COMBACTE – MAGNET EPI-Net

Development of Capabilities in Epidemiology

E. Tacconelli ^{1,2}, N. Babu Rajendran¹, J. Rodríguez-Baño³, A. Voss⁴, F. Sifakis⁵ and the EPI-Net Combacte-Magnet Consortium





Servicio Andaluz de Salud **CONSEJERÍA DE SALUD**







ACHIEVEMENTS 2017

The Epidemiology Network (EPI-Net) aims to

- **Optimise surveillance** of Antimicrobial Resistance (AMR) and Healthcare Associated Infections (HAIs)
- **Develop a consensus programme** and homogenous approach on current and future epidemiologic surveillance strategies in Europe
- Inform Public Health Action

Establishment of EPI-Net surveillance database

A central data repository for surveillance data on humans and animals from multiple sources

Current content

- External stakeholders Surveillance systems
- Epidemiology data on prevalence / incidence and outbreaks of the 16 WHO priority pathogens
- Enidemiology data on HAI

• Guide Antimicrobial Development

What we do towards these goals

- Map AMR and HAI Surveillance systems and studies
- Collect AMR and HAI Surveillance data
- Analyse AMR and HAI Surveillance data
- **Develop tools** for AMR and HAI surveillance
- Identify AMR and HAI Surveillance Gaps and limitations
- Propose AMR and HAI Surveillance Guidelines

The team

Academic lead: Evelina Tacconelli, Evelina.Tacconelli@med.uni-tuebingen.de EFPIA leads: Frangiscos Sifakis, Frangiscos.Sifakis@astrazeneca.com Cuong Vong, cuong.vuong@Aicuris.com

INTERESTED IN OUR NETWORK?

CONTACT US: EVELINA.TACCONELLI@MED.UNI-TUEBINGEN.DE

Construction of the EPI-Net website

A first of its kind platform integrating data on AMR/HAI Surveillance and AMR outbreaks from humans and AMR Surveillance from animals in Europe

- Provides **Barrier-free**, timely access to data collected from multiple sources (refer to EPI-Net surveillance database), overcoming language barriers
- Hosts user-friendly, interactive data query tools, which allow for ease of data visualization, comparisons, and export

	Surveillance studies	 from 28 European Association cour 	Union and 4 Europe htries	an Free Trade
	EPI-Net		L	V 🔊
Sources	excellence centers	National AMR surveillance systems Number of systems: 25 Number of countries: 15	Outbreaks Number of outbreaks: 520 Number of countries: 24	National AMR surveillance systems Number of systems: 14 Number of countries: 13
	 Outbreak reports 	International AMR surveillance systems	Years included: first report-2017 24015 individuals	AMR surveillance studies
ND4 Stud	4BB dies stakeholders	Number of systems: 1 Number of countries: 30	First case reports (when no outbreaks detected)	Number of countries: 22
		studies	Number of reports: 9	surveillance systems
		Number of studies: 21	Number of countries: 7	Number of systems: 1
		Number of countries: 14	Years included: first report-2017	Number of countries: 30
		Years included		
		Surveillance reports: 2014-2017	Emerging resistances Number of studies: 44	Years included Surveillance reports:
		Surveillance studies: 2005-2017	Coverage: global Years included: first report-2017	2014-2017 Surveillance studies: 2005-2017
		10.770.589 strains		127023 strains

Semi-automated HAI surveillance, a pilot study

Assess performance and feasibility of semi-automated surveillance framework in European setting Framework

- Pre-emptive design of surveillance algorithm based on clinical practice questionnaires
- Apply algorithm based on electronically collected data Discrepancy analysis

ŤŤ	V.	film	Based on data from EHRs	High risk patients are manually evaluated by an infection preventionist	Reported infection incidence
È		Â	patients are classified as low risk or high risk		SSI

Currently available as a closed beta version

Features, a glimpse

THE WEBSITE WILL BE RELEASED SPRING/SUMMER 2018!!

Europe-wide comparison of surveillance data on WHO priority pathogens



Resist	tanci	Spain							
6	0	• •							
5	I	Pathogen: C	arbape	nem-resist	ant Acinetob	acter baum	annii	grou	р
		Source	Year	Setting	Sub-setting	Specimen	Ν	R	96
4	0	ENVIN-UCI	2016	Hospital	ICU	-	21	17	81.0
		ENVIN-UCI	2016	Hospital	ICU	-	6	6	100.
3	D	ENVIN-UCI	2016	Hospital	ICU	-	5	5	100.
		ENVIN-UCI	2016	Hospital	ICU	-	32	28	80.0
2	iu -	ENVIN-UCI	2015	Hospital	ICU	-	17	10	58.8
1	0	ENVIN-UCI	2015	Hospital	ICU	-	9	6	66.7
		ENVIN-UCI	2015	Hospital	ICU	-	34	22	64.7
0	1	ENVIN-UCI	2015	Hospital	ICU	-	8	6	75.0

N=number isolates, R=resistant isolates, %=resistance percentag

Europe-wide comparison of outbreaks caused by WHO priority pathogens till date



Refining of algorithm

Inclusion 4 hospitals Surveillance of SSI colon/cardiac/orthopedic & CLABSI Years: 2012-2016



PI: Maaike van Mourik and Stephanie van Rooden Contact: HAI_Surveillance_EpiNet@umcutrecht.nl

Next steps

- Finalize data collection CLABSI and CLABSI algorithms (spring/summer 2018)
- Finalize data analyses SSI (spring/summer 2018)
- Manual discrepancy analyses all hospitals (spring/summer 2018)
- Refining algorithms (spring/summer 2018)
- Final report & manuscript (fall 2018)
- Secondary analysis: Analyses of diagnosis codes (ICD-9/ICD-10); Compare performance with surveillance algorithms

Publications 2017

- Surveillance for control of antimicrobial resistance, Lancet Infectious Diseases, Oct 2017
- Review of antimicrobial resistance surveillance programmes in livestock and their meat in Europe, with a focus on antimicrobial resistance patterns in humans, **Clinical Microbiology and Infection**, Sept 2017
- The methodology of surveillance for antimicrobial resistance and healthcare-associated infections in Europe (SUSPIRE): a systematic review of publicly available information, Clinical Microbiology and Infection, July 2017

New projects 2018

EPI-Net excellence center

A specific **network** of hospitals to be developed to **improve surveillance** against spread of resistance To be involved contact: Evelina.tacconelli@med.uni-tuebingen.de

S. Valdezate et al. Clonal outbreak of ST17 multidrug-resistant Enterococcus aecium harbouring an Inc18-2009 Granada ike::Tn1546 plasmid in a haemocology ward of a Spanish hospital. J Antimicrob Chemother, 2012:67(4):832-6 S. Valdezate et al. Large clonal outbreak of multidrug-resistant CC17 ST17 Enterococcus faecium containing Tn5382 2006 Burg in a Spanish hospital. J Antimicrob Chemother, 2009:63(1):17-20 . Montesinos et al. [Study of the first outbreak of vanA enterococcus faecium in the Canary Islands]. Enferm Infect Microbiol Clin, 2010:28(7):430-4 characterization of a glycopeptide esistant Enterococcus faecalis outbreak 2003 Palma de Mallorca in an intensive care unit]. Enferm Infect Microbiol Clin. 2005;23(8):460-3 M. A. de la Cal et al. Effectiveness and safety of enteral vancomycin to control endemicity of methicillin-resistant

EPI-Net surveillance guidance document

White paper involving major stakeholders and experts in the field on recommendations for surveillance of AMR and HAI in humans and animals (under organization)

ABOUT MDRO

<u>A</u>Systematic Review on the <u>Burden and Out</u>comes of Infections due to <u>MDR organisms</u>

- Measure incidence rates of VAP, HAP, cIAI, cUTI and bacteremia caused by WHO priority pathogens in different countries/areas/patient populations
- Evaluate the correlation between incidence rates and percentage of resistance.
- Measure attributable outcomes (mortality, LOS, and cost)

Authors Affiliation

- Infectious Diseases, Internal Medicine 1, Tübingen University Hospital, Germany
- Infectious Diseases, University of Verona, Italy 2.
- Infectious Diseases and Clinical Microbiology, University Hospitals Virgen 3. Macarena and Virgen del Rocío, Seville, Spain
- Department of Medical Microbiology, Radboud University Meical Center Nijmegen , Netherlands
- AstraZeneca/Medimmune, USA 5.

Unique in its scale, ambition, and its potential benefits for patients, public health and pharmaceutical research in Europe, COMBACTE has the potential to become the powerhouse of anti microbial drug development in Europe that could serve as a standard for other groups. Join us!!

Visit us at booth 37 in the exhibition hall www.combacte.com | info@combacte.com | @COMBACTE



This Research project receives support from the Innovative Medicines Initiative Joint Undertaking under grant agreement nº 115523 | 115620 | 115737 | 777362 resources of which are composed of financial contribution from the European Union Seventh Framework Programme (FP7/2007-2013) and EFPIA companies in kind contribution.