

# Evaluating long-term care pharmacy dispense data to monitor antibiotic use in U.S. nursing homes

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## Background

Nursing home (NH) residents are vulnerable to adverse events of inappropriate antibiotic prescribing.<sup>1</sup>

- Estimated 50-70% of residents are prescribed an antibiotic each year.<sup>1</sup>
- 25-75% of antibiotic prescriptions are inappropriate.<sup>1</sup>

### Tracking antibiotic use in NHs

- Actionable and timely data are needed to describe and track antibiotic use in NHs at the local and national level.
- NHs are required to have systems to monitor antibiotic use.<sup>2</sup>
- Most U.S. NHs contract with long-term care pharmacies to dispense prescriptions and provide medication monitoring and review.

**Objective:** Evaluate long-term care pharmacy electronic dispensing data to describe antibiotic use in NHs.

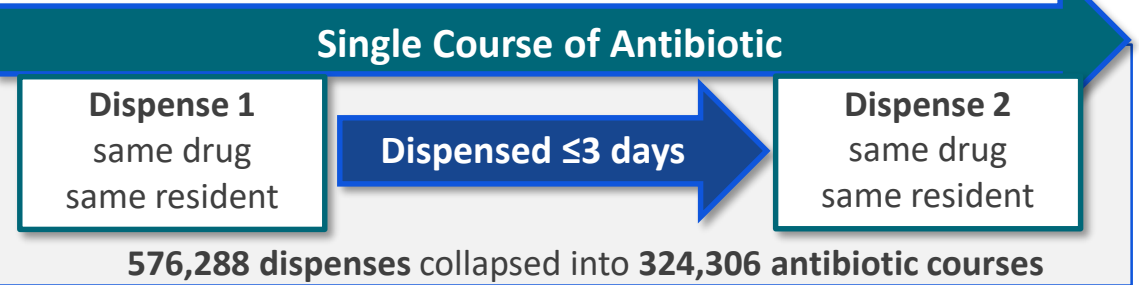
## Methods

Long-term care pharmacy antibiotic dispense data for 2017



» Dispense-level data included facility and resident identifiers, antibiotic class and agent, dispense date, and days-of-therapy (DOT) dispensed

### Definitions and Calculations



- **Course duration** = sum of DOTs for all dispenses in the course  
» Mean duration per course (≥ 30 days excluded)
- **Antibiotic use rate** = DOTs and courses per 1,000 resident-days

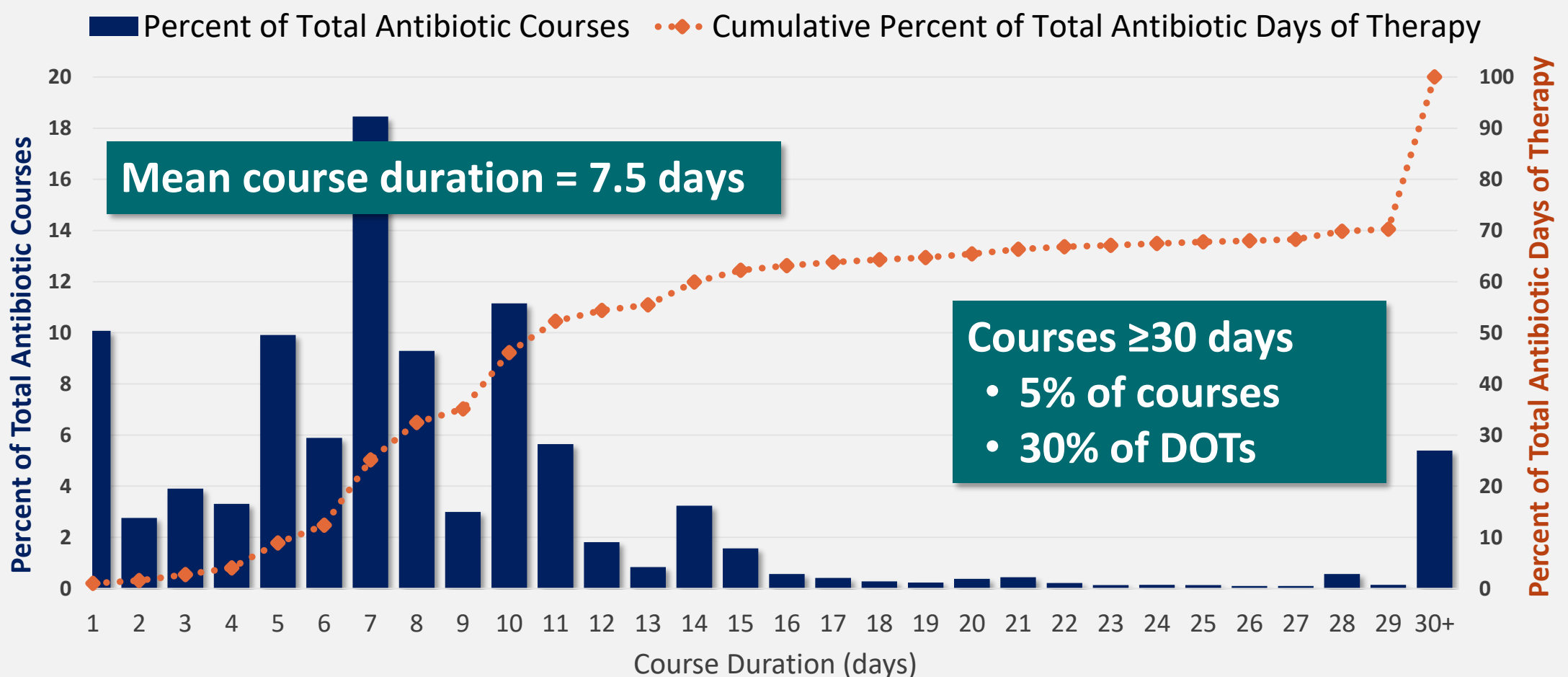
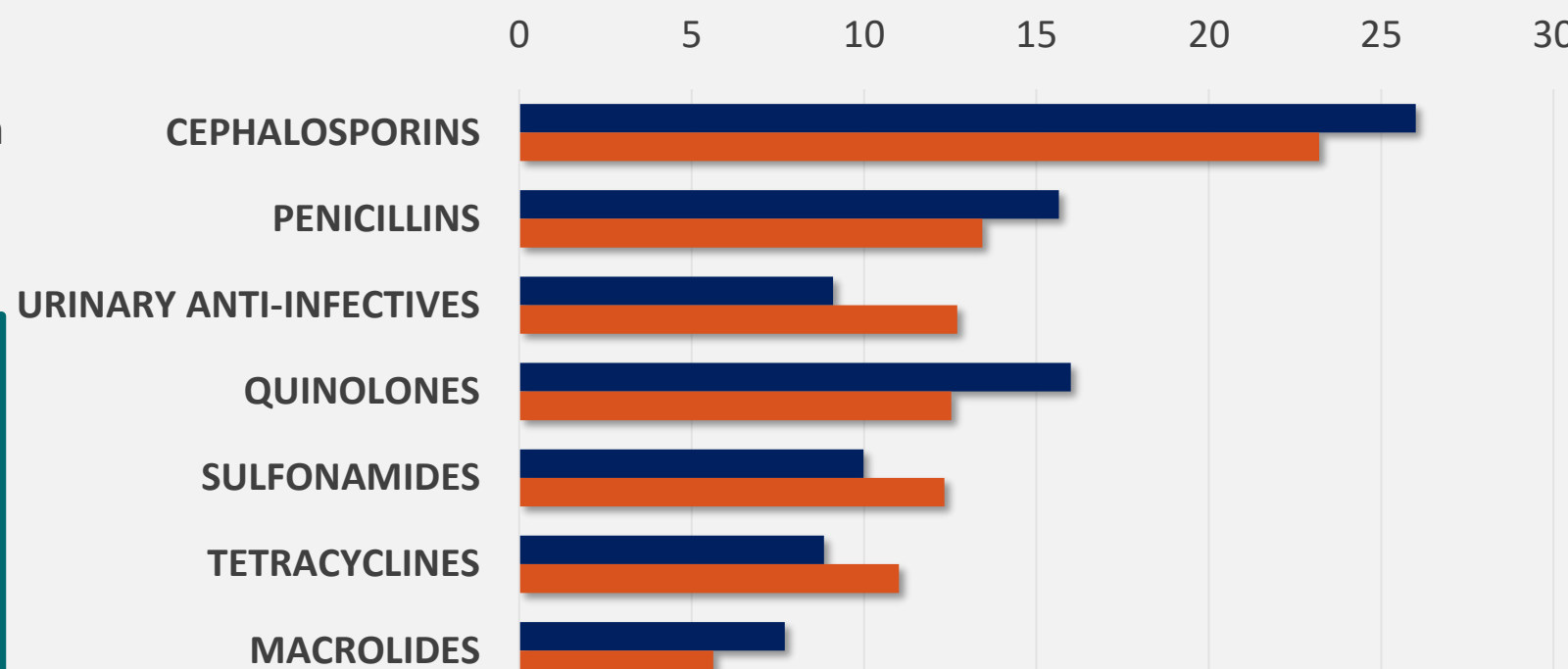
## Results



### Antibiotic Use Rates

- 324,306 antibiotic courses  
» 9 antibiotic courses / 1,000 resident-days
- 3.3 million antibiotic DOTs  
» 86 DOT / 1,000 resident-days

■ Percent of Total Antibiotic Courses ■ Percent of Total Antibiotic Days of Therapy



## Limitations

- May not be representative of all U.S. NHs
- Indication was not available in the dispense data, therefore appropriateness of antibiotic prescribing could not be assessed.
- Dispense data do not distinguish between NH antibiotic starts and continuations from hospital-initiated courses.

## Conclusions

Long-term care pharmacy dispense data can be used to evaluate prescribing patterns by antibiotic class and agent among NH residents.

- These data may be an accessible source to track and report antibiotic use in NHs at the facility-level.
- Reporting antibiotic use data will help to identify opportunities to optimize antibiotic prescribing practices.

### Next Steps

- Further evaluation of data sources for facility- and national-level antibiotic use reporting in NHs is needed to support stewardship implementation in NH settings.

## References

1. Nicolle, L.E., et al., Infect Control Hosp Epidemiol, 2000. 21(8): p. 537-45.
2. Centers for Medicare and Medicaid Services. 2016; Available from: <https://www.govinfo.gov/content/pkg/FR-2016-10-04/pdf/2016-23503.pdf>.

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