**Appendix 1**

**Semi-structured Interview guide to assess iPARiHS outer context and the characteristics of the recipient (i.e., physician and pharmacy antimicrobial stewardship champion)**

*Semi-structured interviews are open-ended to allow participants to freely express their answers to the questions. Questions may be asked in a different order and additional questions may be asked by the interviewer to follow-up or to clarify participants’ responses.*

* 1. Describe your role in the hospital and as a stewardship champion.
  2. Tell me about the support you have from your facility (e.g., leadership) to engage in stewardship?
  3. What resources (e.g., CDC, society recommendations or VA policies) support stewardship work in your hospital? How important are these resources in your daily work? To your facility?
  4. Tell me about your patient population especially those impacted by stewardship. Are there any particular aspects of your facility, your providers or your patients that make your tasks as a steward more difficult or easier?
  5. How much control do you have in antibiotic prescribing at your facility? How do you exert control (negotiate, influence, shape environment, or take direct action, i.e., write orders)? What measures are you able to take to ensure prescribing is done in the best interest of patients and the population?
  6. Tell me about the current approach of your facility to de-escalation of therapy with vancomycin? (policy, how is policy enforced, by whom?) What about for de-escalation of anti-pseudomonal beta-lactam therapy?
  7. Tell me about a recent time in which there was complex antibiotic prescribing issue involving de-escalation of vancomycin therapy that required your attention. What was the situation? Who was involved? What was the outcome?
  8. How confident were you in your effectiveness in this situation? What tools or resources were you able to use to influence the outcome?

NOTE: Questions 8 & 9 should be repeated for de-escalation of anti-pseudomonal beta-lactam therapy. May need to reword these questions to avoid making implicit assumptions

* 1. How practical is implementation of the SSTOP project (i.e., the project that is being implemented in your facility to encourage antimicrobial de-escalation during an antibiotic time out) at your facility? To what degree are providers at your facility likely to be supportive of this intervention – what benefits do you think they would perceive? Will the use of SSTOP templates or other procedures be perceived as being overly restrictive by providers or pharmacists?
  2. What challenges in implementing the SSTOP project do you think your facility will encounter? What challenges will you or other members of the ASP team encounter? Do you feel prepared and ready for these challenges?
  3. How well do you think the SSTOP intervention will work at your facility? What would a successful outcome look like (probe: what would need to happen to make it successful)? How would the success (or failure) of SSTOP affect your job?
  4. Tell me about your impressions of the SSTOP team. Do you feel that your concerns about customizing implementation of this project at your facility have been listened to and addressed? Is there anything the SSTOP team could have done to make implementation easier?
  5. What else would you like to add? Is there anything we are missing or not asking about that we should?

Thank you for your time today.

**Post-Intervention**

**Sample Guiding Questions for open-ended, semi-structured post-intervention interviews for Sites that have fully implemented Timeout Templates**

*Semi-structured interviews are open-ended to allow participants to freely express their answers to the questions. Questions may be asked in a different order and additional questions may be asked by the interviewer to follow-up or to clarify participants’ responses.*

**Goal**: Identify issues related to implementation of Timeout program with local stewardship physicianand pharmacy champions

Timing: 12 months post launch

* It’s been 6-18 months since the launch, can you tell me how things are going?
* Describe how (and whether) the operational processes for the SSTOP timeout intervention has changed since the initiation of this project. What prompted these changes? Who was in charge? How did it get implemented? Who were the key players? Who did you need to involve? How long did it take?
* Bring forward questions from past surveys related to strengths and self-efficacy of the facility-specific program. What has changed?
* Describe how COVID-19 affected stewardship programs at your facility? Were personnel (ID and pharmacy champions) drawn into other activities? Did providers no longer prioritize stewardship? Did stewardship rounds change? Did use of the vancomycin template or monitoring of template responses change? How impacted were day-to-day activities at your facility affected by COVID-19?
* How will reopening clinical areas of your hospital impact the activities of your stewardship program? How will this affect allocation of personnel resources for the stewardship program?
* Have other barriers to use of the templates emerged? Is provider fatigue an issue? Were these barriers overcome? Whose support was necessary (or useful)? How were their objections (if any) overcome? Were local modifications of the protocol necessary? What modifications occurred and why?
* How has training of providers to use the antibiotic renewal templates and antibiotic dashboards changed over time? What was the type & frequency of training? How well do providers understand how to use the templates after being trained?
* Let’s talk about template use. Are providers still routinely using the templates to obtain approval to continue the targeted antibiotics (vancomycin)? [f/u prompts as needed] How do providers know to do the template – how are they notified, what is the role of the stewardship team in this process, how is pharmacy notified to continue or stop the antibiotic? Does the stewardship team double-check the actions? Is this system working well? Have changes been necessary since it was first launched?
* Could you review a case with me/use the template? [f/u prompts as needed] Can you walk me through the process of provider notification, use of the template and pharmacy actions in response to the template (drug discontinuation or continuation) [THIS ADDRESSES SITE CUSTOMIZATION]
* What feedback have you received from providers and pharmacists about the timeout program in general and the templates? Over time, are providers becoming more facile with the template [f/u prompts as needed] What do they like/don’t like?
* How long did it take providers to complete the template? Did the time commitment decrease with use?
* How does use of the antibiotic renewal templates fit into provider workflow? Into the workflow of the antimicrobial stewardship team?
* Who is informed when the template is completed? How are recommendations generated by the template used to modify therapy?
* How would you improve the antibiotic renewal templates?
* What successes have been encountered? What frustrations? Please tell me about a time or situation that really stands out for you regarding SSTOP or using the antibiotic renewal template? Does the timeout template help you police or assist provider decision-making to de-escalate antibiotic therapy?
* How useful are the antibiotic use and de-escalation feedback reports? What other reports or data would be useful to promote antibiotic de-escalation?
* Do you plan to continue use of the templates when this project is over? If not, will you undertake other efforts to promote antibiotic de-escalation? Please describe these efforts.
* What other interventions would you suggest to promote antibiotic de-escalation?
* What recommendations or feedback do you have on ways to improve the SSTOP timeout intervention? What else would you like to add? Is there anything we are missing or not asking about that we should?

Thank you for your time today.