

Annual Surveillance Summary: Bacterial Infections in the Military Health System (MHS), 2016

The Hospital Associated Infections and Patient Safety Division of the EpiData Center (EDC) performs ongoing, comprehensive surveillance of bacterial infections considered urgent, serious, and concerning threats as recommended by the Centers for Disease Control and Prevention (CDC). This brief summarizes incidence rates (IRs), subpopulation impacts, prescription practices, and antimicrobial resistance for the following infections among Military Health System (MHS) beneficiaries for calendar year (CY) 2016:

- [Acinetobacter species](#)
- [Clostridium difficile](#)
- [Escherichia coli](#)
- [Klebsiella species](#)
- [Methicillin-resistant Staphylococcus aureus \(MRSA\)](#)
- [Pseudomonas aeruginosa](#)
- [Vancomycin-resistant Enterococci \(VRE\)](#)

Note: To review the annual report for each organism listed above, including a detailed presentation of results and important considerations, visit <http://www.med.navy.mil/sites/nmcphc/epi-data-center/pages/2016-surveillance-summaries.aspx>.

Summary of Results

The following tables summarize activity identified for the bacterial infections evaluated among MHS beneficiaries in CY 2016 as compared to weighted historic baseline data from CY 2013-2015.

Table 1. Incidence Rate (IR) and Trends of Selected Infections Among MHS Beneficiaries, CY 2016

Organism	2016 IR	Weighted Historic ^a IR 2013-2015	Two Standard Deviations: Weighted Historic IR	2016	
				Direction	Percent Change ^b
<i>Acinetobacter</i> spp. ^c	5.32	5.34	0.58	↓	0.37
<i>C. difficile</i>	22.0	18.9	4.7	↑	16.2
<i>E. coli</i>	676.7	656.2	137.6	↑	3.1
<i>Klebsiella</i> spp.	102.1	92.1	22.7	↑	10.8
MRSA	56.4	63.5	4.7	↓	11.2
<i>P. aeruginosa</i>	31.8	30.9	4.9	↑	2.8
VRE ^c	1.38	1.47	0.32	↓	6.21

Rates are presented as the rate per 100,000 persons per year.

A **green arrow** indicates an increasing percent change and a **blue arrow** indicates a decreasing percent change.

^a Historic IR reflects the weighted average of the three years prior to the analysis year.

^b This reflects the percent change from the weighted historic IR to the IR of the current analysis year.

^c Results are presented by two decimal places to account for low incidence rates.

Data Source: NMCPHC HL7-formatted CHCS microbiology and M2 databases.

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center, on 21 June 2017.



Table 2. Infection Impact: Demographics, Resistance, Prescription Practices, and Infection Setting within the MHS, CY 2016

Organism	Demographics Most Impacted: - Age (in Years) - Geographic Region - Beneficiary Type	Multidrug-Resistance IR ^a and Epi Trend		Prescription Practices and Antibigram: - Most Frequently Prescribed Drug - Percent Susceptibility	Proportion of Healthcare- (HA) and Community-Associated (CA) Cases
<i>Acinetobacter</i> spp. ^b	18-24 OCONUS Active Duty	0.22	↓	Trimethoprim/sulfamethoxazole 93.6%	HA – 34.6% CA – 65.4%
<i>C. difficile</i> ^c	65+ US West Family Members	--	--	Metronidazole 66.3%	HA – 16.6% CO – 80.3% Indeterminate – 3.1%
<i>E. coli</i>	18-24 OCONUS Active Duty	122.8	↑	Nitrofurantoin 97.9%	HA – 15.0% CA – 85.0%
<i>Klebsiella</i> spp.	45-64 US South Family Members	7.3	↑	Ciprofloxacin 97.3%	HA – 28.9% CA – 71.1%
MRSA ^d	18-24 OCONUS Active Duty	16.7	↑	Trimethoprim/sulfamethoxazole 96.6%	HA – 26.6% CA – 73.4%
<i>P. aeruginosa</i>	65+ OCONUS Retired	1.9	↑	Ciprofloxacin 88.6%	HA – 47.4% CA – 52.6%
VRE ^c	65+ US West Retired	--	--	Daptomycin 97.2%	HA – 87.0% CA – 13.0%

A **green arrow** indicates an increasing percent change and a **blue arrow** indicates a decreasing percent change.

^a Multidrug-resistance incidence rate (MDR IR). Rates are presented as the rate per 100,000 persons per year.

^b Rate is presented by two decimal places to account for low incidence rates among *Acinetobacter* species infections.

^c MDR IRs were not calculated for *C. difficile* or VRE infections.

^d For MRSA only, the MDR IR column depicts the percentage of MRSA infections with inducible clindamycin resistance within the MHS and not the MDR IR.

Data Source: NMCPHC HL7-formatted CHCS microbiology and M2 databases.

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center, on 21 June 2017.

Conclusion

Bacterial activity of interest in the MHS in 2016 exhibited expected trends and closely resembled activity in the general United States population as reported by the CDC and other public health agencies. No significant threat to mission readiness or population health was observed, and traditional treatment options remain viable. Continued adherence to infection control practices is recommended in the clinical, occupational, and deployed settings. Please refer to the complete suite of 2016 annual reports for important organism-specific considerations: <http://www.med.navy.mil/sites/nmcphc/epi-data-center/Pages/2016-surveillance-summaries.aspx>.

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REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
<p>The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Executive Service Directorate (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p> <p>PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION.</p>					
1. REPORT DATE (DD-MM-YYYY) June 2017		2. REPORT TYPE Technical Report		3. DATES COVERED (From - To) 01 January 2016 - 31 December 2016	
4. TITLE AND SUBTITLE Annual Surveillance Summary: Bacterial Infections in the Military Health System (MHS), 2016				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Uzo Chukwuma				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) EpiData Center Navy and Marine Corps Public Health Center 620 John Paul Jones Circle, Suite 1100 Portsmouth, VA 23708-2103				8. PERFORMING ORGANIZATION REPORT NUMBER NMCPHC-EDC-TR-426-2017	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) EpiData Center Navy and Marine Corps Public Health Center 620 John Paul Jones Circle, Suite 1100 Portsmouth, VA 23708-2103				10. SPONSOR/MONITOR'S ACRONYM(S) EDC, NMCPHC	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S) NMCPHC-EDC-TR-426-2017	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT The Hospital Associated Infections and Patient Safety Division of the EpiData Center (EDC) performs ongoing, comprehensive surveillance of bacterial infections considered urgent, serious, and concerning threats as recommended by the Centers for Disease Control and Prevention (CDC). This brief summarizes incidence rates, subpopulation impacts, prescription practices, and antimicrobial resistance for the following infections among Military Health System (MHS) beneficiaries for calendar year 2016: <i>Acinetobacter</i> species, <i>Clostridium difficile</i> , <i>Escherichia coli</i> , <i>Klebsiella</i> species, methicillin-resistant <i>Staphylococcus aureus</i> (MRSA), <i>Pseudomonas aeruginosa</i> , and vancomycin-resistant <i>Enterococci</i> (VRE). Bacterial activity of interest in the MHS in 2016 exhibited expected trends and closely resembled activity in the general United States population as reported by the CDC and other public health agencies. No significant threat to mission readiness or population health was observed, and traditional treatment options remain viable. Continued adherence to infection control practices is advised.					
15. SUBJECT TERMS Health Level 7 (HL7), microbiology, surveillance, multi-drug resistance (MDR), Military Health System (MHS), methicillin-resistant <i>Staphylococcus aureus</i> (MRSA), inducible clindamycin resistance, <i>Klebsiella</i> species, <i>Pseudomonas aeruginosa</i> , <i>Escherichia coli</i> , vancomycin-resistant <i>Enterococci</i> (VRE), <i>Clostridium difficile</i> , <i>Acinetobacter</i> species					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Uzo Chukwuma MPH
U	U	U	UU	3	19b. TELEPHONE NUMBER (Include area code) 757-953-0970

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