



Antimicrobial Stewardship in Skilled Nursing Facilities

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Disclosures

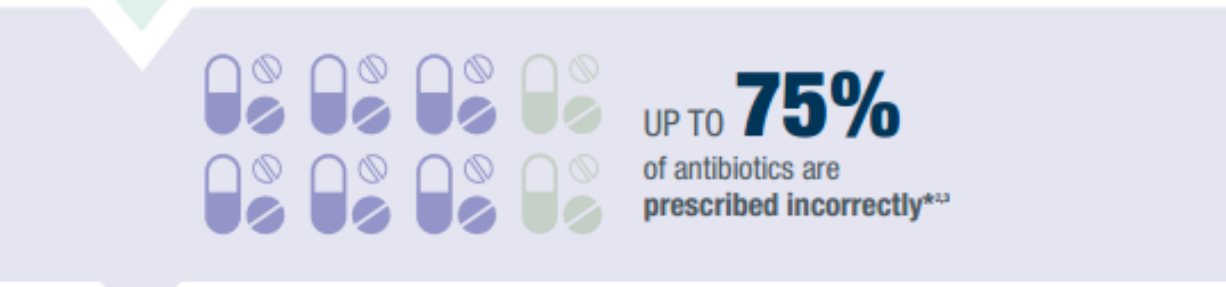
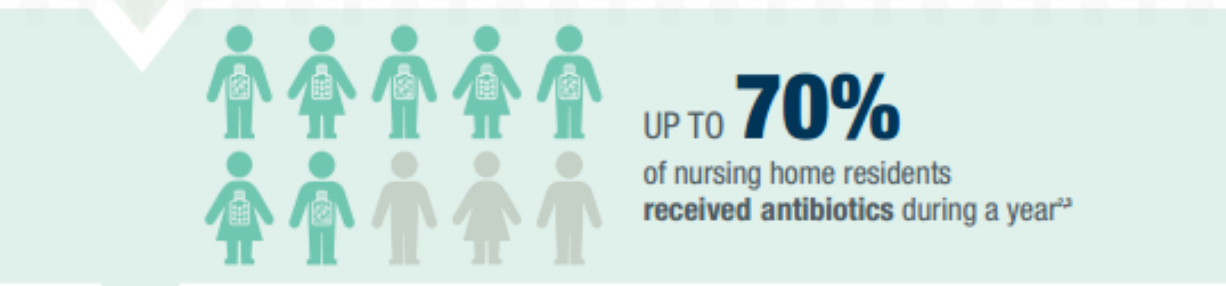
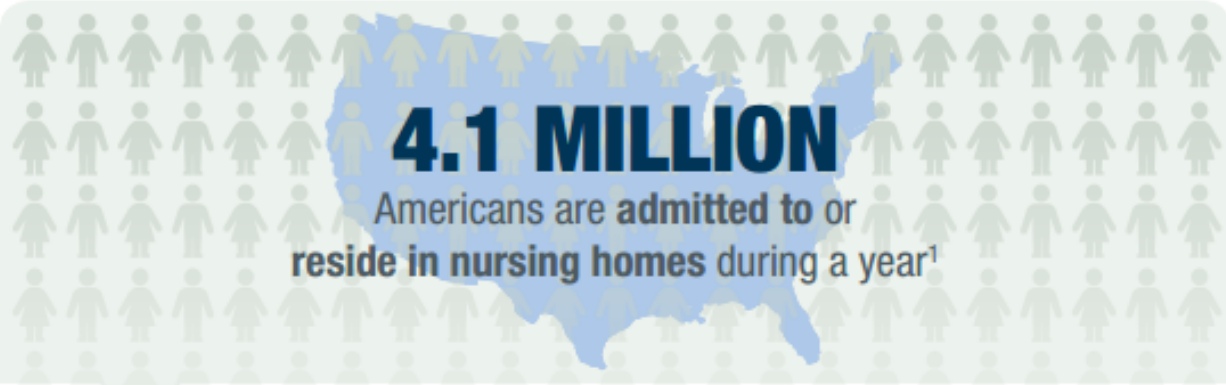
- I have received Research Funding from Pfizer, Cubist, the Medicines Company, and Bristol-Meyers Squibb
- I have received Government Research Funding from NIH, AHRQ, CDC, and CTSI
- I have served as a consultant for Allergan, Actavis, Cubist, Forest, Iterum, Medicines Company, Melinta, Sanofi US, Sanofi Pasteur INC, Science 37, Theravance, and Thermo Scientific
- I am paid consultant for antimicrobial stewardship in skilled nursing facilities

Acknowledgements

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- Ellie Goldstein, MD



Antibiotic Stewardship in Nursing Homes



LTC Antibiotic cost estimates:

\$38-\$137 million per year in US

CDC. Get smart for healthcare: Antibiotic use in nursing homes.
<http://www.cdc.gov/getsmart/healthcare/learn-from-others/factsheets/nursing-homes.html>. Last accessed 8/15/2016.

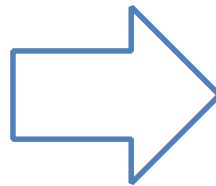
¹Incorrectly = prescribing the wrong drug, dose, duration or reason
²ANCA Quality Report 2013.
³Lim CJ, Kong DCM, Stuart RL. Reducing inappropriate antibiotic prescribing in the residential care setting: current perspectives. Clin Interv Aging. 2014; 9: 165-177.
⁴Nicolle LE, Bentley D, Garibaldi R, et al. Antimicrobial use in long-term care facilities. Infect Control Hosp Epidemiol 2000; 21:537-45.



Centers for Disease Control and Prevention
National Center for Emerging and Zoonotic Infectious Diseases

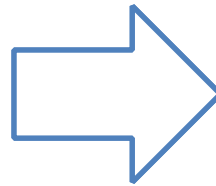
Antibiotics and CDI

Risk of CDI compared to resident on 1 antibiotic



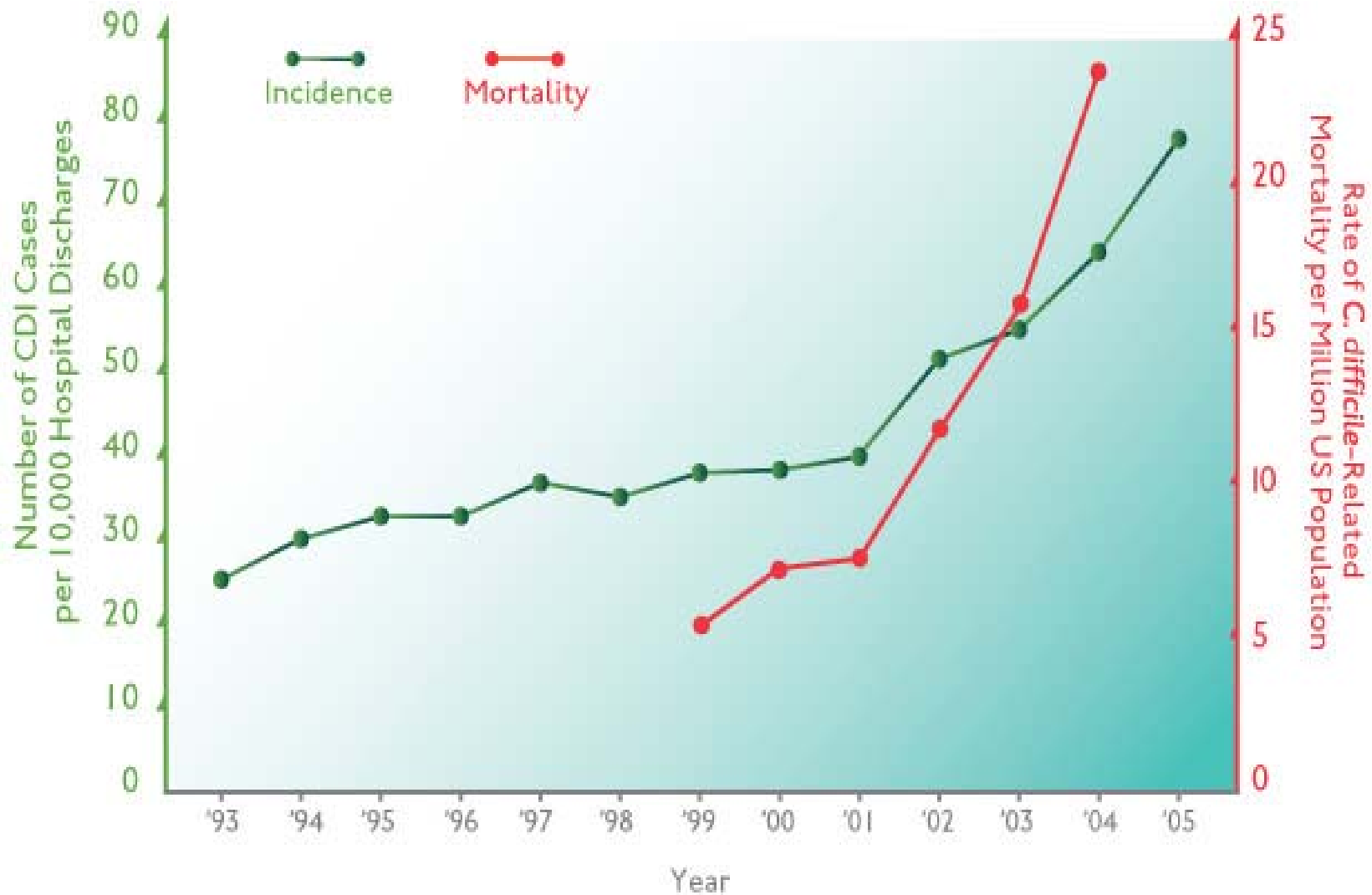
	Number of ATBs		
	2 ATBs	3-4 ATBs	5+ ATBs
	2.5 times higher	3.3 times higher	9.6 times higher

Risk of CDI compared to resident on ATBs for <4 days



	Days of Antibiotic		
	4-7 days	8-18 days	>18 days
	1.4 times higher	3 times higher	7.8 times higher

Increasing US Mortality due to C difficile



California Antimicrobial Stewardship Legislation for Skilled Nursing Facilities

California Senate Bill 361

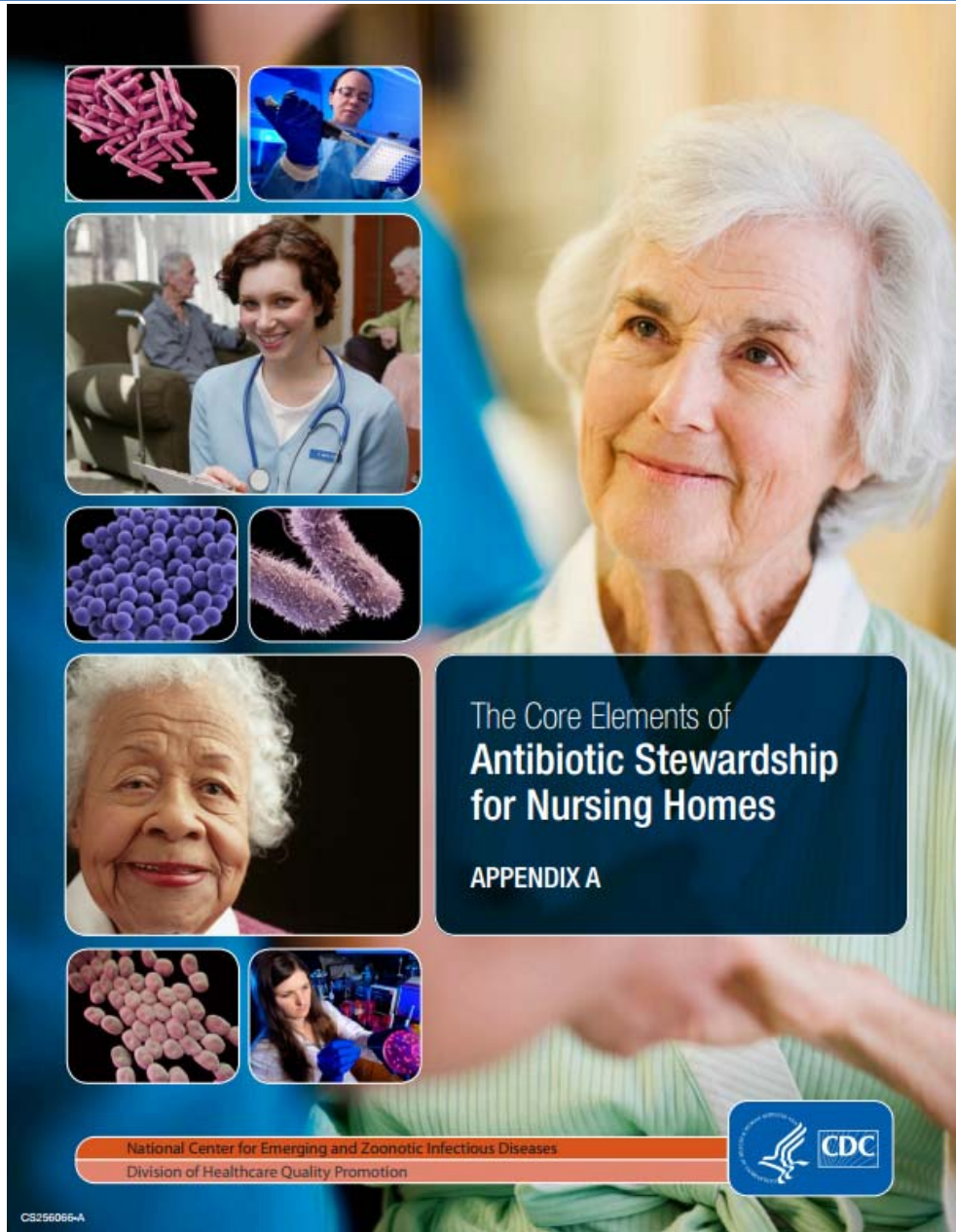
January 1, 2017

Each skilled nursing facility shall adopt and implement an antimicrobial stewardship policy consistent with guidelines.

CDPH HAI Advisory Committee Antimicrobial Subcommittee is developing the core elements required to comply with this legislation.

Antimicrobial Stewardship


“Antimicrobial stewardship is defined as a formalized program that provides advice, consent, and institutional guidance on appropriate selection, dosing, route and duration of antimicrobial usage.”



The Core Elements of
Antibiotic Stewardship
for Nursing Homes

APPENDIX A

National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion



CS25065-A



www.cdc.gov/getsmart

CDC Core Elements of Nursing Home ASP

Leadership Commitment:

Demonstrate support and commitment to safe and appropriate antibiotic use

Accountability:

Identify physician, nursing and pharmacy leads responsible for promoting and overseeing stewardship activities

Drug Expertise:

Establish access to consultant pharmacists or others with stewardship experience or training

Action:

Implement *at least one* policy or practice to improve antibiotic use

Tracking:

Monitor *at least one* process measure of antibiotic use, and *at least one* outcome from antibiotic use.

Reporting:

Provide regular feedback on antibiotic use and resistance to doctors, nurses and relevant staff

Education:

Educate clinicians, nursing staff, residents and families

Starting Stewardship in Nursing Homes

- Support: Medical Director, Administrator and Director of Nursing
- Create an ASP committee
 - Medical Director, DON, IP, Infectious Disease Physician, Infectious Disease Trained Pharmacist , Laboratory
- ASP needs to Meet Regularly



Starting Stewardship in Nursing Homes

- Create and approve a policy
- Evaluate data sources and decide on metrics
- Begin educating nursing staff on goals & practices
- Include/educate physicians – adopt guidelines/set expectations
- Educate residents and family – set expectations

Obtaining Antimicrobial Expertise

- Partnering with an infectious disease physician
- Local on-site at meetings are best; however...
- Telepresence
 - Data analysis
 - Recommendations
 - Interventions
 - Education
 - Survey



Realistic Implementation Timeline

- 0-3 Months
 - Create committee, secure antimicrobial expertise
 - Policy and Procedure, Letters of Support, Education
 - Data and report availability gap analysis
 - Antibiotic usage (DOT) and costs, Antibiogram
 - Outcomes (readmissions, Cdiff infections other HAIs)



Realistic Implementation Timeline

- 4-6 Months
 - Data analysis → opportunities for improvement
 - Define a high value, achievable intervention
- 7-9 Months
 - Review specific data related to first intervention
 - Make adjustments to first intervention
 - Feedback results of first intervention to employees, patients, families and medical staff



Antimicrobial Stewardship

“Our Adventures Into Antimicrobial Stewardship”

“Start with an Easy Intervention with a Guranteed Win!”

-Phil Robinson, M.D.

Antimicrobial Stewardship

Hoag Hospital

Newport, CA

Antimicrobial Stewardship

- Vancomycin 250 mg po Qday x 7 Days for Cdiff

Antimicrobial Stewardship

- Vancomycin 250 mg po Qday x 7 Days for Cdiff

“I was reducing the dose because her renal function is pretty poor.”

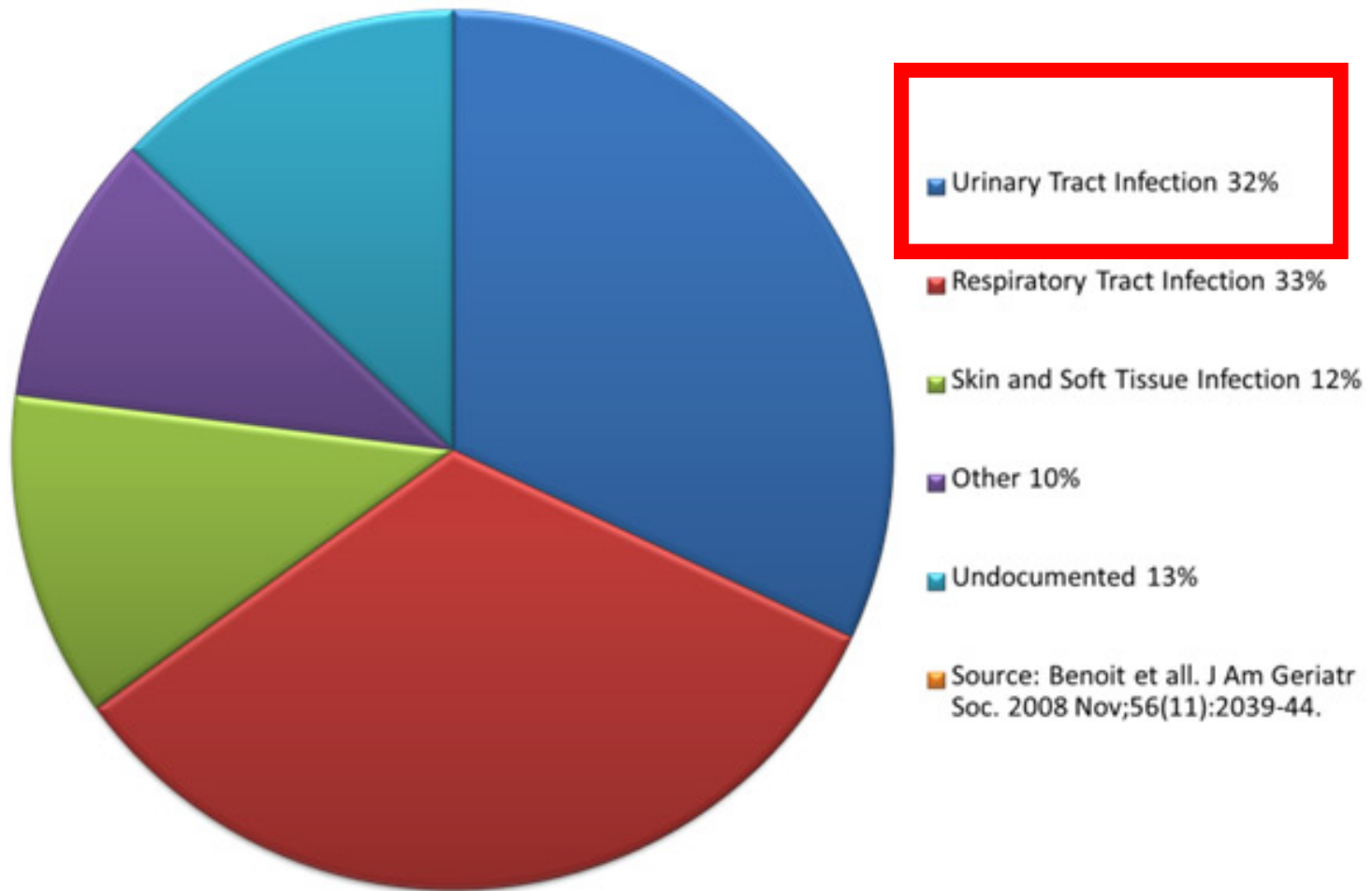
Antimicrobial Stewardship

- Appropriate Treatment
- Appropriate Drug Selection
- Appropriate Duration

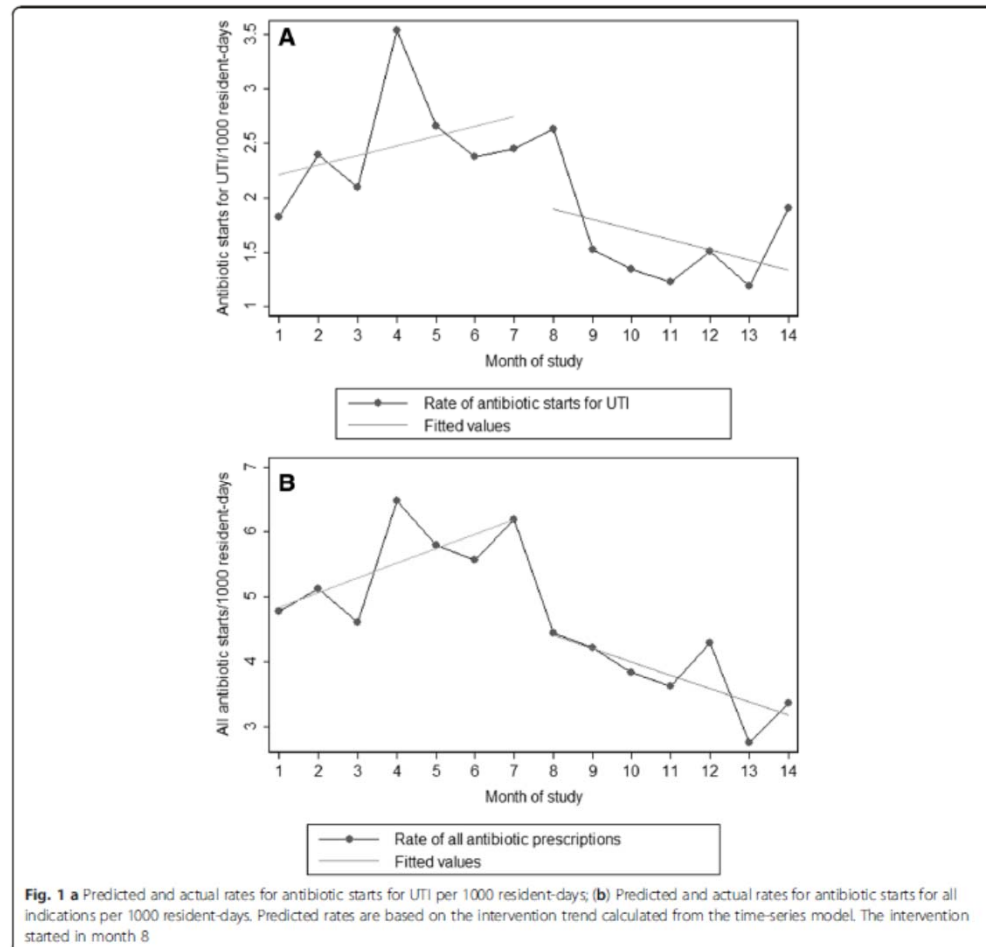
Primary Role: Improve Effectiveness, Safety

Secondary Role: Reduce Needless Costs

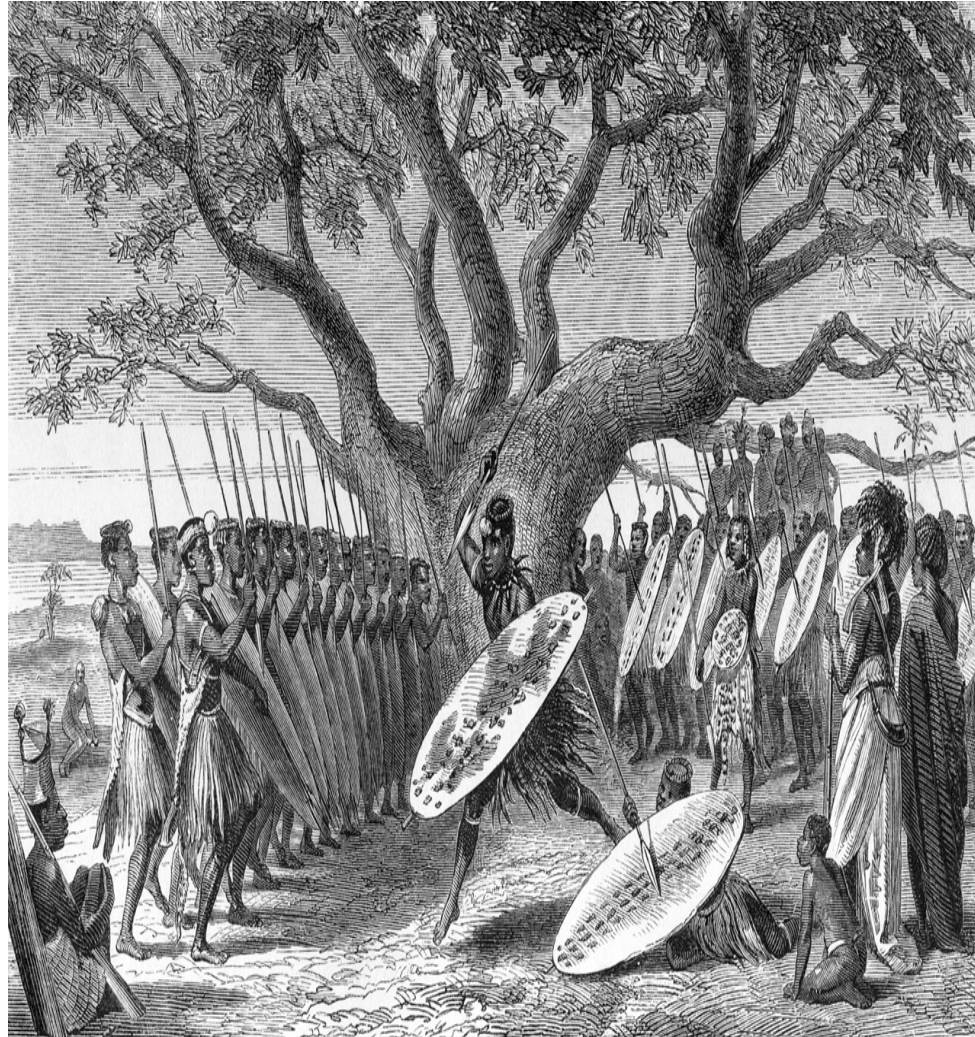
Most common infections treated with antibiotics in nursing homes



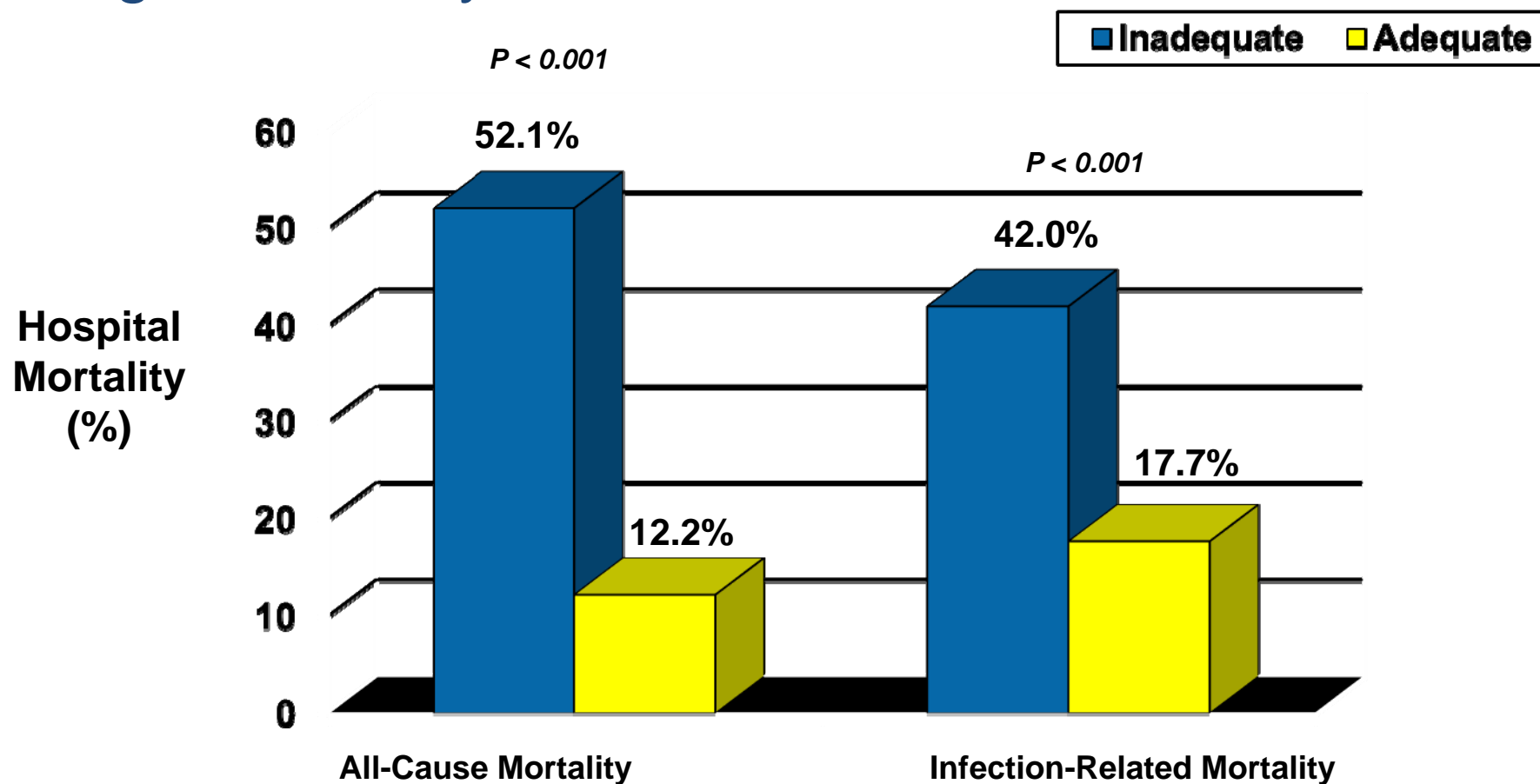
Implementation of an ASP targeting residents with UTI in 3 community LTCFs: A quasi-experimental study using time-series analysis



Tribal Warfare!!!



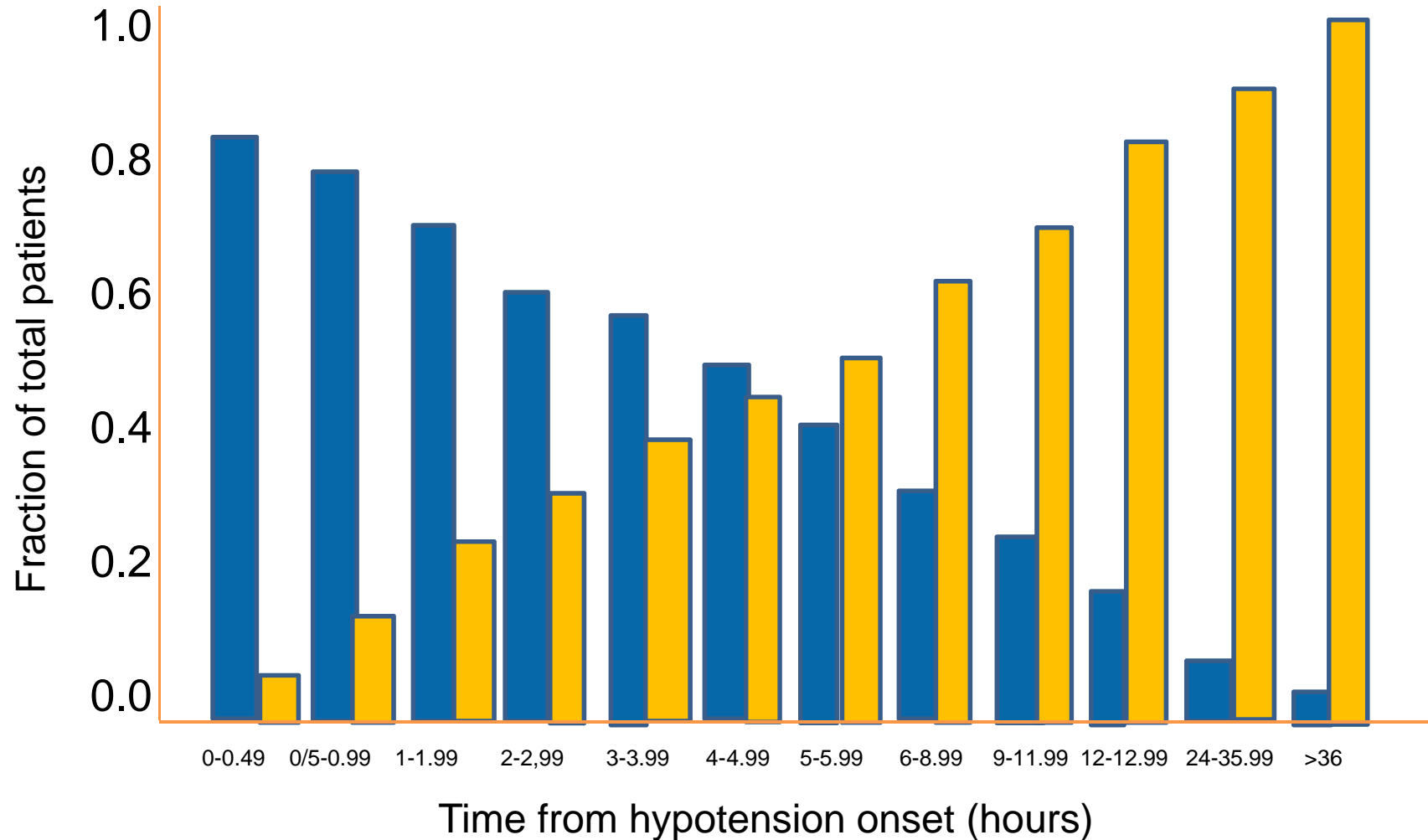
Inadequate antimicrobial therapy associated with higher mortality



Prospective study (n=2000: 655 with infections)
25% of patients received inadequate treatment

Relationship between survival and time to effective antimicrobial treatment among patients with septic shock

Retrospective multi-center study (n=2731)



“Pick Your Battles Wisely”

Antimicrobial Stewardship

- Appropriate Treatment
- Appropriate Drug Selection
- Appropriate Duration

Primary Role: Improve Effectiveness, Safety

Secondary Role: Reduce Needless Costs

Los Angeles County DPH Regional Antibioqram

- Cross-sectional, voluntary, survey of Facility Antibioqrams
- Susceptibility Results from 2013 were aggregated
- Results presented as weighted average

Response Rate

Seventy facilities (70%) submitted an antibiogram

Acute Care Hospitals response rate was 67% (61/91)

75% ACH patient days (n=3,770,438)

74% beds (n=18,316)

LTACH response rate was 100%

All LTAC patient days (n=199,795)

All beds (n=772).

GN Resistance

- **Fluroquinolone Resistance was HIGH**

E. coli was 32% (n=72,103 isolates) for ACH and 83% (594) for LTAC

Pseudomonas aurugenosa was 35% (n=16,198 isolates) for ACH and 70% (n=1,646) for LTAC

Antibiotic Drug Selection

- Fluroquinolones seem to be the favorite antibiotic.¹
- FQ resistance at our facility is HIGH!!²
 - 57% in Acute Care Patients
 - 78% in Custodial Care Patients
- FQ are associated with CDAD.

¹ Copy of IV Drugs 2qrt-2016.xls

Copy of Top 25 PO drugs 2nd-Qtr 2016.xls

² Diagnostic Laboratories 5/1/15 to 4/20/16

Antimicrobial Stewardship

- Appropriate Treatment
- Appropriate Drug Selection
- Appropriate Duration

Primary Role: Improve Effectiveness, Safety

Secondary Role: Reduce Needless Costs

Antibiotic Drug Selection

- 14 Days seems to be the favorite duration.¹
- Minimal dataset

¹ Limited Manual Review of previous Antibiotic Orders

Appropriate ABX Duration

- Ventilator-associated pneumonia: 7-8 days
- Most community-acquired pneumonia: 5 days
- Cystitis: 3-5 days
- Pyelonephritis: 7-10 days
- Cellulitis: 5-7 days

Guideline Targets for Therapy

Antimicrobial Stewardship

- Appropriate Dosing
- Appropriate Drug Selection
- Appropriate Duration

Primary Role: Improve Effectiveness, Safety

Secondary Role: Reduce Needless Costs

Antimicrobial Stewardship

“Needless Costs!!!”

Could be as much as \$6,000 per quarter.¹

¹ We are still working with the pharmacy to get adequate charge numbers.

Thank you for your attention...

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The PROTECT Trial Outcomes

Primary Outcomes

- Infectious admissions
(% of discharges to a hospital due to infection)

Additional Outcomes

- All-cause admissions (% of discharges to a hospital)
- Antibiotic usage
- MDRO prevalence (MRSA, VRE, ESBL, CRE)
- Emergence of resistance (strain collection)

Pacific Villa, Inc. (Prev. The Palmcrest Grand Care Center, Inc)
Bixby Knolls Towers
Del Amo Gardens Convalescent
Heritage Rehabilitation Center
Intercommunity Care Center
Sunnyside Nursing Center
Las Flores Convalescent Hospital
Windsor Gardens Of Hawthorne
Vista Cove Care Center At Long Beach (Prev. Hillcrest Care Center)
Windsor Convalescent of North Long Beach
Windsor Gardens Convalescent Center of Long Beach
Greenfield Care Center of South Gate
Greenfield Care Center Of Gardena
Rosecrans Care Center
Pacific Care Nursing Center
Santa Fe Convalescent Hospital
Torrance Care Center West
Torrance Care Center East

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