FR25- Reports from the Front: Updates on the Approach to UTI From Three Stewardship Projects

Friday, March 23
3:30 PM- 5:00 PM

Session Description

This session will provide participants with emerging information regarding urinary tract infection (UTI) management from national and international antimicrobial stewardship projects. The session will discuss implementation of new guidelines for the diagnosis of UTI, the development of new guidelines for the diagnosis and management of uncomplicated cystitis, and the presenter's experience in implementing a post-prescribing antibiotic time out as recommended by the Centers for Disease Control and Prevention (CDC).

Learning Objectives

Discuss facilitators and barriers with regard to implementation of a restrictive antibiotic prescription policy for UTI.

Describe new guidelines for the diagnosis and treatment of uncomplicated cystitis in nursing home residents.

Discuss factors to consider in the implementation of a post-prescribing antibiotic time out.

Presenter(s): Cees Hertogh, MD, PhD; Christopher Crnich, MD, MPH, PhD; David Nace, MD, MPH, CMD

Presenter(s) Disclosures: All speakers have reported they have no relevant financial relationships to disclose.
FR 25- Reports from the Front: Updates on the Approach to UTI from Three Stewardship Projects

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Madison VA Hospital & University of Wisconsin

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VU University Medical Center, Amsterdam

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University of Pittsburgh

Speaker Disclosures

Drs. Hertogh & Nace do not have any conflicts of interest related to this presentation.

Dr. Crnich reports being a consultant to Zurex for the development of cutaneous antiseptics for the prevention of HAI.

Learning Objectives

By the end of the session, participants will be able to:

• Discuss facilitators & barriers with regard to implementation of a restrictive antibiotic prescription policy for UTI.

• Describe new guidelines for the diagnosis and treatment of uncomplicated cystitis in nursing home residents.

• Discuss factors to consider in the implementation of a post-prescribing antibiotic time out.

Antibiotic Stewardship for UTI in Dutch nursing homes: impact of a new guideline

Prof. dr. Cees M.P.M. Hertogh

Speaker Disclosures

Prof. Hertogh has disclosed that he has no relevant financial relationship(s).
How to tackle the problem of antibiotic resistance?

- Development of new antibiotics
- Infection prevention and control
- Antibiotic stewardship

Two sets of interventions:
- Recommended care at patient level (stewardship objectives)
  - E.g. prescribing according to guidelines
- Strategies for achieving stewardship objectives
  - Restrictive strategies, e.g. formulary restriction
  - Persuasive strategies, e.g. education and feedback

IMPACT Study: % inappropriate antibiotic use

Methods
(algorithm for UTI)

Results

Why bother?

- Presenting symptoms of UTI in NH residents:
  - Mental status change:
    - Lethargy,
    - Disorientation,
    - Restlessness,
    - Increasing irritability,
    - Aggressiveness,
    - Not being themselves,
    - Increased or new onset of confusion
    - Delirium

(Van Bui et al, 2015; Juthani-Mehta et al, 2008)

Why bother?

- High prevalence of bacteriuria (15 – 50 %)
- Majority (90%) of those with bacteriuria also have pyuria
- Urine-analysis and culture can rule out, but cannot rule in the diagnosis
- In practice both are potent drivers of AB prescription
Current Verenso guideline:

- Offers ample opportunity to diagnose UTI
- Considers urine culture to be "the gold standard"
- Posits urine analysis and cultures as diagnostic tools to rule in UTI
- Considers non-specific signs & symptoms alongside specific signs & symptoms
  - IMPACT study: > 50% UTI diagnosis based on non-specific S&S.

Two worlds apart?

- Infection control specialists ◇ focus on specific S&S
- Clinicians ◇ consider non-specific S&S based on the geriatric paradigm of atypical illness presentation

Specific S & S  
ABU

Non-specific S & S
Delphi study: Objective

- Find consensus on which S&S, attributed to UTI in everyday practice, allow for withholding AB prescribing
- Integrate the results into a practical algorithm for the empiric treatment of possible UTI in frail older persons

Methods

- A Delphi procedure:
  - Expert opinion
  - Series of structured questionnaire rounds
  - Anonymous feedback
  - Consensus: ≥75% agreement

Methods

- The expert panel
  - 16 invited based on multiple research publications
  - 15 accepted invitation, one additional expert suggested
  - Final panel: 16 experts
    - 5 different nationalities
    - Mean age 56 (range: 42 – 71)
    - Disciplines: ID specialist (10), internist (6), geriatrician (6), GP (3), elderly care physician (2), MM (1)

Results

- Four questionnaire rounds, one year
  - High response

<table>
<thead>
<tr>
<th>Round</th>
<th>Response</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>88%</td>
</tr>
<tr>
<td>3</td>
<td>94%</td>
</tr>
<tr>
<td>4</td>
<td>88%</td>
</tr>
</tbody>
</table>

Algorithm
National pilot: antibiotic surveillance & stewardship

- 6 participating long term care organisations (N= 433 - N= 1946)
- Registration period: 4 months (September – December 2017)
- Based on national surveillance criteria
- Registration forms for UTI and LRTI built into software EPF (YSIS)
- To ensure accurate data collection with limited time investment

'Suspected UTI' / 'UTI related' progress note:
- (Patient characteristics)
- Signs and symptoms
- Additional diagnostics (urine-analysis, culture) → follow up after 10 days
- (Type of) antibiotic prescribed
- Any change in treatment?

Surveillance UTI

<table>
<thead>
<tr>
<th>Participant</th>
<th>Percentage AB prescriptions for 'suspected' UTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>75%</td>
</tr>
<tr>
<td>2</td>
<td>73%</td>
</tr>
<tr>
<td>3</td>
<td>71%</td>
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<tr>
<td>4</td>
<td>80%</td>
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<tr>
<td>5</td>
<td>73%</td>
</tr>
<tr>
<td>6</td>
<td>84%</td>
</tr>
</tbody>
</table>

Surveillance UWI

<table>
<thead>
<tr>
<th>Participant</th>
<th>Total (5294 beds)</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>N=729</td>
<td>75%</td>
</tr>
<tr>
<td>2</td>
<td>N=178</td>
<td>73%</td>
</tr>
<tr>
<td>3</td>
<td>N=183</td>
<td>71%</td>
</tr>
<tr>
<td>4</td>
<td>N=146</td>
<td>80%</td>
</tr>
<tr>
<td>5</td>
<td>N=100</td>
<td>73%</td>
</tr>
<tr>
<td>6</td>
<td>N=62</td>
<td>84%</td>
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</tbody>
</table>

Antibiotics prescribed per participating LTCF

<table>
<thead>
<tr>
<th>Participant</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>58%</td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>51%</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>62%</td>
</tr>
</tbody>
</table>

Signs & Symptoms + findings urine analysis when AB was prescribed

<table>
<thead>
<tr>
<th>Participant</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
<td></td>
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<tr>
<td>3</td>
<td></td>
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<tr>
<td>4</td>
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<tr>
<td>5</td>
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<tr>
<td>6</td>
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</tbody>
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Guideline conformity of treatment decision (green)
Participants’ comments

- “A very positive experience”
- “Thanks to the pop-ups and the additional questions I became more critical about my treatment decisions: ‘is this truly a UTI?’”
- “Participating in this pilot made me and my colleagues aware of the fact that we should have engaged in this project (ABS) much earlier.”
- “My policy with this vulnerable patient group: ‘Better safe than sorry.’”
- “There is something wrong with these data, because I don’t recognise myself in this feedback.”

What’s next

- Adaptation software
- New measurement after ABS interventions are in place
- Conduction of the ANNA study (cRCT)
  - Introduction of the algorithm in nursing homes
  - Evaluate effect on AB prescribing for presumed UI
- Conduction of the ImpresU study (cRCT)
  - Introduction of the algorithm in home care and care homes in different European countries

Thank you for your attention

Wanna know more about our research?

Mail: cmpm.hertogh@vumc.nl

Improving Outcomes of UTI Management in Long-Term Care Facilities: The IOU Study

David A. Nace, MD, MPH, CMD
Associate Professor of Medicine
Director, Long-Term Care
Division of Geriatric Medicine
University of Pittsburgh

Funding Source: AHRQ - R18 HS23779

Rationale for the IOU Study
The Problems of Suboptimal Antimicrobial Use

- The leading cause of **antimicrobial resistance**
- A leading cause of adverse drug events (ADE)
- Increases risk of *Clostridium difficile* (C. diff) infection.
- Increases healthcare costs
- Increases mortality

### UTI and Antimicrobial Stewardship

- **Suspected UTI** most common “infection” in LTC.
- Majority of antibiotic use for suspected UTI is unnecessary
- Reducing antibiotic burden may reduce complications

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### The Many Faces of UTI

- Asymptomatic Bacteriuria
- Misdiagnosis (Atrophic Vaginitis)
- Poor Collection Techniques
- Cystitis
- Complicated UTI (Pneumonitis, Prostatitis, Epididymitis)
- CAUTI

### Reframing the Diagnostic Approach to UTI

- **Complicated UTI / Other Infections**
  (Pneumonitis, Prostatitis, Catheter Associated, Pneumonia, SSI, Diverticulitis, Non-UTI Sepsis)
- **Likely Cystitis Cases**
  (Non-Catheter Associated Bladder Infections)
- **Unlikely Cystitis Cases**
  (ASB, Misdiagnosis, Poorly Collected Specimens)

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### The IOU Study Design

- **Guideline Development**
  - Literature Review
  - Delphi Surveys
  - Guideline Finalization
- **Dissemination**
  - Recruitment
  - Tool Development
  - Tool Testing
  - Facility Training
- **Analysis & Refinement**
  - Data Analysis
  - Tool Revision
  - Public Release (AMDA Website)
The IOU Study - Dissemination

- Objective
  - Effectively disseminate an evidence based guideline for treatment of cystitis

- Dissemination Targets
  - Pilot dissemination of materials in national cohort of nursing homes
  - Revise materials based on feedback
  - Make materials available to all homes

- Proposed Sites
  - 40-48 nursing homes
  - 4 geographic regions
    - Northeast
    - Potomac and Southeast
    - Midwest and Northwest
    - Southcentral and Southwest

The IOU Study - Interventions

- Education
  - Content – Webinars, Recorded Video PPT
  - QAPI – Webinar, Recorded Video PPT

- QAPI
  - Coaching calls
  - Audit / Feedback
  - Guideline Pocket Cards
  - Case vignettes
  - Order Form
  - Resident / Family educational materials
  - Active Monitoring Form for UTI Symptoms
  - Web training sessions

The IOU Study - Outcomes

- Primary Outcome
  - Number of UTI’s
    - Total Number – based on case report forms
    - Guideline Adherent - Medication Appropriateness Index (MAI)

- Other Outcomes
  - UTI rates – all UTI per 1000 res-days
  - Urine culture orders / 1000 res-days
  - C diff
  - Transfers
  - Mortality

Medication Appropriateness Index (MAI)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is there an indication for the drug?</td>
<td>3</td>
</tr>
<tr>
<td>2. Is the medication effective for the condition?</td>
<td>3</td>
</tr>
<tr>
<td>3. Is the dosage correct?</td>
<td>2</td>
</tr>
<tr>
<td>4. Are the directions correct?</td>
<td>2</td>
</tr>
<tr>
<td>5. Are the directions practicable?</td>
<td>1</td>
</tr>
<tr>
<td>6. Are there clinically significant drug-drug interactions?</td>
<td>2</td>
</tr>
<tr>
<td>7. Are there clinically significant drug-disease interactions?</td>
<td>2</td>
</tr>
<tr>
<td>8. Is there unnecessary duplication with other drugs?</td>
<td>1</td>
</tr>
<tr>
<td>9. Is the duration of therapy acceptable?</td>
<td>1</td>
</tr>
<tr>
<td>10. Is this drug the least expensive alternative compared to others of equal utility?</td>
<td>1</td>
</tr>
</tbody>
</table>

Inter-rater reliability - kappa = 0.47 to 0.84
Intra-rater reliability - kappa = > 0.70

Studies of the Inter-Rater Reliability of the MAI

<table>
<thead>
<tr>
<th>Author</th>
<th>Patients/ Drug Rated</th>
<th>Country/Setting</th>
<th>Kappa or ICC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burdick (1996)</td>
<td>physician &amp; pharmacist, 2 pharmacists</td>
<td>US/VA hospital</td>
<td>0.78</td>
</tr>
<tr>
<td>Samuel (1996)</td>
<td>physician &amp; pharmacist</td>
<td>US/VA hospital</td>
<td>0.77</td>
</tr>
<tr>
<td>Friesan (2001)</td>
<td>pharmacist &amp; physician</td>
<td>US/VA hospital</td>
<td>0.74</td>
</tr>
<tr>
<td>Kim (2002)</td>
<td>pharmacists</td>
<td>US/VA hospital</td>
<td>0.83</td>
</tr>
<tr>
<td>Brecht (2003)</td>
<td>pharmacist &amp; physician</td>
<td>US/VA hospital</td>
<td>0.50</td>
</tr>
<tr>
<td>Spreen (2006)</td>
<td>pharmacist &amp; physician</td>
<td>US/VA hospital</td>
<td>0.84</td>
</tr>
<tr>
<td>Cugno (2007)</td>
<td>2 pharmacists</td>
<td>Spain</td>
<td>0.78</td>
</tr>
</tbody>
</table>

ICC = Intraclass correlation coefficient, US=United States
The IOU Study Current Status

Literature Review – Diagnosis

- Search Strategy
  - English language
  - 1980 - 2016
  - Pub Med, Embase,
  - Additional searches of existing guidelines, Google Scholar, review article references
- Studies Identified
  - 712 diagnosis studies in PubMed; 1048 in Embase – 1219 unique articles – 90 potential – 19 addressed signs/symptoms
- Symptoms Identified for Delphi Survey
  - 13 potential UTI symptoms
  - 3 quality control symptoms

Literature Review - Treatment

- Search Strategy
  - English language
  - 1980 - 2016
  - Pub Med, Embase,
  - Additional searches of existing guidelines, Google Scholar, review article references
- Studies Identified
  - 253 treatment studies in PubMed; 332 in Embase – 462 unique articles – 53 pertinent

Delphi Technical Expert Panels

- Diagnostic Delphi Panel
  - Comprised of 20 physicians actively practicing in the post-acute/long-term care medicine setting and who have:
    - Been certified in geriatric medicine by the ABFM or ABIM, AND/OR
    - Been certified in medical direction by the ABPLM, AND/OR,
    - Completed a fellowship in geriatric medicine
- Treatment Delphi Panel
  - Comprised of 20 geriatric clinical pharmacists who met the following criteria:
    - Certified by CCGP, AND/ OR
    - Certified by Board of Pharmacy Specialists, AND/OR
    - Completed a Geriatric Residency

Delphi Surveys

<table>
<thead>
<tr>
<th>Delphi</th>
<th>Number of Rounds</th>
<th>Dates Conducted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic Delphi</td>
<td>3</td>
<td>2/25/2016 – 7/18/16</td>
</tr>
</tbody>
</table>

- Consensus reached both diagnostic and treatment criteria
- Separate diagnostic and treatment guidelines for cystitis developed

Diagnostic Algorithm

- Detailed clinical decision pathways and algorithms for diagnosis and management of cystitis in the geriatric population.
### Treatment of Uncomplicated Bladder Infection (Cystitis) in Nursing Home Residents ≥ 65 Years Without a Urinary Catheter

<table>
<thead>
<tr>
<th>Recommended Dosing for Different Levels of Renal Function</th>
<th>Maximum Dosing for Anti-infective Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>eCrCl &gt; 30 ml/min</td>
<td>Nitrofurantoin 100mg twice daily OR Trimethoprim - Sulfamethoxazole 160mg/800mg (one double strength) twice daily</td>
</tr>
<tr>
<td>15 - 30 ml/min</td>
<td>Trimethoprim - sulfamethoxazole 80mg/400mg (one single strength) twice daily</td>
</tr>
<tr>
<td>&lt; 15 ml/min</td>
<td>Ciprofloxacin 250mg twice daily OR Fosfomycin 3gm once</td>
</tr>
</tbody>
</table>

### Drug - Drug Interactions to Avoid
- **Ciprofloxacin**: Theophylline, Tizanidine, Warfarin
- **Trimethoprim - Sulfamethoxazole**: Methotrexate, Phenytoin, Procainamide, Warfarin

### Maximum Duration of Anti-infective Treatment
- Except for Fosfomycin

### Gender Number of Days
- **Women**: 3
- **Men**: 7

### Treatment of Uncomplicated Bladder Infection (Cystitis) in Nursing Home Residents ≥ 65 Years Without a Urinary Catheter

- **Original Facility Recruitment & Retention (Winter 2014-Fall 2016)**
- **Second Recruitment & Retention (December 2016 – March 2018)**

### IOU Future Plans
- **Pilot Intervention Phase Ends**
  - April 2018
- **Dissemination Phase Begins**
  - May 2018
- **Additional Dissemination Sites Added**
IOU Study Team

- Joseph T. Hanlon, PharmD, MS
- Subashan Perera, PhD
- Christopher Crnich, MD, PhD
- Paul Drinka, MD
- Steven Schweon, RN, MPH, MSN, CIC, FSHEA, FAPIC
- Stacey Saracco, RN
- Gulsum Anderson, PhD
- Mary Mulligan, RN, BSN, MA, CDONA/LTC, CLNC
- AMDA Team

References


Got a Home?

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Communication and its Role on Antibiotic Decisions in Nursing Homes

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Wm. S. Middleton VA Hospital

Speaker Disclosures

Dr. Crnich
Zurex Pharmaceuticals (Madison, WI): consultant

Learning Objectives

By the end of the session, participants will be able to:

- Understand the different factors that influence antibiotic decision-making in nursing homes
- Understand the role that inter-disciplinary communication plays in the quality of healthcare
- Describe the technical and relational factors that impact perceptions about communication quality
- Describe opportunities to improve the effectiveness of communication around antibiotic decisions in nursing homes
Antibiotic Overuse/Misuse in NHs

**Examined 1,451 antibiotic events in 5 Wisconsin NHs from 03/2013 – 10/2014**

- 123 (14.5%) in NH
- 730 (85.5%) in ED/Clinic setting

**Antibiotic data**
- 12%
- 20%

**Antibiotic inappropriately prescribed**
- intestinal
- Abx al.,
- CDI
- – resistant

**Antibiotic exposure**
- associated risk factor
- caused home residents
- transfer for antibiotics
- treated CDI
- – most

**Antibiotic levels**
- ADE
- CDI
- ARO

**At Individual Level**
- Harms of Antibiotic Overuse
- At Faculty Level
- At Population Level

**Nursing Staff Surrogacy**
- Examined 1,451 antibiotic events in 5 Wisconsin NHs from 03/2013 – 10/2014
- 853 antibiotic courses initiated in the NH or ED/Clinic setting
- 730 (85.5%) in NH
- 123 (14.5%) in NH

**NH-initiated Abx Courses (730/853)**
- 22.2% ordered by x-cover
- 67.8% ordered over the phone
- 50% seen 48 hours before or after order
- 14.2% seen outside of 48 hours but within a week of order
- 20.4% not seen

**Nurses Impact Decision to Treat**
- Schweizer et al. Pharm World Sci 2005; 27(3): 159-65
- Interviews with 10 RNs and 10 GPs from Irish NHs
- Nursing staff “key player in this decision-making process”
- Identified by both RNs and GPs

- Van Buul et al. BMC Geriatr 2014; 14: 136
- Interviews with 13 RNs and 13 GPs in 7 LTCFs in the Netherlands
- RNs had indirect and direct influence on prescribing decisions

- Meta-synthesis of 8 qualitative research studies
- Care of residents led by nursing staff and providers depend on them
- Some studies reported nursing staff pressure as influencing their prescribing decisions

**OASIS Intervention Components**

**desired Process & Outcome Changes**

**Structure**
- Requires introduction or modification of
  1) Tasks
  2) Tools
  3) Organizational influences

**Desired Processes**
- Delaying & treatment of residents with low risk CIC
- Post-prescribing antibiotic optimization

**Upstream Outcomes**
- ABE Start
- ABE Duration
- ABE Spectrum

**Downstream Outcomes**
- ABE Resistance
OASIS Pre-Implementation Interviews

- One-day site visits performed in all intervention facilities
- Data collection
  - Observations (stand-up, shift-to-shift, QAPI)
  - Artifacts (policies, tools, HER documentation, 24-hour report)
- Interviews (leadership, nursing staff, providers)
- 49 interviews conducted during the six site visits (provider interviews were often conducted by phone on different days)
  - 19 nursing staff
  - 15 providers
  - 15 facility leadership (ICP, DON, Medical Director)

Provider Themes Related to Communication

- Incomplete preparation
  - I think if you know, just a lot of them are not prepared when they call. You know, they don't know the stuff. They don't know what's been going on with the patient. They just want a simple quick fix that I can't necessarily give them if I don't have more information.

- Lack of trust
  - And I think whether or not I trust that nurse depends on, you know, if they have, like if seem to understand appropriate use of antibiotics. So if it's a nurse that's always asking for an antibiotic, I'm not going to trust them. So I think the level of trust is usually higher in people that seem to understand about careful use of antibiotics.

Nursing Themes Related to Communication

- Difficulty reaching providers
  - You have some doctors, they could probably need me in the building here. You could page them. They're not going to call you back. And then you have some people. I know one doctor I'm thinking of, I can pick up the phone and say you know what, let me go find out and I'll call you back.

- Role identity & self-efficacy
  - I'm not sure if the nurses feel like empowered enough to be able to say, you know, why are you calling me? The doctors will cut me off. They don't want to hear everything I have to say, and they'll say, you know, why are you bothering, you know, because they're so nice and so understanding.

- Professionalism
  - I mean, there's some on-call physicians that, I mean, you're glad when you hear that it's them that are on call because they're so nice and so understanding.

Nursing Perceptions of Communication

- Some nurses feel burned by providers
- Some nurses feel that their nurse is not informed
- Some nurses feel that their nurse is not supportive
- Some nurses feel that their nurse is not knowledgeable
- Some nurses feel that their nurse is not interested

### Nurse & Provider Perceptions

- Survey delivered to nursing staff and providers in 4 California NHs (responses rated 0 – 4)
- Discordant Perceptions
  - Nursing competence (5 questions): 2.5 (providers) vs. 3.5 (nursing staff); P < 0.0001
  - Calls are trivial: 2.9 (providers) vs. 2.0 (nursing staff); P < 0.01
  - Nurse/provider is pleasant: 3.3 (providers) vs. 2.1 (nursing staff); P < 0.0001
- Concordant Perceptions
  - Calls interfere with completing other workload (~2.5)
  - Language is not a barrier (~2.5)
  - Opinion of nurse is valued (~2.3)


### Impacts of Nurse-Provider Communication

- Suboptimal communication linked to unnecessary hospitalization.\(^1\)
- Quality of psychotropic drug use in NHs is positively correlated with nursing staff perceptions of the quality of communication with providers.\(^2\)
- Whether the quality of nurse-provider communication impacts antibiotic prescribing remains poorly understood

\(^1\)Kayser-Jones et al. Gerontologist 1989; 29(4): 502-10

### Communication/Decision Aid Tool

- Quasi-experimental study in 12 NHs in Texas
- Intervention focused on operationalizing Loeb study (2005) into a communication tool
- Implementation stratified by intensity
  - Control (n = 4)
  - Low-intensity (n = 4)
  - High-intensity (n = 4)

### Can it be Improved?

- Project CHAT \(^1\)
  - VA-based project that adapted AMDA communication materials
  - Nursing staff perceptions about their preparation, ability to answer follow-up questions and satisfaction all improved without adversely affecting duration of interaction.
- INTERACT \(^2\)
  - Multi-component intervention based around early identification of resident CIC, adequate assessment and communication of findings and care-planning
  - 17% reduction in hospitalizations during the 6-month intervention


### Post-OASIS Interviews

- Turnover remains a major barrier to good communication
- Advanced-practice providers enhance timeliness of information exchange
- Improvements in nurse-provider climate
- Improvements in information completeness
- Champions reported greater comfort with making recommendations to providers

### Lessons Learned

- SBAR should be a major focus in most NHs
- At on-boarding
- Regular reinforcement from leadership
- Education needs to incorporate the why
- Providers can help
  - Listen
  - Explicitly invite recommendations
  - Provide coaching when nursing staff are receptive
  - Loop in leadership when nursing staff not receptive
  - Be nice
- Identify opportunities to enhance timeliness of information exchange


OR = 0.35
95% CI = 0.16 – 0.76

![Graph showing High Fidelity vs. Low Fidelity before and after the intervention](image-url)