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Cessation of Contact Isolation for Endemic MRSA and VRE is Not Associated with Increased Infections

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ABSTRACT

Background: Contact isolation precautions are recommended to prevent the transmission of MRSA and VRE. However, when infection prevention measures such as hand hygiene, environmental cleaning, and chlorohexidine (CHG) patient bathing are in place, it is unclear whether routine use of contact isolation precautions is needed.
Methods: Acquisition or infection due to MRSA or VRE were monitored via two methods: 1) CDC NHSN reporting of MRSA and VRE bacteremia with designation as hospital onset or community onset; 2) Characterization of routine clinical cultures by an experienced infection preventionist (IP). In January 2015, routine contact isolation precautions for endemic MRSA and VRE were suspended. The hospital-wide monthly rates of MRSA and VRE acquisition and infection from 2014-2015 were analyzed by Poisson regression to determine whether the change in practice was associated with a change in infection rates.
Results: There was no significant difference in the rate of acquisition or infection due to MRSA or VRE when comparing rates in the 12 months before and after the cessation of routine contact isolation precautions. Table 1 catalogs the rate of acquisition and infection due to MRSA and VRE for 2014 and 2015. High rates of hand hygiene (2014: 93.5% compliance, 2015: 91.4% compliance) and environmental cleaning (2014: 93.6% of 22805 surfaces cleaned, 2015: 96.3% of 27411 surfaces cleaned) were documented. The method of CHG bathing and monitoring program were changed during the observation period precluding comparison.
Conclusion: When hand hygiene, environmental cleaning, and CHG bathing are adequately maintained, routine contact isolation for endemic MRSA and VRE is unnecessary

INTRODUCTION

- Contact Isolation (CI) is recommended by the CDC and is commonly used in the care of patients who are infected or colonized with MRSA or VRE.[1]
- Despite decades of use, CI as an intervention to decrease MRSA/VRE acquisition has rarely been analyzed outside of outbreak settings or separately from other preventive measures.[2,3]
- Potential harms associated with CI have been identified including impact on provider behavior (eg. fewer/shorter interactions), impediment to patient transfer/flow, psychological harm, physical events (eg. falls), and decreased patient satisfaction.[3-5]
- In the context of improvements in hand hygiene, decolonization regimens, optimization of environmental cleaning and disinfection, and minimization of fomites, it is unclear whether routine use of CI is needed for control of endemic MRSA/VRE.
- This project was performed to determine whether discontinuation of CI precautions for the care of patients with endemic MRSA/VRE would be associated with changes in the institutional rate of acquisition or infection due to MRSA or VRE.

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METHODS

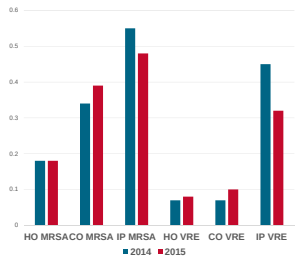
- In January 2015, CI for patients infected or colonized with MRSA/VRE was discontinued. The change in policy was communicated broadly to all providers via electronic and print modalities and verbal reports at clinical unit and leadership meetings.
- Compliance with standard isolation measures was emphasized and it was noted that gowns/gloves should be utilized in the care of patients with uncontained secretions and whenever contact with blood and body fluids was anticipated.
- CI was continued for multi-drug resistant gram-negative bacilli and enteric pathogens (*C difficile*, norovirus, etc).
- Horizontal infection control measures were in place and compliance was monitored throughout 2014 and 2015 including hand hygiene, environmental cleaning, and chlorhexidine patient bathing.
- Acquisition and infection due to MRSA/VRE was monitored via 2 methods:
  - CDC NHSN reporting of MRSA bacteremia (Lab ID event) with designation of hospital or community onset (identical criteria used for VRE).
  - Characterization of routine clinical cultures by an experienced IP as present on admission, confirmed or possible/probable hospital acquired.
- Hospital monthly rates of MRSA and VRE acquisition and infection from 2014 and 2015 were analyzed by Poisson regression.

RESULTS

- There was no significant difference in the rate of acquisition or infection due to MRSA or VRE when comparing rates in the 12 months before and after the cessation of routine CI. Table 1 catalogs the rates and model estimates.

Measurement Method	Year	MRSA/1000 patient days	Model Estimated risk of MRSA (compared to 2014) (95% CI)	P Value
CDC NHSN Hospital Onset MRSA Bacteremia	2014	0.18		
	2015	0.18	0.972 (0.553-1.706)	0.920
CDC NHSN Community Onset MRSA Bacteremia	2014	0.34		
	2015	0.39	1.159 (0.779-1.723)	0.468
IP Classification of MRSA Clinical Cultures	2014	0.55		
	2015	0.48	0.881 (0.639-1.217)	0.443
	Year	VRE/1000 patient days	Model Estimated risk of VRE (compared to 2014) (95% CI)	P Value
CDC NHSN Hospital Onset VRE Bacteremia	2014	0.07		
	2015	0.08	1.056 (0.445-2.505)	0.902
CDC NHSN Community Onset VRE Bacteremia	2014	0.07		
	2015	0.1	1.484 (0.629-3.501)	0.367
IP Classification of VRE Clinical Cultures	2014	0.45		
	2015	0.32	0.705 (0.483-1.030)	0.071

RESULTS (Cont)



Impact of CI change on MRSA & VRE from 2014 to 2015 expressed in events per 1000 patient days for hospital-onset (HO) and community-onset (CO) bacteremia as well as IP adjudicated clinical culture results.

- Other variables that were measured:
  - Hand Hygiene: 2014: 93.5% compliance (17,078 opportunities); 2015: 91.4% compliance (13,732 opportunities)
  - Environmental Cleaning: 2014: 93.6% (22,805 surfaces); 2015: 96.3% (27,411 surfaces)
  - CHG Patient Bathing: The method of CHG bathing and monitoring changed during the study period thus precluding meaningful comparison.

CONCLUSION & FUTURE DIRECTION

- When hand hygiene, environmental cleaning/disinfection, and CHG bathing are adequately maintained, routine CI for endemic MRSA and VRE appears to be unnecessary.
- Use of CI should be customized per institutional and individual patient requirements.
- Additional research should be conducted to ascertain the most cost efficient means to control the acquisition and transmission of multidrug-resistant pathogens including MRSA and VRE.

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