

Health Services Case Competition

AARATHI KALLUR, KATHERINE KING, ISABELLA RATER, JASHE VIELUF
THE PENNSYLVANIA STATE UNIVERSITY DEPARTMENT OF HEALTH POLICY AND ADMINISTRATION
ADVISOR: RICHARD SHURGALLA

- Created a strategic plan to reduce hospital acquired infections at MUSC
 - Utilized a Patient and Family Centered Care (PFFC) model
- Traveled to South Carolina for the in-person competition to represent PSU
- Competed against 11 other universities nationally
- Presented two verbal presentations judged by MUSC faculty members and patient advocates
 - Collaborated as a team to provide a 15-minute presentation and completed a 5-minute Q&A with judges
 - Prepared in the months leading up to the event

INTRODUCTION

Hospital Acquired Infections (HAIs) in a time of COVID-19

CDC sites increased in HAIs across U.S. hospitals during 2021

- Data from the National Healthcare Safety Network (NHSN) shows a significantly higher incidence in central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), ventilator-associated events (VAEs) in 2021 compared to 2019

COVID-19 surges adversely impact HAI rates & clusters of infection

Standardized Infection Ratios (SIR)

SIRs compare the actual number of HAIs at each hospital to the predicted number of infections.

- Standardized Infection Ratio = (Actual number of infections / Predicted number of infections)

SIR = 1, The predicted and actual number of infections

SIR < 1, Less than the number predicted

SIR > 1, Greater than the predicted number

- Central line-associated bloodstream infections SIRs
 - MUSC average: 1.512 (SIR)
 - National average: 1.04 (SIR)

DATA

	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Central line-associated bloodstream infection	↓ -11.8%	↑ 27.9%	↑ 46.4%	↑ 47.0%
Catheter-associated urinary tract infection	↓ -21.3%	No Change ¹	↑ 12.7%	↑ 18.8%
Ventilator-associated event infection	↑ 11.3%	↑ 33.7%	↑ 29.0%	↑ 44.8%
Surgical site infection: colon surgery	↓ -9.1%	No Change ¹	↓ -6.9%	↓ -8.3%
Surgical site infection: abdominal hysterectomy	↓ -16.0%	No Change ¹	No Change ¹	↓ -13.1%
MRSA bacteremia	↓ -7.2%	↑ 12.2%	↑ 22.5%	↑ 33.8%
C. Diff.	↓ -17.5%	↓ -10.3%	↓ -8.8%	↓ -5.5%

Source: Leapfrog Ratings & Survey Submission Date: June 27, 2022

METHODS AND RESEARCH QUESTION

Case question:

- How do we reduce hospital acquired infections in the MUSC Medical System?
- What the case required: determine which infection to focus on; establish primary components of the infection reduction program; develop training for patients; create a feedback tool; create a strategic plan on how to scale the program; measure long term benefits of the program

Methods:

- Researched the quality metrics on HAIs, the MUSC system quality metrics, and successful patient safety programs

REFERENCE AND ACKNOWLEDGEMENTS

Richard Shurgalla, Maria Dawson, Joseph Dionisio, Christopher Calkins, Christopher Hollenbeak, Frank King, and Pamela Dubyak

CONCLUSION

- We bolstered our abilities in public speaking, critical thinking, research, teamwork, creativity, and time management. After our performance in this case competition, we realized that the preparation for this competition made us more confident and comfortable with our ability to stand in front of large groups of individuals and project our goals in a clear manner.
- The experience helped us push our careers forward concerning graduate school and interview processes. Our individual skills on finance, research, data analysis, psychology, cultural competence awareness, and quality standards in the healthcare field will benefit us moving forward.

Introduction

Medical University of South Carolina (MUSC)
Second Annual Undergraduate Case Competition

- Created a Strategic Plan to Reduce Hospital Acquired Infections at MUSC
 - Utilizing a Patient and Family Centered Care (PFFC) model
- Team members traveled to South Carolina for the in-person competition to represent PSU
- Competed against 11 other universities nationally
- Competition consisted of 2 verbal presentations judged by MUSC faculty members and Patient Advocats
 - 15-minute presentation + 5-minute judge questioning
 - Prepared in the month leading up to the event

Methods or Research Questions

- Case question:
 - How do we reduce hospital acquired infections in the MUSC Medical System?
- What the case required:
 - Determine which infection to focus on
 - Primary components of the infection reduction program
 - Develop training for patients
 - Create a feedback tool
 - Strategic plan on how to scale the program
 - Long term benefits of the program
- Methods:
 - Researched the quality metrics on HAIs
 - Researched the MUSC Medical System quality metrics
 - Researched successful patient safety programs

Findings & Data

Hospital Acquired Infections (HAIs) in a time of COVID-19

- CDC sites increased in HAIs across U.S. hospitals during 2021
 - Data from the National Healthcare Safety Network (NHSN) shows a significantly higher incidence in central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), ventilator-associated events (VAEs) in 2021 compared to 2019
- COVID-19 surges adversely impact HAI rates & clusters of infection

	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Central line-associated bloodstream infection	-11.8%	27.9%	46.4%	47.0%
Catheter-associated urinary tract infection	-21.3%	No Change ¹	12.7%	18.8%
Ventilator-associated event infection	11.3%	33.7%	29.0%	44.8%
Surgical site infection: colon surgery	-9.1%	No Change ¹	-6.9%	-8.3%
Surgical site infection: abdominal hysterectomy	-16.0%	No Change ¹	No Change ¹	-13.1%
MRSA bacteremia	-7.2%	12.2%	22.5%	33.8%
C. Diff.	-17.5%	-10.3%	-8.8%	-5.5%

Standardized Infection Ratios (SIR)

- SIRs compare the actual number of HAIs at each hospital to the predicted number of infections.
 - Standardized Infection Ratio = (Actual number of infections / Predicted number of infections)
 - SIR = 1, The same predicted and actual number of infections
 - SIR < 1, The number of actual infections is less than the number predicted
 - SIR > 1, The number of actual infections is greater than the predicted amount
- Central line-associated bloodstream infections (CLABSIs) SIRs
 - MUSC average: 1.512 (SIR)
 - National average: 1.04 (SIR)

Conclusion and Future Research

As a team we bolstered our abilities in public speaking, critical thinking, research, teamwork, creativity, and time management. After our performance in this case competition, we realized that the preparation for this competition made us more confident and comfortable with our ability to stand in front of large groups of individuals and project our goals in a clear manner. Additionally, the experience helped us push our careers forward concerning graduate school and interview processes.

Each of us contributed to the success of this team in different ways. We used our individual skills on finance, research, data analysis, psychology and cultural competence awareness, and quality standards in the healthcare field.

In the end, we took a risk by choosing to suggest a different solution to what the judges wanted to hear; we used our innovative thinking to develop a solution that addressed several concerns inside the healthcare field.

References and Acknowledgements

Richard Shurgalla, Maria Dawson, Joseph Dionisio, Christopher Caulkins, Christopher Hollenbeak, Frank King, and Pamela Dubyak

Sources:
Lastinger, L., Alvarez, C., Kofman, A., Konnor, R., Kuhar, D., Nkwata, A., . . .
Dudeck, M. (2022). Continued increases in the incidence of healthcare-associated infection (HAI) during the second year of the coronavirus disease 2019 (COVID-19) pandemic. *Infection Control & Hospital Epidemiology*, 1-5. doi:10.1017/ice.2022.116

Find your central point and consider the text, charts, or images needed. A good poster will convey the essence of your paper without your explanation and also serve as visual aid to support your verbal explanation. The title of your poster may be slightly different from your paper's title. Choose a title that will attract viewers and convey your central point.

100+ point font for the title and keep it to 1-2 lines. Use slightly smaller font for your name and affiliation.

Katie – Introduction

Jashe – Conclusion

Aarthi – Methods

Bella – Data

