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July 25, 2022

Enhancing the Sepsis Patient's Outcomes by Partnering With Long Term Acute Care Facilities

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Disclosures

The presenters have no real or perceived conflicts of interest related to this presentation

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Learning Objectives

At the end of this session, participants should be able to:

1. Identify how including a long-term acute care (LTAC) facility in the sepsis care continuum can reduce readmissions and improve outcomes
2. Recall components of a smooth transition to an LTAC
3. Recognize sepsis prevention measures implemented in the Sepsis Certified LTAC setting



Identify how Including an LTAC in the Sepsis Care Continuum can Reduce Readmissions and Improve Outcomes

*Lorene Campbell, Director of Infection
Prevention*



Objective 1

Identify how including a Long-term Acute Care (LTAC) Facility in the Sepsis Care Continuum can Reduce Readmissions and Improve Outcomes

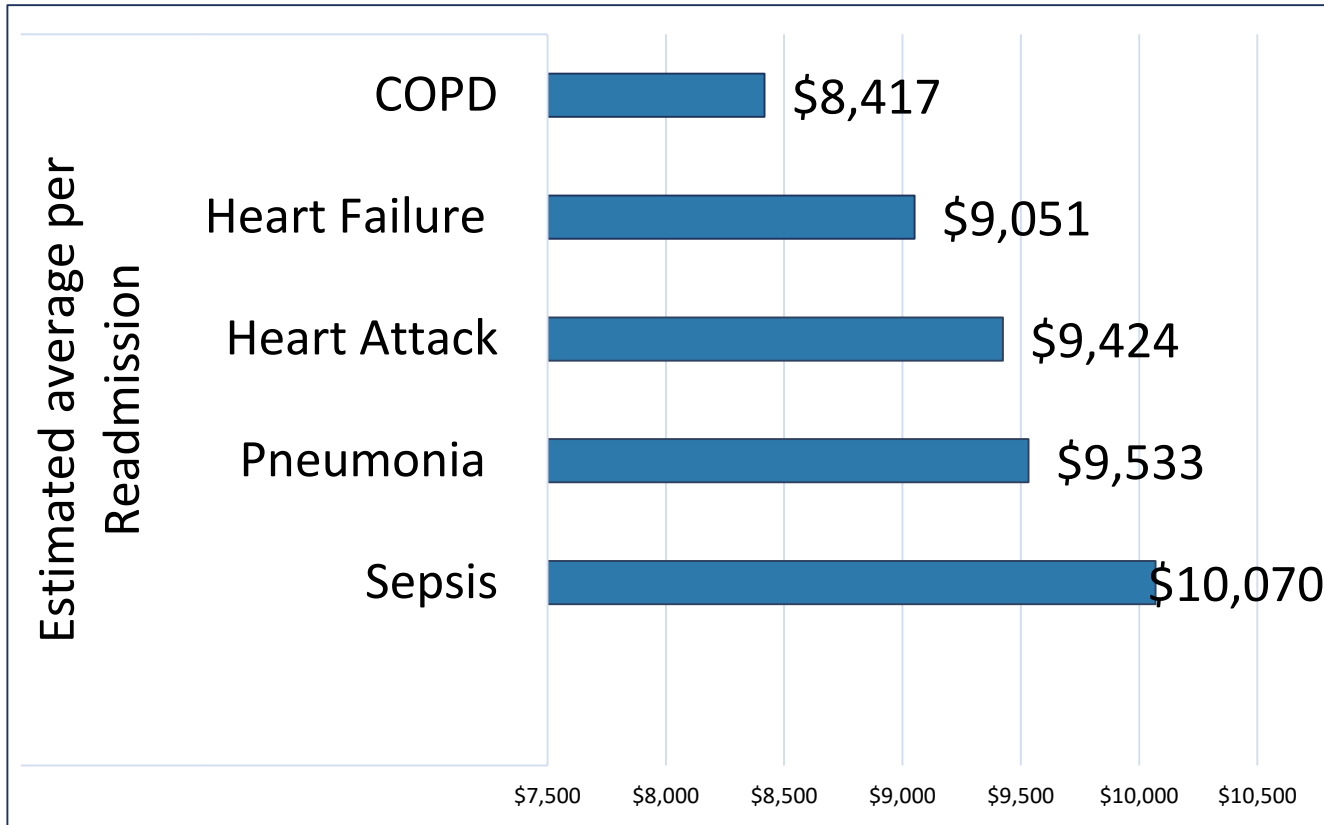
1.4 Million People Survive Sepsis Every Year

- 1 in 4 Medicare adult sepsis survivors died within 1 year of discharged to home health care
- Readmissions to intensive care units and in-hospital death are common
- LTAC hospitals care for a high-acuity niche patient population, playing a vital role in achieving efficient recovery of patients with risk of readmission due to their clinical complexity

Source: Sepsis.org.

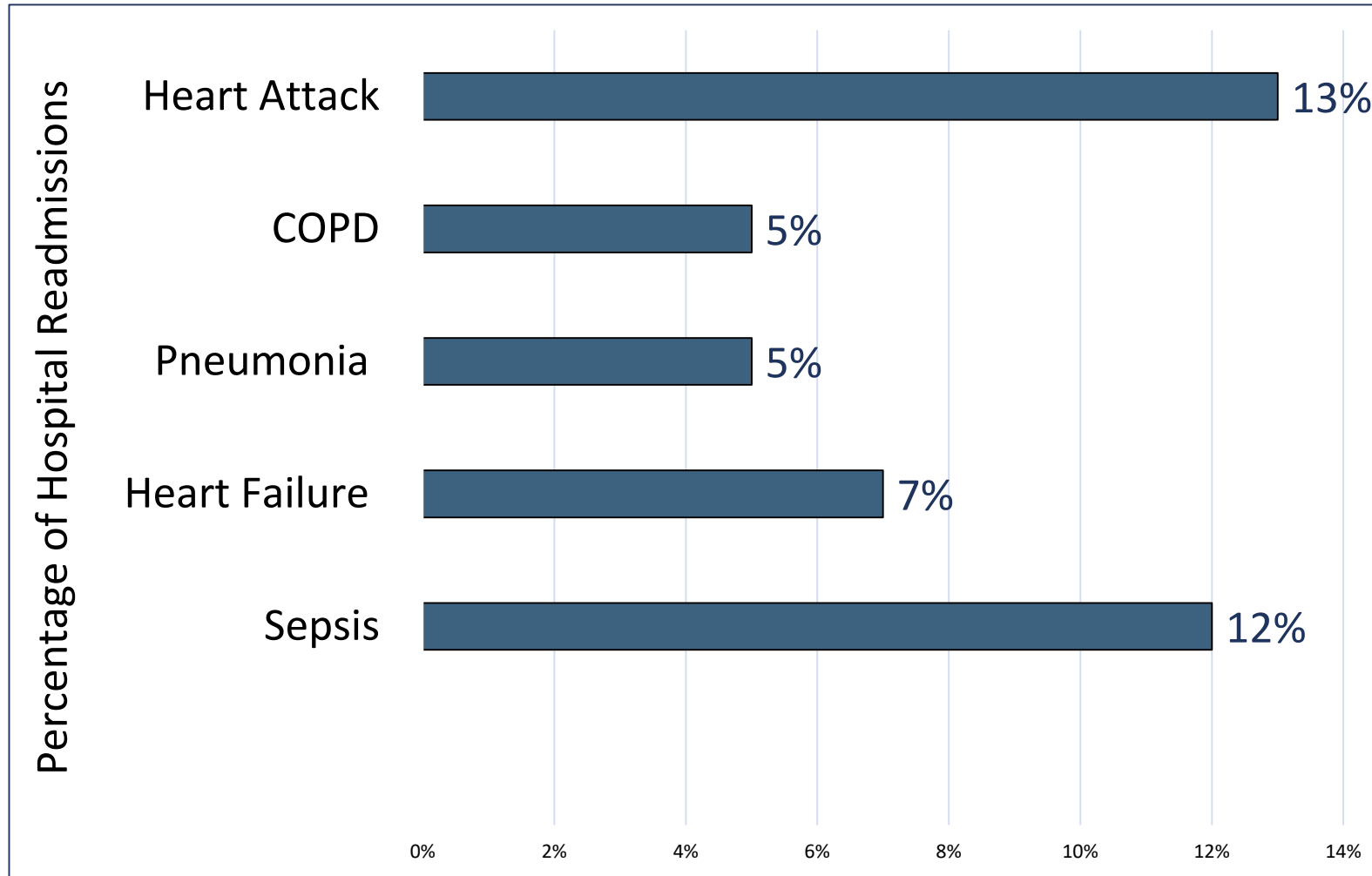
Muldoon, S. Treating Sepsis in a world of Value-Based Care 2019, Nov 23

Readmissions and Healthcare Costs after Sepsis



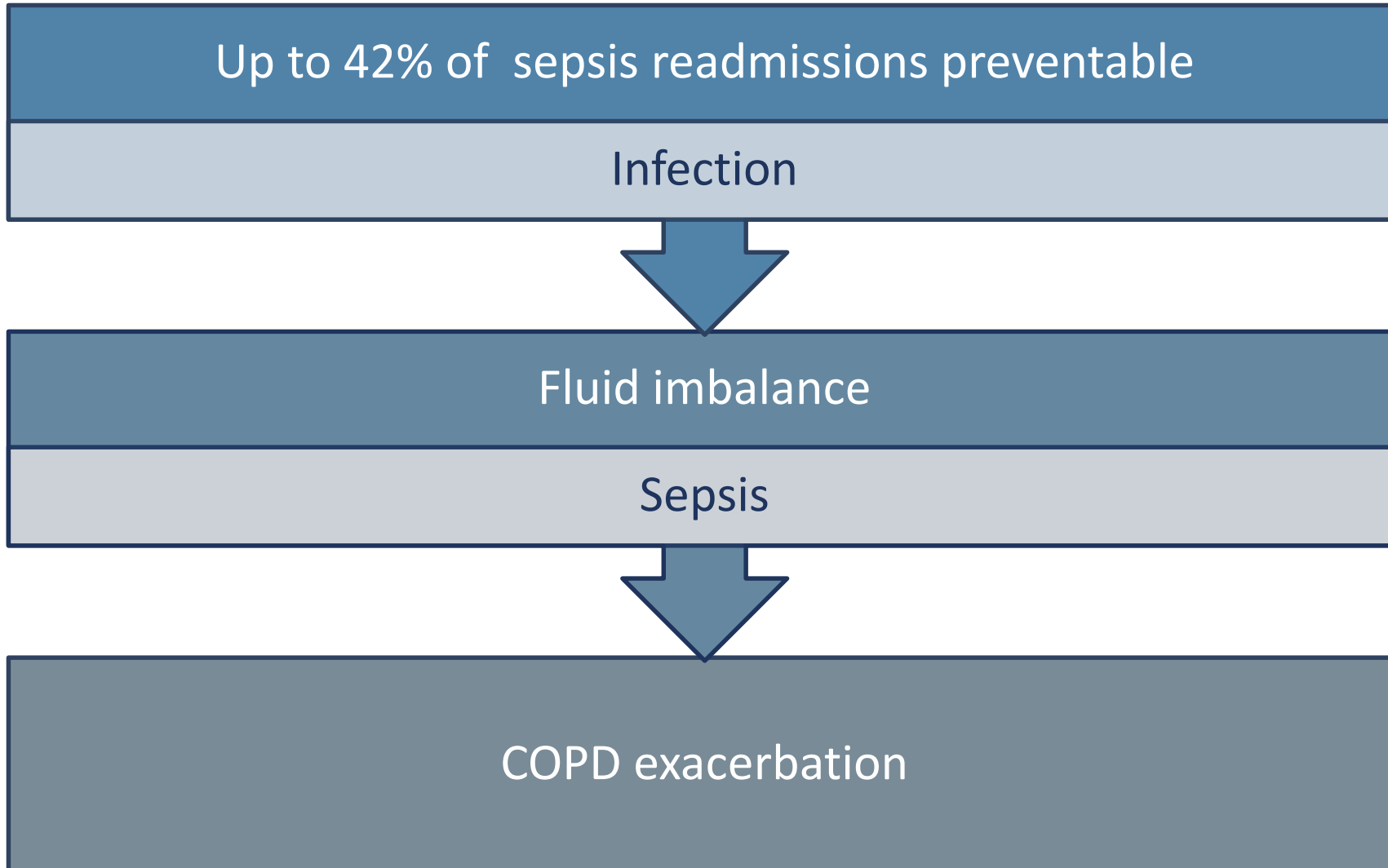
15% of total
Readmission- related
costs

Readmissions and Healthcare Costs after Sepsis

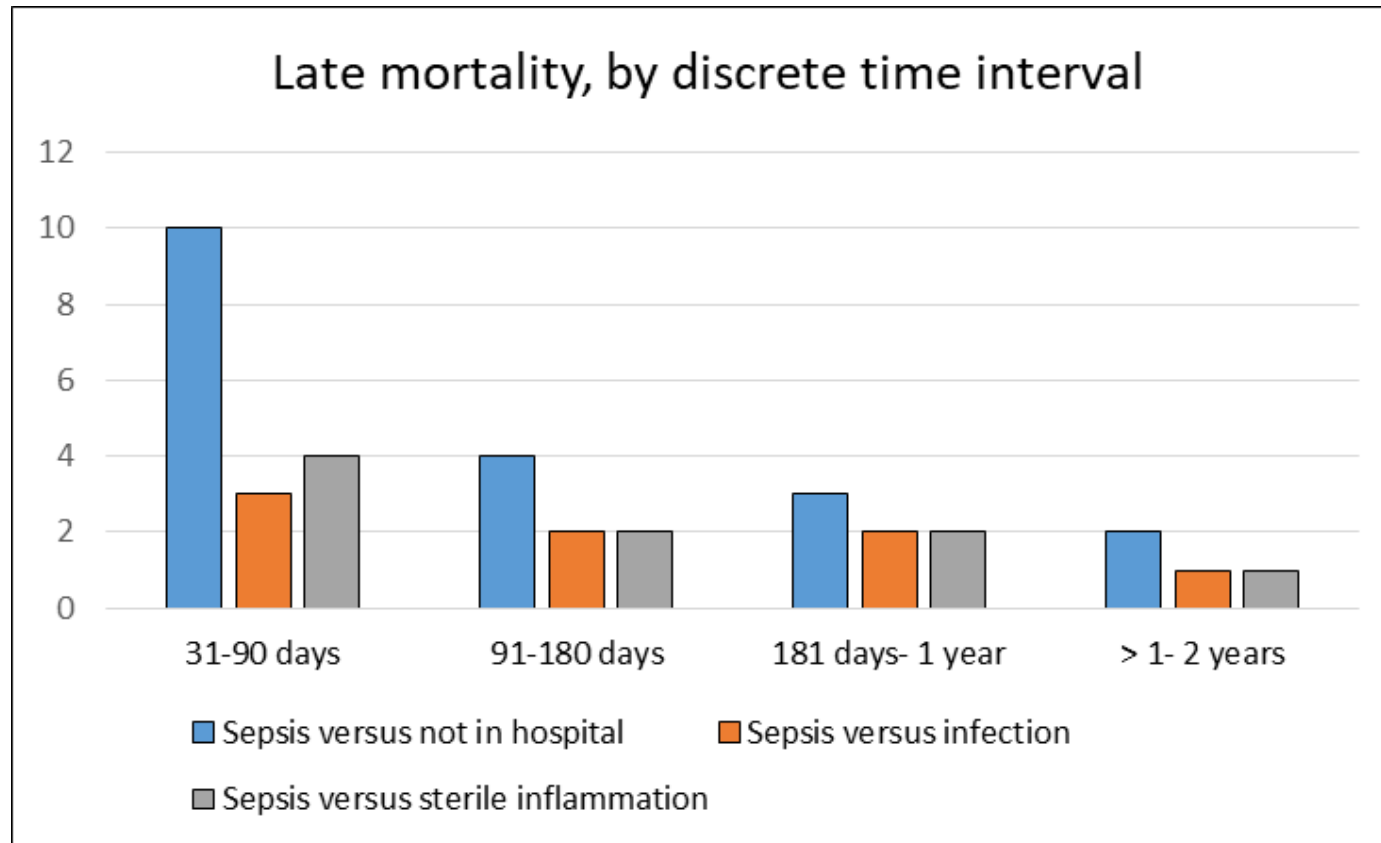


1 in 3
readmitted
Within 90 days

Are Hospital Readmissions after Sepsis Preventable



Late Mortality After Sepsis: Propensity Matched Cohort Study



- **> 1 in 5** sepsis survivors >65 years old had late mortality after sepsis
- **> 1/2** of deaths were unexplained by pre-sepsis health or age

Sepsis–Associated Mortality Resource Use, and Healthcare Costs: A Propensity Matched Cohort Study



Farrah, K., McIntyre, L., Doig, C. J., Talarico, R., Taljaard, M., Krahn, M., Fergusson, D., Forster, A. J., Coyle, D., & Thavorn, K. (2020). Sepsis-associated mortality, resource use, and healthcare costs: A propensity-matched cohort study*. *Critical Care Medicine*, 49(2), 215–227. <https://doi.org/10.1097/ccm.0000000000004777>

Association of Adherence to Post Sepsis Care Elements and Outcomes for Sepsis Survivors

Documented Care Elements	
0	6%
1	15%
2	31%
3	37%
4	11%

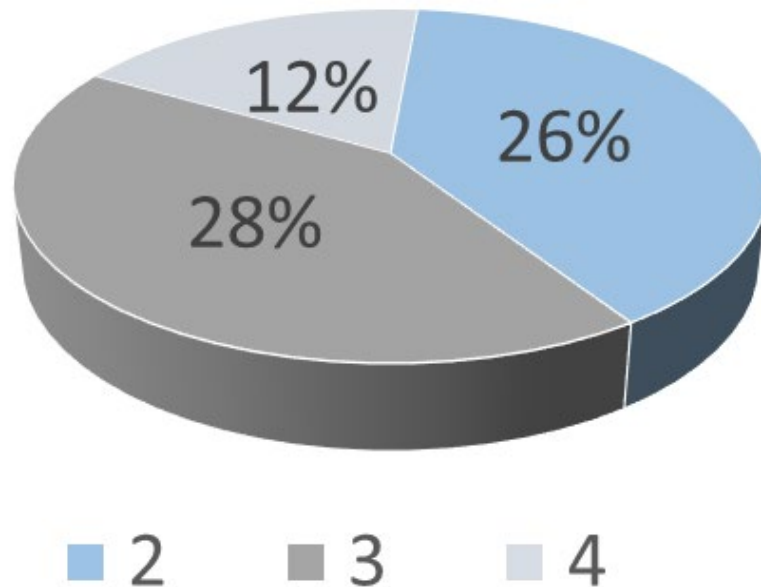
Best Practice Post Sepsis Care Elements

- Screen for common treatable impairments
- Review and adjust medications
- Anticipate and mitigate risk for preventable causes of health deterioration
- Establish goals of care

Taylor, S. P., Chou, S.-H., Sierra, M. F., Shuman, T. P., McWilliams, A. D., Taylor, B. T., Russo, M., Evans, S. L., Rossman, W., Murphy, S., Cunningham, K., & Kowalkowski, M. A. (2020). Association between adherence to recommended care and outcomes for adult survivors of sepsis. *Annals of the American Thoracic Society*, 17(1), 89–97. <https://doi.org/10.1513/annalsats.201907-514oc>

Association Between Adherence to Recommended Care and Admissions of Adult Survivors of Sepsis

Reduction of hospital readmission with inclusion of all post sepsis care elements



Only 20 % received all 4 care elements within 90 days of discharge

Comparison of Post-Acute Care Use and Readmission Within 30 Days of Hospitalization for Both Sepsis and Non-Sepsis Patients

Post acute use at discharge outcomes	Non- sepsis hospitalization	Sepsis hospitalization
<i>Total patients followed</i>	108,958	1048
Home with Health Services	31%	29%
Acute Rehabilitation	4%	6%
Skilledn Nursing facility	11%	22%
Long term acute care hospital	4%	6%

Jones, T. K., Fuchs, B. D., Small, D. S., Halpern, S. D., Hanish, A., Umscheid, C. A., Baillie, C. A., Kerlin, M. P., Galeski, D. F., & Mikkelsen, M. E. (2015). Post-Acute Care Use and hospital readmission after sepsis. *Annals of the American Thoracic Society*, 12(6), 904–913. <https://doi.org/10.1513/annalsats.201411-504oc>

Why Should I Discharge my Sepsis Patients to a Long Term Acute Care Hospital?

Because improving transitions for sepsis survivors is imperative to capitalize on gains made in hospital survival and optimizing patients' long-term recovery

Source: Add source of your data here in size 12 font

LTACS Play a Vital Role in Achieving Efficient Recovery of Patients With Risk of Readmission, Due to Their Clinical Complexities

- A sophisticated level of care
- A continuation of hospital-level care in a longer-term setting
- Services for complicated medical requirements
- Patients are seen daily by physicians
- Patients commonly stay for several weeks
- Admission requires medical documentation
- Intensive, round-the-clock care
- Manages complicated medical conditions



The Right Place at the Right Time for High Acuity Patients

73% of SNFs have been penalized by CMS for increases in readmission rates

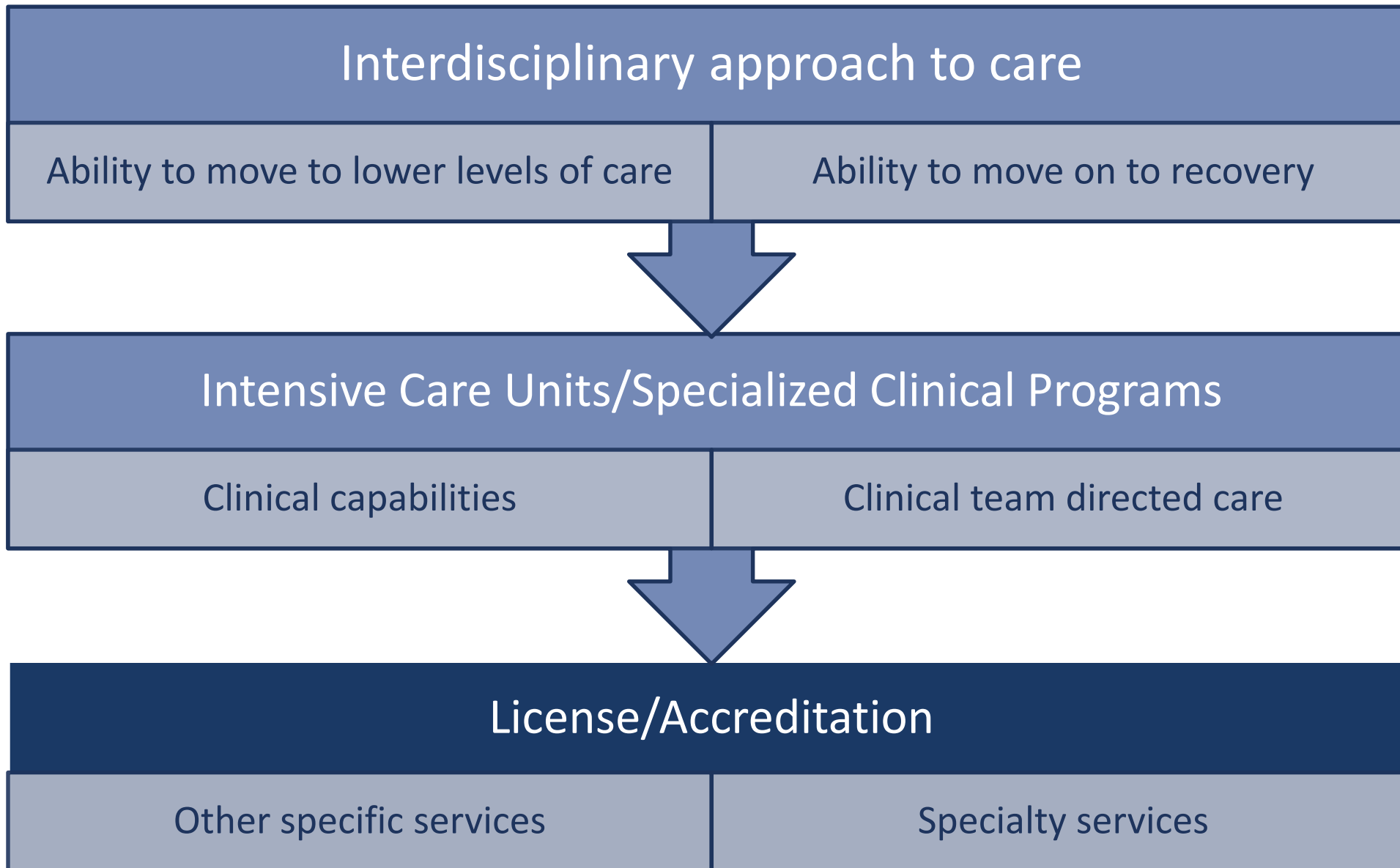
Long term acute hospital (LTAC)

- Physician- led interdisciplinary team
- ICU and Telemetry with ACLS staff
- Daily physician visits including sub specialties
- Critical care trained nurses
- Nurses staff ration similar to acute care hospitals
- Onsite services to reduce unnecessary readmissions
- Rapid response team, Pharmacy, Lab, CT, O.R. Pulmonology
- 24/7 House Physician coverage

Skilled nursing (SNF)

- Nurse driven care
- Physician extenders may visit patients
- Lab services available – but not on site
- Pharmacy and lab available – but not on site
- Interdisciplinary approach between nurses and therapy
- Respiratory therapy, as required for pulmonary patients
- Licensing as a skilled nursing facility

LTAC Hospitals Provide a Range of Intensive Care Services



Source: Kindred/Scion

Joint Commission Disease-Specific Certification

*Pursuing Clinical Excellence, Reducing Variations in Care, and
Driving a Culture of Caring*

Respiratory Failure

Sepsis



Drives Patient Outcomes

Benefits of Certification

- ✓ Increase wean rate
- ✓ **Interdisciplinary, physician-led approach to rounding**
- ✓ **Pulmonary Program for patients and family**
- ✓ Increase mobility
- ✓ Decrease infections
- ✓ Eliminate hospital acquired wounds
- ✓ Increase patient satisfaction

- ✓ Improves care by utilizing the latest clinical data and team approach in care
- ✓ Improves quality of patient care by reducing variation in clinical processes
- ✓ Promotes a culture of excellence
- ✓ Strengthens community confidence in the quality and safety of care
- ✓ Provides a framework for program structure and management
- ✓ Creates a loyal, cohesive clinical team

Post Hospital Sepsis

- New disabilities after sepsis represent a significant public health burden
- 500,000 older sepsis survivors with functional impairments in the United States
- 100,00 with moderate-severe cognitive impairment
- 25% of older survivors is discharged to a post-acute care facility
- 40% are readmitted to the hospital at least once in the next 90 days
- 20% of survivors has a late death that is not explained by pre-sepsis health status

Kumar G, Kumar N, Taneja A, Kaleekal T, Tarima S, McGinley E, Jimenez E, Mohan A, Khan RA, Whittle J, Jacobs E, Nanchal R; Milwaukee Initiative in Critical Care Outcomes Research (MICCOR) Group of Investigators. Nationwide trends of severe sepsis in the 21st century (2000-2007). *Chest*. 2011 Nov;140(5):1223-1231. doi: 10.1378/chest.11-0352. Epub 2011 Aug 18. PMID: 21852297.

Taylor SP, Chou SH, Sierra MF, Shuman TP, McWilliams AD, Taylor BT, Russo M, Evans SL, Rossman W, Murphy S, Cunningham K, Kowalkowski MA. Association between Adherence to Recommended Care and Outcomes for Adult Survivors of Sepsis. *Ann Am Thorac Soc*. 2020 Jan;17(1):89-97. doi: 10.1513/AnnalsATS.201907-514OC. PMID: 31644304; PMCID: PMC6944350.

Lower Risk of Mortality When Discharge to a Facility That Provides Rehabilitation Services

- Lower risk of death within 10 years if referral within 90 days
- Improves exercise capacity
- Independence
- Activities of daily living



Prescott, H. C., & Angus, D. C. (2018). Enhancing recovery from sepsis. *JAMA*, 319(1), 62. <https://doi.org/10.1001/jama.2017.17687>

Inclusion of LTACS can Improve Patient Outcomes

14 million survive to hospital discharge and their prognosis varies

- 1/2 of patients recover
- 1/3 die during the following year
- 1/6 have severe persistent impairments

LTAC care for a high-acuity niche patient population, plays a vital role in achieving efficient recovery of patients

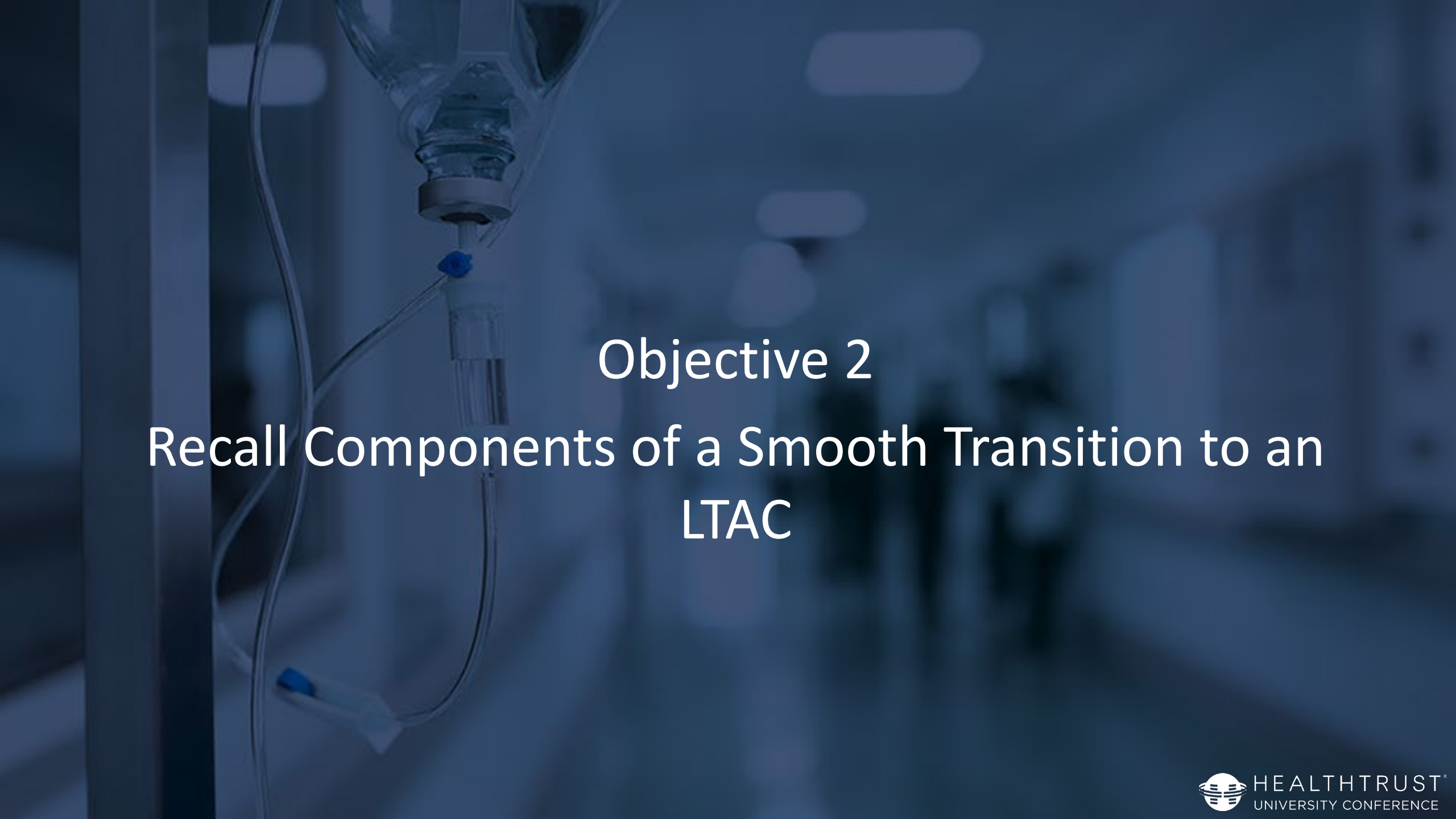
- Sepsis certified
- Acute care and rehabilitation services
- Improve patient outcomes
- Reduce readmissions
- Knowledgeable staff



Recall Components of a Smooth Transition to an LTAC

Ada Marinelarena RN, MSN, CPHQ

Director of Quality Management



Objective 2

Recall Components of a Smooth Transition to an
LTAC

Components of a Smooth Transition to LTACH- Intake Process

Step 1

LTAC care is individualized, based on specific needs of the patient

Step2

All LTAC admissions begin with the goal of a smooth transition

Step 3

Goal- Preparing the patient for discharge prior to admission to get the patient to the next best level of care for optimal outcome

1. Evaluation Process Begins Prior to Admission

Can we meet their clinical needs?

Will the patient require additional procedures or appointments?

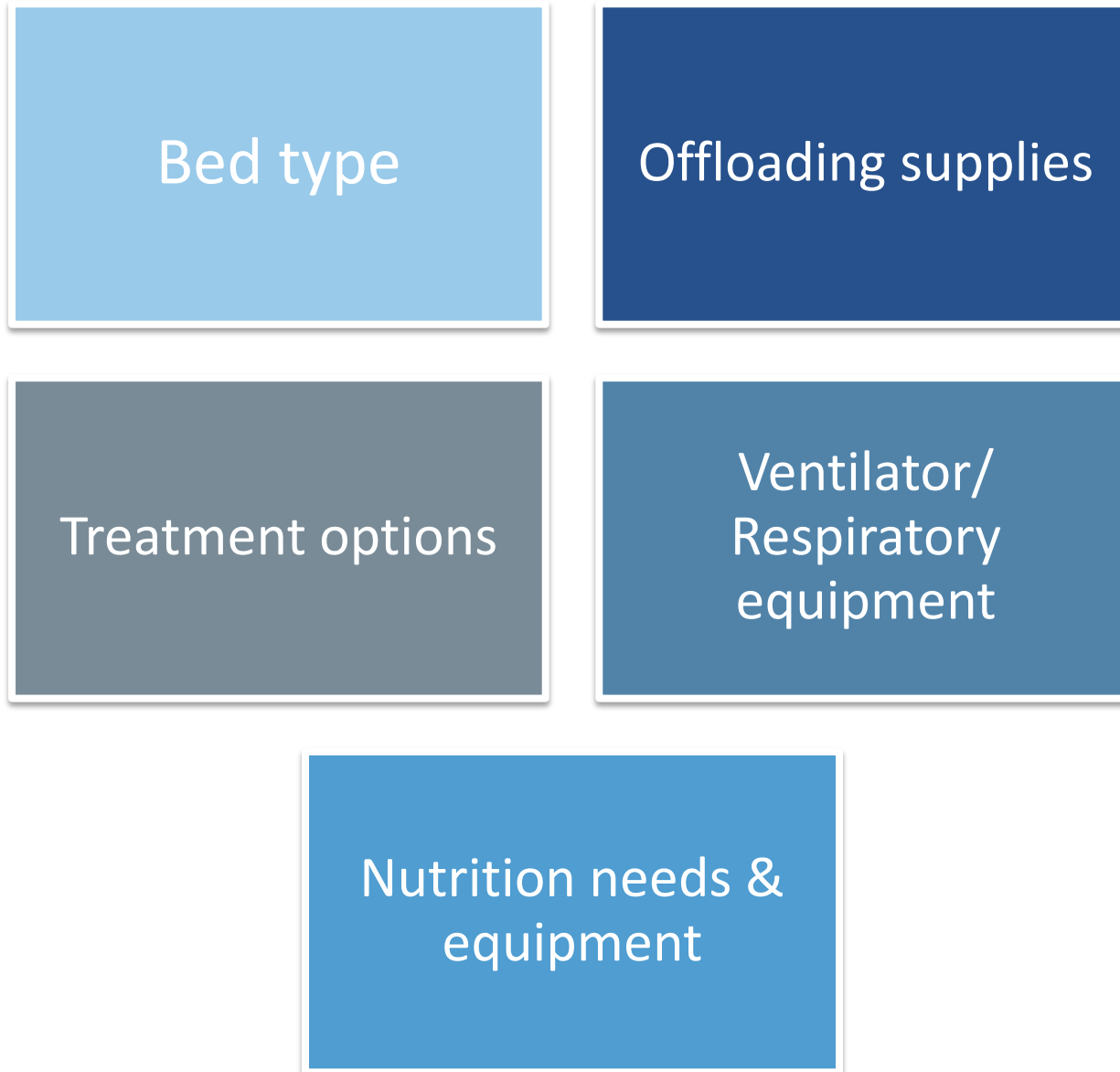
Infection control evaluation

Future needs/placement following LTAC

| 2. Patient and Family Education on LTAC



3. Equipment Needs

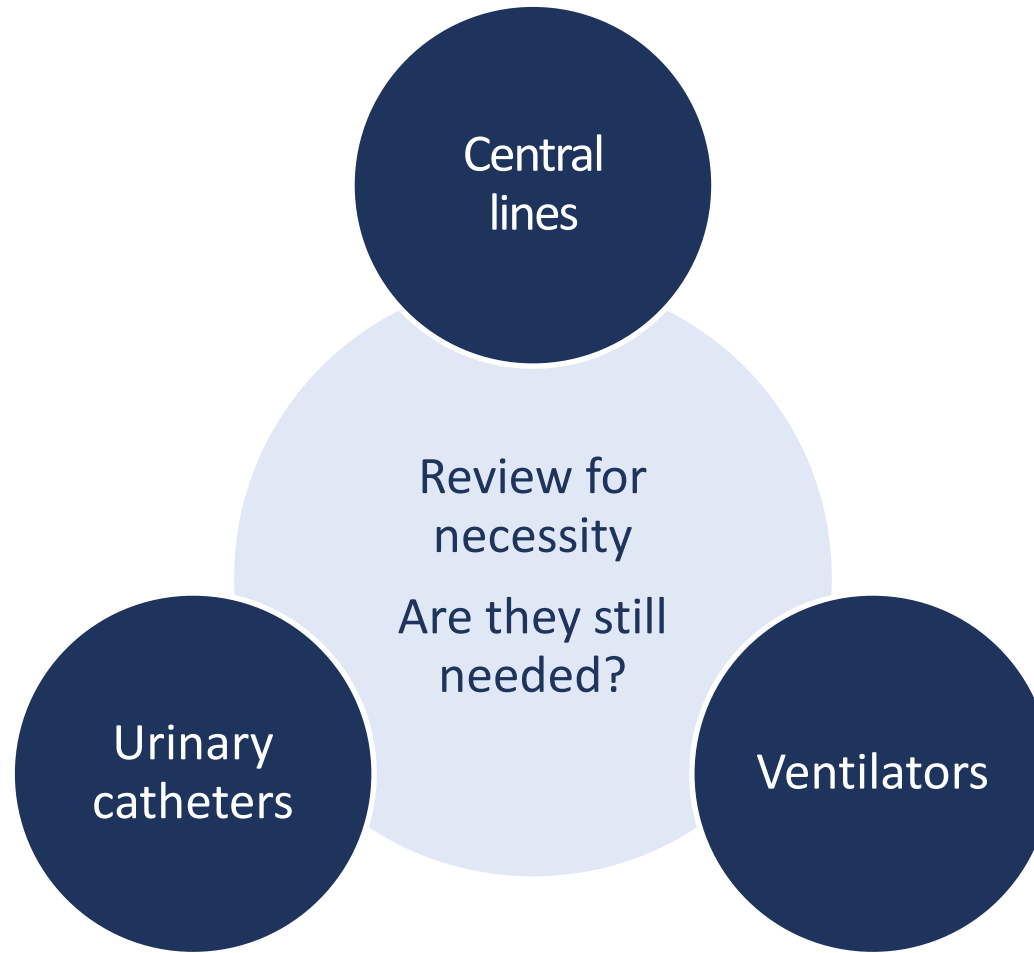


| 4. Medication Therapy Review

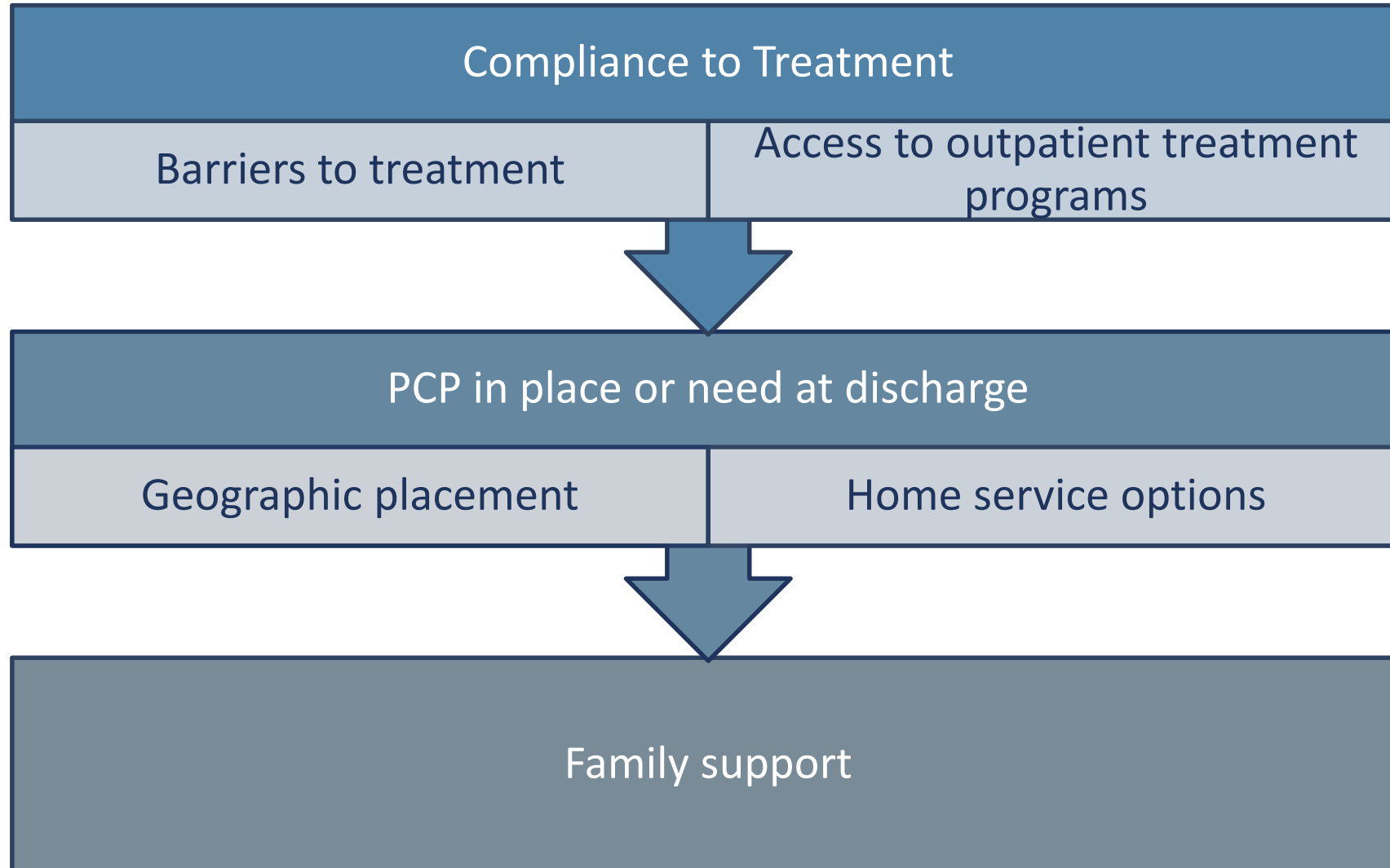
- Pre-admission medication review
- Medication reconciliation at point of admission
 - Formulary and therapeutic interchange interventions
 - Identification and action on clinically significant medication issues
 - Drug allergy identification
 - Resolution of discrepancies
- Ongoing drug regimen review



5. Review of Indwelling Lines



6. Social/Behavioral Review

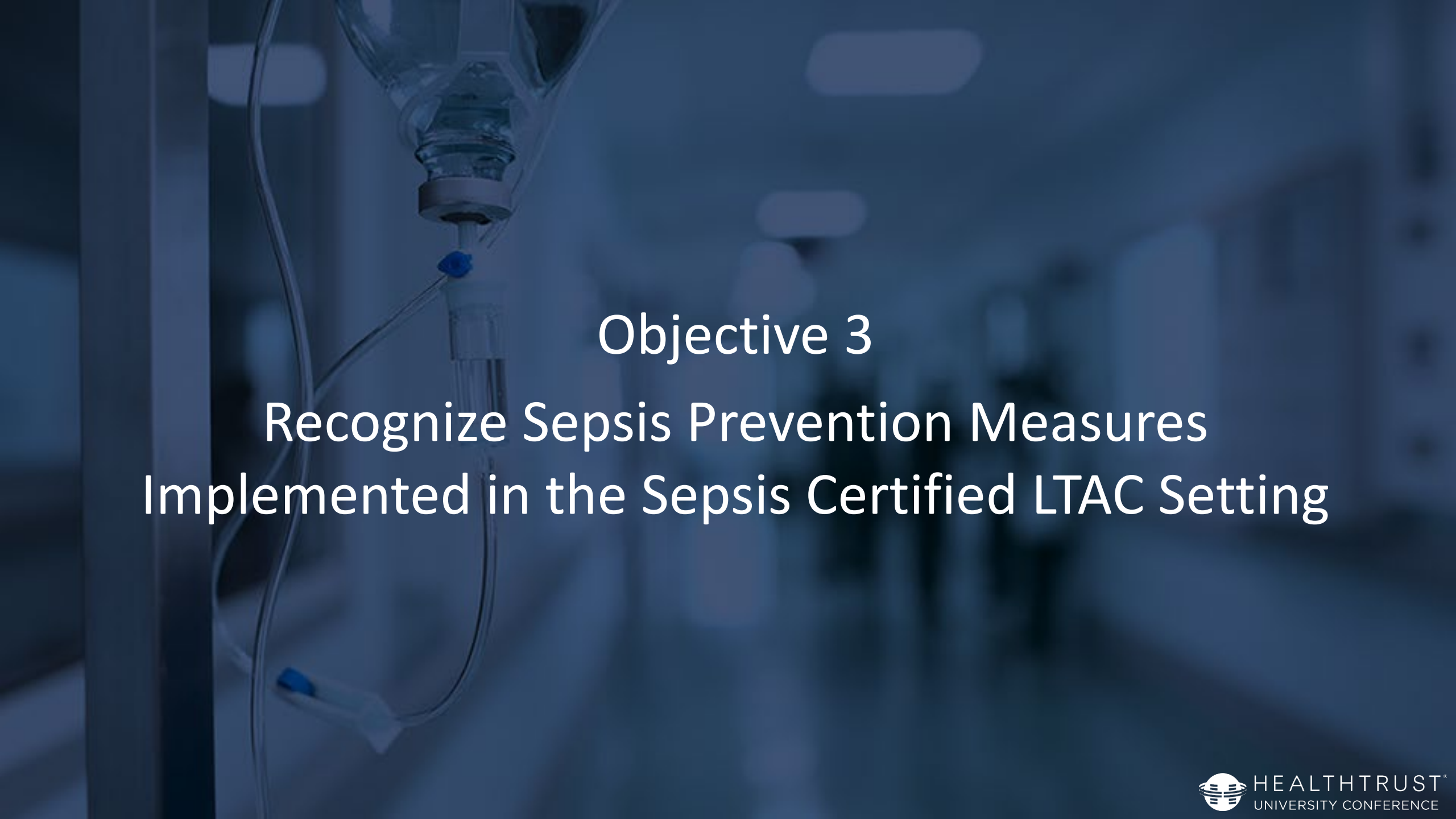


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Recognize Sepsis Prevention Measures Implemented in the Sepsis Certified LTAC Setting

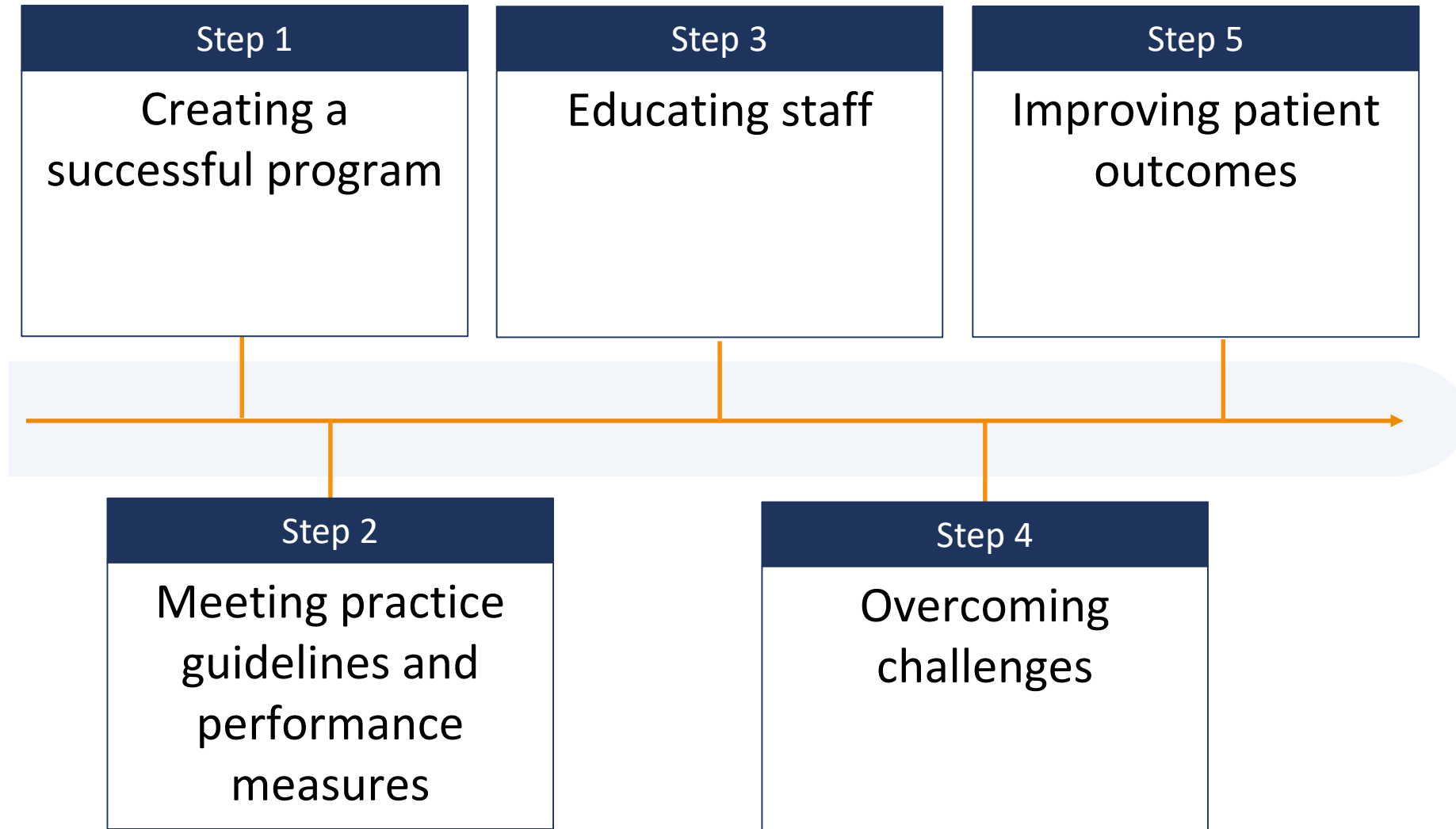
James Brown, Director of Pharmacy



Objective 3

Recognize Sepsis Prevention Measures
Implemented in the Sepsis Certified LTAC Setting

Sepsis Prevention Measures Used by LTACHs to Improve Patient Outcomes



| 1. Creating a Successful Program

- Assemble a program Steering Committee and an interdisciplinary team to drive high quality of sepsis outcomes
- Conduct a gap analysis of the hospitals current practices



Members

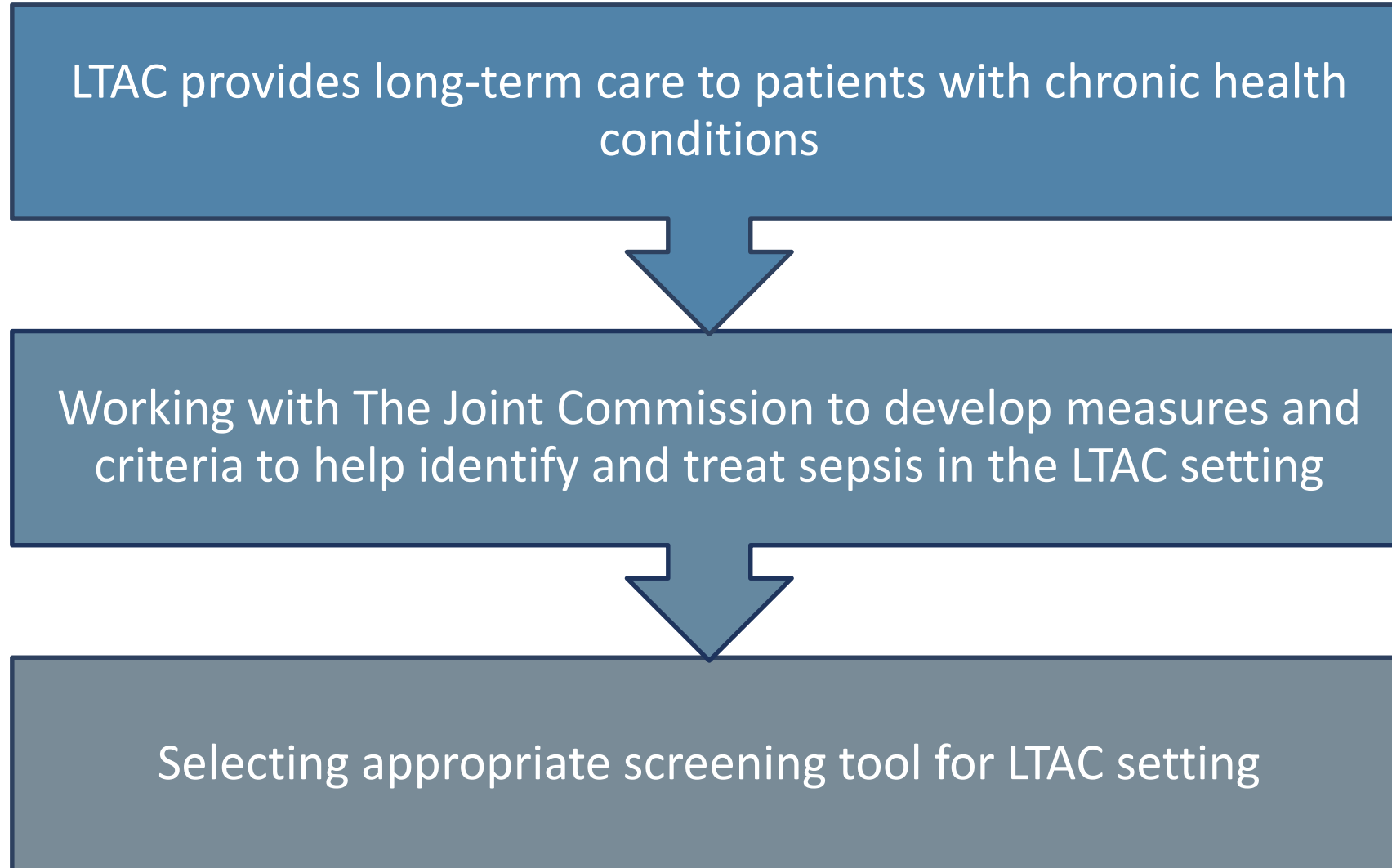
| Program Steering Committee

- James Brown, Chair, Director Of Pharmacy
- Lisa Cochran, Chief Clinical Officer
- Ada Marinelarena, Director of Quality Management
- Kelcie McCloskey, Director of Nursing and Clinical Service
- Elaine Allen, Director of Respiratory Therapy, Lab, and Radiology

| Interdisciplinary Team

- Chief Clinical Officer
- Director of Quality
- Director of Case Management & Staff
- Pharmacy Director & Staff
- Respiratory Director & Staff
- Therapy Director & Staff
- Nurse Manager & Staff
- Dietician
- Infection Control Practitioner
- Patient Relations Representative
- Chief Hospitalist

2. Following Clinical Practice Guidelines and Establishing Performance Measures



Meeting Practice Guidelines and Performance Measures

- The Surviving Sepsis Campaign (SSC) for clinical practice guidelines is committed to reducing mortality and morbidity from sepsis and sepsis shock worldwide and offers evidence-based guidelines and resources
- The Clinical guidelines are designed for short-term, acute-care hospitals and emergency rooms
- Kindred LTACs provide long-term acute-care to patients with chronic health conditions
- The Joint Commission assisted in developing performance measures and criteria that fit our patients care needs
- One modification made by the team was to the parameters of the systemic inflammatory response syndrome (SIRS) criteria


| 3. Educating Staff



Source: Add source of your data here in size 11 font.

Staff Education

- Nurse-driven screening protocol
- Provider education
- All staff education

<p>My Role in Sepsis Disease Specific Certification: Nursing</p> <ul style="list-style-type: none">● Identify patients in Sepsis program● Perform Sepsis Screen Q6 hours● Perform hand hygiene before entering room and when leaving & wear appropriate PPE when providing care or entering room● Notify MET team for positive Sepsis screen & implement Nurse Initiated Protocol -Stat blood lactate and blood cultures X 2 (Verify if blood cultures done within last 24 hours before collection)● Notify provider and enter "Suspected Sepsis" change of condition in ProTouch	<p>Sepsis- Core Measures</p> <p>Screen for Sepsis Q6 hours Collect blood lactate level within 1 hour Collect blood cultures X 2 within 1 hour/prior to antibiotics Administer broad spectrum antibiotics within 1 hr of recognition Initiate Risk of Infection plan of care/provide education</p> <p>SIRS Criteria</p> <ul style="list-style-type: none">● Temp > 100.9 or <96.5● Heart Rate > 100 bpm● Respiratory Rate > 22 bpm● WBC > 12,000 or < 4,000  <p>Sepsis = 2 or more SIRS criteria <u>AND</u> documented or suspected source of infection</p>
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What is the Sepsis Nurse Initiated Protocol for a Positive Sepsis Screening

1. Notify Rapid Response Team

2. Notify the provider

3. Order & collect stat blood lactate level

4. Order & collect blood CXs x3 w/in last 24 hrs.

Do not redraw if collected w/in 24hrs.

4. Enter "Suspected Sepsis" change of condition in EMR

4. Overcoming Challenges

Identifying “TIME Zero”

Nurse driven process necessary

Nurses are best bedside clinical resource

Provider & staff buy-in & approval

4. Overcoming Challenges, Continued

Diagnostic capabilities

Return to acute setting

Sepsis education for patient and family

Provider & staff buy-in & approval

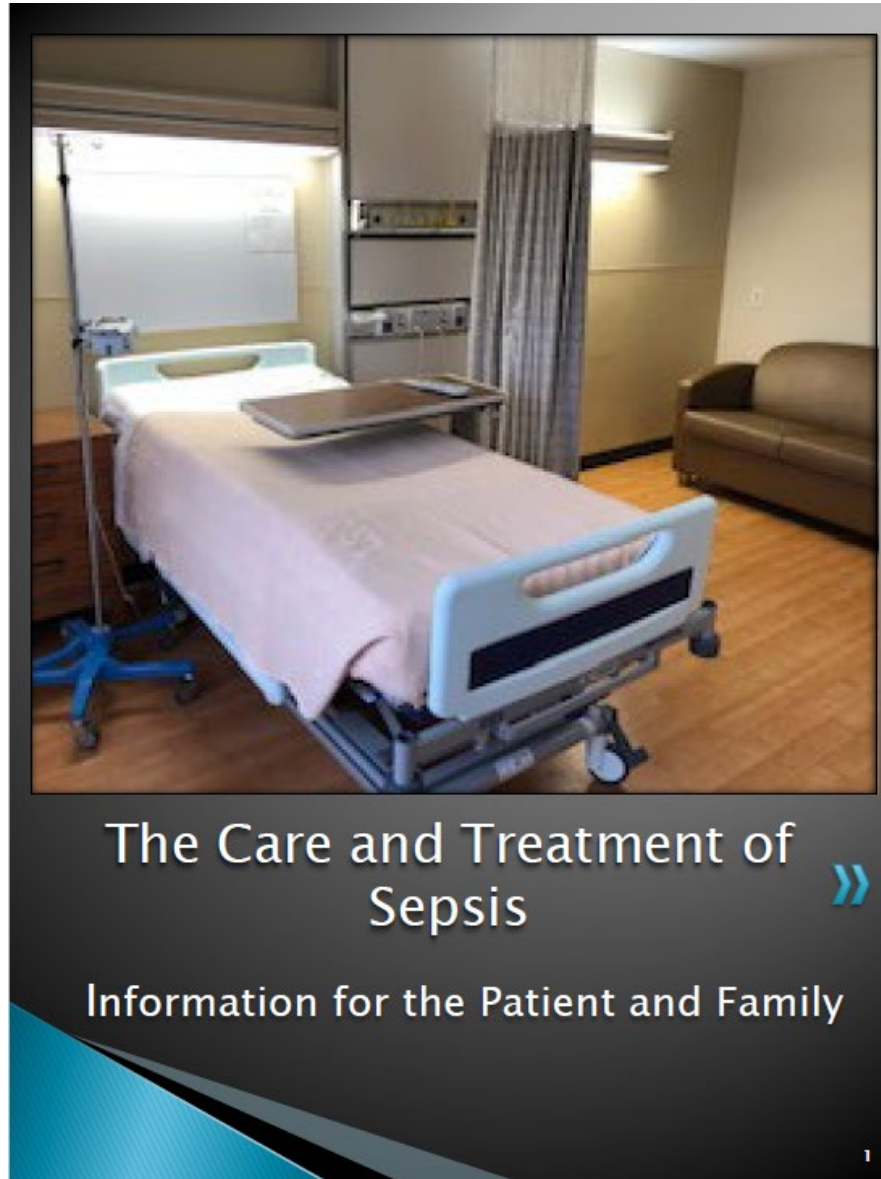
4. Overcoming Challenges, Continued

Creating patient required material education for Disease Specific Certification

Education for patient and family regarding identifying sepsis at home

How staff would document in the EMR

Example of Patient Education Binder



Highlights of Our Initiatives

Patient identification

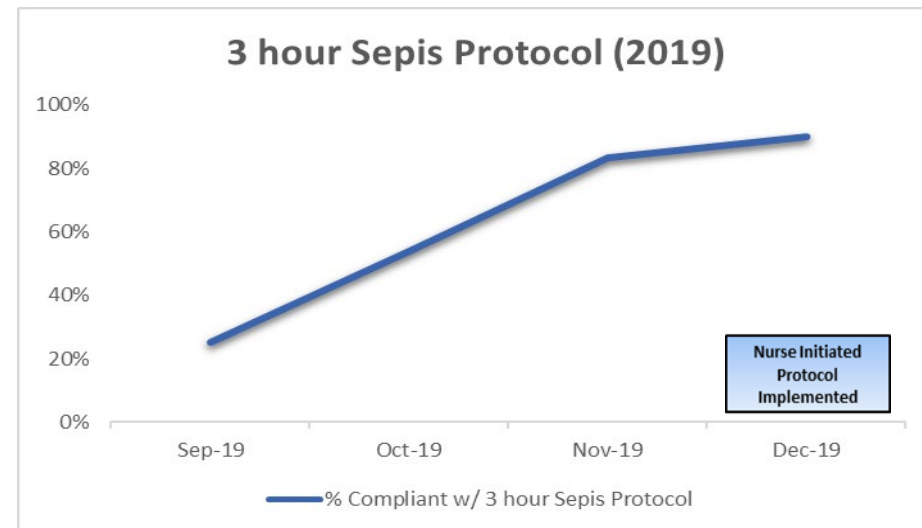
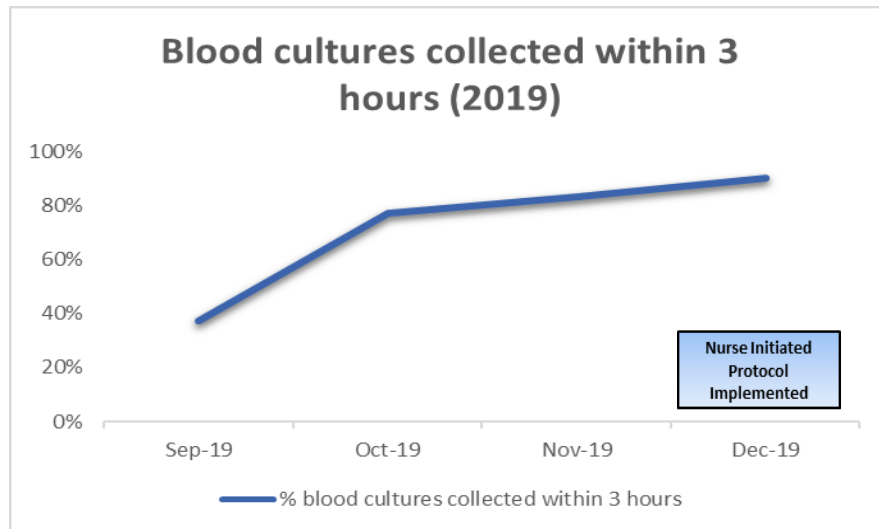
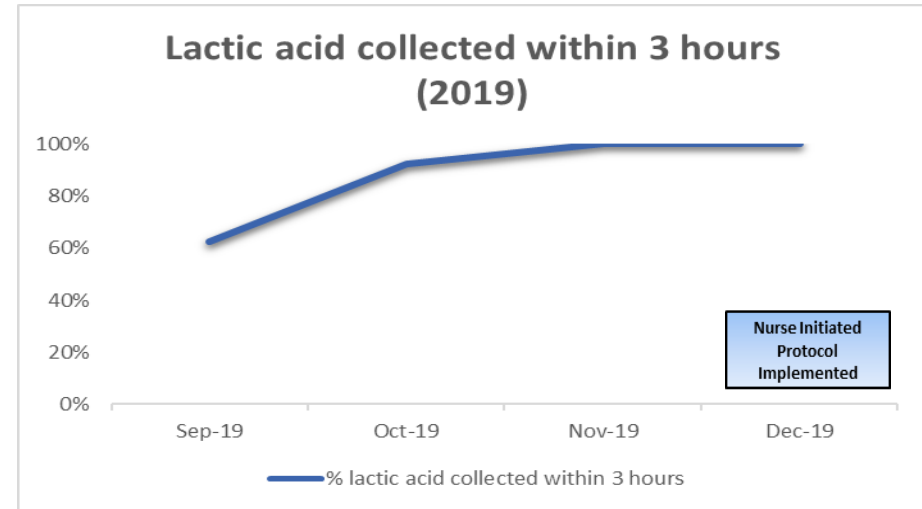
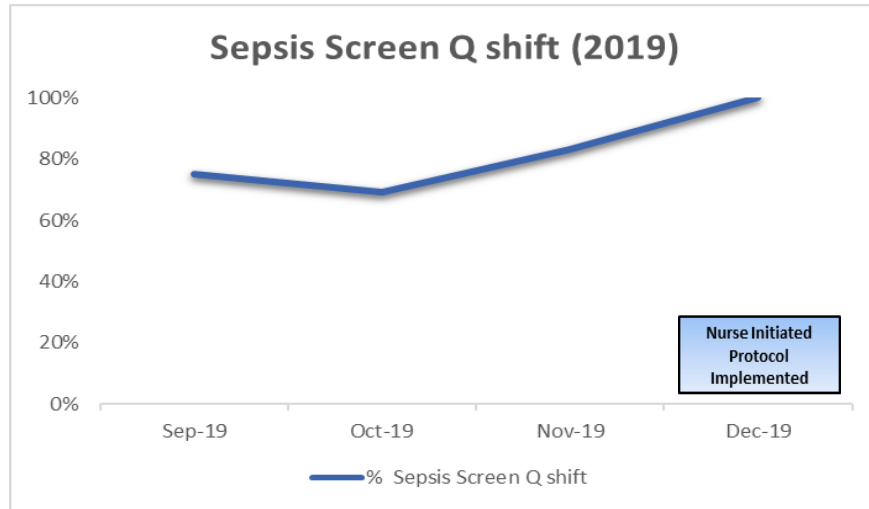
Sepsis screen every 6 hours

Nurse-initiated protocol

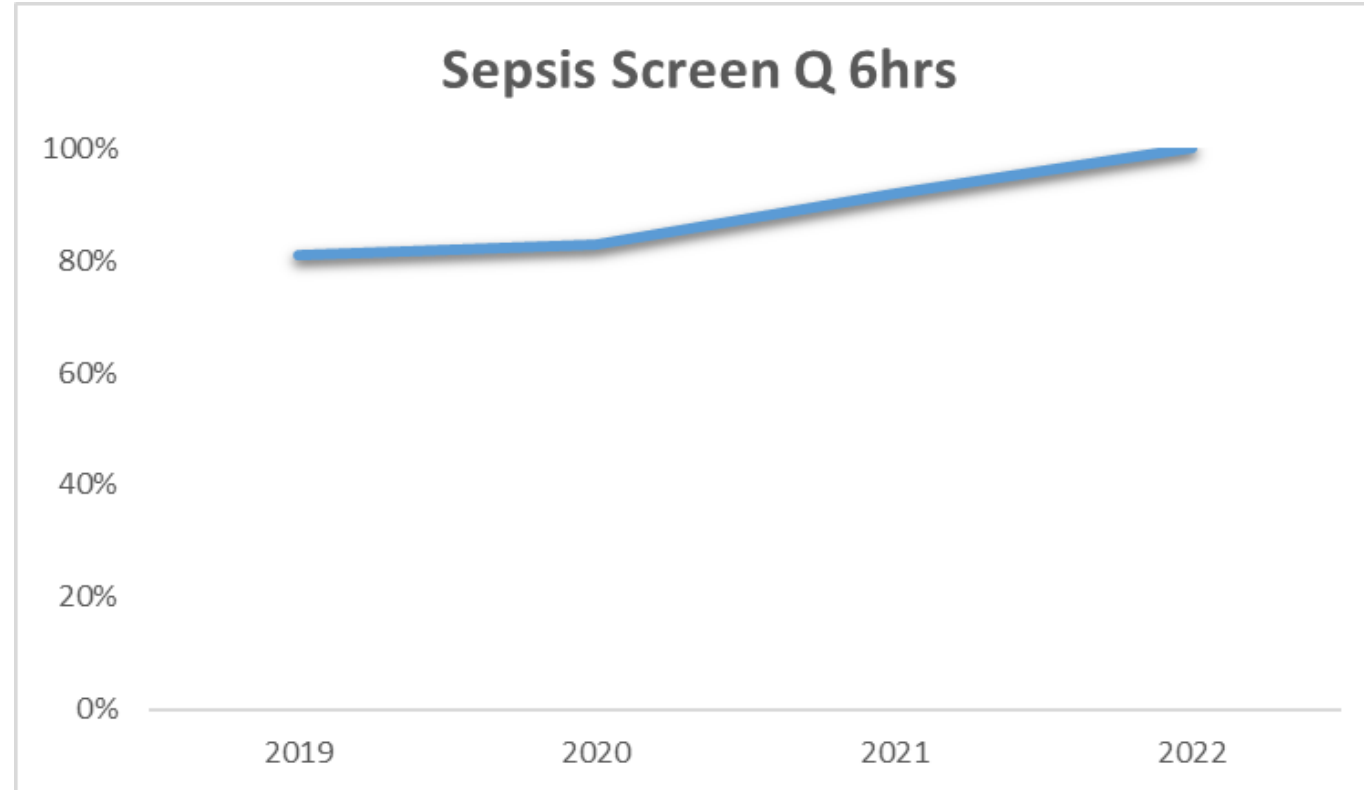
Patient education

Weekly ICT

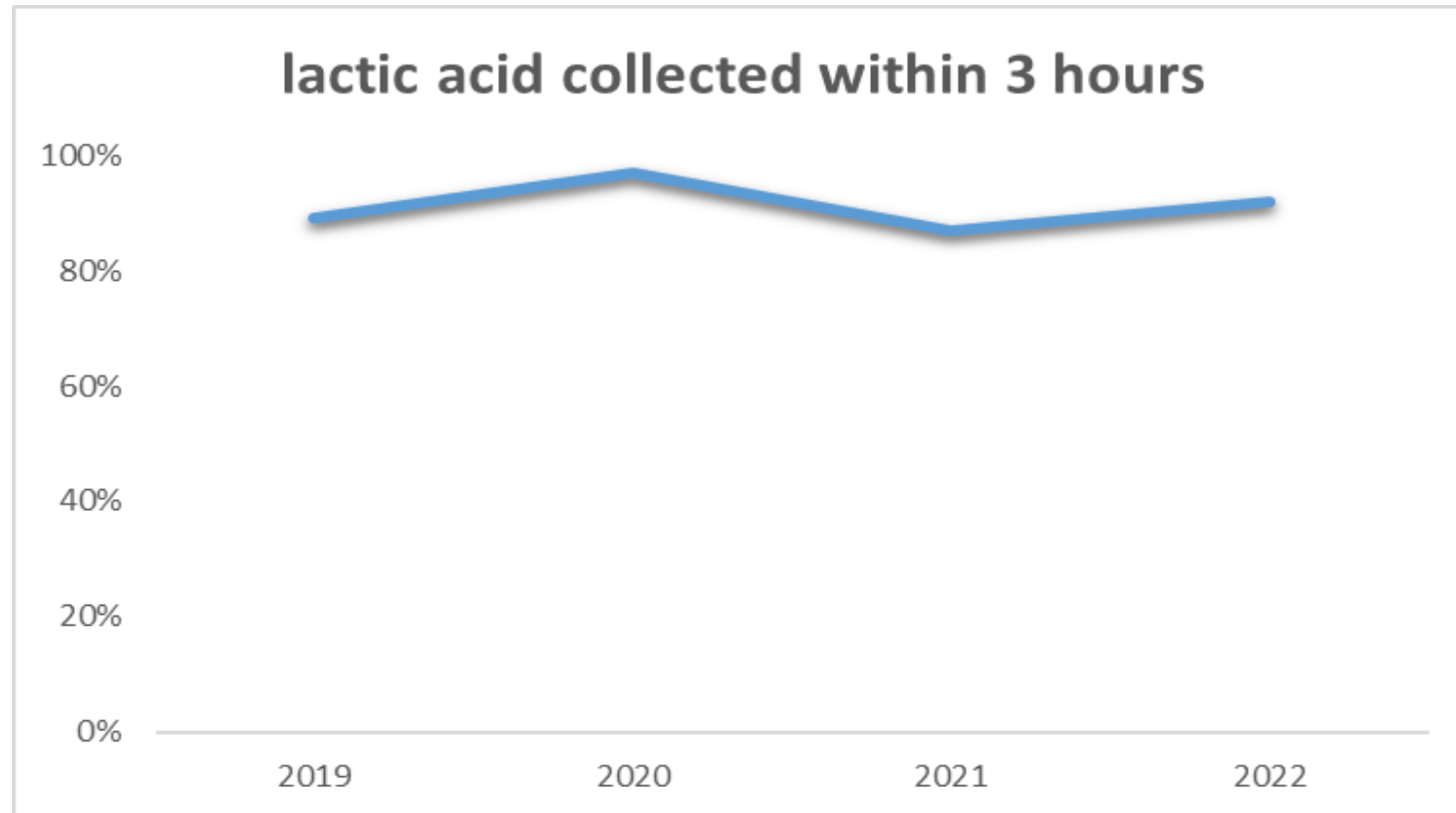
Improving Patient Outcomes - Sepsis Screening Every Shift



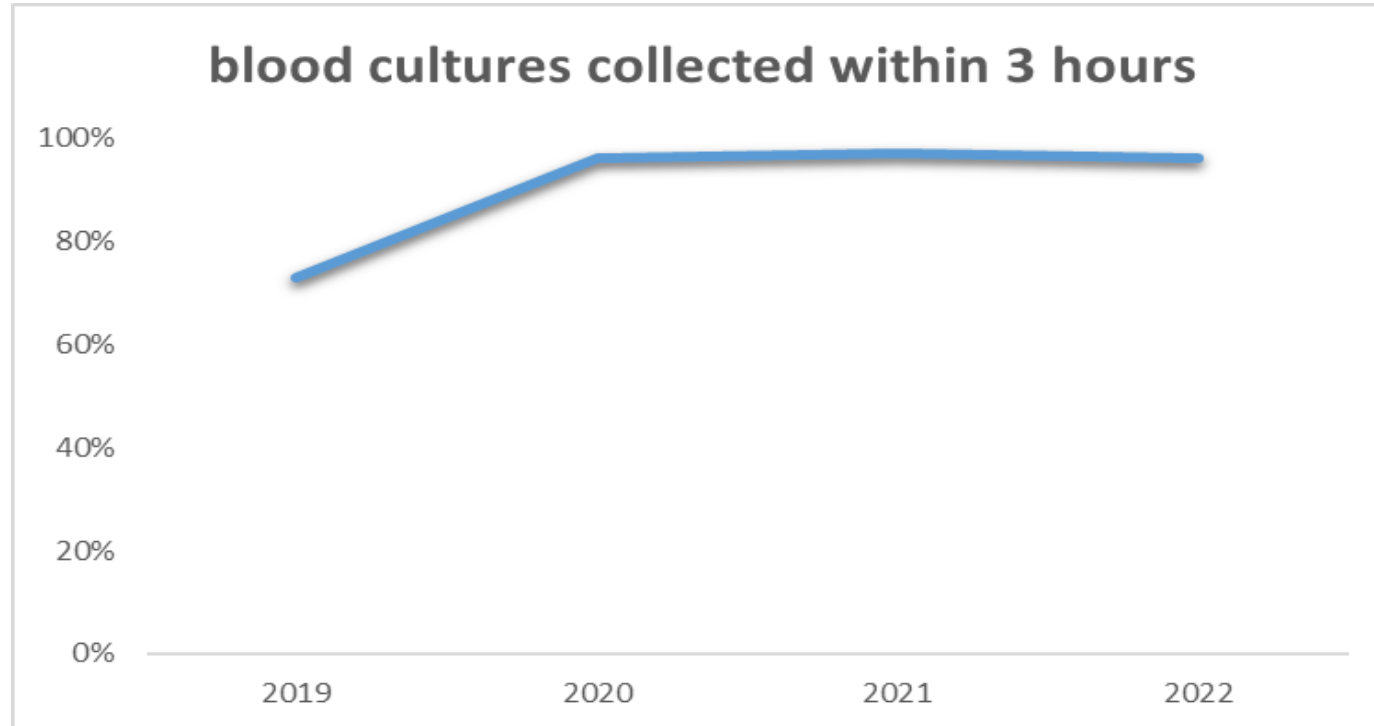
Improving Patient Outcomes - Sepsis Screen Q6 hours



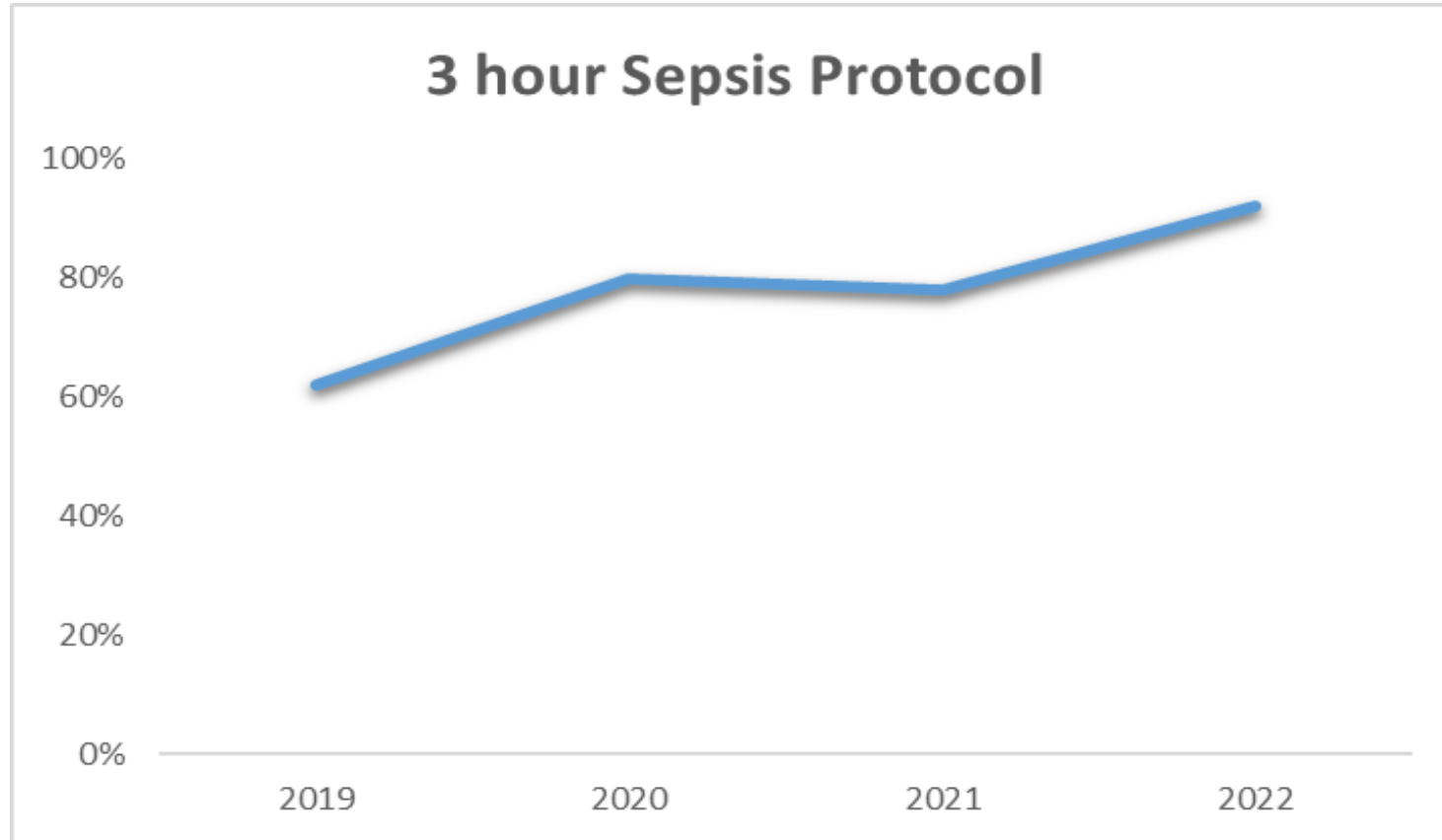
Improving Patient Outcomes - Lactic Acid within 3 Hours



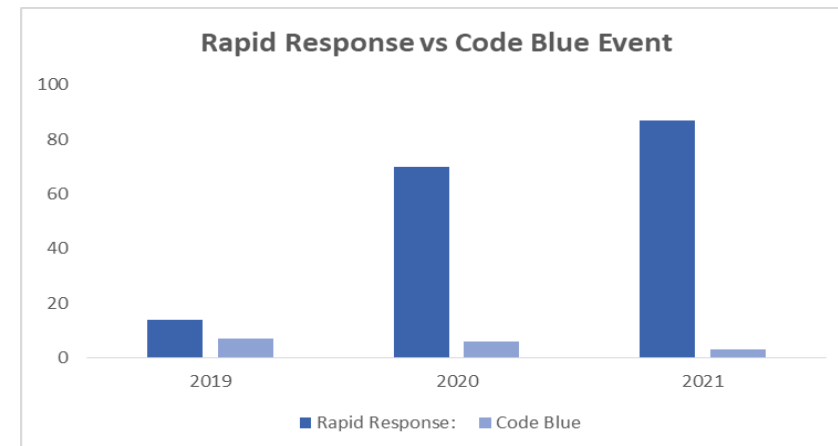
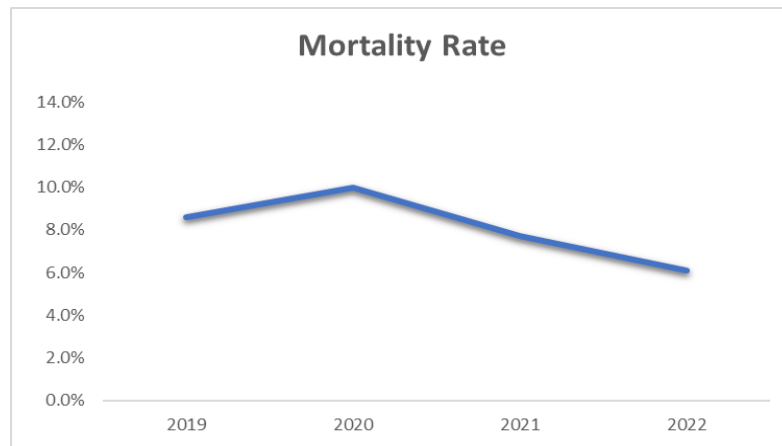
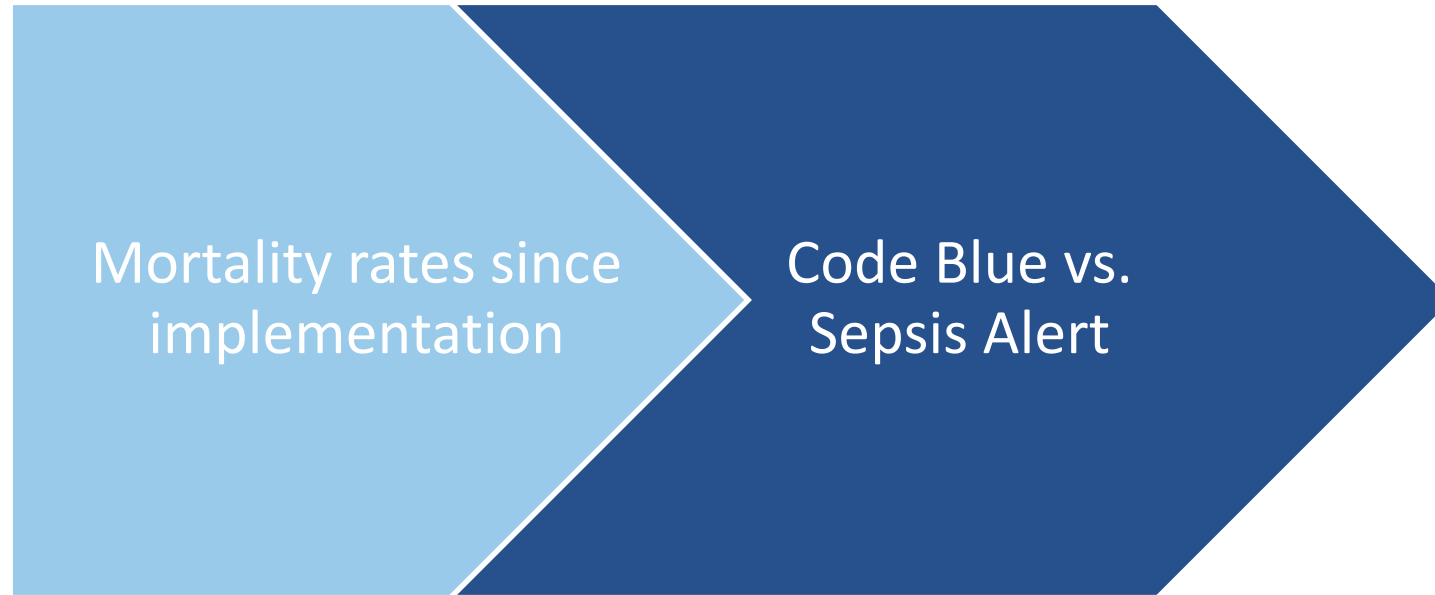
Improving Patient Outcomes - Blood Cultures within 3 Hours



Improving Patient Outcomes - Compliance with 3-Hour Protocol



5. Improving Patient Outcomes



6. Next Steps

- People with chronic diseases are living longer
- Early identification of sepsis identification continues to be an important focus for the overall treatment and to improve the overall patient outcomes
- Sepsis must be treated in a hospital setting and long-term acute care hospitals (LTACH), who are well equipped to both identify and treat sepsis
- LTACH hospitals play a vital role in achieving more efficient recovery of patients who have a high risk of readmission due to their clinical complexity



- We are committed to pursuing innovations in care delivery and payment models that provide new tools and solutions to our patients and their families as well as our provider partners.
- Recertification areas of improvement on our overall bundle compliance percent year to year.
- Improving on our perception of care completed.
- Improving on our patient and family education documentation



| Adapting to the 1-Hour Bundle

Patient education

Provider education

Data collection and analysis

Process improvement teams

Summary and References

The engagement and success achieved through the partnership of the various hospital teams has given our organization the resources needed to respond to an ever- changing market

Source: Add source of your data here in size 12 font

Assessment Question 3

Which of the following are sepsis measures that should be implemented in the Sepsis Certified LTAC setting?

- a. Daily Rounding by Providers
- b. Continuation of Hospital-Level Care
- c. Critical Care Trained Nursing Staff
- d. ICU and Telemetry Beds with ACLS Certified Staff
- e. **All of the above**



References

- Courtright, K. R., Jordan, L., Murtaugh, C. M., Barrón, Y., Deb, P., Moore, S., Bowles, K. H., & Mikkelsen, M. E. (2020). Risk factors for long-term mortality and patterns of end-of-life care among Medicare sepsis survivors discharged to Home Health Care. *JAMA Network Open*, 3(2). <https://doi.org/10.1001/jamanetworkopen.2020.0038>
- Early home health interventions may reduce sepsis readmission rates*. Sepsis Alliance. (2019, August 6). Retrieved June 13, 2022, from <https://www.sepsis.org/news/early-home-health-interventions-may-reduce-sepsis-readmission-rates/>
- Farrah, K., McIntyre, L., Doig, C. J., Talarico, R., Taljaard, M., Krahn, M., Fergusson, D., Forster, A. J., Coyle, D., & Thavorn, K. (2020). Sepsis-associated mortality, resource use, and healthcare costs: A propensity-matched cohort study*. *Critical Care Medicine*, 49(2), 215–227. <https://doi.org/10.1097/ccm.0000000000004777>
- Gaps and improvement in management of sepsis - emap*. (n.d.). Retrieved June 14, 2022, from https://cdn.ps.emap.com/wp-content/uploads/sites/3/2016/04/270416_Gaps-and-improvement-in-management-of-sepsis.pdf
- Jones, T. K., Fuchs, B. D., Small, D. S., Halpern, S. D., Hanish, A., Umscheid, C. A., Baillie, C. A., Kerlin, M. P., Galeski, D. F., & Mikkelsen, M. E. (2015). Post-Acute Care Use and hospital readmission after sepsis. *Annals of the American Thoracic Society*, 12(6), 904–913. <https://doi.org/10.1513/annalsats.201411-504oc>
- Kumar G, Kumar N, Taneja A, Kaleekal T, Tarima S, McGinley E, Jimenez E, Mohan A, Khan RA, Whittle J, Jacobs E, Nanchal R; Milwaukee Initiative in Critical Care Outcomes Research (MICCOR) Group of Investigators. Nationwide trends of severe sepsis in the 21st century (2000-2007). *Chest*. 2011 Nov;140(5):1223-1231. doi: 10.1378/chest.11-0352. Epub 2011 Aug 18. PMID: 21852297.
- Mayr, F. B., Talisa, V. B., Balakumar, V., Chang, C.-C. H., Fine, M., & Yende, S. (2017). Proportion and cost of unplanned 30-day readmissions after sepsis compared with other medical conditions. *JAMA*, 317(5), 530. <https://doi.org/10.1001/jama.2016.20468>
- McPeake, J., Boehm, L. M., Hibbert, E., Bakhru, R. N., Bastin, A. J., Butcher, B. W., Eaton, T. L., Harris, W., Hope, A. A., Jackson, J., Johnson, A., Kloos, J. A., Korzick, K. A., MacTavish, P., Meyer, J., Montgomery-Yates, A., Quasim, T., Slack, A., Wade, D., ... Sevin, C. M. (2020). Key components of ICU Recovery Programs: What did patients report provided benefit? *Critical Care Explorations*, 2(4). <https://doi.org/10.1097/cce.0000000000000088>
- Muldoon, Sean R, M. D. (2019, October 15). *Treating sepsis in a world of value-based care*. Kindred. Retrieved June 13, 2022, from <https://www.kindredhealthcare.com/resources/blog-kindred-continuum/2019/09/23/treating-sepsis-in-a-world-of-value-based-care>
- Naylor, M., & Keating, S. A. (2008). Transitional care. *AJN, American Journal of Nursing*, 108(9), 58–63. <https://doi.org/10.1097/01.naj.0000336420.34946.3a>
- Paoli, C. J., Reynolds, M. A., Sinha, M., Gitlin, M., & Crouser, E. (2018). Epidemiology and costs of sepsis in the United States—an analysis based on timing of diagnosis and severity level*. *Critical Care Medicine*, 46(12), 1889–1897. <https://doi.org/10.1097/ccm.00000000000003342>
- Prescott HC, Langa KM, Iwashyna TJ. Readmission diagnoses after hospitalization for severe sepsis and other acute medical conditions. *JAMA*. 2015 Mar 10;313(10):1055-7. doi: 10.1001/jama.2015.1410. PMID: 25756444; PMCID: PMC4760618.
- Prescott, H. C., Osterholzer, J. J., Langa, K. M., Angus, D. C., & Iwashyna, T. J. (2016). Late mortality after sepsis: Propensity matched Cohort Study. *BMJ*, i2375. <https://doi.org/10.1136/bmj.i2375>
- Prescott, H. C., & Costa, D. K. (2018, January). *Improving long-term outcomes after sepsis*. Critical care clinics. Retrieved June 13, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5708876/>
- Prescott, H. C., & Angus, D. C. (2018). Enhancing recovery from sepsis. *JAMA*, 319(1), 62. <https://doi.org/10.1001/jama.2017.17687>
- SCCM: Surviving sepsis campaign guidelines 2021*. Society of Critical Care Medicine (SCCM). (n.d.). Retrieved June 1, 2022, from <https://www.sccm.org/Clinical-Resources/Guidelines/Guidelines/Surviving-Sepsis-Guidelines-2021>
- Severe Sepsis and Septic Shock (SEP)*. Qualitynet Home. (n.d.). Retrieved June 1, 2022, from https://qualitynet.cms.gov/files/61b0df4330ffbc00229c36ba?filename=2a-b_SEP-List_v5.12.pdf
- Taylor, S. P., Chou, S.-H., Sierra, M. F., Shuman, T. P., McWilliams, A. D., Taylor, B. T., Russo, M., Evans, S. L., Rossman, W., Murphy, S., Cunningham, K., & Kowalkowski, M. A. (2020). Association between adherence to recommended care and outcomes for adult survivors of sepsis. *Annals of the American Thoracic Society*, 17(1), 89–97. <https://doi.org/10.1513/annalsats.201907-514oc>
- Zanotti-Cavazzoni, S. L. (2012). Nationwide trends of severe sepsis in the 21st Century (2000-2007). *Yearbook of Critical Care Medicine*, 2012, 153–155. <https://doi.org/10.1016/j.yccm.2011.12.050>

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