NYS PFP Sepsis Webinar

Mount Sinai Hospital: A Framework for a Sepsis Quality Initiative

Office for Excellence in Patient Care

Allison Glasser, Director Operations Patient Safety

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Mount Sinai Hospital – Who We Are

▶ One of 7 hospitals within the Mount Sinai Health System
▶ 1,171-bed, tertiary-care teaching facility
  – Over 58,000 Inpatient discharges
  – Over 102,000 Emergency Room visits
  – 2,510 Physicians
  – 1,097 Residents and Fellows
  – 2,278 Nurses
▶ We serve a diverse Community: culturally, socio-economically, ethnically and religion
  – East Harlem
  – Upper East Side
▶ The Icahn School of Medicine at Mount Sinai is a freestanding medical school
▶ U.S. News & World Report - ranked No. 15 nationally out of 20 hospitals on the Honor Roll
  – Ranked in eleven specialties nationally
Mount Sinai Hospital Stop Sepsis Program Background

► Call to Action: 33% Overall Sepsis Mortality Rate in 2011
  – 2011: Joined the GNYHA Sepsis Collaborative
  – October 2011: Stop Sepsis Program launched in the Emergency Department
  – Spring/Summer 2012: Stop Sepsis Program launched on 4 Medicine units

► May 2013: New York State Department of Health (DOH) Sepsis mandate
  – Implement protocols for the management of Sepsis (adult and pediatrics)
  – Submit process metrics, outcomes and mortality for cases of Severe Sepsis & Septic Shock

► December 6, 2013: Stop Sepsis Program was expanded house wide
  – Began reporting cases determined to be Severe Sepsis & Septic Shock reported to DOH as of April 1, 2014

► October 2015: CMS Sep-1 Core Measure went into effect
Mount Sinai Hospital Sepsis Quality Initiative Framework

- Mt Sinai Sepsis protocol and pathway
- Evidence based guidelines
- EHR tools and templates to support protocol
- Case review QA process
- EHR predictive modeling / dyad case reviews
- Standard “time zero” definitions to measure & monitor
- Clinical documentation (e.g. EHR smart text)
- ClinDoc QI monitoring
- ICD-9 / ICD-10 coding
- Global education via online learning
- Local service area / unit education sessions
- Dyad meeting learnings and real time coaching
- Sepsis Dyad case review meetings
- PDSA cycles to improve workflow and EHR tools
- Clinical and coded data alignment
- HIM & CDQI collaboration (e.g. standard policies)
- Internal monitoring and measuring
- NY State DOH reporting
- CMS reporting
Mount Sinai Hospital Stop Sepsis Program Structure

**Subject Matter Experts**
- Infection Control
- Data Analytics
- Epic / Informatics
- HIM
- CDI
- Lab
- Pharmacy
- CMS Reporting

**Executive Sponsor CMO**

**Sepsis Steering Committee Chair**

**Sepsis Workgroups**
- RN Workgroup
- Quality Assurance
- Data Alignment
- Excess Days
- Readmissions

**Sepsis Champion Dyads**

- BMT
- CVI
- Cardiac Surg
- ED
- ENT
- Gen Surg
- RETU
- GERI
- Hem/Onc
- MED
- NEURO
- Neuro Surg
- OB/GYN
- ORTHO
- PEDS
- REHAB
- TPI
- Thor Surg
- URO
- ICUs
- MSQ
Adult Stop Sepsis Pathway: Pre – CMS Sep-1 Core Measure

Stop Sepsis Alert Triggers (3 of 8 criteria met)
- RN Contacts Primary Team

Primary Team evaluates Patient

Suspected Sepsis?
- NO
  - Look for other causes for the Stop Sepsis Alert to trigger
- YES
  - SBP > 90
    - Check Venous LA
      - LA < 4
        - If patient is at risk for Sepsis work-up patient
          - Or
        - Confirm alternative diagnosis for Stop Sepsis BPA
      - LA > 4
    - SBP < 90
      - Patient is at risk for Severe Sepsis
        - Initiate Severe Sepsis Protocol
        - Use Adult Stop Sepsis Order Set

Vital Signs: 2/5
- Temp ≥ 38.0 or ≤ 35.8
- SBP < 90
- HR > 90
- RR > 20
- O2sat < 90%

Screening Questions: 1/3
- Are rigors present?
- Is there suspected or current infection?
- Does the patient have altered mental status from last assessment?

Within 1 hour:
- Blood cultures x2
- Order Antibiotics
- Draw Venous ICU panel
- Initiate Empiric Fluid Loading with 1.5-2L (as appropriate)

If LA > 4, repeat within 4 hrs
**Adult Stop Sepsis Pathway: Post CMS Sep-1 Core Measure**

**Stop Sepsis Alert Triggers** (3 of 8 criteria met)
- RN Contacts Primary Team

**Primary Team Evaluates Patient at Bedside**

**Suspected Sepsis?**
- NO: Evaluate and monitor for other causes of the Stop Sepsis Alert to trigger Complete the Alert Event Note
- YES: Initiate Sepsis Protocol Using the Adult Stop Sepsis Order Set

### Within 1 hour:
- Initiate minimum of 30ml/kg Fluid Loading (to be completed within 2 hrs)
- Draw Venous ICU Panel
- Draw Blood Cultures x2
- Initiate Broad Spectrum Antibiotics
- If Initial LA > 2, Repeat within 4 hrs Required

**Complete Alert Event Note**

**Vital Signs:** 2/5
- Temp ≥ 38.0 or ≤ 35.8
- SBP < 90
- HR > 90
- RR > 20
- O2sat < 90%

**Screening Questions:** 1/3
- Are rigors present?
- Is there suspected or current infection?
- Does the patient have altered mental status from last assessment?

**Reassess Patient within 2 Hour of Sepsis Protocol Initiation Complete the Sepsis Reassessment Note**

**Is SBP < 90 or LA Refractory to Fluids?**
- NO: Monitor Patient as Appropriate
- YES: Consider Additional Fluids and Critical Care Consult for Pressors
Mount Sinai Hospital Septic Patient Care Continuum

Provider and Nursing Partnership to Complete the Continuum

- RN Sepsis Screening (early recognition)
  - 3 of 8 (adult) or 4 of 9 (peds) sepsis criteria met

- RN Care Escalation to Provider

- Provider Patient Bedside Assessment
  - Suspected or Confirmed Sepsis

- Sepsis Bundle Interventions
  - Ordered via the Sepsis Order Set

- Bedside Reassessment

**Patient Outcomes**
- Mitigate sepsis progression
- Escalate to higher level of care
Sepsis Champion Dyads: Responsible for Sepsis Case Reviews

- Distribute cases on a weekly basis to be reviewed by the Sepsis Champions
  - Includes all patients that meet 3 of 8 Stop Sepsis criteria plus Lactate > 4 and/or SBP < 90

- Review cases to confirm clinical diagnosis at time of Stop Sepsis Alert

- Assess appropriateness of care at time of the Stop Sepsis Alert

- Identify improvement opportunities
  - Good catches – celebrate successes!
  - Challenges to meeting metrics
  - Workflow optimizations / best practices
  - Systematic issues related to delay in care or failure to rescue
The MSH Sepsis Quality Initiative is Data Driven By Maintaining a Sepsis Database Registry

Data Registry for Sepsis Cohort includes:
- Clinical Data from Epic
- Laboratory Systems
- Event/ Clinical Adjudication (i.e. inputs from case review process)
- Hospital Claims (i.e. ICD9/10 codes)

Data Registry utilization through:
- Patient Lists for Weekly Case Review / QI
- Monthly / Quarterly Scorecards
  - Unit Level
  - Provider Level
  - Hospital Level
- File Submission to NY State DOH
- Outcomes Research
Mount Sinai Hospital Severe Sepsis / Septic Shock Mortality Rate: April 2014 – March 2016

Chi Square P Values
"Met" vs "Not Met"

<table>
<thead>
<tr>
<th>Care Bundle</th>
<th>p 0.0026</th>
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<tbody>
<tr>
<td>IVF 30ml/Kg w/in 2h</td>
<td>p &lt; 0.001</td>
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N = 1536

Source: OEPC Analysis, July 2016
Mount Sinai Hospital: Severe Sepsis or Septic Shock
April 2014 – March 2016

* 9% increase in survival = 139 patients

Mount Sinai Care Bundle Survival Rate

Source: OEPC Analysis, July 2016

N = 1536
Learnings from Our Sepsis Program Journey

- Quality Improvement programs require an iterative approach
  - Partnership and feedback loop with frontline providers and mid-level managers
  - Data driven PDSA cycles
  - Compliance with NYS and CMS regulations

- Internal messaging to frontline clinicians needs to be streamlined and based on quality of care and outcomes
  - Clinicians engage best when programs / processes are patient centered, not when dictated by regulations and payers

- Using clinical data as our cohort denominator allows for both internal monitoring and measuring, as well as reporting to external stakeholders
  - Service Areas (e.g. All hospital, ED, HemOnc, Transplant, etc…)
  - NYS DOH and CMS

- Focus on quality and process improvements of the Mount Sinai Sepsis Pathway has also improved performance of the NYS DOH 3hr and 6hr bundles, and the CMS Sep-1 Core measure

Focus on the Patient!!