Changes in Antimicrobial Prescribing Patterns Following Implementation of The Oregon Antimicrobial Stewardship Collaborative (OASC)

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Results

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linear regression. DOT variation over time was plotted for each hospital. We included 7 adult hospitals (50

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The participating hospitals agreed to provide antimicrobial utilization data in defined daily dose (DDD) and days of therapy (DOT) format & were asked to submit data from January 2012 through November 2013. To analyze impact, we compared pre- and post-intervention periods; the pre-intervention period was considered January 2012 through March 2013, and the post-intervention period was April 2013 through November 2013. Eight adult hospitals submitted data, but only 7 reported both pre- and post-intervention data**: two small hospitals (< 50 beds), three medium hospitals (50-199 beds), and two large hospitals (> 200 beds). We modeled DDD and DOT percent IV usage (among drugs with IV-PD conversion potential) using General Estimating Equations (GEE); we modeled DDD with Poisson regression and percent IV usage with weighted (by patient days) linear regression. DDD variation over time was plotted for each hospital. We included 7 adult hospitals (ǂ) that provided adequate pre- and post-intervention data in the analysis below. While the children's hospitals did submit data(3), they were not included in this analysis.

**Prior to formal implementation of stewardship activities (Learning Session #2, March 15, 2013), the collaborative hospitals were prescribing on average 611 DDD/1000 patient days (PD). In the post-intervention period, hospitals were prescribing on average 601 DDD/1000 PD (overall difference not significant). When modeling DDD/1000 PD over time, the post-intervention trend showed a significant decrease compared to the pre-intervention trend (p=0.01), with an 11% decrease in DDD during the post-intervention follow-up period (p=0.02, Figure 1). We saw significant decreases in use of broad-spectrum Gram negative agents** (Figure 2). We found an increase in the percent of IV antimicrobial use among agents with IV-to-PO conversion potential (Figure 3). With respect to DOT, we describe a decrease in center-to-center variability (Figure 4).

** ratepem, aztreonam, cefepime, cefazolin, ceftriaxone, imipenem, meropenem, moxifloxacin, piperacillin/tazobactam

**IV increases Post Implementation Trend (p<0.01)**

Conclusions

• In the context of a statewide ASP collaborative, we saw decreasing trends in antimicrobial prescribing when comparing post-intervention DDD trends to pre-intervention trends, specifically a decrease in broad-spectrum Gram negative agents.
• After an initial increase in IV to PO conversion, we observed loss of these initial gains, perhaps a consequence of diminished focus on this measure as Collaborative participants either took on additional stewardship aims or fatigued.
• Over time, we observed less center-to-center DOT variability, suggesting increased uniformity in prescribing patterns, perhaps related to the Learning Sessions or other information-sharing Collaborative activities.
• In sum, we demonstrated the feasibility of a statewide ASP collaborative. Initial post-intervention data was largely favorable. In the future, it would be advantageous to assess durability of interventions, along with provision of sustaining support for stewardship.

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ID Week. Philadelphia, PA. October 2014

Background

We implemented the Oregon Antimicrobial Stewardship Collaborative (OASC) as a statewide model to develop and support antimicrobial stewardship programs (ASP) for hospitals.

Methods

Thirteen hospitals* committed to participate in OASC, receiving educational and program support for ASP creation or expansion. The Collaborative components included three Learning Sessions, monthly conference calls and webinars, Infectious Diseases consultant Q&A calls ("Drug and Bug" calls), two site visits, and access to the OASC website materials (Table 1). The collaborative officially launched (i.e., hospitals began implementing their new or enhanced stewardship programs) after the second Learning Session on March 8, 2013.

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*Collaborative Participants

Columbia Memorial Hospital

Cooper Children’s Hospital

Lake District Hospital

Mid-Columbia Medical Center

Rogue Regional Medical Center

Sacred Heart Medical Center

Salem Hospital

Salmon Creek Medical Center

Samaritan Albany Hospital

Samaritan North Lincoln Hospital

Sky Lakes Medical Center

Willamette Valley Medical Center

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