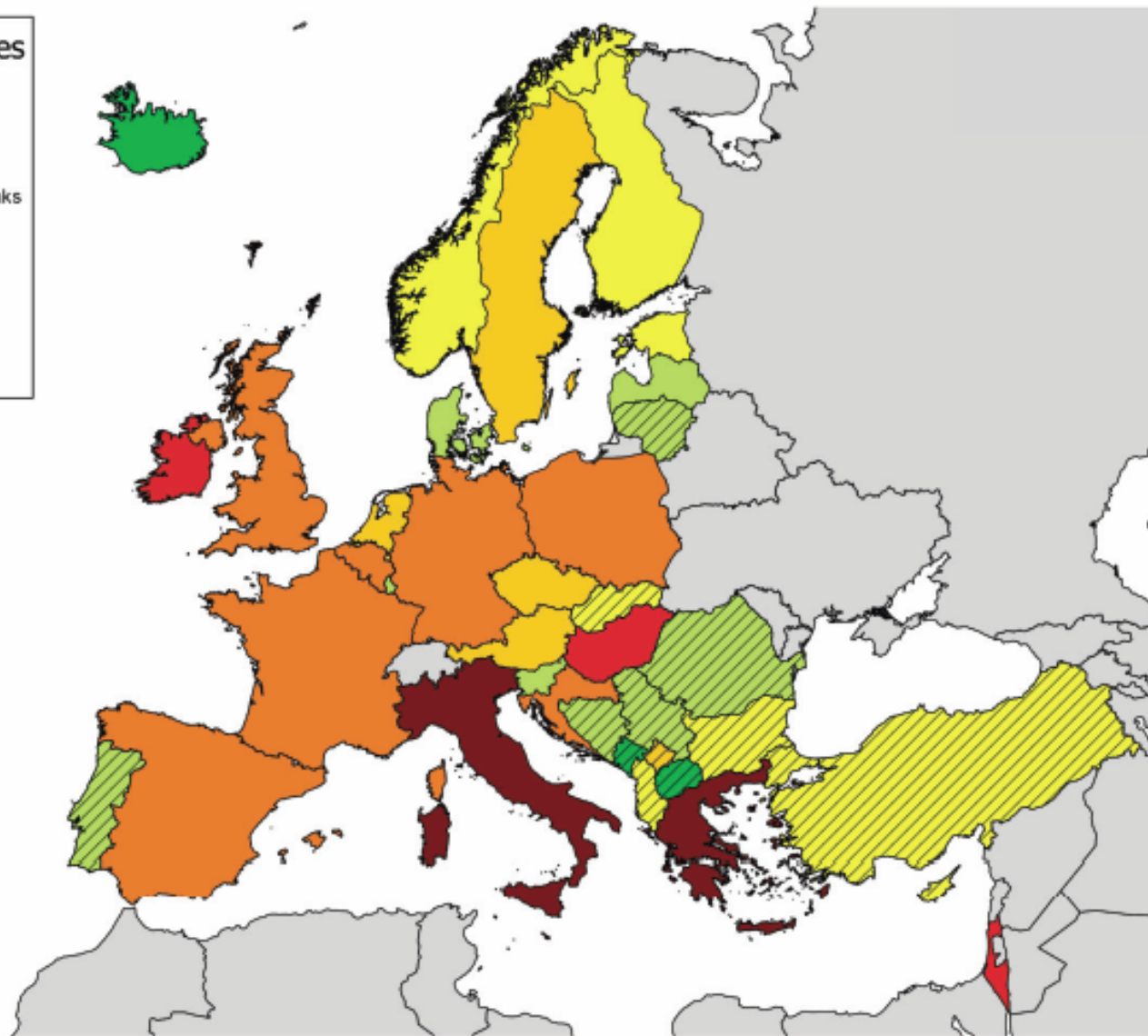
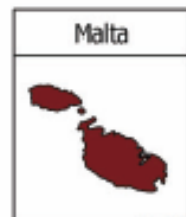
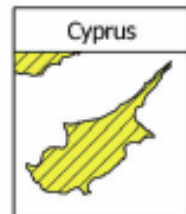
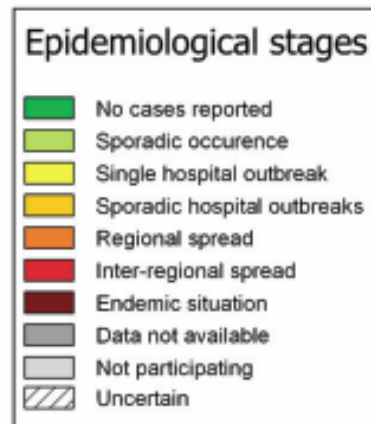
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^gDivision of Infectious Diseases and Tropical Medicine, Department of Gastroenterology and Rheumatology, University Hospital Leipzig, Leipzig, Germany

- **Tuberkulose:** 450 000 Fälle von “Multidrug” resistente Tbc / Jahr
“Extensively Drug” resistente Tbc in bisher 92 Länder
 - **Malaria:** Resistenz gegenüber 1. Generations Medikamente endemisch
Artemisin Resistenzen auf dem Vormarsch
 - **Bakterien:** Proportion der antibiotischen Resistenz in Erregern von HWI,
Pneumonie, Blutstrominfektionen nehmen weltweit zu
 - **Nosokomiale Infektionen:**
Hoher Anteil verursacht durch methicillin-resistente *Staphylococcus aureus* oder “multidrug” resistente Gram-negative Bakterien
 - **Gonorrhoea:** Therapieversagen gegenüber 3. Generations Cephalosporinen
in 10 Ländern. Keine Impfungen oder neue Medikamente sind in
Entwicklung.
 - **Folge:** Schlechter klinischer Outcome, Zusatzbelastung für das
Gesundheitswesen
-

Hauptsorge: Carbapenemase-bildende Enterobacteriaceae



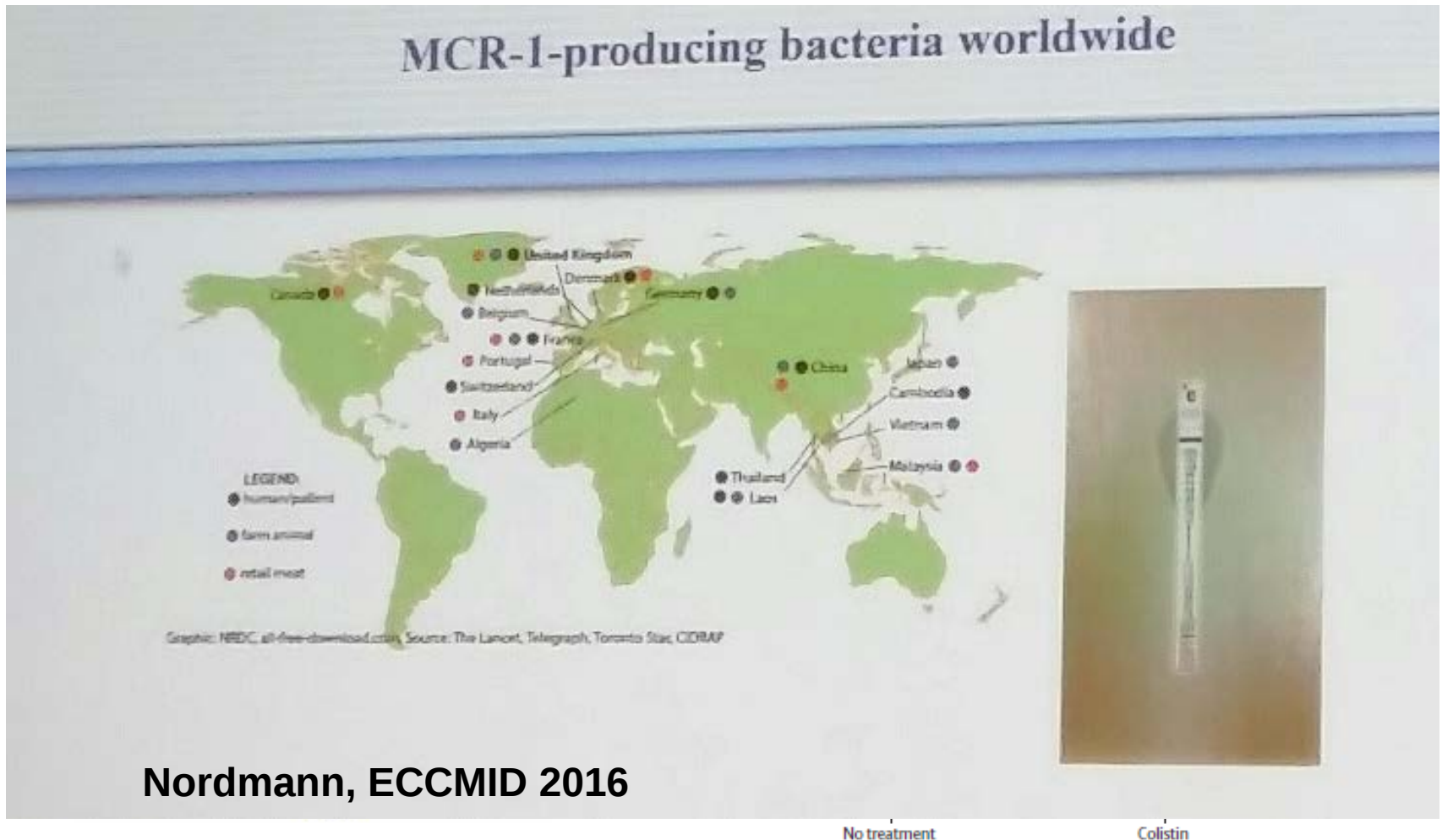
EINE RESISTENZ KOMMT SELTEN ALLEINE ..

	UK (n=37)		Chennai (n=44)		Haryana (n=26)	
	MIC ₅₀ : MIC ₉₀ (mg/L)	Proportion susceptible*	MIC ₅₀ : MIC ₉₀ (mg/L)	Proportion susceptible*	MIC ₅₀ : MIC ₉₀ (mg/L)	Proportion susceptible*
Imipenem	32; 128	0%	64; 128	0%	32; 128	0%
Meropenem	32; 32	3%	32; >32	3%	>32; >32	3%
Piperacillin-tazobactam	>64; >64	0%	>64; >64	0%	>64; >64	0%
Cefotaxime	>256; >256	0%	>256; >256	0%	>256; >256	0%
Ceftazidime	>256; >256	0%	>256; >256	0%	>256; >256	0%
Cefpirome	>64; >64	0%	>64; >64	0%	>64; >64	0%
Aztreonam	>64; >64	11%	>64; >64	0%	>64; >64	8%
Ciprofloxacin	>8; >8	8%	>8; >8	8%	>8; >8	8%
Gentamicin	>32; >32	3%	>32; >32	3%	>32; >32	3%
Tobramycin	>32; >32	0%	>32; >32	0%	>32; >32	0%
Amikacin	>64; >64	0%	>64; >64	0%	>64; >64	0%
Minocycline	16; >32	0%	32; >32	0%	8; 16	0%
Tigecycline	1; 4	64%	4; 8	56%	1; 2	67%
Colistin	0.5; 8	89%†	1; 32	94%†	1; 2	100%†

MIC=minimum inhibitory concentration. *Susceptibility defined by British Society for Antimicrobial Chemotherapy and European Committee on Antimicrobial Susceptibility Testing breakpoints; doxycycline breakpoints were used for minocycline. †Colistin-resistant UK isolates were one isolate of *Morganella morganii* and one *Providencia* sp (both intrinsically-resistant species), also one *Klebsiella pneumoniae* and one *Enterobacter* sp.

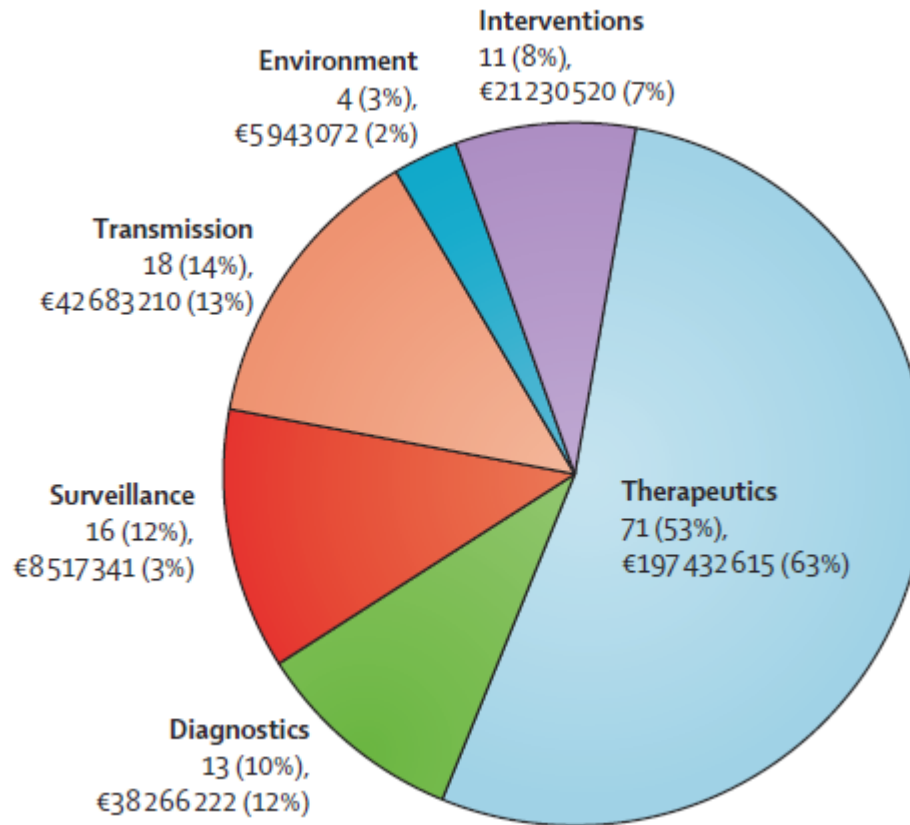
Table: Antibiotic susceptibilities for NDM-1-positive Enterobacteriaceae isolated in the UK and north (Chennai) and south India (Haryana)

THIS IS THE END .. ! (?)



Nordmann, ECCMID 2016

MONEY, MONEY, MONEY ...



Antibacterial resistance projects funded at the European Union level between 2007 and 2013 by priority topic with total funding

ANTIMICROBIAL STEWARDSHIP



Implementing an Antibiotic Stewardship Program:
Guidelines by the Infectious Diseases Society of America
and the Society for Healthcare Epidemiology of America

Vorschlag zu koordinierten Interventionen (28 Punkte)

- > Geeigneter Gebrauch von Antibiotika
- > Optimale Indikation, Regime, Dosierung, Dauer, Applikationsart

SITUATION INSELSPITAL STEWARDSHIP

Breitspektrum Antibiotika“Lizenz”

Weiterbildungen

Richtlinien

ja

“Streamlining” / Deeskalation

Dosis Optimierung

IV zu PO Konversion

+/-

Mögliche Massnahmen (ungenügende Datenlage)

Antibiotika Zyklisierung

Kombinationstherapie

nein



Besten Dank !
