Knowledge and Perspectives of Antimicrobial Stewardship: A Survey of Inpatient and Outpatient Providers

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Background
- There is increasing knowledge of antimicrobial stewardship (AS) among inpatient (IP) healthcare providers (HCP), but this is less clear for the outpatient (OP) setting.
- Recent studies suggest 30% of antibiotics (Abx) prescribed in the OP are unnecessary and should be a focus of future AS efforts.
- We surveyed HCP within our healthcare system on AS to compare the practices and perspectives between IP and OP providers.

Setting and Methods
- Rochester General Hospital (RGH) is a 528-bed acute care community teaching hospital in Rochester, NY, with residency and training programs in internal medicine, obstetrics and gynecology, pediatrics, and pharmacy.
- The Greater Rochester Independent Practice Association (GRIPA) is a physician-led partnership between RGH, other local hospitals, and OP physicians, advanced practice providers and pharmacists in western NY and the Finger Lakes area. Both IP and OP HCP receive emails distributed from GRIPA.
- In February 2017, an 11-item electronic survey was distributed via email to 1725 GRIPA providers. A second request for participation was emailed one month later.

Fisher’s exact test and Chi-square were used to assess for differences between the IP and OP responses.

Results*

Q1: What is your profession? 154 (225)
Total 154
Attending physician 61 (40) 167 (74)
Physician-in-training 40 (26) 0 (0)
Advanced Practice Provider 46 (30) 56 (25)
Pharmacist 7 (5) 21 (11)

Q2: What is the scope of your practice? 77 (50) 57 (25)
Internal Medicine 2 (1) 32 (14)
Internal Medicine Subspecialty 24 (16) 45 (20)
Internal Medicine/Pediatrics 3 (2) 5 (2)
Pediatrics 8 (5) 34 (15)
Surgery/OBSTetrics-Gynecology 40 (26) 51 (23)

Q3: Where do you see patients? 82 (53)
Inpatient 82 (53)
Outpatient 148 (66)
Both, more IN than OUT 72 (47)
Both, more OUT than IN 77 (34)

Q4: How often do you prescribe an antibiotic? 106 (26)
Daily or more than once daily 12 (8)
1-2 times per week 69 (45)
Twice a month 84 (37)
Less than twice a month 98 (64)

IP responses, n (%) OP responses, n (%)

Q5: What are the 3 most common reasons you prescribe an antibiotic? 108 (70)
Urinary Tract Infection 105 (68) 133 (59)
Pneumonia 98 (64) 109 (48)
Cellulitis 71 (46) 90 (40)

**Significantly more IP ranked "Pharmacist" (48% vs 15%, p<0.01)

Q6: What are your 3 Most common resources for making antibiotic decisions? 126 (82)
Uptodate 115 (75) 160 (71)
Medical journals, textbooks 38 (22) 38 (22)
Local antibiogram 85 (53) 85 (53)

**Significantly more IP ranked "Local antibiogram" (56% vs 38%, p=0.03)

Q7: Percentage of respondents who agree antibiotics are indicated for the following conditions. 98 (44)
Common Cold 0% 0%
Acute otitis media 0% 0%
Acute bronchitis 0% 0%
Pharyngitis 0% 0%
Pneumonia 0% 0%
Urinary Tract Infection 0% 0%

IP responses, n (%) OP responses, n (%)

Q8: Percentage of respondents who reported performing the following: 106 (26)
P0.001
Prescribed an Abx for patient satisfaction 98 (44)
Prescribed an Abx when not sure of a bacterial infection 98 (44)
Used delayed prescribing when not sure if antibiotics are needed 108 (70)

OP responses, n (%) IP responses, n (%) P-value

Q10: How did you hear about antibiotic stewardship? 106 (26) 98 (44) 0.011
Colleagues 106 (26) 98 (44) 0.011
Conferences or meetings 69 (45) 84 (37) 0.112
Medical journals 40 (26) 98 (44) 0.85
Other 41 (27) 54 (24) 0.72
I have not heard of stewardship 11 (7) 28 (12) 0.68

Q11: Please select the AS resources to which you have access. 126 (82) 149 (66) 0.17
Institutional or practice guidelines for specific infections (i.e. pneumonia) 126 (82) 149 (66) 0.17
Local antibiogram 108 (70) 104 (46) 0.015
A physician or pharmacist with designated time for stewardship 108 (70) 47 (21) 0.015
Regular feedback on antibiotic prescribing practices 58 (38) 26 (12) .0001
Other 10 (6) 17 (7) .8
I do not have access to resources 12 (8) 47 (21) .0036

Discussion
- Antibiotics are prescribed frequently in both the IP and OP settings: either daily or more than once daily by the majority of respondents in both groups.
- Upper respiratory infections are a major reason for inappropriate antibiotic prescribing among OP HCP.
- There is a potential role for a pharmacist as an AS resource in the OP setting.
- Patient satisfaction may be a greater influence on antibiotic prescribing for OP rather than IP HCP.
- IP HCP are more likely to prescribe antibiotics when unsure of a bacterial infection, whereas OP HCP more often use delayed prescribing.
- While OP HCPs acknowledge the problems of antibiotic overuse and report that AS is something they can do, OP HCP are less likely to agree that AS is a priority for their medical group, and report less access to AS resources such as antibiograms, antibiotic prescribing feedback, or access to a provider designated to AS.
- Increased knowledge of treatment guidelines and access to pharmacy and antibiograms may alleviate this discordance between the understanding and application of stewardship in the OP setting.