PROTOCOL		
FROM:	Service of Infection Prevention & Control	**G-113-06-02**
TO:	The CBHSSJB medical & nursing staff	**DATE OF CREATION:** 2002-11-28
OBJECT:	Infections prevention & control measures for VRE	**EFFECTIVE ON:** December 2002
APPROVED BY:	The Executive Committee of the Council of physicians, dentists and pharmacists	**REVIEW DATE:** 2011-05-06
APPLIED BY:	This protocol must be applied by all nurses and physicians working for the Cree Health Board.	
CLIENTELE:	All patients admitted to Chisasibi Hospital and any other appropriate patient receiving care from CBHSSJB.	

GUIDELINES FOR THE PREVENTION & CONTROL OF THE VANCOMYCIN-RESISTANT *ENTEROCOCCUS*

Service of Infection Prevention & Control

Based on the document *Guidelines for the Control and Prevention of Vancomycin-resistant* Enterococcus by the MUHC

1. INTRODUCTION

Enterococci form part of the normal human flora and are found in the intestinal tract and female genital tract. These organisms are the second most common cause of hospital-acquired infections and the third most common cause of nosocomial bacteremias.

Enterococci develop resistance to Vancomycin by altering their peptidoglycan precursors, to which glycopeptide antibiotics can no longer bind.

The increasing incidence of VRE poses important problems

- Enterococci possess an intrinsic resistance to the majority of antibiotics currently used (aminoglycosides and ampicillin)
- Vancomycin resistance might be transferred to other gram-positive microorganisms such as *Staphylococcus aureus.*

It is known that Enterococci, including VRE, can be transmitted via direct or indirect contact. VRE has been recovered from countertops as long as 7 days to 2 months after inoculation.

VRE control is recommended by the Laboratory Center for Disease Control (LCDC), the Centers for Disease Control and Prevention (CDC), and the Quebec Public Health Department. A key factor in its control is limiting the use of Vancomycin according to published guidelines (HICPAC, 1995).

This policy applies to Vancomycin-resistant *E.faecalis* and *E.faecium:* (phenotypes VanA, VanB and VanD) and does not apply to *E. gallinarum, E.jlavescens, or E. casselijlavus* that do not retain epidemiological significance.

2. INDICATIONS

To manage and contain VRE infected or colonized and exposed patients and employees.

3. SCOPE

Management of VRE in relation to patients and employees of the Chisasibi Hospital and the clinics of the nine communities of the CBHSSJB. This policy applies equally to all long-term care units and outpatient services at these sites.

4. RESPONSIBILITY

Nurses, physicians and other health care workers are collectively responsible for the prevention and control of VRE. Hand washing and appropriate use of barriers are the responsibility of every healthcare worker. A physician or a nurse will initiate VRE screening and precautions according to guidelines. Nursing personnel will place appropriate signs on the door and patient chart and document the initiation of VRE precautions in the patient's chart.

5. SCREENING

5.1 Who to screen

Admitted patient

Each admitted patient

Known VRE patients who are readmitted

Patients with prior history of VRE infection or colonization and are readmitted to hospital.

Exposed patients

Patients sharing the same geographical area (defined by the IPC Service) as the index patient regardless of duration of exposure.

Transfers from any health care institution (Including ER)

Institutions include acute care and long-term care facilities, centres d'accueil, rehabilitation centers and foster/group homes.

High-risk areas (modifications may be made considering the unique aspects of each site).

Dialysis - on admission to program, after transfer and every month

Others

At the discretion of the IPC Service, other areas and groups may be identified and screening may be modified based on epidemiological evidence.

5.2 How to Screen

Take a deep rectal swab. Stool must be visible on the swab. For neutropenic patients, send a stool specimen.

5.3 Sites to Screen

Routine screen

- Rectum

Deep rectal swab. Stool specimen is preferable and may be requested by the IPC Service to follow known positive patients.

- Colostomy

Swab inside colostomy. Always swab the colostomy if it is functioning.

Screen for known positive patient and VRE contact

- Rectum or colostomy

Positive patient

When the first swab is negative, follow with two stool cultures for one week apart.

Exposed patient

Swabs done on days 0 and 3.

- Open wounds

Culture wound drainage of contacts or known positive patients. Do not culture healed wounds or fresh surgical incisions unless clinically infected.

- Original site of colonization / infection

Culture other sites that were positive in the past.

5.4 Frequency and Interval of Screening

- Known VRE patients who are readmitted

Screen on re-admission (day 0) and every week for 3 weeks then monthly.

- Exposed patients

Screen when index case has been identified (day 0) and day 3.

- High-risk areas

To be determined by the IPC Service

- VRE positive patients

Screen once a week for 4 weeks (day 7, 14, 21, and 28). Then screen once a month as long as the patient is hospitalized.

NOTE The IPC Service may increase frequency of screening for a patient who is now negative, but previously VRE +, who is receiving antibiotic therapy. If a previously positive patient becomes culture negative for VRE, increase frequency of screening to weekly.

5.5 Summary of Screening Intervals

Situation	Day 0	Day 3	Day 7	Day 14	Day 21	Day 28
Known VRE + patient who is readmitted	X (On admission)		X	X	X	
Exposed patient	X (Day index diagnosed)	X				
High risk area (eg. Dialysis)	X (On admission)	As determined by IPC Service				
VRE positive patient	X (1st positive screen or culture)		X	X	X	X
VRE patient hospitalized > 1 month	Screen monthly for one year					

6 CONTROL MEASURES AND PRECAUTIONS

Place appropriate signs on the door and patient chart. Document initiation of additional precautions in the patient chart.

Situation	Single room	Hand washing	Non-sterile gloves	Long-sleeved gown
VRE positive patient (see note for readmission of VRE patients)	X	X	X	X
Exposed patient	X	X	X	X
Foreign visitors requiring hospitalization	X	X	X	X
Transfer from any health care institution.	X	X	X	X

Admission in any health care institution Include ER stay or admission longer than 24 hours in the last 12 months	X	X	X	X
Any high risk area	As determined by IPC Service			

NOTES

Single Room

Place all VRE positive patients in a single room with dedicated toilet facilities or commode.

Cohorting of VRE positive patients may be considered.

Door may remain open.

Place sign on the door.

Hand Washing

Wash hands after removing the gowns and gloves after each patient contact.

Wash hands thoroughly for 15 seconds with the hospital antiseptic agent.

Gloves and Long-sleeved Gowns

Wear when entering the patient's room.

Discard gown in the linen hamper in the patient's room.

When patients are cohorted for VRE precautions, gloves and gown need to be changed between each direct patient contact.

***Place patient with a prior history of VRE on Contact Precautions and screen at each admission until negative for VRE for one year

7 DISCONTINUE ADDITIONAL PRECAUTIONS

- Before discontinuation of VRE precautions, verify that the patient did not receive antibiotics to which the VRE is susceptible 48 hours prior to screening cultures.
- A previously positive patient may be removed from VRE precautions, in consultation with the IPC Service, when 3 consecutive cultures of all appropriate sites taken one week apart are negative. This includes one rectal swab and at least two solid/liquid stool specimens.
- Precautions may be extended or re-instituted if the patient is receiving antibiotic therapy for any reason or is at increased risk due to immunosuppression or other.
- An exposed patient may be taken off precautions when screening cultures taken on day 0 and day 3 are both negative.
- If any specimen is found to be positive for VRE on screening cultures, then the patient must remain under Contact Precautions.

7.1 Summary: Stop Isolation when…

Situation	Day 0	Day 3	Day 7	Day 14	Day 21	Day 28
VRE positive patient	When 3 consecutive weekly screens are negative					
Exposed patient	Negative	Negative				
Foreign visitors requiring hospitalization	Negative					
Transfer from any health care institution	Negative					
Admission in the last 12 months	Negative					

8 HOUSEKEEPING

- Daily cleaning applies to exposed patients on precautions as well as those who are known positive.
- If a patient on VRE precautions is discharged prior to his/her VRE status being known, follow the procedure as if the patient was positive.

8.1 General

- Bring all equipment and supplies into the room that are required for the day's cleaning. Remove used mop head inside the room, place in plastic bag and send to Laundry. Bring mop handle and pail to the Housekeeping room and clean with disinfectant before using in another room.
- Take the following clean items in the room daily: several cleaning rags, clean mop head
- Prepare fresh solution of disinfectant in the bucket to clean the floor
- Put on the rubber gloves and a gown before entering the room.
- Operational (performed by Nursing Department Personnel)
- All equipment assigned to the patient (e.g. stethoscope, thermometer) will be disinfected in the room before removing from the room. Use disinfectant wipe or 70% isopropyl alcohol. Send any equipment that needs to be sterilized to sterilization room. Place directly in transport container.

8.2 Daily Cleaning

- Clean all surfaces in the room paying special attention the surfaces that come in contact with hands
- Clean bathroom in the usual manner, with special attention to surfaces that come in contact with hands
- At the end, please make sure you clean the toilets
- Discard the remaining disinfectant in the toilet and flush
- Wash the floor with a clean mop as per routine
- Pour the disinfectant solution in the toilet and flush
- Detach the mops from the handle and put them in the plastic bag along with the rags.
- Keep all the equipment in the room
- Remove gloves and gown before leaving the room
- Rub alcohol-based hand rinse in all surfaces of hands and wrists, including nail beds

8.3 Terminal Cleaning

- Terminal cleaning is performed when the patient is discharged or VRE precautions are discontinued.

- Remove bedside and window curtains and place in laundry bag.
- Clean all areas of the room then the bathroom as per daily cleaning.
- Take clean rags, disinfectant solution, mop and clean the room a second time. Install clean bedside and window curtains.
- Operational (Performed by Nursing Department Personnel)

All supplies wrapped in porous material (e.g. paper, cardboard, cloth) are discarded.

Discard and replace any call bell attachments made of gauze or string.

THE FOLLOWING SECTIONS APPLY TO PATIENTS WHO ARE ON VRE PRECAUTIONS FOR SCREENING OR ARE KNOWN TO BE VRE POSITIVE.

9 GENERAL ACTIVITIES

Restrict patient to the room, except for medically necessary tests or treatments.

10. DIAGNOSTIC TESTS AND THERAPIES

- When possible, perform diagnostic procedures or therapies in the patient's room.
- When possible, perform procedures at the end of the day. Transport patients immediately to and from the procedure area.
- The patient care unit, prior to transport, must inform the receiving department of IPC measures to be taken. This is done to ensure that tests or procedures are carried out without delay and that appropriate precautions are taken.
- Wear gloves and gown for patient contact. After contact with patient, wash hands with the hospital approved antiseptic agent for 10 to 15 seconds. Decontaminate surfaces in contact with the patient and the health care worker's gloved hands with the hospital-approved germicide. Call Housekeeping to clean the room or cubicle before it is used for another patient. Use daily cleaning protocol.

11 TRANSPORTATION

11.1 Transportation by wheelchair or stretcher

- Cover the wheelchair including the handlebars with a sheet before entering the room.
- When entering the room, the transport attendant is to wear gown and gloves to help lift the patient.
- Cover the patient well with gloves, long-sleeved gown or sheets where appropriate.
- Upon leaving the patient's room, transport attendant will remove protective wear and wash hands for 10 to 15 seconds with the hospital approved antiseptic agent. Ensure all surfaces of the hands and wrists come in contact with the antiseptic agent. Transport attendants are not to circulate through the hospital wearing gloves/gown.
- Remove the sheet from the handlebars once the patient is seated in the

wheelchair.
- After using the wheelchair or stretcher, decontaminate with the hospital-approved germicide.
- Decontaminate patient dedicated wheelchairs with the hospital-approved germicide before leaving the room.
- Patients are not to have contact with the chart during transport. Place chart under mattress or on clean cover.

11.2 Transportation in the patient's bed

Preparing for transport in the room

- When entering the room, transport attendant are to wear gown and gloves to prevent contamination from the environment.
- Decontaminate bed with hospital-approved germicide before leaving the room. At a minimum use: one disinfectant wipe to clean head and foot of bed and one disinfectant wipe to clean the bedrails.
- Cover patient/ bed with clean sheet.
- Upon leaving the patient's room, transport attendant will remove protective wear and decontaminate hands with alcohol hand rinse or wash hands with antiseptic soap for 15 seconds.
- Critically ill patient: The dedicated health care providers who are administering intensive care during transport leave their gown and gloves on. Take care not to contaminate the environment.

Transport in the hallway

- Transport attendants are not to circulate through the hospital wearing gloves/ gown. Hands remain clean to operate elevator.
- Dedicated health care provider administering intensive care should wear gown and gloves.

Transfer of patient in the diagnostic unit

- When entering the room, the transport attendant is to wear gown and gloves to help lift the patient (if transfer onto a bed is required).
- Upon leaving the diagnostic room, transport attendant will remove protective wear and decontaminate hands with alcohol hand rinse or wash hands with antiseptic agent for 15 seconds.

12 MATERIALS AND EQUIPMENT

- Dedicate the use of non critical items, such as stethoscope, sphygmomanometer, thermometer, tourniquets, and pens.
- Disinfect all patient-care equipment, including items enumerated previously, as well as IV poles, wheelchairs, etc. before they leave the room and before they are used on another patient.
- Bring only a limited amount of supplies into the room.
- Discard all unused supplies (e.g. packaged gauze, tape or syringes, needles, IV catheters, etc) upon permanent departure of the patient from the room. These items may become contaminated and cannot be effectively decontaminated.
- Keep the patient's chart outside the room.

13 DIETARY DEPARTMENT

There are no special requirements for dietary utensils, trays, etc. Disposable trays are not necessary. When a person enters the room to deposit or retrieve the dishes, Contact Precautions should be taken.

14 LINEN

Place used laundry directly in laundry bags. Routine double bagging is not necessary unless leakage of contents is possible. Place dedicated hampers for dirty laundry inside the room. Disinfect hamper before removing from room.

15 WASTE DISPOSAL

No special requirements.

16 TRANSFER / DISCHARGE OF PATIENT ON VRE PRECAUTIONS

Patients may be discharged / transferred as is medically necessary. Discharge need not be delayed. If a VRE positive patient is transferred to another institution, communicate the patient's VRE status verbally as well as on the transfer note to the recipient institution. Include the patient's VRE status in the medical discharge summary.

- If the patient is to be followed by Home Care Services, notify them of the patient's VRE status.
- When making an appointment for the patient, inform the clerical staff of the patient's VRE status, so the patient can be assigned the last appointment of the clinic.
- Instruct the patient to advice staff of his / her VRE status, upon return to hospital or outpatient clinic.

17 VRE PRECAUTIONS IN AMBULATORY CARE AREA

17.1 Scheduling appointments

- When possible, schedule patient as the last appointment of the clinic.
- When scheduling appointments for the patient in other ambulatory care areas, notify clerical staff of the patient's VRE status so that appropriate precautions can be taken.

17.2 Waiting Area

When possible, place patient directly in the examination room. If the examination room is not immediately available, attempt a spatial separation of at least 1 meter between the VRE patient and other patients in the waiting area. If possible, designate a washroom for VRE positive patients and ensure appropriate cleaning following use.

17.3 Precautions

- Use Contact Precautions. Place infection control door notice on cubicle door as required.
- Place the appropriate sign in the front of the chart as a reminder of precautions to be taken.

17.4 Protective Apparel for the Health Care Worker Providing Direct Care

- Wear gown and gloves when there is direct patient contact.
- Hand washing is essential after removing the gown and gloves after each patient contact. Wash hands thoroughly for **15 seconds** with the hospital approved hand washing antiseptic agent.

17.5 Equipment and Environment

- Prepare for the arrival of the patient by placing a supply of gowns and gloves outside the designated examination room. Place a laundry hamper inside the room (or near the door if there is inadequate space in the room).
- Before the examination room is used for another patient, clean equipment and surfaces in direct contact with the VRE patient as well as surfaces frequently touched by the hands with the gloves on of health care workers with the hospital-approved germicide. Call Housekeeping to clean the room informing them to use the daily isolation room cleaning protocol.

17.6 Patient and Family Education

- Provide patients and family with adequate information so that they can understand the needs for, and comply with infection control measures.
- Instruct patients and families

  - about appropriate hand washing
  - To go directly to their appointment without visiting other areas of the hospital.
  - To notify personnel in other clinics or health care settings about their VRE status

17.7 Patient follow-up

- Verify that the patient has appointments for follow-up screening.
- 3 consecutive negative screens one week apart are required before discontinuing precautions.

18 MDRO IDENTIFICATION

The IPC Service will identify known patients with VRE on the list of problems at the beginning of the chart.

Chisasibi Laboratory is responsible for communicating any case of VRE to the IPC Service to ensure follow-up and adequate surveillance.

19 MANAGEMENT OF THE VRE POSITIVE HEALTH CARE WORKERS

There will be no routine culturing of health care workers to screen for VRE colonization. The IPC Service will take all decisions related to culturing on an individual basis and will inform OH&S.

- Screening for employees is the same as for patients.
- The decision for work restrictions and client assignment will be individualized in consultation with the IPC Service and OH&S.

20 REPORTING OF A VRE OUTBREAK

An outbreak is two or more cases linked epidemiologically.

The IPC Service will notify the Direction de la santé publique of the possibility of an outbreak with confirmation following.

- Name of center and state of situation (e.g. controlled).
- Date control measures instituted.
- Date of admission of index case.
- Name and coordinates of a contact person.

A person designated by the Direction de la santé publique will notify other regional institutions by fax.

REFERENCES

Association for Professionals in Infection Control and Epidemiology. (2009). *APIC TEXT of Infection Control and Epidemiology*, 3rd edition. AIPC: Washington.

Direction générale de la santé publique. (1998). *Mesures de contrôle et de prévention des infections à entérocoques résistants à la vancomycine au Québec*. Groupe de travail sur les entérocoques résistants à vancomycine.

Health Canada. (1999). *Infection control guidelines: Routine practices and additional precautions for preventing the transmission of infection in health care*. CCDR, 25, (S4), 1-82.

Hospital Infection Control Practices Advisory Committee (HICPAC). (1995). *Recommendations for preventing the spread of vancomycin resistance*. Infection Control and Hospital Epidemiology, 16, 105-113.

Manitoba Health. (1997). *Manitoba infection control guidelines for preventing the spread of vancomycin-resistant enterococci (VRE).* VRE Working Group, Infection Control Subcommittee of the Manitoba Advisory Committee on Infectious Diseases (MACID). Reprinted 1999.

Perl, T.M. (1999). *The threat of vancomycin resistance*. American Journal of Medicine, l06, (5A), 26S -37S.

ANNEXE I - DEFINITIONS

Colonized

Culture positive for VRE species (except E. gallinarum, E. casseliflavus, and E. flavescens) without clinical evidence of infection.

Infected

Evidence of clinical infection and culture positive for VRE species (except *E.*gallinarum, E. casseliflavus, and E. flavescens).

Reservoir

Animate or inanimate source where VRE can survive.

Index Patient

The first patient identified as being VRE positive within a given geographical area and time period.

Exposed Patient

Patients who shared the same geographical area as the index patient.

Screening

Procedure to obtain a specimen for culture and for VRE identification.

Control Measures

Containment practices such as the use of a single room, long-sleeved gowns, gloves, and environmental cleaning.

MDRO

Multi-drug resistant organism.

VRE Centre

A healthcare centre identified as having experienced transmission of VRE within the past year. A list of these centres is adapted from a list established by the Regional Health Board, and distributed by the Infection Control Service.