ASCO's Quality Training Program

Reduction of invasive fungal infections in patients with acute myeloid leukemia undergoing induction or re-induction chemotherapy

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University of Virginia Health System

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Institutional Overview

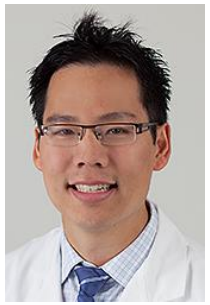
- 585 bed academic medical center in Charlottesville, VA
- Emily Couric Clinical Cancer Center
  - National Cancer Institute (NCI)-designated cancer center
- Treats 50-70 patients/year for acute myeloid leukemia

Team Members

Mohammed Athar Naeem, MD PhD

Amy Morris, PharmD

Torey Murray, RN



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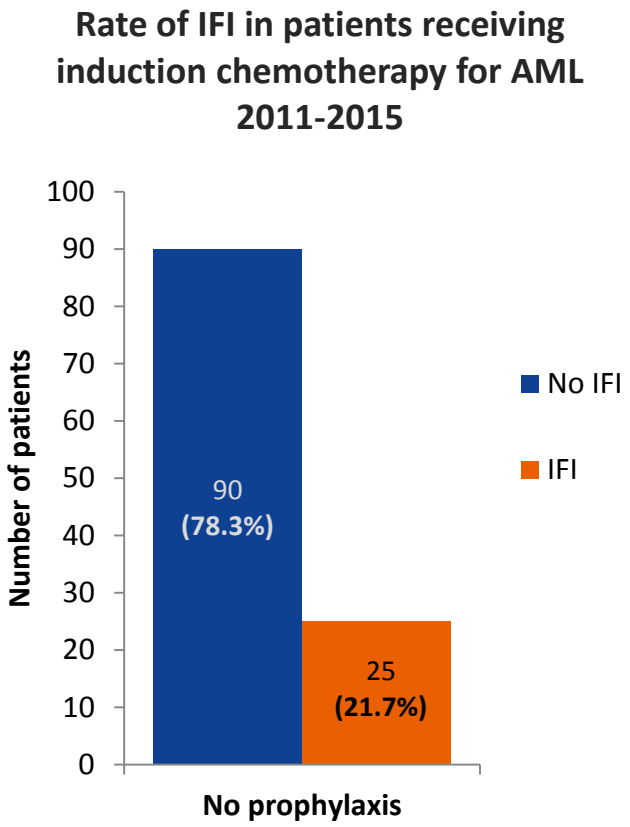
Problem Statement

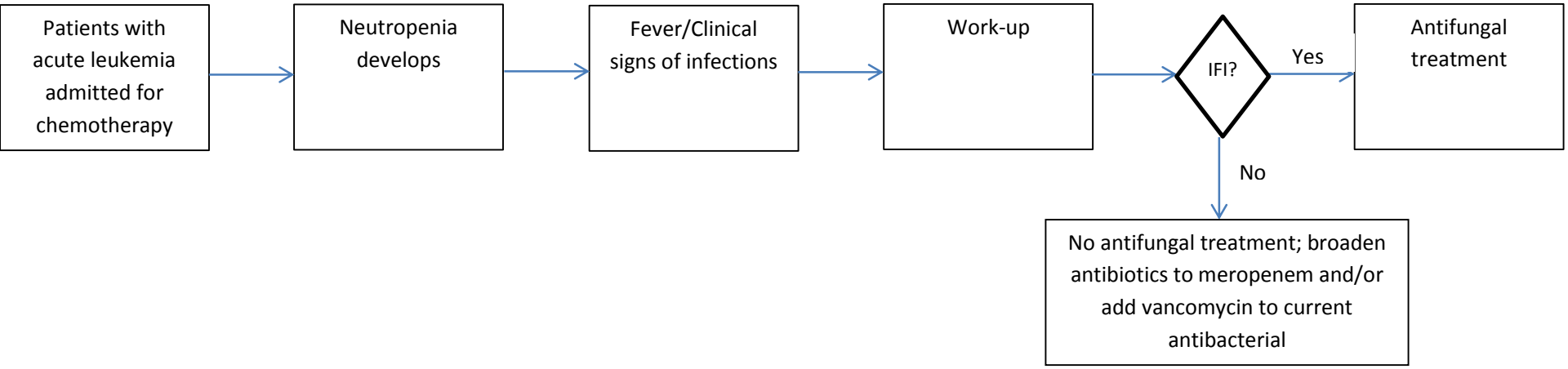
- 21.7% of patients with AML undergoing induction or re-induction chemotherapy at UVA medical center had a proven/probable invasive fungal infection (IFI) leading to increased morbidity as evidenced by increased number of medical emergency team (MET) calls.

Baseline Data

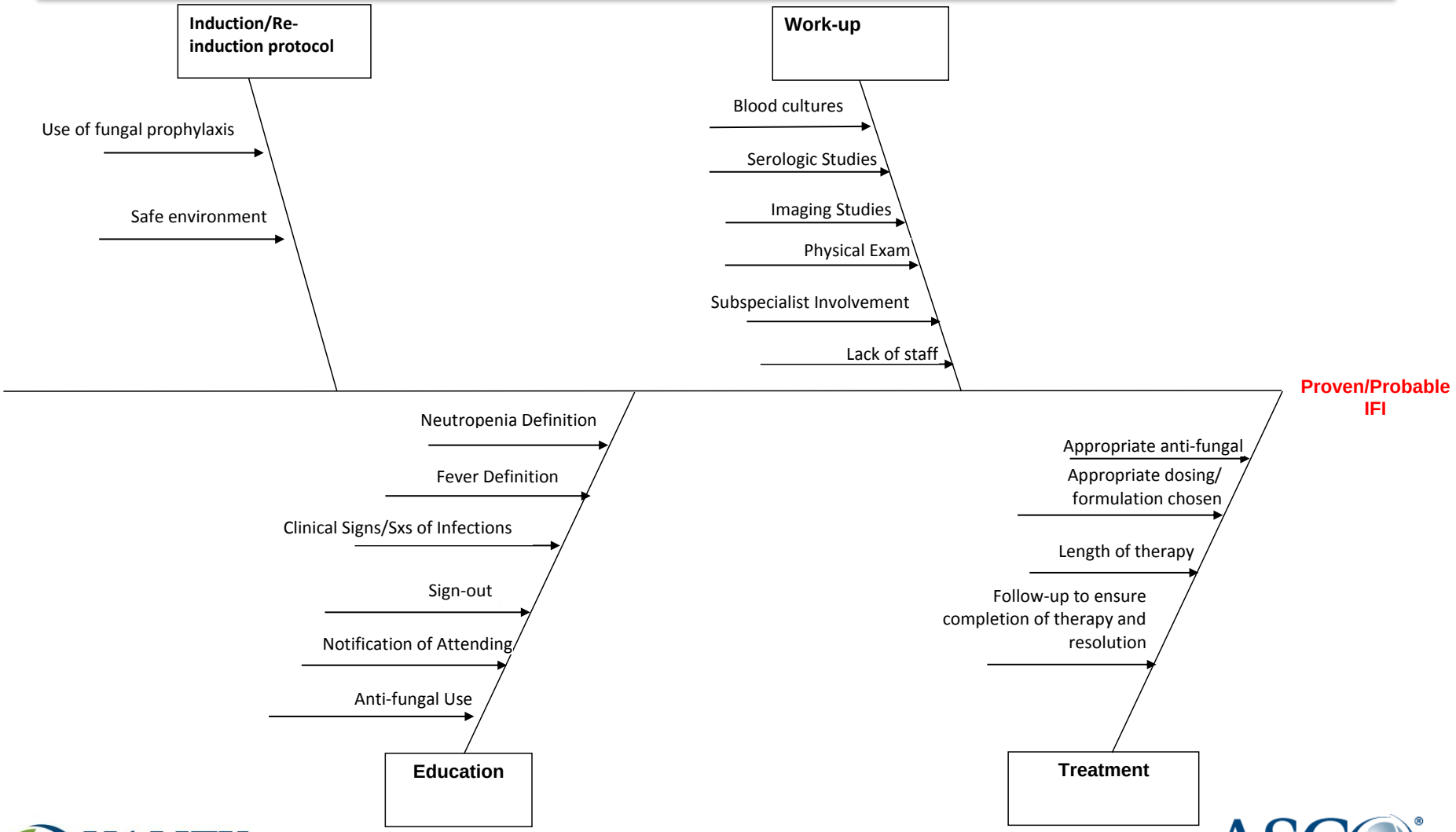
- Inconsistent use of antifungal prophylaxis in acute leukemia patients
- Without antifungal prophylaxis, rate of IFI over 20% during induction chemotherapy for AML
  - National average 8-10%
- Increased # of MET calls in patients with proven/probable versus possible/none IFI
  - (0.14/day vs. 0.06/day)



Process Map - Current



Cause & Effect Diagram



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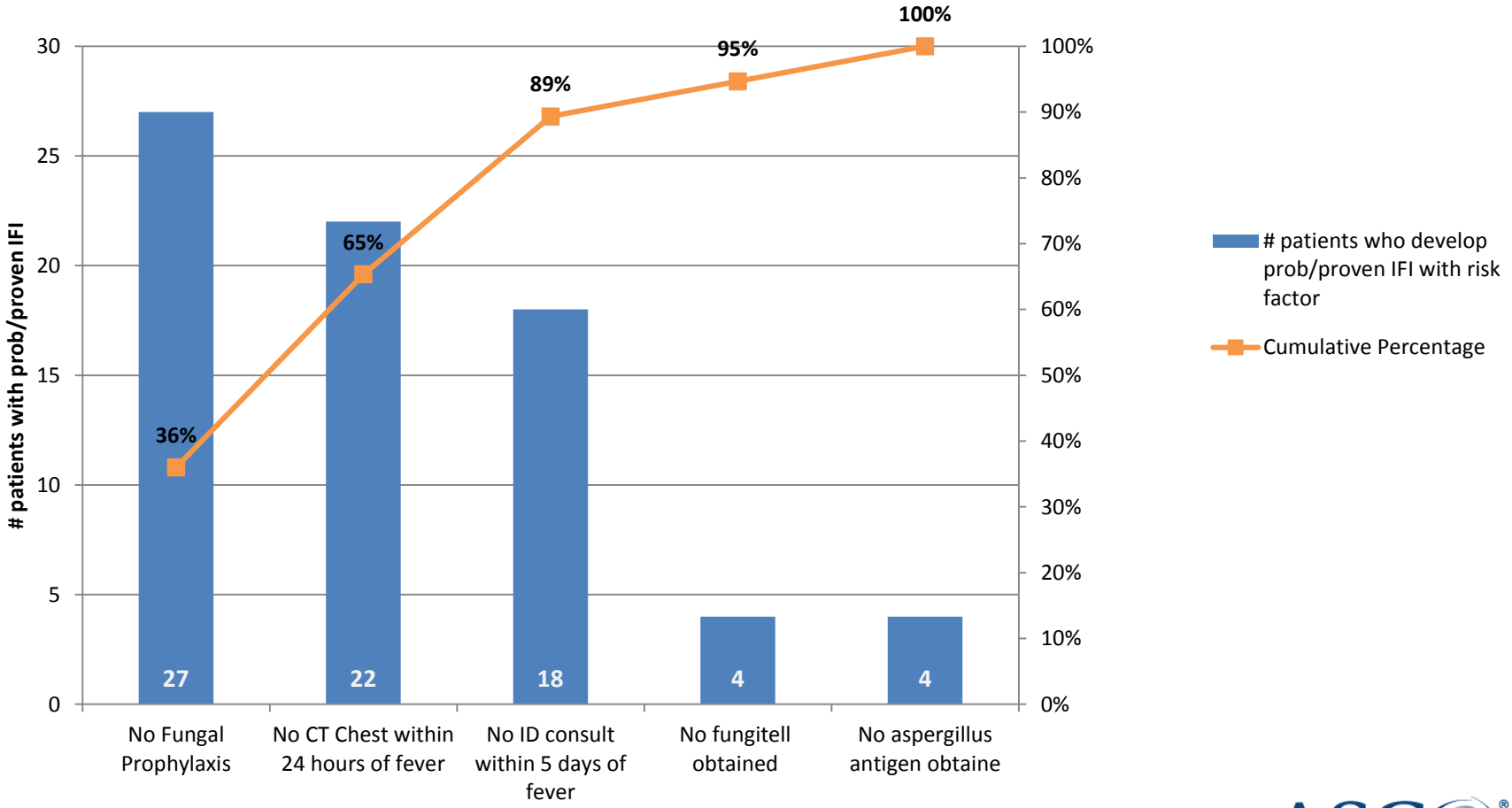
Diagnostic Data



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Aim Statement

Reduce the percentage of proven/probable IFI in patients with acute myeloid leukemia undergoing induction or re-induction chemotherapy at the University of Virginia Health System to 10% or less by January 2017.

Measures

Primary outcome: Proven or probable IFI incidence

Patient population

- Patients with acute myeloid leukemia undergoing induction or reinduction chemotherapy
  - Exclusions: Patients with prior IFI, patients who cannot receive antifungal prophylaxis, patients who survive less than 90 days after induction

Calculation methodology

- % IFI = # patients with proven or probable IFI / # induction encounters

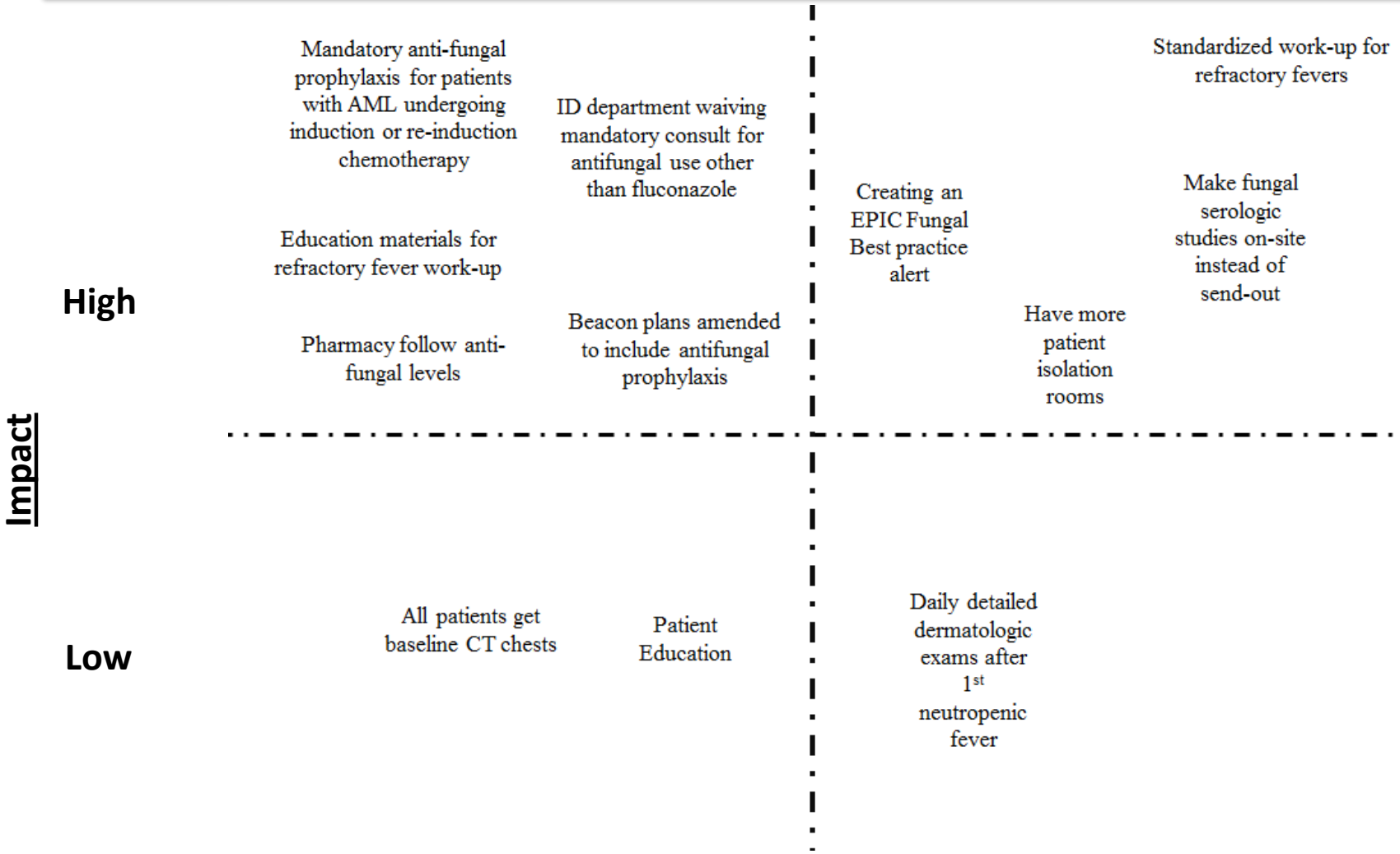
Data Source

- EPIC Beacon treatment plans, EMR

Data collection frequency

- Monthly

Priority Matrix



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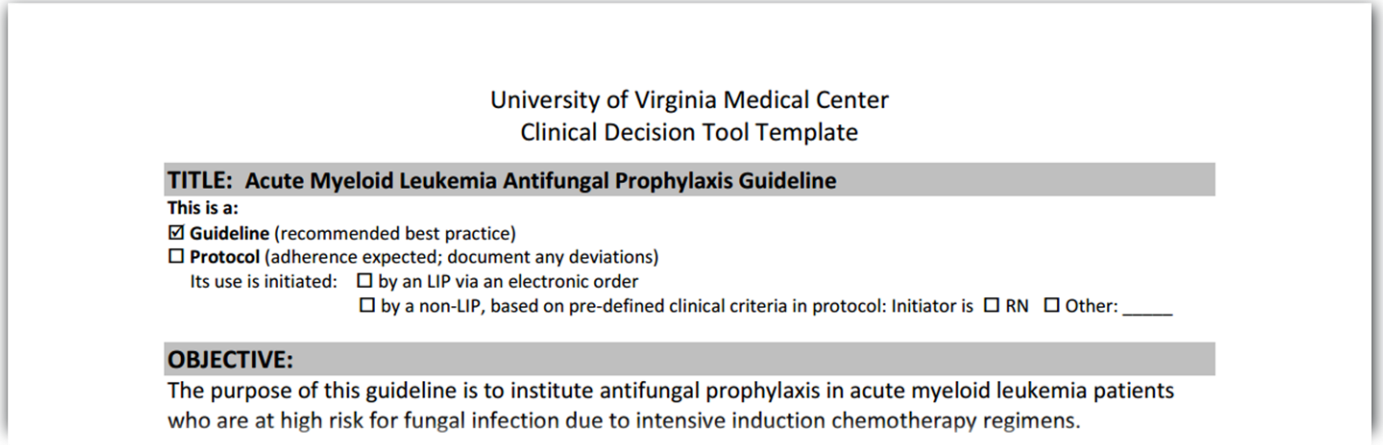
PDSA Plan (Test of Change)

Date of PDSA Cycle	Intervention	Results	Action Steps
July 31, 2014 – July 31, 2016	• No planned intervention • Attending specific fluconazole prophylaxis given to leukemic patients	• Anecdotal decrease in IFI rates, but used inappropriately in many patients	• Institute antifungal prophylaxis guideline for patients with AML during induction
August 1, 2016 – December 31, 2016	• Guideline implementation • Resident education	• Decreased rates of IFI • "Missed" previous IFI in patient with reinduction	• Evaluation process for previous IFI • Revise pharmacist documentation (iVent)

Antifungal Prophylaxis Guideline

- Antifungal prophylaxis guideline
  - Patients undergoing induction or reinduction chemotherapy for AML
  - Posaconazole po (alternatives if contraindicated)
  - Continue until count recovery



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Clinical Decision Tool Template

TITLE: Acute Myeloid Leukemia Antifungal Prophylaxis Guideline

This is a:

☑ **Guideline** (recommended best practice)

☐ **Protocol** (adherence expected; document any deviations)

Its use is initiated: ☐ by an LIP via an electronic order

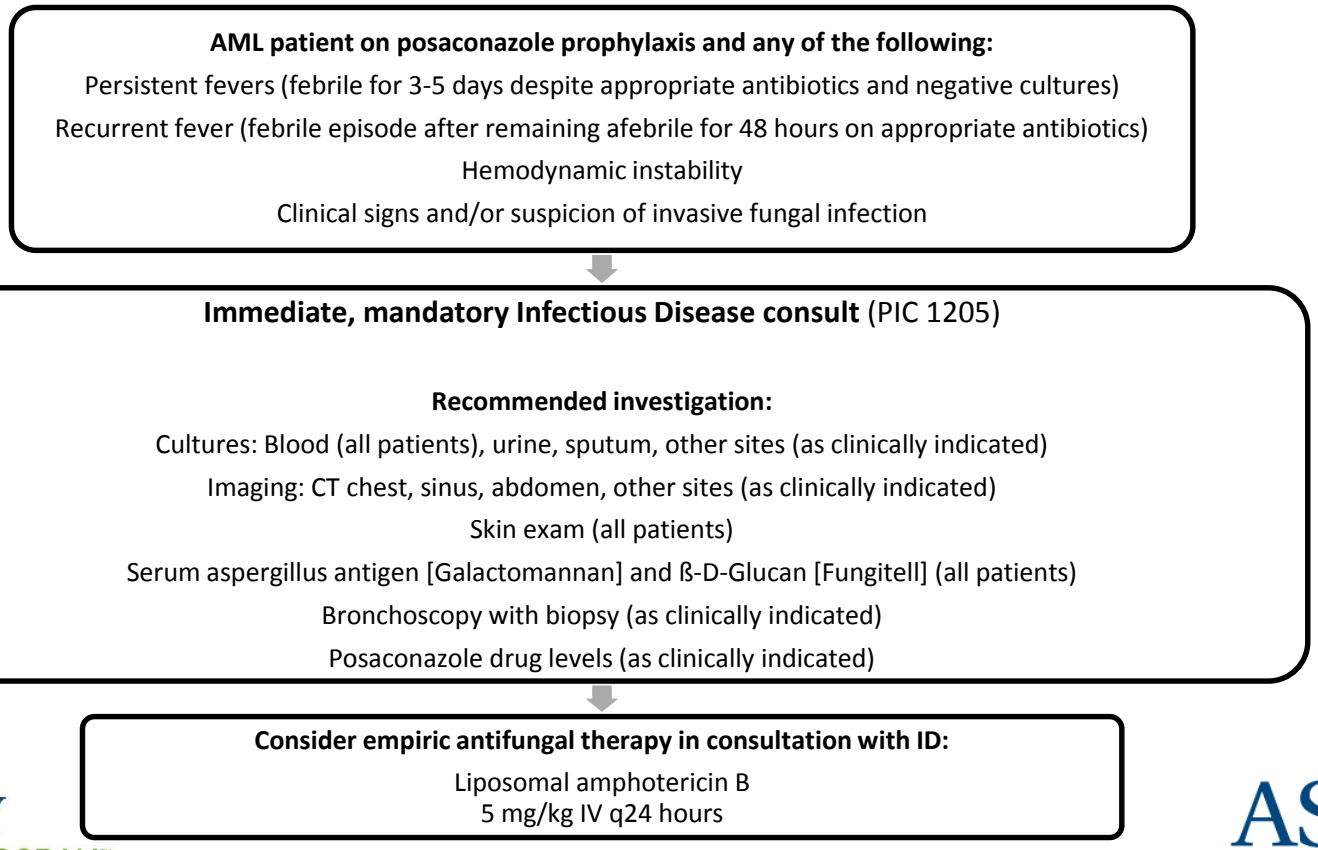
☐ by a non-LIP, based on pre-defined clinical criteria in protocol: Initiator is ☐ RN ☐ Other: _____

OBJECTIVE:

The purpose of this guideline is to institute antifungal prophylaxis in acute myeloid leukemia patients who are at high risk for fungal infection due to intensive induction chemotherapy regimens.

Clinical Pathway for Refractory Fevers

- Clinical pathway for refractory neutropenic fever and/or clinical signs of invasive fungal infection



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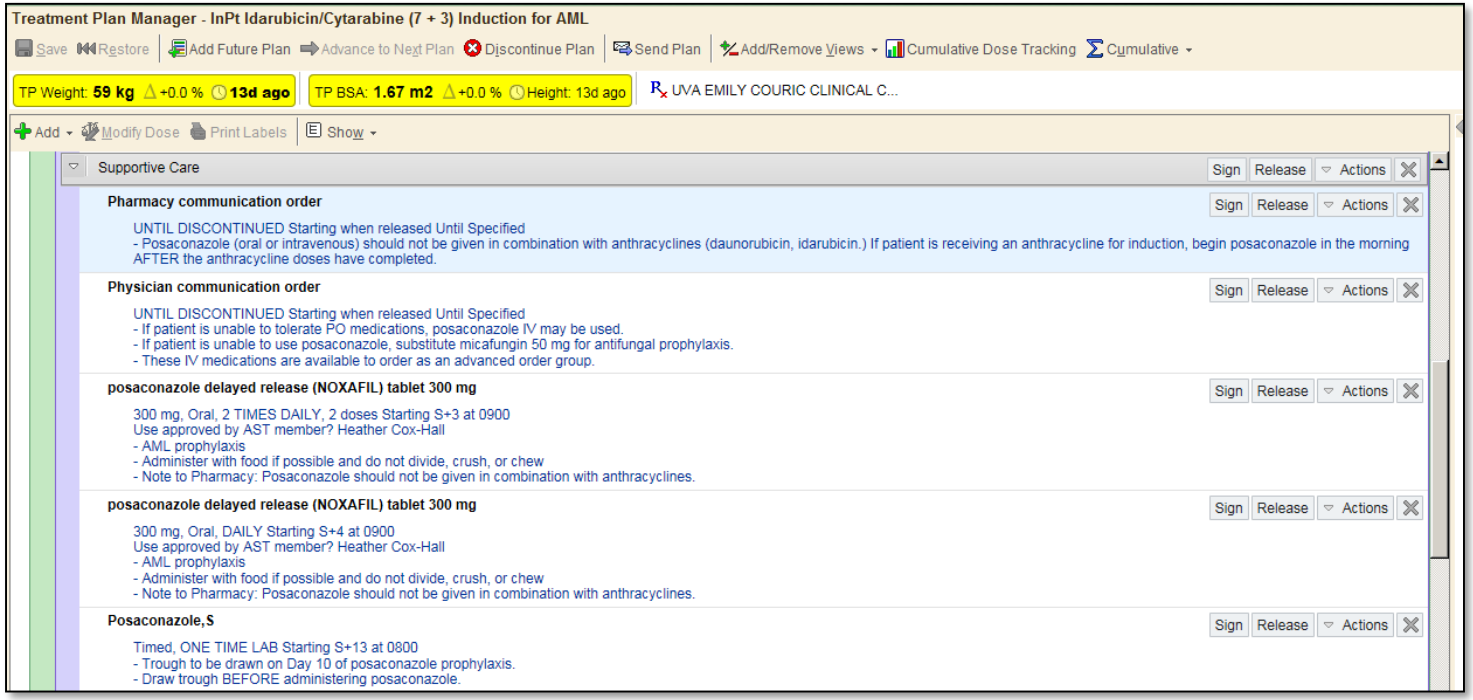
Beacon Treatment Plan Update

Antifungal prophylaxis incorporated in Beacon Treatment plans

- Attending or fellow ordering
- Heme/onc clinical pharmacist review



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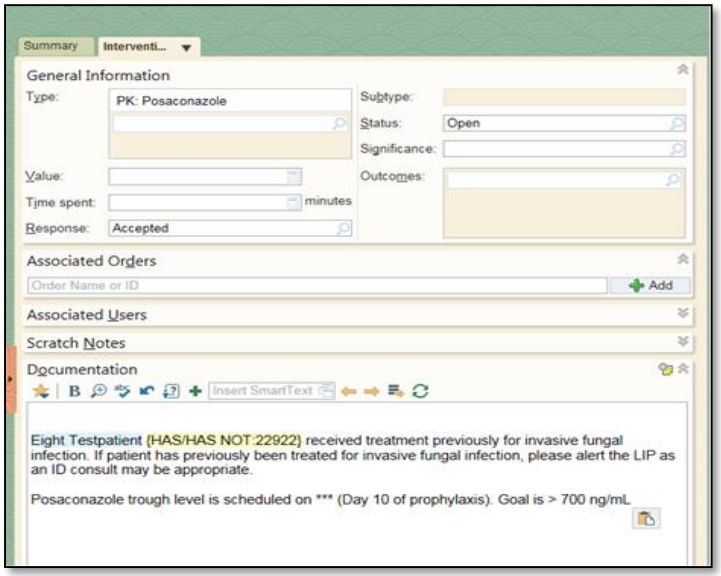
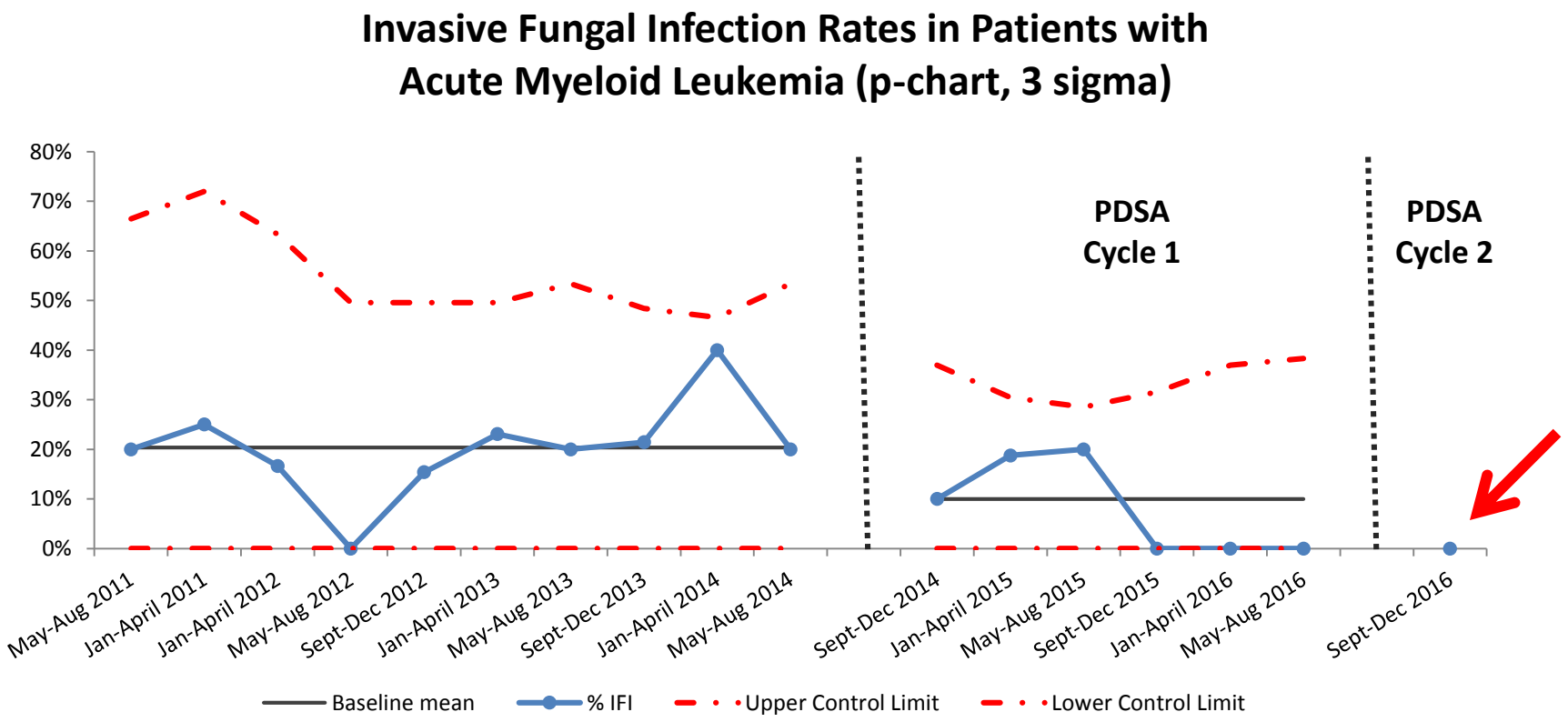
i-Vent and Cheat Sheet

- Resident “cheat sheet”
  - Rotation on/off service weekly
- Standardized pharmacist i-Vent
  - Previous IFI
  - Posaconazole trough level



Change Data – p chart



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Conclusions

- **Proven/Probable IFI rate at goal of < 10 %**
- Better working relationship with infectious disease
- Positive for stem cell transplant program

Next Steps/Plan for Sustainability

- On-going evaluation of any resistant fungal organisms
- Continued discussion with infectious disease regarding therapy and appropriate workup for refractory or recurrent fevers
- Potential roll out of protocol to stem cell transplant service
- Poster presentation – ASCO Quality Symposium

Thank You

- ASCO QTP faculty and staff, especially Amy Guthrie
- Michael Keng
  - Medical director of 8West and our quality champion/guru

- 8West nurses, pharmacists, and residents
- Hematologists
- Infectious disease service
- IT support

- **Our patients!**

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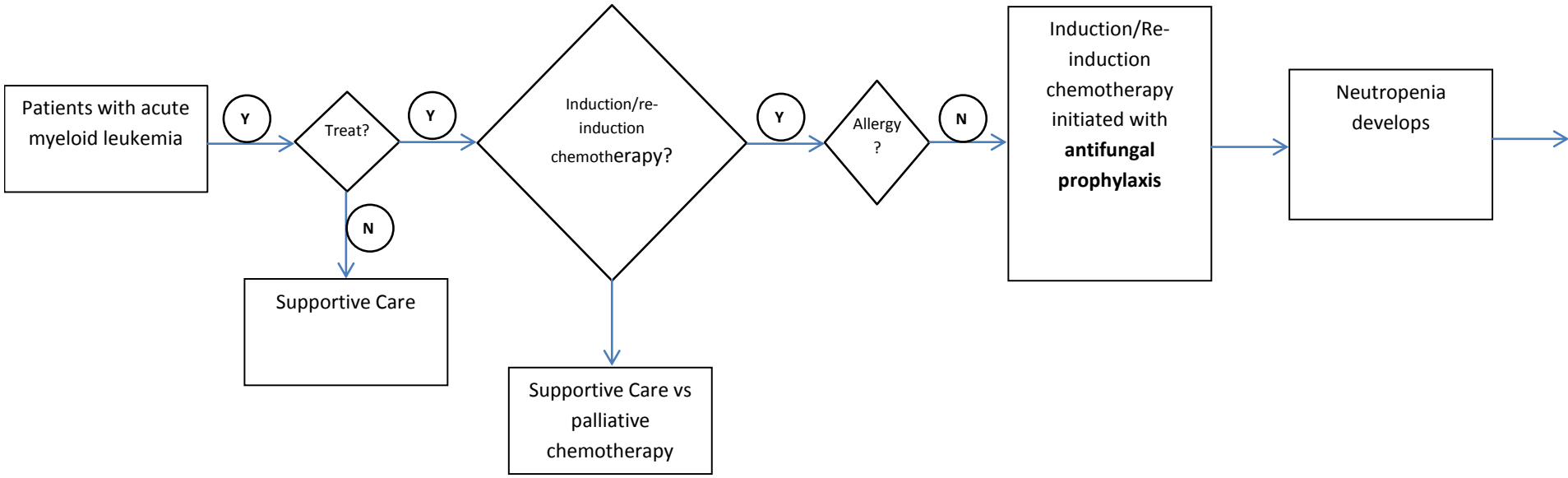
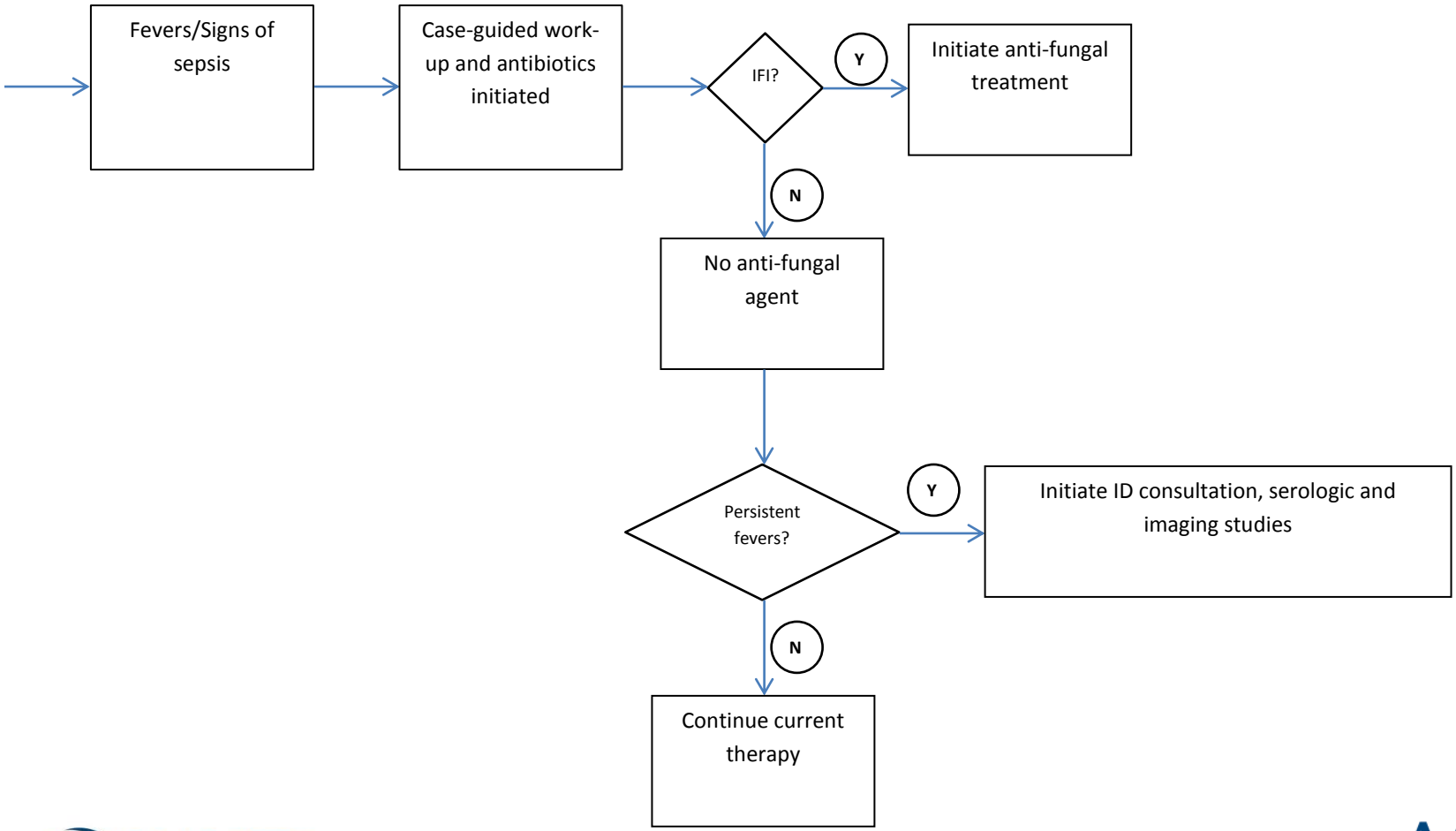
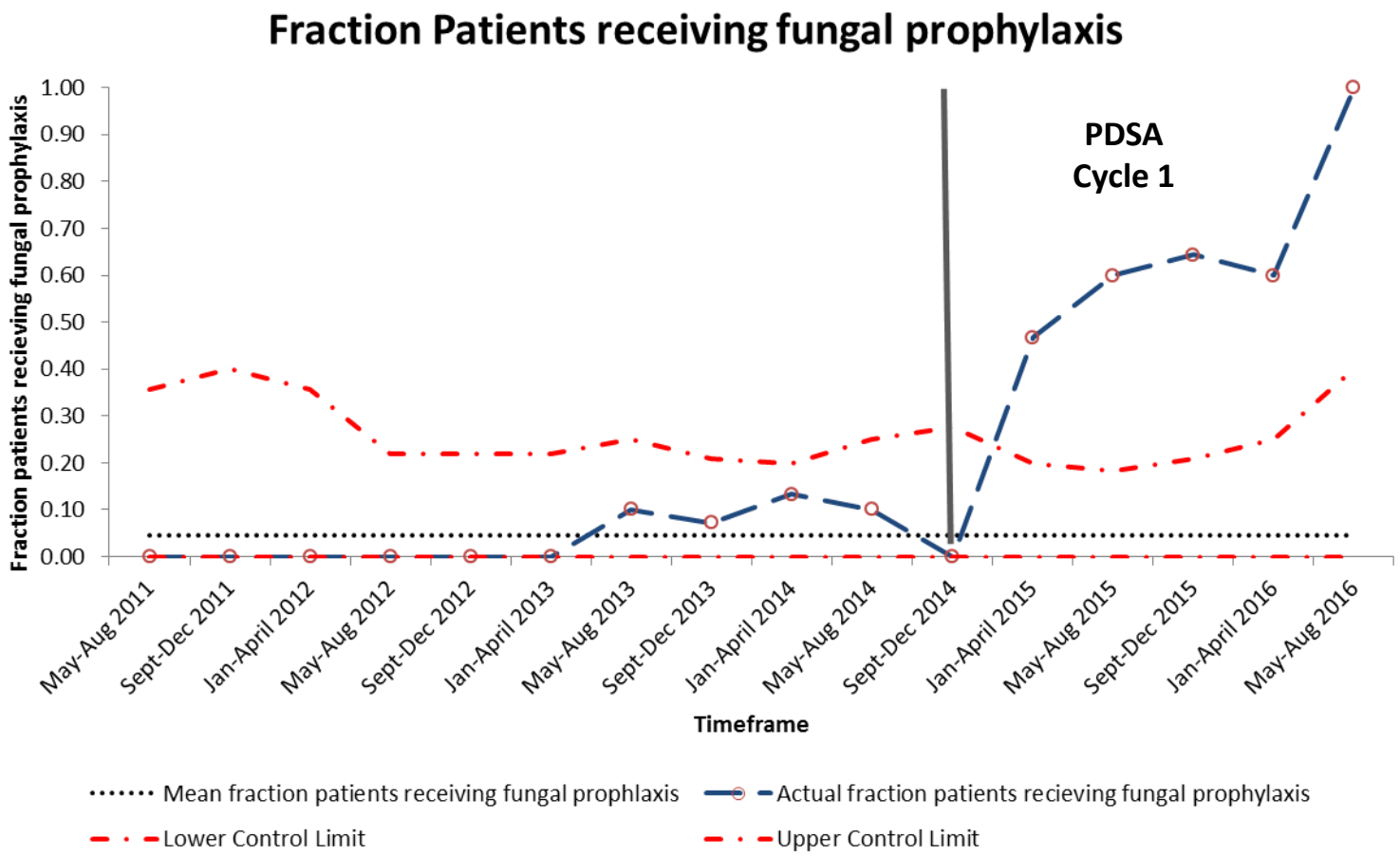
Ideal Process Map



Ideal Process Map



Anti-fungal Prophylaxis – p chart



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