

Handling of patients with multi-resistant bacteria. How we do it in France ...

Preventing emergent and highly resistant bacteria spread: 2013 French guidelines



Bruno GRANDBASTIEN

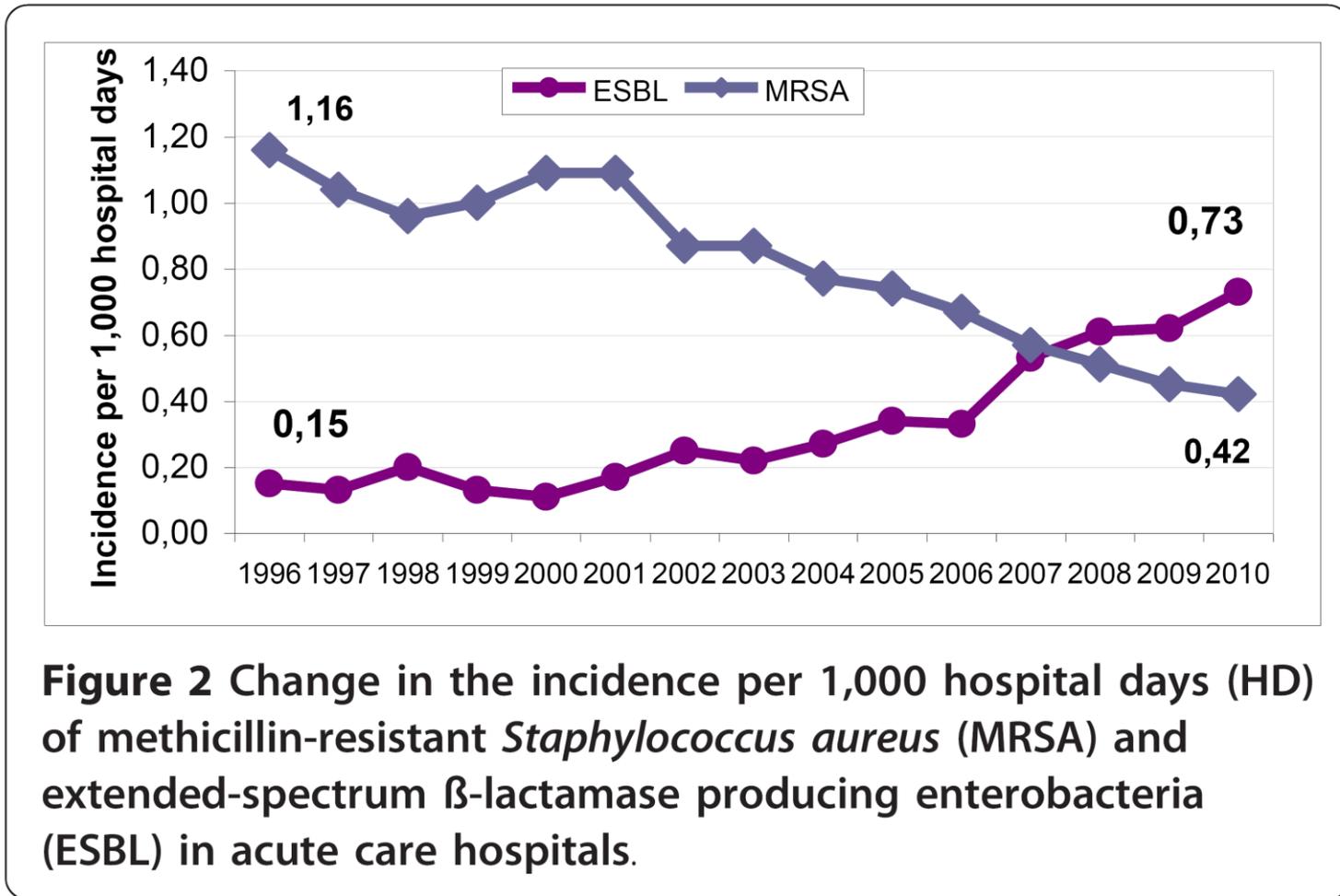
Medical School Henri Warembourg, University of Lille
Infectious Risk Management Department, University Hospital of Lille

High Council for Public Health, Patient Safety Committee

Management of Multi-Drug Resistant (MDR) bacteria in France

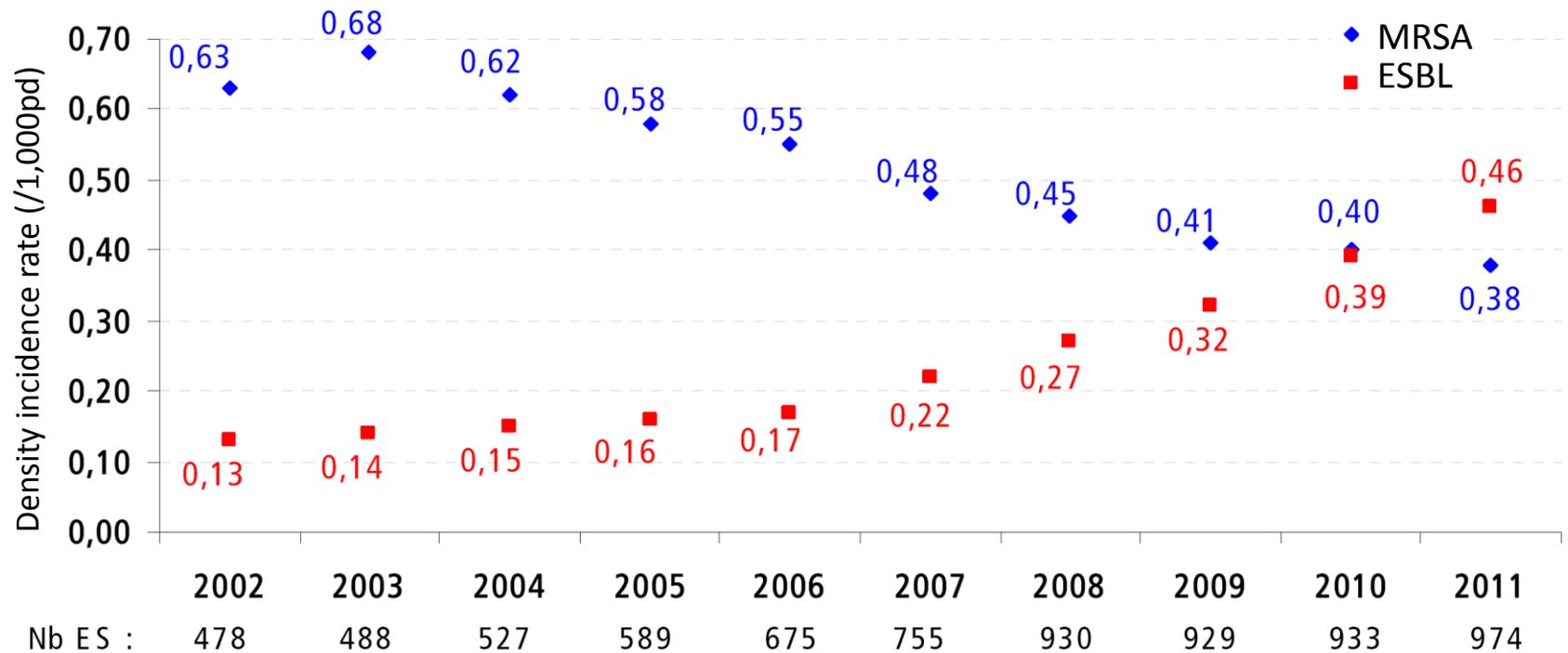
- French Society for Hospital Hygiene (SF2H), 2009 & 2013: recommendations
 - Standard precautions
 - Additional "contact" precautions
 - [Additional "droplet" or "airborne" precautions]
- Public reporting

Epidemiology of MDR bacteria in France: AP-HP Paris



Fournier S. ARIC 2012

Epidemiology of MDR bacteria in France: BMR-Raisin 2011



InVS - Raisin

... and for Extensively Drug-Resistant (XDR) bacteria management

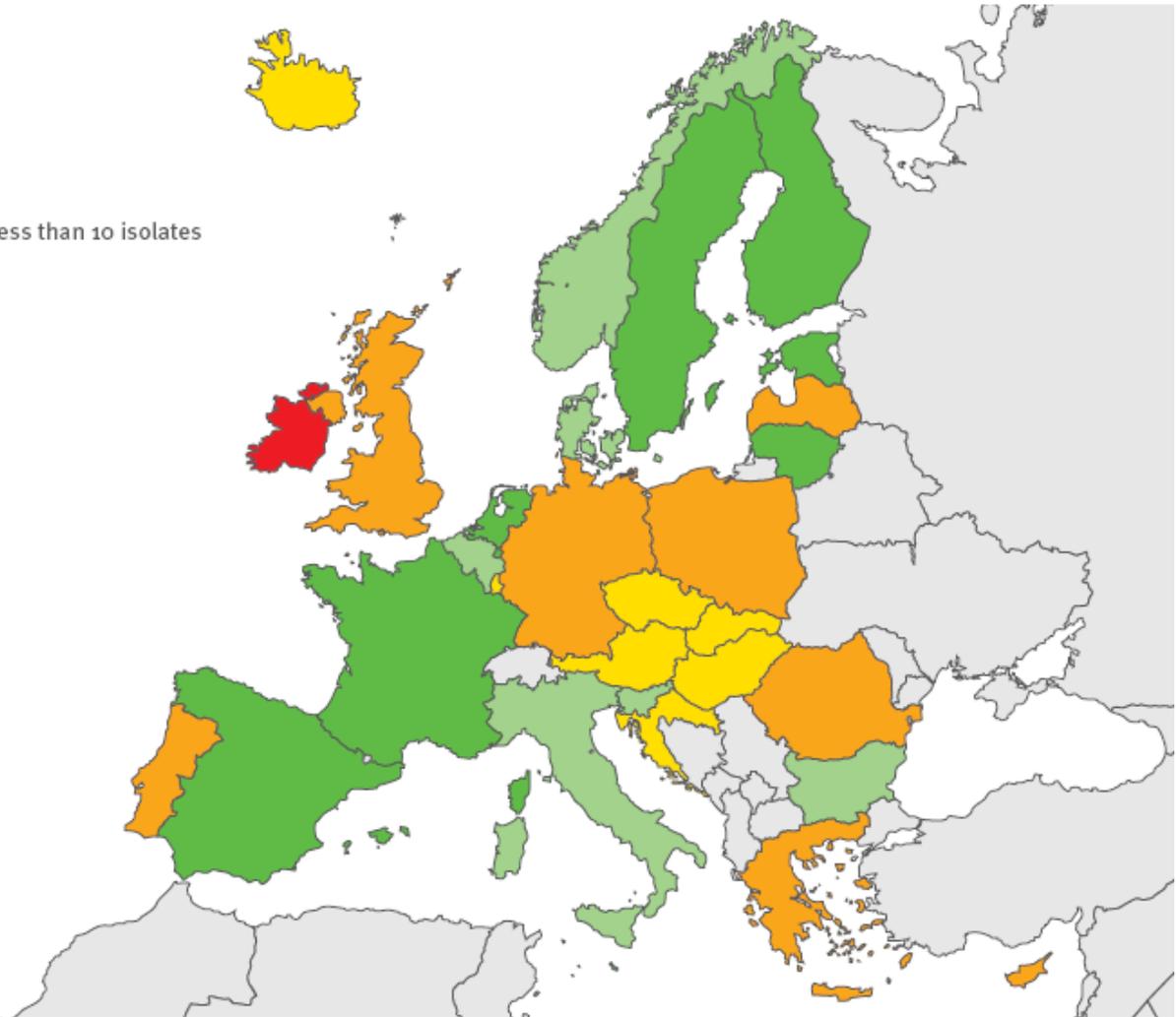
- High Council for Public Health (HCSP), 2010
 - Vancomycin Resistant Enterococcus (VRE)
 - Carbapenemase Producing Enterobacteriaceae (CPE)

Why new recommendations?

- Epidemiology contrasted for Vancomycin Resistant *Enterococcus* (*E. faecium*) - VRE in Europe

Epidemiology of VRE (*E. faecium*) in Europe

2013



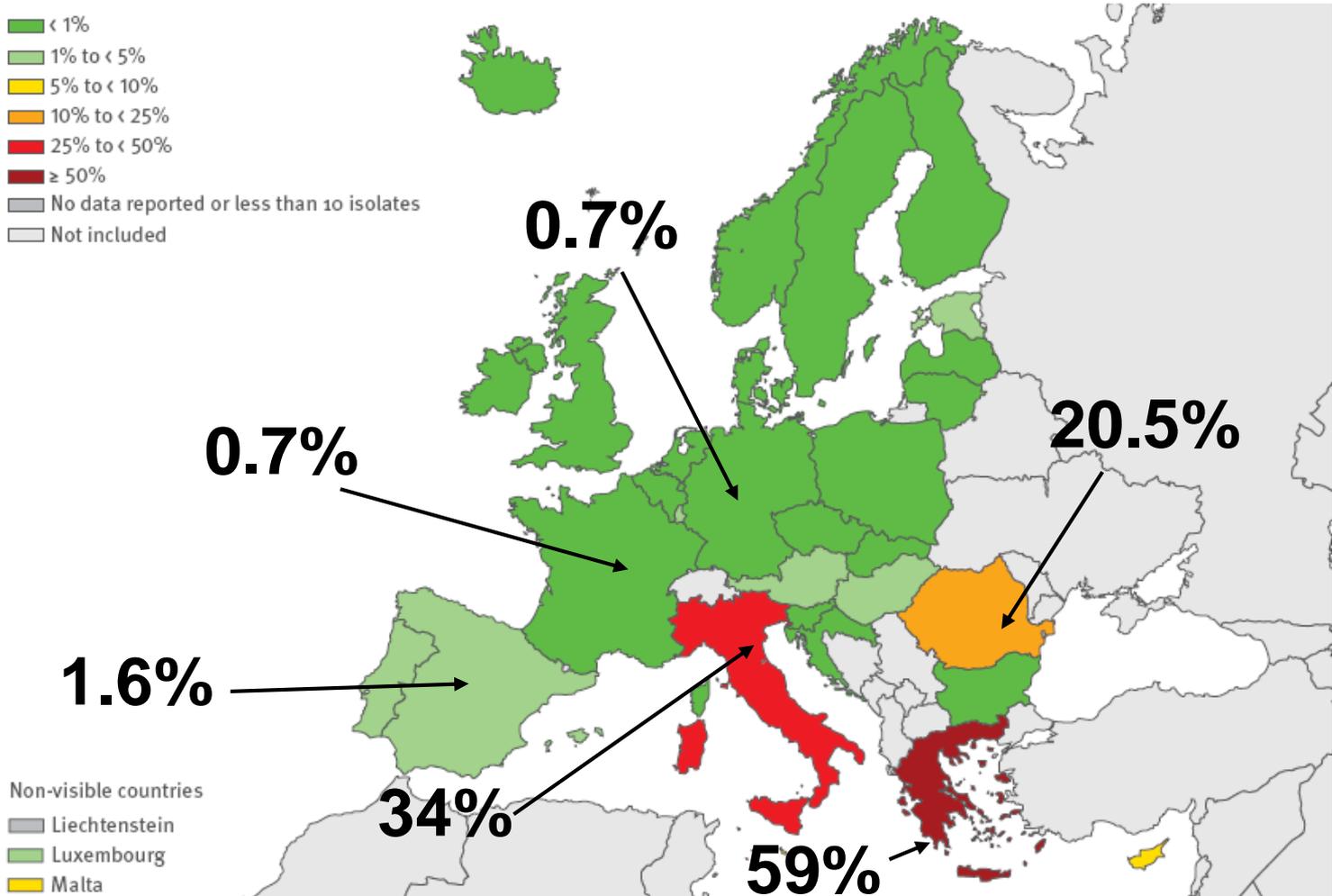
<http://www.ecdc.europa.eu>

Why new recommendations?

- Epidemiology contrasted for Vancomycin Resistant *Enterococcus (faecium)* - VRE in Europe
- Change of epidemiology for Carbapenemase Producing Enterobacteriaceae (CPE)

Epidemiology of carbapenem resistant *K. pneumoniae* in Europe: %R

2013



Why new recommendations?

- ...
- Experiences in the management
 - of sporadic cases or grouped cases
 - in the context of a widespread epidemic
- Recommendations not always interpreted in the same manner
- Readability of the recommendations is affected by the multiplicity of documents (drafted as a response to formal requests by the HCSP, by type of microorganism or by type of situation), and by the multiplicity of regulatory texts.

Objectives

To update and standardise all existing French recommendations concerning XDR bacteria

To make these recommendations more operational and comprehensible

To issue a common set of actions to be taken for VRE or CPE, and even for future emerging bacteria, which is transmissible through contact.

Definitions of XDR bacteria

- International consensus (eCDC / CDC)

ORIGINAL ARTICLE

BACTERIOLOGY

Multidrug-resistant, extensively drug-resistant and pandrug-resistant bacteria: an international expert proposal for interim standard definitions for acquired resistance

A.-P. Magiorakos¹, A. Srinivasan², R. B. Carey², Y. Carmeli³, M. E. Falagas^{4,5}, C. G. Giske⁶, S. Harbarth⁷, J. F. Hindler⁸, G. Kahlmeter⁹, B. Olsson-Liljequist¹⁰, D. L. Paterson¹¹, L. B. Rice¹², J. Stelling¹³, M. J. Struelens¹, A. Vatopoulos¹⁴, J. T. Weber² and D. L. Monnet¹

- Three levels definitions:
 - MDR bacteria: non-susceptibility to at least one agent in three or more antimicrobial categories
 - **XDR bacteria: non-susceptibility to at least one agent in all but two or fewer antimicrobial categories**
 - PDR bacteria: non-susceptibility to all agents in all antimicrobial categories

Definition of emerging Extensively Drug-Resistant bacteria (eXDR) in France

- commensal bacteria of the gastrointestinal tract
- resistant to a number of antibiotics
- with resistance mechanisms transferable between bacteria
- which have only spread in France to date in sporadic or limited epidemic form

... in 2015 ...

- Vancomycin Resistant Enterococcus (VRE)
Enterococcus faecium
vanA or *vanB*

- Carbapenemase Producing Enterobacteriaceae (CPE)

**Prévention de la transmission
croisée des Bactéries
Hautement Résistantes
aux antibiotiques
émergentes
(BHRe)**

Collection
Documents

<http://www.hcsp.fr/>

Recommendations for the prevention of the cross-transmission
of "Emerging extensively drug-resistant bacteria" (eXDR)

REPORT

Journal of Hospital Infection 90 (2015) 186–195



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Journal of Hospital Infection

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



Review

**French recommendations for the prevention of
'emerging extensively drug-resistant bacteria' (eXDR)
cross-transmission[☆]**

**D. Lepelletier^{a, b, *}, P. Berthelot^c, J.-C. Lucet^d, S. Fournier^e, V. Jarlier^{f, e},
B. Grandbastien^g and the National Working Group[†]**

^a Unité de Gestion du risque Infectieux, Service de Bactériologie-Hygiène Hospitalière, CHU Nantes, Nantes, France

^b Université de Nantes, EA 3826, UFR Médecine, Nantes, France

^c Unité d'Hygiène Inter-Hospitalière, Service des Maladies Infectieuses et Laboratoire des Agents Infectieux et Hygiène, CHU St-Etienne, St Etienne, France

^d Unité Hospitalière de Lutte contre l'Infection Nosocomiale, GH Bichat – Claude Bernard, AP-HP, Paris, France

^e CLIN central de l'AP-HP, Paris, France

^f Laboratoire de Bactériologie, Hôpital La Pitié-Salpêtrière, AP-HP, Paris, France

^g Unité de Lutte contre les Infections Nosocomiales, Service du Risque Infectieux, des Vigilances et d'Infectiologie, CHRU Lille, Lille, France

Methods

- Multidisciplinary working group
- Analysis of international recommendations and scientific literature
- Interview of
 - French National Reference Centres (CNR) concerned
 - eCDC

➔ recommendations formulated by expert agreement

Main ideas

Three levels for prevention

- **Standard Precautions (SP):**
systematic application for all patients, regardless of their infectious status
- **Additional "contact" precautions :**
if MDR bacteria or a contagious infectious disease
- **Specific "XDR" precautions:**
if XDR bacteria or uncontrolled MDR epidemic situation



Major principles of these recommendations (1)

- **Prior organization**

- Organization of discovery systems for patients at high risk of being carriers of eXDR (history of hospitalisation abroad within the last 12 months, medical repatriation, history of being an eXDR carrier), ideally using the hospital information system.

Major principles of these recommendations (2)

- **Prior organization for laboratories**
 - Organization in each medical biology laboratory:
 - have available specific agar in order to search 3GC-R enterobacteria and VRE,
 - be able to suspect the presence of an eXDR bacteria
 - Establishment of functional links with a competent laboratory (e.g. from that region) or with the French National Reference Centre (CNR) for resistance to antibiotics

Major principles of these recommendations (3)

- **Management of eXDR patients**
 - Systematic alerts from the laboratory to the Infection Control Team (ICT) of any suspected eXDR,
 - Notifications in accordance with the regulatory procedure for NI reporting
 - Implementation of an epidemic management plan in every institution, in every region

Major principles of these recommendations (4)

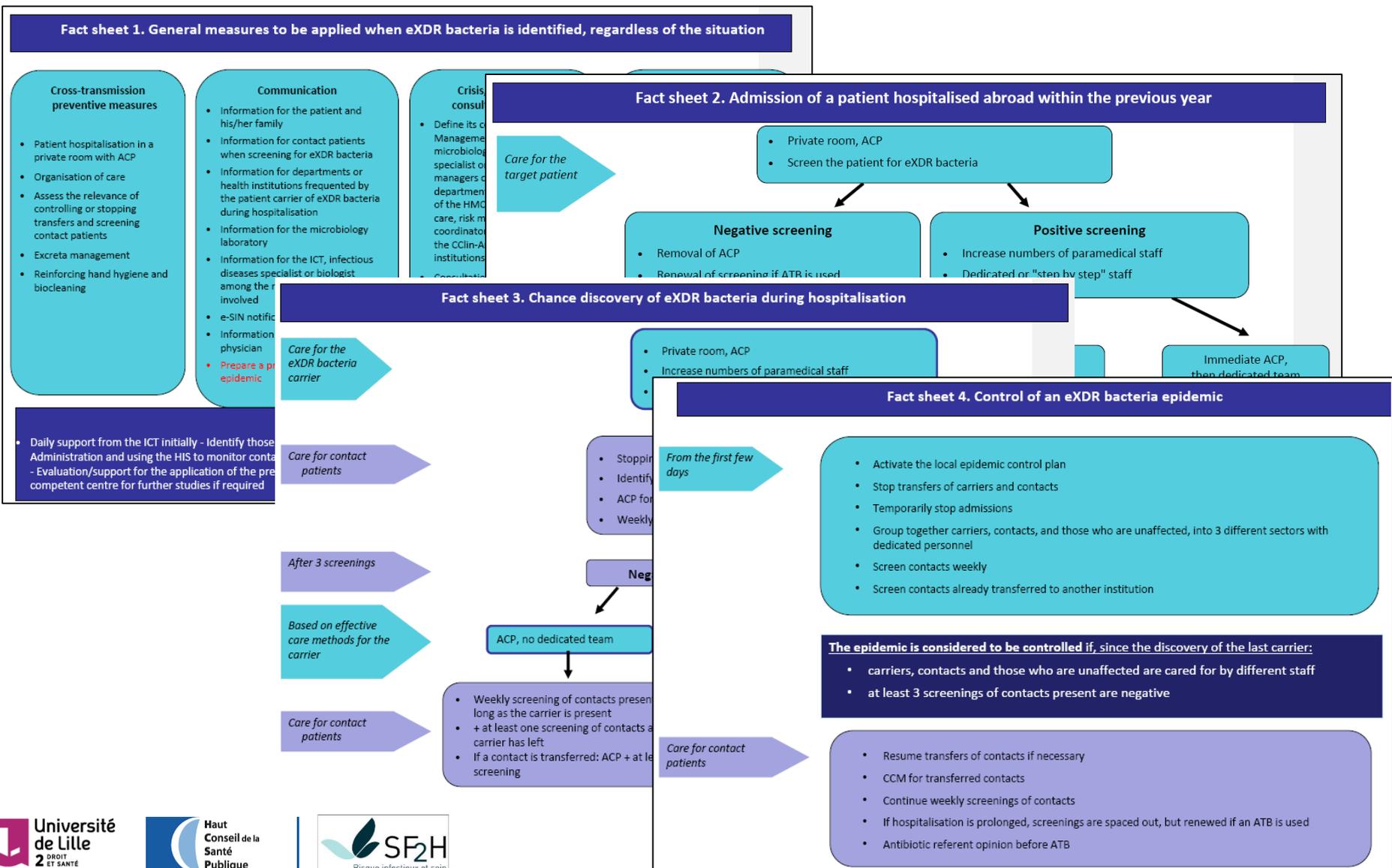
- **Management of eXDR patients**
 - Audit of standard precautions (excreta with material resources including bedpans and adapted bedpan washers ...)
 - Control of the patient environment
 - Control of antibiotic prescriptions (systematic recourse to an "antibiotic" referent)

Major principles of these recommendations (5)

- **Evaluation of the transmission risk by ICT**
adapted to patient situation, line of care, conditions of this care, epidemiological situation ...
- **Screening “contact” patients** to find secondary cases ; concentric circles

Different situations ...

different fact sheets



Fact sheet 2. Admission of a patient hospitalised abroad within the previous year



Care for the target patient

- Private room, ACP
- Screen the patient for eXDR bacteria

- Negative screening**
- Removal of ACP
 - Renewal of screening if ATB is used

- Positive screening**
- Increase numbers of paramedical staff
 - Dedicated or "step by step" staff

3 scenarios based on effective care methods for the carrier

No ACP, no dedicated team

Immediate ACP, No dedicated team

Immediate ACP, then dedicated team

Care for contact patients

see fact sheet 3: chance discovery

- Weekly screening of contacts present for as long as the carrier is present
- + at least one screening of contacts after the carrier has left
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- At least one screening of contact before the dedicated team
- Continue contact transfers

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Long-term control of carbapenemase-producing Enterobacteriaceae at the scale of a large French multihospital institution: a nine-year experience, France, 2004 to 2012

S Fournier (sandra.fournier@sap.aphp.fr)¹, C Montell¹, M Lepalteur¹, C Richard², C Brun-Buisson³, V Jarlier⁴, AP-HP Outbreaks Control Group⁵

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Pitié-Salpêtrière, Assistance Publique-Hôpitaux de Paris, Paris, France

⁵ The members of the AP-HP Outbreaks Control Group are listed at the end of the article

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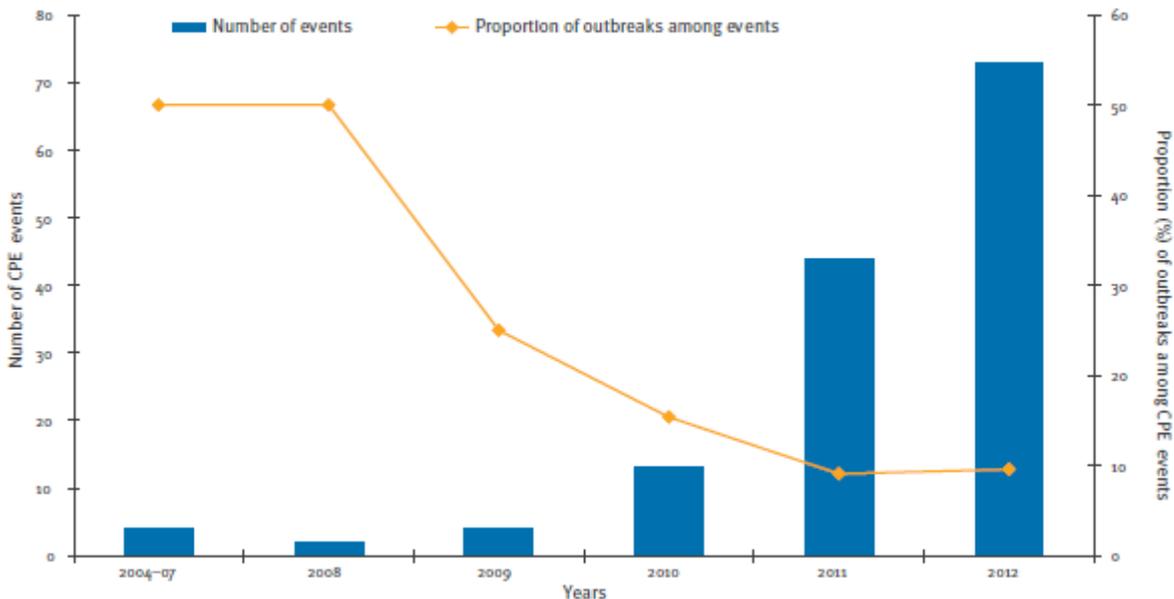
Fournier S, Montell C, Lepalteur M, Richard C, Brun-Buisson C, Jarlier V, AP-HP Outbreaks Control Group. Long-term control of carbapenemase-producing Enterobacteriaceae at the scale of a large French multihospital institution: a nine-year experience, France, 2004 to 2012. *Euro Surveill.* 2014;19(05):pii=26802. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=26802>

Article submitted on 22 April 2013 / published on 15 May 2014

Effectiveness of these measures

FIGURE

Number of carbapenemase-producing Enterobacteriaceae (CPE) events (n=140) and proportion of outbreaks among these events at Assistance Publique-Hôpitaux de Paris, France, 2004–2012



A CPE event was defined as one index case (respectively defined as infected or colonised with CPE), followed or not by secondary case(s).

In summary ...

- Emerging infectious risk in France
- Recommendations:
 - risk assessment for each situation
 - Standard Precautions (PS)
 - + Additional contact precautions (ACP)
 - + specific eXDR precautions
 - screening
- Need to prior organization (anticipation)
- Responsiveness

Acknowledgments

Composition of the working group

Astagneau Pascal	Public Health Physician	CCLIN Paris-Nord, Paris, CSSP
Baud Olivier	Infection Control Practitioner	ARLIN Auvergne, Clermont-Ferrand
Berthelot Philippe	Infection Control Practitioner	Saint Etienne UHC, CSSP, Chairman of SF2H, 2013 eXDR group co-pilot
Blanckaert Karine	Infection Control Practitioner	ARLIN Nord, Lille
Bonnet Richard	Microbiologist	Clermont-Ferrand UHC, CA-SFM, Associated National Reference Centre (CNR), SFM
Bouscarra Joël	Rehabilitation Physician	Follow-up care and rehabilitation, Collioure
Coignard Bruno	Medical Epidemiologist	InVS, Saint-Maurice, CSSP
Ducron Corinne	Infection Control Head Nurse	Béthune HC
Fournier Sandra	Infectious Diseases Specialist	AP-HP, Paris
Grandbastien Bruno	Infection Control Practitioner	Lille UHC, Chairman of the CSSP, SF2H
Jarlier Vincent	Microbiologist	AP-HP, Paris, CA-SFM
Le Coustumier Alain	Microbiologist	Cahors HC, ColBVH
Lepelletier Didier	Infection Control Practitioner	Nantes UHC, CSSP and SF2H, 2010 XDR and 2013 eXDR group co-pilot and reporter
Lucet Jean-Christophe	Infection Control Practitioner	AP-HP, Paris, SF2H
Mallaval Franck-Olivier	Infection Control Practitioner	Chambéry HC
Nicolas-Chanoine Marie-Hélène	Microbiologist	AP-HP, Paris, Chairman of ONERBA, CA-SFM
Rabaud Christian	Infectious Diseases Specialist	Nancy UHC, CSSP, CCLIN Est, Chairman of SPILF
Souweine Bertrand	Intensive Care Specialist	Clermont-Ferrand, member of the ESBLE (Extended Spectrum Beta-Lactamase-Producing Enterobacteriaceae) Working Group, HCSP 2010
van de Woestyne Philippe	Administrative Director	Lille UHC
van der Mee-Marquet Nathalie	Microbiologist, Hygiene Specialist	Tours UHC, French Centre Network of Hygiene Specialists, ARLIN
Vaux Sophie	Epidemiology Pharmacist	InVS, Saint-Maurice

Acknowledgments

Project managers

Gagnaire Julie	University Hospital Assistant	Saint-Etienne UHC
Lasserre Camille	University Hospital Assistant	Nantes UHC, currently Brest UHC

Experts interviewed

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Roland Leclercq	Microbiologist	CNR Enterococci expert laboratory, Caen UHC
Nicolas Fortineau	Microbiologist	Laboratory associated with the CNR Resistance to antibiotics, Bicêtre, AP-HP, Paris

Group of lecturers

Christian Brun-Buisson	Intensive Care Physician	Chairman of CoSPIN (DGOS) [Follow-up Committee of the Nosocomial Infections Prevention Programme (French General Directorate of Health Care Supply)], Créteil UHC, AP-HP, Paris
Joseph Hajjar	Infection Control Practitioner	Valence HC
Pierre Parneix	Infection Control Practitioner	Head of the CCLIN Sud-Ouest
Thierry Lavigne	Infection Control Practitioner	Strasbourg UHC
Yasmina Berrouane	Infection Control Practitioner	Nice UHC