Thank you for agreeing to participate in discussions on **Harnessing the Healthcare Network to Implement and Amplify Antibiotic Stewardship Services**. This work is led by The Pew Charitable Trusts and Intermountain Healthcare. The Centers for Disease Control and Prevention is also serving as an advisory organization for this work. Additionally, the following professional societies are participating as liaison organizations: the Infectious Diseases Society of America, the Society of Infectious Diseases Pharmacists, the Pediatric Infectious Diseases Society, and the Society for Healthcare Epidemiology of America.

The purpose of this questionnaire is to gather information about your healthcare network and any current or planned antibiotic stewardship efforts. **Responses will be used to inform virtual breakout discussions that will be scheduled in early 2021.** Additionally, aggregated responses will be included in a final publication in order to provide context on who participated in these discussions and to detail example approaches to antibiotic stewardship efforts implemented by healthcare networks. Your completion of the questionnaire serves as your consent for the lead organizations (Pew and Intermountain) to use your responses in these ways. Any changes to how this information may be used will be communicated to you for your review and approval.

Please note, **we will only collect one survey from each healthcare organization**. We encourage the respondent to complete this questionnaire in coordination with the co-leader of their healthcare network's stewardship program. Additionally, some questions, such as the number of different types of facilities within your healthcare network, may require you to obtain information from other teams within your healthcare network. You may need to review the questions first, gather additional information as needed, and return to complete the questionnaire. We have provided you with the full list of questions attached to the invitation email for you to review in advance of completing the survey.

As you complete the survey, you will have the option to use a "back button" at the bottom left of each question to go back to previously answered questions. You may exit the survey at any time and your responses will be automatically saved. Using your survey link, you may return at any time to continue from where you left off. At the end of the survey a link will appear in the top right to download a PDF of your responses. We anticipate this survey will take an estimated 25 minutes to complete.

If you have any questions about or need support completing the survey, please contact Rachel Zetts at rzetts@pewtrusts.org or Eddie Stenehjem at Eddie.Stenehjem@imail.org.

Section 1: Healthcare Network Characteristics

In this section, we are interested in gathering information on your healthcare network. For the purposes of this questionnaire, we consider a healthcare network to include facilities owned or operated by the same healthcare organization, facilities with shared administrative oversight by a larger organization, or facilities participating in a formalized antibiotic stewardship collaborative.

Q1. Please provide us with your information:

Name [text box]

Professional Title (e.g., medical director of antibiotic stewardship) [text box]
Clinical Specialty [text box]
Organization [dropdown of participating healthcare networks]

Q2. In which state(s) does your healthcare network operate? Please select all that apply. [multiple choice]

List of states

Q3. How many of each of the following types of facilities are in your network? Please enter "0" for any setting of care not in your healthcare network. If, after consultation within your healthcare network, you are unable to provide a specific number, please provide an estimated range. [text box after each answer option, limited to "short" numeric response]

- Large hospitals (>300 beds)
- Medium hospitals (101-300 beds)
- Small hospitals (26-100 beds)
- Rural/critical access hospitals (≤25 beds)
- Long-term acute care hospitals
- Ambulatory care facilities:
    o Primary care clinics (family medicine, internal medicine, pediatrics)
    o Urgent care facilities (walk-in clinics focused on delivery of ambulatory care in a dedicated medical facility outside of a traditional emergency department)
    o Ambulatory surgery centers
    o Outpatient specialty clinics, such as oncology or cardiology clinics
    o Dental clinics

Q4. Does your healthcare network offer outpatient direct-to-consumer telemedicine services? [single choice]

- Yes
- No

Q5. (if answered "Yes" to Q4) How long has your healthcare network offered outpatient direct-to-consumer telemedicine services? [single choice]

- Less than 1 year
- 1-3 years
- 4-6 years
- 7 years or longer

Q6. (if answered "Yes" to Q4) Did your healthcare network offer direct-to-consumer telemedicine services before the COVID-19 pandemic began?

- Yes
- No

Q7. (if answered "Yes" to Q4) Does your healthcare network currently plan to continue to offer direct-to-consumer telemedicine services after the COVID-19 pandemic ends?

- Yes
- No
- Unsure

Q8. Which electronic medical record system(s) will be used in your healthcare network in 2022, including both inpatient and outpatient healthcare facilities? Select all that apply. [Multiple choice – select multiple options]

- Cerner
- Epic
- Meditech
- AllScripts
- eClinicalWorks
- NextGen
- Athenahealth
- Other (please list)
- Some or all facilities do not have an electronic medical record system

Section 2: Antibiotic Stewardship Activities

In this section, we are interested in learning about whether there are any centrally coordinated antibiotic stewardship activities/resources that are conducted across multiple facilities within your healthcare network. For the purposes of this questionnaire, we define a centrally coordinated antibiotic stewardship program as:

"An antibiotic stewardship program spanning more than one facility within a healthcare network that features centralized resource support, such as strategic guidance and planning, IT support providing stewardship related data, ID/pharmacy expertise support, and/or other centralized functions to bolster stewardship efforts."

Q9. Does your healthcare network have a centrally coordinated antibiotic stewardship program that oversees activities in multiple healthcare facilities? [single choice]

- Yes
- No, but we **are** planning or considering implementing one in the future
- No, and we **do not** plan on implementing one in the future

Q10. (if answered "No, but we are planning or considering doing so in the future" or "No, and we do not plan on doing so in the future" to Q9): What barrier(s) does your healthcare network face in developing a centrally coordinated antibiotic stewardship program? Please select all that apply. [multiple choice]

- Gaining leadership support
- Obtaining adequate funding for personnel (including clinicians as well as data analytic support staff)
- Building out the necessary data/IT infrastructure
- Buy-in at the individual facility level for centralized stewardship activities
- Other (please describe)

Q11. (if answered "Yes" to Q9): How long has your healthcare network had a centrally coordinated antibiotic stewardship program? [text box]

- Less than 1 year
- 1-3 years
- 4-6 years
- 7 years or longer

Q12. (if answered "Yes" to Q9) What settings within your healthcare network are currently included in stewardship activities implemented by a centrally coordinated antibiotic stewardship program? Please select all that apply. [multiple choice]

- Large hospitals (>300 beds)
- Medium hospitals (101-300 beds)
- Small hospitals (26-100 beds)
- Rural/critical access hospitals (≤25 beds)
- Long-term acute care hospitals
- Primary care clinics (family medicine, internal medicine, pediatrics)
- Urgent care facilities (walk-in clinics focused on delivery of ambulatory care in a dedicated medical facility outside of a traditional emergency department)
- Ambulatory surgery centers
- Outpatient specialty clinics, such as oncology or cardiology clinics
- Dental clinics
- Emergency departments
- Outpatient direct-to-consumer telemedicine services

Q13. (if answered "Yes" to Q9) What percent of your healthcare network's inpatient facilities are included in stewardship activities implemented by a centrally coordinated antibiotic stewardship program?

- 0%-24%
- 25%-49%
- 50%-74%
- 75%-100%

Q14. (if answered "Yes" to Q9) What percent of your healthcare network's outpatient facilities are included in stewardship activities implemented by a centrally coordinated antibiotic stewardship program?

- 0%-24%
- 25%-49%
- 50%-74%
- 75%-100%

Q15. (if answered "Yes" to Q9): Who leads the centrally coordinated antibiotic stewardship program within your healthcare network? [single choice]

- Physician lead
- Pharmacist lead
- Physician and pharmacist co-leads
- Other (please describe)

Q16. (if answered "Physician lead" or "Physician and pharmacist co-leads" to Q15): How much FTE-funded support does the physician lead have for time spent working on the centrally coordinated antibiotic stewardship program? [text box]

Q17. (if answered "Physician lead" or "Physician and pharmacist co-leads" to Q15): Does the physician lead for the centrally coordinated antibiotic stewardship program have infectious diseases training?

Q18. (if answered "Physician lead" or "Physician and pharmacist co-leads" to Q15): Who does the physician lead for the centrally coordinated antibiotic stewardship program report to (i.e., their direct supervisor for stewardship activities) within your healthcare network? [text box]

Q19. (if answered "Physician lead" or "Physician and pharmacist co-leads" to Q15): Does the physician lead for the centrally coordinated antibiotic stewardship program supervise leads of facility-level stewardship programs? [single choice]

- Yes
- No

Q20. (if answered "Pharmacist lead" or "Physician and pharmacist co-leads" to Q15): How much FTE-funded support does the pharmacist have for time spent working on the centrally coordinated antibiotic stewardship program? [text box]

Q21. (if answered "Pharmacist lead" or "Physician and pharmacist co-leads" to Q15): Does the pharmacist lead for the centrally coordinated antibiotic stewardship program have infectious diseases training?

Q22. (if answered "Pharmacist lead" or "Physician and pharmacist co-leads" to Q15): Who does the pharmacist lead for the centrally coordinated antibiotic stewardship program report to (i.e., their direct supervisor for stewardship activities) within your healthcare network? [text box]

Q23. (if answered "Pharmacist lead" or "Physician and pharmacist co-leads" to Q15): Does the pharmacist lead for the centrally coordinated antibiotic stewardship program supervise leads of facility-level stewardship programs? [single choice]

- Yes
- No

Q24. (if answered "Other" to Q15): How much FTE-funded support does the lead(s) have for time spent working on the centrally coordinated antibiotic stewardship program? [text box]

Q25. (if answered "Other" to Q15): Does the lead(s) for the centrally coordinated antibiotic stewardship program have infectious diseases training? [text box]

Q26. (if answered "Other" to Q15): Who does the lead(s) for the centrally coordinated antibiotic stewardship program report to (i.e., their direct supervisor for stewardship activities) within your healthcare network? [text box]

Q27. (if answered "Other" to Q15): Does the lead(s) for the centrally coordinated antibiotic stewardship program supervise leads of facility-level stewardship programs? [single choice]

- Yes
- No

Q28. (if answered "Yes" to Q9) Please indicate what type of staff support a centrally coordinated antibiotic stewardship program within your healthcare network. Please select all that apply. [multiple choice]

- Infectious diseases physicians
- Physicians, not including infectious diseases physicians
- Infectious diseases and/or stewardship pharmacists
- Pharmacists, not including infectious diseases and/or stewardship trained pharmacists
- Nurses
- Data analysts
- Information technology staff
- Implementation scientists
- Project management support
- Other (please describe)

Q29. (if answered "Yes" to Q9): What types of stewardship activities are overseen by the centrally coordinated antibiotic stewardship program within your healthcare network? Please select all that apply.

- Benchmarking of antibiotic prescribing across the healthcare network
- Obtaining and analyzing antibiotic use data for individual facilities and sharing of these results back to facilities

- Obtaining and analyzing antibiotic use data at the physician-level and sharing of these results with physicians
- Improvements in electronic health record system(s) to support stewardship activities, such as order sets or clinical decision support tools
- Care process model (i.e., algorithms or practice standards) development
- Measuring provider concordance/compliance levels for care process models (i.e., assessing appropriateness)
- Formulary management
- Prior authorization
- Prospective audit and feedback activities
- Provision of tele-stewardship services to facilities such as community hospitals
- Development and implementation of education and communication tools targeting patients
- Development and implementation of provider education and training
- Ensuring regulatory compliance of requirements for antibiotic stewardship programs for facilities.
- Directing stewardship related research.
- Collaborating with service lines (i.e., clinical specialties or other practice groups) to improve antibiotic prescribing.
- Other (please describe)

Q30. (if answered "Yes" to Q9): What system-wide metrics does your healthcare network use to routinely evaluate (at least annually or semi-annually) the impact of a centrally coordinated antibiotic stewardship program? Please select all that apply and describe the specific metrics utilized. [multiple choice with text boxes]

- Metrics related to antibiotic use (please list the types of metrics used, such as DOTs, DDDs, SAAR, etc.)
- Metrics related to antibiotic resistance (please list the types of metrics used)
- Metrics related to healthcare costs (please list the types of metrics used, such as drug utilization costs)
- Metrics related to patient outcomes (please list the types of metrics used, such as rate of *Clostridioides difficile* infections)
- Other (please describe)

Q31. (if answered "Yes" to Q9): What barrier(s) did your healthcare network encounter when establishing and implementing a centrally coordinated antibiotic stewardship program? Please select all that apply.

- Gaining leadership support
- Obtaining adequate funding for personnel (including clinicians as well as data analytic support staff)
- Building out the necessary data/IT infrastructure
- Buy-in at the individual facility level for centralized stewardship activities
- Ensuring adequate support from leadership and/or staff to maintain and grow the centrally coordinated program after initial implementation
- Other (please describe)

Q32. Do facilities within your healthcare network currently report antibiotic use or antibiotic resistance data to the Centers for Disease Control and Prevention's National Healthcare Safety Network (NHSN) Antimicrobial Use and Resistance Module? This include all facilities eligible to participate in the Antimicrobial Use and Resistance Module, including general acute care hospitals, critical access hospitals, children's hospitals, oncology hospitals, long term acute care hospitals, inpatient rehabilitation facilities, and inpatient psychiatric hospitals. [matrix table, single response per row]

	No facilities report to NHSN	Some facilities report to NHSN	All facilities report to NHSN
Antibiotic use data			
Antibiotic resistance data			

Q33. (if answered "Some" or "All" to antibiotic use data in Q32) Does your healthcare network report antibiotic use data to the Centers for Disease Control and Prevention's National Healthcare Safety Network Antimicrobial Use and Resistance Module via the electronic health record system?

- Yes
- No (please explain)

Q34. Have any facilities within your healthcare network stopped reporting antibiotic use or antibiotic resistance data to the Centers for Disease Control and Prevention's National Healthcare Safety Network Antimicrobial Use and Resistance Module? If facilities within your healthcare network **never** reported into this Module, please select "No". [matrix, single response per row]

	Yes	No
Antibiotic use data		
Antibiotic resistance data		