



Minnesota Hospital Association

MHA/OHA HIIN Antibiotic Stewardship/MDRO Collaborative

Nov. 14, 2017



Reminders



- For best sound quality, dial in at **1-800-791-2345** and enter code **11076**
- Please use the chat box to ask questions!

Please note – this webinar is being recorded.

Housekeeping

- Education Credit
 - Nursing Education Credit – 1 hour
 - Pharmacy Education Credit – 0.1

Agenda

- Welcome
- Presentation:
 - Sanford Bemidji Medical Center Antibiotic Stewardship Program – Stefani Anderson, BSN, RN, PHN, CIC & Matt Webb, Pharm.D, BCPS
- Questions/discussion
- Resources & ASP 101 reminders
- Wrap-up

Sanford Bemidji Medical Center

Antibiotic Stewardship Program (ASP)

Stefani S. Anderson BSN, RN, PHN, CIC

Matt Webb, Pharm.D., BCPS

Sanford Health of Northern Minnesota



- 118-bed regional medical center based in Bemidji, Minnesota.
- 78-bed skilled nursing home
- Home care and hospice
- 25-bed critical access hospital
- 37 Ambulatory clinics

Sanford Health of Northern Minnesota ASP Program and History

Our program began in 2015

- Team members include Pharmacy, Chief Medical Officer, Infectious Disease Physician, Infection Control Specialist, Quality, and Microbiology.
- Meet every other month
- Bemidji ASP reports to the Enterprise ASP committee as well as the local Pharmacy and Therapeutics (P&T)
- Early initiatives included
 - Incorporation of antimicrobial review into clinical pharmacist workflow
 - Training pharmacists
 - Provider education about ASP
 - Determining committee structure and reporting
 - Garnering administrative support

ASP Regulatory Entities

- Joint Commission
- Centers for Medicare and Medicaid Services (CMS)
- NHSN Antimicrobial Usage (AU) and Antimicrobial Use and Resistance (AUR)

What is antimicrobial stewardship?

Infectious Disease Society of America (IDSA) defines antimicrobial stewardship as “coordinated interventions designed to improve and measure the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy, and route of administration.”

- Can be practiced in all healthcare settings as well as on an individual and system wide level.
- Often a collaborative effort from providers, pharmacists, microbiologists, infection control, and information technologists.

Why is it important?

Antibiotics are prescribed unnecessarily or inappropriately 20 – 50 % of the time in United States acute care hospitals.

- This can lead to antimicrobial resistance which is a growing problem and serious threat to our society's collective health.
- About 23,000 people die as a result of resistant organism each year.

IDSA Antimicrobial Stewardship Targets

- Discontinue antimicrobials when no clear evidence of infection
- Adjust antimicrobial regimens to account for community acquired vs healthcare associated infection
- Recommend guideline-based empiric therapy and definitive therapy when pathogen is known
- De-escalate treatment to the narrowest spectrum drug(s) they can give to accomplish the goal
- Set an appropriate duration (stop date) for antibiotics
- Transition from intravenous to oral therapy when able

Sanford Bemidji ASP

Data Definitions

- Days of Therapy (DOT)/1000 days present
- NHSN numerator: Inpatient locations, facility-wide inpatient, and specific outpatient acute care settings
- Standard Antibiotic Administration Ratio (SAAR) – national benchmark not available until NHSN submission

Sanford Bemidji ASP Projects

- Establish local ASP committee with leadership support
- Educate pharmacists
- Educate providers
- Develop patient review plan with ID MD
- DUEs
 - Vancomycin
 - Fluoroquinolones for UTI

Daily Workflow

- Pharmacists
 - Decentralized clinical pharmacists available Monday through Friday
 - ASP is one of many responsibilities
 - Review all patients on antimicrobials for appropriateness (drug, dose, route, duration)
- Infectious Disease Physician
 - Communicates daily via inbox and detailed conversations regarding high-risk patients

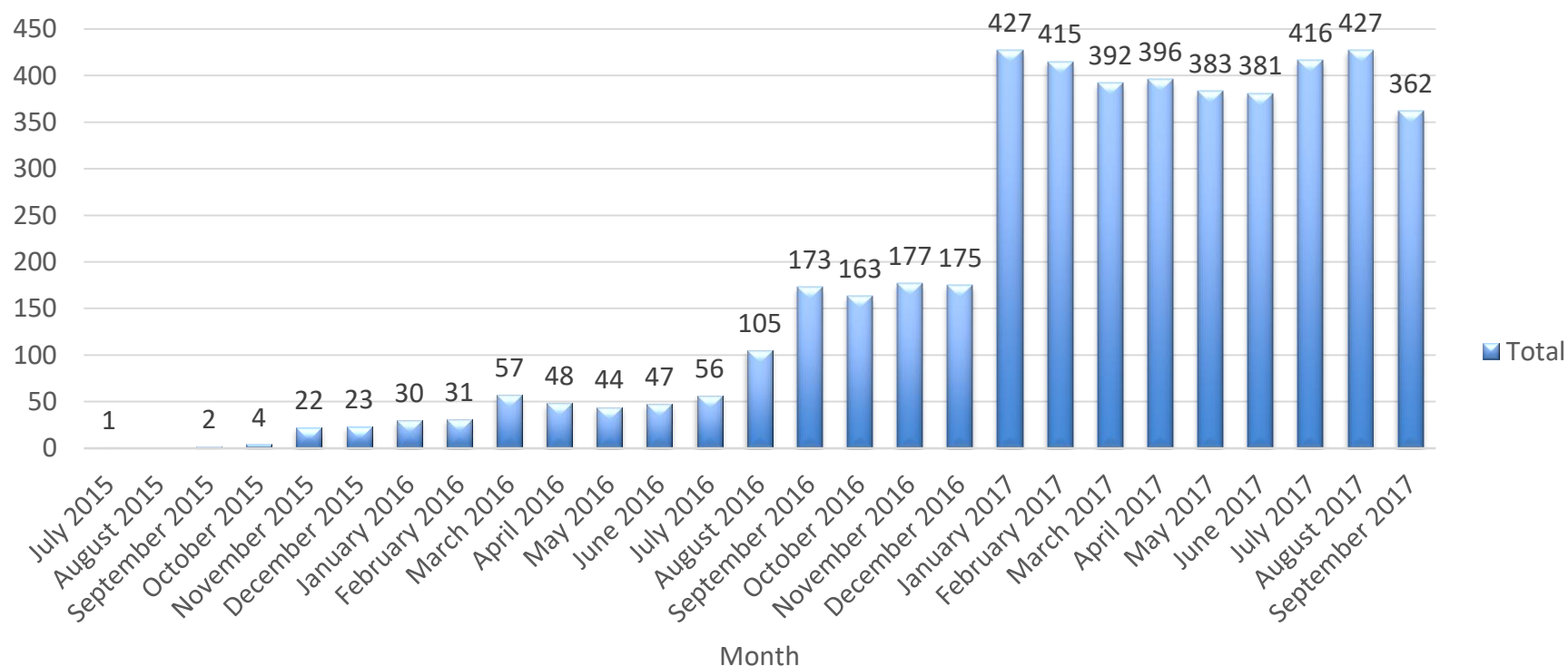
FY17 Goals

- Improve patient outcomes
 - Reduce resistance
 - Healthcare-associated Clostridium difficile
 - Hospital survival
 - Length of stay
 - Reduce 30-day readmission incidence
 - Pneumonia
 - Sepsis
 - Reduce carbapenem use
 - Reduce quinolone use

Data Collection

Statistics

of ASP iVents By Month = Bemidji



Required Indications Within Drug Order

Carbapenems/ Meropenem

! Indications:

- ☐ Clinical worsening on cefepime or pip-tazo
- ☐ Documented enterobacter OR citrobacter
- ☐ Documented MDR or ESBL

- ☐ Documented serratia OR acinetobacter
- ☐ Empiric-Type 1 allergy to pen/ceph
- ☐ Listeria CNS infx + pen/sulfa allergy

Indications (Free Text):

Piperacillin/ Tazobactam

! Indications:

- ☐ Doc'd MDR infection
- ☐ Empiric: HAP/VAP
- ☐ Empiric: Sepsis w/ suspected MDR
- ☐ Febrile Neutropenia

- ☐ HA intra-abdominal infection
- ☐ Polymic wound infx (eg. Diabetic foot)
- ☐ Septic Shock

Indications (Free Text):

Quinolones/ Levofloxacin

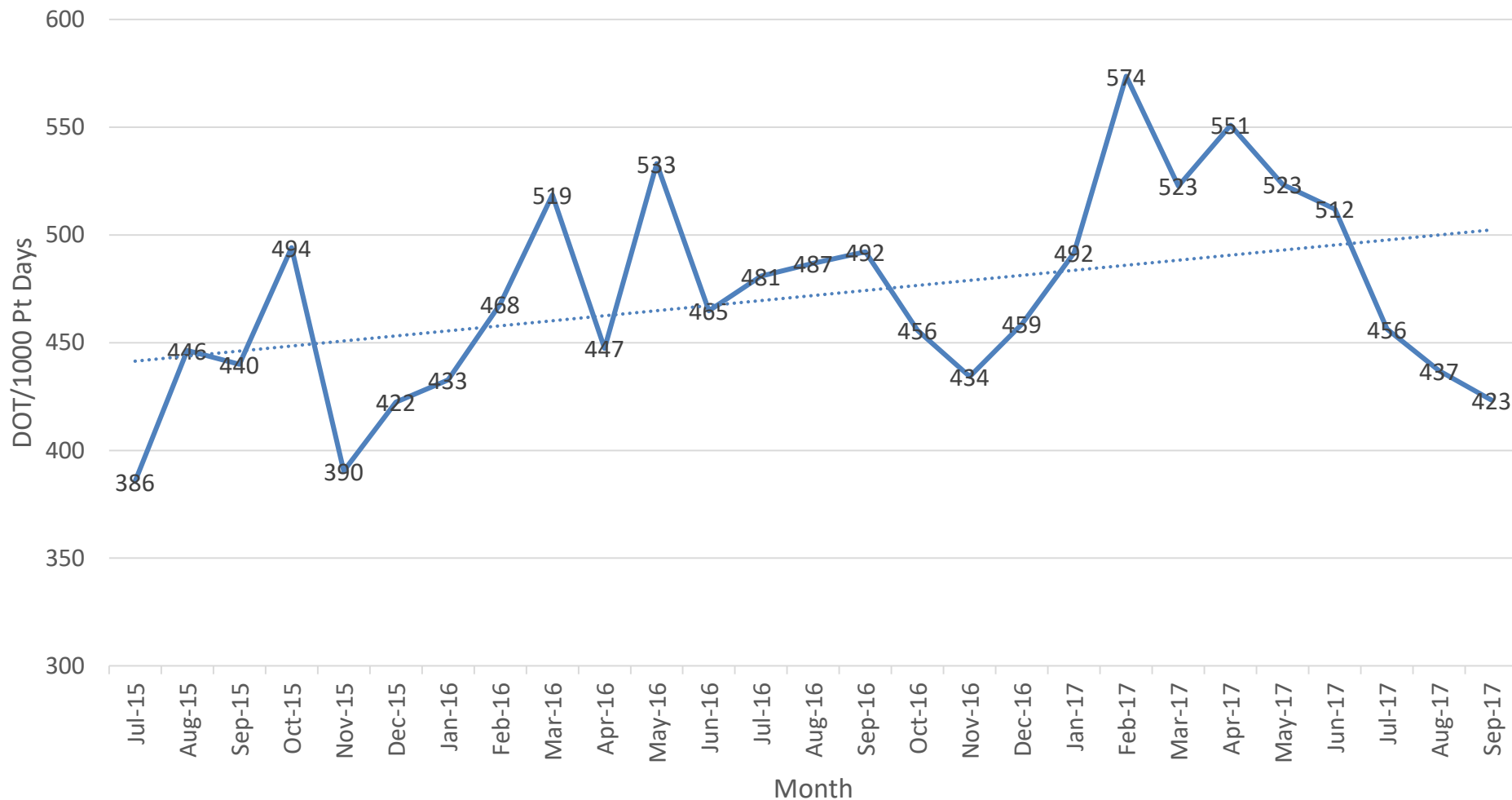
! Indications:

- ☐ Empiric: Complicated UTI
- ☐ HAP/VAP
- ☐ ICU - CAP

- ☐ Pen/Ceph resistant infection
- ☐ Septic Shock

Indications (Free Text):

Facility-Wide Antibiotic DOT/1000 Patient Days = Bemidji

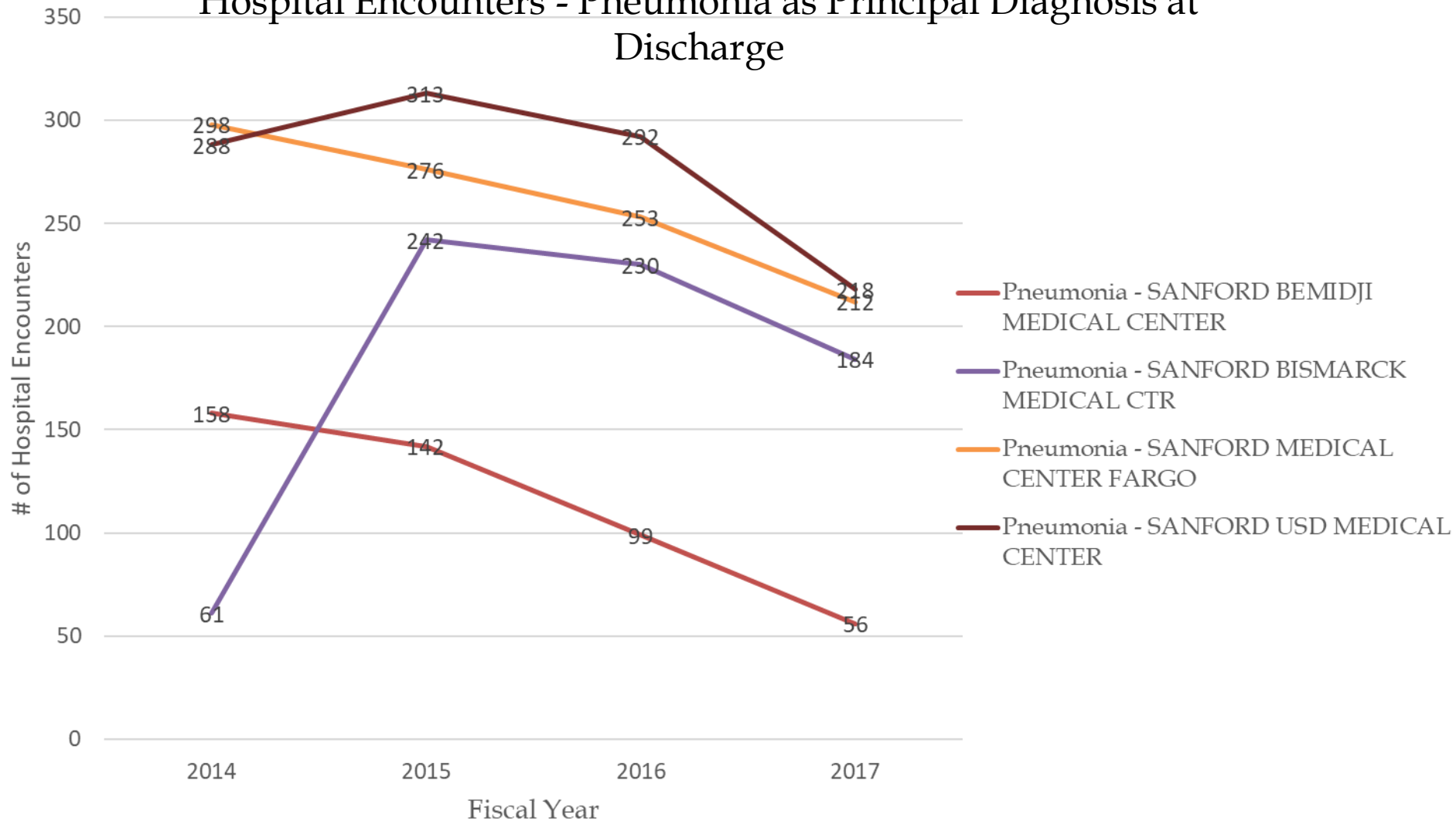


Outcomes

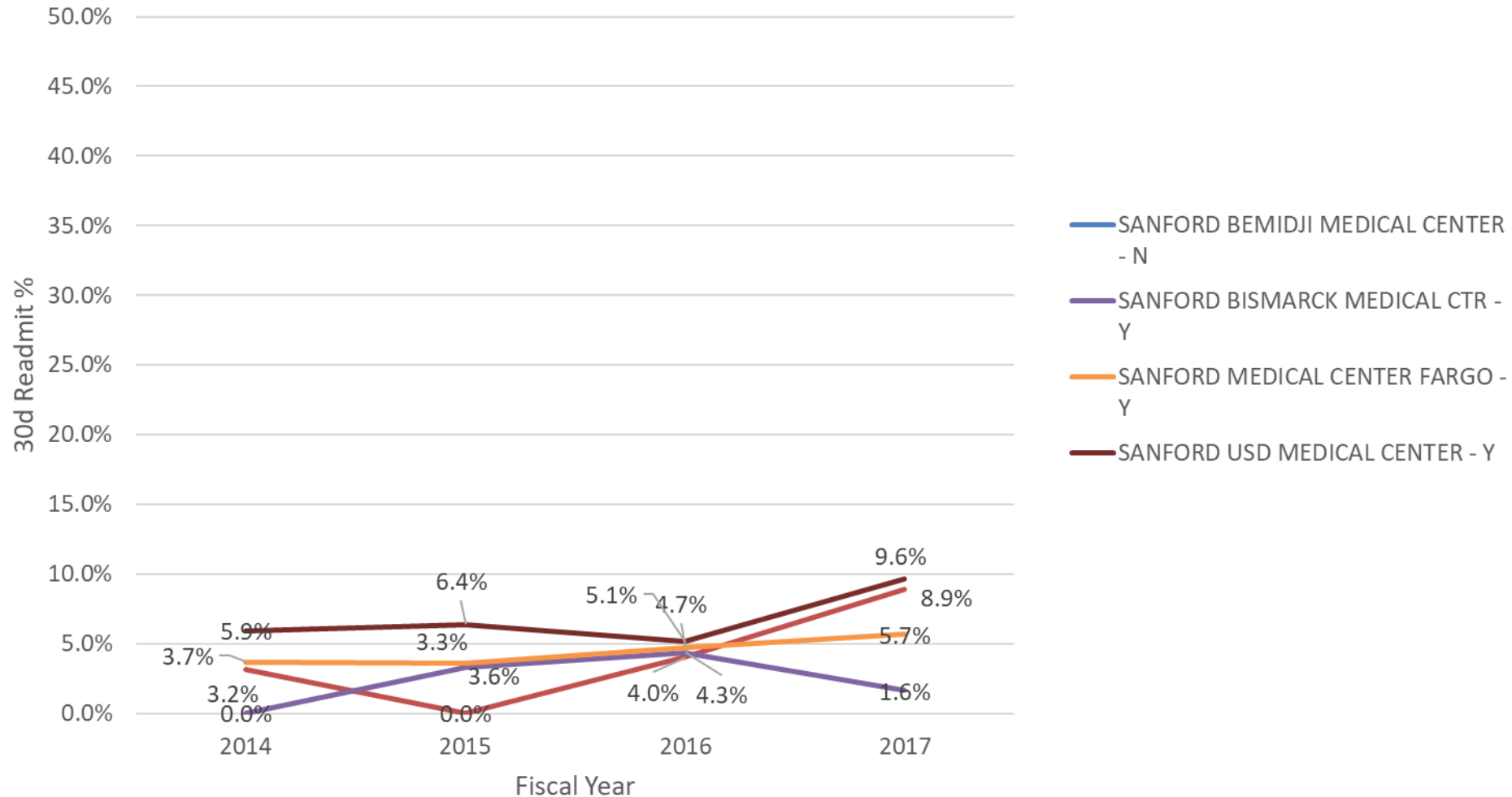
Pneumonia and Sepsis

PNEUMONIA

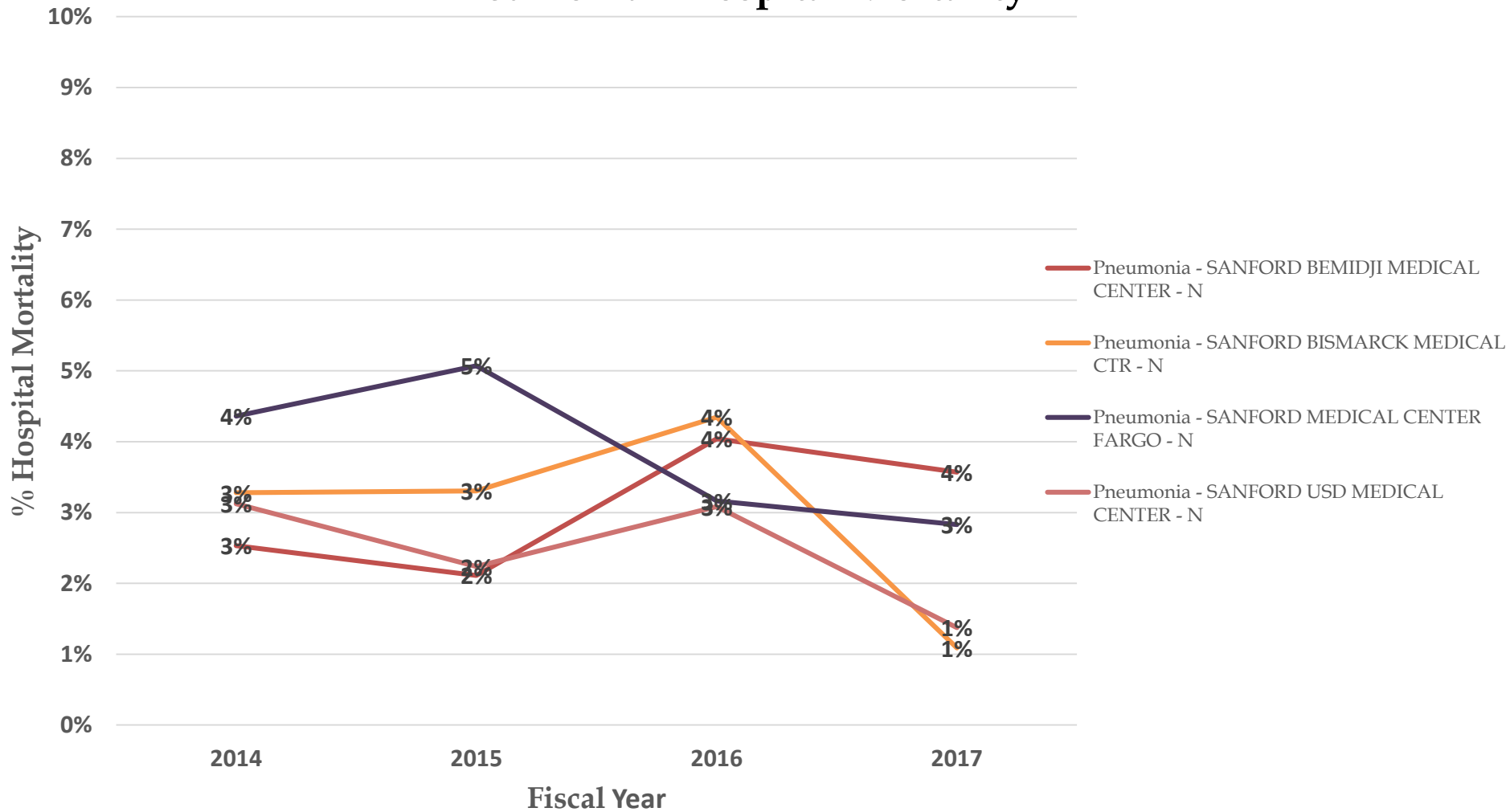
Hospital Encounters - Pneumonia as Principal Diagnosis at Discharge

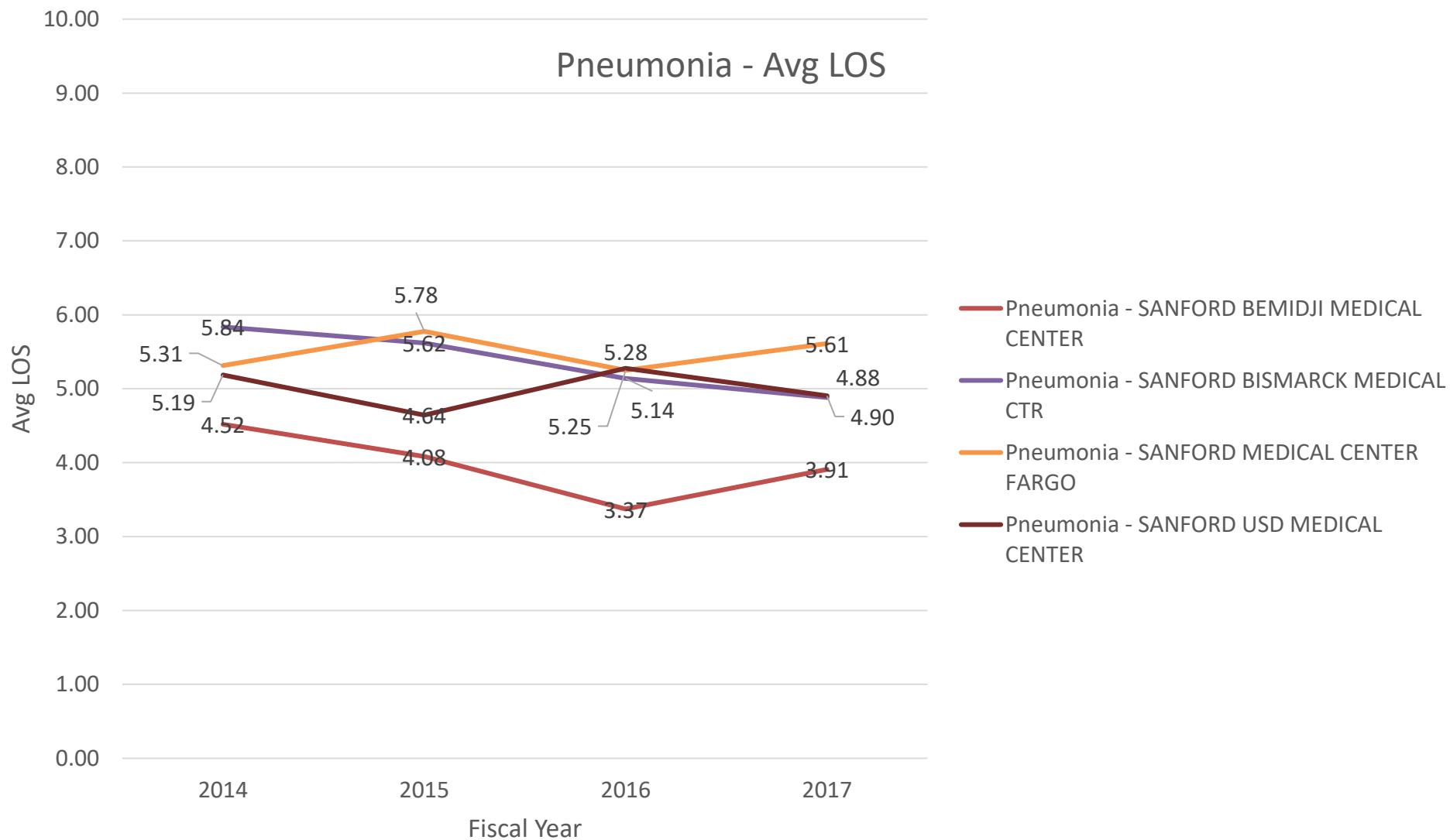


30-day Readmission- Pneumonia



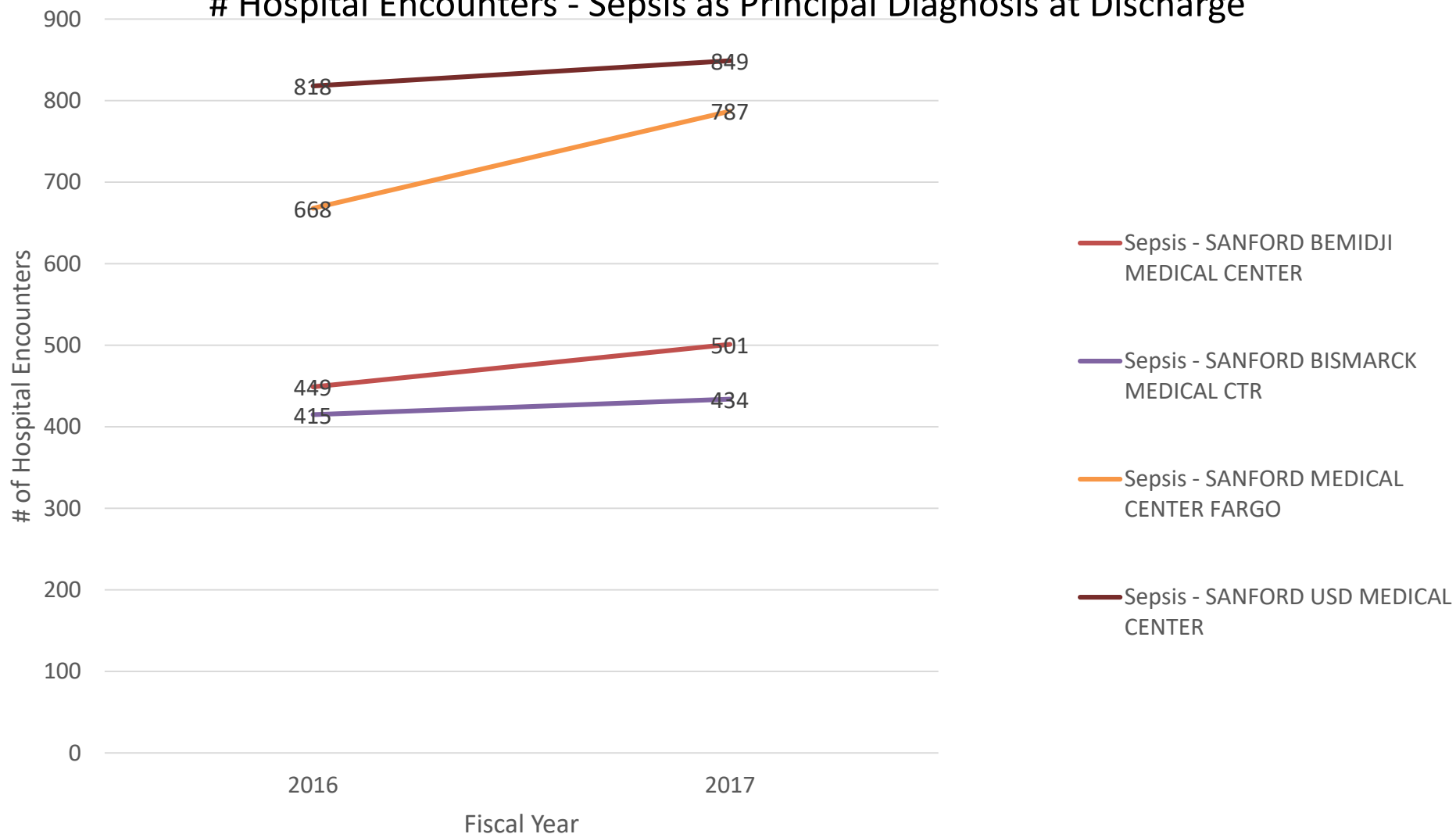
Pneumonia - Hospital Mortality



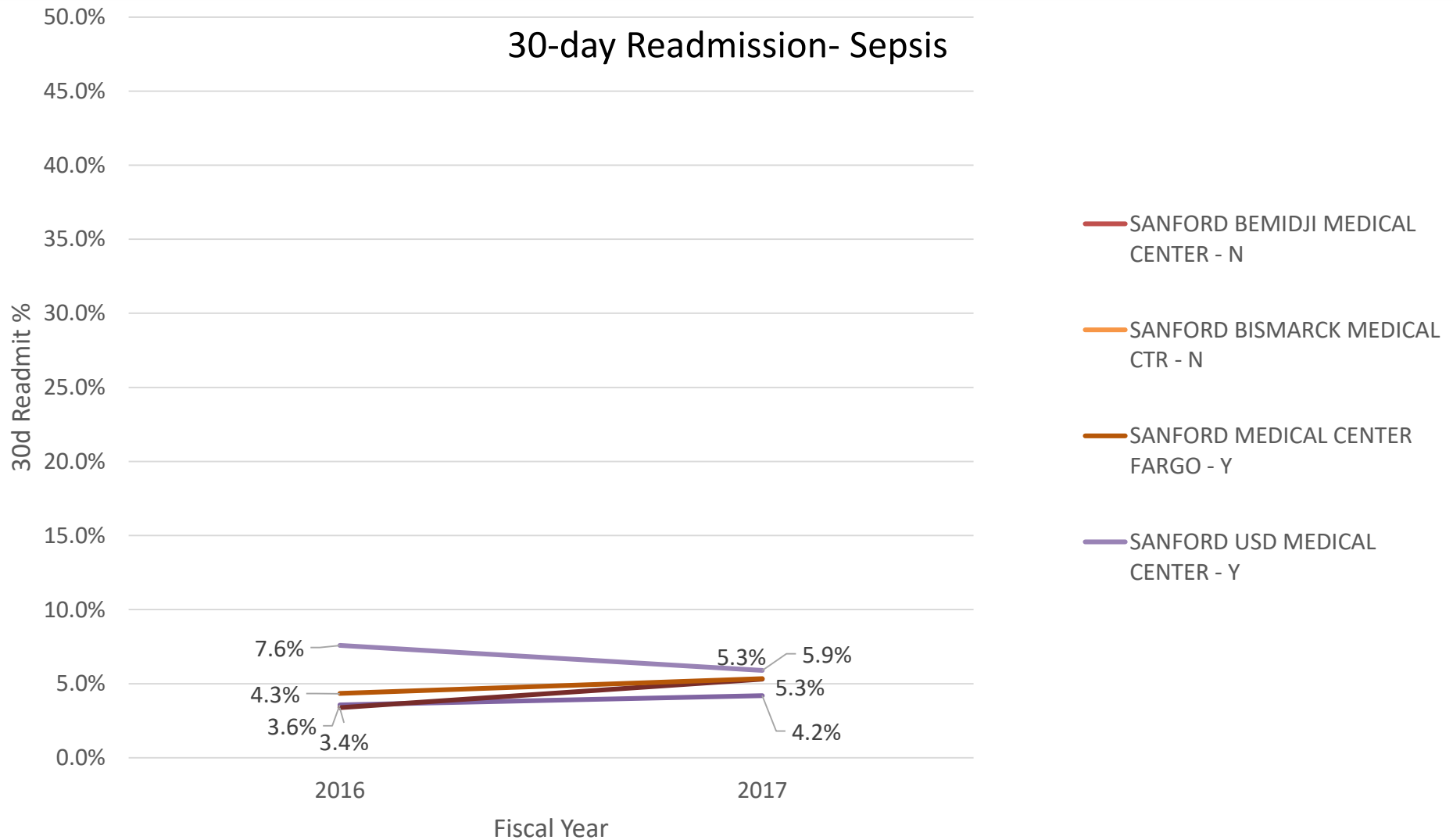


SEPSIS

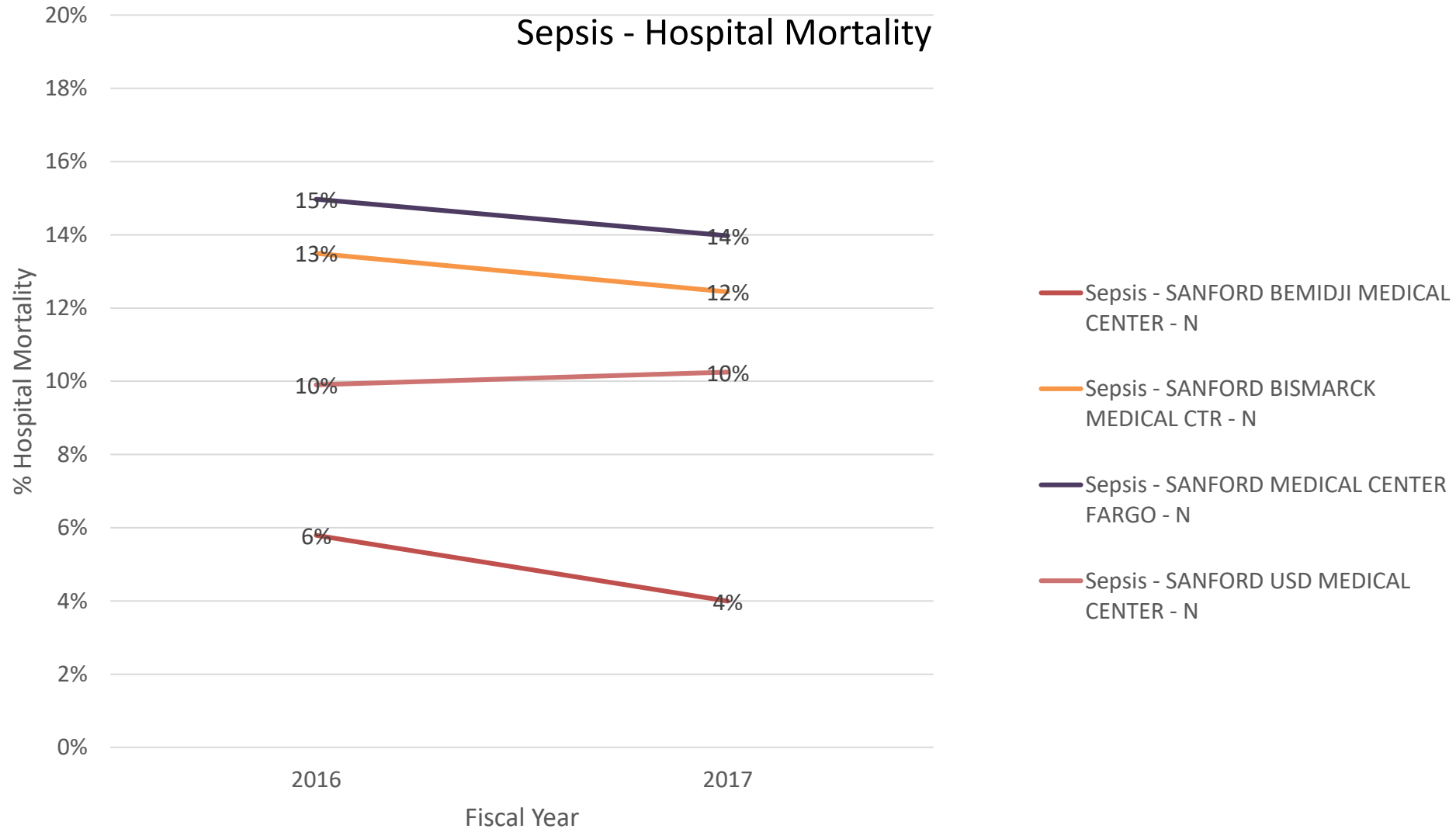
Hospital Encounters - Sepsis as Principal Diagnosis at Discharge

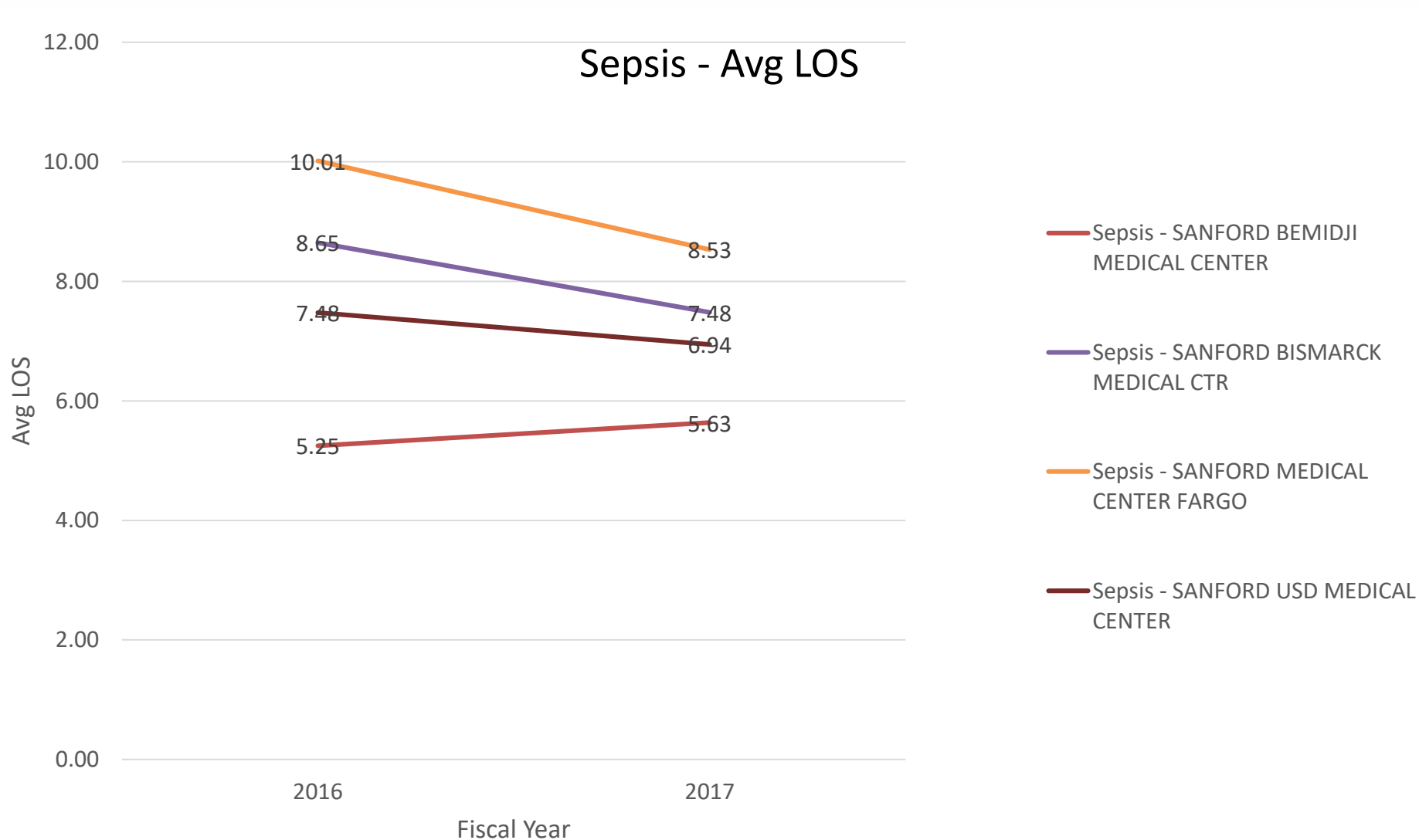


30-day Readmission- Sepsis



Sepsis - Hospital Mortality





Ordersets and Protocols

NURSING

- ☒ BLOOD CULTURE(S) SHOULD BE COLLECTED PRIOR TO ANTIBIOTIC ADMINISTRATION WHENEVER POSSIBLE, BUT DO NOT DELAY ANTIBIOTIC ADMINISTRATION

RESPIRATORY

- ☐ RCAT (RT PER PROTOCOL) *Should this be on general admission orders?*
- ☐ SPUTUM INDUCTION - RESPIRATORY THERAPY TO INDUCE SPUTUM IF NECESSARY

CONSULTS

- ☒ ~~NOTIFY COPD SPECIALIST IF HISTORY OF COPD~~ *(Place on COPD order set)*

LAB

Microbiology/Infectious disease

- ☐ CULTURE BACTERIAL, RESPIRATORY WITH GRAM STAIN
- ☐ BLOOD CULTURES X 2 PRIOR TO ANTIBIOTICS
- ☐ STREP PNEUMONIAE DIRECT ANTIGEN, URINE *(in ICU only)*
- ☐ LEGIONELLA PCR *(CPG recommends UAT in ICU only)*
- ☐ LEGIONELLA URINE ANTIGEN
- ☐ INFLUENZA A AND B NUCLEIC ACID DETECTION
- ☐ RSV NUCLEIC ACID DETECTION
- ☐ INFLUENZA A AND B AND RSV NUCLEIC ACID DETECTION
- ☐ NASAL SWAB MRSA PCR
- ☐ SERUM PROCALCITONIN

Chemistry/Hematology

- ☐ COMPLETE BLOOD COUNT WITH DIFFERENTIAL
- ☐ LACTIC ACID *(if first one is >2 then do a second within 6 hours)*
- ☐ BASIC METABOLIC PANEL

Pneumonia – Antibiotics: Community Acquired Pneumonia

- **Non-ICU**

- cefTRIAxone (ROCEPHIN) 1 g IV q24h x 2 days followed by cefuroxime (CEFTIN) 500 mg po BID x 5 days **PLUS** azithromycin (ZITHROMAX) 500 mg IV x 1 day followed by 500 mg po daily x 4 days

Severe B-lactam allergy:

- levoFLOxacin (LEVAQUIN) IV 750 mg, IV, q24h x 2 days followed by 750 mg po daily x 5 days

- **ICU**

- cefTRIAxone (ROCEPHIN) 1 g IV q24h x 7 days **PLUS** azithromycin (ZITHROMAX) 500 mg IV x 7 days

Severe B-lactam allergy:

- levoFLOxacin (LEVAQUIN) IV 750 mg, IV, q24h x 7 days

- **Risk for MDRO/pseudomonas** (*Risk factors include: Nursing home or LTC resident, chronic hemodialysis, home IV therapy, h/o multiple hospitalizations, IV antibiotics last 90 days*)

- (Default) Cefepime (MAXIPIME) 2 g IV q8h x 7 days **PLUS** azithromycin (ZITHROMAX) 500 mg IV x 7 day
- Cefepime (Maxipime) 2 g IV q8h x 7 days **PLUS** levofloxacin (Levaquin) 750 mg IV x 7 days

- **Suspected MRSA pneumonia - Add MRSA coverage**

- VANCOMYCIN: RX TO DOSE STAT, ONCE, Starting today x 7 days in consult order

- **Suspected aspiration pneumonia - Add anaerobic coverage** *IDSA suggests only in hx of loss of consciousness from etoh/drug overdose or after seizures in patients w/ gingival disease or motility disorders.*

- Metronidazole (FLAGYL) 500 mg PO q8h x 7 days
- Metronidazole (FLAGYL) 500 mg IV q8h x 7 days

- **Influenza**

- Oseltamivir (TAMIFLU) x 5 days

Surgical Antibiotic Prophylaxis Guideline

This practice algorithm has been specifically developed for Sanford Health using a multidisciplinary approach and taking into consideration circumstances particular to Sanford Health, including the following:

Sanford Health's specific patient population; Sanford Health's services and structure; and Sanford Health's clinical information. Moreover, this algorithm is not intended to replace the independent medical or professional judgment of physicians or other health care providers. This algorithm should not be used to treat pregnant women.

Recommended Doses and Redosing Intervals for Commonly Used Antimicrobials for Surgical Prophylaxis

- Vancomycin and ciprofloxacin are to be initiated 60-120 minutes prior to incision and all other antibiotics are to be initiated within 60 minutes of incision
- Please carefully evaluate allergy histories before using alternative agents. The majority of patients with listed penicillin allergies can safely be given cephalosporins or carbapenems
- If the patient has multiple known antibiotic drug allergies, is colonized with or has a history of a recent multi-drug resistant infection, please administer antibiotics as indicated or consider and Infectious Diseases consultation.
- Vancomycin prophylaxis 15mg/kg IV (max 2,000 mg/dose) should be considered for patients with a known MRSA colonization or at high risk for MRSA colonization in the absence of surveillance data.
- Discontinue all antibiotics within 24 hours of first dose except for: 1) Treatment of established infection, 2) Prophylaxis of prosthesis in the setting of postoperative co-located percutaneous drains, 3) Intraoperative findings that raise the wound classification above 2 (e.g. spillage of enteric contents, purulent fluid, etc). All of these require appropriate documentation.

Cost Analysis

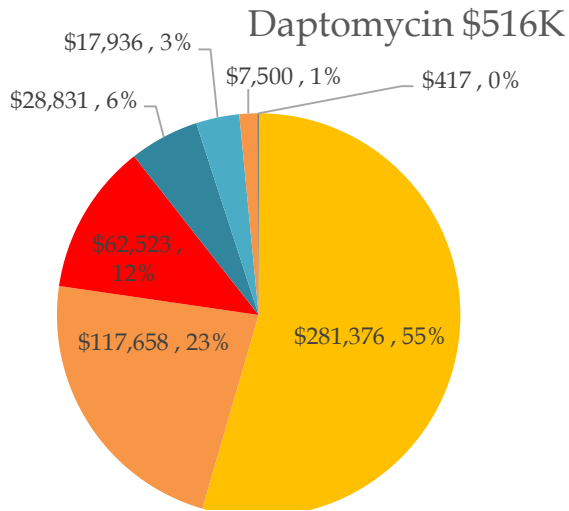
Year-end total coming to July meeting as of March 2017

| | Sioux Falls | Fargo | Bismarck | Bemidji |
|------------------------------|---|---|--|------------------------|
| Site ASP Goals | ↓ Ertapenem (ordersets) ↓ Quinolones | ↓ Daptomycin (Guide) ↓ Ertapenem (MUE) ↓ Vancomycin (MUE) | ↓ All Carbapenems ↓ Linezolid ↓ Antifungals (policy) ↓ Zosyn ↓ Aztreonam | ↓ Zosyn ↓ Ertapenem |
| FYTD17 MAR \$ Savings | \$51,026 | \$44,968 | \$172,885 | \$11,783 |
| | Savings Total: \$280,662 (over 3 quarters) | | | |

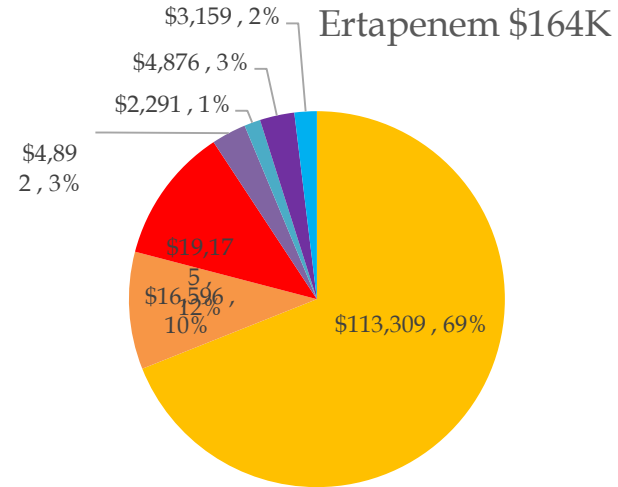
High cost antibiotic targets next year

- Zosyn
- Daptomycin
- Micafungin

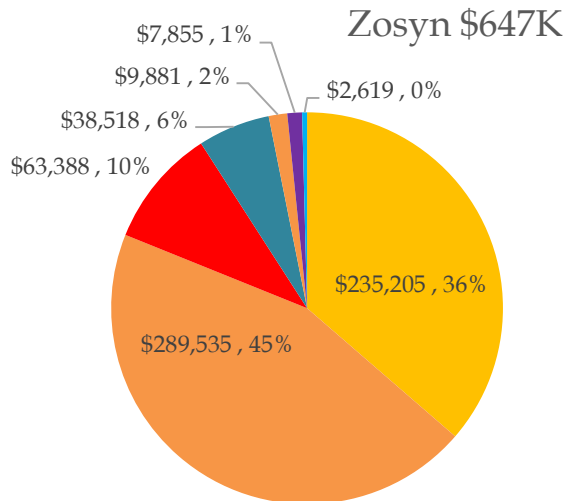
Jul 2016 – May 2017



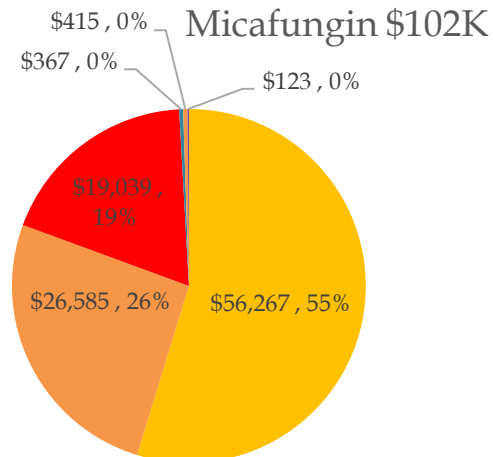
- PHARMACEUTICAL SERVICES SMC
- PHARMACY FGO
- PHARMACEUTICAL SERVICES SBK
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- PHARMACY ADN



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ASP Response

Engagement

- Sanford-wide ASP participation
- Leadership support throughout Sanford
- Local executive leadership support
- Financial support

Successes

- Decreased carbapenem use
- Allocated ID MD time to ASP
- ASP tool in Epic
- ASP related data / reports

Barriers

- Antibiotic-related order set uptake
- Expanding ASP to ambulatory clinics

Additional Projects

- Procalcitonin (PCT)
- Lower respiratory tract infections
- ICU patients with sepsis/severe sepsis
- Ambulatory ASP DUEs
- Collaboration with Long-term Care facilities

Recommendation

- ID involvement and accountability
- ASP data presented to relevant committees
- Dedicated time for program
- Data collection to support program

FY18 Goals

- Reducing Zosyn by 15%
- Continue expanding required indications for antibiotics
- Complete UTI fluoroquinolone DUE for select ambulatory clinics

References

Barlam, T, et al. (2016). Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Disease Society for Healthcare Epidemiology of America. *Clinical Infectious Disease*, 62(10), e51-77.

Centers for Disease Control and Prevention. (2017). *Checklist for Core Elements of Hospital Antibiotic Stewardship Programs*. Retrieved from <https://www.cdc.gov/antibiotic-use/healthcare/implementation/checklist.html>

National Quality Forum. (2016). *National Quality Partners Playbook: Antibiotic Stewardship in Acute Care*. Retrieved from http://www.qualityforum.org/Publications/2016/05/National_Quality_Partners_Playbook_Antibiotic_Stewardship_in_Acute_Care.aspx

The Joint Commission. (2016). *Joint Commission Perspectives*, 36(7), 1-8.



Minnesota Hospital Association

Resources & ASP 101 Reminders



U.S. Antibiotic Awareness Week

Nov. 13-19

1. Nine Ways to Support Be Antibiotics Aware

1. Download and distribute the [new educational materials](#), which include fact sheets, brochures, and infographics for consumers and healthcare professionals.
2. Join the [Be Antibiotics Aware Thunderclap](#) to share the same message at the same time.
3. Participate in the global #AntibioticResistance Twitter chat on Thursday, November 16 at 1pm ET.
4. Add the *Be Antibiotics Aware* Twibbon and Facebook Frame to your social media profile picture.
5. Use social media messages and graphics to spark conversation on Facebook, Twitter, Instagram, and LinkedIn.
6. Use the official hashtags: 1) [#BeAntibioticsAware](#) for the educational effort 2) [#USAABW](#) for the national effort 3) [#AntibioticResistance](#) for the global effort
7. Post the *Be Antibiotics Aware* graphic to your social media profile picture.
8. Customize the press release for your organization's role in *Be Antibiotics Aware*.
9. Use the "drop-in" articles in the *Be Antibiotics Aware* Stakeholder Toolkit.



#BeAntibioticsAware

- Stakeholder [toolkit](#) now available!
- **Thursday, Nov. 16 -** CDC & Federal Office of Rural Health Policy [webinar](#) on ASP in CAH

ASP 101 Reminders

Phase 3: CDC Core Elements 5 and 6

October 2017

Events

- ☐ Oct. 10 - ASP 101 Sharing call and presentation "Atb Use and Resistance Tracking and Reporting Strategies" (Register [online](#))

Homework

- ☐ Review Kansas DOH ASP toolkit for Rural and Critical Access Hospitals Pg. 26-29

November 2017

Action Items

- ☐ Nov. 14 - MHA/OHA Collaborative Webinar (Register [online](#))
- ☐ Create an antibiotic use report or scorecard on a least one antibiotic used in the facility (example provided)

Due

- ☐ Facility specific antibiotic use report or scorecard

Phase 4: CDC Core Element 7

December 2017

Events

- ☐ Dec. 12 - ASP 101 Sharing call and presentation "ASP Education Strategies: Challenges and Successes" (Register [online](#))

Action Items

- ☐ Review Kansas DOH ASP toolkit for Rural and Critical Access Hospitals Pg. 30-31
- ☐ Create an education outline and plan for implementation within the facility utilizing the speakers example

ASP 101 Resources – CDC Core Elements 5 & 6

Homework

- Review ASP Toolkit for Rural and Critical Access Hospitals, pages 28-29
 - **Action Item:** create an antibiotic use report or scorecard on at least one antibiotic that is being tracked in the facility.
 - **Action Item:** Determine to how and with what frequency the antibiogram will be shared with all prescribers in the facility
 - **Action item:** Determine how and with what frequency prescribers will receive direct, personalized communication about how they can improve their antibiotic prescribing.

Supplemental Resources

- Sample Antibiotic Stewardship Scorecard
- <http://www.ihl.org/Engage/Memberships/Passport/Documents/IHI%20Antibiotic%20Stewardship%20Expedition%20-%20Session%205%20Handouts.pdf>
- NQF Core Elements Playbook: pages 19-20
http://www.qualityforum.org/Publications/2016/05/National_Quality_Partners_Playbook_Antibiotic_Stewardship_in_Acute_Care.aspx
- CDC Strategies to Assess Antibiotic Use in Hospitals:
- <https://www.cdc.gov/getsmart/healthcare/pdfs/Strategies-to-assess-antibiotic-use-in-hospitals-508.pdf>

Thank you for joining us!

Next Webinar:

“ASP Education Strategies: Challenges & Successes”

Tuesday, Dec. 12 at 11:30am CST/ 12:30pm EST

Register online:

<https://zoom.us/j/874320868>