

Digging Deeper: A Closer Look at Core Elements of Antibiotic Stewardship for Long-Term Care Facilities

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BACKGROUND

- The CDC encourages all long-term care facilities (LTCF) to develop antibiotic stewardship programs (ASP) consisting of 7 core elements.
- These core elements include leadership commitment, accountability, drug expertise, action, tracking, reporting and education.
- However, ‘Action’ includes three essential sub-elements: policy development, practice implementation and pharmacist involvement.
- ‘Tracking’ has 2 major sub-elements; antibiotic use and outcome measures.
- Typically, a multi-component core element is considered met if any of the sub-element is present.
- We evaluated application of a strict definition that requires all major sub-elements to be present for the ‘Action’ and ‘Tracking’ core elements to be considered met.

METHODS

- A group of consultant pharmacists was trained to evaluate and lead ASP in their LTCF.
- Baseline ASP evaluation was conducted by consultant pharmacists in 29 LTCF using the CDC CE checklist (Figure 1) between 11/2017 and 01/2018.
- Core element credits were assigned to LTCF ASP using conventional and strict definitions (Box 1).
- Results were compared among LTCF ASP using both definitions.

Figure 1: CDC Core Element Checklist

**Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes**

The following checklist is a companion to the Core Elements of Antibiotic Stewardship in Nursing Homes. The CDC recommends that all nursing homes take steps to implement antibiotic stewardship activities. Before getting started, use this checklist as a baseline assessment of policies and practices which are in place. Then use the checklist to review progress in expanding stewardship activities on a regular basis (e.g., annually). Over time, implement activities for each element in a step-wise fashion.

LEADERSHIP SUPPORT ESTABLISHED AT FACILITY

1. Can your facility demonstrate leadership support for antibiotic stewardship through one or more of the following actions? ☐ Yes ☐ No

If yes, indicate which of the following are in place (select all that apply)

- ☐ Written statement of leadership support to improve antibiotic use
- ☐ Antibiotic stewardship duties included in medical director position description
- ☐ Antibiotic stewardship duties included in director of nursing position description
- ☐ Leadership monitors whether antibiotic stewardship policies are followed
- ☐ Antibiotic use and resistance data is reviewed in quality assurance meetings

ACCOUNTABILITY

2. Has your facility identified a lead(s) for antibiotic stewardship activities? ☐ Yes ☐ No

If yes, indicate who is accountable for stewardship activities (select all that apply)

- ☐ Medical director
- ☐ Director or assistant director of nursing services
- ☐ Consultant pharmacist
- ☐ Other: _____

DRUG EXPERTISE

3. Does your facility have access to individual(s) with antibiotic stewardship expertise? ☐ Yes ☐ No

If yes, indicate who is accountable for stewardship activities (select all that apply)

- ☐ Consultant pharmacy has staff trained/is experienced in antibiotic stewardship
- ☐ Partnering with stewardship team at referral hospital
- ☐ External infectious disease/stewardship consultant
- ☐ Other: _____

ACTIONS TO IMPROVE USE

4. Does your facility have policies to improve antibiotic prescribing/use? ☐ Yes ☐ No

If yes, indicate which policies are in place (select all that apply)

- ☐ Requires prescribers to document a dose, duration, and indication for all antibiotic prescriptions
- ☐ Developed facility-specific algorithm for assessing residents
- ☐ Developed facility-specific algorithms for appropriate diagnostic testing (e.g., obtaining cultures) for specific infections
- ☐ Developed facility-specific treatment recommendations for infections
- ☐ Reviews antibiotic agents listed on the medication formulary
- ☐ Other: _____

5. Has your facility implemented practices to improve antibiotic use? ☐ Yes ☐ No

If yes, indicate which practices are in place (select all that apply)

- ☐ Utilizes a standard assessment and communication tool for residents suspected of having an infection
- ☐ Implemented process for communicating or receiving antibiotic use information when residents are transferred to/from other healthcare facilities
- ☐ Developed reports summarizing the antibiotic susceptibility patterns (e.g., facility antibiogram)
- ☐ Implemented an antibiotic review process/antibiotic time out
- ☐ Implemented an infection specific intervention to improve antibiotic use
- ☐ Indicate for which condition(s): _____

6. Does your consultant pharmacist support antibiotic stewardship activities? ☐ Yes ☐ No

If yes, indicate activities performed by the consultant pharmacist (select all that apply)

- ☐ Reviews antibiotic courses for appropriateness of administration and/or indication
- ☐ Establishes standards for clinical/laboratory monitoring for adverse drug events from antibiotic use
- ☐ Reviews microbiology culture data to assess and guide antibiotic selection

TRACKING: MONITORING ANTIBIOTIC PRESCRIBING, USE, AND RESISTANCE

7. Does your facility monitor one or more measures of antibiotic use? ☐ Yes ☐ No

If yes, indicate which of the following are being tracked (select all that apply)

- ☐ Adherence to clinical assessment documentation (signs/symptoms, vital signs, physical exam findings)
- ☐ Adherence to prescribing documentation (dose, duration, indication)
- ☐ Adherence to facility-specific treatment recommendations
- ☐ Performs point prevalence surveys of antibiotic use
- ☐ Monitors rates of new antibiotic starts/1,000 resident-days
- ☐ Monitors antibiotic days of therapy/1,000 resident-days
- ☐ Other: _____

8. Does your facility monitor one or more outcomes of antibiotic use? ☐ Yes ☐ No

If yes, indicate which of the following are being tracked (select all that apply)

- ☐ Monitors rates of *C. difficile* infection
- ☐ Monitors rates of antibiotic-resistant organisms
- ☐ Monitors rates of adverse drug events due to antibiotics
- ☐ Other: _____

REPORTING INFORMATION TO STAFF ON IMPROVING ANTIBIOTIC USE AND RESISTANCE

9. Does your facility provide facility-specific reports on antibiotic use and outcomes with clinical providers and nursing staff? ☐ Yes ☐ No

If yes, indicate which of the following are being tracked (select all that apply)

- ☐ Measures of antibiotic use at the facility
- ☐ Measures of outcomes related to antibiotic use (i.e., *C. difficile* rates)
- ☐ Report of facility antibiotic susceptibility patterns (within last 18 months)
- ☐ Personalized feedback on antibiotic prescribing practices (to clinical providers)
- ☐ Other: _____

EDUCATION

10. Does your facility provide educational resources and materials about antibiotic resistance and opportunity for improving antibiotic use? ☐ Yes ☐ No

If yes, indicate which of the following are being tracked (select all that apply)

- ☐ Clinical providers (e.g., MDs, NPs, PAs, PharmDs)
- ☐ Nursing staff (e.g., RNs, LPNs, CNAs)
- ☐ Residents and families
- ☐ Other: _____

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Box 1: Conventional vs. Strict Definition

Conventional Definition:

- Needs *one* of the 3 Sub-Elements of Action (i.e. numbers 4, 5 and 6 on CDC Checklist) in place to qualify meeting ‘Action’ Core Element.
- Needs *one* of the 2 Sub-Elements of ‘Tracking’ (i.e. numbers 7 and 8) in place to qualify meeting ‘Tracking’ Core Element.

Strict Definition:

- Must have *all* 3 Sub-Elements of Actions (i.e. numbers 4, 5 and 6 on CDC Checklist) in place to qualify meeting ‘Action’ Core Element.
- Must meet *both* Sub-Elements of tracking (i.e. numbers 7 and 8) to qualify meeting ‘Tracking’ Core Element.

Table 1 : Percentage of LTCF Meeting Action & Tracking Sub-Elements

Sub-Elements of Action and Tracking	% Facilities Meeting Individual Sub-Elements
ACTION	
Policy Development	6.9%
Practice Implementation	13.8%
Pharmacist Involvement	89.7%
TRACKING	
Antibiotic Use Measures	41.4%
Antibiotic Outcome Measures	55.2%

Figure 2: Proportion of LTCF Meeting Overall Core Elements by Conventional vs. Strict Definitions

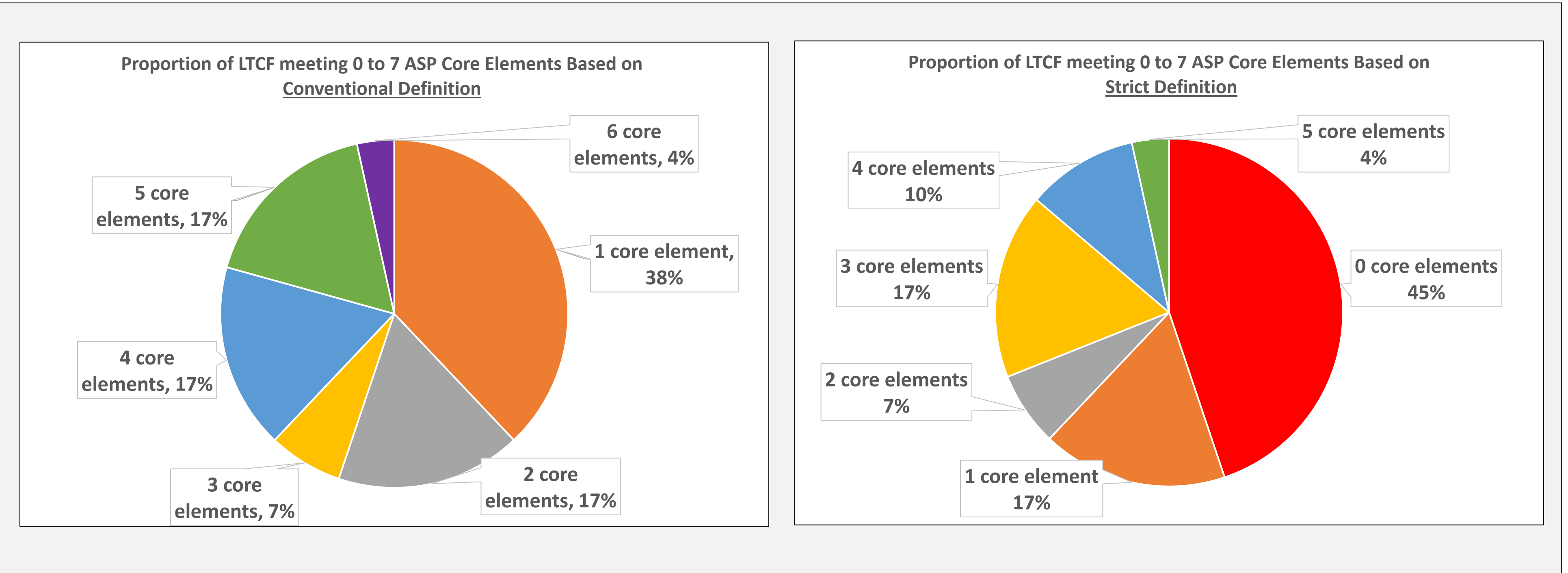
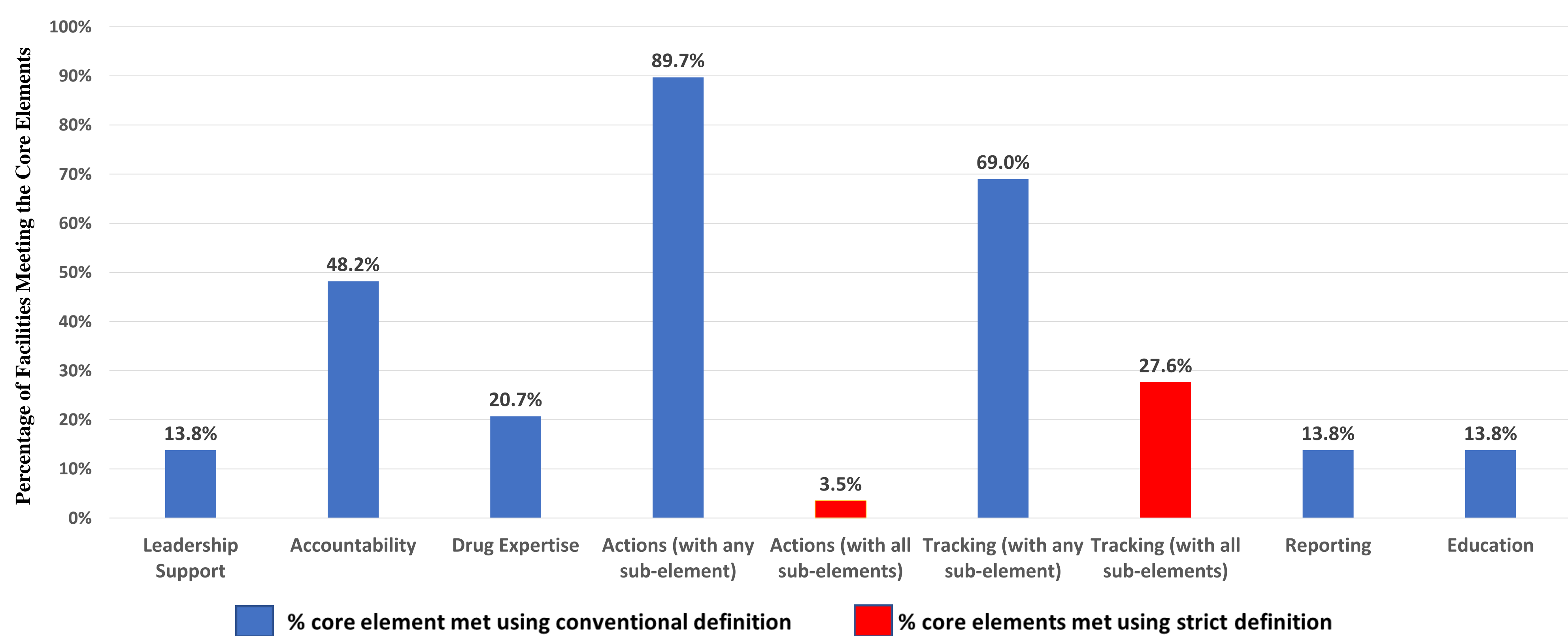


Figure 3: Proportion of LTCF’s Meeting Individual Core Elements Using the Conventional and Strict Definitions



RESULTS

- None of the LTCF’s has all 7 Core Elements regardless of the definition used (Figure 2).
- A median of 2 core elements (range 1-6) were present based on the conventional definition and 1 core element (range 0 - 5) using the strict definition.
- ‘Action’ is the most frequently met core element when using the conventional definition. However, it is the least frequently met core element when using the strict definition (Figure 3).
- Consultant Pharmacists reviewing a proportion of antibiotic orders as a part of their monthly drug regimen review was the most common action met by the facilities (Table 1).
- Majority of the facilities track outcome measures and some track antibiotic use. However, only a quarter of LTCF were tracking both outcomes and antibiotic use (Table 1 and Figure 3).

CONCLUSION

- Many LTCF have some components of Action and Tracking Core Elements in place but are missing important Sub - Elements.
- Data on Core Elements should be collected in a manner that makes it easier to identify these deficiencies during LTCF ASP evaluation.

DISCLOSURE

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REFERENCES

- Center for Disease Control and Prevention; The Core Elements of Antibiotic Stewardship for Nursing Homes Available at <http://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html> Accessed on 9/11/18