The Impact of Provider Accessibility and Usability of Antibiotic Stewardship Guidelines

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Problem Definition

- Antimicrobial stewardship is an important and necessary aspect of quality improvement that, when implemented well, can reduce costs and prevent both short- and long-term adverse patient outcomes.
- Our institution has several measures in place to encourage antimicrobial stewardship, including an informative website for providers and specialized pharmacy staff who review antibiotic orders for appropriateness.
- We identified a prescriber knowledge gap in terms of appropriate selection of initial antibiotics, duration of therapy, and time to transition to oral therapy, likely due in part to lack of usability and accessibility of our institution's guideline website.
- Data from the web industry suggests that digital platform usability and aesthetics directly influence frequency and efficacy of use.

Aims for Improvement

- We worked with the antimicrobial stewardship team on the roll-out of a new digital platform encompassing antibiotic prescribing guidelines and institutional antibiograms with user-friendly features such as mobile accessibility and clear selection menus.
- Our goal was to increase provider awareness and use of institutional guidelines by at least 25% with the ultimate hope of improving antimicrobial stewardship (measured by frequency of broad-spectrum antibiotic ordering) for the hospital within the calendar year.

Intervention & Methods

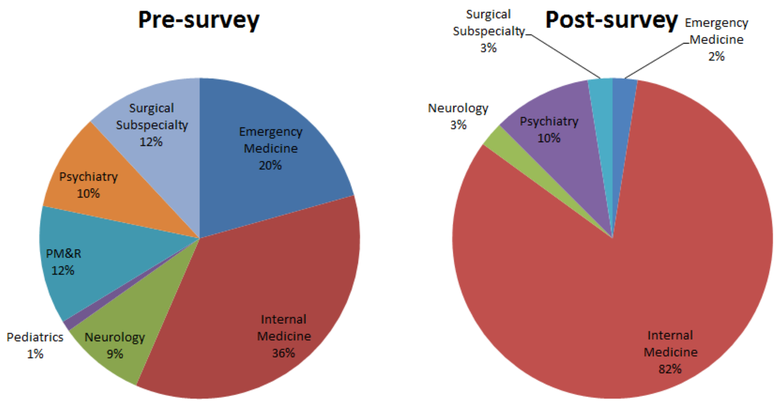
- A baseline survey was performed in RedCAP to assess providers' impressions and usage patterns of the current guidelines website.
- Pre-intervention responses were collected from physicians and advanced practice providers who prescribe antibiotics in the inpatient and Emergency Department settings.
- The new antimicrobial stewardship digital platform, available on Confluence, was publicized through informational cards with guidance on accessing the guidelines.
- Prescribers completed a post-intervention survey to assess views of the new platform and predicted impact on antibiotic prescribing patterns.

Measurements & Results to Date

**Due to the COVID-19 pandemic, data acquisition and analysis regarding objective measures of antibiotic ordering before and after our intervention are currently on hold*

- A total of 14 departments at TJUH were emailed for participation; 92 providers participated in the pre-survey (87 residents, 1 fellow, 4 attendings), and 40 providers participated in the post-survey (36 residents, 1 fellow, 1 NP, 2 attendings).

Chart 1: Pre and post survey respondents by specialty



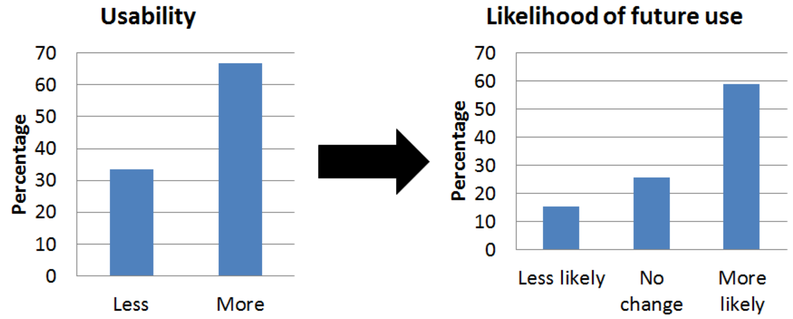
- A majority (67%) of respondents noted that the new platform was more usable. Overall, 59.0% of respondents endorsed higher likelihood of use, while 25.6% stated frequency of use would not change, and only 15.4% were less likely to use the new platform.

Table 1: How often do you utilize antibiotic stewardship guidelines when ordering antibiotics?

	Prior use of guidelines	Anticipated use of guidelines	p-value (Fisher's exact test)
Never	22 (23.9%)	5 (12.5%)	0.1635
Some of the time	53 (57.6%)	20 (50.0%)	0.4507
Most of the time	14 (15.2%)	10 (25.0%)	0.2207
Every time	2 (2.2%)	4 (10.0%)	0.0683
No answer	1 (1.1)%	1 (2.5%)	

Measurements & Results to Date

Chart 2: Impact of end-user's perceived usability of antimicrobial stewardship platform and self-predicted effects on future use.



Next Steps & Lessons Learned

- Among a provider population representative of all major subspecialities, antibiotic ordering and adjustment is a frequent occurrence, with approximately 85% of respondents ordering antibiotics on at least a weekly basis (data not shown).
- The vast majority of surveyed providers acknowledged awareness of a long-standing website previously used for antibiotic guidelines, and many note that a new platform with multiple access options including mobile log-in is expected to increase usability.
- Although there was no statistical significance between the groups, a trend towards increased utilization of the guidelines was noted when comparing respondents' prior and anticipated use. This lack of statistical significance is likely due to under-power as low response rates of the post-intervention survey were seen at time of this abstract.
- Future research can be done to observe how objective data has changed with increased visibility and accessibility of antibiotic guidelines: this ranges from whether click rates have improved with the new platform to comparing the percentage of the time prescribing practices are compliant with institutional guidelines before and after implementation of the new platform.