Poster #967

The First Step is Always the Hardest:
Building a Framework for Stewardship across a Large, Diverse Healthcare System

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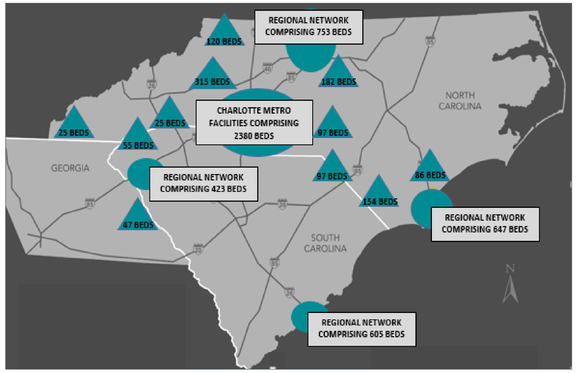
Background

- Alarming trends in antibiotic resistance sparked a National Action Plan which endorsed antimicrobial stewardship programs (ASP) in healthcare facilities as a strategy to curb resistance.
- The Joint Commission and the Centers for Medicare and Medicaid have also recently mandated that all acute care and critical access hospitals implement antimicrobial stewardship programs that align with the CDC's core elements of stewardship.
- Carolinas HealthCare System (CHS) is a large, diverse healthcare system providing care in 3 states and across varied settings - ranging from critical access facilities to an 800-plus bed academic medical center with solid organ and bone marrow transplant.

Figure 1. CHS Regional Networks and Facilities



Beds= Acute-care, licensed beds

- Antimicrobial stewardship efforts across CHS also vary by facility, ranging from mature programs with dedicated stewardship resources to those taking first steps towards establishing a program.
- Four different clinical information systems are utilized across the system and only a few facilities have adopted clinical decision support systems to identify and target antimicrobial stewardship interventions.
- We sought to establish an ASP framework across 28 acute-care hospitals by uniting local resources with an advisory team led by a medical director, two clinical pharmacists, and a data analyst.

Methods

Setting the Foundation

- In Fall 2015 each facility chose a pharmacist, physician, and administrative ASP champion.
- A gap analysis survey of CDC Core ASP Elements was conducted to stratify facilities into 3 tier-levels (1,2, and 3).

Table 1. Landscape of ASP at CHS by Tier

Tier	Number of Facilities or Regional Networks (n=28 facilities)	Description
1	5	• Receive budgeted support + Engaged in targeted ASP activities + Engaged in baseline ASP activities
2	3	• Receive some budgeted support + Engaged in baseline ASP activities • Formal program lacks structure
3	8	• Engaged in baseline ASP activities such as IV to PO conversion or drug dosing and monitoring • Building support for program with no budgeted or formal administrative support

- Site visits were conducted in Winter 2016 with key ASP stakeholders at each facility. Based on the site visit findings, 3 – 4 major goals were set and post-visit recommendations were provided.

Establishing a Measure

- Days of therapy (DOT) per 1000 patient days was adopted for monitoring select antibiotics monthly. Baseline usage data from September 2014 – August 2015 was collected.
- Target and stretch DOT reduction goals were set for each facility.

Accomplishing the Work

- Pharmacists set up monthly facility meetings to provide suggestions for moving stewardship initiatives forward and assess progression.
- Common initiatives include: fluoroquinolone use reduction, creation of empiric guidelines for pneumonia and urinary tract infection, implementation of rapid diagnostic technology, and reducing unnecessary urine cultures to target asymptomatic bacteriuria.
- Bi-monthly virtual meetings were established to share best practices, assess system-wide data, and provide educational sessions
- The Carolinas HealthCare Symposium to Optimize, Network, and Engage Antimicrobial Stewardship Partners (CHS ONE ASP) was held in Summer 2016 targeting global educational needs.
- The "Bug Bytes" newsletter is disseminated on a bi-weekly basis.

Results

- Data (DOT/1000 patient days) on 17 selected antibiotics were collected in 28 acute-care hospitals for each month between September 2014 and present.
- The goal-stretch reduction set by facilities ranged from 1-2.5% to 5-10%

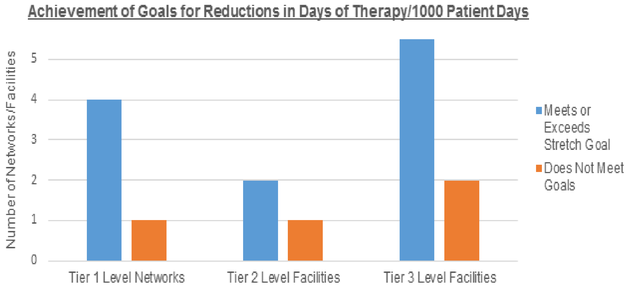
Table 2. Goal Reductions in DOT/1000 Patient Days by Tier

Tier Level	Number of Facilities or Regional Networks (n = 28 facilities)	Goal – Stretch Reduction (%)
1	2*	5 – 10
	3**	2.5 – 5
2	1	2.5 – 5
	2	1 – 2.5
3	8	1 – 2.5

* = 12 facilities; ** = 5 facilities

- Overall, a modest decline in antibiotic use was seen with many facilities during this collaborative.
- As of Summer 2016, twelve facilities or regional networks meet or exceed their stretch goal. Four facilities currently have not met their reduction goals.
- Fluoroquinolones, vancomycin, and anti-pseudomonal beta-lactams were found to contribute most significantly to antibiotic consumption across all facilities regardless of tier.

Figure 2. Goal Progression by Tier



Conclusions

- Building a unified ASP framework across a diverse system presents many challenges including:
  - Obtaining consistent days of therapy and patient-days data from facilities with different clinical information or decision system platforms
  - Few facilities have dedicated time for assigned physician and pharmacy champions to conduct daily stewardship activities and spearhead initiatives
  - Almost all Tier 3 facilities have limitations with generating targeted reports to facilitate identification of potential stewardship interventions from their current electronic health record system and need increased surveillance tools
  - Many facilities require a significant culture change for providers to be receptive to recommendations that optimize antimicrobial therapy
- Despite obstacles to establishing ASP in these facilities, many successes emerged as a result of our collaborative:
  - All facilities disseminated a letter of commitment from senior leadership stating the importance of improving antimicrobial use
  - Many sites who do not have dedicated ASP staff incorporated an antibiotic time-out into their workflow and have seen reductions in fluoroquinolone use
  - One Tier 2 facility hired a dedicated stewardship pharmacist and implemented rapid diagnostic technology. Other facilities are in the process of obtaining needed dedicated time and resources for stewardship
- Steps moving forward:
  - Pushing towards consistency in data collection methodology to allow for effective identification of targets and trends as well as internal benchmarking
  - Consolidation of three tier system into two tiers since some facilities have increased resources for an established ASP
  - Targeting a single unified DOT reduction goal of 5-7.5% focusing initiatives on fluoroquinolones, anti-pseudomonal beta-lactams, and vancomycin

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