

REDUCTION OF HOSPITAL ACQUIRED VANCOMYCIN RESISTANT ENTEROCOCCI COLONIZATIONS ON AN INPATIENT BONE MARROW TRANSPLANT UNIT

University of North Carolina Hospitals
North Carolina Cancer Hospital
Chapel Hill, North Carolina

What is VRE?

- Vancomycin Resistant Enterococcus
- Bacteria in GI tract or female genital tract
- Colonization: presence of VRE without symptoms or presentation of problems
- Can cause infection in urinary tract, skin, or bloodstream
- Many strains resistant to antibiotics

Who is at Risk?

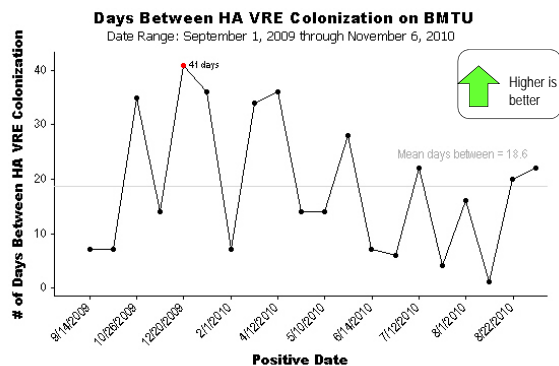
- Patients previously treated with Vancomycin or other antibiotics for long periods of time
- Hospitalized patients
- Patients with lowered immunity such as those receiving cancer treatments, transplants or in ICU
- Those colonized with VRE
- Patients with urinary catheters or IV catheters that stay in for long periods of time

Scope of this Study

From September 1, 2009 to November 6, 2010 there were 21 cases of Hospital Acquired VRE (HA VRE) on the inpatient BMTU at North Carolina Cancer Hospital (NCCH).

We defined HA VRE as colonizations discovered after 48 hours of inpatient status, through 48 hours after discharge from hospital.

Our goal is to reduce the number of HA VRE colonizations on the inpatient BMTU.

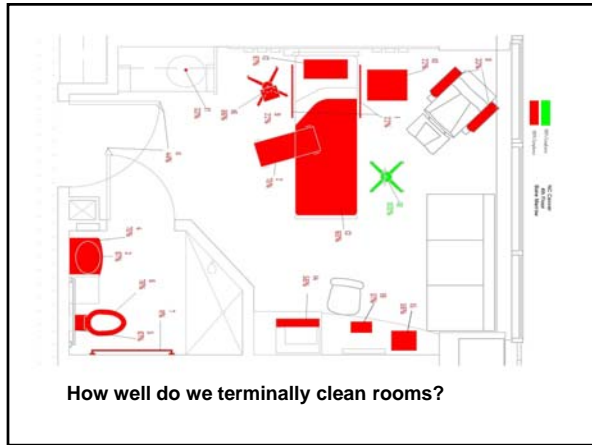
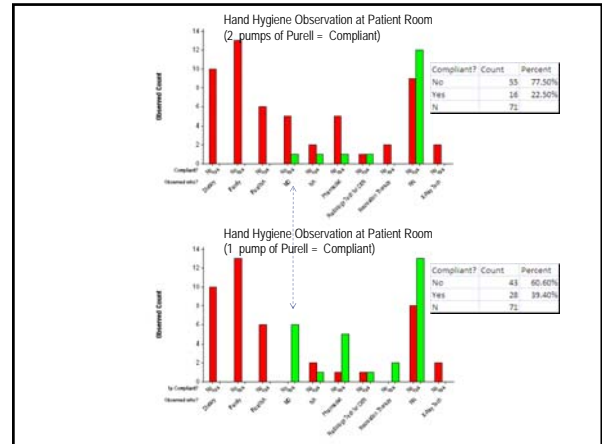
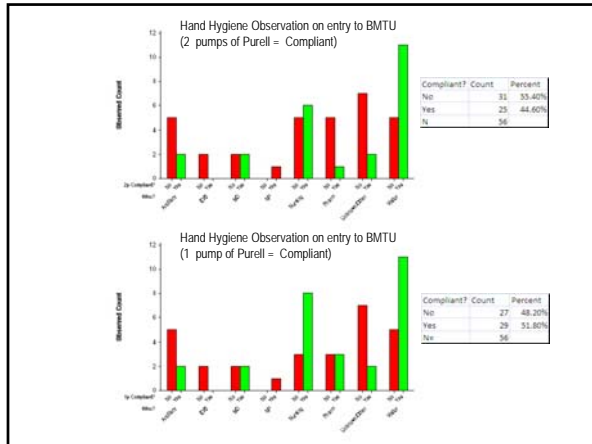


Problem

From September 1, 2009 to November 6, 2010, there were 21 cases of hospital acquired **Vancomycin Resistant Enterococci (VRE)** VRE on the BMT inpatient unit at North Carolina Cancer Hospital

Cause

1. Numerous policies leave BMTU staff unclear on which to follow and thereby impact the education given to patients, family members, & ancillary staff who visit the unit.
2. Patients, families, and staff are not 100% compliant with performing hand hygiene and gowning & gloving protocol on the BMTU.
3. Patient room cleaning practices (daily & terminal) are insufficient to meet hospital Epidemiology disinfection verification process.



Solution		
Causes	Solution Detail	Goal
		The overall goal is to eliminate HA VRE's on BMTU Incrementally we will increase from the current high of 41 days between HA VRE to <u>100 days</u> .
1. Numerous policies leave BMTU staff unclear on which to follow	<ul style="list-style-type: none"> Conduct a literature review of current hospital policies Contact BMTUs at other institutions for feedback Adopt single policy 	<ul style="list-style-type: none"> Completed Completed Completed
2. Hand Hygiene and Gowning & Gloving compliance	<ul style="list-style-type: none"> Revise sign for lobby & create signs for patient rooms Develop script for teaching patients & family member policy on admission Create an observation result board to monitor unit HH & GG compliance 	<ul style="list-style-type: none"> Completed Completed Completed
3. Patient room cleaning practices are insufficient	<ul style="list-style-type: none"> Create a room cleaning job guide for housekeeping & BMTU nurses Share room cleaning observation results with environmental services (EVS) & nursing staff Use Tru-D to clean patient room 	<ul style="list-style-type: none"> Completed Completed Completed

- ## Implementation
- Adopted one clear BMTU specific Contact Isolation Policy
 - RNs performed VRE swabs
 - Improved signage
 - Created room cleaning job guidelines
 - Obtained permission to use Tru-D after discharge cleaning on Contact Isolation Rooms
 - Educated staff, patients and families

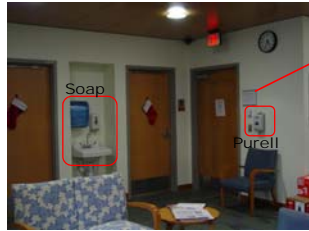


Slide 12

S9 Capitalize each first letter except for 'and'
SSharf, 12/3/2011

Family Waiting Room

Hand Hygiene Policy



Before entering the unit and prior to leaving, please wash your hands using the steps below.

1. Generously wet hands and wrists with warm water.
2. Dispense approximately 3 tsp of soap into your hand.
3. Vigorously rub the CHE on both sides of your hand, fingers, wrists, and forearms for at least 15 seconds. Your hands must not be under the running water during this step.
4. Rinse your hands, wrists and forearms thoroughly.
5. Completely dry your hands.

Tru-D



What is Tru-D ?

- TRU-D is an automated mobile disinfection unit that uses UV (UVC)* energy to disinfect surfaces by breaking down the DNA of bacteria, viruses and spores.
- Measures UV reflected from walls, ceilings, floors or other treated areas and calculates the operation time to deliver the programmed lethal dose for pathogens
- UV sensors determines and targets highly-shadowed areas to deliver measured dose of UV energy
- In studies, UV radiation was found to reduce >99.9% of vegetative bacteria (e.g., MRSA, VRE) within 15-17 minutes and 99.84% for *C. difficile* spores within 50 minutes.

Tru-D Advantages

- Room decontamination is rapid
- HVAC system does not need to be disabled and the room does not need to be sealed
- Residue free and does not give rise to health and safety concerns
- No consumable products

Tru-D Disadvantages

- Only done at terminal disinfection
- All patients and staff must be removed from the room/area (about 20-45 min)
- Capital equipment costs are substantial at \$100,000 for device only!
- Does not remove dust, debris and stains

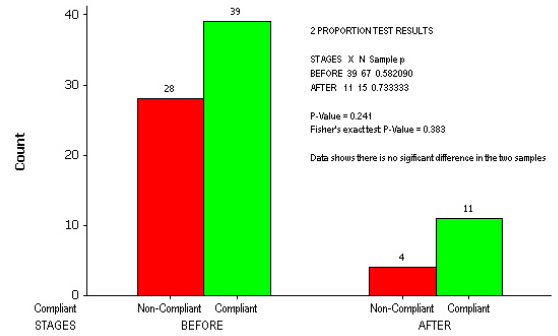
Nursing Staff Terminal Cleaning Responsibilities

- IV Poles and Pumps
- Dynamaps
- Bedside Commodes
- Scale
- Diaper Scale
- Exercise Equipment
- Wii Equipment
- Oscopes/Stethoscopes

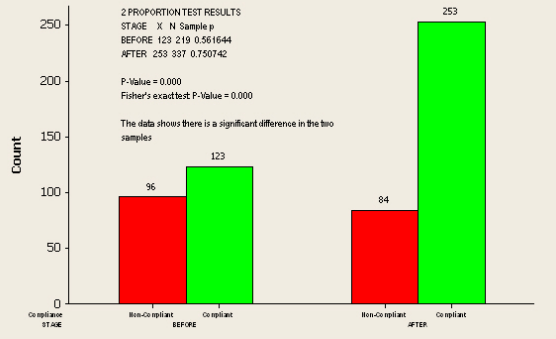
Nursing Staff Terminal Cleaning Responsibilities

- Use Clorox wipes for all terminal cleans
- All surfaces of the item cleaned should be thoroughly wet with disinfectant and allowed to sit for at least one minute before being manually dried or wiped
- C-Diff rooms and any equipment items in the room should be cleaned with a bleach and water solution on a daily basis and on discharge. This includes items on the EVS and Nursing Staff responsibility lists

HAND HYGIENE COMPLIANCE-ENTRY TO BMTU



HAND HYGIENE COMPLIANCE-ENTERING/EXITING PATIENT ROOM



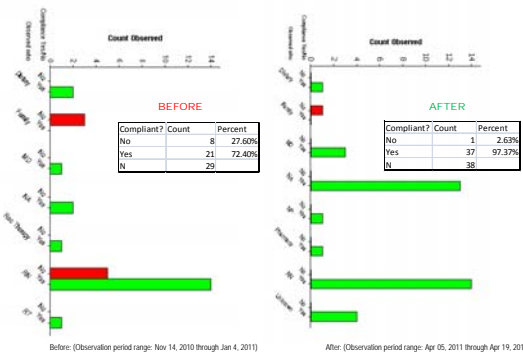
Hand Hygiene Observation at Patient Room (1 pump of Purell = Compliant) BEFORE vs. AFTER



Before: (Observation period range: Nov 18, 2010 through Nov 29, 2010)

After: (Observation period range: Apr 05, 2011 through Apr 19, 2011)

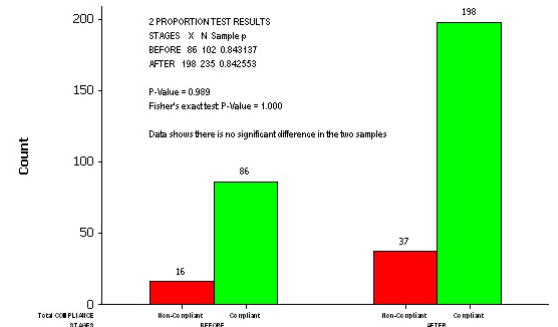
Gowning & Gloving Observation on entry to Contact Precaution Rooms (Gowning & Gloving = Compliant) BEFORE vs. AFTER



Before: (Observation period range: Nov 14, 2010 through Jan 4, 2011)

After: (Observation period range: Apr 05, 2011 through Apr 19, 2011)

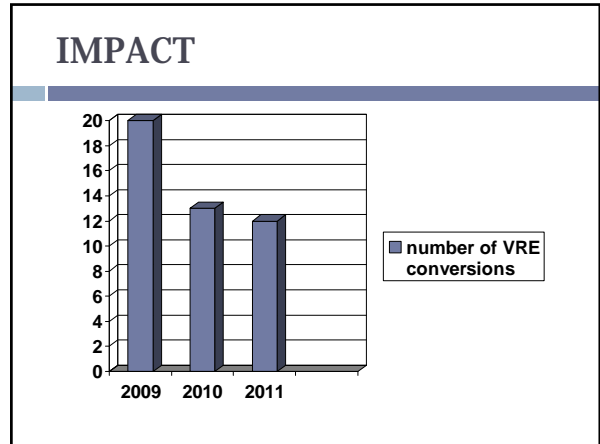
Gowning and Gloving Compliance



DAILY & TERMINAL ROOM CLEAN COMPARISON

Bedroom	Bedside Table	Sink	Sink Counter					
Row Labels	Analysis	Improve II	Row Labels	Analysis	Improve II	Row Labels	Analysis	Improve II
0	8	2	0	4	2	0	0	0
1	5	2	1	8	4	1	8	3
	13	4	1	12	6	1	10	3
Bedroom/Headboard	Bedroom/Bedside Chair	Bedroom/TV Table	Bedroom/Bedside Table					
Row Labels	Analysis	Improve II	Row Labels	Analysis	Improve II	Row Labels	Analysis	Improve II
0	7	2	0	4	2	0	12	4
1	4	1	1	9	4	1	11	2
	11	3	1	13	6	1	23	6
Curtain	Phone	Door/Headboard	Flower					
Row Labels	Analysis	Improve II	Row Labels	Analysis	Improve II	Row Labels	Analysis	Improve II
0	9	2	0	2	1	0	7	3
1	3	1	1	11	5	1	5	3
	12	3	1	13	6	1	12	6
Mattress	Refrigerator/Door	TV	Dynasap					
Row Labels	Analysis	Improve II	Row Labels	Analysis	Improve II	Row Labels	Analysis	Improve II
0	2	0	4	2	0	4	1	0
1	3	1	5	4	1	5	1	2
	5	1	9	5	1	9	2	2
Curtain/Phone	Refrigerator							
Row Labels	Analysis	Improve II	Row Labels	Analysis	Improve II			
0	4	0	1	1	1			
1	3	1	5	5	5			
	7	1	6	6	6			

Row Labels
0 = Non-Compliant
1 = Compliant

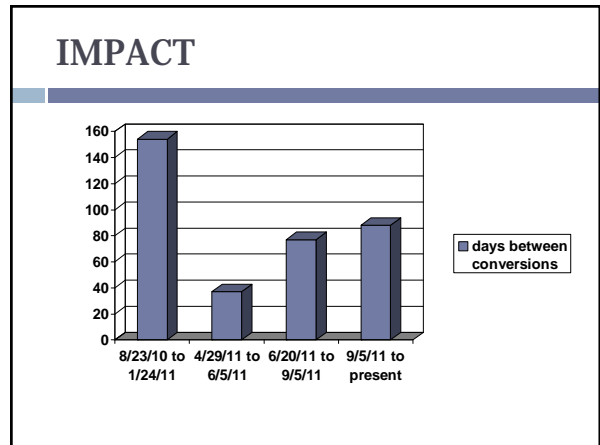


IMPACT

2011
Total Conversions = 12

Conversions after implementing change

2



- ### Housewide Impact
- “2 Pumps” on soap & sanitizer dispensers
 - Roadshows
 - Infection Control

- ### Process Changes
- Adopted one clear policy
 - Swabbing
 - New Signs
 - Education
 - Tru-D
 - Patients move to a new room after 45 days
 - Enhanced RN and EVS cleaning guides
 - Charge RN cleaning responsibilities

Compliance

- q Monthly Audits
- Tru-D
- Dashboard
- Quarterly meetings with EVS

Future Considerations

- Expand project
- Recent policy change

Bridges and Barriers

BRIDGES

- Stakeholder buy in
- Manager support
- Staff support
- Teamwork
- Interdisciplinary

BARRIERS

- Time
- Unit Staffing
- Negative Nellys
- Resistance
- Out of comfort zone

Acknowledgements

