Annual Surveillance Summary: *Acinetobacter* species Infections in the Military Health System (MHS), 2017

NMCPHC-EDC-TR-378-2018

Jessica R. Spencer and Uzo Chukwuma
EpiData Center
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Navy and Marine Corps Public Health Center
620 John Paul Jones Circle, Suite 1100
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14. ABSTRACT
The EpiData Center Department conducts routine surveillance of Acinetobacter species incidence and prevalence among all beneficiaries seeking care within the Military Health System (MHS). This report describes demographics, clinical characteristics, prescription practices, and antibiotic resistance patterns observed for Acinetobacter species infections in calendar year 2017. Overall, incidence rates of Acinetobacter species infections in the MHS beneficiary and DOD active duty populations are decreasing. The prevalence of drug-resistant Acinetobacter species remains low in the DOD with only 30 cases reported overall in 2017. Many antibiotics display statistically significant ascending trends in efficacy.

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Abstract

The EpiData Center (EDC) conducts routine surveillance of *Acinetobacter* species incidence and prevalence among all beneficiaries seeking care within the Military Health System (MHS). This report describes demographics, clinical characteristics, prescription practices, and antibiotic resistance patterns observed for *Acinetobacter* species infections in calendar year (CY) 2017.

Multiple data sources were linked to assess descriptive and clinical factors related to *Acinetobacter* species. Health Level 7 (HL7)-formatted Composite Health Care System (CHCS) microbiology data identified *Acinetobacter* species infections. These infections were matched to HL7-formatted CHCS pharmacy data to assess prescription practices, the Standard Inpatient Data Record (SIDR) to determine healthcare-associated exposures, and the Defense Manpower Data Center (DMDC) rosters to determine burden among Department of Defense (DOD) active duty (AD) service members.

Overall, incidence rates (IRs) of *Acinetobacter* species infections in the MHS beneficiary and DOD AD populations are decreasing. The 2017 IR among DOD active duty service members is almost double the IR rate of MHS beneficiaries (9.49 per 100,000 persons and 5.35 per 100,000 persons, respectively). The majority of *Acinetobacter* species infections in 2017 were identified in the outpatient setting (84.5%) and collected from wounds and skin and soft tissue infections (SSTIs). *Acinetobacter baumannii-calcoaceticus* complex (ABC) was the most common species isolated (35.0%). The prevalence of drug-resistant *Acinetobacter* species remains low in the DOD with only 30 cases reported overall in 2017. Many antibiotics display statistically significant ascending trends in efficacy. Current infection control practices appear effective and continued surveillance is recommended.

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Background, Methods, and Limitations

The EpiData Center (EDC) at the Navy and Marine Corps Public Health Center (NMCPHC) prepares a retrospective report each calendar year (CY) that summarizes the demographics, clinical characteristics, prescription practices, and antibiotic susceptibility patterns for *Acinetobacter* species infections among Military Health System (MHS) beneficiaries. This report presents analytical results and discussion of CY 2017 data for *Acinetobacter* species infections in the MHS.

The background, methods, and limitations relevant to this analysis have been discussed in previous reports (CY 2015 and 2016 annual reports for *Acinetobacter* species[1,2]). The CY 2017 report does not include an analysis of burden associated with deployment-related infections using Contingency Tracking System (CTS) data; all other methods and limitations are the same as in recent years. Recent literature reviews did not present any relevant developments in *Acinetobacter* species research since CY 2016 analyses.

The EDC also monitors other multidrug-resistant organisms (MDROs) of interest in the MHS.[3,4]

Results

Section A – Descriptive Epidemiology

Incidence of *Acinetobacter* species

In 2017, the annual incidence rate (IR) for *Acinetobacter* species infection among MHS beneficiaries treated at a military treatment facility (MTF) was 5.35 per 100,000 persons per year. This reflects a 0.66% change below the weighted historic IR. The Air Force, Marine Corps, and Navy beneficiary populations demonstrated similar decreases; however, the Army demonstrated a 4.13% change above the weighted historic IR. The 2017 IRs are, however, within two standard deviations of the weighted historic IRs of *Acinetobacter* species in the MHS, service-specific, and the Department of Defense (DOD) active duty (AD) populations (Table 1).

Table 1. Incidence Rate (IR) for *Acinetobacter* species Infections in the MHS, CY 2017

Population	2017 IR	Weighted Historic[a] IR 2014 - 2016	Two Standard Deviations: Weighted Historic[a] IR	2017	
				Direction	Percent Change[b]
MHS Beneficiaries	5.35	5.39	0.38	↓	0.66%
Air Force	3.51	3.53	0.48	↓	0.61%
Army	5.86	5.63	0.29	↑	4.13%
Marine Corps	4.94	7.14	3.19	↓	30.77%
Navy	4.28	4.59	0.19	↓	6.96%
DOD Active Duty	9.49	9.53	2.56	↓	0.45%

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.
Data Source: NMCPHC HL7-formatted CHCS microbiology and MHS M2 databases.
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

Demographic Distribution of *Acinetobacter* species

In 2017, there were 503 incident *Acinetobacter* species infections identified among all MHS beneficiaries. The IR among males (6.6 per 100,000 persons) exceeded that of females (4.0 per 100,000 persons). By age, IRs were highest among those aged 18 to 24 years (8.1 per 100,000 persons) and lowest among those aged 0-17 years (4.4 per 100,000). By beneficiary type, AD service members demonstrated the highest rates (9.5 per 100,000 persons), more than double that of any other beneficiary group (Table 2).

Table 2. Demographic Characteristics of *Acinetobacter* species Infections in the MHS, CY 2017

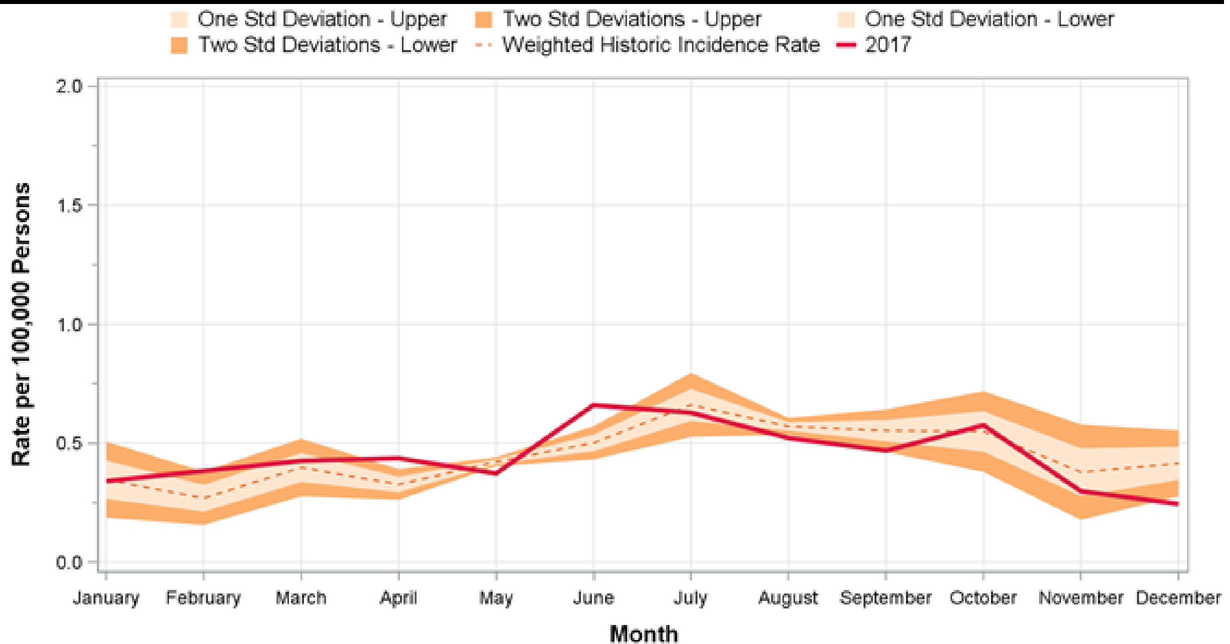
	N = 503	
	Count	**Rate**
Gender		
Female	185	4.0
Male	318	6.6
Age Group (in Years)		
0-17	85	4.4
18-24	92	8.1
25-34	68	5.7
35-44	46	5.4
45-64	99	4.8
65+	113	5.0
Beneficiary Type		
Active Duty	129	9.5
Family Members	206	3.8
Retired	88	4.0
Other[a]	80	--

[a] Rate is not reported due to variation in population denominator.
Rates are presented as the rate per 100,000 persons per year.
Data Source: NMCPHC HL7-formatted CHCS microbiology and MHS M2 databases.
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

Seasonality

Monthly IRs of *Acinetobacter* species infections varied throughout 2017, with incidence peaking in June and then descending throughout the remainder of the year. Incidence rates in April and June exceeded the weighted historic IR by more than two standard deviations. All other monthly IRs were within or below two standard deviations of the monthly weighted historic IR (Figure 1).

Figure 1. Monthly Incidence of *Acinetobacter* species Infections and Weighted Historic Incidence Rate (IR) Comparisons in the MHS, CY 2017



Rates are presented as the rate per 100,000 persons per year.
Bands indicate one and two standard deviations above and below the weighted historic monthly IRs.
The weighted historic monthly IR is a weighted average of the three years prior to the analysis year.
Data Source: NMCPHC HL7-formatted CHCS microbiology and MHS M2 databases.
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

Acinetobacter species Clinical Characteristics

There were 517 prevalent *Acinetobacter* species infections identified among all MHS beneficiaries. The infection burden was higher in the outpatient setting (84.5%) and generally consisted of non-invasive infections (88.6%). Forty-one percent of *Acinetobacter* species infections were collected from a skin or soft tissue infection (SSTI) or wound; collection sites from urine represented the second highest proportion (23.8%). The majority of prevalent infections were caused by *A. baumannii-calcoaceticus* complex (ABC) (35.0%), followed by *Acinetobacter* species, not otherwise specified (NOS) (32.9%), *A. baumannii* (18.6%), and *A. lwoffi* (8.9%) (Table 3).

Table 3. Clinical Characteristics of *Acinetobacter* species Prevalent Infections in the MHS, CY 2017

	N = 517	
	Count	Percent
Specimen Collection Location		
Inpatient	80	15.5
Outpatient	437	84.5
Infection Type		
Invasive	59	11.4
Non-Invasive	458	88.6
Body Collection Site		
Blood	24	4.6
Respiratory	103	19.9
SSTI/Wound	212	41.0
Urine	123	23.8
Other	55	10.6
Organism Species		
Acinetobacter baumannii calcoaceticus complex	181	35.0
Acinetobacter species, NOS	170	32.9
Acinetobacter baumannii	96	18.6
Acinetobacter lwoffii	46	8.9
Acinetobacter radioresistens	5	1.0
Acinetobacter ursingii	4	0.8
Acinetobacter haemolyticus	8	1.5
Acinetobacter junii	6	1.2
Acinetobacter calocoaceticus	0	0.0
Acinetobacter johnsonii	1	0.2

Data Source: NMCPHC HL7-formatted CHCS microbiology database.
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

Exposure Burden Metrics

In 2017, there were 226,808 direct care inpatient admissions across all MHS MTFs. Table 4 details two MDR *Acinetobacter* species infection metrics related to community and healthcare exposures.

The admission MDRO prevalence rate measures the rate of MDR *Acinetobacter* species importation into the MHS and includes 1) hospitalized patients in 2017 that tested positive for the infection within the first three days of admission and 2) all other hospitalized patients in 2017 that tested positive for the infection or colonization in 2016. The 2016 samples are included in the calculation of the admission prevalence rate to estimate the reservoir of *Acinetobacter* species impacting the MHS. In 2017, the total number of prevalent MDRO admissions was less than 20 and the MDRO prevalence rate for *Acinetobacter* species infection could not be calculated. Within the MHS, the US South Atlantic region had the highest number of MDRO admissions and the US Midwest and US Northeast regions had none.

The overall MDRO prevalence rate measures the cumulative community reservoir and healthcare-associated exposure burden for *Acinetobacter* species and includes 1) hospitalized patients in 2017 that tested positive for the infection at any time during admission and 2) all other hospitalized patients in 2017 that tested positive for the infection or colonization in 2016. The 2016 samples are included in the calculation of the overall prevalence rate to estimate the historical reservoir of *Acinetobacter* species impacting the MHS. The overall MDRO prevalence rate for *Acinetobacter* species infection could not be calculated due to the small number of prevalent MDRO infections in 2017. The US South Atlantic region had the highest number of overall MDRO prevalent admissions and the US Midwest and US Northeast regions each had zero overall MDRO prevalent admissions.

By definition, admission MDRO prevalence infections are included in the count of overall MDRO prevalence infections. In 2017, the admission prevalence count comprised 78.9% of the overall prevalence count of *Acinetobacter* species in the MHS. This suggests that the majority of *Acinetobacter* species infections were imported into the MHS from the community reservoir.

Table 4. MDRO Healthcare-Associated Exposure Burden Metrics among *Acinetobacter* species in the MHS, CY 2017

	Admission MDRO Prevalence[a]	Overall MDRO Prevalence[b]	Percentage[d] of Admission (Imported) Prevalent Infections among Overall Prevalent Infections
	Count[c]	Count	
Region			
OCONUS	3	3	100.0
US Midwest	0	0	--
US Northeast	0	0	--
US South	3	3	100.0
US South Atlantic	5	8	62.5
US West	4	5	80.0
Total	15	19	78.9

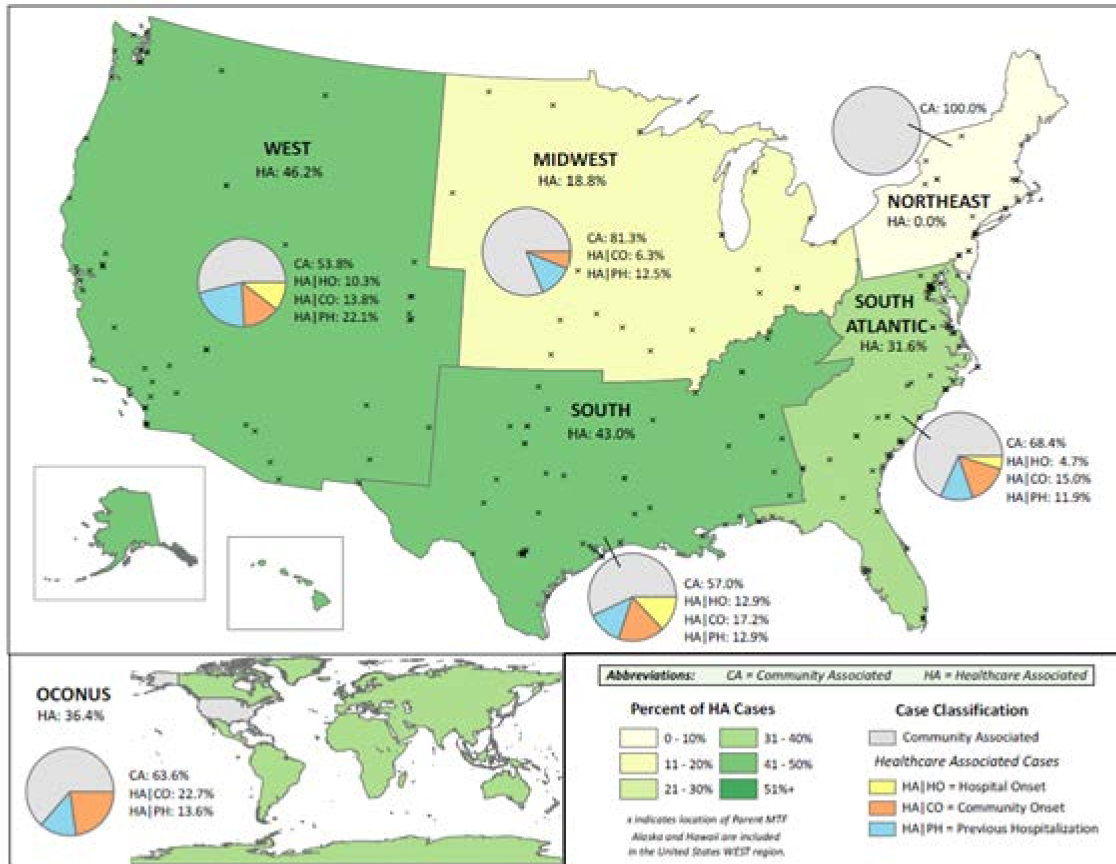
[a] Admission MDRO prevalence included hospitalized patients in 2017 that tested positive for the infection within the first three days of admission and all other hospitalized patients in 2017 that tested positive for the infection or colonization in 2016.
[b] Overall MDRO prevalence included hospitalized patients in 2017 that tested positive for the infection at any time during admission and all other hospitalized patients in 2017 that tested positive for the infection or colonization in 2016.
[c] Rates are presented as the rate per 1,000 inpatient admissions per year. Rates are not provided when the prevalence count is less than or equal to 20.
[d] Percentage reflects the proportion of MDRO infections that were imported into the healthcare system in the calendar year.
Data Source: NMCPHC HL7-formatted CHCS microbiology and SIDR databases.
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

Regional Epidemiologic Infection Classifications

Among all prevalent *Acinetobacter* species infections identified in the MHS in 2017, 63.2% were community-associated (CA) cases and 36.8% were healthcare-associated (HA) cases. Regionally, the US West reported the highest proportion of HA *Acinetobacter* species cases (46.2%), followed by the US South (43.0%), regions outside of the continental United States (OCONUS) (36.4%), US South Atlantic (31.6%), and US Midwest (18.8%). The US Northeast region did not report any healthcare-associated *Acinetobacter* species infections in 2017 (Figure 2).

HA cases were further categorized into hospital-onset (HO), community-onset (CO), or previous hospitalization (PH) groupings. Among all prevalent *Acinetobacter* species infections (regardless of HA or CA classification or region), the proportions classified as PH cases and CO cases were equivalent (each 14.9%). The similar distributions of cases suggest that *Acinetobacter* species had equal likelihood that infections originated in the community or from a previous hospitalization within the last 12 months. Only 7.0% of prevalent *Acinetobacter* species infections were HO, indicating that the infection was identified after the third day of admission and likely contracted during the current hospitalization (data not shown).

Figure 2. Proportion of Healthcare- and Community-Associated Cases among *Acinetobacter* species Infection in the MHS by Region, CY 2017



Data Source: NMCPHC HL7-formatted CHCS microbiology, SIDR, and MHS M2 databases.
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

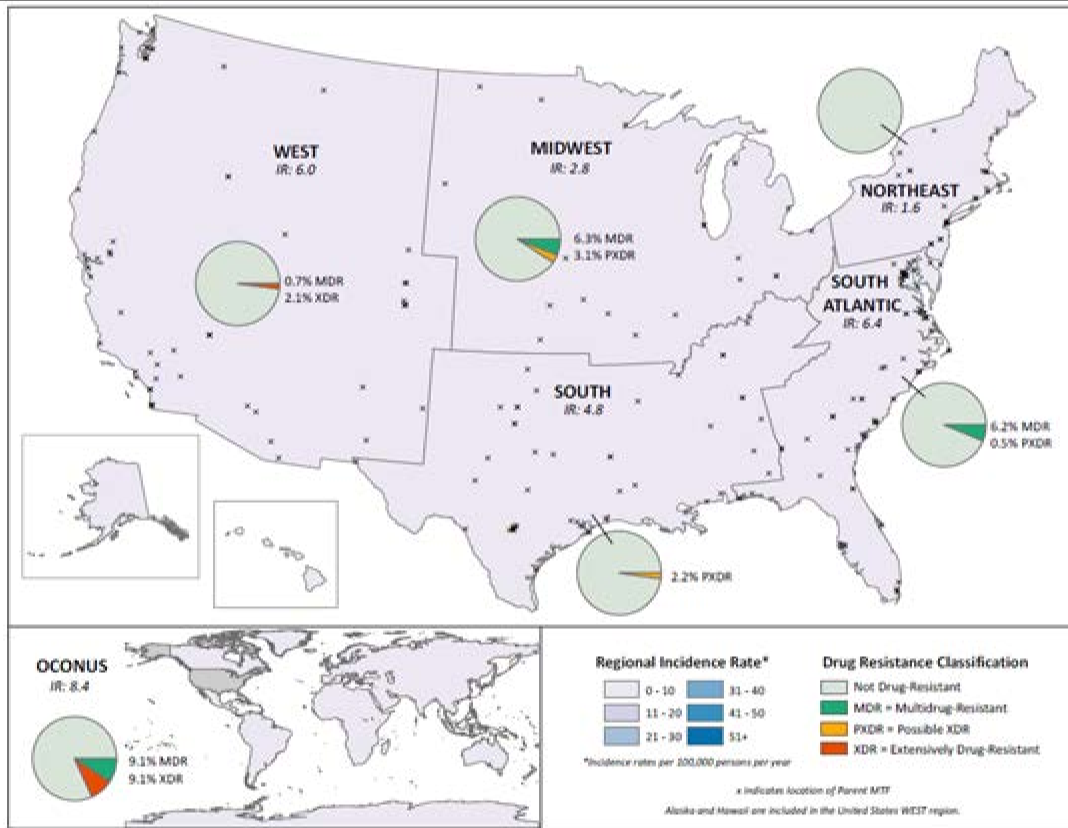
Section B – Antimicrobial Resistance and Use

Regional Multidrug Resistance

In 2017, the IR of *Acinetobacter* species infection among all MHS beneficiaries was 5.4 infections per 100,000 persons per year; the IR of drug-resistant *Acinetobacter* species infection (i.e., resistant to antibiotics in at least three classes) was 0.3 infections per 100,000 persons per year. The OCONUS region (8.4 per 100,000 persons), US South Atlantic (6.4 per 100,000 persons), and US West (6.0 per 100,000 persons) had the highest IRs. The OCONUS region had the highest MDR IR (1.4 per 100,000 persons), followed by the US South Atlantic (0.4 per 100,000 persons) (Figure 3).

Prevalent drug-resistant *Acinetobacter* species infections are further categorized by drug-resistance type. Among the 517 prevalent infections, 5.8% (n=30) were identified with some level of drug resistance during 2017. Overall, 3.7% (n=19) were classified as MDR, 1.4% were extensively drug-resistant (XDR), and 0.8% were possible extensively drug-resistant (PXDR) (n=4) (data not shown). These two drug-resistant *Acinetobacter* species classifications are described as a proportion of all prevalent infections by region in Figure 3. The OCONUS region had the highest proportion of drug-resistant infections (18.2%), with half of those classified as MDR and half as XDR. The US Midwest accounts for the largest proportion of prevalent infections classified as PXDR (3.1%), followed by the US South (2.2%) and US South Atlantic (0.5%) regions. The US Northeast, US West, and OCONUS regions did not report any prevalent infections classified as PXDR in 2017 (Figure 3).

Figure 3. Annual Incidence Rate (IR) and Percentage of Multidrug Resistance among *Acinetobacter* species Infections in the MHS by Region, CY 2017



Rates are presented as the rate per 100,000 persons per year.
Data Source: NMCPHC HL7-formatted CHCS microbiology, SIDR, and MHS M2 databases.
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

Antibiogram

Table 5 displays an antibiogram of *Acinetobacter* species incident infections for all MHS beneficiaries from 2012-2017. In 2017, *Acinetobacter* species infections were most susceptible to meropenem (95.5%), gentamicin (94.9%), and imipenem (93.9%). Infections were least susceptible to the cephalosporins, ceftriaxone (35.3%), and cefotaxime (55.6%). Trends in susceptibility were observed for cefotaxime, ceftazidime, ceftriaxone, doripenem, piperacillin, piperacillin/tazobactam, tetracycline, and ticarcillin/clavulanate; however, these susceptibility trends were not statistically significant (Table 5). All antibiotics with a statistically significant trend displayed increasing efficacy since 2012.

Table 5. Antibiogram of *Acinetobacter* species Infections Identified in the MHS, CY 2012-2017

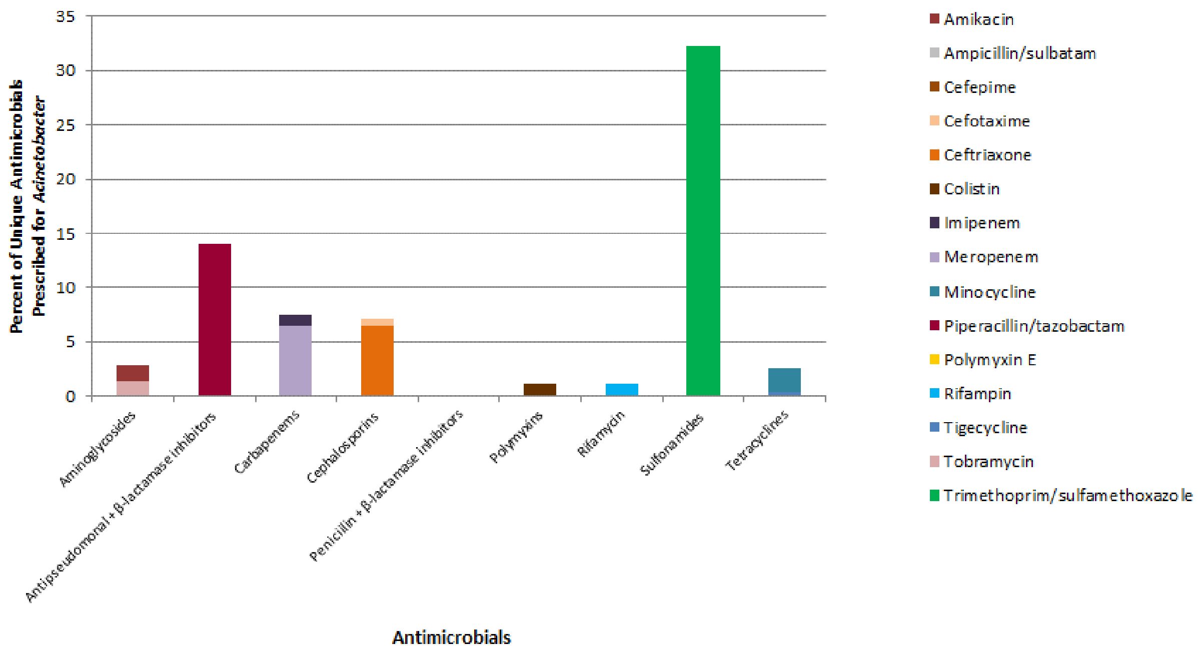
Antibiotics	2012	2013	2014	2015	2016	2017	Susceptibility Trend	Comment[a]
Amikacin	89.5	90.2	96.2	97.5	96.1	92.9	100 80	↑
Ampicillin/Sulbactam	88.6	91.6	93.8	91.9	95.1	93.0	100 80	↑
Cefepime	83.2	87.4	86.7	91.4	89.2	90.9	100 80	↑
Cefotaxime	46.9	58.7	61.0	62.8	76.2	55.6	80 40	
Ceftazidime	72.7	88.7	79.5	82.2	80.4	78.1	90 70	
Ceftriaxone	33.3	40.4	39.5	35.2	38.6	35.3	50 30	
Ciprofloxacin	86.2	89.7	93.1	93.7	93.6	93.1	100 80	↑
Doripenem	--	--	--	--	--	--		
Doxycycline	--	--	--	--	--	--		
Gentamicin	89.1	94.0	96.6	95.9	95.1	94.9	100 80	↑
Imipenem	87.4	91.9	95.2	97.5	94.6	93.9	100 80	↑
Levofloxacin	87.6	93.4	95.4	93.8	93.7	93.5	100 80	↑
Meropenem	66.7	86.8	89.7	94.8	94.5	95.5	95 65	↑
Minocycline	--	--	--	100.0	--	93.3		
Piperacillin	72.4	66.7	68.8	79.7	83.8	74.4	85 60	
Piperacillin/Tazobactam	83.0	83.1	87.0	88.0	84.0	80.8	90 70	
Tetracycline	90.3	92.8	88.9	88.8	92.9	88.2	100 80	
Ticarcillin/Clavulanate	--	--	--	--	--	--		
Tobramycin	88.1	93.0	96.4	94.2	93.0	93.1	100 80	↑
Trimethoprim/Sulfamethoxazole	81.9	88.7	90.9	88.2	93.6	88.8	100 80	↑

'--' indicates that fewer than 30 isolates were tested.
[a] Susceptibility trends are displayed only for antibiotics with susceptibility data for at least five consecutive years.
[b] Arrow indicates the antibiotics with a significant change in direction of trend for significant two-tailed Cochrane-Armitage tests for trend established for a single antibiotic over time. A significant increase in susceptibility is denoted by a green upward arrow and a significant decrease in susceptibility is denoted by a blue downward arrow.
Data Source: NMCPHC HL7-formatted CHCS microbiology database.
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

Antimicrobial Consumption/Prescription Practices

Among all MHS beneficiaries in 2017, the most commonly prescribed antibiotic classes associated with *Acinetobacter* species infections were sulfonamides (32.3%), antipseudomonal + β-lactamase inhibitors (14.0%), and carbapenems (7.5%) (Figure 4). Trimethoprim/sulfamethoxazole accounted for all of the drugs prescribed within the sulfonamide class, and piperacillin/tazobactam accounted for all of the drugs prescribed within the antipseudomonal + β-lactamase inhibitors class. Among the carbapenem class, imipenem (1.1%) and meropenem (6.5%) were prescribed (Figure 4).

Figure 4. *Acinetobacter* species Infection and Prescription Practices in the MHS, CY 2017



Only the first occurrence of a unique antibiotic was counted per person per infection, regardless of administration route.
Data Source: NMCPHC HL7-formatted CHCS microbiology and HL7-formatted pharmacy databases.
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

Discussion

This analysis identified a decrease in *Acinetobacter* species infection incidence rates in 2017, though negligible, from the weighted historic IR. The largest IR decline was observed among Marine Corps beneficiaries (30.8%). Since 2010, overall *Acinetobacter* species infection IRs have continued to decline. A study conducted by the Centers for Disease Control and Prevention (CDC) from 2011-2014 found *Acinetobacter* species infections were decreasing in the general (civilian) population, a trend that aligns with *Acinetobacter* species infection IRs in the MHS.[5] Despite a slight reduction in the overall MHS IR in 2017 from the weighted historic IR, surveillance of *Acinetobacter* species remains valuable.

The emergence of drug-resistant *Acinetobacter* species has been documented in the literature and reportedly is due to selective pressure from broad-spectrum antibiotics.[6] In the MHS in 2017, 5.8% of all prevalent *Acinetobacter* species infections were identified with some level of drug resistance. This is an increase from 2016 which reported MDR in 4.1% of prevalent *Acinetobacter* species infections.[2] Decreasing trends of MDR *Acinetobacter* species infections have not been observed in recent literature for the overall US population.[6] However, the decline in drug-resistant *Acinetobacter* species infections from 2012 through 2016 among MHS beneficiaries may be due in part to a reduction in exposure as fewer service members are deployed to the Middle East.

In 2017, CA cases of *Acinetobacter* species accounted for almost two-thirds of all infections, indicating that the majority of cases may not be attributed to healthcare exposures. Although this aligns with previous results,[1] this finding conflicts with current literature that indicates that *Acinetobacter* species infections occur more frequently in the healthcare setting.[7] This MHS analysis lends credence to the previously suggested notion of a community reservoir of *Acinetobacter* species, which may include soil, vegetables, and human and animal skin.[8]

Acinetobacter species infections in the MHS in 2017 maintained high susceptibilities to many tested antibiotics, similar to previous findings.[1] Meropenem maintained the highest efficacy across the surveillance period, a notable result given that meropenem efficacy has increased drastically since 2012, when it was calculated at 66.7%. Gentamicin also displayed high efficacy at 94.9%. A statistically significant increase was observed in ten antibiotics used to treat *Acinetobacter* species infections over time.

Current clinical guidelines for treating *Acinetobacter* species infections recommend imipenem, meropenem, ampicillin/sulbactam, colistin, tigecycline, or amikacin as primary treatments as these antibiotics are most active against the pathogen. Similar to previous years, trimethoprim/sulfamethoxazole (TMP/SMX) was the most frequently prescribed antibiotic in the MHS beneficiary population in 2017. However, a peer-reviewed article suggests that TMP/SMX may be a questionable treatment for *Acinetobacter* species infections due to its variable susceptibility.[9] There is also evidence that TMP/SMX can be an alternative treatment for polymyxin-resistant *Acinetobacter* species infections.[9] TMP/SMX susceptibility decreased from 93.6% in 2016 to 88.8% in 2017 and showed a statistically significant ascending trend in susceptibility from 2012-2017.

In conclusion, this annual report summarized *Acinetobacter* species infection incidence and prevalence in the MHS beneficiary population in 2017 and reported a minor decline in infection rates from the previous report. Due to variability from year to year, continued surveillance of *Acinetobacter* species infections within the MHS is encouraged.

POINT OF CONTACT

Hospital Associated Infections and Patient Safety Division
The EpiData Center
Navy and Marine Corps Public Health Center 757.953.0970
WWW.NMCPHC.MED.NAVY.MIL/
usn.hampton-roads.navmcpubhlthcenpors.list.nmcphc-epi-plls@mail.mil

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Appendix A: Antibiotics Used to Identify Resistance among *Acinetobacter* species Infections in the MHS, CY 2017

Table A1. Antibiotics Included in the Resistance Definitions for *Acinetobacter* species in the DOD, CY 2017

Antibiotic Class	Antibiotics Included in Class
Polymyxins	Colistin
	Polymyxin E
Aminoglycosides	Amikacin
	Tobramycin
Penicillin + β-lactamase	Ampicillin/sulbactam
Carbapenem	Imipenem
	Meropenem
Tetracycline	Tigecycline
	Minocycline
Rifamycin	Rifampin
Sulfonamides	Trimethoprim/sulfamethoxazole
Cephalosporins	Cefotaxime
	Ceftriaxone
	Cefepime
Antipseudomonal + β-lactamase inhibitors	Piperacillin/tazobactam

Source: Magiorakos et al., 2012.[10]
Prepared by the EpiData Center, Navy and Marine Corps Public Health Center, on 01 May 2018.

Appendix B: Acronym and Abbreviation List

Acronym/Abbreviation	Definition
ABC	*Acinetobacter baumannii-calcoaceticus* complex
AD	active duty
CA	community-associated
CHCS	Composite Health Care System
CO	community-onset
CTS	Contingency Tracking System
CY	calendar year
DMDC	Defense Manpower Data Center
DOD	Department of Defense
DON	Department of the Navy
EDC	EpiData Center Department
HA	healthcare-associated
HL7	Health Level 7 format
HO	hospital-onset
IR	incidence rate
MDR	multidrug-resistant
MDRO	multidrug-resistant organism
MHS	Military Health System
MTF	military treatment facility
NMCPHC	Navy and Marine Corps Public Health Center
OCONUS	outside the continental United States
PXDR	possible extensively drug-resistant
PH	previous hospitalization
SIDR	Standard Inpatient Data Record
SSTI	skin and soft tissue infection
TMP/SMX	trimethoprim/sulfamethoxazole
US	United States
XDR	extensively drug resistant