

# Infection Prevention and Control Competence in the post-COVID-19 Era: Simulation as a Tool

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## Objectives

- Review the current state of affairs regarding healthcare-associated infections (HAI) in the US
- Describe current approaches for education and training available for the spectrum of healthcare workers
- Explore novel approaches for education and training that incorporates simulation currently being introduced by the Kentucky Infection Prevention Training Center in partnership with the CDC's Project Firstline program office

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## Current Status of Healthcare-Associated Infection (HAI) Rates in the US

- **Significant rise** in Central line-associated bloodstream infections (**CLABSI**), catheter-associated urinary tract infections (**CAUTI**), ventilator-associated events (**VAE**), and methicillin-resistant *Staphylococcus aureus* (**MRSA**) bacteremia beginning in the second half of 2020 compared with prior years, according to CDC data
- Prior to 2020, rates of HAI in US hospitals had been declining since 2015, attributed to improved infection prevention and control measures
- **No increases** found for surgical site infections (**SSI**) or *C. difficile* infections (**CDI**).

Weiner-Latinger, L., Pattabiraman, V., Connor, R., Patel, P., Wong, E., Xu, S., . . . Dudeck, M. (2022). The impact of coronavirus disease 2019 (COVID-19) on healthcare-associated infections in 2020: A summary of data reported to the National Healthcare Safety Network. *Infection Control & Hospital Epidemiology*, 47(1), 12-25. doi:10.1017/ice.2021.362

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## Infection Prevention and Control During the Pandemic

- **Shifting staff** to perform activities outside their usual areas of practice and competencies
- **New care activities** performed in healthcare facilities outside usual areas of practice and competencies
- **Variations in supplies** and equipment available for patient care
- **Decreases in supplies** available for care
- **Systemic failures** to apply basic infection prevention and control practices, e.g., Poor use of standard precautions. Lack of knowledge? Lack of standardization? Lack of accuracy in practice?
- Systemic failures to apply **pandemic preparedness** plans across all settings

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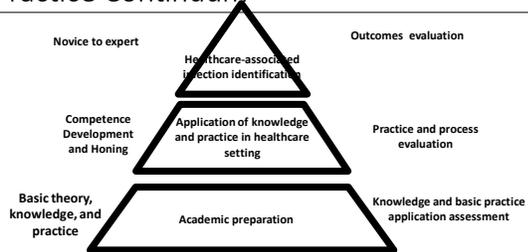
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## Infection Prevention Knowledge and Practice Continuum



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## Performance and Outcomes Challenges

- **Application** of correct infection prevention knowledge
- **Transferability** of action from one situation to another, one setting to another and within one care team to another
- **Knowing and understanding** the **WHY** and the **HOW** behind core infection prevention and control practices
- **Recognizing breeches** in practice
- **Responding** to breeches and **correcting practice**
- **Sustaining practice** changes despite staff turnover and staffing changes

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### Basis for Infection Prevention and Control Practice Competencies

Gebbie, K., & Merrill, J. (2002). Public health worker competencies for emergency response. *J Public Health Management Practice*, 8(3), 73-81.

Carrico, R., Rebmann, T., English, J.F., Mackey, J., Cronin, S. (2008). Infection prevention and control competencies for hospital-based health care personnel. *AJIC*. 36(10):691-701.

CDC. (2018) Healthcare Infection Control Practices Advisory Committee. Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings—Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) 2017. CDC.gov

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### CDC Core Infection Prevention and Control Core Practices

- Hand hygiene
  - Aseptic technique
  - Safe injection practices
  - Standard and transmission-based precautions
  - Training and education of healthcare personnel
  - Patient and family education
  - Environmental hygiene
  - Leadership support
  - Monitoring of practice
  - Employee/Occupational health
  - Early removal of invasive devices
- <https://www.cdc.gov/hicpac/recommendations/core-practices.html>

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### CDC Response: Project Firstline

- How to provide a **starting place for correct practice** that can be used for education and training of all healthcare workers, with particular emphasis on frontline healthcare workers
- **Promote an ability to apply correct knowledge**, to inform **correct practice**, that can be applied in **any care setting and care situation**
- **Standardized** information across a variety of topics.
- Vlogs (video blogs); 10 minute, 30 minute, 60 minute power point presentations; posters; infographics
- Partnerships with CDC to individualize content to specific audiences
- Emphasis on **understand the WHY behind the HOW**

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### Some Project Firstline Partners

- American Academy of Pediatrics- *Ambulatory Settings*
- American Hospital Association- *Environmental Services Personnel*
- American Medical Association- *Stories of Care*
- American Nurses Association- *Links to PFL content*
- Armstrong Center for Health Care Human Factors, Johns Hopkins Medicine- *Links to PFL content*
- Asian and Pacific Islander American Health Forum- *Champions; Multiple languages*
- ☆ Kentucky Infection Prevention Training Center- *Simulation*

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### Simulation and Infection Prevention Training

- Basic assumptions:
- **Microorganisms are not visible**
  - **Transfer of microorganisms is not visible**
  - **Preventing the invisible is a challenge**
  - **Transfer of microorganisms** can be demonstrated through a **visible process**
  - Practices that involve the visible event can be taught (e.g., it is easy to identify a central line dressing that has been applied incorrectly)
  - The 'invisible' aspects can be included as part of the 'visible' aspects (e.g., infection transmission opportunities during a central line dressing change)

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### Basis for Infection Prevention and Control Practice Competencies

Jeffries, P.R. (2005). A framework for designing, implementing, and evaluating simulations used as teaching strategies in nursing. *Nursing Education Perspectives*, 26(2), 96-103.

Carrico, R.M., Coty, M.B., Goss, L.K., LaJoie, A.S. (2007) Changing health care worker behavior in relation to respiratory disease transmission with a novel training approach that uses biosimulation. *American Journal of Infection Control*, 2007. 35(1): p. 14-9.

Jeffries, P.R. (Ed.). (2012). *Simulation in nursing education: From conceptualization to evaluation* (2<sup>nd</sup> ed.). New York, NY: National League for Nursing

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### KY Infection Prevention Training Center Approach

- Uses **Project Firstline content as the basis**, so there is accuracy and consistency
- **Review and approval by CDC** Project Firstline program officers, infection preventionists, and staff
- **Provide all training materials** [content, videos, photos, graphics, evaluations] and 'how to' simulation manual applicable for all healthcare settings and personnel
- House on Haymarket Medical Education myCME™ for **enduring access and continuing education credits** for physicians, nurses, physician assistants, and pharmacists. Certificate of completion available for all participants.

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### KyIP Training Center Simulation Examples

1. Safe Injection Practices
2. Personal Protective Equipment
3. Hand Hygiene and Asepsis
4. Cleaning and Disinfection of Reusable Medical Devices and Equipment
5. Central Line-Associated Bloodstream Infection (Device-Associated Infection)

The 'how to' manuals for these five have been reviewed and content approved by PFL. Recordings and demonstrations under review. Anticipated movement to myCME™ is November 2022.

14

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### Simulations Under Development for 2023

- Blood culture collection
- Standard precautions
- Respiratory protection
- Catheter-Associated Urinary Tract Infection (CAUTI)
- Ventilator-Associated Events (VAE)
- **YOUR ideas**

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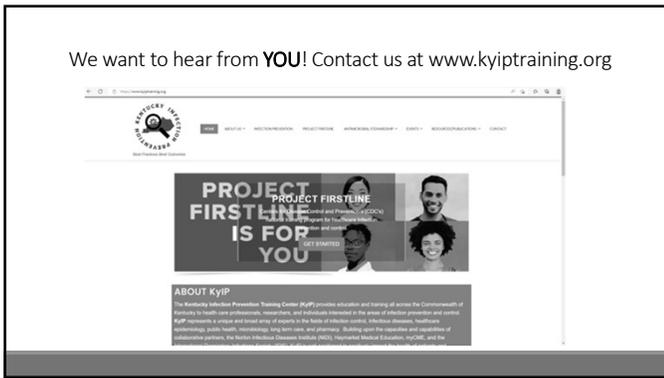
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We want to hear from **YOU!** Contact us at [www.kyiptraining.org](http://www.kyiptraining.org)



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