Control of MDRO in Nursing Homes
Prof. Andreas Voss, Radboud University, Netherlands
Sponsored by WHO Patient Safety Agency – CLEAN Care is Safer Care

Control of MDRO in Nursing Homes
Andreas Voss
Radboud UMC & CWZ
Nijmegen, The Netherlands

Hosted by
Dr. Nizam Damani
Queen’s University, Belfast

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WHO Patient Safety Challenge
Clean Care is Safer Care

December 18, 2013

Current problems in NH

- Nursing homes ≠ hospitals

Infection control structure not always present
No (or hardly any) ICPs present
No/little cooperation with hospitals and other institutions with regard to IC
Different approach of MD/RN with their “clients”
“home” environment
extremely diverse settings - from ventilator units to living rooms

Meet Mrs A
(during the time of ignorance)

- UTI that can no longer be treated p.o. in NH (ESBL-E.coli)
- Standard admission in hospital (no isolation)
- Transmission to other patients.
- Due to broad-spectrum AB treatment development of CDAD.

Meet Mrs B
(during the time of planning)

- Same problem/case
- ESBL + dangerous hospitals doesn’t really want the patient
- In isolate – no transmission. Still development of CDAD
- C. difficile + dangerous nursing home doesn’t really want the patient

Some problems appear “one way”

Hospital ➔ Nursing home
Nursing home ➔ Hospital

SSI
MDRO (UTI)

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MDROs go both ways!

How many HAIs in the nursing home?

1.7 million

98,987

HAIs kill more people each year than Breast Cancer and Prostate Cancer combined.

Your length of stay in the hospital increases by 17.6 days if you get an HAI

$1.100

per innings

9.4% of total

69% More than 10% of these are preventable with Medicines in Patients

Surveillance of HAIs

The prevalence of HAIs in NH varies from:
5.2% to 20.5%.

no standard definitions = no comparison possible

Prevalence in the NL was unknown until recently

Norwegian study on HAIs in NH-population:

2 x higher risk of general morbidity

9 x higher risk of being admitted to a hospital

6 x higher risk of mortality

Dutch study among elderly with dementia:

Patients cared for in nursing homes = higher risk of UTI, RTI & conjunctivitis


Prevalence of HAIs in NH in Nijmegen region

Prevalence in the NL was unknown until recently

Te what to do in nursing homes?

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Aim of the lecture
- Explanation of a new Dutch guideline on MDRO control in nursing homes
  - MDR-GNR
  - MDR-Non-fermenters
    - Acinetobacter, Pseudomonas, Stenotrophomonas
  - PRP and VRE
  - Excluding MRSA (specific guideline) and other MDRO's
  - Not dealing with outbreak situations

More is needed to control MDROs
- In order to be able to effectively control MDROs we need:
  - clear definitions
  - reliable diagnostics (www.NVMM.nl)
  - infection control guidelines (www.WIP.nl)
  - treatment guidelines (www.SWAB.nl)

Defining MDRO's
- MDRO’s = pathogens that evade the most common antibiotics used
  - phenotypic resistance or harbour the genes/enzymes for broad-spectrum resistance
- While the antibiotics used in hospitals and nursing homes are very different (p.o. versus i.v. and p.o.)
  - the Dutch expert group decided to use the exact same definitions in order to get uniformity and avoid confusion about what MDRO’s are

Definitions for MDRO's

Reliable diagnostics

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Indications for screening

- Voer gericht onderzoek naar BRMO dragerschap uit:
- On admission of a patient/client:
  - who had been carded for in a foreign hospital/nursing home within the last 2 months for longer than 24h;
  - who is admitted from a unit in another sector with an ongoing MDRO outbreak.
- Contact-screening after contact with an (unexpected) carrier of MDRO’s

Screening sites

<table>
<thead>
<tr>
<th>Micro-organism</th>
<th>Routine sites</th>
<th>Extra sites on indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterobacteriaceae (incl. ESBL and CPE)</td>
<td>rectal swab or feces</td>
<td>wound, sputum, urine</td>
</tr>
<tr>
<td>Acinetobacter species</td>
<td>rectal swab or feces and sputum</td>
<td>wound, urine</td>
</tr>
<tr>
<td>Stenotrophomonas maltophilia</td>
<td>rectal swab or feces and sputum</td>
<td>wound, urine</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>rectal swab or feces and sputum</td>
<td>wound, urine</td>
</tr>
<tr>
<td>Staphylococcus pneumonia</td>
<td>sputum</td>
<td></td>
</tr>
<tr>
<td>Enterococcus faecium</td>
<td>rectal swab or feces</td>
<td>wound, sputum, urine</td>
</tr>
</tbody>
</table>

Number of cultures

- **A single set** of specimens is considered sufficient for the targeted screening for carriage of HRE.
- Although repeated sampling may decrease the sample error, scientific data on this issue are currently insufficient to justify a recommendation to perform duplicate or repeated cultures.

Isolation measures

- Instead of working with “universal precautions” and “specific isolation types” the experts decided to describe the specific measures per MDRO
- the sector is not well known with isolation types or universal precautions

Isolation measures (1)

<table>
<thead>
<tr>
<th>Micro-organism</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hand- hygiene</td>
</tr>
<tr>
<td>Enterobacteriaceae (incl. ESBL and CPE)</td>
<td>Yes</td>
</tr>
<tr>
<td>CPE</td>
<td>Yes</td>
</tr>
<tr>
<td>Acinetobacter species</td>
<td>Yes</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>Yes</td>
</tr>
<tr>
<td>Stenotrophomonas maltophilia</td>
<td>Yes</td>
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<td>Staphylococcus pneumonia</td>
<td>Yes</td>
</tr>
<tr>
<td>Enterococcus faecium</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Gloves during care and contact with environment, not for social contact

Isolation measures (2)

<table>
<thead>
<tr>
<th>Micro-organism</th>
<th>Rooms</th>
<th>Wet-rooms</th>
<th>Use of shared rooms, contact with groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Room</td>
<td>WC, bed-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>pen</td>
<td></td>
</tr>
<tr>
<td>Enterobacteriaceae (incl. ESBL and CPE)</td>
<td>Multiple bed possible</td>
<td>Client specific</td>
<td>Shared allowed</td>
</tr>
<tr>
<td>CPE</td>
<td>Single</td>
<td>Client specific</td>
<td>Client specific</td>
</tr>
<tr>
<td>Acinetobacter species</td>
<td>Single</td>
<td>Client specific</td>
<td>Client specific</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>Multiple bed possible</td>
<td>Client specific</td>
<td>Shared allowed</td>
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<tr>
<td>Stenotrophomonas maltophilia</td>
<td>Multiple bed possible</td>
<td>Client specific</td>
<td>Shared allowed</td>
</tr>
<tr>
<td>Staphylococcus pneumonia</td>
<td>Single</td>
<td>No measures</td>
<td>Shared allowed</td>
</tr>
<tr>
<td>Enterococcus faecium</td>
<td>Multiple bed possible</td>
<td>Client specific</td>
<td>Shared allowed</td>
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Isolation measures (3)

<table>
<thead>
<tr>
<th>Micro-organism</th>
<th>Medical devices etc.</th>
<th>Cleaning</th>
<th>Disinfection</th>
<th>Final disinfection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterobacteriaceae (incl. ESBL, excl. CPE)</td>
<td>Per patient</td>
<td>Daily</td>
<td>Yes, all non-client specific materials</td>
<td>Yes</td>
</tr>
<tr>
<td>CPE</td>
<td>Per patient</td>
<td>Daily</td>
<td>Yes, all non-client specific materials</td>
<td>Yes</td>
</tr>
<tr>
<td>Acinetobacter species</td>
<td>Per patient</td>
<td>Daily</td>
<td>Yes, all non-client specific materials</td>
<td>Yes</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>Per patient</td>
<td>Daily</td>
<td>Yes, all non-client specific materials</td>
<td>Only wet-room</td>
</tr>
<tr>
<td>Stenotrophomonas maltophilia</td>
<td>Per patient</td>
<td>Daily</td>
<td>Yes, all non-client specific materials</td>
<td>Only wet-room</td>
</tr>
<tr>
<td>PJP</td>
<td>Per patient</td>
<td>Daily</td>
<td>Yes, all non-client specific materials</td>
<td>Yes</td>
</tr>
<tr>
<td>VRE</td>
<td>Per patient</td>
<td>Daily</td>
<td>Yes, all non-client specific materials</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Some extra explanations ...

- Gloves during care and contact with environment, not for social contact
- Mask should be used in general when assuming splashes
- In case of shared bathrooms client with MDRO at last → cleaning
- Visits of common rooms: instruct patients about HH and cover wounds, …
- Discuss need and measures with ICP

Vistors

- Vistors should wash or disinfect their hands after contact with the patient/client
- If a vistor participates in the care of a patient/client they should use the same precautions as the HCWs
- or any other person getting actively involved in hands-on-care

Contact tracing

- Screen contacts (clients) of a patients who wasn’t known to carry MDRO’s
  - not if MDRO is ESBL in non-outbreak situation
- No need to include HCWs
  - no means of decolonization

Cultures at stop of isolation

- Once a patient has been identified as a carrier of HRE, it is not clear how many culture sets have to be taken to reliably identify loss of carriage of HRE.
  - no longer carrying MDRO if two culture sets, collected at least 24 hours apart, and at least 48 hours after discontinuation of antibiotic therapy are negative
  - Excluding CPE and VRE

Stop isolation of MRSA, VRE & CPE

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Let’s change the outcome ...

2014 WHO Teleclass Schedule

January 29
Innovation and implementation strategic approaches to reduce catheter-related bacteraemia: The results of a European multicentre study (PROHIBIT)
Dr. Walter Zingg, Switzerland

March 7
How to prevent the spread of multiresistant bacteria
Dr. Stephan Harbarth, Switzerland

April 9
Highlights on SSI prevention: The new CDC guidelines and more
Dr. Joseph S Policin, USA

May 5
Special lecture for International Hand Hygiene Day
Prof. Didier Pittet, Switzerland

September 3
New WHO global campaign to eliminate unsafe therapeutic injections
Dr. Benedetta Allegranzi, Switzerland

October 8
Public reporting and disclosure of HAI rates: Positive impact or confusion?
Dr. Maryanne McDuckin, USA

November 5
Global application of behaviour change models and infection control strategies
Dr. Michael Borg, Malta

5 May 2014
Role of hand hygiene to combat antimicrobial resistance
http://www.who.int/gpsc/5may/en/index.html

Register your healthcare facility at http://www.who.int/gpsc/5may/register/en/index.html

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