Abstract # 2087

Electronic Capture and Feedback of Standardized Antibiotic Clinical Indications Data Among Community Hospitals

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Abstract (updated)

Background: Antibiotic clinical indications allow stewardship programs to assess therapy appropriateness; however, many hospitals that require antibiotic indications upon order entry lack standardized mapping of indications leading to variability in entered values. Electronic capture and feedback of standardized antibiotic clinical indications data may allow hospitals to more effectively compare indication-specific prescribing trends among facilities.

Methods: We collected antibiotic indications from electronic medication orders for 6 DASON hospitals. These indications were mapped to a list of 15 standardized indication categories created by consensus of the DASON stewardship team.

To demonstrate the feasibility and utility of standardized clinical indications mapping, we evaluated agents given for the indication *C. difficile* infection (CDI) in 2018. Differences between the hospitals were compared to highlight the added benefit of standardized indication data in evaluating antibiotic use and adoption of local guidelines.

Results: For 249,916 antibiotic days of therapy (DOT) with an indication available, a total of 125 unique indications were reported. Of note, 3 facilities allowed more than one indication to be entered at prescriber discretion. The distribution of antibiotic DOT mapped to the standardized indication list can be seen in Table 1. The most common indication was the other category (19.5%). These were primarily other, no additional information (47%) or empiric therapy for unknown source of infection (17%). Additional indications in the other category included chronic obstructive pulmonary disease exacerbations and sexually transmitted infections (< 5% each).

Figure 1 depicts the agents used for CDI indication between facilities. Despite universal adoption of local guidelines where oral vancomycin is the drug of choice for treating CDI, there was variability seen in vancomycin CDI DOT (range: 60 – 80% of CDI DOT).

Conclusion: Stewardship programs can implement standardized antimicrobial indications to facilitate electronic capture, feedback, and comparison and efficiently identify stewardship targets. Additionally, hospitals may use these data to explore appropriateness of antibiotic use.

Background

- Antibiotic clinical indications allow stewardship programs to evaluate therapy appropriateness.
- Standardized clinical indications can be captured electronically and allow comparison of indication-specific antimicrobial use at the facility, provider, and unit level. Clinical indications also allow hospitals to quickly evaluate implementation of education and new guidelines.

Methods

- Several hospitals within a large stewardship network elected to implement clinical indications for antibiotic use that were captured at the time of prescriber order entry. In all facilities, indication was a mandatory part of the antibiotic order, but the manner in which indications were entered (e.g. drop down box, free text) was not standardized across sites.
- Antibiotic indications data were electronically captured from 6 DASON hospitals and stored in a Microsoft Access database.
- Unique indications were evaluated by the DASON stewardship team and mapped to a list of 15 standardized clinical indications created by team consensus.
- As an example of how indications can be used to track specific stewardship interventions, antibiotics prescribed for the indication CDI from 1/1/2018 to 12/31/2018 were compared for the 6 hospitals to demonstrate feasibility and benefits of indications mapping.

Results

- 249,916 antibiotic DOT from 6 DASON hospitals contained 125 unique indications
- Table 1 shows the distribution of the 15 standardized indications among the community hospitals.
- 3 of 6 hospitals allowed clinicians to select multiple clinical indications. A total of 7,033 DOT were linked to 2-4 clinical indications. The percentage of DOTs with multiple indications varied by hospital: Hospital A, 1.78%; Hospital E, 0.96%; Hospital F, 0.08%.
- 44 indications were classified as other. The most common other indications are described in Table 2. Additional indications in the other category include various pathogen-specific therapies (e.g. MRSA, VRE, anaerobic infection), cystic fibrosis maintenance therapy, tickborne illness, tuberculosis, toxin-mediation, streptococcal pharyngitis, and ICU VAP.

Table 1. Distribution of Standardized Antibiotic Indications for Community Hospitals

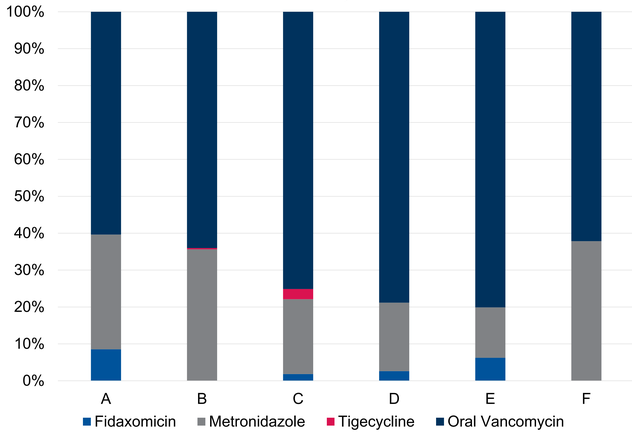
Standardized Indication	Days of Therapy	Distribution Among Six Community Hospitals
Other	48,651	19.47%
Pneumonia	48,391	19.36%
Prophylaxis - Surgical	38,533	15.42%
Urinary Tract Infection	29,861	11.95%
Skin or Soft Tissue Infection	26,208	10.49%
Intra-abdominal Infection	17,668	7.07%
Sepsis	8,618	3.45%
Bacteremia	8,293	3.32%
More than 1	7,033	2.81%
Clostridium difficile	5,397	2.16%
Bone or Joint Infection	4,171	1.67%
Prophylaxis - Medical	3,559	1.42%
HEENT	964	0.39%
Neutropenic Fever	941	0.38%
Cardiovascular	837	0.33%

Table 2. Most Common Categories Describing Other Indications

Most Common Categories Describing Other Indications	Days of Therapy	Percentage of Other Recommendations
No additional information	23,990	49.31%
Empiric therapy for unknown source of infection	8,209	16.87%
Respiratory Infections not classified as pneumonia or COPD	6,808	13.99%
Gynecologic and sexually transmitted infections	2,140	4.40%
Hepatic encephalopathy	754	1.55%
COPD	670	1.38%
Viral - Treatment	580	1.19%

- During 2018, all 6 hospitals adopted the new CDI guideline recommendations and designated oral vancomycin as the drug of choice for the treatment of CDI.
- Based on the data in Figure 1, 60-80% of CDI DOT were attributed to oral vancomycin, which indicated incomplete uptake of the new guidelines.

Figure 1. Percent of CDI Days of Therapy by Agent Per Facility



Conclusions

- The electronic capture of standardized antimicrobial clinical indications allows sites to efficiently identify potential stewardship targets and explore appropriateness of antibiotic use.

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