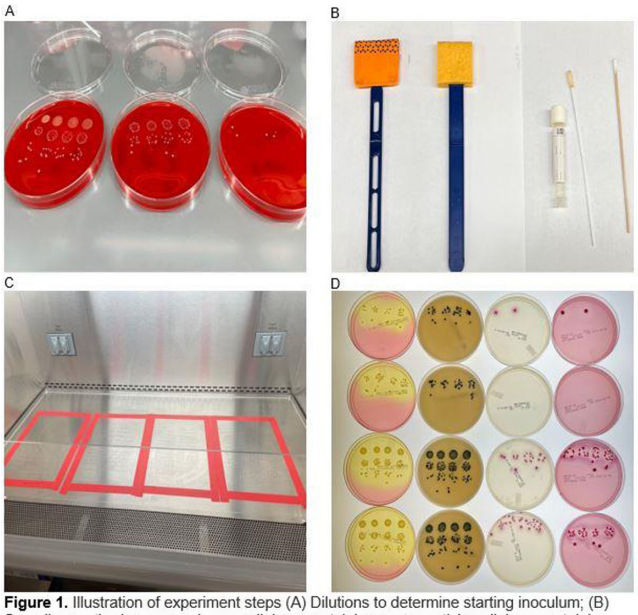
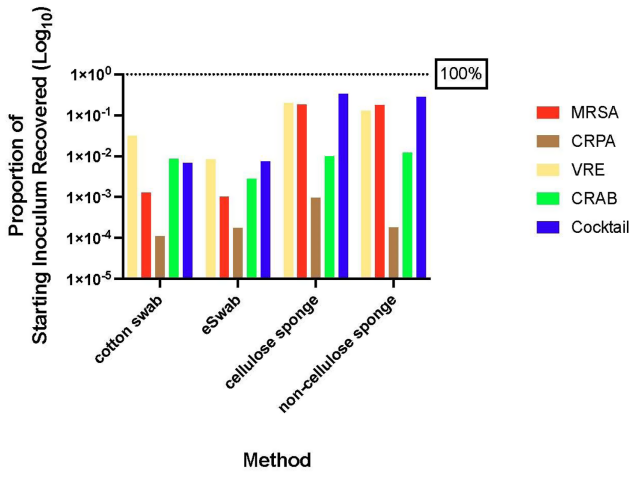


Figure 1. Illustration of experiment steps (A) Dilutions to determine starting inoculum; (B) Sampling methods assessed: non-cellulose containing sponge-stick, cellulose containing sponge-stick, e-swab, cotton swab (C) Stainless steel surfaces to which bacterial suspension was applied (D) Colonies from four different swab methods (from top to bottom cotton swab, e-swab, cellulose containing sponge-stick and non-cellulose containing sponge-stick) on different selective agars (from left to right): ESBL selective agar, MacConkey agar, VRE selective agar, MRSA selective agar.

MDRO species	Collection Method							
	Cotton swab		E-swab		Cellulose containing sponge-stick		Non-cellulose containing sponge-stick	
	CFU/inch^2	Percent recovery	CFU/inch^2	Percent recovery	CFU/inch^2	Percent recovery	CFU/inch^2	Percent recovery
VRE	2.42×10^{1}	3.20%	6.31	0.83%	9.86×10^{1}	19.94%	9.83×10^{1}	12.90%
MRSA	2.67×10^{-1}	0.13%	2.08×10^{-1}	0.10%	2.22×10^{2}	18.36%	2.15×10^{2}	17.80%
CRPA	3.19×10^{1}	0.01%	5.21×10^{-1}	0.02%	1.02	0.10%	1.88×10^{-1}	0.02%
CRAB	1.04	0.85%	3.39×10^{-1}	0.28%	1.39×10^{1}	1.00%	1.70×10^{1}	1.23%
MRSA/VRE/ESBL cocktail	3.73×10^{1}	0.68%	4.14×10^{1}	0.75%	1.84×10^{3}	33.26%	1.52×10^{3}	37.80%

Table 1. Recovery by inch^2 and percent recovery for different collection methods across MDRO taxa
Abbreviations: CRAB: carbapenem resistant *Acinetobacter baumannii*, CRPA: carbapenem resistant *Pseudomonas aeruginosa*, ESBL: extended spectrum B-lactamase producing Enterobacterales, MRSA: Methicillin resistant *Staphylococcus aureus*, VRE: vancomycin resistant *Enterococcus*.



highest for the sponge stick (CSS and NCS) compared to swab (cotton and E-swab) methods across all taxa (Table 1 and Fig. 2).

Conclusions: These findings support the preferential use of sponge sticks for the recovery of MDROs from the healthcare environment, despite the additional processing and equipment time needed for sponge sticks. Further studies are needed to assess the robustness of these findings in non-contrived specimens as well as the comparative effectiveness of different sampling methods for non–culture-based MDRO detection.

Disclosure: None

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S2):s16–s17
doi:10.1017/ash.2023.232

Presentation Type:
Poster Presentation - Top Poster Award
Subject Category: SSI

The effectiveness of the appropriate prophylactic antibiotic use program for surgery

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Background: Evaluation of the adequacy of prophylactic antibiotics in surgery has been implemented as a national policy in Korea since August 2007, and the appropriate use of prophylactic antibiotics has improved. However, antibiotic prescriptions that are not recommended or discontinuation of prophylactic antibiotic administration within 24 hours after surgery are still not well done. This study introduced a program to improve the adequacy of prophylactic antibiotics for surgery and analyzed its effects. **Methods:** We retrospectively analyzed the effectiveness of the appropriate prophylactic antibiotic use program for surgery conducted at a university hospital in Seoul. The participants were patients aged ≥18 years who underwent any of 18 types of surgery. The program started was implemented in June 2020. First, a computer system was used to confirm the antibiotic prescription recommended for each surgery. It also assessed whether the number of days of administration was exceeded,

Table 1. Analysis of the effectiveness of the appropriate prophylactic antibiotic use program for surgery

Variables	Total (N=1339)	Before program (N=695)	After program (N=644)	*P* value
Sex, female	730 (54.5)	378 (54.4)	352 (54.7)	0.96
Age, mean±SD	59.0±16.2	58.5±15.6	59.5±16.8	0.23
Surgery				<0.001
Vascular surgery	370 (27.6)	236 (34.0)	134 (20.8)	
Laminectomy	217 (16.2)	93 (13.4)	124 (19.3)	
Breast surgery	114 (8.5)	54 (7.8)	60 (9.3)	
Cesarean section	78 (5.8)	42 (6.0)	36 (5.6)	
Gallbladder surgery	77 (5.8)	34 (4.9)	43 (6.7)	
Hip prosthesis	62 (4.6)	24 (3.5)	38 (5.9)	
Shoulder surgery	57 (4.3)	23 (4.9)	23 (3.6)	
Open reduction of fracture	55 (4.1)	17 (2.4)	38 (5.9)	
Appendix surgery	48 (3.6)	26 (3.7)	22 (3.4)	
Herniorrhaphy	46 (3.4)	25 (3.6)	21 (3.3)	
Knee prothesis	45 (3.4)	15 (2.2)	30 (4.7)	
Lobectomy	44 (3.3)	23 (3.3)	21 (3.3)	
Colon surgery	31 (2.3)	18 (2.6)	13 (2.0)	
Prostate surgery	27 (2.0)	13 (1.9)	14 (2.2)	
Hysterectomy	25 (1.9)	18 (2.6)	7 (1.1)	
Thyroid and/or parathyroid surgery	19 (1.4)	11 (1.6)	8 (1.2)	
Craniotomy	14 (1.0)	7 (1.0)	7 (1.1)	
Pacemaker surgery	10 (0.7)	5 (0.7)	5 (0.8)	
Inappropriate antibiotic prophylaxis				
Third generation cephalosporins	29 (2.2)	22 (4.2)	0	<0.001
Fluoroquinolone	13 (1.0)	12 (1.7)	1 (0.2)	0.004
Beta-lactam/Beta-lactamase inhibitor	3 (0.2)	3 (0.4)	0	0.25
Combination of prophylactic antibiotics	64 (4.8)	57 (8.2)	7 (1.1)	<0.001
Hospital day, mean±SD	6.8±4.9	7.0±5.1	6.9±4.7	0.15
Duration of operation(hour), mean±SD	1.63±1.27	1.70±1.32	1.54±1.20	0.02
Duration of antibiotics(day), mean±SD	1.5±2.2	2.4±2.8	0.6±0.6	<0.001
Administration within 1 hour prior to incision	1288 (96.2)	647 (93.1)	641 (99.5)	<0.001
Appropriate antibiotic choice	1230 (91.9)	591 (85.0)	639 (99.2)	<0.001
Appropriate discontinuation of antibiotics	992 (74.1)	360 (51.8)	632 (98.3)	<0.001
Prescription of antibiotics at discharge	149 (11.1)	144 (20.7)	5 (0.8)	<0.001

whether antibiotics were prescribed in combination, and whether antibiotics prescribed for discharge medicine were checked in 4 steps. A pop-up window appeared in each patient record to enter the reason for the prescription. If the reason was appropriate, the prescription was allowed, but if not, the prescription was restricted. In addition, infectious diseases physicians and an insurance review team visited each department to conduct an education session. To analyze the effect 3 months before activity (January–March 2020) and 3 months after activity (October–December 2020), we compared the first antibiotic administration rate within 1 hour prior to skin incision, the recommended prophylactic antibiotic administration rate, and surgery type. The rate of discontinuation of prophylactic antibiotics within 24 hours after administration and the rate of prescription of prophylactic antibiotics at discharge were compared. **Results:** In total, 1,339 surgeries during the study period were included in the analysis. There were 695 cases before the introduction of the program and 644 cases after the introduction. The rate of first antibiotic use within 1 hour prior to skin incision was 93.1%–99.5% ($P < .001$), the rate of recommended prophylactic antibiotic administration was 85.0%–99.2% ($P < .001$), and the rate of discontinuation of antibiotic administration within 24 hours after surgery improved from 51.8% to 98.3% ($P < .001$), respectively. The prescription rate of antibiotics at discharge improved from 20.7% to 0.8% ($P < .001$) (Table 1). **Conclusions:** A computerized program to improve the adequacy of prophylactic antibiotic use in surgery combined with education of medical staff was very effective.

Disclosure: None

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S2):s17–s18
doi:10.1017/ash.2023.233

Presentation Type:
Poster Presentation - Top Poster Award
Subject Category: Surveillance/Public Health

Modeling the impacts of influenza antiviral prophylaxis strategies in nursing homes

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Background: Antiviral chemoprophylaxis for influenza is recommended in nursing homes to prevent transmission and severe disease among residents with higher risk of severe influenza complications. Interim CDC guidance recommends that long-term care facilities initiate antiviral chemoprophylaxis with oral oseltamivir for all non-ill residents living in the same unit following the start of an outbreak in a facility (ie, ≥2 patients ill within 72 hours and of whom at least 1 resident has laboratory-confirmed influenza). Prophylaxis continues for a minimum of 2 weeks and for at least 7 days after the last laboratory-confirmed case. However, facilities may not strictly adhere to this guidance, with 1 study showing up to 68% of facilities were nonadherent to national guidance (Silva et al 2020). Here, we model the potential impacts of different antiviral prophylaxis strategies. **Methods:** We developed a susceptible–exposed–asymptomatic–infected–recovered (SEAIR) compartmental model of an average-sized nursing home comprising short-stay residents, long-stay residents, and healthcare personnel (HCP). Persons treated with antiviral chemoprophylaxis were less susceptible to infection, had a lower probability of symptoms if infected, a reduced viral load, and a shortened duration of infectiousness. We included influenza vaccination for residents and