

Communication is Key: A Multifaceted Approach to Improving Essential ASP Metrics in Surgical Services



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BACKGROUND

- Despite widespread antimicrobial resistance, suboptimal antimicrobial use is common, particularly among surgical services
- Antimicrobial stewardship programs (ASPs) effectively improve antimicrobial use, decrease adverse events, improve patient outcomes, and reduce rates of antimicrobial resistance
- Antimicrobial stewardship guidelines describe several ASP strategies but do not address surgical services specifically
- Surgical services have different workflows than other services, and some perceive ASPs negatively
- Overall, evidence for optimal ASP intervention in surgical departments is lacking

OBJECTIVE

To evaluate the effect of several collaborative ASP interventions and workflow changes on the non-acceptance rate (NAR) of ASP recommendations and antimicrobial use among surgical services

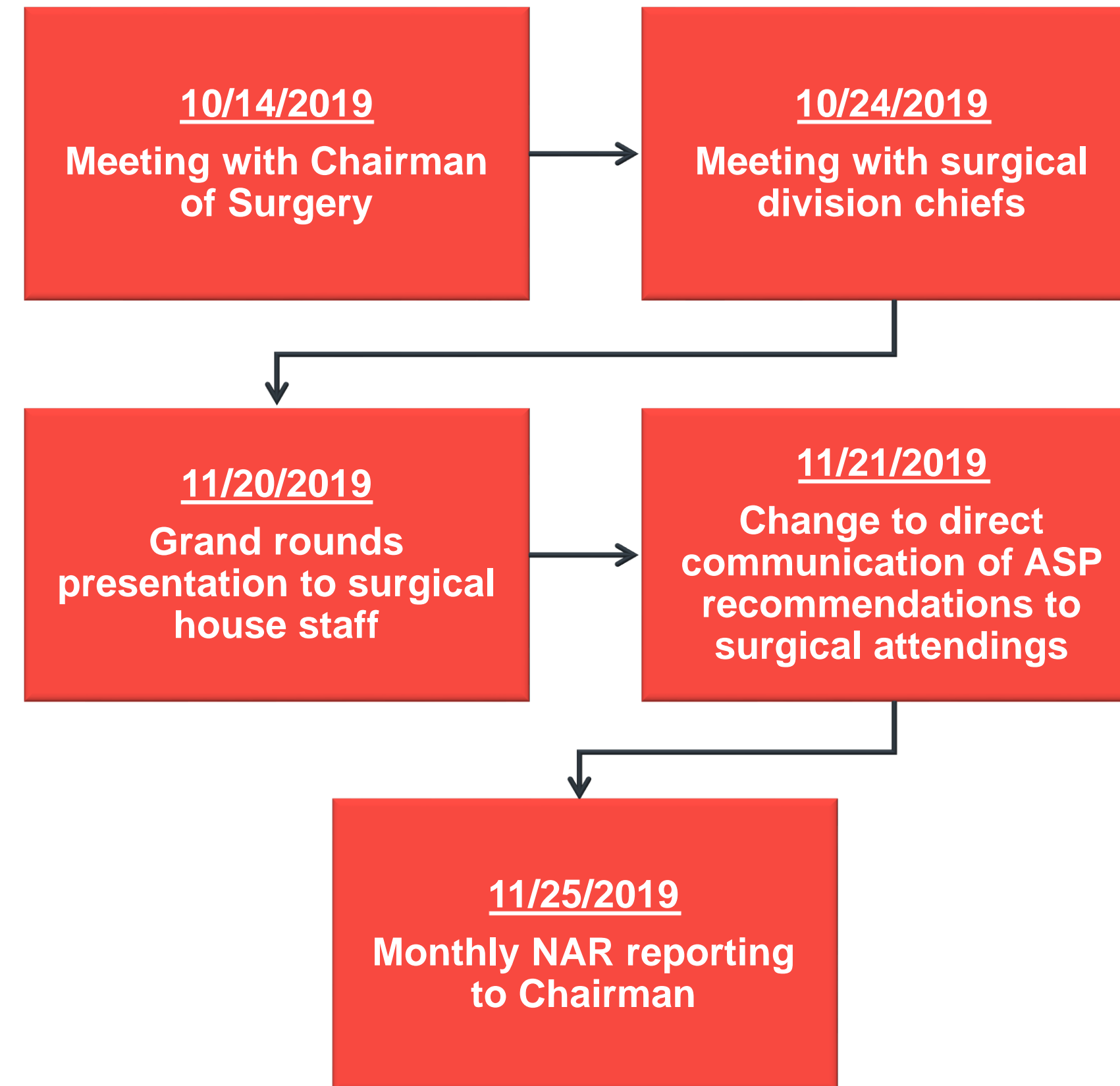
METHODS

- Design:** Retrospective, pre-post study of services in the department of surgery at a 798-bed, four-campus health-system between 12/01/2018 and 09/30/2020
- Orthopedic, pediatric, and Clear Lake Campus surgical services were excluded
- From 10/2019 – 11/2019, the core ASP team performed several interventions:
 - Meetings with Chairman of the Department of Surgery
 - Meetings with Vice-Chairs and Division Chiefs
 - Grand rounds presentation to surgical house staff
 - Monthly attending surgeon NAR reporting to Chairman
- Workflow change:** Per feedback from surgeons, ASP communicated recommendations directly to attending surgeons instead of to residents or via ASP notes
- The core ASP team consisted of two infectious diseases physicians and two infectious diseases pharmacists

METHODS (cont.)

- Pre-period:** 12/2018 – 9/2019
- Post-period:** 12/2019 – 9/2020
- Statistics:** Mann-Whitney U, chi-square, and Fisher's exact tests were used to compare outcomes as appropriate with GraphPad Prism 8 software

INTERVENTION



RESULTS

Table 1. Primary Outcome

	Pre-Period (n=353)	Post-Period (n=326)	p-value
Non-acceptance rate (NAR)	43%	27%	<0.01

RESULTS (cont.)

Table 2. Secondary Outcomes

Per 1000 patient days	Pre-Period	Post-Period	p-value
Overall DOT	1105	1073	0.53
BSHA agents	302	311	-
BSCA agents	112	131	-
NSBL agents	173	189	-
MRSA agents	172	141	-
Fungal agents	89	80	-
Drug cost	\$27,677.91	\$23,672.48	0.19

BSHA: broad spectrum hospital-acquired; BSCA: broad spectrum community acquired; DOT: days of therapy; NSBL: narrow-spectrum beta-lactam; MRSA: methicillin-resistant *Staphylococcus aureus*

Table 3. Change in NAR by Individual Surgical Service

Surgical Service	Pre-period		Post-period		p-value
	NAR	# Rec	NAR	# Rec	
Burns	22%	27	20%	11	1.00
Cardiothoracic	31%	38	3%	33	<0.01
Neurosurgery	12%	17	33%	12	0.20
OMFS	18%	11	17%	18	1.00
Plastics	28%	32	16%	37	0.26
General	40%	25	14%	36	0.03
Trauma	63%	166	41%	132	<0.01
Transplant	0%	8	23%	16	0.26
Urology	25%	5	31%	10	1.00
Vascular	29%	18	29%	18	1.00

Rec: Number of stewardship recommendations; NAR: non-acceptance rate; OMFS: oral and maxillofacial surgery

LIMITATIONS

- Retrospective design limits conclusions of causality
- Unable to collect reasons for non-acceptance of recommendations for this study
- ASP recommendations are made at least 48-72 hours after antimicrobial therapy initiation, which may not capture all inappropriate antimicrobial use
- The COVID-19 pandemic may have affected the post-period due to the following:
 - Fewer patient days due to fewer surgical procedures per state mandates
 - Higher antimicrobial use among SARS-CoV-2 positive patients, including surgical patients
 - Diversion of ASP resources from surgical services to hospital pandemic preparations and management
- Low numbers of recommendations limit assessment of the intervention's effectiveness in some services

CONCLUSION

- A communicative and adaptive approach to stewardship in surgical services improved NAR of ASP recommendations
- DOT and drug cost did not decrease significantly post-intervention implementation; however, the COVID-19 pandemic increased antimicrobial use and decreased patient days among surgical services at our institution, potentially affecting both of these outcomes
- Surgical services operate differently than medical services, and a personalized approach by ASPs can improve communication and interprofessional relationships and can open the door to collaboration on future projects

DISCLOSURES

The authors of the presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

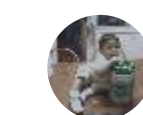
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