

# Assessment of the Long-Term Effects of Training Consultant Pharmacists to Promote Antimicrobial Stewardship in Long-Term Care Facilities

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## Background

- Long term care facilities (LTCF) were mandated to develop antibiotic stewardship programs (ASP) as a part of their infection prevention and control programs by the Center for Medicare and Medicaid Services.
- The new requirements specifically ask consultant pharmacists (CPs) to review antibiotic prescriptions as part of their monthly drug regimen review and report any unnecessary drugs.
- Pharmacists outside of hospitals, in general, have not been involved in, or received, formal training on antimicrobial stewardship.
- We implemented a one-year antimicrobial stewardship training program that taught 9 LTCF CPs how to perform ASP related activities and promote appropriate antibiotic use at 32 LTCF.

## Study Timeline & Interventions

- Consultant pharmacists were trained on antimicrobial stewardship strategies and tools using four 90-minute in-person presentations/webinars. → 9/2017 to 10/2017
- Monthly question and answer sessions (60 to 90-minute in-person & webinar) were conducted to address issues or concerns that came up during consultant pharmacist's monthly visits to LTCF and to maintain intervention activity. → 11/2017 to 12/2018
- Consultant pharmacists used the knowledge and tools from training sessions to review facility antibiotic usage and provided feedback to prescribing providers, directors of nursing, medical directors and infection preventionists on antibiotic prescribing practices. → 11/2017 to 12/2018
- Consultant pharmacists also assisted LTCF with implementation of ASP including interventions to improve antibiotic prescribing (with a primary focus on UTI) using various tools that were introduced to them during training. → 11/2017 to 12/2018
- Consultant pharmacists monitored progress in antibiotic use patterns and made recommendations to facility leadership for further improvement. → 11/2017 to 12/2018
- Baseline survey evaluating consultant pharmacist performance during the training. → 8/2018 to 9/2018
- Follow-up survey evaluating consultant pharmacist performance > 9 months post-training completion. → 10/2019 to 12/2019

## Methods

- Infection preventionists, directors of nursing, and medical directors of the LTCF received mail surveys in 2018 and online surveys in 2019.
- Surveys were conducted during and after the training program to assess performance.
- Questions assessed the respondents' perceptions of their ASP, barriers to ASP implementation and stewardship related knowledge, and the skills and contributions of their consultant pharmacists.
- Qualitative analyses categorized reported barriers into common themes. Fisher exact test compared perceptions of consultant pharmacists' performance and frequently reported barriers during training and after the intervention was completed.

## Results

- A total of 43 individual responses to surveys were received during training and 30 at follow up. After excluding those LTCF that responded to only one time point (either "during training" or "at follow up"), a total of 59 surveys (34 "during training" and 25 "at follow up") from 18 LTCF that responded at both time points were analyzed (Table 1).
- Most rated their CPs as knowledgeable and helpful, noting they regularly provided feedback and suggestions both during and after the training (Table 2).
- Fifty-six percent (56%) of facilities reported that their CPs were similarly involved, and 12% felt they were more involved, in ASP implementation in 2019 compared to 2018.
- The top 3 reported barriers to ASP implementations were the same during 2018 and 2019 (Table 3).
- Overall, 84% of facilities in 2019 believed that the CPs "definitely helped" their ASP efforts, and 80% of facilities desired to continue the partnership into the future.

**Table 2: Comparison of Consultant Pharmacists' Performance Evaluations During (2018) and After (2019) Completion of Training**

| Survey Evaluation  | During Training (N=34) | Follow-Up (N=25) | p-value |
|--|------------------------|------------------|---------|
| Consultant pharmacist has <b>excellent or very good</b> antibiotic stewardship-related knowledge   | 33 (97.1%)             | 22 (88.0%)       | 0.30    |
| Pharmacist was <b>helpful all or most of the time</b> with finding solutions to antibiotic stewardship-related challenges                                    | 33 (97.1%)             | 24 (96.0%)       | 1.00    |
| Pharmacist <b>provided</b> feedback to providers regrading antibiotic issues identified when reviewing antibiotic orders                                     | 34 (100.0%)            | 22 (88.0%)       | 0.07    |
| Pharmacist provided suggestions on strategies to promote appropriate antibiotic use after reviewing antibiotic orders at your facility <b>on EVERY visit</b> | 28 (82.3%)             | 15 (60.0%)       | 0.08    |
| Pharmacist provided suggestions on strategies to promote appropriate antibiotic use after reviewing antibiotic orders at your facility <b>on SOME visits</b> | 6 (17.7%)              | 7 (28.0%)        | 0.36    |
| Pharmacist <b>always or most of the time</b> takes on an active role in committee meetings at your facility on antibiotic stewardship-related issues         | 29 (85.3%)             | 19 (76.0%)       | 0.50    |
| Pharmacist was able to offer solutions to help resolve <b>ALL</b> of the facility identified barriers  | 11 (44.1%)             | 6 (24.0%)        | 0.17    |
| Pharmacist was able to offer solutions to help resolve <b>SOME</b> of the facility identified barriers   | 12 (35.3%)             | 14 (56.0%)       | 0.18    |

**Table 1. Response Rate to Surveys About the Performance of Consultant Pharmacists Assisting with Antimicrobial Stewardship**

|                                   | During Training (N=32) | During Follow Up (N=30) | During Both Time-points |
|-----------------------------------|------------------------|-------------------------|-------------------------|
| Number (%) of LTCF that responded | 26 (81%)               | 22 (73%)                | 18 (56%)                |
| Total number of responses         | 43                     | 30                      | 59                      |

**Table 3. Barriers to ASP implementation reported during (2018) and after (2019) training by all facilities**

| Barrier  | 2018 (N=34) | 2019 (N=25) | P-value |
|--|-------------|-------------|---------|
| Lack of appropriate antibiotic prescribing or lack of ASP buy-in by clinicians | 25 (73.5%)  | 15 (60.0%)  | 0.40    |
| Family/Resident Pressure   | 7 (20.6%)   | 11 (44.0%)  | 0.09    |
| Lack of Staff Buy-In   | 11 (32.4%)  | 8 (32.0%)   | 1.00    |
| Time Constraint  | 2 (5.9%)    | 6 (24.0%)   | 0.06    |
| Emergency department not prescribing antibiotics appropriately                 | 4 (11.7%)   | 1 (4.0%)    | 0.38    |
| Lack of Infrastructure   | 5 (14.7%)   | 3 (12.0%)   | 1.00    |
| Lack of Staff Knowledge  | 5 (14.7%)   | 1 (4.0%)    | 0.23    |
| Difficulties in educating staff, physician, and families                       | 2 (5.9%)    | 2 (8.0%)    | 1.00    |
| Lack of Leadership Buy-in  | 1 (2.9%)    | 1 (4.0%)    | 1.00    |
| Lack of Standard Processes   | 0 (0.0%)    | 2 (8.0%)    | 0.18    |
| Other (include those barriers that were reported by only one respondent)       | 6 (17.6%)   | 3 (12.0%)   | 1.00    |

## Conclusions

- This study demonstrates that training consultant pharmacists resulted in meaningful actions and continued engagement in ASP activities.
- Efforts should be directed toward similar training programs available nationwide for consultant pharmacists working in LTCF.

## References

- Centers for Medicare & Medicaid Services. Medicare and Medicaid Programs; Reform of Requirements for Long-Term Care Facilities; Final Rule, October 2016. <https://www.federalregister.gov/documents/2016/10/04/2016-23503/medicare-and-medicare-programs-reform-of-requirements-for-long-term-care-facilities>
- Centers for Disease Control and Prevention. The Core Elements of Antibiotic Stewardship for Nursing Homes. <http://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html>

## Disclosure

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