PRIISM:
Preventing Resistance and Infections by Integrating Systems in Michigan

A Partnership for Infection Prevention:
The University of Michigan & MediLodge of Monroe

MEDICAL SCHOOL
UNIVERSITY OF MICHIGAN

Objectives

- Describe the primary goals of the AHRQ University of Michigan PRIISM (Preventing Resistance & Infections by Integrating systems in Michigan) Project
- Identify opportunities to improve evidence-based infection prevention (IP) practices during the COVID19 pandemic in skilled nursing facilities
- Recognize the benefits of a collaborative approach across the care continuum with a facility's illustrative experience in the project

PRIISM Background

- Studies indicate variation of IP practices (Mody, 2005; Flanagan, 2011; Montoya, 2013; Harrod, 2016)
- JAMA Viewpoint describes opportunities to enhance care delivery by coordinating work of hospitals and nursing homes (Mody, 2018)
- AHRQ-funded project to facilitate information-sharing, integration of IP practices in Southeast Michigan

Opinion

VIEWPOINT

Can Infection Prevention Programs in Hospitals and Nursing Facilities Be Integrated?

From Silos to Partners

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Dissemination and Implementation of evidence-based interventions have successfully reduced central line–associated bloodstream infections, surgical site infections, and *Clostridium difficile* in many acute care hospitals partly as a result of resourceful, diverse, and proficient hospital infection prevention teams. However, infection prevention programs in nursing facilities are less well developed.

Contemporary nursing facilities are composed of 2 distinct populations: patients who require skilled nursing and rehabilitation care after a hospital stay (postacute care) and long-term care residents who permanently reside at these facilities. Nursing facilities encounter many challenges in effectively implementing and maintaining infection prevention programs. First, both patients receiving postacute care and long-term residents frequently visit common areas including dining rooms, rehabilitation areas, and family visitation rooms, increasing the risk of pathogen transmission. Second, nursing facilities lack in-house diagnostic testing and rely on offsite physicians, leading to delays in the evaluation and management of individuals with acute infections. Third, the postacute care population has inherently more active medical problems, with more devices, wounds, recurrent hospital stays, and high antibiotic use compared with long-term care residents. Most important, nursing facilities lack adequate resources to support the increasingly complicated infection prevention mandates such as infection surveillance, staff education, and implementation of antimicrobial stewardship programs. However, we believe the transition toward integrated health care systems provides a unique oppor-

tients returned to the hospital, resulting in additional costs, functional decline, and delayed recovery, contributing to a vicious spiral of morbidity and mortality. To deliver quality health care across the continuum of care for this rapidly growing population, an effective, well-funded, and adaptive infection prevention program is critical.

Evolution of Infection Prevention Programs

Hospital infection prevention programs developed in the 1960s and were subsequently shaped by the 1974 Study on the Efficacy of Nosocomial Infection Control. The study found a site-specific reduction in nosocomial infection ranging from 7% to 48% in hospitals with effective infection prevention programs that included 1 infection control nurse, 1 trained hospital epidemiologist, and data audits with feedback to surgeons.[4] In 1976, the Joint Commission on Accreditation of Healthcare Organizations began requiring infection control programs for hospitals. The emergence of drug-resistant organisms and evidence-based standards spurred maturation of these programs. Contemporary hospital infection prevention teams now include epidemiologists, infection control practitioners, and quality improvement specialists that shape policy, conduct surveillance, and ensure compliance.

Mandates to create similar programs in nursing facilities soon followed. Recognition of major deficiencies in care led to the Nursing Home Reform Act, part of the Omnibus Budget Reconciliation Act of 1987 (OBRA), and required individualized infection control programs. The US Centers for Medicare & Medicaid Services (CMS) pay facilities for their services only if those facilities are certified to be in compliance with the OBRA

PRIISM Goals

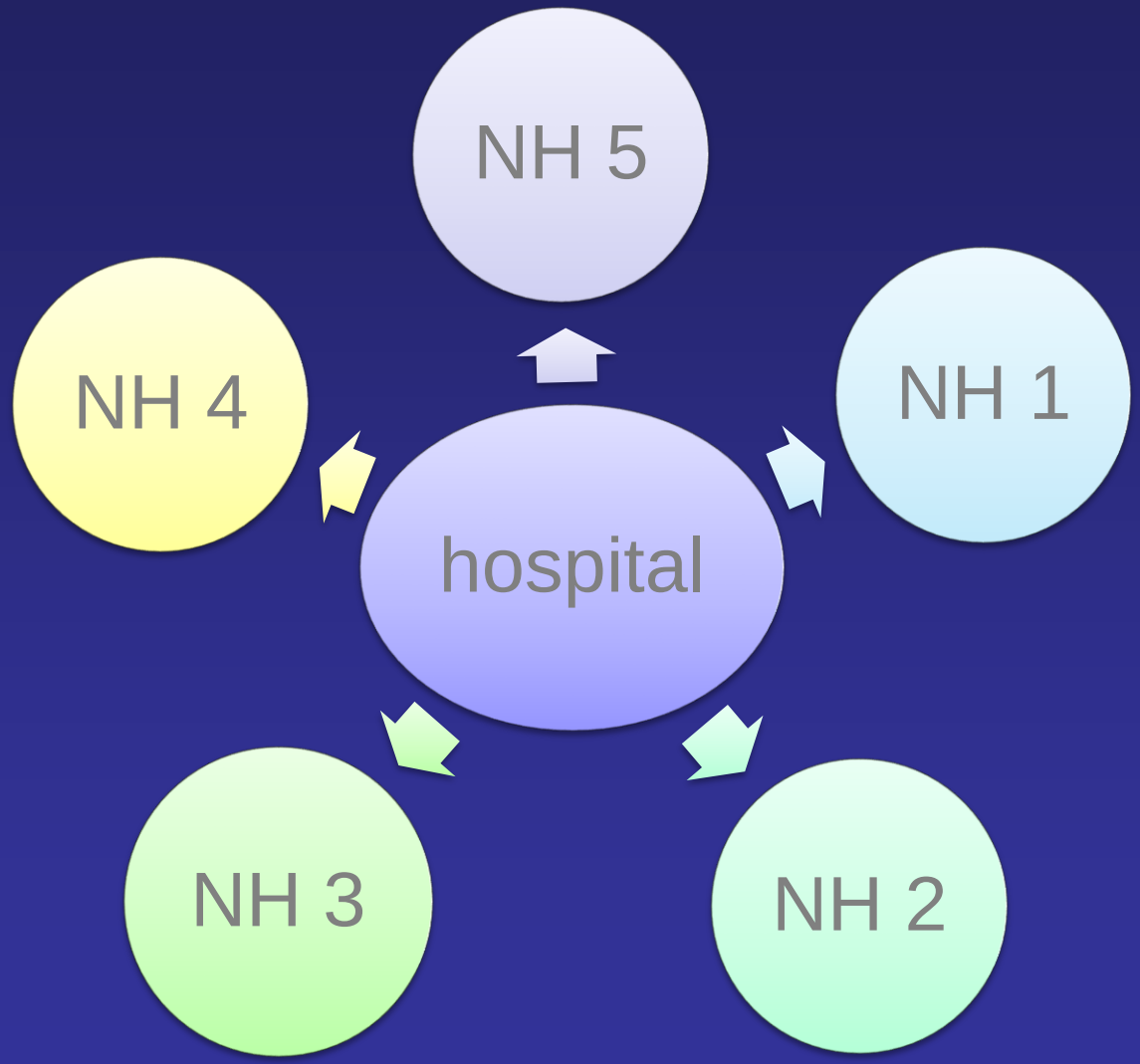
- Develop a model of integrated hospital & nursing home infection prevention practices
- Enhance communication between nursing homes & hospitals

Polling Question

(choose one) How would you grade your nursing home's relationship with its highest volume referral hospital?

A. Always on the same page, clear communication lines
B. Pretty good, roles & responsibilities identified but communication not always clear
C. Challenges about 50% of the time, room for improvement
D. Needs major help but structure exists
E. What relationship?

PRIISM Cluster Design



PRIISM

UNIVERSITY OF MICHIGAN

State & Local Health Departments

Subject Matter Experts

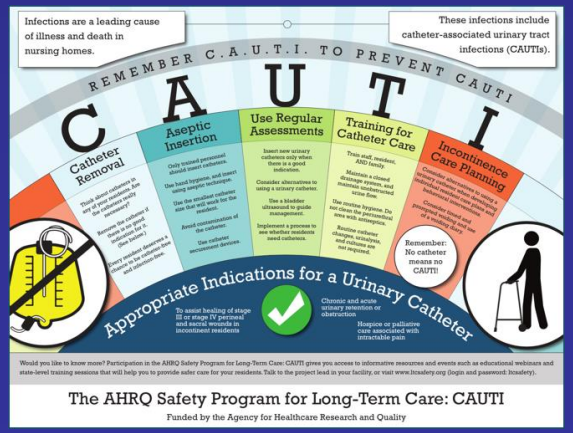
Peers

How does PRIISM help to achieve these goals?

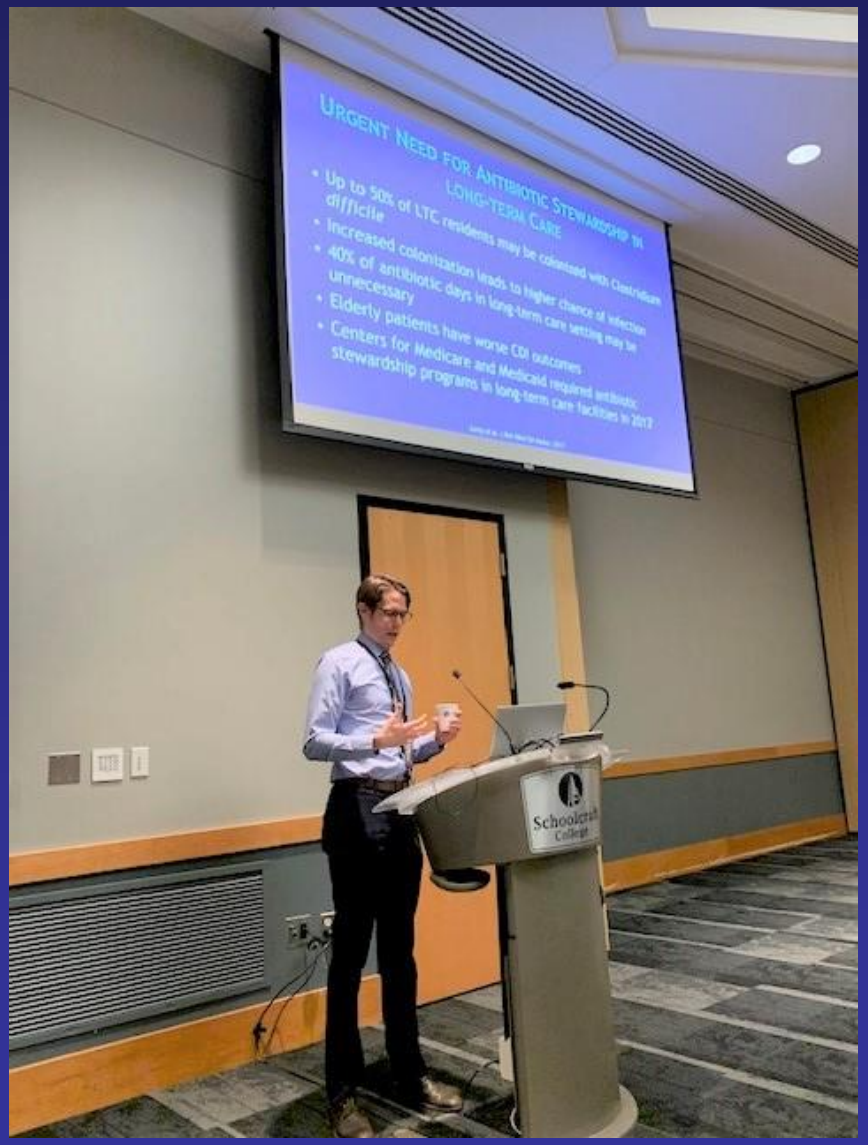
- It's a group project
  - Nursing home leaders & staff, hospital representatives, health department, UM Project Team
- It's face-to-face
  - In-person educational sessions
- We learn from subject matter experts
- We learn from each other

How can PRIISM help to achieve these goals?

- Conferences & meetings
  - Education/resources/tools taken back & disseminated to staff
- Individualized nursing home assessment of infection prevention needs; on-site staff education; monthly feedback reports
- Guidance to develop & implement quality improvement project



Conferences & Meetings



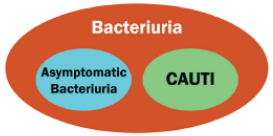
Conferences & Meetings

On-Site Education

4 Things You Should Know About Urine Cultures

1. Bacteria in the urine does not necessarily mean a catheter-associated urinary tract infection (CAUTI) is present.

Bacteriuria is the term used to describe a positive urine culture, the presence of bacteria in the urine. This could point to either asymptomatic bacteriuria or to CAUTI. People can have bacteria in the urine that do not cause symptoms or harm; asymptomatic bacteriuria is not a urinary tract infection.



2. Chronically catheterized residents have bacteriuria 99% of the time.

Inappropriate triggers for urine cultures include—

- Urine color
- Urine smell
- Urine sediment
- Cloudy urine
- White blood cells in the urine
- Positive dipstick

3. Urine culturing can actually harm residents who have no CAUTI symptoms.

If a urinary catheter is present...

...urine may become cloudy and odorous and have sediments,

...and providers might incorrectly assume infection and obtain a urine culture,

...which can lead to incorrect diagnoses and inappropriate treatment and antibiotic use,

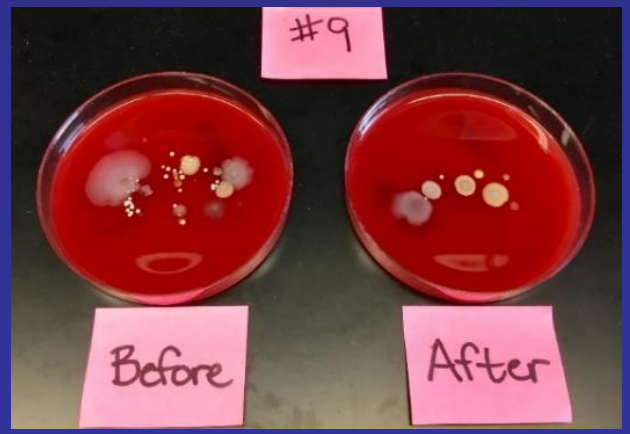
...as well as more resistant organisms, *Clostridium difficile*, increased cost, and further complications.

4. Urine cultures should only be ordered if one or more CAUTI symptoms are present.

The presence of cloudy, odorous urine with sediments does not alone indicate a CAUTI. CAUTI signs and symptoms are the following:

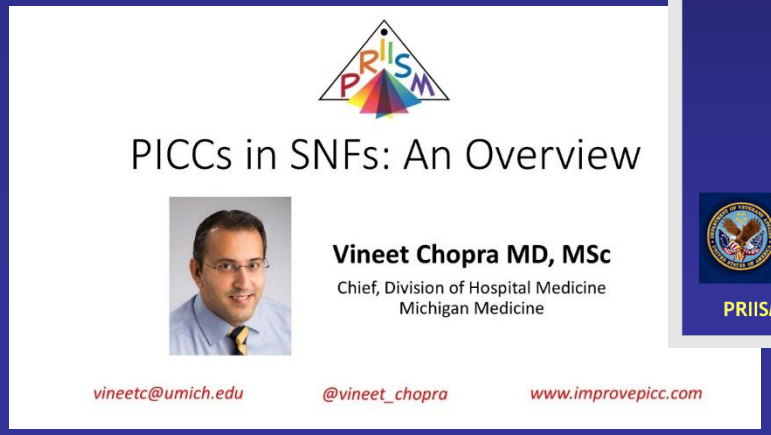
- Fever (even if the resident has another possible cause for the fever such as pneumonia)*
- Rigors
- New confusion or functional decline (with NO alternative diagnosis AND leukocytosis)
- New suprapubic pain or costovertebral angle pain or tenderness
- New, very low blood pressure (with no alternate noninfectious cause)
- Acute pain, swelling or tenderness of testes, epididymis, or prostate
- Pus around the catheter

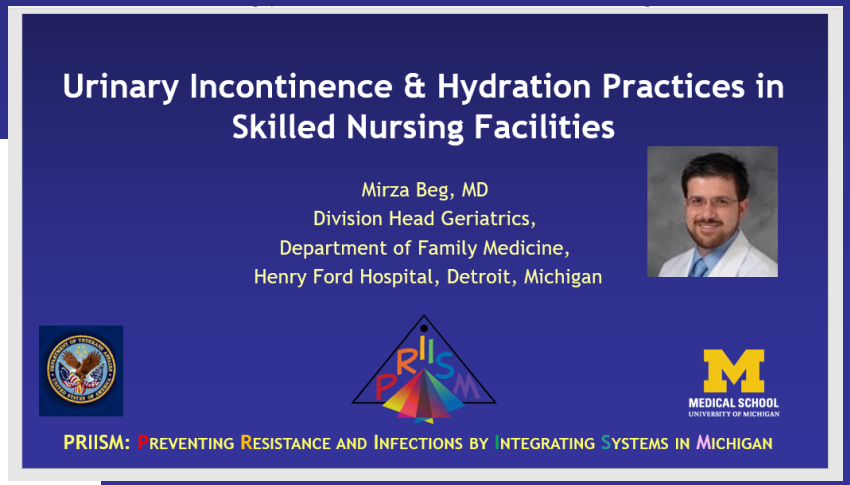
* See CDC's January 2016 "Urinary Tract Infection (UTI) Event for Long-term Care Facilities," listed below

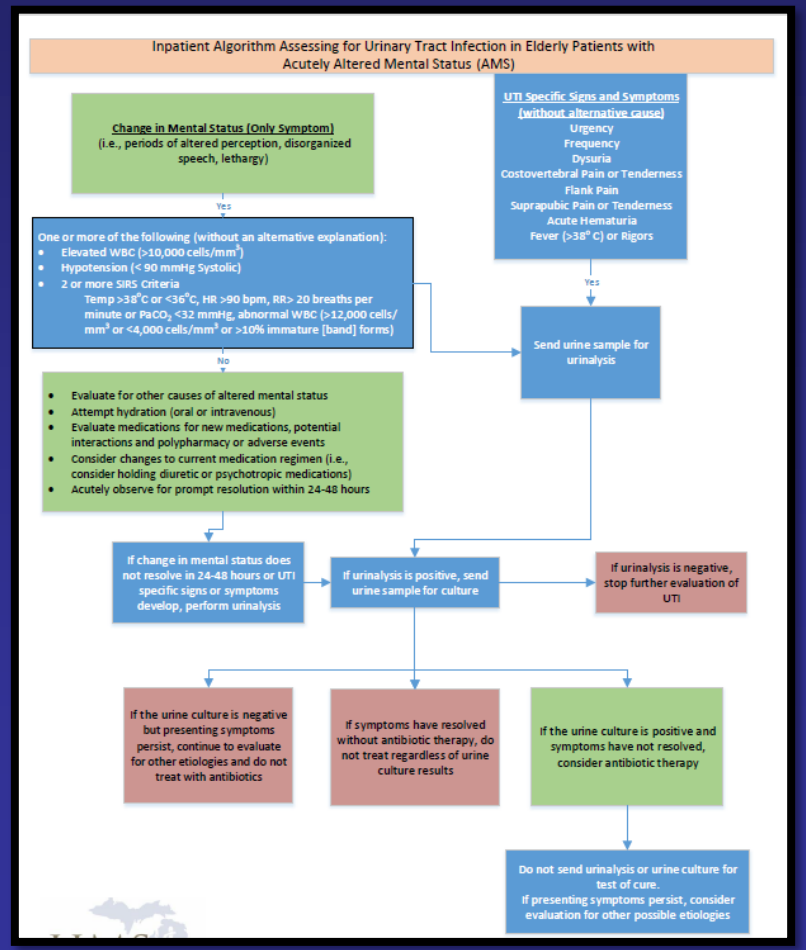


Website

- Educational materials, data collection/audit tools, resource links including those for CoV-19
- Educational videos for nursing staff
- Key research articles
- Open access at **priism.med.umich.edu**

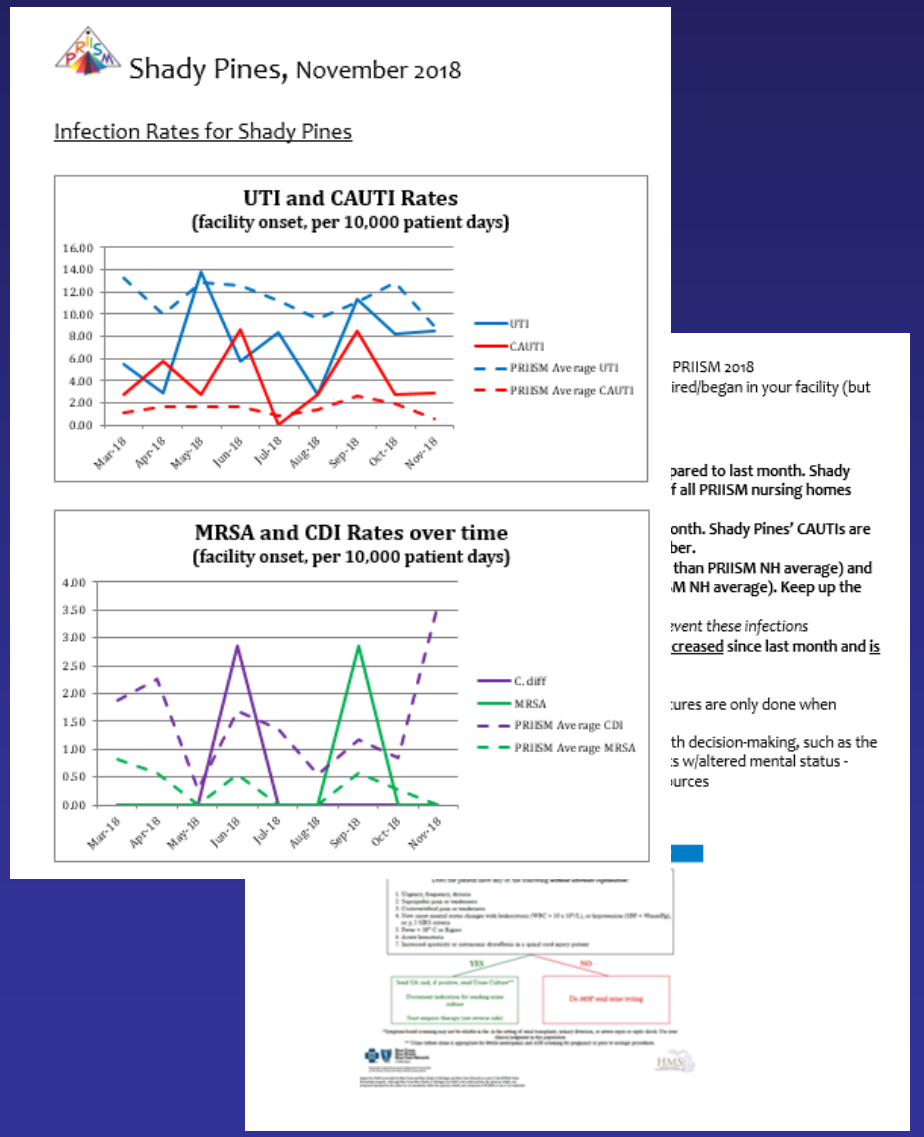






How Improvements are measured

- Facility-acquired infections
  - Urinary tract infections (UTIs)
  - Catheter-associated UTIs (CAUTIs)
  - *C. diff* infections
  - MRSA infections
- Indwelling urinary catheter use
- Frequency of urine testing for possible infection (urine cultures & urinalyses)
- Data shared monthly


Shady Pines, November 2018

Infection Rates for Shady Pines

UTI and CAUTI Rates
(facility onset, per 10,000 patient days)

16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00

Mar-18 Apr-18 May-18 Jun-18 Jul-18 Aug-18 Sep-18 Oct-18 Nov-18

UTI
CAUTI
PRIISM Average UTI
PRIISM Average CAUTI

MRSA and CDI Rates over time
(facility onset, per 10,000 patient days)

4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00

Mar-18 Apr-18 May-18 Jun-18 Jul-18 Aug-18 Sep-18 Oct-18 Nov-18

C. diff
MRSA
PRIISM Average CDI
PRIISM Average MRSA

PRIISM 2018
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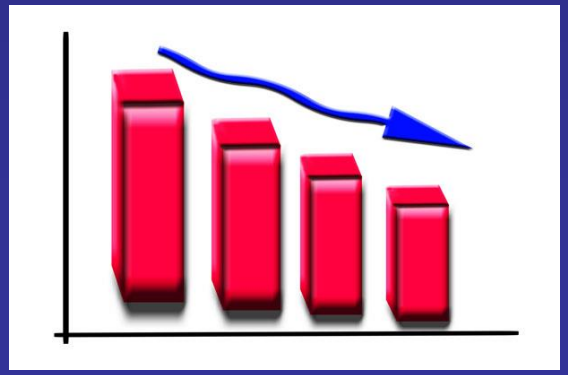
Other Nursing Home Findings

- Nursing home demographic evaluations
- Previous year infections/urinary catheter use/urine testing
- Qualitative interviews
- Exit survey at end of 12 month project year
- End of Year 2: decreases in UTI, CAUTI and urine culturing rates

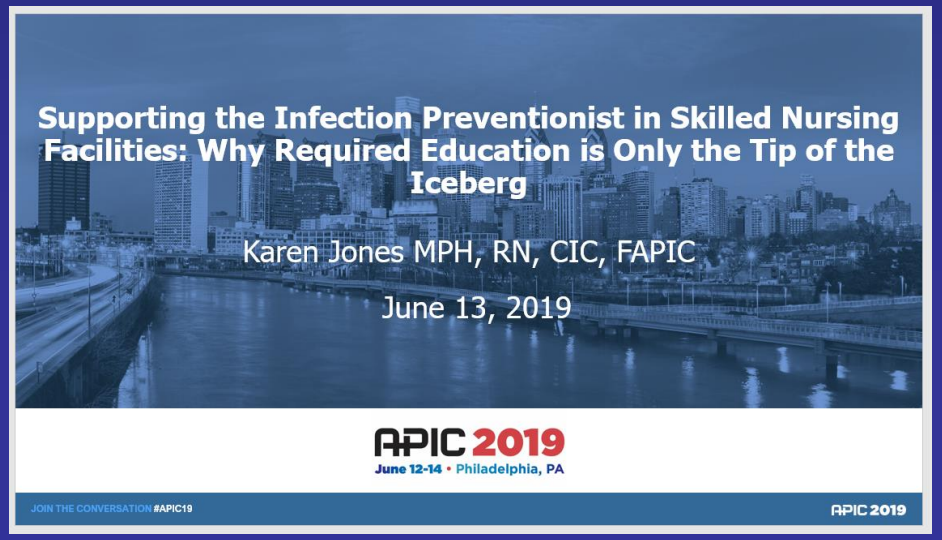


Small Test of Change

- Once participating in PRIISM, some NHs went above and beyond by:
  - Identifying a specific area of concern related to infection prevention at their facility and a measurable goal
  - Creating a plan of who/what/when/how with help from PRIISM team
  - PRIISM team and NH leaders work together to achieve goal
  - NH leads present their mini QI project and what worked, what didn't

Pilot Project Findings (June 2019)

- Staff turnover rates in NHs are high for IPs
- IPs in our study have responsibilities beyond that of IP
- NH leadership knows turnover is an issue; the person filling the IP role must be prepared
- 1-on-1 meetings, ongoing communication between new and experienced IPs were helpful = mentorship



Polling Question

(choose all that apply) What changes have happened to your facility's IPC program since COVID? More attention to:

A. Staff education
B. Retaining staff
C. Auditing IPC practices & providing feedback
D. Securing PPE/supplies
E. Proper use of PPE/supplies
F. Resident education on IPC practices
G. Providing your IP dedicated time & training

COVID-19 Preparedness in Michigan Nursing Homes (March 2020)

- NHs more prepared for a pandemic in 2020 than in 2007
- 99% (124) had a COVID-19 pandemic response plan
- 85% (107) had begun to stockpile supplies
- More NHs already had
  - Educated staff (98% vs. 42%)
  - Reported lines of communication with local hospitals (63% vs. 49%)
  - Lines of communication with HDs (86% vs. 56%)
  - Had conducted outbreak exercises (36% vs. 8%)

COVID-19 Preparedness in Michigan Nursing Homes, *The Journal of American Geriatrics Society.* https://onlinelibrary.wiley.com/doi/epdf/10.1111/jgs.16490

COVID-19 Preparedness in Michigan Nursing Homes (March 2020)

- NH uses guidance documents on responding to outbreaks from:
  - CDC (98%)
  - State and local health department (85%)
  - Corporate (54%)
- About half expected staff shortages. How will these vacancies be filled?
  - Staff volunteering to work extra shifts (79%)
  - Non-clinical staff filling different roles (78%)
  - Staff mandated to work extra shifts (67%)

COVID-19 Preparedness in Michigan Nursing Homes, *The Journal of American Geriatrics Society.* https://onlinelibrary.wiley.com/doi/epdf/10.1111/jgs.16490

COVID-19 Response in Michigan Nursing Homes (May 2020)

- 74% had a LOWER occupancy rate since the COVID-19 pandemic began
- The COVID-19 response plan addressed all or most issues at 95% of NHs responding
- 35% had at least one COVID-19 positive resident at the time of the survey
- Designated COVID-19 unit or wing at 78% NHs responding

COVID-19 Response in Michigan Nursing Homes (May 2020)

- 66% reported supply shortages. Who helped with these shortages?
  - Corporate (57%)
  - State and local health department (52%)
  - Community (48%)
- 55% experienced staff shortages. How were these vacancies filled?
  - Staff volunteering to work extra shifts (79%)
  - Non-clinical staff filling different roles (61%)
  - Staff mandated to work extra shifts (47%)

COVID-19 Response in Michigan Nursing Homes (May 2020)

- 90% of NHs conducted therapies (physical, occupational, speech) as 1-on-1, in-room
- Telemedicine was used at 71% NHs reporting, with 61% using it for the first time
- NHs used creative methods for residents to stay connected to loved ones
  - 98% used telephone calls, 96% videoconferencing
  - 81% window visits
  - Also social media pages, snail mail

PRIISM During a Pandemic

- Two years as planned . . . then COVID
- New cohort of NHs brought ideas
- Transitioned from in-person meetings to virtual meetings that include:
  - Project & data updates
  - Subject matter expert presentation
  - MDHHS representative sharing updates
  - Open dialogue, facility challenges, polling questions, q&a

PRIISM During a Pandemic

- UM PRIISM Project team facilitates virtual meetings every 6-8 weeks for enrolled facilities
- Project team available for one-on-one phone/Zoom calls to asses IPC needs & direct to available resources
- IPC learning/sharing opportunities outside of UM disseminated to NHs
- Research findings published & presented to improve resident care

PRIISM Strategy Take-Aways

- Nursing homes, hospitals & health department leaders support enhanced relationships
- These relationships can improve quality of care and improve communication
- Hospitals (as the hub) must be engaged; nursing home turnover can impact work
- All have something to learn and to share on IPC practices
- Learning/sharing can be done creatively

PRIISM Strategy Take-Aways

- Infection prevention is everyone's business – but there needs to be a dedicated Infection Preventionist (IP) with:
  - Support & time (from leadership)
  - IP orientation program for new IPs
  - Ongoing IP education
- Have contacts and support outside of local facility
  - Referral hospitals
  - State & local health department
  - Network with other IPC professionals

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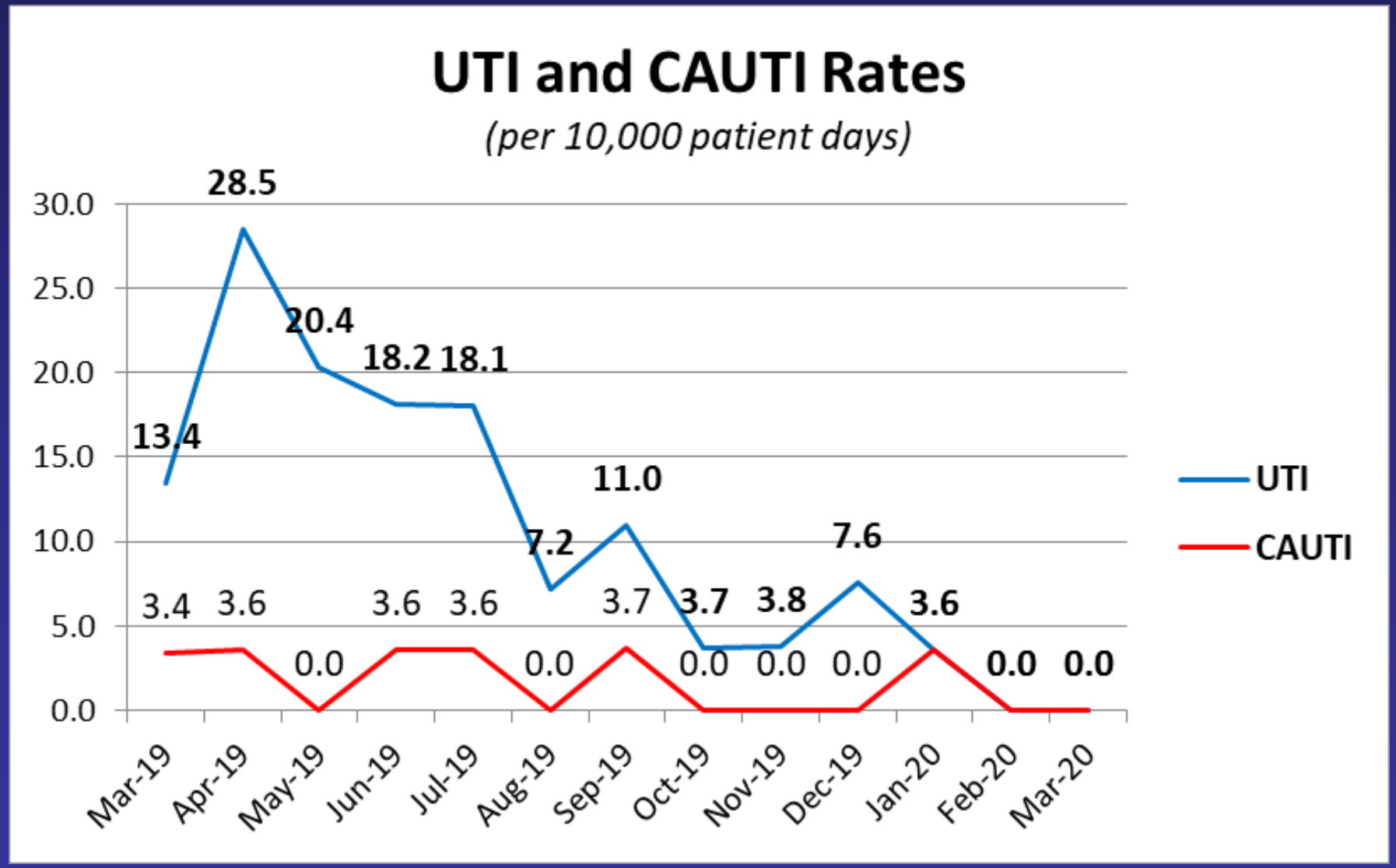
MediLodge of Monroe

- Enrolled in PRIISM since March 2019
- Participated in Small Test of Change which led to several new infection control initiatives

MediLodge of Monroe



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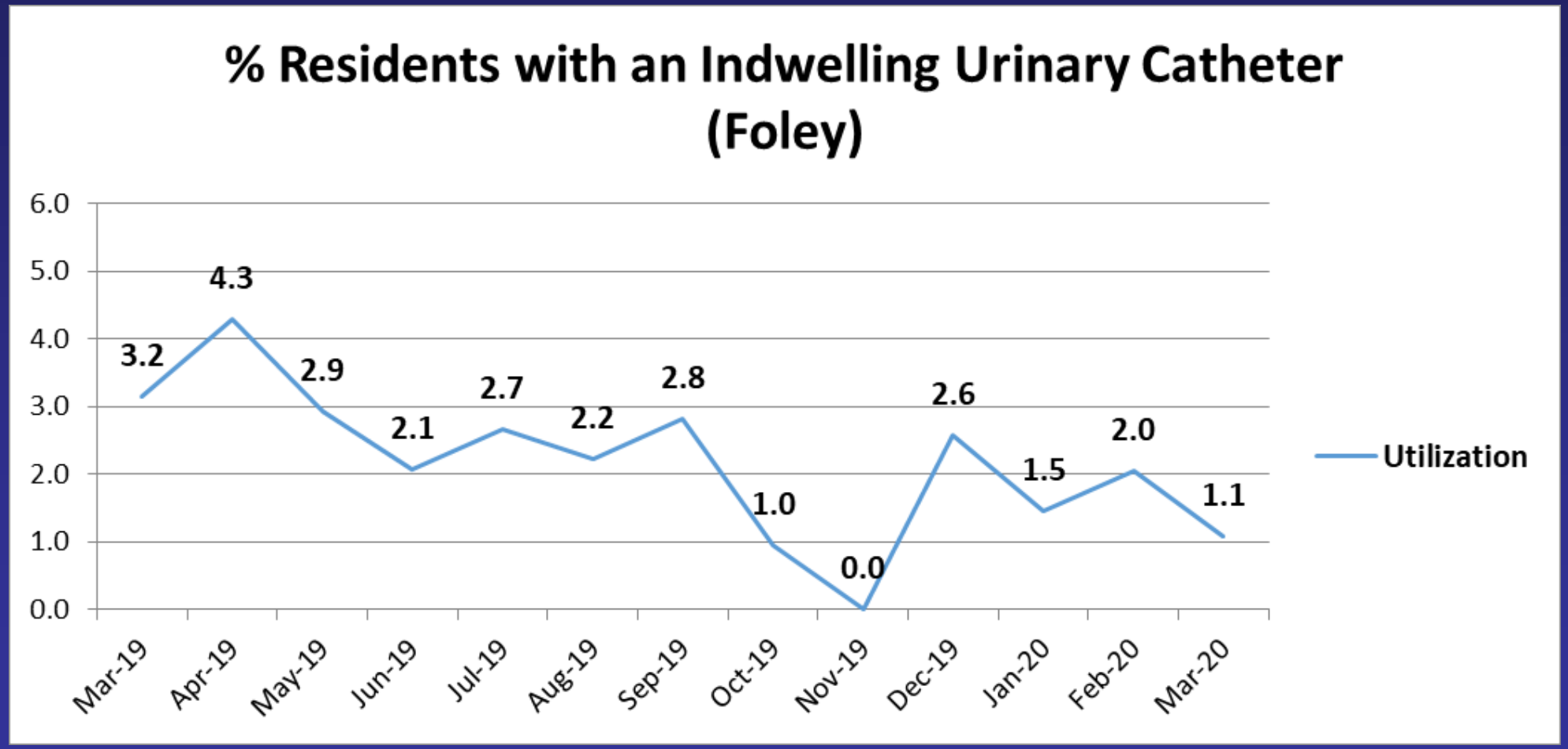

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