Improving Care for Pediatric Sepsis
Development, Implementation and PDSA of a Hospital-Wide Clinical Pathway

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Overview

- Background
  - AAP Pediatric Septic Shock Collaborative (PSSC)
- Defining the current state/local problem
- Context
  - Seattle Children’s and CSW infrastructure
- Implementation and PDSA
- Next steps
Background: PSSC

The Division of Emergency Medicine at SCH joined the AAP Pediatric Septic Shock Collaborative (PSSC) in Dec 2013.

SCH paper-based identification tool
Pre-existing order set

Current state A3
Initial Aims

- **Aim 1:** To develop and implement an **electronic identification tool** for children presenting to the ED with fever and concern for infection.

- **Aim 2:** To **implement a CSW pathway and PowerPlan** for patients with sepsis in the ED and inpatient setting and assess compliance with treatment elements, including time to critical therapies. (Sepsis algorithm and PowerPlan will be followed for 90% of patients that have the sepsis pathway activated; time to critical therapies (IVF, Antibiotics) as well as length of stay (ED and inpatient) will decrease by 20%)

- **Aim 3:** To **ensure appropriate escalation of care and PICU involvement** in care. (Eligible patients will follow escalation of care in the ED including PICU consult 90% of the time)

Clinical Standard Work

**Clinical Standard Work (CSW) has 3 components:**

- Documented approach to diagnosis, management and treatment
  - Based in evidence
  - Team consensus when evidence not available

- The care is hard-wired, making it easy to do the right thing

- Outcomes are measured and owned by someone, who assures the continual improvement of the care for this condition
**CSW Production Process**

- **Prep (2 months)**
  - Clinical Nurse Specialists begin to incorporate nursing workflow, clinical documentation, and policies and procedures

- **Develop (5 months)**
  - Develop clinical content through literature review and consensus generation
  - Incorporate content into electronic systems
  - Enroll providers in web-based training

- **Implement (3 months)**
  - Internal communication – Grand Rounds, Nursing Grand Rounds, Resident education, Outreach education
  - Evaluation of go-live and pathway usability issues

- **Improve**
  - Transition with operational and clinical leaders
  - Daily management system
  - Quarterly check-ins with leaders
  - Near real-time knowledge management pathway reports emailed to pathway owners

**Sepsis: Current State**

- 2012
- 2013
- 2014
- 2015
- 2016
- 2017+

- CSW Hem/Onc Suspected Infection pathway
- PSSC & Sepsis Pathway
- CSW Sepsis & HOBI pathways (PDSA)
- Sepsis Collaborative
Sepsis Pathway

- Current state mapping
- SCH-specific clinical questions developed
- Literature review from PSSC updated through independent search
- Electronic power plans created, old order sets removed, reconciliation among pre-existing plans with similar content
- Process simulation in the ED

- Internal communication
- Web-based training
- Evaluation of go-live and pathway usability issues
- Misinterpretation/underuse of ED screening tool -> Revision
- Insufficiency of initial inpatient phase -> Inpatient New Sepsis
- Review/revision of HemOnc Suspected Infection Pathway
  - Pathways merge
    - Inclusion of BMF patients -> Individualized antibiotic plans
    - Thresholds for RRT/care escalation -> MAPs in CIS
- IPSO Collaborative
  - Inpatient screening
  - Patient/family experience

PDSA over time

- 2013
  - ED joins PSSC
  - Paper trigger tool and sepsis algorithm in ED

- 2015
  - CSW Septic Shock Pathway and order set v.1
  - ED trigger tool converted to electronic nursing Powerform

- 2016
  - Revision of ED Septic Shock Score Trigger
  - New Sepsis Septic Shock Inpatient Phase
  - Revision of HemOnc Neutropenic fever pathway to shunt ill appearing patients to septic shock pathway

- 2017 +
  - Sepsis Collaborative Bundles
  - Prevention
  - Recognition
  - Diagnostic Evaluation
  - Resuscitation / Stabilization
  - De-escalation
  - Patient & Family engagement
  - Optimize Performance
Pathway: Patient flow chart

Defines pathway intent for ill appearing patients

Defines heterogeneity of patient population, variable dispositions

Calls out what to do for new sepsis

Huddle within 60 minutes to determine disposition (ICU vs acute care)

Pathway: ED Suspected Sepsis

Inclusion criteria and urgent care transfer

Clearly defined time goals for first 60 minutes of care

Hyperlinks to reference tables or supporting evidence
ED “trigger tool” and Sepsis Score

Inclusion Criteria
- Any patient with clinical concern for sepsis/septic shock OR
- ED Sepsis Score of 3 or greater AND ED attending/fellow assessment with concern for sepsis/septic shock

Exclusion Criteria
None

Order set: ED phase
Pathway: Inpatient Admit

Intended for patients who are treated for suspected sepsis in ED but do not meet ICU admit criteria.

Increased vital sign frequency and RISK RN follow up.

Pathway: Inpatient New Sepsis

Intended for patients who develop new or evolving sepsis while admitted to any clinical service.

Same time goals as ED; performed in setting of RRT.

Huddle within 60 minutes to determine disposition.
Order set: Inpatient New Sepsis phase

Pathway: ICU

Emphasis on continuous reassessment and monitoring response to therapies

Defines ICU to inpatient transfer criteria
SCH status

“time zero” can be modified

Next steps

- IPSO collaborative
  - Refinement of population definitions for data extraction
  - Development of inpatient screening tool
  - Involvement of patient and family experience team
  - Expansion to community sites, pre-hospital providers

- Ongoing PDSA cycles/improvement efforts
  - Tiered response system?
  - New phase for HemOnc clinics?
Thank you!

Pathway available at: [www.seattlechildrens.org/healthcare-professionals/gateway/pathways](http://www.seattlechildrens.org/healthcare-professionals/gateway/pathways)

Additional questions? Email us! septicshock@seattlechildrens.org