

# An Assessment and Feedback Model Bringing Antimicrobial Stewardship Program Expertise to Long-Term Care Facilities

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## BACKGROUND

- Long-term care facilities (LTCF) often struggle with implementation of antimicrobial stewardship programs (ASP) that meet all CDC core elements (CE)
- The CDC recommends partnership with infectious diseases (ID)/ASP experts to guide ASP implementation in these instances
- The Nebraska Antimicrobial Stewardship Assessment and Promotion Program (ASAP) is a statewide initiative supported by the NE Department of Health and Human Services, Healthcare-Associated Infection/Antimicrobial Resistance Team through a CDC grant
- The mission of the program is to assist healthcare facilities in long-term, acute and ambulatory care settings implement ASP and other initiatives to improve antimicrobial use

## METHODS

- ASAP performed onsite evaluation of antimicrobial stewardship efforts in 5 LTCF in April to June 2017 using a 64-item survey based on CDC CE via in-person interview of facility personnel working on ASP
- Following onsite assessments, ASAP provided prioritized facility-specific recommendations for ASP implementation, and periodically contacted these LTCF to support and follow progress in the next 12 months
- The following ASP metrics obtained 6 to 12 months before and after onsite visits were compared:
  - Number of ASP core elements met
  - Extent of ASAP recommendations implemented
  - Antibiotic starts (AS)/1,000 resident-days (RD)
  - Antibiotic days of therapy (DOT)/1,000 resident-days (RD)
  - Incidence of facility-onset *Clostridioides difficile* infection (FO-CDI)

## RESULTS

Table 1. Baseline Characteristics of Long-Term Care Facilities Assessed (N = 5)

Baseline Characteristics*	No. of Facilities
Bed size – median (range)	140 (42-293) beds
Average census – median (range)	127 (22-225) beds
Availability of infectious diseases physician assisting with stewardship†	0
Formed multidisciplinary antimicrobial stewardship team	5
Team lead for antimicrobial stewardship	
Medical Director	2
Director of nursing	3

\* Data are presented as number of facilities except bed size and average census  
† Three facilities reported the availability of infectious diseases physicians for consultation in specific resident cases

Table 2. Comparison of Baseline and Post-Intervention Antimicrobial Stewardship Metrics

Parameters	Baseline	Post-Intervention
Number of facilities meeting all core elements	0	2
ASAP recommendations implemented	0 / 38	31 / 38
Antibiotic starts/1000 resident-days—mean (SD)	10.1 (4.7)	8.2 (2.3)
Antibiotic days of therapy/1000 resident-days—mean (SD)	91.7 (43.8)	72.5 (26.5)
<i>C. difficile</i> infection/10,000 resident-days—mean (SD)	0.53 (0.78)	0.13 (0.22)

Figure 1. Comparison of Pre- and Post-Intervention Core Element Implementation

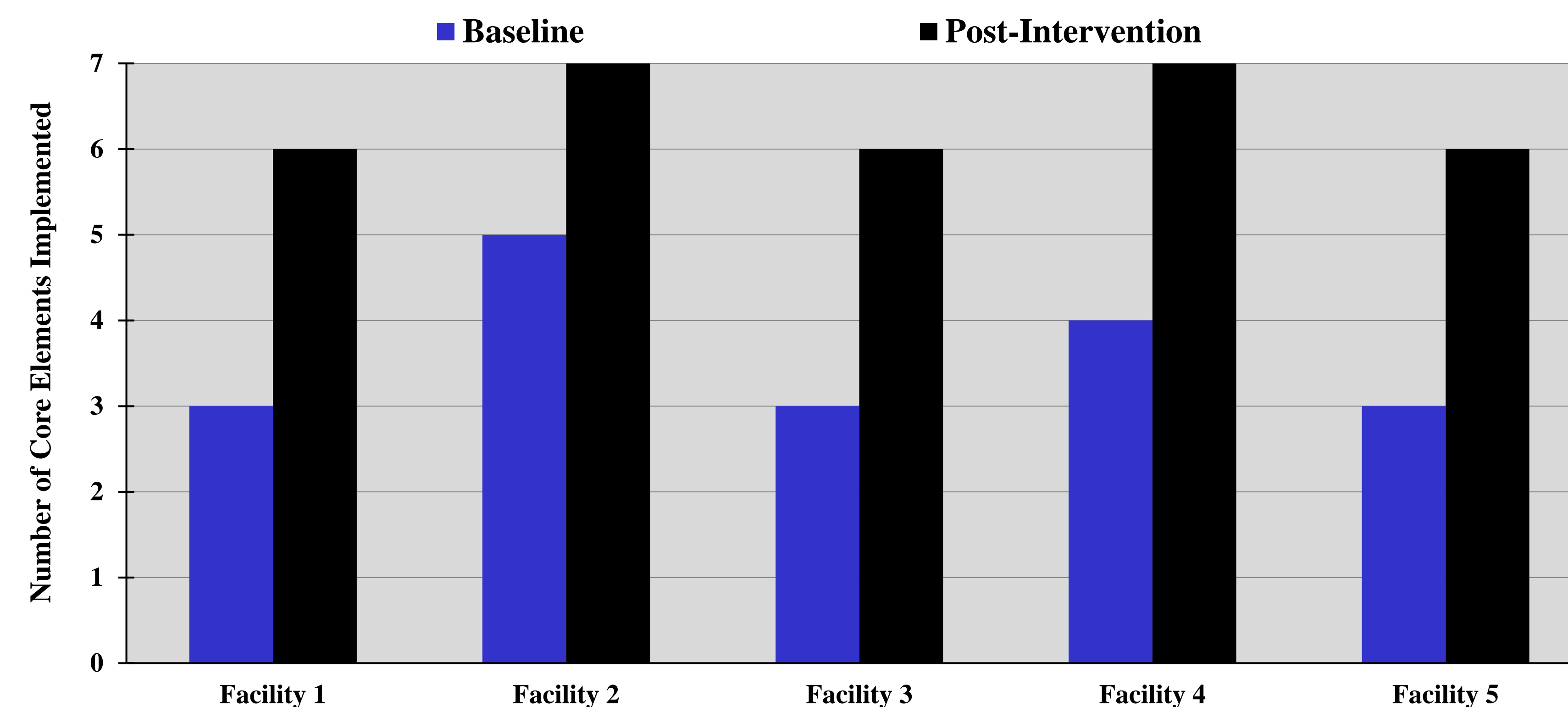


Figure 2. Comparison of Pre- and Post-Intervention Antibiotic Starts per 1,000 Resident-Days

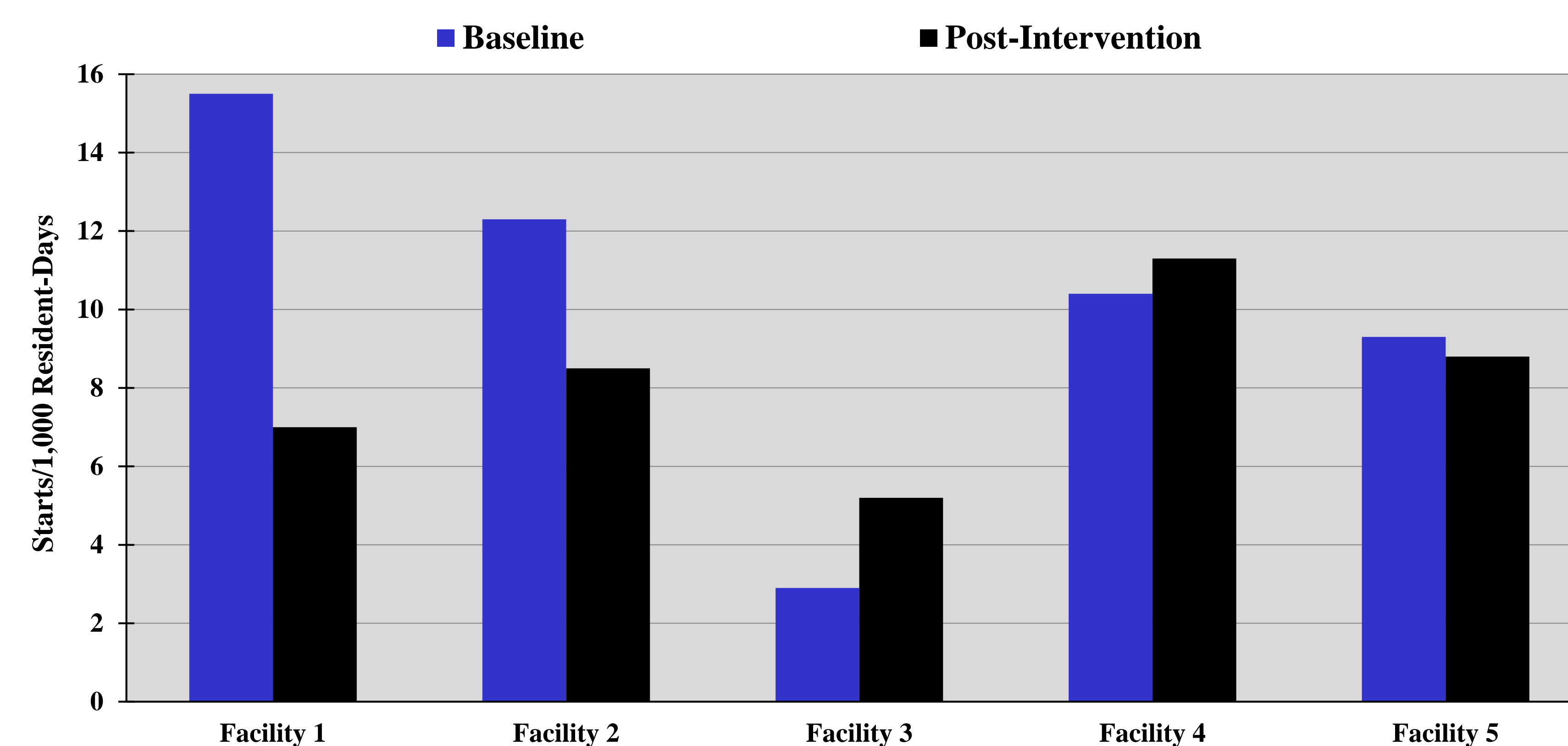
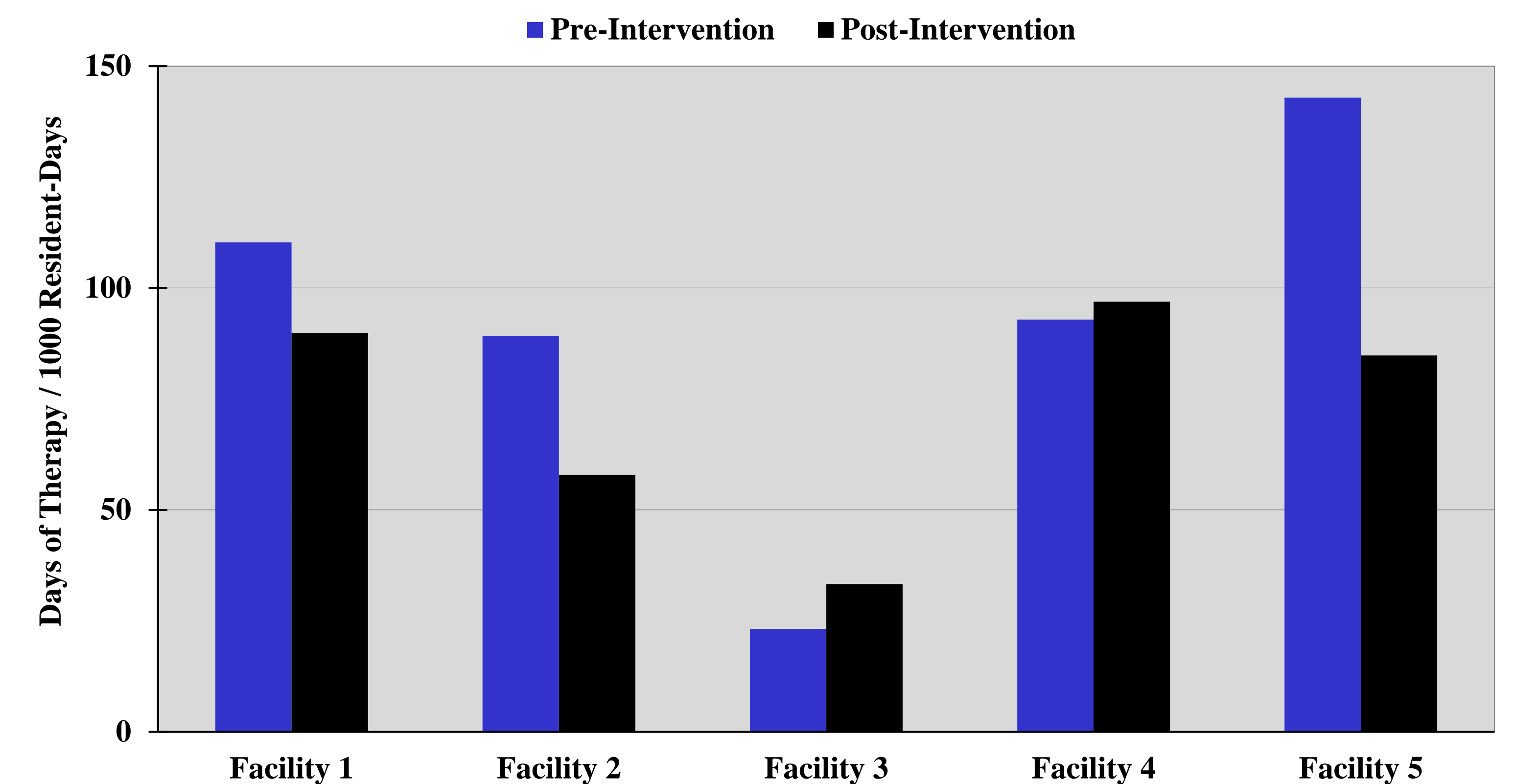


Figure 3. Comparison of Pre- and Post-Intervention Antibiotic Days of Therapy



## DISCUSSION

- The assessment and feedback model employed to facilitate ASP implementation resulted in an increase in the median number of CE met from 3 to 6 ( $p=0.06$ )
- The three facilities not meeting all 7 CE at the end of one year were only deficient in reporting ASP metrics to providers and staff
- Of the 38 recommendations provided by ASAP, 82% were either partially or fully implemented by the end of one year
- Mean antibiotic starts reduced by 19% from 10.1 starts/1,000 RD at baseline to 8.2 starts/1,000 RD after intervention ( $p=0.37$ )
- Similarly, mean antibiotic days of therapy decreased by 21% from 91.7 at baseline to 72.5 DOT/1,000 RD after intervention ( $p=0.20$ )
- The average incidence of FO-CDI decreased from 0.53 to 0.13 cases/10,000 RD (75% reduction,  $p=0.25$ )
- Barriers encountered which prevented improvement in antibiotic use included infection preventionist turnover, lack of consultant pharmacist/medical director engagement, and provider buy-in

## CONCLUSIONS

- An increase in implementation of CDC ASP Core Elements was observed among LTCF participating in the assessment and feedback program led by experts with infectious diseases/antimicrobial stewardship experience
- Favorable outcomes in antimicrobial use and CDI rates in partnering LTCF were also observed
- Moving forward, availability of these services should be expanded to all LTCF struggling with ASP implementation

## DISCLOSURE

The authors of this study have nothing to disclose pertaining to the content of this poster.