

# VANCOMYCIN-RESISTANT ENTEROCOCCI (VRE)

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## Clinical Definition:

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Enterococci are bacteria that are normally present in the human intestines and in the female genital tract and are often found in the environment. These bacteria can sometimes cause infections. Vancomycin is an antibiotic that is often used to treat infections caused by enterococci. In some instances, enterococci have become resistant to this drug and thus are called vancomycin-resistant enterococci (VRE). Most VRE infections occur in hospitals.



VRE can reside harmlessly in the human's gut until given antibiotic therapy that changes the balance of intestinal bacterial flora, enabling VRE to spread from the gut and cause infection in other parts of the body.

## Source of Infection and Transmission:

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- ◆ VRE is transmitted from one person to another by direct or indirect contact. It is not spread through the air like the common cold or flu virus.
- ◆ The bacteria are usually spread from one person to another by the hands of caregivers including visitors and even infected clients if the proper precautions are ignored. Bacteria can be present on the caregiver's hands either from touching contaminated material excreted by the infected person or from touching articles soiled by feces.
- ◆ Enterococci, including VRE, are normally found in the human bowel and are shed from the body through stool.
- ◆ Enterococci grows well on hands, and the organism can survive for weeks or months on various inanimate objects such as toilet seats, door handles, furniture and health care equipment such as the stethoscope.

## Incubation Period:

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- ◆ Variable

## Symptoms:

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- ◆ Cases can be asymptomatic or symptomatic. Urinary tract infections are the most common type of disease caused by the *Enterococci*.
- ◆ *Contact Precautions* are required for hospitalized patients.
- ◆ In addition, *Enterococci* cause between 5% and 15% of all cases of bacterial endocarditis (inflammation of the lining of the heart and its valves).
- ◆ Enterococci also cause infections of the gastrointestinal tract, kidneys, meninges, and wounds.

## Major Complications:

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- ◆ VRE causes life-threatening infections in people with compromised immune system – the very young, the very old, and the very ill.
- ◆ It is especially worrisome because it can easily transmit the resistance genes to other bacteria, such as staphylococcus and streptococcus.

## Diagnosis and Treatment:

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- ◆ Enterococci can be identified by using colonial morphology, a Gram stain, and a pyrrolidonly arylamidase (PYR) test. Vancomycin susceptibility should be determined for Enterococci isolated from blood, sterile body sites, and other sites, as clinically indicated.

## Public Health Measures:

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- ◆ VRE screening should be done on high risk individuals at time of hospital admission. These include those who have been hospitalized in the South, immunocompromised.
- ◆ Control measures include a private room, gloves and gown for all client contacts, dedicated client equipment, the use of antiseptic soap, and enhanced cleaning of the room. These measures should continue for the duration of hospitalization or until the client has been cleared of VRE following the hospital protocol. (See NWT Infection Control Manual).
- ◆ Gloves and gown must be discarded **before** leaving the patient's room. Gloves should be changed between sites (e.g. after contact with feces). Hands must be thoroughly washed (longer than 30 seconds) **with antiseptic soap** after removing gloves and upon leaving the room. Care must be taken not to re-contaminate hands.
- ◆ Environmental contamination should be avoided when disposing of linen and garbage. All surfaces should be cleaned daily (e.g. doorknobs, countertops, bedrails) with hospital disinfectant. Upon discharge or transfer, cleaning of the patient's room should also include walls and curtains. (Terminal cleaning. See *NWT Infection Control Manual*).
- ◆ Transport of patient out of the room should be limited to essential tests. Affected sites should be covered and the wheelchair/stretchers disinfected after use.
- ◆ Please refer to "**Contact Precautions**" in the NWT Infection Control Manual.

### **Reporting and Follow-Up:**

- ◆ The Environmental Health Officer (EHO) is to be notified of all suspect and confirmed cases.
- ◆ All suspect or confirmed cases are to be reported to the Office of the Chief Medical Health Officer (OCMHO) within 7 days.
- ◆ If outbreak occurs Outbreak Control Protocol is to be implemented.
- ◆ Complete *Communicable Disease Form*

### **Public Education: (Key Messages)**

- ◆ Fastidious hygiene is the best way to avoid ingesting VRE and becoming a carrier. VRE is a robust bacteria and has been found on hospital personnel's hands after five seconds of hand washing. It is recommended that you wash your hands for twenty seconds with an antibacterial soap every time before you eat.
- ◆ Inform the client with VRE that they should always advise their nurse/physician on any subsequent admission to hospitals or daycare surgical setting that they have had VRE in the past. Contact Precautions should be done on this client until VRE colonization is ruled out.
- ◆ Alert signage on all known VRE hospital charts.

### **Epidemiology**

1989 – 2005

There have been four cases of VRE reported in the NWT.