EARLY RECOGNITION, MONITORING AND TREATMENT OF THE SEPSIS SPECTRUM

North Shore-LIJ Health System

Objectives

- 1. Discuss the learnings and challenges in accelerating the reduction of sepsis mortality across a large hospital system.
- 2. Describe key strategies used to impact sepsis recognition on the floor
Presenters

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Vice President, Evidence Based Clinical Practice  
Co-Chair NSLIJ Sepsis Task Force

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North Shore LIJ Health System  
Co-Chair NSLIJ Sepsis Task Force

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Co-Chair NSLIJ Sepsis Task Force

**Diane Jacobsen MPH, CPHQ**  
Director, Institute for Healthcare Improvement

*The presenters have no conflicts to disclose*

Presentation Outline

- Overview of the NSLIJ HS and the Sepsis Initiative
- The North Shore – LIJ / IHI Partnership
- Process for Improvement
- Learning Sessions
- Process Measures
- NSLIJHS Data
- Next Steps
- Initiative Summary
- Lessons Learned
North Shore-LIJ Health System

- 16 Hospitals
- (6,000+ hospital and long-term care beds)
- 5 Specialty, 7 Community
- 3 Specialty, 3 Affiliate
- 3 skilled nursing facilities
- Nearly 400 ambulatory physician practices
- 34 Nursing Home/Senior Living Affiliates
- The Feinstein Institute for Medical Research
- Comp. continuum of care
- Regional Health System Affiliates
- Cleveland Clinic
- Montefiore
- Hackensack

- 7 million population served
- 4 million patient contacts
- 135,400 Ambulatory Surgeries
- 283,700 Discharges
- 25,000 Births
- 640,000 Emergency Visits
- 567,700 Home Care Visits
- 91,400 Ambulance Transports

- $6.7 billion in revenue
- 3rd largest non-profit, secular
  health system in the U.S.
- More than 44,000 Employees
- 10,000+ nurses
- 9,440 physicians
- 1,500+ medical residents and fellows
- 2010 National Quality Forum Award
- Hofstra North Shore-LIJ School of Medicine

*Does not include affiliate organizations
We Are Organized as a System

- Common Mission, Vision and Values
- Single Governance: All entities are under common control with a unity of purpose
- Single System-wide management
- Clinical Leadership involved in all aspects of operations and strategy - e.g. Chairs, Service Line leaders, etc.
- Corporate Services infrastructure supports all System activities

NSLIJ and IHI in Partnership

- Takes advantage of the unique assets of each organization:
  - NSLIJ devotion to excellence and improvement
  - IHI global perspective and experience
- Together we will learn for the North Shore Health System and for the health care field
How IHI Fosters Change

Expectations for the Partnership

- New Knowledge in:
  - Accelerating reduction in Sepsis Mortality
  - Improving Quality and Accessibility of Palliative Care
  - Preparing the Students and Professionals to be Outstanding Improvers
  - Strengthening the Infrastructure for Improvement of Large Systems
Focus on Reducing Sepsis Mortality

- Two Converging pathways:
  - Increasing reliability with resuscitation bundle in patients with severe sepsis/septic shock identified in the ED and then hospital wide
  - Identifying patients on the floors with sepsis before they have progressed to the severe stage

NSLIJ/IHI Collaborative: Accelerating Reduction in Sepsis Mortality

<table>
<thead>
<tr>
<th>From the Internal &amp; External Faculty Perspective</th>
<th>From the Participant Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Describe the “gap” between current practice and what is possible</td>
<td></td>
</tr>
<tr>
<td>• Share leading edge thinking and approaches</td>
<td></td>
</tr>
<tr>
<td>• Share success stories to help motivate change</td>
<td></td>
</tr>
<tr>
<td>• Provide ongoing support and coaching to participating hospitals</td>
<td>• Get “how to” ideas for changing/enhancing current process</td>
</tr>
<tr>
<td></td>
<td>• Talk to other hospitals</td>
</tr>
<tr>
<td></td>
<td>• Talk through challenges</td>
</tr>
<tr>
<td></td>
<td>• Define clear action steps to achieve high reliability/improvement</td>
</tr>
</tbody>
</table>
NSLIJ/IHI Collaborative Timeline

<table>
<thead>
<tr>
<th>Getting Started:</th>
<th>Learning Session 1</th>
<th>Action Period</th>
<th>Learning Session 2</th>
<th>Action Period</th>
<th>Learning Session 3</th>
<th>Action Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>includes calls &amp; activities</td>
<td>February 2012</td>
<td>includes monthly calls &amp; team reports</td>
<td>July 2012</td>
<td>includes monthly calls &amp; team reports</td>
<td>January 2013</td>
<td>includes monthly calls &amp; team reports</td>
</tr>
</tbody>
</table>

**Learning Sessions:**
- Clinical Content – IHI/NSLIJ faculty
- Improvement Science – What changes can we make that will result in improvement?
- Increasing emphasis on participating hospitals sharing their learnings and experience

**Process For Improvement**

- Increasing reliability with resuscitation bundle
  - Focusing on patient level real-time data: a key opportunity for understanding the current process
  - *What did we learn about the process by reviewing the “last 5” patients for compliance with the sepsis bundle?*

  “finding the mechanism for why things are being delayed and becoming more aggressive in understanding the underlying complexities that result in delay”
Process For Improvement

- Identifying patients on the floors with sepsis before they have progressed to the severe stage

  - Testing situational awareness (Level 3 reliability) to support early recognition of deterioration/sepsis on the inpatient floor.
The Sepsis Continuum

- A clinical response arising from a nonspecific insult, with ≥2 of the following:
  - T >38°C or <36°C
  - HR >90 beats/min
  - RR >20/min
  - WBC >12,000/mm³ or <4,000/mm³ or >10% bands

SIRS = systemic inflammatory response syndrome


Relationship of SIRS, Sepsis, Infection

SIRS  Sepsis  Severe Sepsis  Septic Shock

Early Goal Directed Therapy

Antibiotics and Source Control

**Severe Sepsis Dx Criteria Met (Dx SS) if:**
- Lactate ≥ 2 or
- Drop in SBP ≤ 90 or
- Severe Sepsis VS criteria met
  - New End Organ Dysfunction

**Severe Sepsis**

**New End Organ Dysfunction**
- PaO₂ / FiO₂ < 300
- Increasing O₂ demand to maintain sat > 90%
- Cr > 2.0 or > 50% increase from known baseline
- UOP < 0.5 ml/kg/hr for > 2 hrs
- Bilirubin > 2.0 mg/dl
- Platelet Count < 100K
- INR > 1.5, PTT > 60 sec.

**Sepsis Resuscitation Elements**
(Unless clinically contraindicated)
- Lactate ordered and resulted ≤ 90 min.
- BCx X 2 ordered and drawn before Abx.
- Abx ≤ 3 hrs of arrival
- IV fluids – consider NS 1 – 2 L over 2 hrs
- Repeat lactate 4 h after initial draw
- Monitor, document VS ≤ 60 min.

1. Draw labs and document Accurate Blood Culture and Lactate draw times
2. Repeat Vital Signs in 30 minutes

**Path Complete**
Document Primary Dx: Sepsis, Secondary Dx: Suspected Source
Learning Session Structure

- Focused Plenary Sessions
  - PDSA methodology
  - Antibiotic Timing
  - Antibiotic Stewardship (in conflict with Antibiotic timing?)
- Detailed breakout sessions
  - Lactate assessment: importance and Kinetics
  - Fluid administration
  - Data analysis
  - The role of the Executive Sponsor
- Team work reports
  - Each hospital team presents an update of their focus / progress

Learning Session 1 Topics

- The Problem and the Vision
- A “face to the case” A patient story of sepsis
- How Can We Improve? Part I: Model for Improvement, the Huntington Hospital Experience
- Creating a Culture for Change
- The Role of the Executive Sponsor
- Process Maps and Walkthroughs
- What Changes Can We Make?
- How Can We Improve? Part II: Measures, Changes, and Reliable Design
- Exercise: Applying reliability change concept
- Setting Your Project Aim: Team Meeting
Learning Session 2 Topics

- Review of PDSA methodology
- Antibiotic Timing, Selection and Stewardship
- Focus on: Real Time Data Collection
- The Early Recognition of Sepsis
- Responding to Elevated Lactates
- Fluid Resuscitation
- Situational Awareness
- Data collection, preparing charts and graphs
- Individual team Progress reports from all sites
- Team Planning: Assessing the current state

Learning Session 3 Topics

- From the Patient Perspective – Ensuring Reliable Care
- Focus on: Real Time Patient-level Data
- Fluid Resuscitation: Taking it to the Next Level
- Engaging the Front Line Team
- More About PDSA: Getting Results From Small-scale Testing
- Handoffs and Transitions: Transfer of Care Related Issues
- Focus on: Situational Awareness
- Individual team Progress reports from all sites
- Team Planning: Assessing the current state
Examples of Learning Session Presentations

Fluid Resuscitation
## Common Fluid Dilemmas

- Will giving a fluid bolus *(30 ml/kg PBW over 30-60 minutes)* be harmful to:
  - Patients with heart failure
  - Patients with hypoxia
  - Patients with renal failure

- How do I know when to stop giving fluids to an unresponsive hypotensive patient?
- What type of fluid is better?
- What about fluids in the non-shocky patients?

## Barriers-overcome

- 30 cc/kg in a 70 kg patient is about 2 liters
- IV pumps often limited at 500-1000 CC hour
- Likewise, “wide-open” gravity bag may be too slow
  - Rapid infusers have a place in care of these patients
  - Pressure bags can be used on to obtain adequate volume in 15 minutes
  - BEWARE of air embolism if no detector on infuser
  - Narrowest point (ie small catheter) will be rate limiting.
### A Reminder….

**Resistance = 1/ r^4**

*small increases in catheter size dramatically increase flow!*

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Length</th>
<th>Flow Rate</th>
<th>Minutes/Liter</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>0.75&quot;</td>
<td>17 mL/min</td>
<td>60</td>
</tr>
<tr>
<td>22</td>
<td>1.00&quot;</td>
<td>28 mL/min</td>
<td>35</td>
</tr>
<tr>
<td>20</td>
<td>1.88&quot;</td>
<td>42 mL/min</td>
<td>25</td>
</tr>
<tr>
<td><strong>18</strong></td>
<td>1.88&quot;</td>
<td><strong>79 mL/min</strong></td>
<td><strong>12.5</strong></td>
</tr>
<tr>
<td>16</td>
<td>1.88&quot;</td>
<td>147 mL/min</td>
<td>6.8</td>
</tr>
<tr>
<td>16</td>
<td>3.25&quot;</td>
<td>127 mL/min</td>
<td>7.8</td>
</tr>
<tr>
<td>16</td>
<td>5.25&quot;</td>
<td>108 mL/min</td>
<td>9.2</td>
</tr>
<tr>
<td>14</td>
<td>1.88&quot;</td>
<td>277 mL/min</td>
<td>3.6</td>
</tr>
<tr>
<td>14</td>
<td>3.25&quot;</td>
<td>249 mL/min</td>
<td>4.0</td>
</tr>
<tr>
<td>14</td>
<td>5.25&quot;</td>
<td>219 mL/min</td>
<td>4.5</td>
</tr>
<tr>
<td>12</td>
<td>3.00&quot;</td>
<td>449 mL/min</td>
<td>2.2</td>
</tr>
<tr>
<td>10</td>
<td>3.00&quot;</td>
<td>609 mL/min</td>
<td>1.6</td>
</tr>
</tbody>
</table>

---

**Situational Awareness**
Institute for Clinical Excellence & Quality

**HIGH RISK THERAPY ALGORITHM**

- Charge RN asks direct caregiver if anyone is on high risk therapies.
  - Direct caregiver "stops the line" of care.
    - Discuss the concern of care with Charge RN, safety officer using SBAR.
      - Entire team agrees concern is fully addressed.
      - Escalate to supervisor, AOD, Department Chief.
      - End process.

**COMMUNICATIONS CONCERNS ALGORITHM**

- Bedside RN asks direct caregiver if you have any communications concerns.
  - Discuss the communication concerns with Charge RN using SBAR.
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    - Escalate to supervisor, AOD, Department Chief.
    - End process.

**PATIENT & FAMILY CONCERNS ALGORITHM**

- Bedside RN asks direct caregiver if you have any family concerns.
  - Discuss the communication concerns with Charge RN using SBAR.
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    - Escalate to supervisor, AOD, Department Chief.
    - End process.

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    - End process.
More on PDSA’s – designing tests to drive improvement

July 2012 & NSLIJ Learning Session 2

The Power of Rapid Cycle Testing

1. It Makes Development of Protocols **Safe**
2. It Results in **Effective** Change
3. It Demonstrates the Change is **Doable** in the current environment
4. It Drives **Agreement** and **Acceptance** Among Provider
5. It Engages the Frontline & Stimulates **Change in the Local Culture**
IHI Model for Improvement

- **AIM:** What are we trying to accomplish.
- **MEASURE:** How will we know the change is an improvement?
- **CHANGE CONCEPT:** What change can we make that will result in an improvement?

**TEST:** Rapid Cycle Testing

Langley, Nolan, Nolan, Norman & Provost
The Improvement Guide

**USING MULTIPLE REPEAT CYCLES TO CREATE RAMPS**

Langley, Nolan, Nolan, Norman & Provost
The Improvement Guide
Examples of PDSA projects

Hospital-specific aim

Reduce Door to Antibiotic Time

- Goal #1
  - 70% of patients who present at triage with Probable Severe Sepsis (suspected infection + SUPER SIRS Criteria) will have a Door to Antibiotic time of 60 minutes or less by July 1, 2012

- Goal #2
  - 80% of all Sepsis patients (Sepsis, Severe Sepsis and Septic Shock) will have a T-0 to Antibiotic time of 180 minutes or less by July 1, 2012.
Example PDSA LOG

<table>
<thead>
<tr>
<th>Date</th>
<th>Change Concept</th>
<th>Potential Change Ideas</th>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/12</td>
<td>Recognition of sepsis</td>
<td>Timely Documentation of vital signs in EDIS</td>
<td>Time of arrival to first documented vital sign</td>
<td>Improved documentation and communication</td>
</tr>
<tr>
<td>6/9</td>
<td>Blood Culture Education: proper collection technique and volume</td>
<td>Consistently collect 8-10 ml of blood in BCs</td>
<td>Measure volume of blood in culture bottles</td>
<td>Increased ave. volume from 7.3 to 8.7 mls</td>
</tr>
<tr>
<td>6/18</td>
<td>ED Lab Priority Card</td>
<td>Card to accompany specimens deemed “supers stat”</td>
<td>Lactate TAT</td>
<td>Reduced Lactate TAT median from 67 min to 46 min</td>
</tr>
</tbody>
</table>

Glen Cove Process Map - Code Sepsis

PDSA = Blood Culture Volume
**PDSA: Lactate TAT**

- **Objective:** Test “Priority ED Lab Order Card”
- **Plan:** Send a card identifying “Code Sepsis” with the lab specimen to expedite Lactate Results
- **Prior Lab Card**

For PDSA – sent priority card with any lactate order

**Lactate TAT Data**

<table>
<thead>
<tr>
<th></th>
<th>Pre-PDSA</th>
<th>PDSA Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average</strong></td>
<td>71 minutes</td>
<td>51 minutes</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>67 minutes</td>
<td>46 minutes</td>
</tr>
</tbody>
</table>
Learning from tests of change

- What has changed in the way you work?
  - Sepsis team: realized value of utilizing mock patients or non-sepsis patients to increase the number of test subjects for PDSA cycles.
  - Use of High Priority Card would improve Lab turn around time for all high alert / high acuity patients.
    - Code Sepsis, Code Neuro, AMI, Emergent CT,…
- Have processes changed?
  - ED High Priority Card fully implemented on 7/2/12 based on results of this PDSA.

Barriers & Breakthroughs

- Challenges
  - Glen Cove lab – no one assigned to accession area
  - Simulating real life results – created unrealistic environment as staff knew we were monitoring the timing closely for test.
- Opportunities
  - Use of ED lab card already well established and understood based on prior LEAN project.
  - Lab Staff unaware which specimens are a higher priority than others in current system.
Accelerating Reduction in Sepsis Mortality

Lenox Hill Hospital

Hospital-Specific Aim

**Goal:** Emergency Department: Improve compliance with antibiotic delivery within 60 min. for dx severe sepsis.

**Metric:** Achieve 60% compliance in three months.

**Goal:** Emergency Department: Improve compliance with antibiotic delivery within 180 min. for dx sepsis.

**Metric:** Achieve 80% compliance in three months.

**Goal:** Emergency Department: Improve compliance with the documentation of Sepsis Diagnosis.

**Metric:** 70% compliance with the documentation of diagnosis of sepsis within three months.
## PDSA LOG

<table>
<thead>
<tr>
<th>PDSA Initiative</th>
<th>Implementation Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>LHH ED sepsis algorithm and operation design completed.</td>
<td>March 2012</td>
</tr>
<tr>
<td>Interdisciplinary education sessions held: 100% provider and RN staff attended</td>
<td>March 15 – March 30th</td>
</tr>
<tr>
<td>Algorithm posters hung throughout department, algorithm printed on patient envelopes, triage hand off sticker.</td>
<td>March 26th</td>
</tr>
<tr>
<td>Antibiotics placed in resuscitation room omnicell</td>
<td>April 2012</td>
</tr>
<tr>
<td>Hardwiring VERBAL team communication regarding time sensitive care. Utilization of sepsis alert and severe sepsis code to bring team to the bedside.</td>
<td>April 2012</td>
</tr>
<tr>
<td>Completion of revised sepsis order set</td>
<td>April 2012</td>
</tr>
<tr>
<td>Creation of PDSA tool for real time process review</td>
<td>May 2012</td>
</tr>
</tbody>
</table>

## Sepsis

- **Identifying sepsis at triage**
- **Algorithm displayed throughout dept & Sepsis Order Set**
- **Sepsis Alert & Severe Sepsis Code**
Barriers & Breakthroughs discovered during PDSA cycles

- Needed Antibiotics in Resuscitation Room for timely delivery
- Needed better team communication regarding urgency of orders
- Needed real time process for sepsis reviews and feedback.

Sepsis Task Force Metrics for Lenox Hill
Severe Sepsis/Septic Shock Performance Measures Compliance
(January 2012 - July 2012)

- Blood Cultures Prior to Antibiotic Administration
- Serum Lactate Order to Result within 90 Minutes
- Antibiotic Administration within 60 minutes for patients meeting SIRS criteria at ED Triage
- Antibiotic Administration within 180 minutes of Time 0 (Quality and Safety Vector of Measures Metric)
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Phase 1: Nov - Feb
Baseline Data Collection

Phase 2: Mar
- Creation of Sepsis Algorithm
- Education Rollout
- Creation of Algorithm posters

Phase 3: Apr
- Abx placed in Omni cell
- Hardwiring Team Discussion of Care Plan
- Creation of Order Set

Phase 4: May - Current
Creation of PDSA Tool for Real-time Process Review

Severe Sepsis - Time to Antibiotics

Date of ED Triage

<table>
<thead>
<tr>
<th>Phase 1: Nov - Feb</th>
<th>Phase 2: Mar</th>
<th>Phase 3: Apr</th>
<th>Phase 4: May - Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Data Collection</td>
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<td>Abx placed in Omni cell</td>
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</tr>
</tbody>
</table>

Health System Data
NSLIJ System
Raw Severe Sepsis/Septic Shock Mortality Rate
January 2009 – July 2012

Raw Severe Sepsis/Septic Shock Mortality Rate
Overall Mean (44.64)

Overall Mean (36.12)

Raw Severe Sepsis/Septic Shock Mortality Rate is calculated as:

\[
\frac{\text{Number of Severe Sepsis/Septic Shock patients with a discharge status of expired (20, 40, 41, or 42).}}{\text{Number of Severe Sepsis/Septic Shock Discharges}} \times 100
\]

Severe Sepsis/Septic Shock Discharges Based on the Following Secondary ICD-9 Diagnosis Codes: 995.92 (Severe Sepsis), 716.52 (Septic Shock) is a subset of 995.92 and is included in this report. Includes patients 16 and older.

Data Source: Hospital Billing System

NSLIJ System
Raw Sepsis Mortality Rate
January 2009 – July 2012

Raw Sepsis Mortality Rate
Overall Mean (12.08)

Overall Mean (8.27)

Raw Sepsis Mortality Rate is calculated as:

\[
\frac{\text{Number of Sepsis patients with a discharge status of expired (20, 40, 41, or 42).}}{\text{Number of Sepsis Discharges}} \times 100
\]

Sepsis Discharges Based on the Following Secondary ICD-9 Diagnosis Codes: 995.81 (Sepsis), Includes patients 16 and older.

Data Source: Hospital Billing System

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Overall Mean 31.66
Overall Mean 26.60
Overall Mean 19.86

Sepsis Task Force
Guidelines issued
Focus on early identification and timely antibiotics
Sepsis Collaborative ED Metrics for North Shore-LIJ Health System
Severe Sepsis/Septic Shock Percent Compliance Analysis
(March 2011 - August 2012)

Blood Cultures Prior to Antibiotic Administration for Severe Sepsis/Septic Shock Patients Identified in the ED

Serum Lactate Order to Result within 60 Minutes for Severe Sepsis/Septic Shock Patients Identified in the ED

Fluid Bolus Administration begun within 30 Minutes of Severe Sepsis/Septic Shock Patients Identified in the ED

Antibiotics Administration within 60 Minutes for Severe Sepsis/Septic Shock Patients Identified in the ED meeting Super SIRS Criteria at Triage

- Indicates the overall average for the selected time period. Data subject to change. Months that do not show up indicate no data is available.
- Note: Includes severe sepsis and septic shock cases identified in the ED. ED-hold or ED/ICU Hybrid. Excludes patients that do not have a discharge date and patients that have a "Yes" in the "Is there a documented goal of a care discussion at the time of sepsis that precludes compliance with the sepsis bundle?" or "Patient received on transfer from outside facility with sepsis?"

See last page for total cases accounted for in each performance measure. Data is considered preliminary from August 2012 to Present.

Sepsis Collaborative ED Metrics for North Shore-LIJ Health System
Severe Sepsis/Septic Shock Average Minutes Analysis
(October 2012 - September 2013)

Blood Cultures Prior to Antibiotic Administration for Severe Sepsis/Septic Shock Patients Identified in the ED

Average Serum Lactate Order to Result for Severe Sepsis/Septic Shock Patients Identified in the ED

Average Fluid Bolus Time for Severe Sepsis/Septic Shock Patients Identified in the ED

Average Antibiotic Administration Time for Severe Sepsis/Septic Shock Patients Identified in the ED

Data Source: Sepsis Performance Measures
Copyright 2013, Northwell Quality Management Institute
Data as of September 30, 2013
Next Steps

- Continued rapid tests of change
- Engaging staff to disseminate and penetrate the organization on developed standards of sepsis care
- Compliance monitoring on instituted changes to obtain high reliability
- Engage Hospitalists and inpatient Clinicians in next phase
- Focus on care transitions as well as recognition / treatment
- Add Situational Awareness to MEWS scoring program
- Improve and standardize data collection methodology

Identification of Inpatient Sepsis

- Use of situational awareness algorithms for identification on the floors
- Utilization of MEWS to screen for sepsis and identify cases early
- Improved “Hand Off” Processes
- Sepsis screening at Rapid Responses when Sirs criteria met
- Identify “Sepsis Champions” among clinical staff to coach and assist with identification and treatment
Data Collection Design Standards

1) A concurrent mechanism to identify Sepsis (and suspected sepsis) cases at the point of care

2) A notification process to the person(s) responsible for data abstraction that is concurrent

3) Adequate staffing to keep up with chart abstracting in near real time

4) Routine Physician Leadership review of metrics compliance

5) Retrospective comparison to financial and SPARCS data to assure completeness QA reports to improve accuracy

Initiative Summary

- Begun in 2008 based as a Health System priority
- Task Force recommendations launched early 2009
- Initial data incomplete and uninterruptable clinically
- Multiple cycles of data collection/ review/ analysis/ revision
- Refocused on Initial resuscitation for severe sepsis/ shock
- Develop partnerships and structure for learning, communication and reporting
## Initiative Summary

- NS-LIJ and IHI Collaborative kicks off February 2012
- Initial focus of collaborative Severe Sepsis in the ED
- Sepsis teams at every facility trained in improvement sciences and PDSA utilization.
- Ongoing Learning Sessions on the fundamentals of Sepsis care and Performance Improvement
- Sepsis teams engage front line staff in test of change and process improvement

## Lessons Learned

- Develop a **Structure** for leadership, partnering, communication reporting.
- Identify and overcome **Barriers**; data definition confusion assigning a universal “Time Zero”, documentation issues
- Define the **Outcomes** that you want to achieve and develop processes to obtain them
- Assess how processes are performed not how you think you perform them, and then standardize processes to increase reliability
- Utilize **Processes** to facilitate change; Small Scale tests of change, analyzing the outliers, PDSA cycles sharing lessons learned and best practices
Lessons Learned

- Greatest gains realized when re-focused on early identification, aggressive fluid resuscitation and timely antibiotics.
- Sepsis / Severe Sepsis/ Septic Shock need to be treated and analyzed individually
- Participation of all levels of the organization essential
  - Venue specific expertise crucial
  - The person doing “the work” needs to be at the table
- Data Definitions are crucial to acceptance of results
  - Time = 0 definition is critical
  - Use data to transform the culture
- The clinical model needs to drive the data collection tools.

Thank you

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Darlene Parmentier, RN  dparment@nshs.edu
Diane Jacobsen, MPH, CPHQ  djacobsen@IHI.org