Park Nicollet Methodist Hospital Antimicrobial Stewardship – An Approach to Sustained Improvement

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Park Nicollet

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Background

Park Nicollet Methodist Hospital, a 424-bed community hospital near Minneapolis, MN, has been developing its Antimicrobial Stewardship **(AMS)** Program for over a decade. In 2011, 0.2 full-time equivalents **(FTE)** of pharmacist **(PharmD)** time were dedicated to AMS work. Initial AMS efforts included, for select antimicrobials/antibiotics **(abx)**:

- Monitoring utilization trends
- Criterion Based Prescribing **(CBP)** at order verification
- Intravenous **(IV)** to oral **(PO)** conversion protocols
- Infectious disease **(ID)** order-set development
- Collaborative Practice Agreement **(CPA)** in Emergency Center **(EC)** for abx selection based on culture results

In July 2016 the AMS program expanded to provide 1.0 FTE dedicated AMS PharmD for standard work to include:

- Retrospective and prospective intervention on CBP and broad-spectrum abx through daily (weekday) review
- Implement policy changes to optimize lab utilization: removing reflexive urine culture from standard nursing orders in EC, Clostridium difficile **[Cdiff]** PCR only orderable by clinicians, and standardizing empirical therapy for bacteremia detected with rapid molecular diagnostics prior to sensitivities
- Creating clinical pathways for common conditions
- Following conversion to a more reliable abx utilization tool (09/2016), enhanced utilization metrics/tracking

Since July 2017, the AMS program has further expanded:

- Providing 0.125 ID physician FTE for AMS team rounding
- Required indications in electronic medical record **(EMR)**
- 48 hour time out in EMR
- Further lab optimization (e.g. Cdiff orders reviewed by ID prior to approval/collection)
- Benchmarking antibiotic utilization through submission of data to two nationwide antimicrobial utilization databases

Actions Taken

January 2011

- **0.2 PharmD FTE allocated to focus on:**
  - Criterion Based Prescribing
  - IV : Oral conversion
  - Monitoring utilization
  - EC Collaborative Practice

July 2016

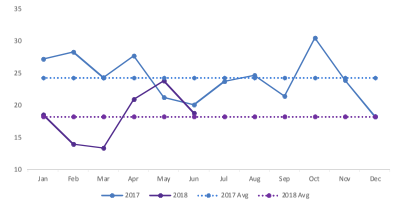
- **PharmD FTE 1.0**
  - Retrospective & prospective feedback/intervention
  - Lab optimization efforts
  - More robust utilization metrics and analysis

July 2017

- **0.125 ID physician FTE**
  - Daily ID rounds (**1,335 patients** in first 12 months)
  - Indications required in EMR
  - Nationwide benchmarking
  - Further lab optimization

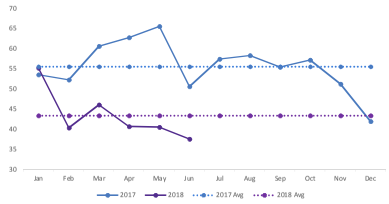
Results: Impact on Antimicrobial Utilization

Carbapenems DoT/1K Pt Days

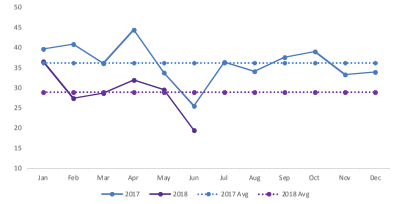


Drug/Drug Class (IV&PO if applicable)	2017 Avg DoT/1K pt days	Jan-Jul 2017 Avg DoT/1K pt days	Jan-Jul 2018 Avg DoT/1K pt days	% Change (Jan-Jul)	% Change (all 2017 vs Jan-Jul 2018)
Fluoroquinolones	36.2	36.7	28.8	-21.6%	-20.6%
Clindamycin	17.2	16.4	17.6	7.4%	2.4%
Carbapenems	24.3	24.6	18.9	-23.2%	-22.0%
Vancomycin	55.5	57.5	43.8	-23.9%	-21.2%
Ceftriaxone	55.3	55.7	57.6	3.4%	4.1%
Piperacillin/tazobactam	90.6	92.1	70.7	-23.2%	-22.0%
Anti-pseudomonals	158.1	161.3	132.1	-18.1%	-16.5%
Total IV (ABX ONLY)	445.2	449.2	413.5	-7.9%	-7.1%
Total PO (ABX ONLY)	115.9	115.1	115.7	0.5%	-0.1%
Total IV&PO (ABX ONLY)	560.4	563.4	543.1	-3.6%	-3.1%

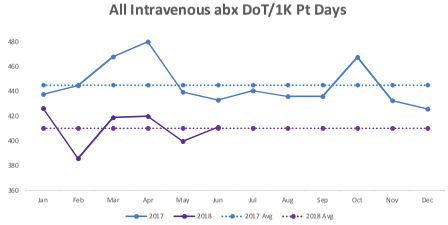
Vancomycin IV DoT/1K Pt Days



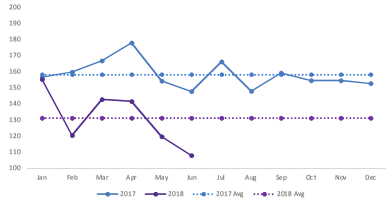
Fluoroquinolones IV&PO DoT/1K Pt Days



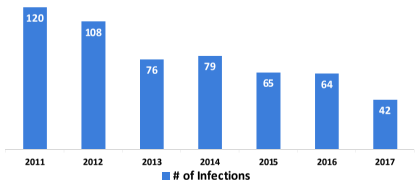
All Intravenous abx DoT/1K Pt Days



Anti-pseudomonal DoT/1K Pt Days



Hospital Associated C-Difficile



Multi-department partnership to decrease incidence of Cdiff

- **Infection Prevention-(IP)-led team:** IP, ID physician, AMS PharmD, Environmental Services, Quality Improvement, Nursing
- **Improvements included:** criteria-based testing for Cdiff, standardized UA/UC ordering process, monitoring of all patients admitted with a previous history of Cdiff, pharmacist-clinician rounding, updated cleaning procedures of all rooms/equipment

Disclosure

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