



**UWTASP**  
tele-antimicrobial stewardship program

05 NOV, 2018

## Agenda

- John Lynch: *AS Metrics*
- Case Discussions
- Open Discussion

# What are Methods for Measuring and Reporting?

- A. Standardized Antimicrobial Administration Ratio (SAAR)
- B. Antimicrobial costs per patient day
- C. Proportion of undergoing elective surgery who continue antibiotics after the PACU
- D. Defined daily dose (DDD)
- E. Percentage of outpatient encounters without an antibiotic prescription
- F. Rate of healthcare-associated *C. difficile*
- G. Days of therapy (DOT)
- H. Rate of carbapenem-resistant enterobacteriaceae



# Who Are You Talking to?

- A. NHSN
- B. Department of Health
- C. The Joint Commission or
- D. FLEX Grant Administrator
- E. Chief Financial Officer
- F. Surgeon
- G. Hospitalist
- H. Family Practice team



# Who Are You Talking to?

- A. NHSN → SAAR
- B. Department of Health → SAAR?
- C. The Joint Commission → Anything
- D. FLEX Grant Administrator → Core Elements
- E. Chief Financial Officer → Abx costs
- F. Surgeon → Pre-op prophylaxis choice + timing
- G. Hospitalist → Vancosyn use on admit
- H. Family Practice team → % URI with abx rx



# AS Goals and Metrics

If you are going to operationalize an intervention, you are going to need to link it to a metric (process, outcome or both)....and you are going to need to come as close as possible to meeting it....



# Process vs Outcome Measures in AS/QI

## What are process and outcome measures in AS?

### Process:

- Pre-op prophylaxis timing and selection
- % Order-set use for inpatient CAP
- % Antimicrobial allergy assessment
- Peer antimicrobial prescribing comparisons

### Outcome:

- HA-*C. difficile* rate
- MDRO prevalence
- SSI rate
- DOT/DDD
- SAAR



# Standardized Antimicrobial Administration Ratio

- NUMERATOR: antimicrobial days (inpt, ED and 24h obs)
- DENOMINATOR: days present (inpt, ED and 24h obs)

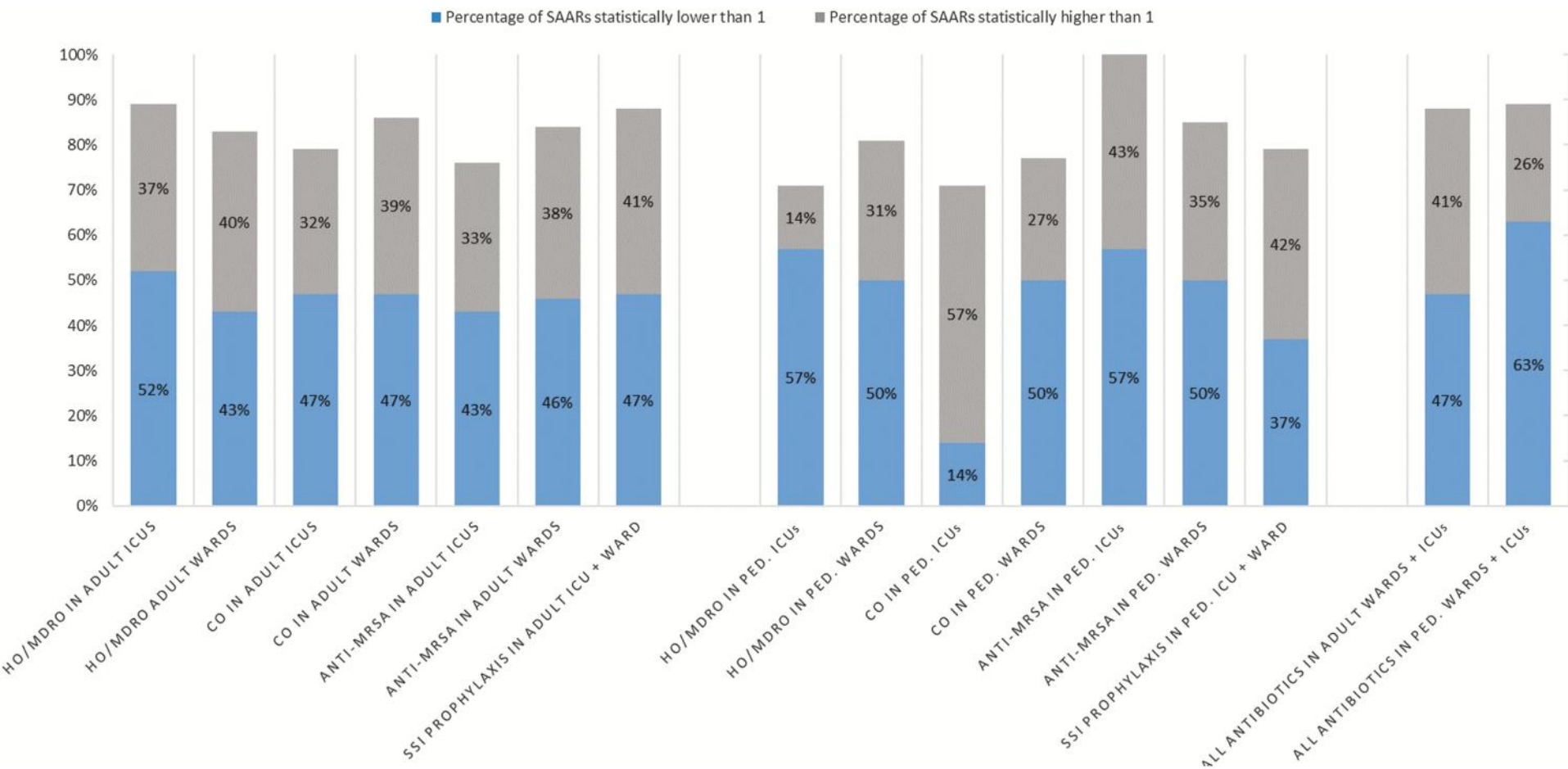


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- Observed (current) to expected (2014 data) ratio
- NQF endorsed







van Santen, CID 2018



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PROS: NSHN validation systems, risk-adjusted, can compare like units, antimicrobial class comparisons, national data

CONS: Data upload, risk adjustment based on small #, req explanation, essentially no outpatient data



# Defined Daily Dose and Days of Therapy

## DDD

- Numerator: “assumed average maintenance dose used for its main indication in adults”<sup>1</sup> often pulled from purchasing data
- Denominator: 1000 patient days
- Used globally, WHO defined and endorsed
- Allows for comparing facilities, but w/o risk adjustment

1. [https://www.whocc.no/atc\\_ddd\\_index/](https://www.whocc.no/atc_ddd_index/)





WHO Collaborating Centre for  
Drug Statistics Methodology



Norwegian Institute of Public Health

News

**ATC/DDD Index**

Updates included in the  
ATC/DDD Index

ATC/DDD methodology

ATC

DDD

ATC/DDD alterations,  
cumulative lists

ATC/DDD Index and  
Guidelines

Use of ATC/DDD

Courses

Meetings/open session

Deadlines

Links

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J **ANTIINFECTIVES FOR SYSTEMIC USE**

J01 **ANTIBACTERIALS FOR SYSTEMIC USE**

J01D **OTHER BETA-LACTAM ANTIBACTERIALS**

J01DD **Third-generation cephalosporins**

ATC code	Name	DDD	U	Adm.R	Note
J01DD04	<a href="#">ceftriaxone</a>	2	g	P	

[List of abbreviations](#)

*Last updated: 2017-12-20*



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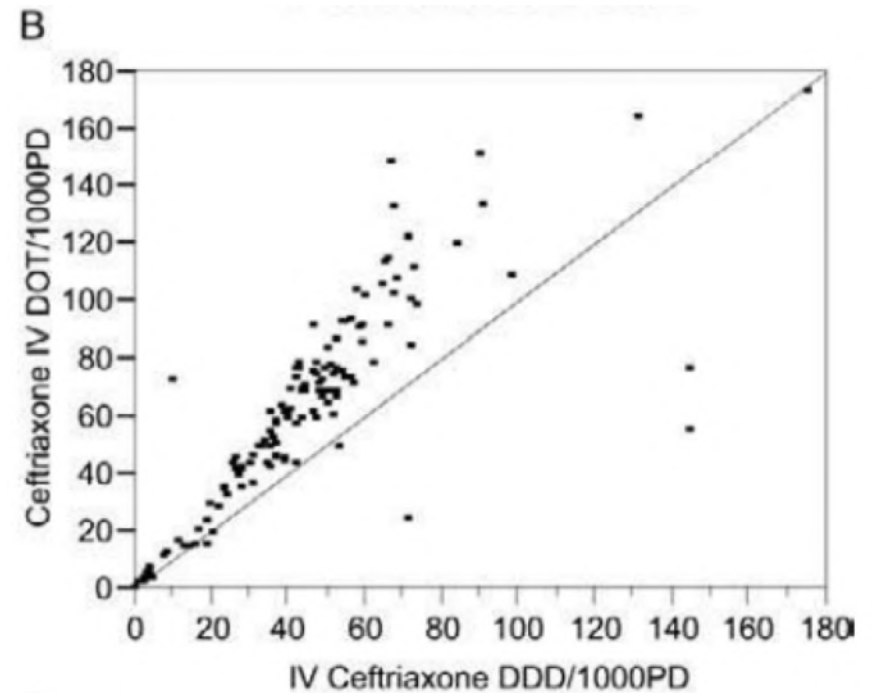
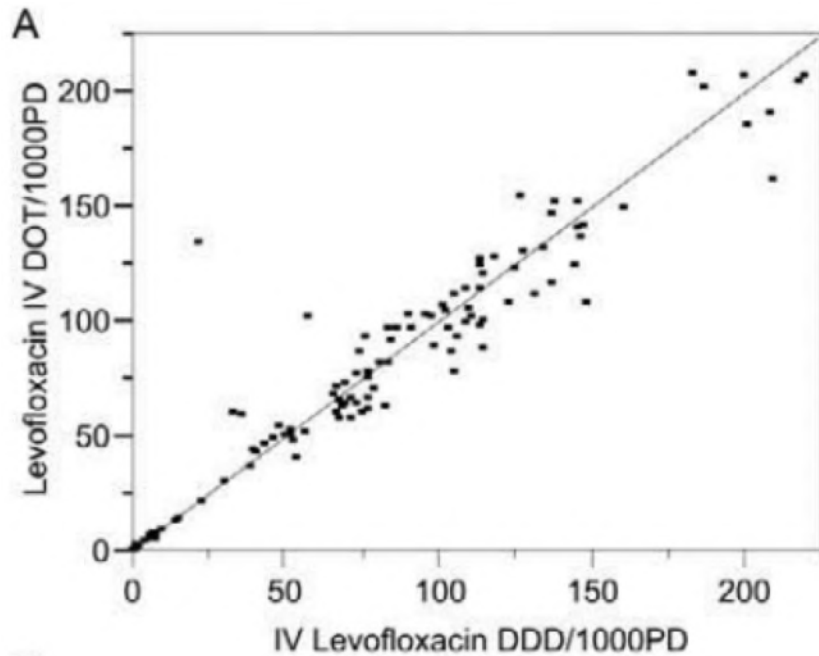
## DOT

- Numerator: how many days a pt is on an abx
- Denominator: 1000 patient days
- More intuitive, but similar limitations as DDD
- OK for peds, CKD/AKI

1. [https://www.whocc.no/atc\\_ddd\\_index/](https://www.whocc.no/atc_ddd_index/)



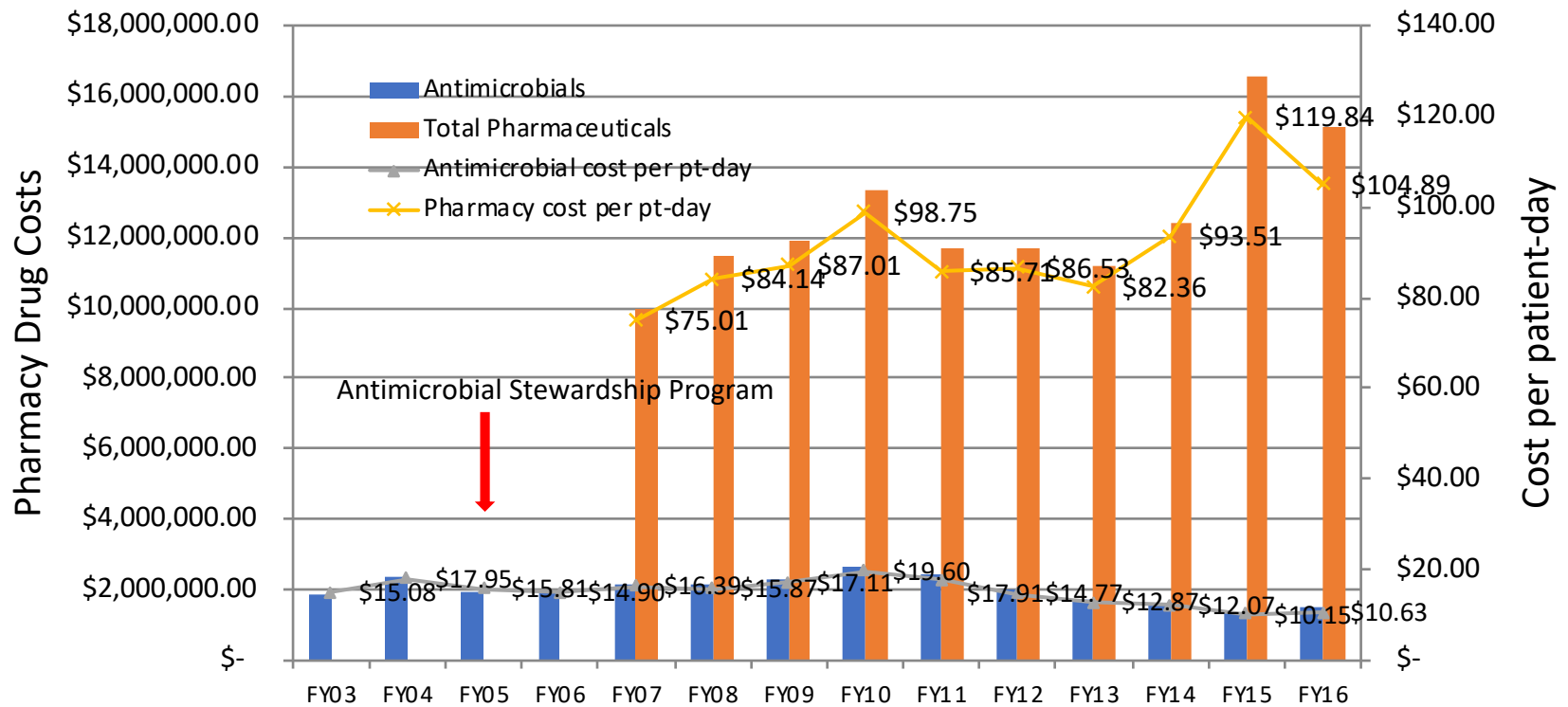
# Comparing DDD and DOT



Polk, CID 2007



# Antimicrobial Cost



# QI-Oriented Metrics

- Link to pre-existing and/or strategic measures that are already in place or need to be launched
- QI and IPC metrics and analysts often already in place. If no data expertise available, you will need to make a case for the FTE
- Data extraction – can you get all of the data? Automated or manual?
- Data presentation – relevant, understandable graphics are key for presentations, which drive behavior and culture change







**CEO, COO, CFO, CMO, CNO, C-ETC  
aka “The C-Suite”**

# References

- van Santen, K. L. *et al.* The Standardized Antimicrobial Administration Ratio: A New Metric for Measuring and Comparing Antibiotic Use. *Clin. Infect. Dis.* **67**, 179–185 (2018).
- [https://www.whocc.no/atc\\_ddd\\_index/](https://www.whocc.no/atc_ddd_index/)
- Polk, R. E., Fox, C., Mahoney, A., Letcavage, J. & MacDougall, C. Measurement of Adult Antibacterial Drug Use in 130 US Hospitals: Comparison of Defined Daily Dose and Days of Therapy. *Clin. Infect. Dis.* **44**, 664–670 (2007).

