New Jersey
Antimicrobial Stewardship Learning Action Collaborative

December 8

Update

Welcome

Acute Care Hospitals

Acuity Specialty Hospital
Bayshore Community Hospital
New Bridge Medical Center
Capital Health
CarePoint Health – Bayonne Medical Center
CarePoint Health – Christ Hospital
CarePoint Health – Hoboken University Medical Center
CentraState Medical Center
Chilton Medical Center
Clara Maass Medical Center
Cooper University Health Care
Deborah Heart and Lung Center
East Orange General Hospital
Englewood Hospital and Medical Center
HackensackUMC Palisades
HackensackUMC Pascack Valley
Hackettstown Medical Center
Hunterdon Medical Center
Jersey City Medical Center
JFK Medical Center
Jefferson Health (New Jersey division)
Lourdes Health System
Lourdes Hospital, Willingboro, NJ
Meadowlands Hospital Medical Center
Memorial Hospital of Salem
Morristown Medical Center
Newton Medical Center
Overlook Medical Center

Acute Care Hospitals continued

Raritan Bay Medical Center
Riverview Medical Center
Robert Wood Johnson University Hospital Hamilton
Robert Wood Johnson University Hospital Rahway
Robert Wood Johnson University Hospital Somerset
Saint Barnabas Medical Center
Saint Michael's Medical Center
Saint Peter's University Hospital
Trinitas Regional Medical Center
University Medical Center of Princeton
The Valley Hospital
Virtua Health System

Others – nursing homes, rehabilitation hospitals, LTC facilities, professional organizations, prison

Ancora Psychiatric Hospital
APIC Northern New Jersey
Broadway House
Center for Geriatric Infection Control
Corizon Health
Hackensack Meridian Quality Care
HealthSouth Rehabilitation Hospital of Tinton Falls
HealthSouth Rehab. Hospital of Toms River
The Rehabilitation Hospital at Raritan Bay Medical Center
St. Lawrence Rehabilitation Center
Wanaque Center

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Collaborative Leadership

Administrative Leadership:

NJHA Institute for Quality and Patient Safety

- Aline Holmes, DNP, MSN, RN
- Shannon Davila, MSN, RN, CIC, CPHQ
- Lauren Rava, MPP

Clinical Leadership: Jefferson Health (New Jersey division)

- Cindy Hou, DO, MA, MBA, FACOI
- Marianne Kraemer, RN, MPA, ED. M., CENP, CCRN-K
- David Condoluci, DO, MACOI

Partners

- New Jersey Department of Health
- QIO- Healthcare Quality Strategies Inc.
- CDC
- Ernest Mario School of Pharmacy
- Ronald G Nahass, MD, MHCM – President ID Care
- Quality Insights Renal Network 3
- New Jersey APIC chapters
- Alex T. Makris, MD, CMD

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New Jersey Antimicrobial Stewardship Efforts

- NJHA AMS collaborative (HIIN)

- QIN-QIO Outpatient AMS collaborative

- NJHA co-led CMS HIIN AMS affinity group

- DOH working with hospitals to use AU module

- DOH ICAR team has worked with hospitals to assess HAI and AMS opportunities for improvement

- Developed new collaborative relationships : Rita Olans, CDC, AHA, Sepsis Alliance

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Let the New Jersey Department of Health help promote stewardship at your facility. Medical Director of the Infectious and Zoonotic Disease Program, Dr. Ed Lifshitz, is available to speak with prescribers at your institutions to:

- Provide a background on antimicrobial resistance

- Address FAQ's from everyday prescribers such as treatment outcomes and malpractice

- "Set the stage" for updates and initiatives from your Antimicrobial Stewardship Program

Contact Suzanne Miro at suzanne.miro@doh.nj.gov if would like Dr. Lifshitz to speak at your institution's grand rounds or other events.
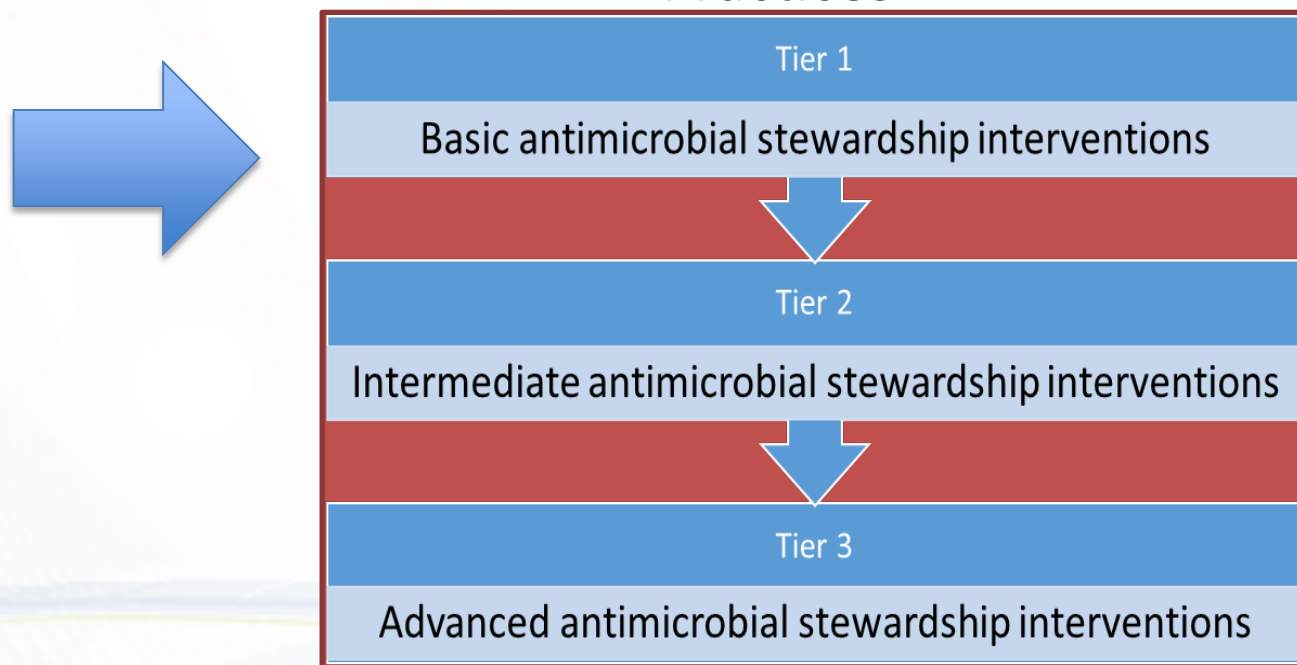
NEW JERSEY HOSPITAL ASSOCIATION ANTIMICROBIAL STEWARDSHIP COLLABORATIVE

Collaborative Framework

Based on the National Quality Form's *Antibiotic Stewardship in Acute Care: A Practical Playbook*

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Tiered Approach to Implementation of Practices

2017- Covered the Basic Interventions

- **Kick-off:** WHY, goals, overview of elements and tiered interventions, building the team, preview to data
- **Overview of Metrics and QI Approach** with Nikunj Vyas PharmD of Jefferson Health New Jersey (Kennedy) team
- **Leadership commitment and accountability** with Dr. Condoluci, Dr. Cindy Hou and Marianne Kraemer of Jefferson Health New Jersey
- **Drug expertise**: the pharmacist's role and innovative strategies with Pari Ali PharmD of Deborah Heart and Lung Center
- **Broad/Pharmacy Specific Interventions** with Dr. Ron Nahass, ID Care
- **The role of nursing** with Dr. Rita Olans of Mass General
- **Infection-Specific Interventions** with Dr. Payal Patel of U of Michigan
- **Highlight Best Practices** with Lucia Rosé of Cooper University Hospital
- **Tracking, Monitoring, Reporting** with Dr. Neil Gaffin of Valley Hospital
- **Educating Staff** with Donna Cybulski of Jefferson Health New Jersey

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July In-Person Session

- Jefferson Health Team
- David P. Calfee, M.D., M.S. of New York-Presbyterian/Weill Cornell Medical Center
- Patricia M. Barrett, MSD of NJDOH
- Edward Lifshitz, MD, of NJDOH
- HQSI team
- Alex Kardos , R.Ph, RWUUH Hamilton

2018- Moving to Intermediate Interventions

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Core Element #1- Leadership Commitment

- Designate or appoint a hospital executive to serve as a "champion" of the ASP

- Include ASP outcome measures in the facility's strategic dashboard and update leadership regularly on meeting those goals

- Integrate ASP activities into quality improvement and/or patient safety initiatives and reports to medical executives

- Include antibiotic stewardship in ongoing provider education programs

Core Element #2: Accountability

- Ensure the ASP leader has specific training in antibiotic stewardship (e.g. certification program or training course)
- Hold the ASP leader accountable for specific stewardship outcome measures
- Include documentation of the ASP outcome measures in performance evaluations
- Ensure the ASP leader actively engages other groups on stewardship efforts (e.g. emergency departments, hospitalists, surgeons, intensivists and nurses)
- Ensure the ASP leader actively engages in any antibiotic use related improvement efforts (e.g. peri-operative antibiotic use and early recognition and treatment of sepsis)

Core Element #3: Drug Expertise

- Provide training opportunities in antibiotic stewardship for a pharmacy leader (e.g. certificate programs)

Core Element #4: Action

- Establish a process to review antibiotics prescribed after 48-72 hours ("antibiotic time-out" or "post-prescription review"). This might be done by the treating team and/or the ASP
- Establish guidance on automatic changes from IV to oral dosing in identified situations
- Establish guidance on dose adjustment for cases of organ dysfunction
- Develop dose optimization recommendations, especially for organisms with reduced susceptibility
- Build in automatic alerts for potentially duplicative drug therapy
- Implement time-sensitive automatic stop orders for specific antibiotics (e.g. use of agents for surgical prophylaxis or empiric therapy)
- Ensure that the stewardship program works with the ICU to develop optimized antibiotic treatment protocols for possible sepsis cases
- Ensure discussions of patient care (e.g. rounds) include information on antibiotics

Core Element #5: Tracking and Monitoring

- Sequential tracking of antibiotic resistance patterns (e.g. gram negative resistance)
- Tracking of C.difficile infection rates
- 30-day readmission rates for pneumonia and C.difficile

Core Element #6: Reporting

- Include updates on progress towards meeting all hospital goals for antibiotic stewardship and recommendation for future improvement in reports
- Reports should include information on overall antibiotic use and trends, interventions accepted and actions taken, and measures of appropriate use and outcomes measures such as C.difficile infection rates and resistance
- Include concrete recommendations for improvement in reports
- Encourage early adoptions of reporting into NHSN AU Module to receive SAAR reports
- Include antibiotic stewardship and use topics in newsletters
- Present "what are we doing and why we need stewardship" to the governing board
- Post unit-specific data in visible places to engage unit staff in stewardship

Core Element #7: Education

- Present antibiotic use resistance data in grand rounds
- Provide targeted in-person or web-based education presentations to key provider groups at least annually (e.g. staff meetings for sections and surgical morbidity and mortality conferences)
- Develop clear, concise educational messages that include concrete suggestions for actions to improve use
- Establish a collaborative that has coaching goals for hospitals and expert webinar presentations

Partners in Post-Acute Care

NJ LTC ABS Collaborative

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Antibiotic Use in Nursing Homes

- Estimated 40-75% of antibiotic use in nursing homes is inappropriate
  - Diagnosis: treatment may not be indicated
  - Drug: antibiotic selection may not be correct
  - Dose: dosing may be inappropriate or not adjusted
  - Duration: longer than recommended guidelines
  - De-escalation: not adjusted based on clinical condition or laboratory results
  - Documentation: should reflect all D's above

Lim et al, Reducing Inappropriate Prescribing in the Residential Care Setting: Current Perspectives. Clin Interven Aging. 2014
Nicolle et al, Antimicrobial use in Long Term Care Facilities. Infect Control Hosp Epidemiol 2000

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Collaborative Framework

- Who
  - Led by NJHA, partnering with DOH, and subject matter experts
- What
  - Goal is to increase knowledge, improve prescribing practices, improve resident outcomes
- When
  - Series of 4 webinars over a 12 month period
- How
  - Practice assessment results to identify gaps
  - Implement the CDC Core element framework with the AHRQ toolkit

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Evidence-Based Resources

- Centers for Disease Control and Prevention- Core Elements

- Agency for Healthcare Quality and Research (AHRQ)
  Nursing Home Antimicrobial Stewardship Guide

Agency for Healthcare Research and Quality (AHRQ) Nursing Home Antimicrobial Stewardship Guide

- To make antimicrobial stewardship a priority, the Guide provides toolkits to help nursing homes—
  - ➤ Establish an antimicrobial stewardship program and choose one or more interventions
  - ➤ Monitor and sustain antimicrobial stewardship

https://www.ahrq.gov/nhguide/index.html

Available Set of Toolkits

Implement, Monitor, and Sustain an Antimicrobial Stewardship Program

Determine whether to treat the patient

Choosing the right antibiotic

Engaging residents and families

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Post Acute Content Review

- **Dr. Sarah Kabbani, CDC**
  - Overview of Core Elements of ABS
  - Brief overview of CMS regs for Nov 2017
- **Amanda Beaudoin, Minnesota DOH**
  - How to Implement, monitor and sustain an antimicrobial stewardship program
  - How to educate and engage residents and family members on proper use and risks associated with antibiotics
- **Dr. Ronald Nahass and Kathleen Seneca of ID Care**
  - Using protocols and tools to determine whether it is necessary to treat a potential infection with antibiotics
- **Dr. Neil Gaffin of Ridgewood Infectious Disease Associates, Valley Hospital**
  - Help clinicians chose the appropriate ABX to treat with
  - Monitoring ABX use and resistance patterns

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Data Update

Days of Therapy (DOT)
(Primary Usage Metric)

- Modeled after CDC's <u>NHSN Antimicrobial</u> Use metric

- Overall and for specific agents or group of agents

- An antimicrobial day (also known as day of therapy) is defined by any amount of a specific antimicrobial agent administered in a calendar day to a particular patient

- **<u>Report:</u>**
  - **Aggregate sum of days for which any amount of a specific antimicrobial agent was documented as administered to individual patients**

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Defined Daily Dose (DDD)
(Secondary Usage Metric)

- World Health Organization's (WHO) assigned
  - Anatomical Therapeutic Chemical Classification System with Defined Daily Dose (ATC/DDD)

- DDD is the **total number of grams** of an antimicrobial agent used divided by WHO standard daily maintenance dose for an adult

- Compared to DOT, DDD estimates are not appropriate for children, are problematic for patients with reduced drug excretion such as renal impairment, and are less accurate for between-facility benchmarking

- <u>**Report:**</u>
  - **Aggregate sum of Defined Daily Doses for all antimicrobials either dispensed or administered with one calendar month**

Usage Metric Details

Inclusions

- Antibiotics, antivirals, antifungals administered by the following routes: intravenous, intramuscular, digestive, and respiratory
  - Intravenous (IV): An intravascular route that begins with a vein. Intramuscular (IM): A route that begins within a muscle.
  - Digestive Tract: A route that begins anywhere in the digestive tract extending from the mouth through rectum
  - Respiratory Tract: A route that begins within the respiratory tract, including the oropharynx and nasopharynx.
- All adult inpatient locations

Exclusions

- Any antimicrobials administered via the following routes: antibiotic locks, intraperitoneal, intraventricular, irrigation, topical
- Inpatient pediatric and neonatal locations, all outpatient locations

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Usage Metric Denominators
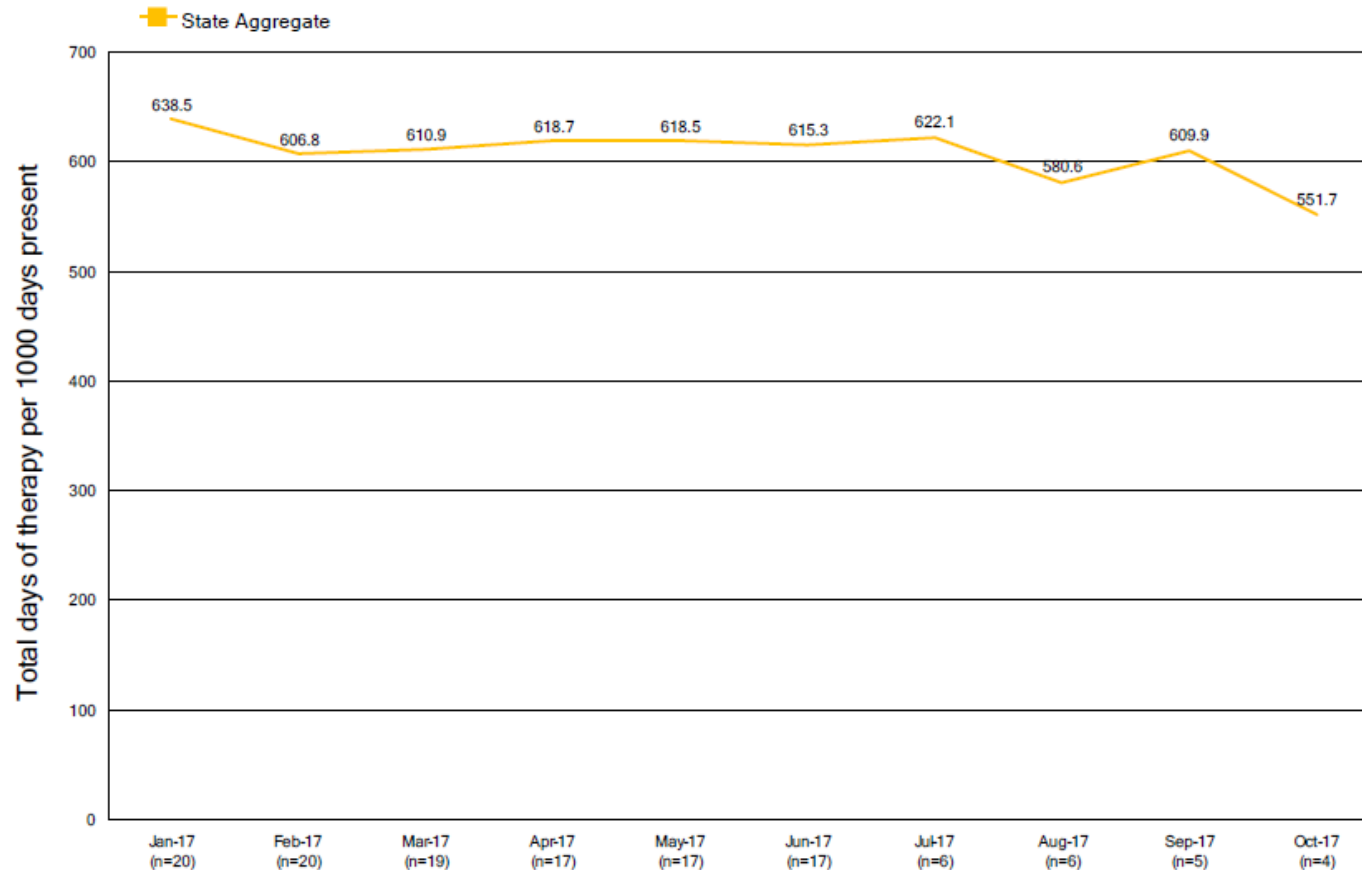
Option 1: Days Present

- *(calculated as per 1000 days present)*: Days present are defined as the time period during which a given patient is at risk for antimicrobial exposure for a given patient location.
- Days present is calculated as the number of patients who were present in an inpatient location either facility-wide or location-specific, for any portion of each day of a calendar month.
- The aggregate measure for all inpatient locations is calculated by summing all of the days present for a given month.

Option 2: Admissions
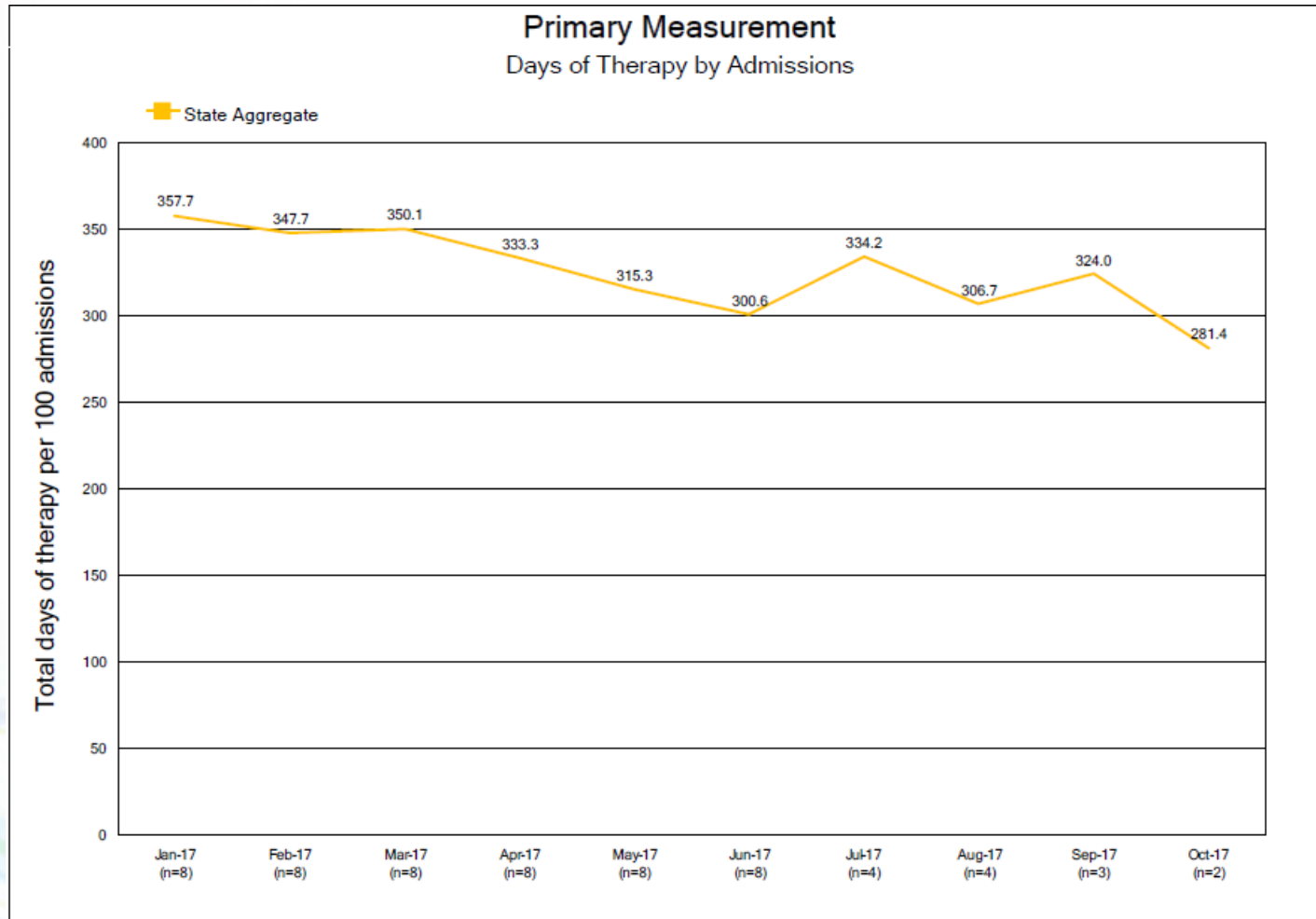
- *(calculated as per 100 admissions):* Admissions are defined as the aggregate number of patients admitted to an inpatient location within the facility (i.e., facility-wide inpatient) starting on first day of each calendar month through the last day of the calendar month.
- The aggregate measure for all inpatient locations is calculated by summing all of the admissions for a given month.
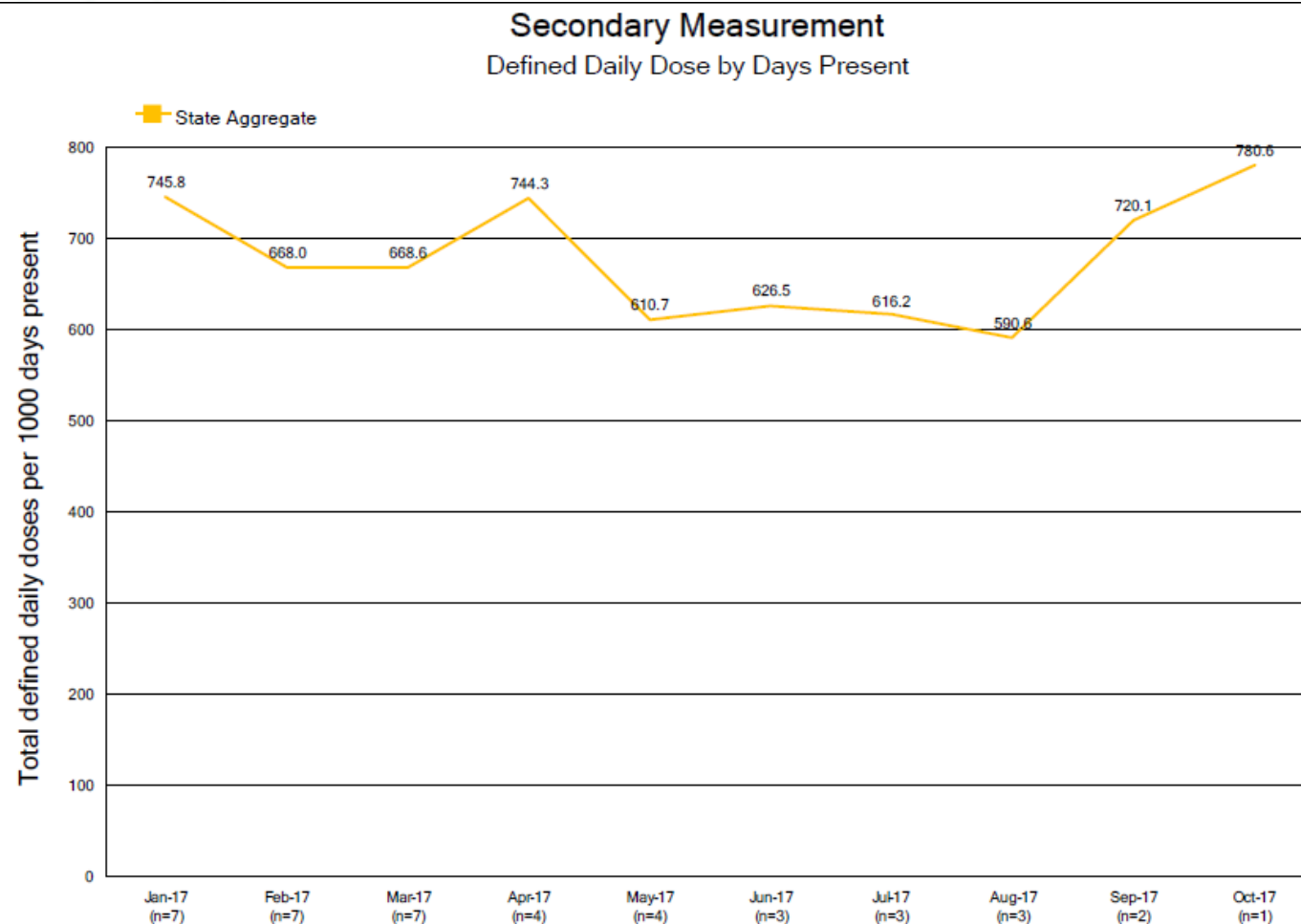
DOT by Days Present

Primary Measurement
Days of Therapy by Days Present

DOT by Admissions

Primary Measurement
Days of Therapy by Admissions

DDD by Days Present

Secondary Measurement
Defined Daily Dose by Days Present

State Aggregate

Month	Value
Jan-17 (n=7)	745.8
Feb-17 (n=7)	668.0
Mar-17 (n=7)	668.6
Apr-17 (n=4)	744.3
May-17 (n=4)	610.7
Jun-17 (n=3)	626.5
Jul-17 (n=3)	616.2
Aug-17 (n=3)	590.6
Sep-17 (n=2)	720.1
Oct-17 (n=1)	780.6

Total defined daily doses per 1000 days present
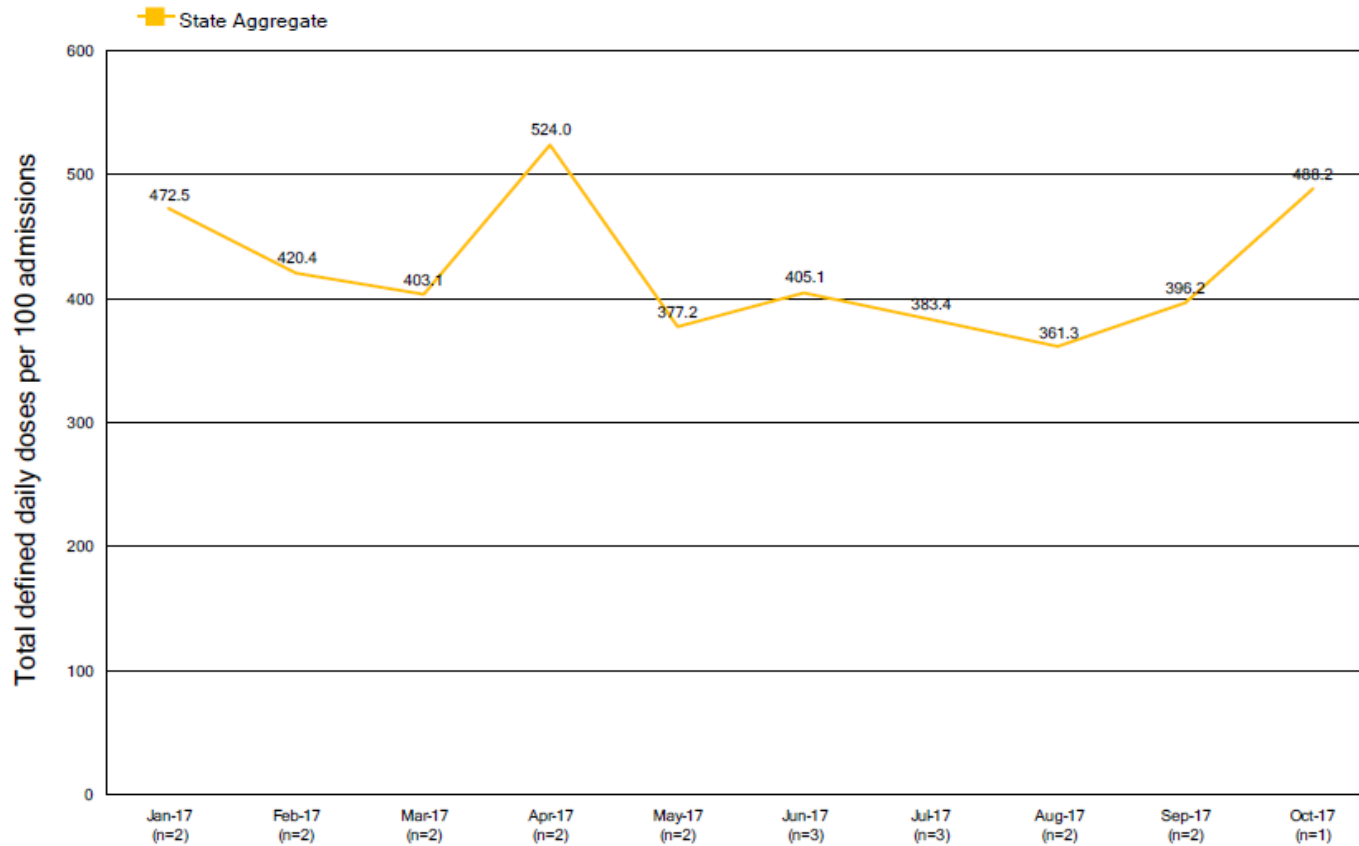
DDD By Admissions

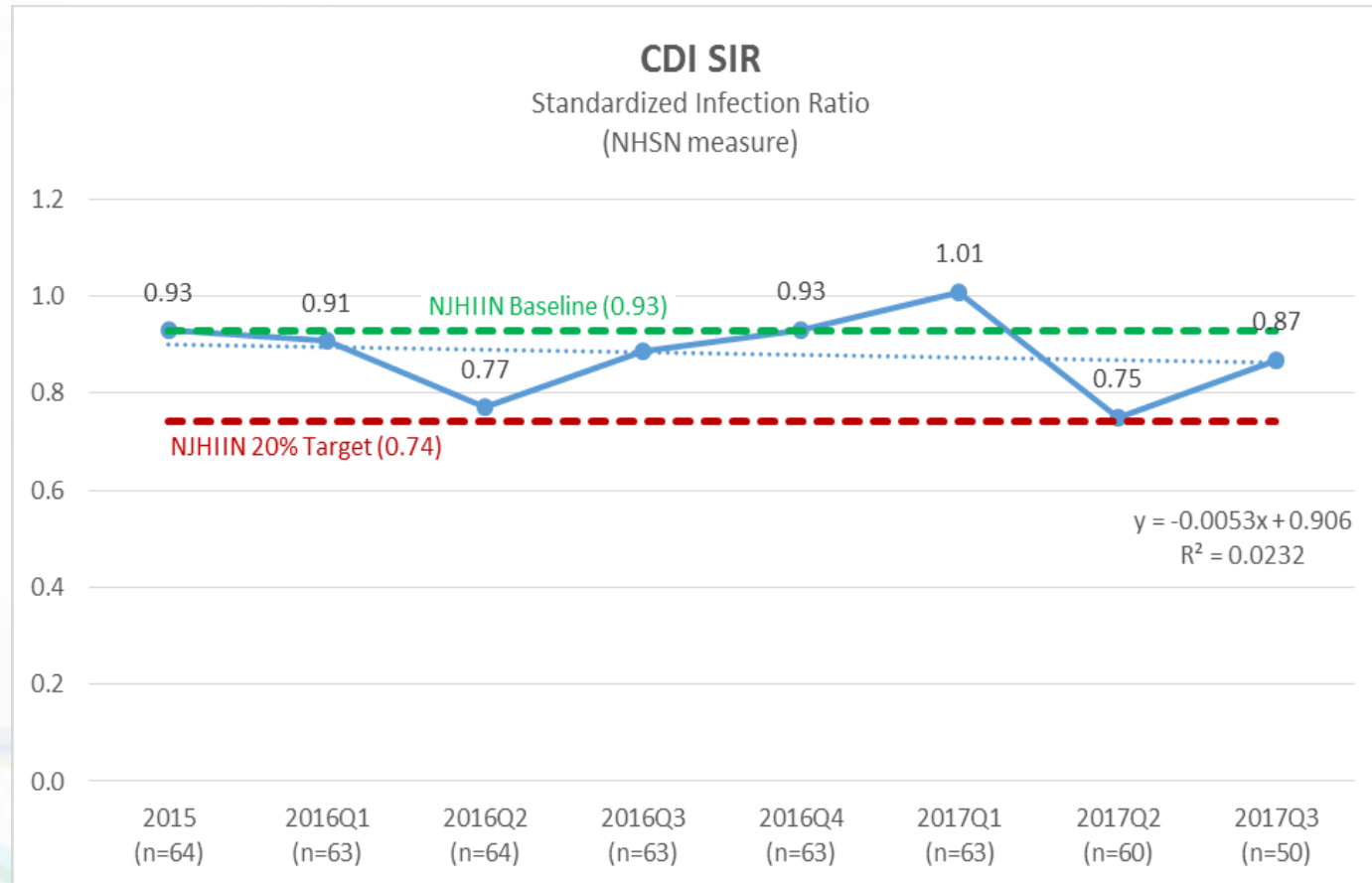Secondary Measurement
Defined Daily Dose by Admissions
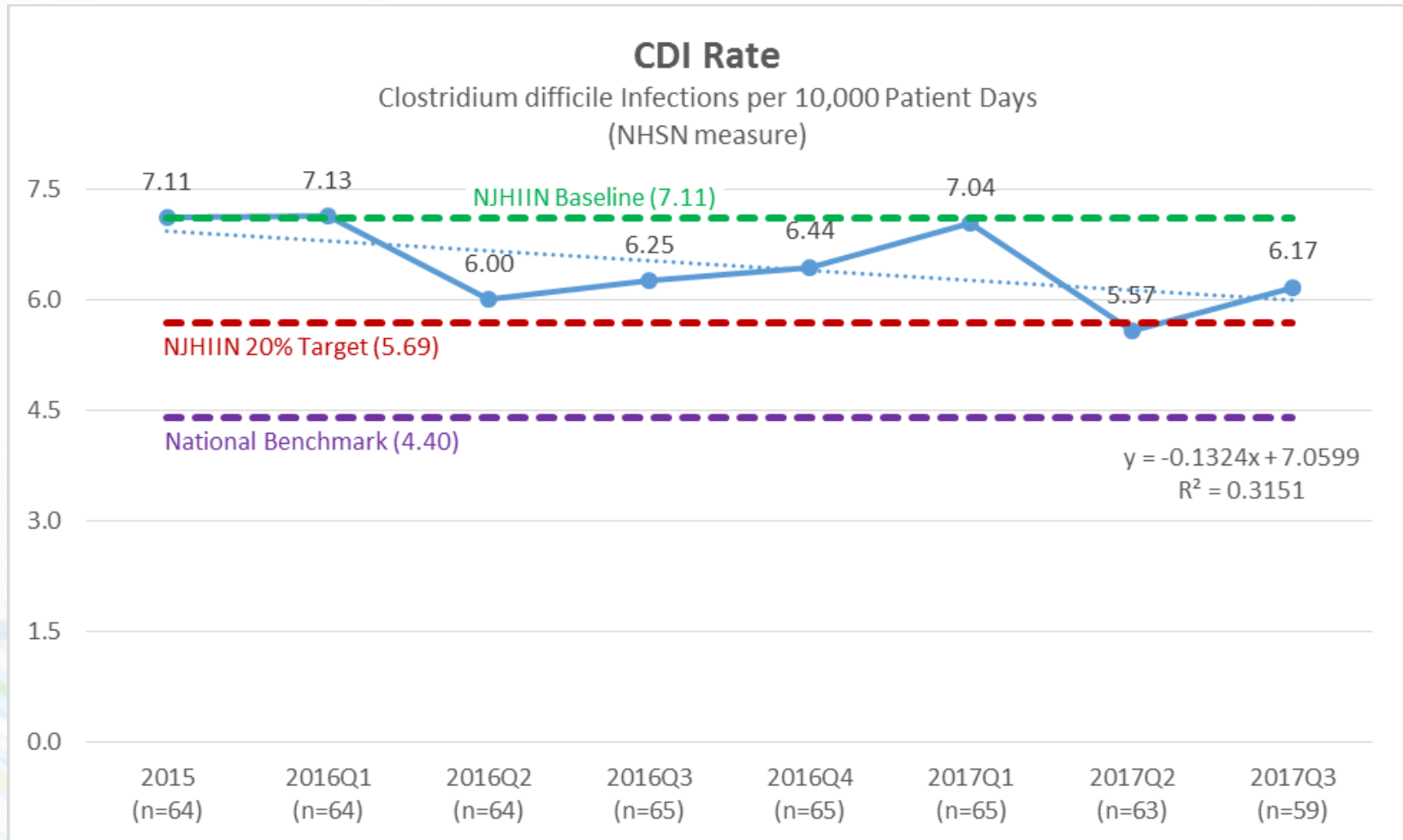
C. Difficile Metric

- <u>Healthcare Facility-Onset *C. difficile* </u>(reported as labID through NHSN)

- Proxy infection measure for healthcare acquisition, exposure burden, and infection burden based on laboratory data and limited admission date data

- Positive toxin tests obtained on or after hospital day 4 are classified as <u>healthcare facility-onset (HO)</u> LabID Events.

- Will measure CDI standardized infection ratio (SIR)

- Excluded: IRF and IPF locations with unique CCNs separate from the reporting facility, neonatal ICUs, special care nurseries, and well-baby locations

https://www.cdc.gov/nhsn/PDFs/pscManual/12pscMDRO_
CDADcurrent.pdf

CDI LabID SIR (NJHIIN)

CDI SIR
Standardized Infection Ratio
(NHSN measure)

CDI LabID Rate (NJHIIN)

CDI Rate
Clostridium difficile Infections per 10,000 Patient Days
(NHSN measure)

NJHIIN Baseline (7.11)

NJHIIN 20% Target (5.69)

National Benchmark (4.40)

$y = -0.1324x + 7.0599$
$R^2 = 0.3151$

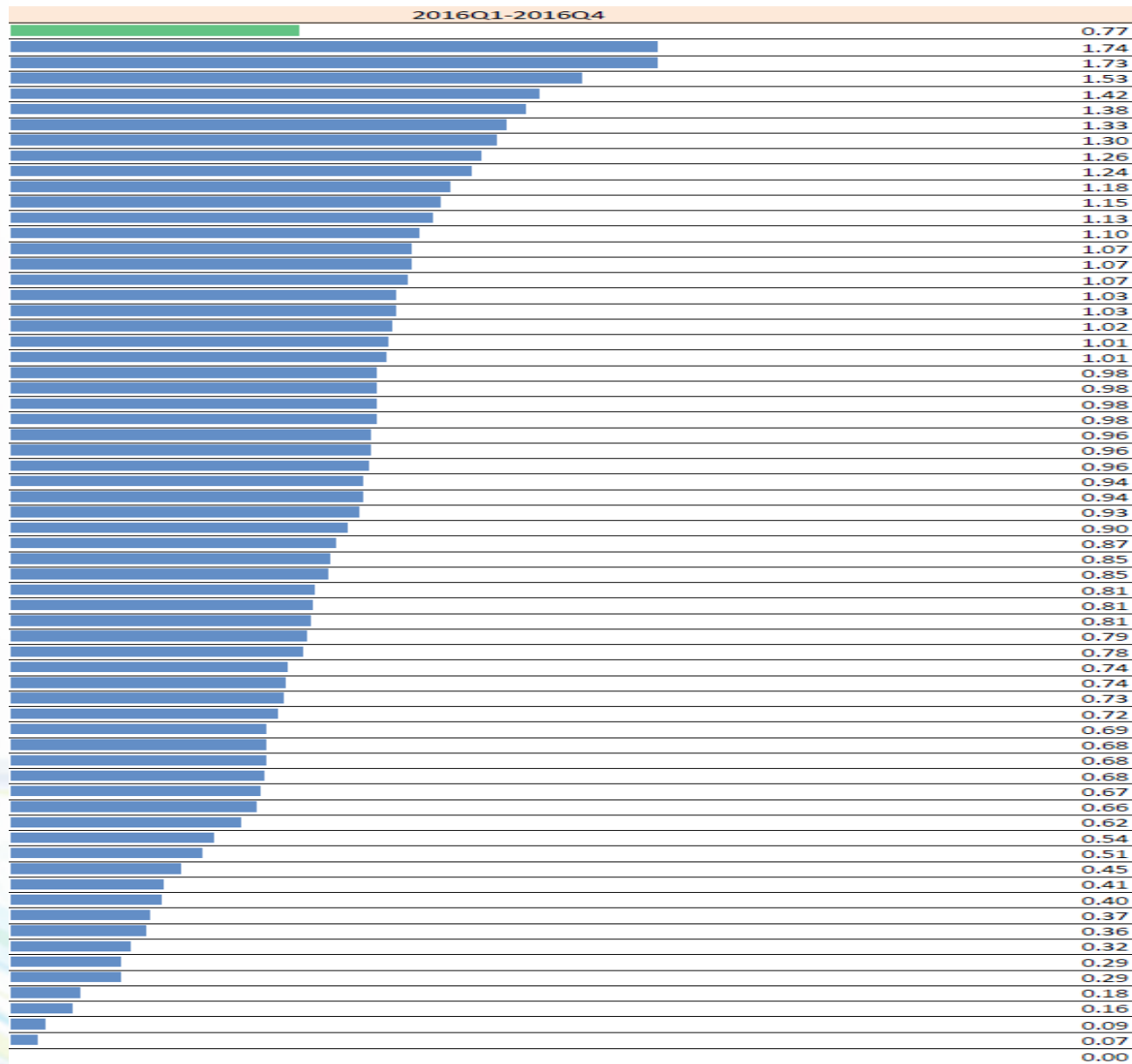|	2015 (n=64)	2016Q1 (n=64)	2016Q2 (n=64)	2016Q3 (n=65)	2016Q4 (n=65)	2017Q1 (n=65)	2017Q2 (n=63)	2017Q3 (n=59)
Rate	7.11	7.13	6.00	6.25	6.44	7.04	5.57	6.17

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CDI SIR
Clostridium Difficile Standardized Infection Ratio
(NHSN LabID Measure)

NJHIIN Average

Issues Around Data Collection

- Barriers include:
  - Not having an EMR can make gathering DOT data extremely challenging
  - Calculating DDD is very time consuming and cannot be done with all the other tasks that need to be completed
  - In some settings, Infection Preventionists are being tasked with AMS responsibilities and data collection, on top of their HAI surveillance
  - lack of personnel to collect and calculate data, lack of knowledge on how to collect and calculate data, lack of time, no program to assist in calculation, manual review, manual entries, lack of help, lack of knowledge on use of antibiotics

What are teams doing to improve data collections?

Looking Ahead to 2018

- Possible acute care topics
  - Issues around antifungal resistance and stewardship
  - Support the role of nursing
  - AMS in the ICU setting
  - Impact of Sepsis
  - Treatment of device-related infections (CAUTI, CLABSI, VAE)
  - Treatment of Pressure Injuries
  - Transitions of care issues with AMS
  - Outpatient ABS best practices
  - Engaging patients and families in AMS
  - C. difficile issues
  - AMS in surgery
  - Pediatric issues

New Website!

ANTIMICROBIAL STEWARDSHIP

http://www.njha.com/pfp/njtools/abx/

Resources

- N.J. Antimicrobial Stewardship Learning Action Collaborative Charter
- N.J. Antimicrobial Stewardship Learning Action Collaborative Framework
- National Quality Partners Playbook: Antibiotic Stewardship in Acute Care
- CDC Core Elements of Hospital Antibiotic Stewardship Programs
- AHRQ: The Evaluation and Research on Antimicrobial Stewardship's Effect on Clostridium difficile (ERASE C. difficile) Project's Toolkit for Reduction of Clostridium difficile Infections through Antimicrobial Stewardship
- The Critical Role of the Staff Nurse in Antimicrobial Stewardship—Unrecognized, but Already There

NJHIIN Webinars

- NJHIIN Antimicrobial Stewardship Collaborative Kickoff Meeting
- NJHIIN Antimicrobial Stewardship Collaborative Webinar: Overview of Metrics and the QI Approach – Feb. 9, 2017
- NJHIIN Antimicrobial Stewardship Collaborative Webinar: Leadership Commitment and Accountability
- NJHIIN Antimicrobial Stewardship Collaborative Webinar: Drug expertise: the pharmacists' role and innovative strategies
- NJHIIN Antimicrobial Stewardship Collaborative Webinar: Broad and Pharmacy Specific Interventions
- NJHIIN Antimicrobial Stewardship Collaborative Webinar: The Role of Nursing
- NJHIIN Antimicrobial Stewardship Collaborative Webinar: Interventions Targeted at Specific Infections – Aug. 10, 2017
- NJHIIN Antimicrobial Stewardship Collaborative Webinar: Best Practice in NJ: Cooper University Hospital – Sept. 14, 2017
- NJHIIN Antimicrobial Stewardship Collaborative Webinar: Tracking, Monitoring and Reporting – Oct. 12, 2017
- NJHIIN Antimicrobial Stewardship Collaborative Webinar: Educating All Staff – Nov. 9, 2017

NJHIIN Antimicrobial Stewardship Collaborative for Long Term Care Settings

- NJHIIN Antimicrobial Stewardship Collaborative for LTCS: CDC Core Elements of Antibiotic Stewardship for Nursing Homes – April 19, 2017

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Questions?

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