

# Increased Efficiency and Impact of Implementing ILÚM Insight In an Antimicrobial Stewardship Program (ASP) at an Academic Medical Center

Ryan K. Shields<sup>1</sup>, Rachel V. Marini<sup>1</sup>, Sunish Shah<sup>1</sup>, Bonnie Falcione<sup>1</sup>, Brian Potoski<sup>1</sup>, Leanna Liu<sup>1</sup>, Eli Goshorn<sup>1</sup>, Lloyd Clarke<sup>1</sup>, Alex Viehman<sup>1</sup>, Christiane Hadi<sup>1</sup>, EJ Kwak<sup>1</sup>, Palash Samanta<sup>1</sup>, Tina Khadem<sup>1,2</sup>, J. Ryan Bariola<sup>1,2</sup>, Caley Yakemowicz<sup>2</sup>, Courtney Simonick<sup>2</sup>, Riaan Erwee<sup>2</sup>, Erin K. McCreary<sup>1,2</sup>, Rima Abdel-Massih<sup>2</sup>, M. Hong Nguyen<sup>1</sup>

1. Antibiotic Management Program, UPMC Presbyterian Hospital, Pittsburgh, PA  
2. Infectious Disease Connect, Inc., Pittsburgh, PA



## Conclusions

- ILÚM Insight improves the efficiency of daily ASP workflow
- Implementation of the software significantly decreased antimicrobial utilization without increasing the number of ASP team members

## Background

- Antimicrobial stewardship programs (ASP) are mandatory for all hospitals
- AS Programs require extensive resources with multidisciplinary collaboration
- The study examined the potential efficiency and effectiveness of ASP improvements during the implementation of real-time clinical decision support software (CDSS) at UPMC Presbyterian Hospital, in Pittsburgh, PA
- Prior to this implementation, the facility relied on both prior authorizations (since 2002) and focused audits with feedback (since 2015) as ASP mechanisms
- The new CDSS selected was ILÚM Insight® because the platform provided real-time notifications, organized communications, and patient- and provider-level data tracking
- The study evaluated the hypothesis that ILÚM Insight would increase efficiency of ASP workflows and decrease antimicrobial utilization

## Methods

- The hypothesis was tested by analyzing data from a comparable 6-month time frame: 8/2020 – 1/2021 vs. 8/2021 – 1/2022 – during which time no significant staffing changes occurred
- During implementation, notifications within ILÚM Insight were tailored to local practices, incorporating alerts targeting intervention directives for positive blood cultures, antibiotic de-escalation and bug-drug mismatches
- During CDSS implementation new notifications were added for restricted antimicrobials, antibiotic timeouts, and MRSA screenings
- ASP pharmacists received CDSS training in July
- ASP physicians received CDSS training in November



## Results

- More than 5,500 notifications across nine different ASP intervention types were recorded once Insight was implemented (Figure 1)
- The number of interventions made by the ASP increased while missed opportunities decreased (Figure 2)
- ASP communications rose from 205 to 1,200 per month (Figure 2)
- Antimicrobial days of therapy (DOT) per 1,000 patient days (PD) decreased by 14.5% from a median of 969 to 846 per month (Figure 3; P=0.002)

- Antimicrobial expenditures decreased by a median 21% per month during the post-intervention period compared to baseline
- 30-day re-admissions decreased from 330 to 262 incidents among patients prescribed antimicrobials during an indexed admission (Figure 4)
- Re-admissions associated with re-ordering of antimicrobials decreased from 235 to 182 encounters among patients prescribed antimicrobials during an indexed admission (Figure 4)

Figure 1. Categories of ILÚM Insight notifications for ASP task-specific interventions

Total Number of Notifications by Type (n=5,729)

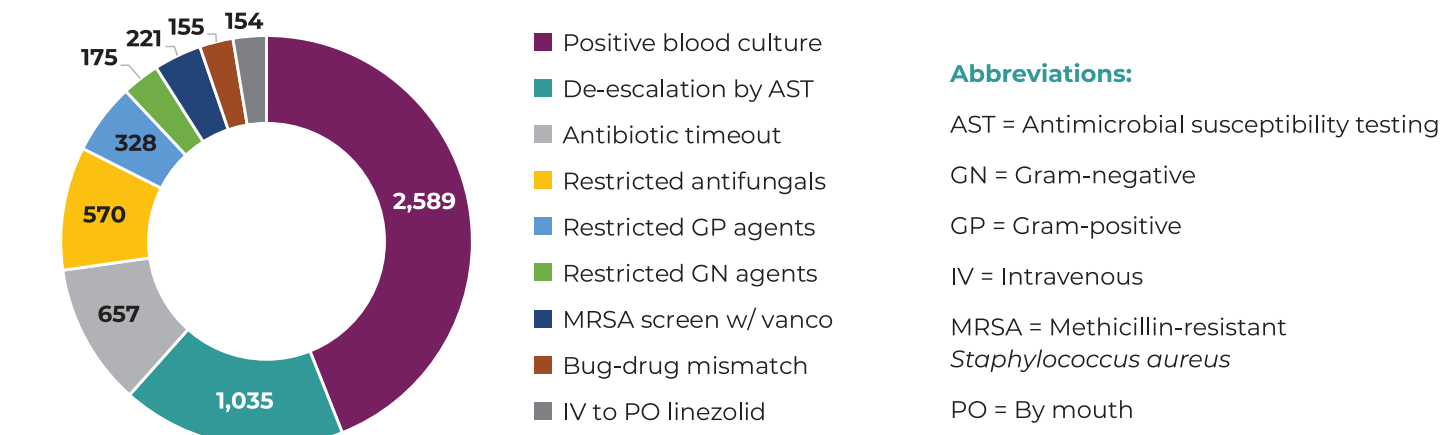


Figure 3. Total antimicrobial consumption pre- and post-implementation of ILÚM Insight

Pre and Post Intervention Antimicrobial DOT/1,000 PD

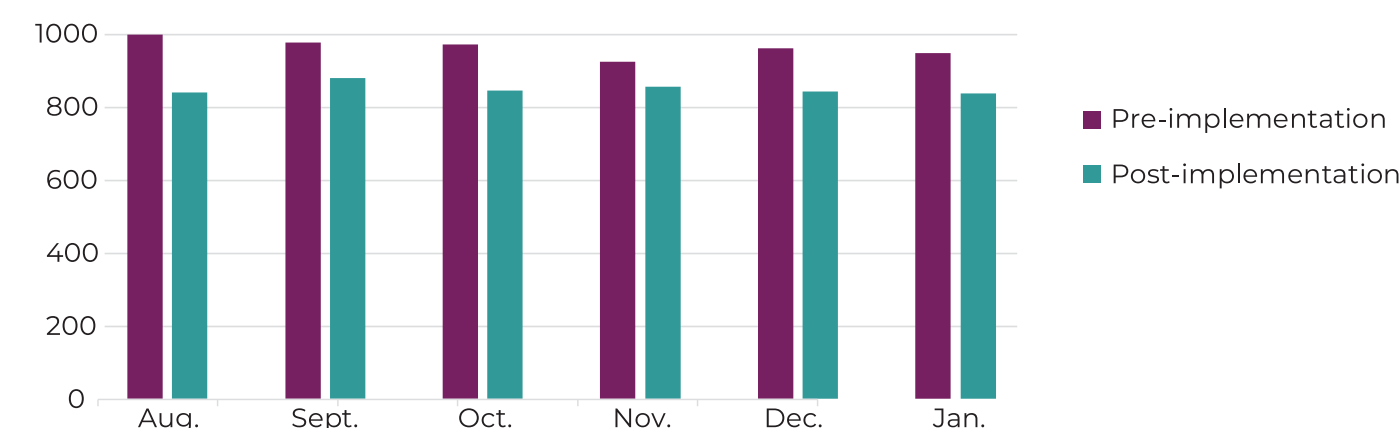


Figure 2. Documentation of successful interventions and potentially missed opportunities identified by ILÚM Insight over time.

ILÚM Insight Stewardship Interventions

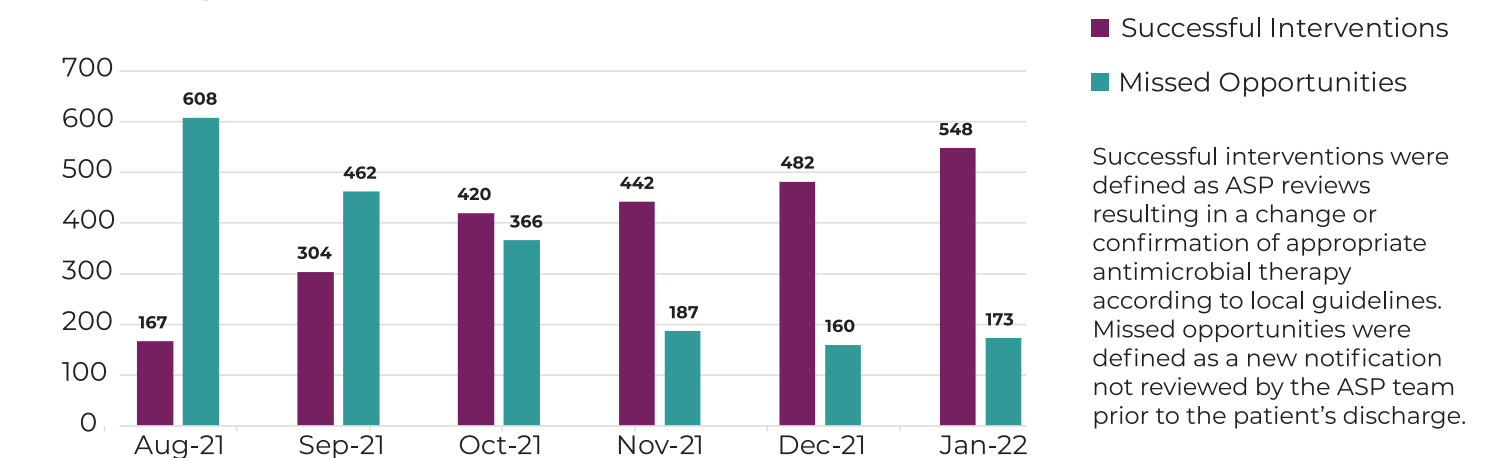


Figure 4. Total number of 30-day readmissions with or without antimicrobial orders among patients initially prescribed antimicrobial therapy during an indexed admission

