



UWWTASP
tele-antimicrobial stewardship program

16 July, 2019

Agenda

- Paul Pottinger: *AS in SNFs & LTCFs*
- Case Discussions
- Open Discussion



UWWTASP

tele-antimicrobial stewardship program

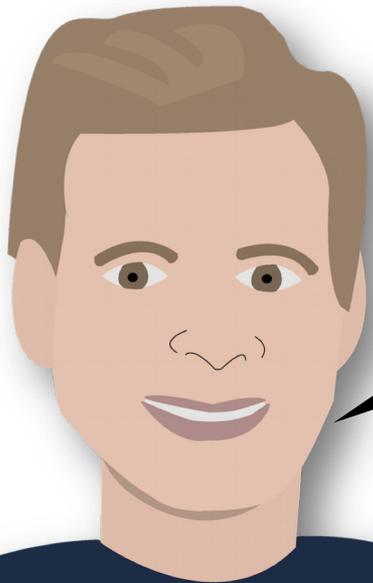
- No financial conflicts of interest.
- Everything we discuss is QI, thus protected from legal discovery under WA State Code.



Paul Pottinger MD

AS in SNFs: *Objectives*

- Epidemiology
- Common Issues...
 - ✓ Urine
 - ✓ Wounds
 - ✓ Sputum
- Share challenges & successes

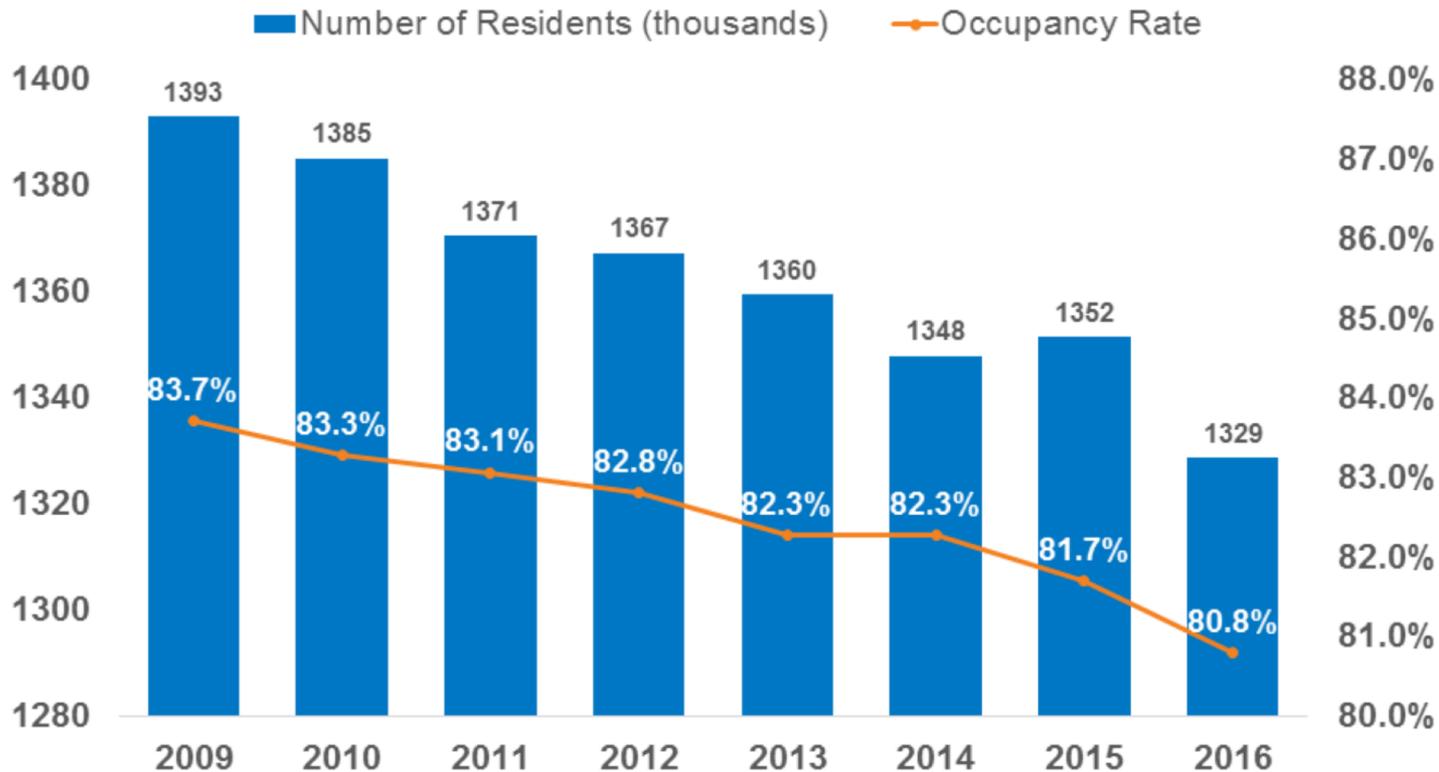


Paul Pottinger MD



AS in SNFs: *Epidemiology*

Number of Nursing Facility Residents and Occupancy Rates, 2009-2016



SOURCE: Harrington, Carrillo, Garfield, and Squires based on OSCAR/CASPER data.

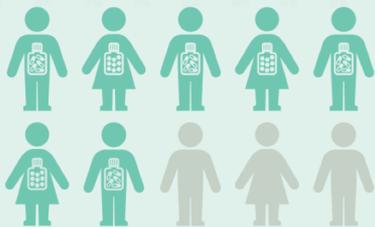




Antibiotic Stewardship in Nursing Homes

4.1 MILLION

Americans are admitted to or reside in nursing homes during a year¹



UP TO **70%** of nursing home residents received antibiotics during a year^{2,3}



UP TO **75%** of antibiotics are prescribed incorrectly^{2,3}



CDC recommends **7 CORE ELEMENTS** for antibiotic stewardship in nursing homes

- Leadership Commitment
- Drug Expertise
- Reporting
- Accountability
- Action
- Tracking
- Education



Cost-estimates of antibiotics in nursing homes range from

\$38 million to **\$137 million** per year.¹



Residents in nursing homes with higher antibiotic use have a

24% increased risk of antibiotic-related harm.²



In nursing homes with higher antibiotic use, **even residents who do not receive antibiotics are at increased risk**

of indirect antibiotic-related harms due to the spread of resistant bacteria or *C. difficile* germs from other patients.²



In nursing homes, approximately

20% of healthcare providers account for about **80%** of antibiotics prescribed.¹



Roughly

40–75% of antibiotics are prescribed incorrectly.

Nearly

50% of antibiotics prescribed in nursing homes may be given longer than necessary.¹



Current nursing home regulations (e.g., F-tag 441, F-tag 329, F-tag 428)

already include requirements to review and monitor antibiotic use.



AS in SNFs: *Urine*



“Mom’s confused again”

- 88 y/o woman with dementia lives in a SNF. Wheelchair-to-bed. Dependent on others for all ADLs.
- Daughter visited earlier today, found pt to be less interactive than usual. Incontinence pad smells more strongly than usual, contains scant dark urine. Pt sent to your ER for UTI workup and treatment.

Your questions... your concerns?

- Delirium \neq UTI. Malodorous or concentrated urine \neq UTI.
- Other explanations for delirium? (Meds... Decreased PO intake... Meds... Sleep disturbance... Meds... Progression of dementia... Meds...?)



AS in SNFs: *Urine*



Asymptomatic Bacteriuria in SNF patients

- **Non-Catheterized:** 25-50%
- **Catheterized:** 100%
- **“UTI” treatment:** Drives 30-60% of abx use in SNFs.
- **ABU treatment:** May drive resistance... risk toxicity... delay definitive treatment of the real issue.



AS in SNFs: *Urine*



Guidelines can reduce inappropriate abx use!

Table 1. Educational information for nursing staff regarding criteria for sending urine cultures

Criteria for sending a urine culture:

- Fever or rigors
- Urinary urgency or frequency
- Dysuria
- Hematuria
- New onset of urinary incontinence
- Acute urinary retention
- Flank pain
- Significant change in mental status, with no other explanation

Do NOT send a urine specimen routinely for:

- Foul-smelling or cloudy urine
- After every urethral catheter change
- Upon admission
- After treatment to document cure

Table 2. Educational information for primary care providers regarding diagnosis of symptomatic urinary tract infection

Symptomatic urinary tract infection must have:

One of the following symptoms: fever, urgency, frequency, dysuria, or suprapubic tenderness

AND

Positive urine culture ($>10^5$ organisms/cm³)

OR

Two of the following symptoms: fever, urgency, frequency, dysuria, or suprapubic tenderness

AND

Two urine cultures with the same uropathogen ($>10^2$ organisms/cm³) or other positive findings

Table 3. Educational information for primary care providers regarding criteria for empiric antibiotic treatment while awaiting culture results

No indwelling catheter present:

Acute dysuria alone

OR

Fever AND at least 1 of the following: urgency, frequency, suprapubic tenderness, hematuria, flank pain, new incontinence

Indwelling catheter present:

Presence of at least 1 of the following symptoms: fever or rigors, costovertebral tenderness, or new-onset delirium



AS in SNFs: *Wound*



“Dad’s got a bedsore”

- 79 y/o man with type-2 DM and ESRD lives in a SNF. Advised to avoid walking on his diabetic foot ulcer.
- Son visited earlier today, found pt to have a stage-2 sacral pressure ulcer. Son is upset, asks what abx will be prescribed.

Your questions... your concerns?

- Wound \neq Infection.
- Other steps crucially important (Offload pressure... Optimize nutrition... Move A1c towards goal)



AS in SNFs: *Wound*

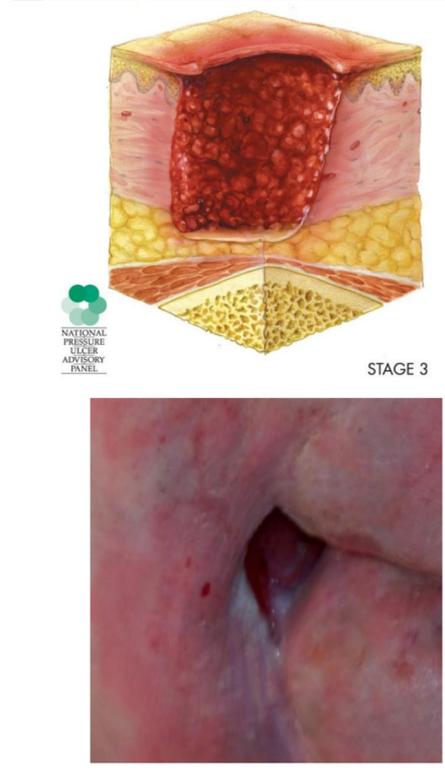
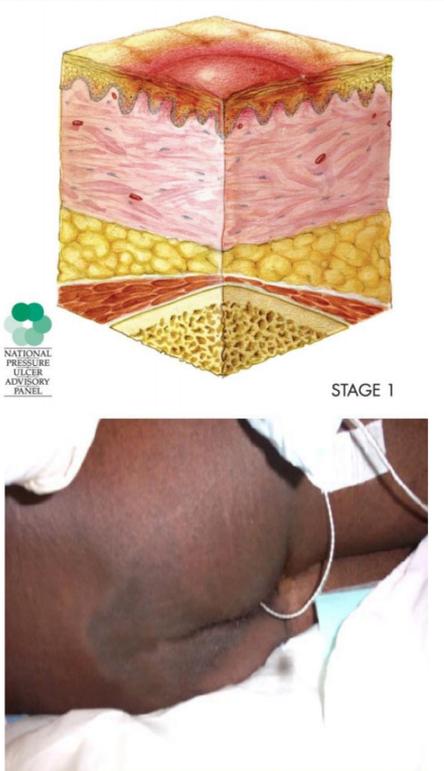


Pressure Ulcers in SNF patients

- Theoretically, 100% preventable!
- Source of pain, suffering, cascade of immobility → deconditioning → worse immobility...
- Smelly... ugly... miserable
- 100% colonized... only occasionally infected (inflammation, fever, leukocytosis, purulent discharge)
- Treatment may drive resistance... risk toxicity... distract from definitive treatment of the real issue.



AS in SNFs: Wound



bone

- Infection can happen at any stage... But not necessarily!
- All stages require offloading & attentive care... abx alone will **not** fix this problem!



AS in SNFs: *Sputum*



“Marty’s sputum looks cloudy”

- 59 y/o man with traumatic brain injury → trach & PEG.
- Nurse notes white, frothy appearance of sputum in vent tubing trap. She has sent it for culture to see what’s in there.

Your questions... your concerns?

- Cloudy sputum ≠ Infection.
- What’s the bigger picture? (Fever? Elevated WBC? Change in oxygenation or vent requirements?)



AS in SNFs: *Sputum*



VAP in SNF / LTC

- **Frequency:** 100% vent circuits colonized.
- **Micro:** GNRs predominate, including enterics and “water bugs” (*Pseudomonas*, *Stenotrophomonas*, *Acinetobacter*, etc.)
- **Critical question:** Colonization or infection? Micro alone cannot distinguish. Only YOU can diagnose VAP!
- **Stakes are high:**
 - ✓ *Overtreatment* may drive resistance... risk toxicity... distract from definitive treatment of the real issue.
 - ✓ *Undertreatment* may harm the patient.





Core Elements for Antibiotic Stewardship in Nursing Homes

Leading Antibiotic Stewardship in Nursing Homes

Who are the Antibiotic Stewardship Leaders in Nursing Homes?

- ▶ **Medical Director**
- ▶ **Director of Nursing**
- ▶ **Consultant Pharmacist**

What are their Roles?



Medical Directors can:

- ▶ Set standards for antibiotic prescribing practices for all healthcare providers prescribing antibiotics.
- ▶ Oversee adherence to antibiotic prescribing practices.
- ▶ Review antibiotic use data and ensure best practices (e.g., the right drug at the right dose for the right amount of time) are followed.



Directors of Nursing can:

- ▶ Establish standards for nursing staff to assess, monitor and communicate changes in a resident's condition that could impact the need for antibiotics.
- ▶ Use their influence as nurse leaders to help ensure antibiotics are prescribed only when appropriate.
- ▶ Educate front line nursing staff about the importance of antibiotic stewardship and explain policies in place to improve antibiotic use.



Consultant Pharmacists can:

- ▶ Provide education to staff about the different types of antibiotics and their uses.
- ▶ Review antibiotic prescriptions as part of the drug regimen review for new medications and ensure they are ordered appropriately.
- ▶ Establish laboratory testing protocols to monitor for adverse events and drug interactions related to use of antibiotics and other high risk medications.
- ▶ Review microbiology culture results and provide feedback to prescribers on initial antibiotic selection to let them know if it is the right drug to treat the infection or if the bacteria may be resistant to the antibiotic.

What can my nursing home do to improve antibiotic stewardship?

Nursing homes can implement the following:

- ▶ **Leadership commitment:** Demonstrate support and commitment to safe and appropriate antibiotic use.
- ▶ **Accountability:** Identify leaders who are responsible for promoting and overseeing antibiotic stewardship activities at the nursing home.
- ▶ **Drug expertise:** Establish access to individuals with experience or training in improving antibiotic use.
- ▶ **Action:** Take at least one new action to improve the way antibiotics are used in the facility.
- ▶ **Tracking:** Measure how antibiotics are used and the complications (e.g., *C. difficile* infections) from antibiotics in the facility.
- ▶ **Reporting:** Share information with healthcare providers and staff about how antibiotics are used in the facility.
- ▶ **Education:** Provide resources to healthcare providers, nursing staff, residents and families to learn about antibiotic resistance and opportunities for improving antibiotic use.





In nursing homes, approximately **20%** of healthcare providers account for about **80%** of antibiotics prescribed.¹



Roughly **40–75%** of antibiotics are prescribed incorrectly.

Nearly **50%** of antibiotics prescribed in nursing homes may be given longer than necessary.¹



Current nursing home regulations (e.g., F-tag 441, F-tag 329, F-tag 428) **already include requirements** to review and monitor antibiotic use.



Core Elements for Antibiotic Stewardship in Nursing Homes

Creating a Culture to Improve Antibiotic Use in Nursing Homes

Why is Antibiotic Stewardship Important for Nursing Homes?

- ▶ Antibiotics are some of the most commonly prescribed medications in nursing homes.
 - Over the course of a year, up to 70% of nursing home residents get an antibiotic.
- ▶ Roughly 40% to 75% of antibiotics are prescribed incorrectly.
 - In nursing homes, high rates of antibiotics are prescribed to prevent urinary tract infection (UTI) and respiratory tract infection (RTI). Prescribing antibiotics before there is an infection often contributes to misuse.
 - Often residents are given antibiotics just because they are colonized with (carrying) bacteria that are not making the person sick. Prescribing antibiotics for colonization contributes to antibiotic overuse.
- ▶ When patients are transferred between facilities, for example from a nursing home to a hospital, poor communication between facilities about prescribed antibiotics (e.g., rationale, number of days) plus insufficient infection control practices can result in antibiotic misuse and the spread of antibiotic resistance.
- ▶ Antibiotic-related harms, such as diarrhea from *C. difficile*, can be severe, difficult to treat, and lead to hospitalizations and deaths, especially among people over age 65.
- ▶ Current nursing home regulations (e.g., F-tag 441, F-tag 329, F-tag 428) already include a requirement to review and monitor antibiotic use.

What Can I Do as a Leader to Improve Antibiotic Use?

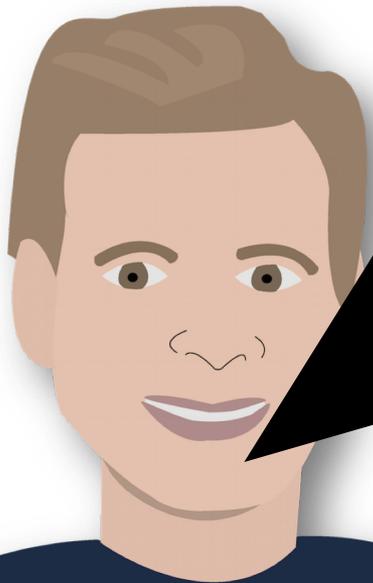
- ▶ Share formal statements in support of improving antibiotic use with staff, residents and families.
- ▶ Commit resources for monitoring antibiotic use and providing feedback to staff.
- ▶ Identify and empower the medical director, director of nursing, and/or consultant pharmacist to lead stewardship activities.
- ▶ Have clear policies to improve prescribing practices for staff to ensure patients are not started on antibiotics unless needed.
 - Establish minimum criteria for prescribing antibiotics,
 - Develop facility-specific standards for empiric antibiotic use, based on data from the facility; and
 - Review antibiotic appropriateness and resistance patterns on a regular basis.
- ▶ Print and distribute materials to educate staff, residents and families.
- ▶ Provide access to individuals with antibiotic expertise for support staff accountable for implementing antibiotic stewardship activities.
- ▶ Partner with antibiotic stewardship program leaders at hospitals and infectious diseases consultants in the community.

¹ Strausbaugh LJ, Joseph CL. Burden of Infections in Long-Term Care. *Infect Control Hosp Epidemiol* 2000;21:674-679.

² Daneman, N et al. Variability in Antibiotic Use Across Nursing Homes and the Risk of Antibiotic-Related Adverse Outcomes for Individual Residents. *JAMA Intern Med.* 2015; E1-E9.

AS in SNFs: *Conclusions*

- Need for AS is great
- Legal requirement!
- Particularly challenging!
 - ✓ ABU... or UTI?
 - ✓ Pressure ulcer... or cellulitis?
 - ✓ Vent colonization... or VAP?
- Leadership opportunities in nursing... pharmacy... physicians... epi... public health



Paul Pottinger MD



AS in SNFs: *References*

1. <https://www.cdc.gov/longtermcare/index.html>
2. <https://www.kff.org/report-section/nursing-facilities-staffing-residents-and-facility-deficiencies-2009-through-2016-facility-characteristics>
3. Nicolle LE et al. Urinary tract infections in long-term-care facilities. *Infect Control Hosp Epidemiol* 2001; 22:167–75.
4. Benoit SR et al. Factors associated with antimicrobial use in nursing homes: A multilevel model. *J Am Geriatr Soc.* 2008; 56:2039–2044.
5. Zarbarsky TF et al. Sustained reduction in inappropriate treatment of asymptomatic bacteriuria in a long-term care facility through an educational intervention. *Am J Infect Contr* 2008; 36: 476-480.
6. Mubareka S et al. Use of diagnostic tests for presumed lower respiratory tract infection in long-term care facilities. *J Am Geriatr Soc.* 2007; 55:1365–1370.
7. Carusone SC et al. A clinical pathway for treating pneumonia in the nursing home: part I: the nursing perspective. *J Am Med Dir Assoc.* 2006;7(5):271-8.
8. Daneman N et al. Prolonged antibiotic treatment in long-term care: role of the prescriber. *JAMA Intern Med.* 2013; 173 (8): 673-682.

