Supplemental Material 1. Survey questionnaire administered to leaders in antibiotic stewardship.

1. What is your age (<30, 30-34, 35-39, 40-44, 45-49, 50-54, ≥ 55)?
2. What is your gender (Male, Female)?
3. What is your role (Physician, Pharmacist, Microbiologist, Nurse, Other)?
4. Do you have adult or pediatric training (Adult training only, Pediatric training only, Both adult and pediatric training)?
5. Do you have formal infectious diseases training (Yes, No)?
6. If you have formal infectious diseases training, how long has it been since you completed your training in infectious diseases (< 5 years, 5-9 years, 10-14 years, 15-19 years, 20-24 years, ≥ 25 years)?
7. What types of healthcare facilities does your stewardship program cover (Acute care hospital, Long-term care facility/Nursing home, Long-term acute care hospital, Other)?
8. What best describes your healthcare facility (Academic hospital/health system, Public hospital/health system, Private hospital/health system, Veterans Affairs Medical Center, Other)?
9. Does your stewardship program cover adults and/or children (Adults only, Children only, Both adults and children)?
10. In what state do you practice?
11. How does your stewardship team document interventions/recommendations (Interventions/recommendations are not documented; Third-party system; Via “sticky notes,” or documentation that can be seen by providers in the paper or EHR but is not a part of the permanent medical record or is removed prior to becoming part of the permanent medical record; Permanent medical record)?
12. If your team documents in a third-party system, estimate percentage of time interventions/recommendations are documented in a third-party system.
13. If your team documents in a third-party system, who documents in the third-party system (Physician, Pharmacist, Nurse, Other)?
14. If your team documents using “sticky notes,” estimate percentage of time interventions/recommendations are documented using “sticky notes.”
15. If your team documents using “sticky notes,” who documents via “sticky notes” (Physician, Pharmacist, Nurse, Other)?
16. If your team documents in the permanent medical record, estimate percentage of time interventions/recommendations are documented in the permanent medical record.
17. If your team documents in the permanent medical record, where in the medical record does the documentation occur (Progress notes section, Pharmacy-specific section of the chart, Other)?
18. If your team documents in the permanent medical record, who documents in the medical record (Physician, Pharmacist, Nurse, Other)?
19. Why does the stewardship team either not document or document in a location outside of the medical record (Convenience, No place to document in the permanent medical record, To avoid confrontation with prescribers, To protect the stewardship team from legal action, To protect the primary team/provider from legal action, Concern that the stewardship team member making recommendations is less qualified than the primary provider/team)?
20. Are there standard phrases or disclaimers used in the documentation within the permanent medical record or via “sticky notes” (Yes, No)?
21. If standard phrases or disclaimers are used, were these phrases or disclaimers created in collaboration with a legal advisor or legal team in your healthcare facility? (Yes, No, Don’t know)
22. How concerned are you about legal action against the stewardship team (Very concerned, Concerned, Minimal concern, Not concerned at all)?
23. If you felt like an intervention was warranted for a particular patient, rate your comfort level with documenting this recommendation in the medical record for the following patient types (Very comfortable, Comfortable, Neutral, Uncomfortable, Very uncomfortable)
    1. A pediatric patient
    2. An adult patient
    3. Patient with positive culture(s) (etiologic organism and susceptibility known)
    4. Patient with negative culture(s) (etiologic organism unknown or no bacterial infection present)
    5. Patient in the intensive care unit
    6. Patient on the floor
    7. Patient prescribed an antibiotic recommended by national guidelines for a given indication, but not recommended by your stewardship team or too broad based on culture results (e.g. IDSA guidelines recommend ertapenem as a choice for complicated intra-abdominal infection, but you feel that its use for this indication is too broad)
    8. Patient for whom the provider or team agrees with and follows your recommendation
    9. Patient for whom the provider or team initially disagrees with but ultimately follows your recommendation.
    10. Patient for whom the provider or team disagrees with and does not follow your recommendation.
    11. Patient for whom data is available and is reviewed by the stewardship team
    12. Patient for whom data is not available for review at the time recommendation is made and recommendation depends on conversation with provider or team
    13. Patient in which you are recommending escalation of antibiotic therapy (broader-spectrum antibiotics)
    14. Patient in which you are recommending de-escalation of antibiotic therapy (narrower-spectrum antibiotics)
    15. Patient in which you are recommending discontinuation of antibiotic therapy

Supplemental Material 2. Demographic characteristics of survey respondents from antibiotic stewardship programs (ASP).

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| --- | --- |
| **Characteristic** | **Percentage of respondents (n)** |
| Age  <30 years  30-39 years  40-49 years  50-59 years  ≥60 years | 2% (2)  27% (26)  35% (34)  21% (21)  15% (15) |
| Female | 52% (51) |
| United States region  Northeast  South  Midwest  West Canada | 32% (31)  26% (25)  24% (23)  14% (14)  5% (5) |
| Role  Physician  Pharmacist  Infection preventionist  Nurse  Other\* | 72% (72)  13% (13)  7% (7)  3% (3)  4% (4) |
| Training  Adult post-graduate only  Pediatric post-graduate only  Adult and pediatric post-graduate | 45% (44)  29% (28)  9% (9) |
| Infectious diseases training | 74% (73) |
| ASP with at least one member without infectious diseases training | 37% (36) |
| Type of facility(ies) covered by ASP  Acute care hospital  Outpatient facilities  Long-term care facility  Long-term acute-care facility  Other# | 90% (88)  30% (29)  7% (7)  5% (5)  3% (3) |
| Types of patient covered by ASP  Both adult and children  Children only  Adult only | 36% (35)  34% (33)  31% (30) |
| Remote antibiotic stewardship  Yes  No | 1% (12)  88% (86) |

\*Epidemiologist (n=2), president of healthcare company (n=1), researcher (n=1)

#Inpatient rehabilitation facility (n=2), cancer center (n=1)

Supplemental Material 3. Comfort of antibiotic stewardship program participants in documenting recommendations in the permanent medical record by clinical scenario.

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| **Situation**  **(total respondents)** | **Very Comfortable**  **% (n)** | **Comfortable**  **% (n)** | **Neutral**  **% (n)** | **Uncomfortable**  **% (n)** | **Very Uncomfortable**  **% (n)** |
| Neonatal or pediatric patient in facility with both adult and pediatrics (28) | 32.1% (9) | 32.1% (9) | 14.3% (4) | 14.3% (4) | 7.1% (2) |
| * Providers with pediatric training (10) | 60% (6) | 40% (4) | 0% (0) | 0% (0) | 0% (0) |
| * Providers with no pediatric training (18) | 16.7% (3) | 27.8% (5) | 22.2% (4) | 22.2% (4) | 11.1% (2) |
| Adult patient in facility with both adult and pediatrics (28) | 46.4% (13) | 35.7% (10) | 0% (0) | 10.7% (3) | 7.1% (2) |
| * Providers with adult training (22) | 59.1% (13) | 40.9% (9) | 0% (0) | 0% (0) | 0% (0) |
| * Providers with no adult training (6) | 16.7% (1) | 16.7% (1) | 0% (0) | 33.3% (2) | 33.3% (2) |
| Stable patient (78) | 35.9% (28) | 48.7% (38) | 11.5% (9) | 3.8% (3) | 0% (0) |
| Critically ill patient (78) | 17.9% (14) | 44.9% (35) | 24.4% (19) | 11.5% (9) | 1.3% (1) |
| Cultures pending but not finalized (78) | 16.7% (13) | 42.3% (33) | 30.8% (24) | 10.3% (8) | 0% (0) |
| Recommending escalation of therapy (78) | 41.0% (32) | 46.2% (36) | 9.0% (7) | 2.6% (2) | 1.3% (1) |
| Recommending de-escalation of therapy (78) | 25.6% (20) | 56.4% (44) | 14.1% (11) | 3.8% (3) | 0% (0) |
| Recommending discontinuation of therapy (78) | 21.8% (17) | 53.8% (42) | 19.2% (15) | 5.1% (4) | 0% (0) |
| Susceptibility of organism known (78) | 62.8% (49) | 25.6% (20) | 7.7% (6) | 3.8% (3) | 0% (0) |
| No causative organism identified (cultures negative) | 17.9% (14) | 43.6% (34) | 26.9% (21) | 11.5% (9) | 0% (0) |
| Team/prescriber agrees with recommendation (78) | 53.8% (42) | 28.2% (22) | 12.8% (10) | 3.8% (3) | 1.3% (1) |
| Team/prescriber initially disagrees with recommendation but then agrees after discussion (78) | 19.2% (15) | 53.8% (42) | 12.8% (10) | 12.8% (10) | 1.3% (1) |
| Team/prescriber disagrees with recommendation despite discussion (78) | 9.0% (7) | 25.6% (20) | 25.6% (20) | 30.8% (24) | 9.0% (7) |