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

Preventing emergent and highly resistant bacteria spread: 2013 French guidelines

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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
Figure 2 Change in the incidence per 1,000 hospital days (HD) of methicillin-resistant *Staphylococcus aureus* (MRSA) and extended-spectrum β-lactamase producing enterobacteria (ESBL) in acute care hospitals.

Fournier S. ARIC 2012
Epidemiology of MDR bacteria in France: BMR-Raisin 2011
... 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

<table>
<thead>
<tr>
<th>Region</th>
<th>%R</th>
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<tr>
<td>Malta</td>
<td>59%</td>
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<tr>
<td>Italy</td>
<td>34%</td>
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<td>Romania</td>
<td>20.5%</td>
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<tr>
<td>Liechtenstein</td>
<td>1.6%</td>
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<td>Luxembourg</td>
<td>0.7%</td>
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<tr>
<td>Other countries</td>
<td>0.7%</td>
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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)

• 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

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


ORIGINAL ARTICLE

BACTERIOLOGY
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)
  \textit{Enterococcus faecium}
  \textit{vanA} or \textit{vanB}

• Carbapenemase Producing Enterobacteriaceae (CPE)
French recommendations for the prevention of ‘emerging extensively drug-resistant bacteria’ (eXDR) cross-transmission

D. Lepelletier, P. Berthelot, J.-C. Lucet, S. Fournier, V. Jarlier, B. Grandbastien and the National Working Group

Unité de Gestion du risque infectieux, Service de Bactériologie-Hygiène Hospitalière, CHU Nantes, Nantes, France
Unité de Bactériologie, Hôpital Pitié-Salpêtrière, AP-HP, Paris, France
Unité de Lutte contre les infections nosocomiales, Service du Risque Infectieux, des Vigilances et d’Infectiologie, CHRU Lille, Lille, France

Available online at www.sciencedirect.com
Journal of Hospital Infection
journal homepage: www.elsevierhealth.com/journals/jhin
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
  - see fact sheet 3: chance discovery
- Imediate ACP, No dedicated team
  - Weekly screening of contacts present for as long as the carrier is present
    - + at least one screening of contacts after the carrier has left
    - If a negative contact is transferred: ACP + at least one screening
- Immediate ACP, then dedicated team
  - At least one screening of contact before the dedicated team
  - Continue contact transfers

**Care for contact patients**
Fact sheet 2. Admission of a patient hospitalised abroad within the previous year

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see fact sheet 3: chance discovery
Effectiveness of these measures
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

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution &amp; Position</th>
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<td>Administrative Director</td>
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<tr>
<td>van der Mee-Marquet Nathalie</td>
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<td>Tours UHC, French Centre Network of Hygiene Specialists, ARLIN</td>
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<tr>
<td>Vaux Sophie</td>
<td>Epidemiology Pharmacist</td>
<td>InVS, Saint-Maurice</td>
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# Acknowledgments

## Project managers

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Gagnaire Julie</td>
<td>University Hospital Assistant</td>
<td>Saint-Etienne UHC</td>
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<tr>
<td>Lasserre Camille</td>
<td>University Hospital Assistant</td>
<td>Nantes UHC, currently Brest UHC</td>
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## Experts interviewed

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<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Anna-Pelagia Magiorakos</td>
<td>Infectious Diseases Specialist</td>
<td>Antimicrobial Resistance and Healthcare-Associated Infections, European Centre for Disease Prevention and Control, Stockholm, Sweden</td>
</tr>
<tr>
<td>Roland Leclercq</td>
<td>Microbiologist</td>
<td>CNR Enterococci expert laboratory, Caen UHC</td>
</tr>
<tr>
<td>Nicolas Fortineau</td>
<td>Microbiologist</td>
<td>Laboratory associated with the CNR Resistance to antibiotics, Bicêtre, AP-HP, Paris</td>
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## Group of lecturers

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Christian Brun-Buisson</td>
<td>Intensive Care Physician</td>
<td>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</td>
</tr>
<tr>
<td>Joseph Hajjar</td>
<td>Infection Control Practitioner</td>
<td>Valence HC</td>
</tr>
<tr>
<td>Pierre Parneix</td>
<td>Infection Control Practitioner</td>
<td>Head of the CCLIN Sud-Ouest</td>
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<tr>
<td>Thierry Lavigne</td>
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