HEALTH DEPARTMENT OF WESTERN AUSTRALIA

OPERATIONAL INSTRUCTION

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Subject: **GUIDELINES FOR THE MANAGEMENT OF PATIENTS WITH VANCOMYCIN-RESISTANT ENTEROCOCCI (VRE) INFECTION/COLONISATION**

1. BACKGROUND

1.1 Vancomycin-resistant enterococci (VRE) refers to vancomycin-resistant *Enterococcus faecium* and *Enterococcus faecalis*. There have been at least nine confirmed isolates of VRE in Australia to date, including one in Western Australia. The first was in 1994, from a patient who had undergone a liver transplant in Melbourne. Extensive investigations at that time did not find any other strains in the hospital. A further eight isolates in Australia were reported from May to December 1996. It is possible that there have been other isolates which have not been reported.

1.2 VRE was first found in the late 1980s in the USA. Since then, these strains have been found to be a significant cause of cross-colonisation and infection in tertiary care hospitals in the United States, particularly in intensive care units. More recently they have also been described with increasing frequency in Europe and especially in Britain.

2. TYPES OF VRE

Three phenotypes of vancomycin-resistance have been found in enterococci. They are classified as VanA, VanB and VanC. It is only VanA and VanB type resistance which account for almost all of the important resistance in clinical settings. VanC resistance is low level intrinsic resistance that is naturally found in rarer species of enterococci other than *E. faecium* or *E. faecalis.* These species are rarely major pathogens and thus this type of resistance is of little clinical importance.

3. SURVEILLANCE AND REPORTING OF VRE

3.1 All pathology laboratories isolating VRE from a clinical specimen should report the case to the Director of Disease Control by telephone on (09) 388 4800 or by fax (09) 388 4888. In addition, each isolate should be sent to the Infection Control Laboratory, PathCentre, Queen Elizabeth II Medical Centre, Nedlands WA 6009, for confirmatory testing and other specialised studies.

3.2 PathCentre will send a report of the full complementary testing report to the Director of Disease Control in addition to the originating laboratory.

4. PRINCIPLES OF MANAGEMENT

Each hospital should draw up guidelines for the use of vancomycin and monitor such use strictly. In addition, all hospitals should develop a contingency plan for the management of patients with VRE as provided in these guidelines. Oral vancomycin should not be used as first line treatment of infection with *Clostridium difficile*; the drug of choice in such cases is metronidazole.

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5. MICRO ALERT

Patients who have clinical infection with VRE will be placed on Micro Alert V. Only Clinical Microbiologists should place individuals on Micro Alert or remove them from Micro Alert. In order to establish that a previously detected VRE carrier is not carrying VRE, all previously positive sites should be swabbed and faecal specimens collected on three occasions at least 24 hours apart. Specimens must be taken at least 72 hours after cessation of any antimicrobial therapy. If all these specimens are negative, the person is classified as an "inactive VRE carrier."

After a period of at least 10 weeks, inactive carriers should have all previously positive sites swabbed and faecal specimens collected on three occasions at least 24 hours apart. If all these specimens are negative, an inactive VRE carrier is cleared and is removed from Micro Alert V by a Clinical Microbiologist.

6. RISK FACTORS FOR VRE ACQUISITION

6.1 An increased risk for VRE infection and colonisation has been associated with:

- Previous vancomycin or multi-antimicrobial therapy;
- Immunosuppression;
- Intra-abdominal surgery;
- Prolonged hospitalisation;
- Admission to an intensive care unit;
- Renal failure.

6.2 Most VRE infections have been attributed to the patient's endogenous flora although cross infection has been clearly documented in many cases.

7. STAFF EDUCATION

Intensive staff education programs should be implemented regarding the management of patients with VRE and the prevention of spread of VRE within hospitals. At the same time, every effort should be made through staff education programs to include the monitoring of antibiotic prescribing, especially vancomycin and multi-antimicrobial therapy.

8. INFECTION CONTROL PRECAUTIONS FOR PATIENTS

8.1 Clinical specimens should be placed in a leakproof container with the lid fastened securely. The container is placed in a sealable, leakproof plastic bag for transport. Laboratory forms should not be placed in the bag with the specimen. Care must be taken to prevent contamination of the outside of the bag. The specimen should be taken to the laboratory immediately.

8.2 Currently, recommended standard precautions are not adequate for the control of VRE as such strains may contaminate the environment, including medical equipment, patients' gowns, bed linen, cupboards, door handles, etc. Recovery of enterococci from the hands of health care workers suggests that cross infection most commonly occurs via the hands of personnel when nosocomial spread occurs.

8.2.1 *Single Room*

- Nurse the patient in a single room with ensuite facilities. Keep the door closed unless this compromises patient care.
- A hand basin inside or adjacent to the room is essential.
- A non-carpeted area is preferable.
- If two or more cases occur and it is not possible to manage the cases in single rooms the patients should be cohorted.

8.2.2 *Handwashing*

- Staff with exfoliative skin conditions must not care for the patient.
- Wash hands after leaving the patient's room.
- Chlorhexidine 4% is recommended as a handwash solution, alternatively 1% chlorhexidine in 70% alcohol may be used as a handrub.

8.2.3 ***Protective Clothing/Equipment***

Gloves:

- Clean gloves should be put on when entering the room of a VRE infected/colonised patient.
- Gloves should be changed as appropriate when performing multiple procedures on a patient. Gloves should be removed before leaving the patient's room.
- Wash hands **immediately** after removing gloves.

Plastic aprons or gowns

- Plastic aprons or gowns should be worn if contact with the patient or substantial contact with the environment is anticipated.
- Remove plastic apron or gown before leaving the patient's room, wash hands as above.

Safety glasses, masks

- As required.

8.2.4 ***Equipment***

- Dedicate non-critical items to the patient's room, e.g. stethoscope, sphygmomanometer. Equipment which leaves the room must be decontaminated before use on another patient. Contact the Infection Control Nurse for further information.
- Pan/urinal-washer/sanitiser must comply with Australian Standards 4187 - 1994.

8.2.5 ***Routine Cleaning***

- Clean the room daily with detergent and water.
- Cleaning cloths should be disposable or returned to the laundry daily.
- Mops for daily cleaning should be dedicated to the room. Disposable mop heads are preferable.

8.2.6 ***Terminal Cleaning***

- Clean the room using a phenolic or hypochlorite disinfectant. Adhere to the manufacturer's guidelines.
- The mop head should be autoclaved or preferably discarded.
- Change the curtains
- After the room has been cleaned, environmental sampling using swabs or contact plates must be performed from at least five horizontal sites. The sites should include the bathroom, floor by the bed, bed table, locker and bed. The room should be free of contamination prior to use by the next patient.

8.2.7 ***Linen***

- Follow Standard Precautions.

8.2.8 ***Body Substance Spills***

- Follow Standard Precautions and the usual hospital guidelines.

8.2.9 ***Disposal of Waste***

- Follow Standard Precautions and the usual hospital guidelines.

8.2.10 ***Eating Utensils***

- Routine hot machine washing is adequate for cleaning cutlery and crockery.

8.2.11 ***Visitors***

- Protective clothing is not required.
- Visitors should be encouraged to wash their hands when they leave the patient's room.
- Visitors should not visit other patients in the hospital on the same day after visiting a patient infected or colonised with VRE.

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8.3 Depending on the ward or unit in which the index case(s) is discovered, and at the discretion of the Infection Control Officer, the ward or unit may need to be quarantined pending further investigations. Admission of new patients, or transfer of patients to other wards or institutions, and movement of staff to other areas in the hospital, may need to be controlled for a period of time, until the Clinical Microbiologist or Infection Control Officer is satisfied that there is minimal risk of transmission of the organism, and intensified environmental cleaning of the ward or unit has been undertaken.

9. TRANSFER OF PATIENTS

9.1 Unnecessary transfer of patients should be avoided. If transferring patients within the hospital, use isolation precautions and inform the receiving department.

9.2 It is highly desirable that patients infected or colonised with VRE be discharged to their homes whenever possible and when it poses no additional risks to patients or their care.

9.3 Before inter-hospital transfer or transfer to another health care facility, there should be full communication between the transferring and receiving institutions. This involves discussions regarding the infection control procedures required in the institutions. All medical and nursing documents should accompany the patient, clearly stating that the patient is infected or colonised with VRE.

9.4 In general, there is little risk to patients in the nursing home or geriatric unit from another patient harbouring a strain of VRE, in contrast to the introduction of the organism into specialist units, e.g. oncology and intensive care. No special precautions are required in such institutions other than adherence to basic hygiene standards and strict handwashing standards.

9.5 Micro Alert V status is not a bar to admission to any long term health care facility.

9.6 Patients on Micro Alert V who are readmitted to hospital must be nursed in a single room as described in 8.2.1. Re-screen for VRE carriage as described in 5. If positive, continue to nurse in isolation until discharge from hospital.

10. SCREENING OF PATIENTS AND STAFF

10.1 *Patients*

- Patients on the same ward as a patient with VRE - no screening required routinely.
- Patients in the same room as a patient with VRE - at least one rectal swab or faecal specimen.
- Patients transferred from outside WA - routine screening is not required.

10.2 *Staff*

- Staff screening is not routinely recommended. However, hand sampling may be required during outbreaks.

Dr J S Gill
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DISEASE CONTROL