Creation of a System Adult Sepsis Dashboard

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Problem

Sepsis remains a leading cause of preventable mortality, extended length of stay, and readmissions within our health system. Clinically, delays in sepsis recognition and treatment contributed to avoidable harm and higher observed-to-expected (O:E) sepsis mortality. Operationally, elevated O-E length of stay, sepsis readmissions, and SEP-1 sepsis treatment bundle compliance increased financial penalties through value-based purchasing programs.

At UChicago Medicine, frontline leaders on the System Sepsis Quality Committee identified critical needs: actionable data to evaluate sepsis screening rates, timeliness of treatment, and patient outcomes across the continuum of care. Without standardized sepsis reporting, frontline teams did not have visibility into performance metrics that directly impact patient survival and recovery, nor did leaders have actionable data to drive unit and system-level improvements.

Goal

The System Sepsis Quality Committee goal is to create an Adult Sepsis Dashboard to equip clinical teams and operational leaders with timely, actionable data tailored to their area of care. This approach will drive system-wide improvement in sepsis process and outcome measures, leading to better patient care and strengthening our system's financial sustainability and reputation. The System Sepsis Quality Improvement goal to reduce mortality, length of stay, and readmissions is aligned with UCM system outcome targets for fiscal year 2026.
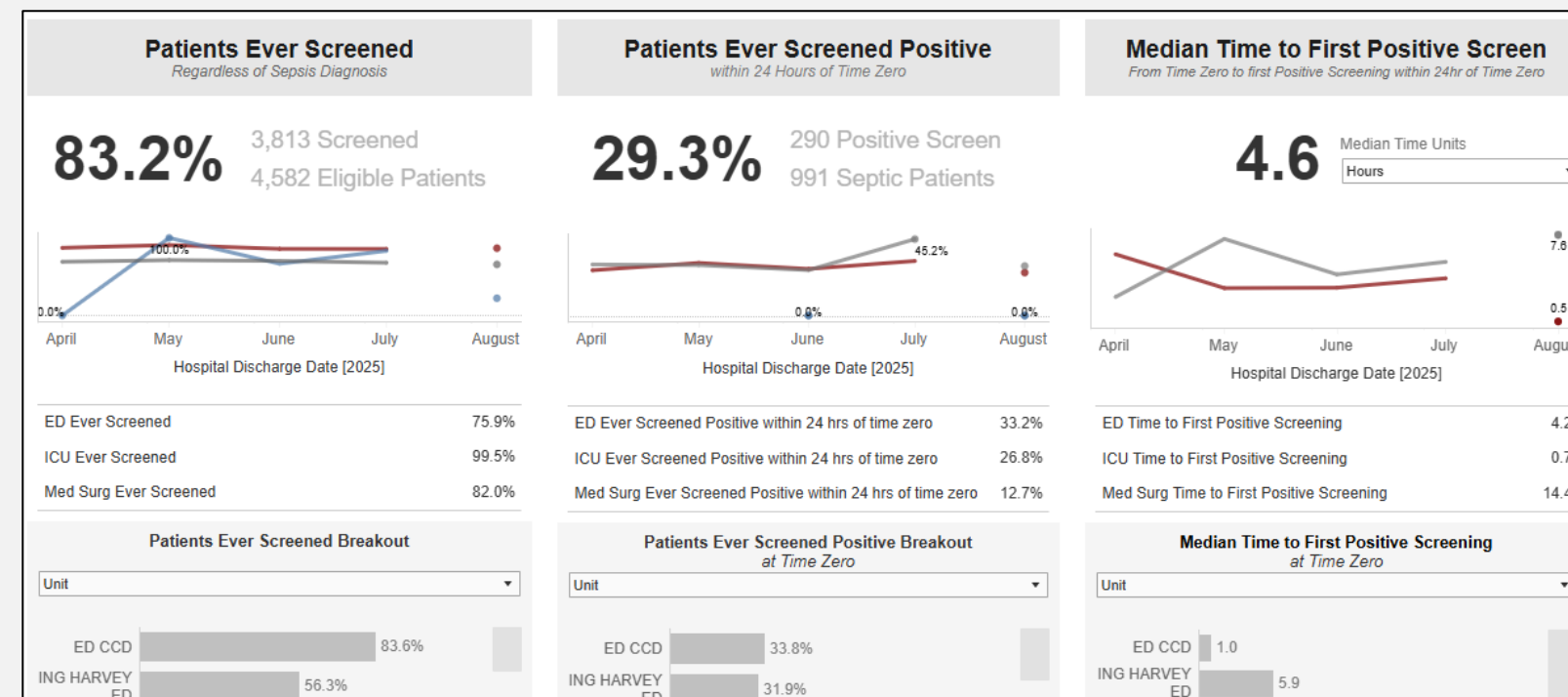
Innovation

Opportunities addressed in the Adult Sepsis Dashboard

- **Data transparency:** A systemwide dashboard to monitor sepsis screening and treatment, providing clinicians the ability to review trends and opportunities.
- **Frontline data access:** Providers and nurses can identify care gaps and trends to best advocate for patient needs.
- **Adult sepsis event onset tracking:** Leveraging EHR-based objective markers of infection and organ dysfunction to identify time zero for hospital-onset sepsis cases.
- **Treatment timeliness:** Monitor time-sensitive SEP-1 treatment bundle elements (e.g., antibiotics, fluids, lactate measurement).
- **Documentation improvement:** Complete and accurate documentation reduces reported SEP-1 compliance that skews performance metrics.
- **System accountability:** Leadership access to standardized outcome metrics that drive improvement across hospitals, units, and disciplines.
- **Financial impact:** Identifies opportunities tied to CMS value-based purchasing penalties for SEP-1 performance.
- **Metric breakout:** Evaluate metric performance with patient equity filters.
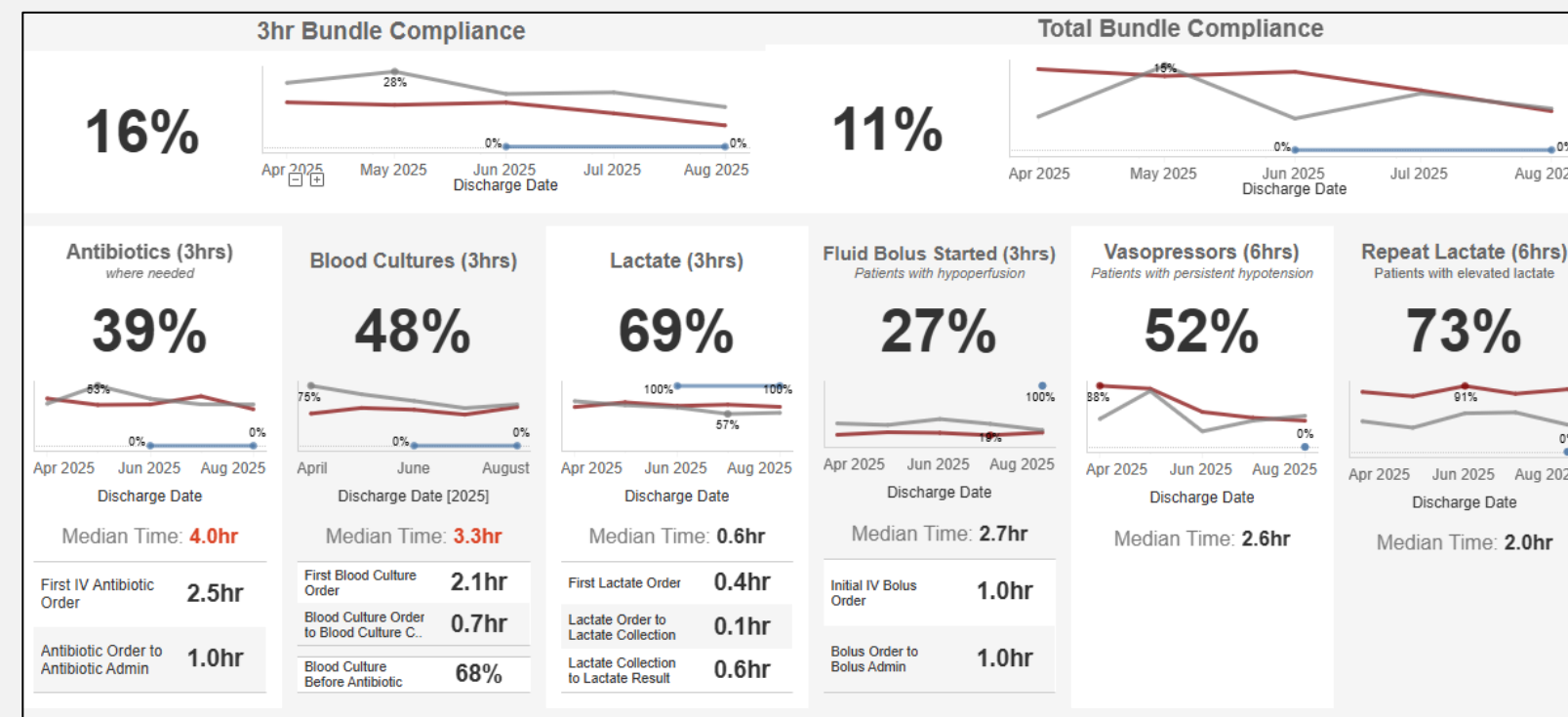
Results

Adult Sepsis Screening Dashboard

- Robust tracking of sepsis screening completion, timeliness, and accuracy
- Incorporates nurse-driven sepsis screening protocols for ED, Med Surg, ICU
- Screening process metrics
  - Patients ever screened for sepsis
  - Patients ever screened positive for sepsis
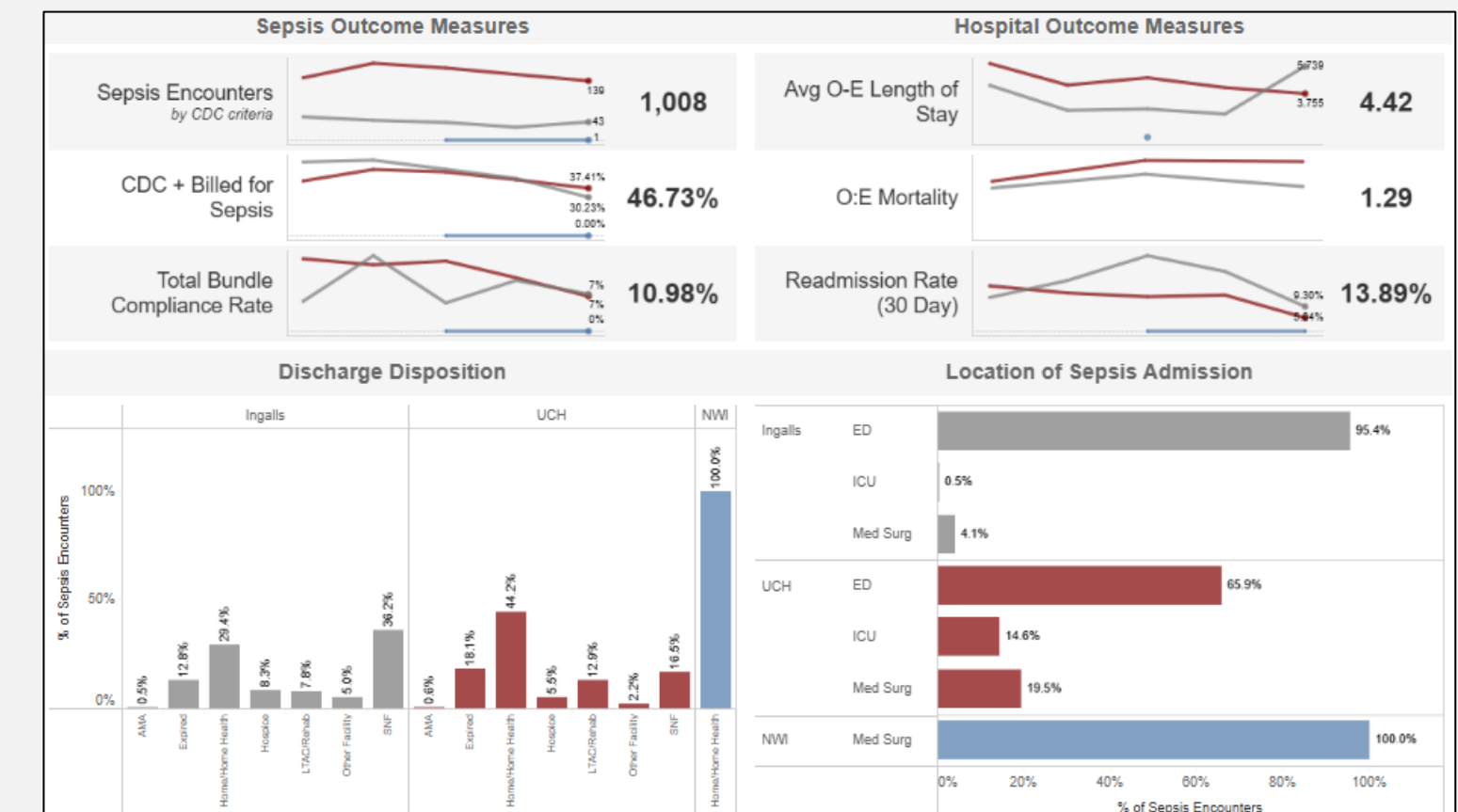 - Medium time to first positive screen from time zero (sepsis onset)

Adult Sepsis Treatment Dashboard

- Detailed tracking for each step of the SEP-1 Sepsis Treatment bundle and overall bundle compliance.
- Time zero (sepsis onset) for both community-acquired and hospital-acquired sepsis.
- Treatment process metrics
  - Time zero to first IV antibiotic administration
  - Time zero to first blood culture collection
  - Time zero to initial lactate collection
  - Time zero to first fluid bolus administration for patients with hypoperfusion
  - Time zero to first vasopressor administration for patients with persistent hypotension after receiving IV fluids
  - Time zero to repeat lactate for patients that had an initial elevated lactated greater than 2 mmol/L

Adult Sepsis Outcomes Dashboard Tab

- Robust tracking for sepsis outcomes of O:E mortality, O-E length of stay, and readmission rate.
- Enhanced capabilities for tracking location of sepsis admission and discharge disposition.
- Ability to compare patients that met CDC clinical criteria for sepsis vs patients billed for sepsis to identify opportunities to improve clinical documentation.

Next Steps

- **Training & Adoption:** Provide education for frontline teams and system leaders on how to leverage dashboard to drive data-driven improvement of sepsis care quality.
- **Workflow Integration:** Embed dashboard review into unit-based meetings and system quality meetings using drill-down capabilities by unit and SEP-1 element
- **Continuous Monitoring:** System Sepsis Quality Committee monthly dashboard review to identify trends, outliers, and best practices.
- **Performance Accountability:** Link dashboard metrics to clinical performance, providing recognition for high quality care and sharing improvement opportunities.
- **Spread & Scale:** Explore extending similar dashboard structure for pediatric sepsis to create a systemwide culture of sepsis awareness.

Acknowledgements