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**Post Implementation Semi-Structured Interview Guide**

\*\* indicates priority question

**All:**

1. Do I have your permission to record?
2. What is your primary role at your facility? (e.g. Hospitalist, Pharmacist)?
3. How long have you worked at your current facility?
4. [end of interview: Who else at your facility should we talk with?]

**Provider:**

Are you aware of the antimicrobial stewardship project where your facility partnered with Dr. Livorsi, an ID physician from the Iowa City VA? (if no, explain project)

If yes- how do you think the project has gone?

Did you recall reading any education materials distributed as part of this project? These were developed by Dr. Livorsi and distributed by your facility <list example used at the specific facility>.

What are the best ways to share education materials with providers (documents, grand rounds, in-service, other?)

\*\*Do you recall receiving communication from your facility pharmacist, suggesting to discontinue or change an antibiotic for an inpatient? About how many times over the past year? What was the result of that communication? (Was antibiotic discontinued or changed? Why or why not?)

Over the past year, did you call the pharmacist to ask for advice regarding prescribing antibiotics for inpatients?

How might a program like this be useful for rural facilities?

\*\*Did you talk with Dr. Livorsi directly on a call or by messaging? Did you initiate the communication or did someone else (pharmacist, Livorsi)? About how many times? What was the result of that communication? (Was antibiotic discontinued or changed?)? What was your impression of that interaction?

If a pharmacist or provider has information suggesting discontinuing or changing an antibiotic is advised, how should they approach the prescribing provider? What information needs to be shared?

\*\*Tell me about if you feel providers at your facility are open to suggestions regarding changes to prescribing? Why and why not? How do you build a trusting relationship, where providers are open to suggestions and feel the guidance is sound?

What are some of the barriers to making changes to prescribing (time of day, waiting on lab, order sets difficult to use)?

What are some of facilitators to making changes to prescribing?

\*\*If your facility continues to partner with an ID physician, how would you suggest maintaining that resource? (Would you call an on-call number to get advice? Call the pharmacist if you have questions? Wait for someone to review prescribing and contact you, like an audit and feedback program?)

\*\*Do you feel this project is of use to your facility/you as a provider? How can we help you more? What would you like to know for making prescribing decisions?

**Pharmacist:**

*Thank you for the work and effort you’ve contributed to this project over the past year.*

What are some of the barriers to making changes to antibiotic prescribing (time of day, waiting on lab, order sets difficult to use)?

What are some of facilitators to making changes to prescribing?

\*\*If the project were to start over, what would you change or do differently this time?

Over the past year, did providers call you to ask for advice regarding prescribing antibiotics for inpatients? What situations were more likely to lead to asking for advice?

\*\*If a pharmacist or provider has information suggesting discontinuing or changing an antibiotic is advised, how should they approach the prescribing provider? What information needs to be shared? What are the best ways to communicate with providers? Are there differences in provider preferred method? (Is that sustainable?) If we make a tool kit of recommendations, is there a single standard you would suggest for communication?

What are the best ways to share education materials with providers (documents, grand rounds, in-service, other?)

Tell me about if you feel providers at your facility are open to suggestions regarding changes to prescribing? Why and why not? How do you build a trust relationship, where providers are open to suggestions and feel the guidance is sound?

We can’t change personalities, so what else can we do? Mandate? Restrictions? How does provider autonomy play in this?

Tell me about a time when you or Dr Livorsi made a suggestion that was not accepted by a provider. What were the circumstances? What else, if anything, could have led to a change being accepted?

\*\*After participating in this program, will your approach to stewardship change? If so, how? Has you confidence in making stewardship recommendations changed over the past year?

\*\*If your facility continues to partner with an ID physician, how would you suggest maintaining that resource? (Would you call an on-call number to get advice? Have regular meetings with ID physician like you are now?)

Do you have time to maintain this program? How would that look/what would that look like?

For what situations would you prefer that a provider work with you or through you for prescribing guidance, versus working directly with an ID physician for guidance? What are situations where a specialist or ID physician might be helpful to get involved?

**Leadership:**

\*\*What kind of feedback have you received from providers and pharmacists regarding this program? Generally positive or negative? What situations were brought to your attention?

Tell me about facility awareness or the program. Do you have a monthly Stewardship Committee Mtg?

What are some of the barriers to making changes to prescribing (time of day, waiting on lab, order sets difficult to use)?

What are some of facilitators to making changes to prescribing?

If the project were to start over, what would you change or do differently this time?

If a pharmacist or provider has information suggesting discontinuing or changing an antibiotic is advised, how should they approach the prescribing provider? What information needs to be shared?

What are the best ways to share education materials with providers (documents, grand rounds, in-service, other?)

Tell me about if you feel providers at your facility are open to suggestions regarding changes to prescribing? Why and why not? How do you build a trust relationship, where providers are open to suggestions and feel the guidance is sound?

We can’t change personalities, so what else can we do? Mandate? Restrictions? How does provider autonomy play in this?

Has this program been shown to reduce antibiotic prescribing at your facility?

\*\*If your facility continues to partner with an ID physician, how would you suggest maintaining that resource? (Providers and pharmacist call an on-call number to get advice? Pharmacist have regular meetings with ID physician like they are now?)

Does your pharmacist have time to maintain this program?

**Lead site PI:**

\*\*What kind of feedback have you received from providers and pharmacists regarding this program? Generally positive or negative? What situations were brought to your attention?

\*\*Tell me about differences comparing the three sites. What worked well at one site that did not at another?

What are some of the barriers to making changes to prescribing (time of day, waiting on lab, order sets difficult to use)?

What are some of facilitators to making changes to prescribing?

\*\*If the project were to start over, what would you change or do differently this time?

If a pharmacist or provider has information suggesting discontinuing or changing an antibiotic is advised, how should they approach the prescribing provider? What information needs to be shared?

What are the best ways to share education materials with providers (documents, grand rounds, in-service, other?)

Topics for the educational material:

-how are they decided?

-would asking providers for input on types of materials distributed increase buy-in/awareness?

-gauge the interest in desire for educational materials?

-perceived provider behavior change?

\*\*Tell me about if you feel providers at the facilities are open to suggestions regarding changes to prescribing? Why and why not? How do you build a trusting relationship, where providers are open to suggestions and feel the guidance is sound?

We can’t change personalities, so what else can we do? Mandate? Restrictions? How does provider autonomy play in this?

**Supplemental Table 1. Changes in antibiotic use at site 1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Acute-care DOT per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** | |
| Slope before intervention | -7.5 | 4.6 | 2.7 | 0.01 | |
| Value Jump due to intervention | 151.7 | 112.8 | 1.8 | 0.18 | |
| Slope change due to intervention | 9.8 | 13.7 | 0.5 | 0.48 | |
| **LTC DOT per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** | |
| Slope before intervention | -1.3 | 1.3 | 1.0 | 0.32 | |
| Value Jump due to intervention | -67.5 | 23.3 | 8.4 | <0.01 | |
| Slope change due to intervention | 4.6 | 3.7 | 1.5 | 0.22 | |
| **Acute-care DASC per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** | |
| Slope before intervention | -41.8 | 20.0 | 4.4 | 0.04 | |
| Value Jump due to intervention | 1002.21 | 530.4 | 3.6 | 0.06 | |
| Slope change due to intervention | 86.3 | 62.1 | 1.9 | 0.17 | |
| **LTC DASC per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | -8.3 | 10.9 | 0.6 | 0.45 | |
| Value Jump due to intervention | -513.72 | 192.0 | 7.2 | 0.01 | |
| Slope change due to intervention | 29.65 | 30.7 | 0.9 | 0.33 | |
| **Discharge DOT per 100 discharges** | **Estimate** | **SE** | **Wald** | **p value** | |
| Slope before intervention | -4.24 | 2.6 | 2.7 | 0.10 | |
| Value Jump due to intervention | -67.98 | 59.1 | 1.3 | 0.25 | |
| Slope change due to intervention | 12.47 | 7.5 | 2.8 | 0.09 | |

Abbreviations: DASC = days of antibiotic spectrum coverage; DOT = days of therapy;

LTC = long-term care

**Supplemental Table 2. Changes in antibiotic use at site 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Acute-care DOT per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | 6.2 | 2.7 | 5.2 | 0.02 |
| Value Jump due to intervention | -185.7 | 67.6 | 7.6 | <0.01 |
| Slope change due to intervention | -14.0 | 8.2 | 2.9 | 0.09 |
| **LTC DOT per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | 0.8 | 0.5 | 2.5 | 0.11 |
| Value Jump due to intervention | -18.5 | 12.4 | 2.2 | 0.14 |
| Slope change due to intervention | -1.6 | 1.5 | 1.2 | 0.28 |
| **Acute-care DASC per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | 38.0 | 20.8 | 3.3 | 0.07 |
| Value Jump due to intervention | -1211.9 | 516.6 | 5.5 | 0.02 |
| Slope change due to intervention | -87.4 | 62.6 | 2.0 | 0.16 |
| **LTC DASC per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | 9.6 | 4.5 | 4.4 | 0.04 |
| Value Jump due to intervention | -166.6 | 112.8 | 2.2 | 0.14 |
| Slope change due to intervention | -18.4 | 13.7 | 1.8 | 0.18 |
| **Discharge DOT per 100 discharges** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | -0.2 | 2.5 | 0.01 | 0.93 |
| Value Jump due to intervention | -124.3 | 62.6 | 4.0 | <0.05 |
| Slope change due to intervention | 3.8 | 7.6 | 0.3 | 0.62 |

Abbreviations: DASC = days of antibiotic spectrum coverage; DOT = days of therapy;

LTC = long-term care

**Supplemental Table 3. Changes in antibiotic use at site 3**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Acute-care DOT per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | -13.9 | 3.2 | 18.6 | <0.01 |
| Value Jump due to intervention | 317.3 | 76.5 | 17.2 | <0.01 |
| Slope change due to intervention | -12.4 | 8.0 | 2.4 | 0.12 |
| **LTC DOT per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | -4.4 | 1.7 | 6.6 | 0.01 |
| Value Jump due to intervention | -20.7 | 42.1 | 0.2 | 0.62 |
| Slope change due to intervention | 14.3 | 5.1 | 7.9 | 0.01 |
| **Acute-care DASC per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | -70.6 | 23.1 | 9.3 | <0.01 |
| Value Jump due to intervention | 1024.7 | 590.3 | 3.0 | 0.08 |
| Slope change due to intervention | -31.4 | 70.8 | 0.20 | 0.66 |
| **LTC DASC per 1,000 days-present** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | -36.3 | 15.2 | 5.7 | 0.02 |
| Value Jump due to intervention | -106.3 | 378.2 | 0.1 | 0.78 |
| Slope change due to intervention | 89.8 | 45.8 | 3.8 | 0.05 |
| **Discharge DOT per 100 discharges** | **Estimate** | **SE** | **Wald** | **p value** |
| Slope before intervention | -4.0 | 2.0 | 4.2 | 0.04 |
| Value Jump due to intervention | 61.3 | 49.6 | 1.5 | 0.22 |
| Slope change due to intervention | -2.4 | 6.0 | 0.2 | 0.69 |

Abbreviations: DASC = days of antibiotic spectrum coverage; DOT = days of therapy;

LTC = long-term care

**Supplemental Table 4. Number of consultations to outside Infectious Disease physicians for acute-care and long-term care patients at sites 1-3, 2019-2021**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Number of consultations to outside ID physicians** | | | |
| **Site 1** | **Site 2** | **Site 3** | **Total** |
| 2019 | 23 | 13 | 19 | 55 |
| 2020 | 34 | 8 | 8 | 40 |
| 2021 | 21 | 15 | 9 | 45 |

Abbreviations: ID = Infectious Disease