



Acuity-Based Models of Care: Improving Wait Times and Efficiency in an Outpatient Infusion Center



Jordan Lavalley MSN, RN, CNL, Department of Nursing, University of New Hampshire

Practice Mentors: Lauren Coupal BSN, RN, OCN & Amy Fysh MSN, RN, OCN, CNML | Faculty Mentors: Pamela Kallmerten PhD, DNP, RN, CNL & Deborah Simonton EdD, MS, RN, CNL

Introduction

Universal Problem Description:

- Timeliness is one of the six aims for improving the quality of healthcare
- Increased wait times are a common problem faced by infusion centers (Hashemi-Sadraei et al., 2021)
- Delays in care can cause emotional distress and potential negative outcomes (Bateni, 2023)

Microsystem Problems:

- 28 chair infusion center w/ 10 - 12 RNs & 3 LNAs, 70+ patients / day
- Average wait times = 23 min for short therapies & 40 min for longer therapies
- 32% of patients dissatisfied with timeliness of care
- Multiple areas of resource waste

Appraisal of Evidence:

Article	LoE	Major Findings
(Edwards et al., 2017)	5	Acuity-based models of care may improve wait times and satisfaction in oncological settings
(Graboyes et al., 2019)	3	Timely care is associated with increased survival in head and neck cancer patients
(Mathews et al., 2015)	4	Strong association noted between wait times and patient satisfaction with overall care
(Naiker et al., 2018)	3	Process improvement, resource allocation, and elimination of waste can decrease wait times
(Schrameck et al., 2022)	5	Acuity-based models of care may create more equitable nursing assignments increasing nurse satisfaction
(Vortherms et al., 2015)	4	Acuity-based models of care may enhance patient care experience, balance workloads, and increase nurse satisfaction

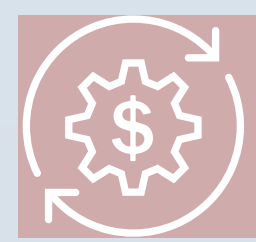
QI Model & Specific Aims:

Model for Improvement Framework

1. Decrease the average wait time of patients receiving short therapies by 20% based on evidence showing that 20 minutes is an acceptable wait time from the patient perspective.
2. Increase patient satisfaction related to timeliness of care by 10%

Methods

Costs-Benefit Analysis:



- \$ 50 / year

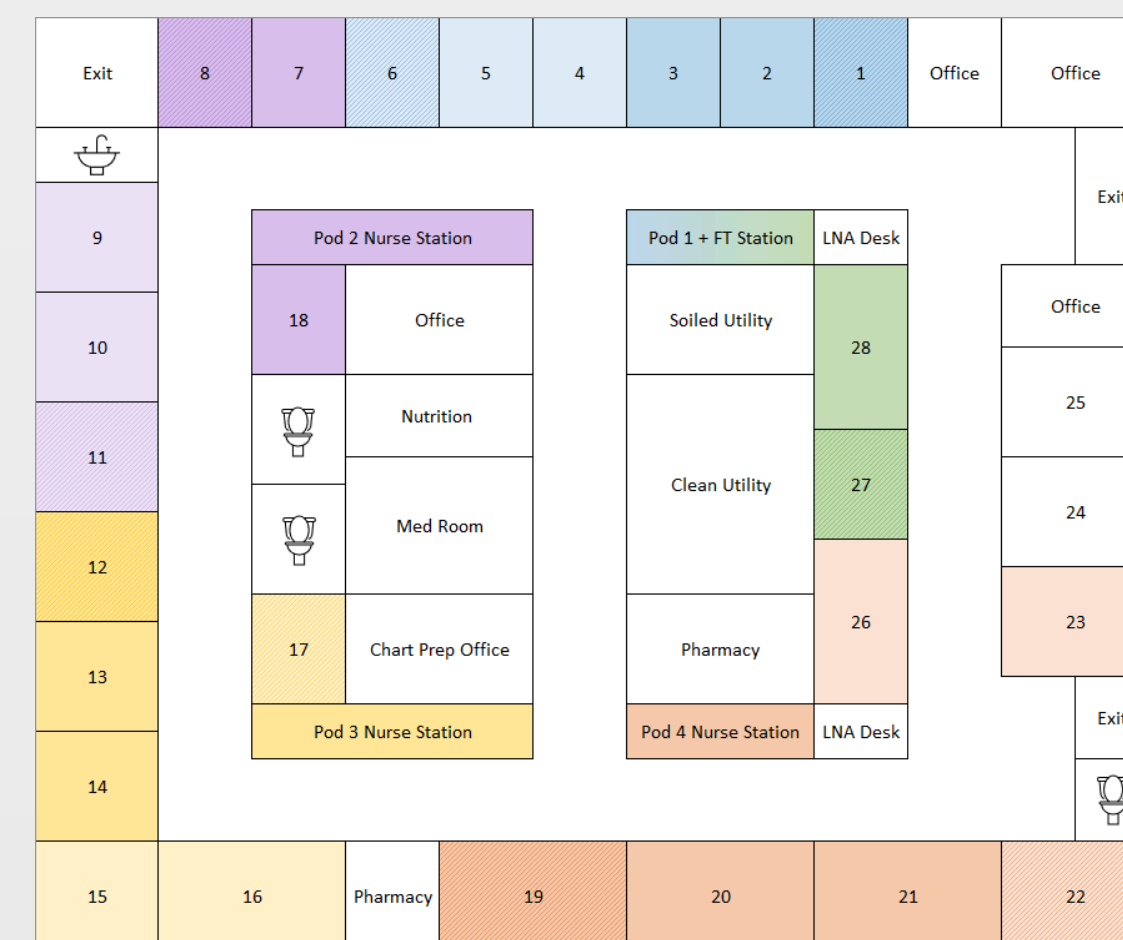


+ \$ 635,480 / year

- \$ 50 for printing of educational materials
- \$ 274,740 generated annually by one additional infusion chair x 2
- \$ 86,000 per one less FTE annually
- Staff and grad student time to implement to allow for an increased quality of care

Interventions:

1. Creation of oncology/benign heme-specific acuity tool to balance nursing assignments
2. Development of Fast Track area of care and reallocation of infusion chairs
3. Staff Education



Measures:

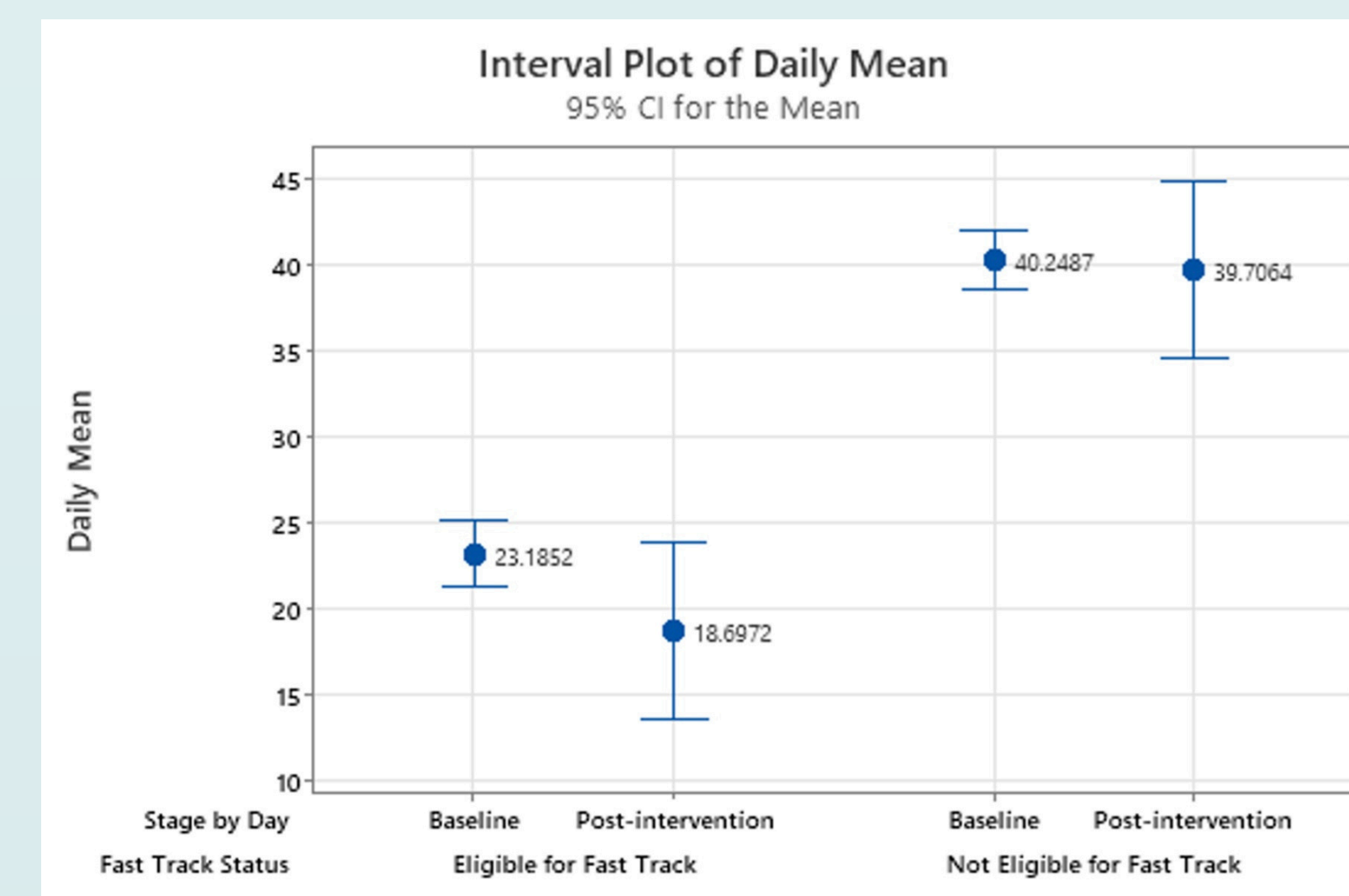
1. Acuity tool reliability utilizing Gage R&R Testing
2. Change in average wait times utilizing chart audits, means and interval plotting, and 2-sample t - Tests
3. Changes in patient satisfaction utilizing NRC surveys and run charts

Results

Acuity Tool Reliability:

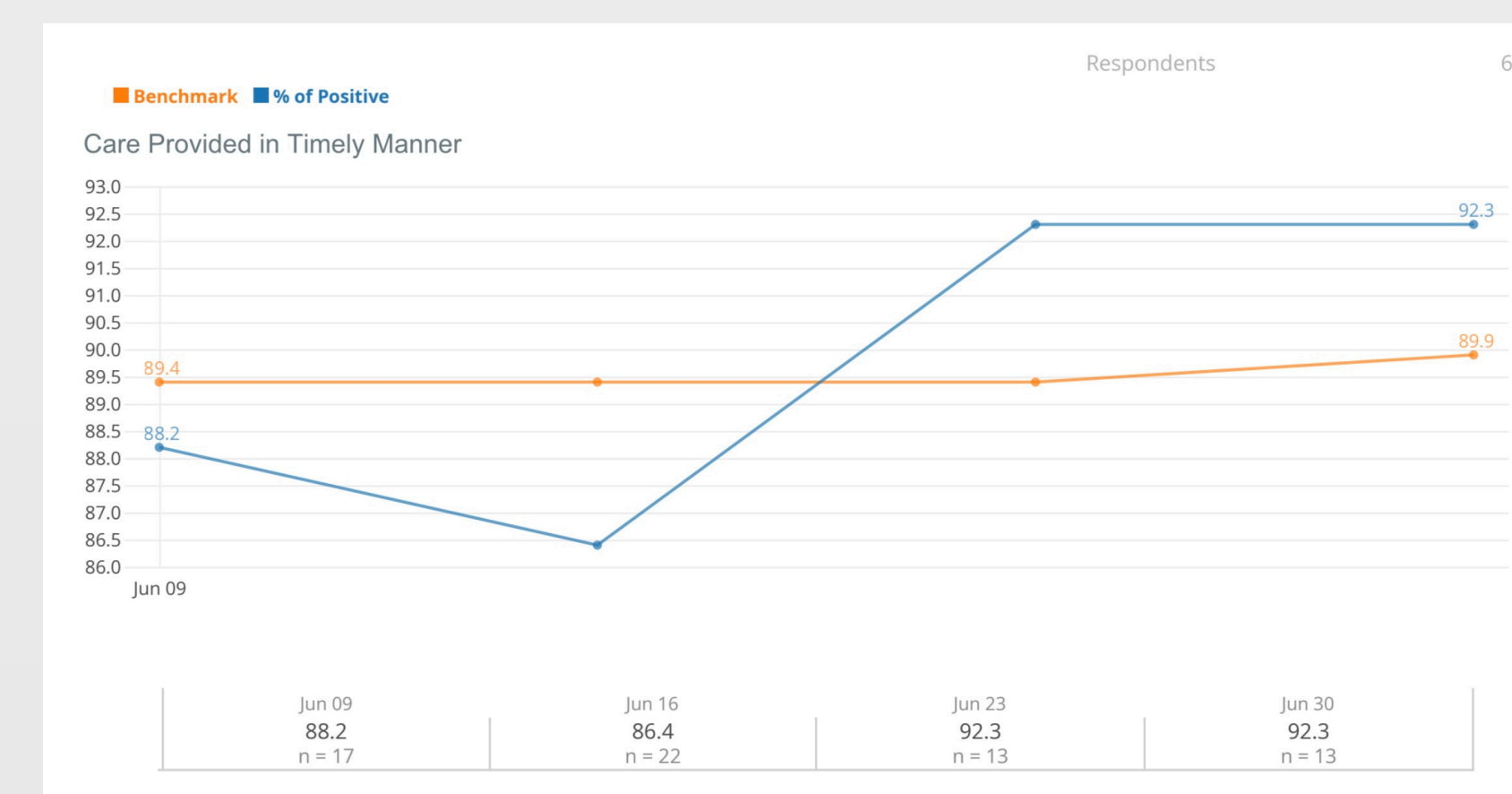
- 15 nurses completed reliability testing
- Results suggested the tool was reliable but there was risk for deviation when patients had multiple factors that warranted additional acuity points

Wait Times:



- Average wait times for short therapies decreased by 19.4% from 23.2 (SD = 11.7) to 18.7 (SD = 12.9) minutes during the first two weeks of implementation and by an average of 2 min over the full four week implementation (p = 0.354)

Patient Satisfaction:



- NRC data showed an overall increase in patient satisfaction related to timeliness of care by 5.9 % from 86.4% satisfied to 92.3% satisfied

Discussion

Key Findings:

- Acuity-based models of care may decrease wait times and increase patient satisfaction
- Acuity-based nursing assignments can create more equitable and balanced assignments and increase nurse satisfaction
- The efficacy of this model can be impacted by overall unit acuity, patient volume, patient scheduling, and staffing mix/levels
- While the mean wait time decreased below 20 minutes for fast-track eligible patients, further data is needed to determine the long-term implications

Limitations:

- Multiple confounding variables were present during implementation and analysis (high nursing turnover, inadequate staffing, leadership changes, holiday scheduling, etc.)
- The short implementation and study phases of this project yielded limited data points for analysis
- Factors such as pharmacy delays, incomplete physician orders, patient factors, or mistimed chart entries may have impacted accurate data collection to determine wait times related to nursing processes

Conclusions:

- This model of care may optimize efficiency, decrease wait times, increase patient and nurse satisfaction, reduce resource waste, and generate increased revenue
- The unit must ensure clear roles are assigned as staffing changes, and continue to adapt the acuity tool over time as needed
- In future PDSA cycles, we would recommend greater integration at the mesosystem level to optimize patient scheduling and overall efficacy