

# **Results of an Educational Intervention and Barriers to Antimicrobial Stewardship in a Skilled Nursing Facility**



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# Introduction - Challenge of Skilled Nursing Facilities (SNF)

- ~ 1.4 million live in SNFs in the U.S.
- ~ 1 in 10 receive an Abx on any given day
- Abx - most commonly prescribed medication
- 40-70% chance of receiving an Abx within 6 months of admission
- Nearly half of Abx prescriptions are likely **not necessary**
- Abx account for 20% of Adverse Drug Reactions (ADR)
- Risk for *CDI*, resistant organisms, ADR

Source: Crnich et al, 2015

# Definition of Antimicrobial Stewardship

- Antimicrobials = important **community** resources
  - Misuse = environmental patient safety issue
  - Easy transmissibility of resistant organisms places local and global community at high risk
- Antimicrobial stewardship = set of activities and commitments by a community to
  - To protect the use of antimicrobials in order
  - To ensure appropriate and optimal treatment of infections
  - To reduce the chance of resistant organisms
  - To reduce other adverse drug reactions



# Problem Statement

- Unique Challenges in SNFs
  - Residents – atypical sxs of infection or disease
  - RNs do not utilize their potential
  - Incomplete resident assessments
  - Unstructured communications from staff
  - Inconsistent staffing due to rapid nurse turnover
- Off-site providers and diagnostic services
  - Few guidelines for initiating, de-escalating, or determining the duration of antimicrobials
  - Blurry x-rays and delayed lab reports

Source: Corazzini, et al., 2015; Crnich, et al., 2015; Dyar, Pagani, & Pulcini, 2015



# Purpose of the DNP Project

- ▢ Prepare facility for SB 361 enactment – Jan 2017
  - ▢ Assist in implementing facility AS program
  - ▢ Improve quality of care
- ▢ Effect of an educational intervention directed at licensed staff nurses
  - ▢ Determine impact of infection criteria on antimicrobial prescriptions
  - ▢ Provide a guideline (McGeer-Stone Criteria) for initiating antimicrobials

# Theoretical Framework

- NHs – Complex social and environmental culture
- LTCF culture and milieu – Environment
  - Affect decision to prescribe antimicrobials
  - Off-site prescribers and diagnostic services
- Theoretical Frameworks
  - F. Nightingale: ***Environmental Theory of Nursing*** – SNF milieu
  - E. Roger: ***Theory of Diffusion of Innovation*** –social milieu and communication channels

See Crnich, et al., 2015; Hegge, 2014; Rogers, 2003; Sahin, 2006; Selanders, 1993; Smith, et al., 2008



# Review of the literature

- Stuart, et al., 2012 – Point Prevalence Study
  - 5 RACFs in Australia – Sep 2011
  - 27.95% to 43.4% of Abx did not fulfill criteria
- Zimmerman, et al., 2014 – QI to reduce Abx use
  - 12 NHs in North Carolina – June 2011 to Feb 2012
  - Attributes success to prescriber commitment
- Fleet, et al., 2014 – Prospective cluster RCT
  - 30 NHs in London – Jan 2010 to May 2011
  - RAMP increased compliance with criteria and decreased Abx use





# Scales, et al., 2017 - Cross Sectional Study

- Only study of licensed nurses and AS
- 31 NHs in North Carolina
  - 6 nurse leaders from each facility
  - 3 MDs, 3 NPs/PAs with high caseloads
- Purpose - attitudes & perspectives prior to AS program establishment
- Prescribers > Nurses supported reduction
  - Subspecialty MDs - most supportive
- **Suggest** - MDs strong role in encouraging system change and supporting nurse

# Study Participants – Licensed Nurses

- Licensed Nurses
  - Educational Intervention – facility required
  - Confidential **Post**-Educational Intervention Survey – not mandatory
- Residents were **not** participants
  - **Retrospective** chart review – pre & post Educational Intervention
- IRB obtained from CSU Fresno
  - Facility did not require IRB



# Methods

## **1. Educational Intervention (Oct 2016)**

- In-services to licensed nurses
- Orientation of newly hired licensed nurses

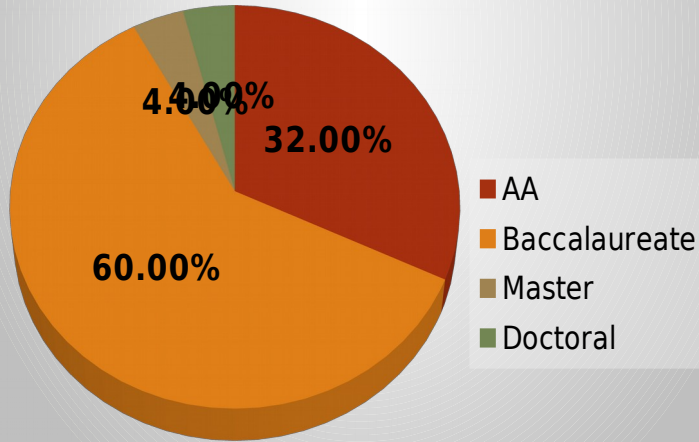
## **2. Nurse Survey (Nov to Dec 2016)**

## **3. Chart Audits**

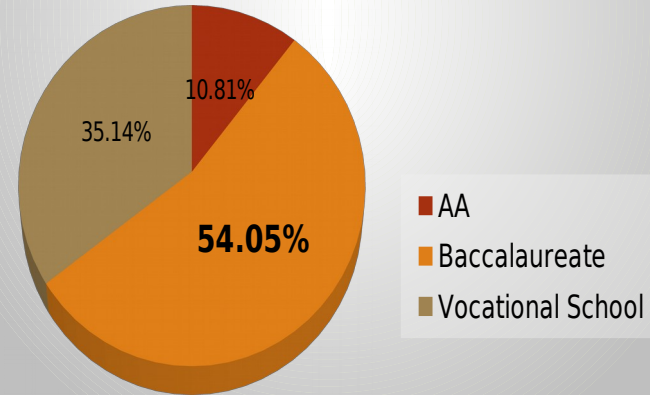
- Pre (**Sep 2016**) and
- Post (**Nov 2016**) Educational Intervention

# Profile of LN Survey Responders

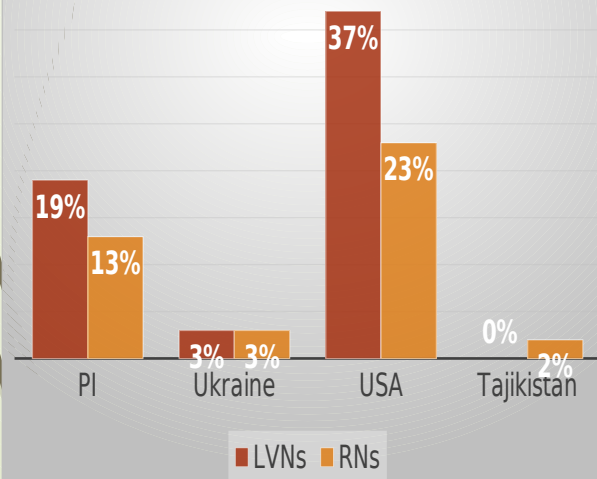
## RNs - Highest Level of Education



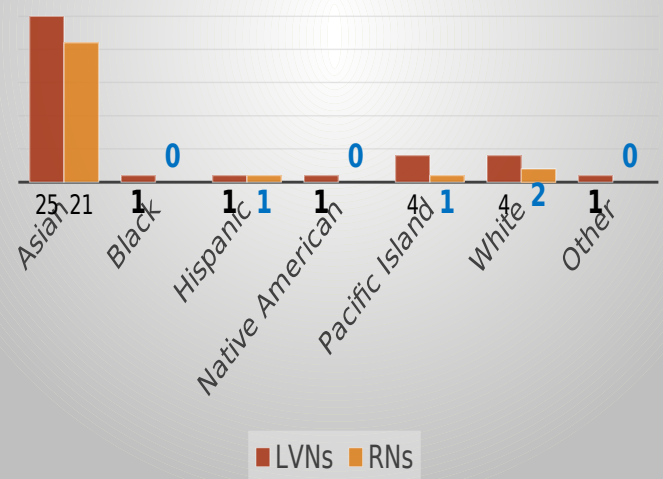
## LVNs - Highest Level of Education



## Country of Original Licensure / Education



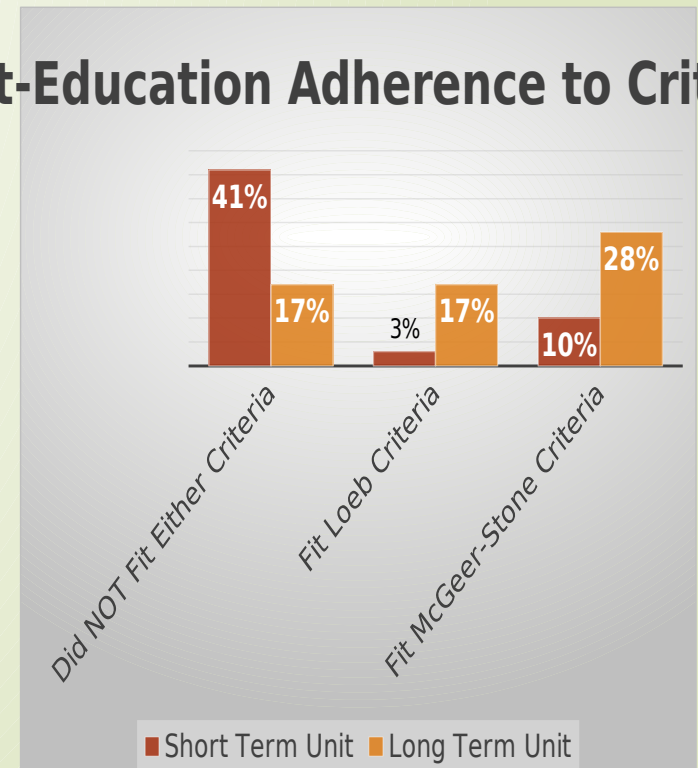
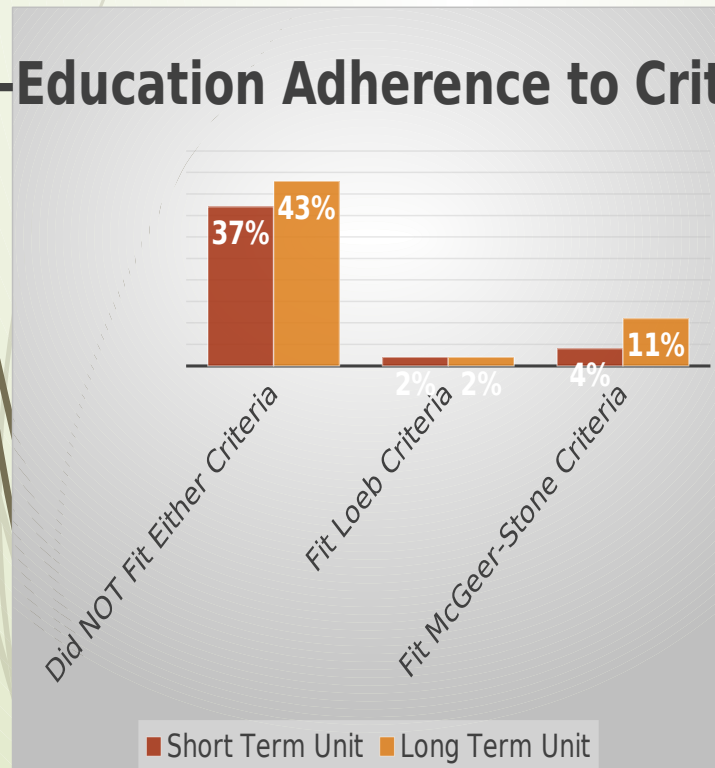
## Ethnic Background of Licensed Nurses



# Pre and Post Adherence to Criteria

- Dramatic change in adherence to Criteria
- Higher adherence in LTC / LVN unit than in STU / RN unit

## Pre-Education Adherence to Criteria      Post-Education Adherence to Criteria





# Barriers & Limitations

- Small sample - Only one facility
- Facility characteristics may be very different from other facilities - not applicable to other LTCFs
- High nurse turnover
- Educational intervention to new hires and annually to staff continues
- Requires follow-up to determine sustainability of program



# Discussion

- Need more studies of SNF licensed nurses
  - LVN – Some activities outside scope of practice
  - RN potential not realized – what is RN’s role in SNFs?
- NPs – Possible key to change & applicability of AS
- Buy-in of nurse leaders and prescribers needed to support and sustain change, including AS
- AS education should begin in nursing school

See Corazzini et al., 2015; McGilton et al., 2016



# Recommendations

- More studies of licensed nurses in SNFs
  - Should differentiate RNs and LVNs
  - To help resolve SNF staffing issues
  - To determine nurse competencies for this setting
- Use of written nurse surveys may be inadequate in this setting
- NPs be engaged in stewardship activities in NHs
- Antibiotic stewardship training be included in nursing school curriculums e.g. the clinical area



Thank  
you  
Questions ?



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