

Integrating a Lean Six Sigma DMAIC approach to improve transitions of care in patients discharged on outpatient parenteral antimicrobial therapy

HENRY FORD HEALTH

ID#: 1265294

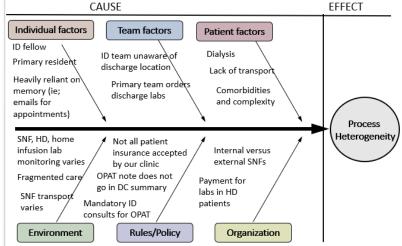
Lea Monday PharmD, MD1, Seema Joshi MD2, Ravitej Goteti MD2, Janan Saba MPH, PMP3, , Allison Weinmann, MBBS, FRACP2,3

1. Division of Infectious Disease, Wayne State University School of Medicine, Detroit, MI. 2. Henry Ford Hospital, Detroit, MI, 3. Office of Quality and Safety, Henry Ford Health System, Detroit, MI

RESULTS INTRODUCTION Safe implementation of Outpatient Figure 2. Process Map of OPAT Discharge Process Background Parenteral Antimicrobial Therapy (OPAT) is Heterogeneity in Process challenging. Patient in need ID team writes IV team places Primary team of IV antibiotics -OPAT, requests Utilize a Six Sigma framework to evaluate our line if needed orders discharge CAUSE follow up, and medications and OPAT process and define opportunities for Objective notifies ID clinic labs Individual factors Team factors improvement nurse via email ID fellow Dialysis ID team unaware of **METHODS** ID Clinic follow up Primary resident discharge location Case manager Discharge within 14 days Heavily reliant on (CM) notified location Primary team orders • Retrospective 6-month analysis of OPAT discharges (goal) memory (ie: discharge labs CM sends copies A define, measure, analyze, improve, control (DMAIC) emails for of the discharge ID nurse keeps list appointments) approach was to evaluate errors and opportunities note to the of all OPAT for improvement. destination (SNF Dialysis Home SNF within External Outpatient SNF, HD, home patients and Not all patient (HD) Infusion SNF dialysis, home system infusion lab Infusion coordinates insurance accepted monitoring varies Center Company care company) by our clinic Center obtaining labs Figure 1. DMAIC Methodology and Process Tools used to OPAT note does not Fragmented car Payment for go in DC summary analyze OPAT Transitions of Care labs in HD SNF transport ID nurse confirms Outpatient Mandatory ID patients Discharge Discharge Electronic Paper Electronic correct provider consults for OPAT pharmacy relies summary referral prescription prescription summary D • OPAT Readmissions rates are high (15-25%)1,2 reviews lab on an email from sent by CM sent by CM requested faxed to HD Environment Rules/Policy results, calls • Follow-up and monitoring is logistically challenging Define CM to ensure to facility and to facility and center by company facilities when confirmed fill of CM for prescription prescription 6-month single center analysis of 579 OPAT patients abs are not sent, Patient nedication at the M sent approval and reschedules scheduled • 30-day all-cause readmission rate: 19.7% CM confirms CONCLUSIONS contracted lectronicall electronicall[,] ny patients who for infusion HD center Measure • ID Clinic visit within 28 days: 44% drop off location miss follow up orders date for Facility Facility appointments for requested home obtains obtains Identify and validate causes of error up to 6 weeks labs antibiotics requested requested Process map labs and labs and Ishikawa (fishbone) diagram Abbreviations: ID: infectious diseases, IV: intravenous, OPAT: Outpatient for targeted process improvement. transport transport Analyze Swiss Cheese Model parenteral antibiotic therapy, SNF; Skill Nursing Facility care of OPAT patients Reduce process variability • Process heterogeneity depending heavily on discharge location (Fig 2) • OPAT Note and discharge documentation • Causes of heterogeneity; fragmentation of care and reliance on human memory (Fig 3) **Improve** • Establishing skilled nursing centers of excellence REFERENCES Opportunities for improvement included: (1) Constructing a mandatory OPAT note with appointment date and time Track process performance to sustain change (2) Delegation of laboratory ordering for monitoring patient after discharge Addition of OPAT category for error reporting

(3) Setting skilled nursing facility (SNF) communication and expectations.

Figure 3. Ishikawa Diagram of Factors Contributing to



- Almost 1 in 5 OPAT patients was readmitted within 30 days
- A DMAIC approach identified opportunities to improve transitions of care in patients discharged on OPAT and developing interventions
- Other centers may use a similar strategy to analyze and improve the
- Sadler et al. Am J Health-Syst Pharm. 2021;78:1223-
- Keller at al. Am J Med Qual. 2020; 35(2): 133–146.



Abbreviations: OPAT; outpatient parenteral antimicrobial therapy

• Expanding skilled centers of excellence

Control