Reducing Lead Time and Enhancing Quality of Infection Management in a Cancer Center Urgent Care Clinic

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• We have no financial or professional disclosures related to this topic
Sepsis Statistics

- Most common cause nonmalignant death in oncology\textsuperscript{1}
- Severe sepsis occurs in 14\% oncology patients\textsuperscript{1,2,3}
- Mortality from severe sepsis and/or septic shock 30-40\%\textsuperscript{1,2,3}
- Early recognition saves lives\textsuperscript{4}
- Standardized protocols for sepsis management are proven to enhance patient outcomes\textsuperscript{5-9}
Oncology Urgent Care Clinic

• Comprehensive Cancer Center
  – U.S. East Coast University Hospital; 1000+ beds, 83 inpatient medical oncology and hematologic malignancy beds
  – Daily clinic volume- Medical Oncology 150-200/day, Acute Hematologic Malignancy/ Transplant 50-60/day, Radiation 300-400/day

• Operation hours
  – Staff hours: Advanced Practitioner- 0800- 2000; RN 0800- 1830, Clinical technician 0800-1630
  – Walk-in/ appointment hours for 7 beds- 0830- 1700, Monday-Friday

• Referral to clinic (12-24 patients/day)
  – Overnight Center call MD (three saved spots)
  – Medical and Radiation oncologists receiving calls from patients
  – Walk-in or sick patients from treatment infusion or physician visits
  – Triage nurse calls
  – Emergency department morning referrals
Project Overview

Scope

• Evaluate clinic workflow and identify practices that are amenable to lean improvements
• Implement one clinical algorithm for practice and evaluate impact on time from presentation to treatment

Goals

• Reduce lead time from presentation to definitive treatment for patients presenting with fever/possible infection
• Enhance adherence to sepsis management recommendations
• Create consistency among clinicians
• Acute management of fever is equivalent or better quality than Emergency Department
Design

- **Lean processes**
  - Observation of practice
  - Chart audits
  - Staff and customer interview

- **Practice changes**
  - Sepsis screening and management algorithm
  - Electronic Antimicrobial order-sets
  - On-unit first dose antimicrobials
  - Streamlined radiology approval processes

- **Evaluation**
  - Compare pre and post-protocol activities
  - Compare to Emergency Department Care
  - Staff and customer interviews
Results

• Data Collection
  – 5 months prior to protocol
  – Implementation phase 2 months
  – 5 months after implementation

• Evaluable patients
  – Emergency department pre-protocol- 22
  – Urgent Care pre-protocol- 15
  – Urgent Care post-protocol- 15

• Comparison of demographic variables- no significant differences age, gender, diagnosis

• Time variables
  – Time from arrival to antibiotic given reduced from 521 min to 331 min
  – Time from antibiotic order to administration reduced from 119 min to 50 min
Quality Sepsis Interventions

- Lactate drawn within 3 hrs: Emergency Department = 90%, Urgent Care Pre-protocol = 75%
- Fluids within 3 hrs: Emergency Department = 75%, Urgent Care Pre-protocol = 60%
- Fluid volume adequate: Emergency Department = 100%, Urgent Care Pre-protocol = 80%
- Antibiotics within 1 hr severe sepsis: Emergency Department = 90%, Urgent Care Pre-protocol = 80%
- Antibiotics within 3 hr sepsis: Emergency Department = 80%, Urgent Care Post-protocol = 75%

P = 0.017

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Discussion

- Lead time from presentation to urgent care reduced
- More timely urgent antibiotic administration
- Staff consistency increased among regular staff
- Urgent care sepsis management equivalent to emergency department care except in fluid management
- The major reason for incomplete interventions is transfer to inpatient unit prior to completion and lack of rapid follow-up after admission
- Oncologists are biased against large volume crystalloid fluid administration and influenced protocol adherence
Follow-up Plans

• Urgent care staff actions
  – Additional workflow changes and algorithm revision
  – Clinic open Saturday 0800-1700
  – Patients not transferred to inpatient care until interventions complete
  – Implementation electronic alerts
  – MASCC score only used in less symptomatic patients for safety of outpatient management

• Re-education of providers and academic detailing on individual patient management

• Revised electronic alerts to reduce excessive false positive sepsis messages

• Comparison study of screening tools
Selected References


