Decreasing Disposition to Discharge Time in the EC

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Background

Why project is needed

- >74,000 patients arrive annually at the TCH Main Campus EC

- >40,000 of these patients are treated in the EC and discharged home

- The time from the physician writing the discharge order ("Disposition Time") to the time the patient walks out the door ("Discharge Time") varies widely, is higher than desired, and is a controllable variable (controlled by EC processes)

- Decreasing "Disposition to Discharge" time will increase capacity for additional patients in the EC, enhance flow and improve the patient experience

Aligns to

- **Organizational Goal #7** : Develop and redefine how we meet patient/family expectations (right care, right place, right time) with access based on forward thinking strategies (for example . . . **improved patient flow** . . . .)

- **Organizational Goal #4**: Affirm and demonstrate **patient and family experience** as a key component of the Texas Children's culture

- **Organizational Goal #1**: Achieve the FY17 Operating Margin

IOM Domains

- Timely

- Efficient

- Patient Centered

Model for Improvement

Our goal is to decrease "Disposition to Discharge" time
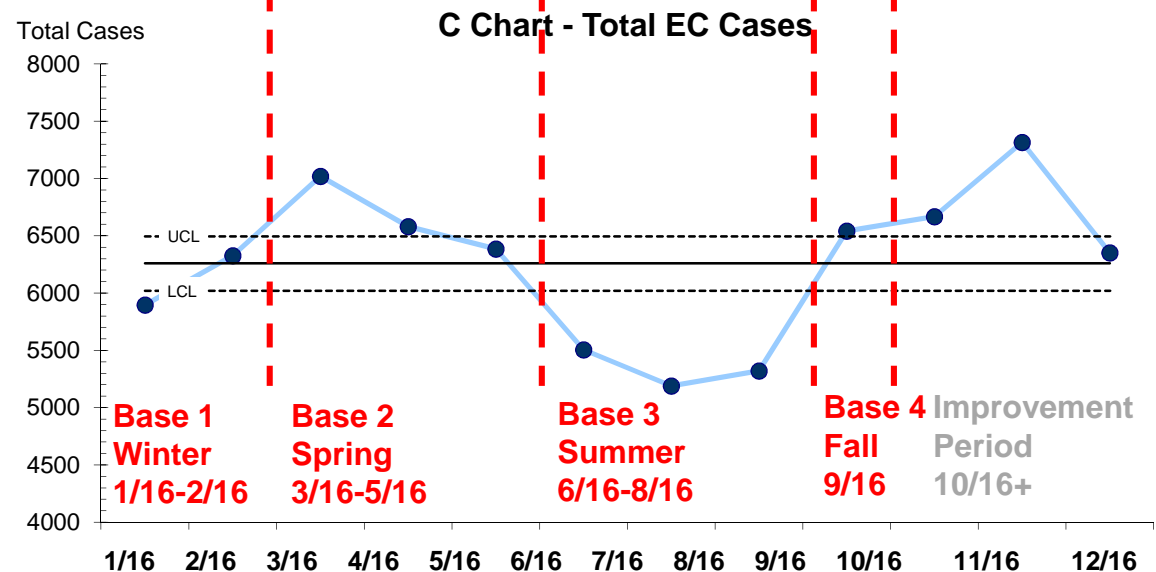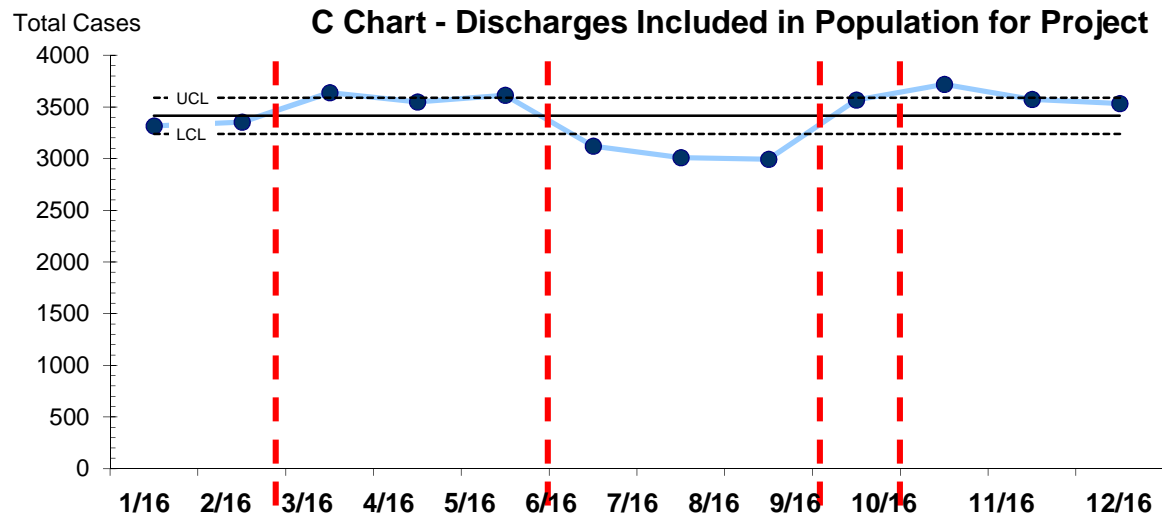
- Increase % where "Dispo to Discharge" time is 15 minutes or less
- Decrease actual "Dispo to Discharge" time
- Improve workflow for staff
- Remove barriers to discharge

What changes can we make that will result in improvement?

- Team based approach
- Metered-Dose Inhaler (MDI) education
- Prescription standard operating procedure and education
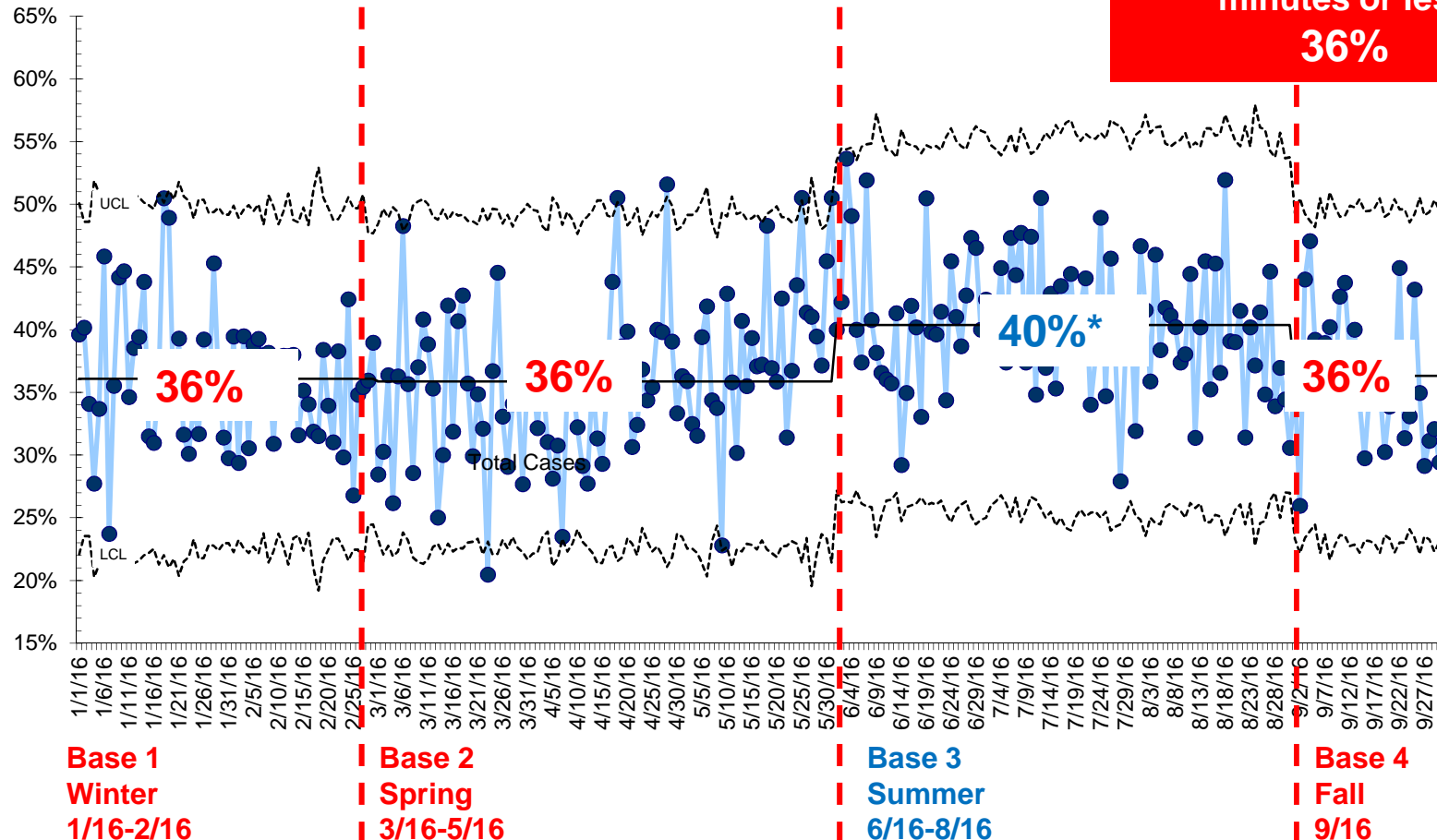- Shifting resources to areas of greatest need

Baseline Phases

- Urgent Care opened at the Main Campus in December 2015. To enhance comparability, review of baseline data began in January 2016.

- Workflows in the EC are impacted significantly by patient volumes and seasonality.

- Volumes are shown over 12 months, with notations for the four baseline phases considered.

- Baseline 3 will not be included as part of baseline data, as volumes are not comparable to the Improvement Period.

C Chart - Discharges Included in Population for Project

C Chart - Total EC Cases

Base 1 Winter 1/16-2/16
Base 2 Spring 3/16-5/16
Base 3 Summer 6/16-8/16
Base 4 Fall 9/16
Improvement Period 10/16+

Baseline Data

P Chart for Baseline Phases

Percent with Dispo to DC ≤ 15 minutes

Base 1
Winter
1/16-2/16

Base 2
Spring
3/16-5/16

Base 3
Summer
6/16-8/16

Base 4
Fall
9/16

36%   36%   40%*   36%

* Summer baseline data not representative of conditions during improvement period. Therefore, excluded from baseline measure.

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Project Aim

We will improve the average daily percentage of patients being discharged to home that have a "Disposition to Discharge" time of 15 mins or less by 20% by January 15, 2017 by:

- Improving team communication

- Improving resource allocation

- Standardizing the discharge prescription process

36%
Baseline
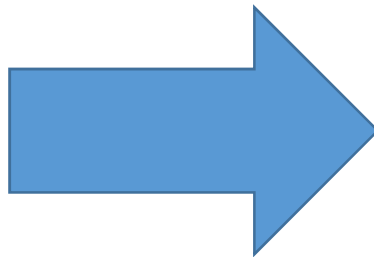
43%
Goal

Project Metrics

<u>Process Measure(s)</u>

➤ Improving RN workflow

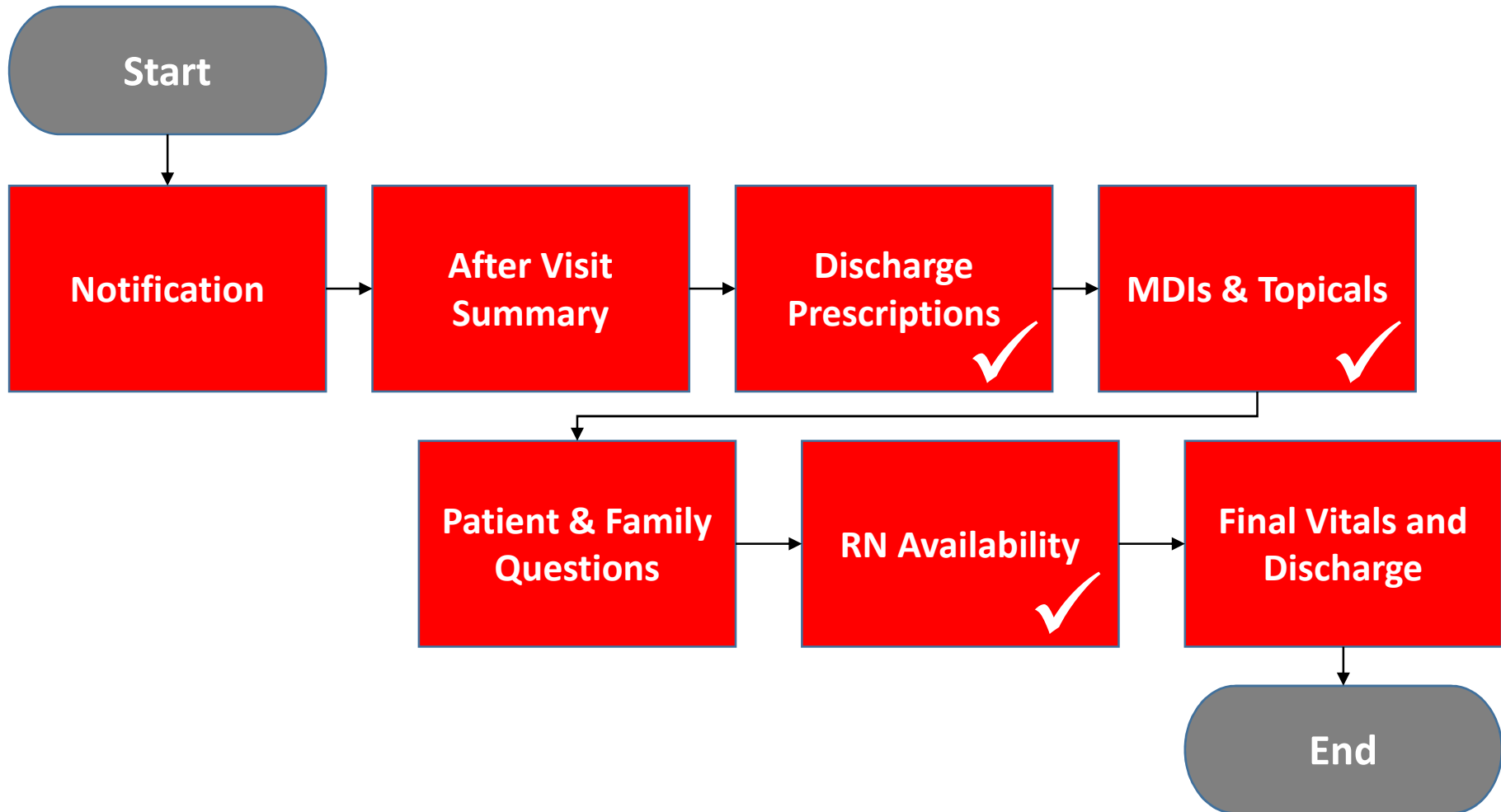**<u>Outcome Measure</u>**

➤ Increasing the % of patients with Disposition to Discharge Time of 15 minutes of less

<u>Balancing and Efficiency Measure(s)</u>

➤ Average time from disposition to discharge for patients discharged home

➤ Total length of stay overall for patients discharged home
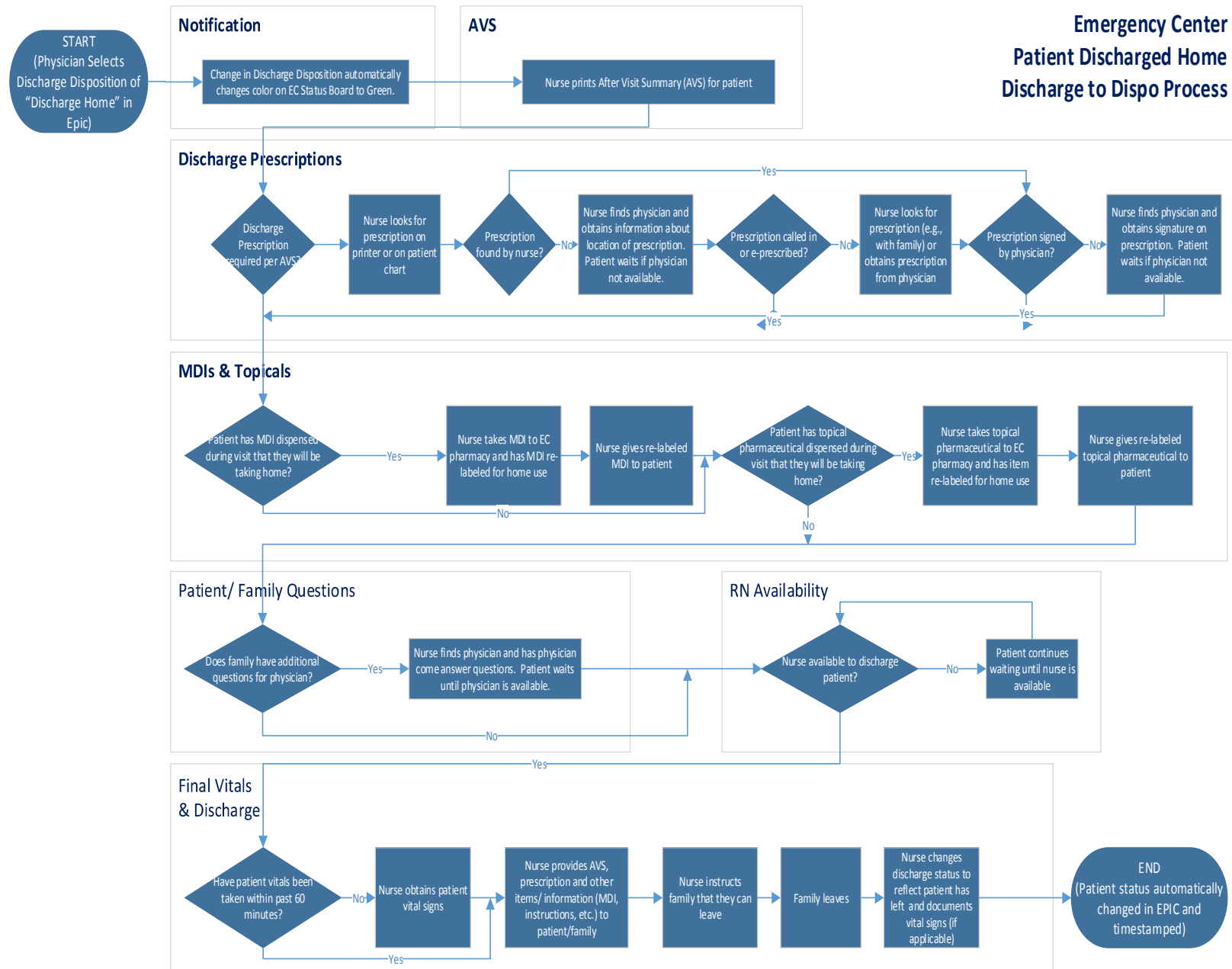
➤ No negative effect on WHPUOS

Process Map Overview

✓ Process phase addressed by PDSA cycles

Process Map Detail

**Emergency Center
Patient Discharged Home
Discharge to Dispo Process**

START
(Physician Selects Discharge Disposition of "Discharge Home" in Epic)

Notification
Change in Discharge Disposition automatically changes color on EC Status Board to Green.

AVS
Nurse prints After Visit Summary (AVS) for patient

Discharge Prescriptions

Discharge Prescription required per AVS? → Nurse looks for prescription on printer or on patient chart → Prescription found by nurse? —Yes→ Nurse finds physician and obtains information about location of prescription. Patient waits if physician not available. → Prescription called in or e-prescribed? —No→ Nurse looks for prescription (e.g., with family) or obtains prescription from physician → Prescription signed by physician? —No→ Nurse finds physician and obtains signature on prescription. Patient waits if physician not available.

(No / Yes connectors)

MDIs & Topicals

Patient has MDI dispensed during visit that they will be taking home? —Yes→ Nurse takes MDI to EC pharmacy and has MDI re-labeled for home use → Nurse gives re-labeled MDI to patient → Patient has topical pharmaceutical dispensed during visit that they will be taking home? —Yes→ Nurse takes topical pharmaceutical to EC pharmacy and has item re-labeled for home use → Nurse gives re-labeled topical pharmaceutical to patient

(No connectors)

Patient/ Family Questions

Does family have additional questions for physician? —Yes→ Nurse finds physician and has physician come answer questions. Patient waits until physician is available.

(No connector)

RN Availability

Nurse available to discharge patient? —No→ Patient continues waiting until nurse is available

(Yes connector)

Final Vitals & Discharge

Have patient vitals been taken within past 60 minutes? —No→ Nurse obtains patient vital signs → Nurse provides AVS, prescription and other items/ information (MDI, instructions, etc.) to patient/family → Nurse instructs family that they can leave → Family leaves → Nurse changes discharge status to reflect patient has left and documents vital signs (if applicable) → **END** (Patient status automatically changed in EPIC and timestamped)

(Yes connector)

Key Drivers

Project Aim	Key Drivers	Interventions

Project Aim

We will improve the average daily percentage of patients being discharged to home that have a "Disposition to Discharge" time of 15 mins or less by 20% by January 15, 2017

Key Drivers

- **Discharge Prescriptions**
- **Re-labeling MDIs for home use**
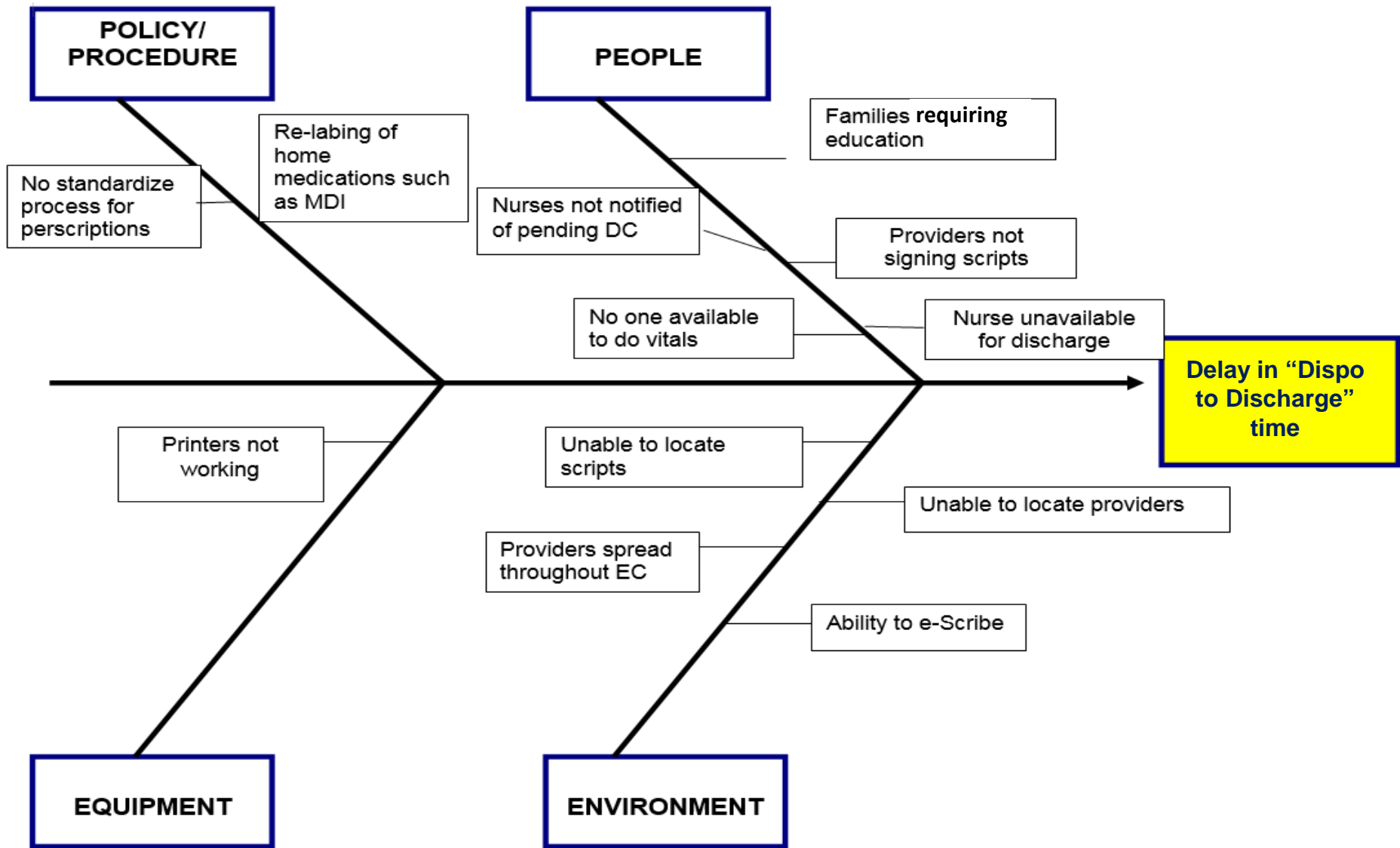- **Communication**
- **Coverage**

Interventions

- Standardize process regarding discharge prescriptions
- Train staff and physicians regarding standardized process

- Educate staff that re-labeling not required for MDI's

- Create "teams" comprised of MDs, RNs, RTs, PCA and registration staff to facilitate communication and cross-coverage

- Move triage to rooms, allowing resource to be re-allocated to areas of high need

Fishbone Diagram

POLICY/PROCEDURE

No standardize process for perscriptions

Re-labing of home medications such as MDI

PEOPLE

Families **requiring** education

Nurses not notified of pending DC

Providers not signing scripts

No one available to do vitals

Nurse unavailable for discharge

Printers not working

Unable to locate scripts

Unable to locate providers

Providers spread throughout EC

Ability to e-Scribe

Delay in "Dispo to Discharge" time

EQUIPMENT

ENVIRONMENT

Improvement Opportunities

The following interventions were identified as most capable of bringing about improvement:

➤ Optimize allocation of available RN resources

➤ Standardize process for discharge prescriptions

The following tools were used to identify areas for improvement:

➤ Process mapping

➤ Staff interviews

➤ Staff survey

PDSA #1
Team Based Approach to Pt Care

What did you pilot?	Introduced **defined care teams** in EC comprised of Physicians, nurses, respiratory therapists and registration staff (e.g., Team A, B, C D). Care teams planned to allow for more effective coordination and cross-coverage.
Who was involved?	Main Campus EC physicians, nurses, respiratory therapist and registration staff
Timeframe?	10/5/2016 – present
Data Collection Plan	Utilize EPIC timestamped data
Results	Went from a baseline daily average of 36% of patients discharged with in 15 mins to 39% during period following PDSA 1 (and prior to PDSA 2).
What was learned?	Care teams enhance collaboration and can be an effective way to communicate and address patient needs. They also help mitigate the impact of nurse's being pulled away for other patient care needs.
What next steps were planned as a result of what was learned?	Continue to enhance care team model to improve effectiveness and efficiency

PDSA #2
Education to staff about MDI re-labeling

What did you pilot?	Re-education of staff that **re-labeling of MDIs for home use** is not required. Communicated via email and posted in EC.
Who was involved?	Main Campus EC physicians, nurses, respiratory therapists, and pharmacy staff
Timeframe?	11/16/2016 – present
Data Collection Plan	Utilize EPIC timestamped data
Results	No improvement in average daily % of patients with Dispo to Discharge Time within 15 minutes observed. Percentage during post-PDSA 2 and 3 time period decreased as compared to interval following PDSA 1.
What was learned?	Need for re-education and ongoing communication regarding standard operating procedures
What next steps were planned as a result of what was learned?	Continue to educate staff regarding process

PDSA #2
Education to staff about MDI re-labeling

PDSA #3
Standardize take-home prescription process and communicate to current staff and providers

What did you pilot?	Standardize the process used by providers to finalize take-home prescriptions and place them on patient charts so that nurses can provide them to patients
Who was involved?	Main Campus EC providers and RNs
Timeframe?	• Provided instructions to current staff and providers on 11/28/2016 • See PDSA #5 regarding ongoing provider education
Data Collection Plan	• Utilize EPIC timestamped data • Provider and RN interviews • Conduct pre and post implementation survey
Results	No improvement in average daily % of patients with Dispo to Discharge Time within 15 minutes observed. Percentage during post-PDSA 2 and 3 time period decreased as compared to interval following PDSA 1.
What was learned?	The volume of patients and providers makes process standardization difficult, causing delays to continue.
What next steps were planned as a result of what was learned?	Ongoing training, and training of rotating providers (e.g., Residents and Fellows) is required. See PDSA #5.

PDSA #4
Shifting resources from triage to help with patient flow (day shift)

What did you pilot?	Removed centralized triage function and began rooming patients immediately, with bedside triage performed in room. Reallocated triage nurses to Flow Coordinator role. PDSA #4 was done for day shift personnel. See PDSA #6 for similar staffing adjustment made on night shift.
Who was involved?	Main Campus EC staff (day shift only)
Timeframe?	12/2/2016 – present
Data Collection Plan	• Utilize EPIC timestamped data • Conduct pre and post interviews
Results	No additional improvement in average % of patients with Dispo to Discharge Time within 15 minutes observed (as compared to interval following PDSA 2 and 3). Percentage remained constant.
What was learned?	Utilization of Flow Coordinators minimized impact of competing priorities, resulting in decreased Dispo to Discharge Time
What next steps were planned as a result of what was learned?	Implement changes on Night Shift

PDSA #5

Standardize take-home prescription process and communicate to new providers

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What did you pilot?	Standardize the process used by providers to finalize take-home prescriptions and place them on patient charts so that nurses can provide them to patients (see PDSA #3). Educate new providers (e.g., Residents).
Who was involved?	Main Campus EC providers and RNs
Timeframe?	• Beginning 12/15/2016, incorporated in education for new providers • See PDSA #3 regarding education of current staff and providers
Data Collection Plan	• Utilize EPIC timestamped data • Provider and RN interviews • Conduct pre and post implementation survey
Results	• Increase in average % of cases with Dispo to Discharge within 15 minutes observed in data. PDSA 6 began four days after PDSA 5. • Pre-and post-intervention survey of nurses indicated that additional compliance with take-home prescription process is needed
What was learned?	The volume of patients and providers makes compliance with a manual process difficult, causing delays to continue.
What next steps were planned as a result of what was learned?	• Continue education and accountability regarding compliance with take-home prescription process • Consider other options, such as e-prescriptions (out of scope for this project)

PDSA #6

Shifting resources from triage to help with patient flow (night shift)

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What did you pilot?	Removed triage nurses and began rooming patients immediately, with bedside triage performed in room. Reallocated triage nurses to help facilitate patient flow. PDSA #4 was done previously for day shift personnel.
Who was involved?	Main Campus EC staff (night shift)
Where?	Main Campus EC
Timeframe?	12/19/2016 – present
Data Collection Plan	• Utilize EPIC timestamped data • Conduct pre and post interviews
Results	• Increase observed in average % of patients with Dispo to Discharge Time within 15 minutes as compared to baseline data. Average consistent with improvement seen after PDSA 1. • Significant decrease (improvement) in variability of % of patients with Dispo to Discharge Time within 15 minutes was observed. • Lower control limit for % of patients with Dispo to Discharge time within 15 minutes also improved.
What was learned?	Utilization of Flow Coordinators minimized impact of competing priorities, resulting in decreased Dispo to Discharge Time
What next steps were planned as a result of what was learned?	Continue evaluating ways to shift resources to further improve Dispo to Discharge Time

Results
% of Cases with Dispo to Discharge within 15 minutes

P' Chart
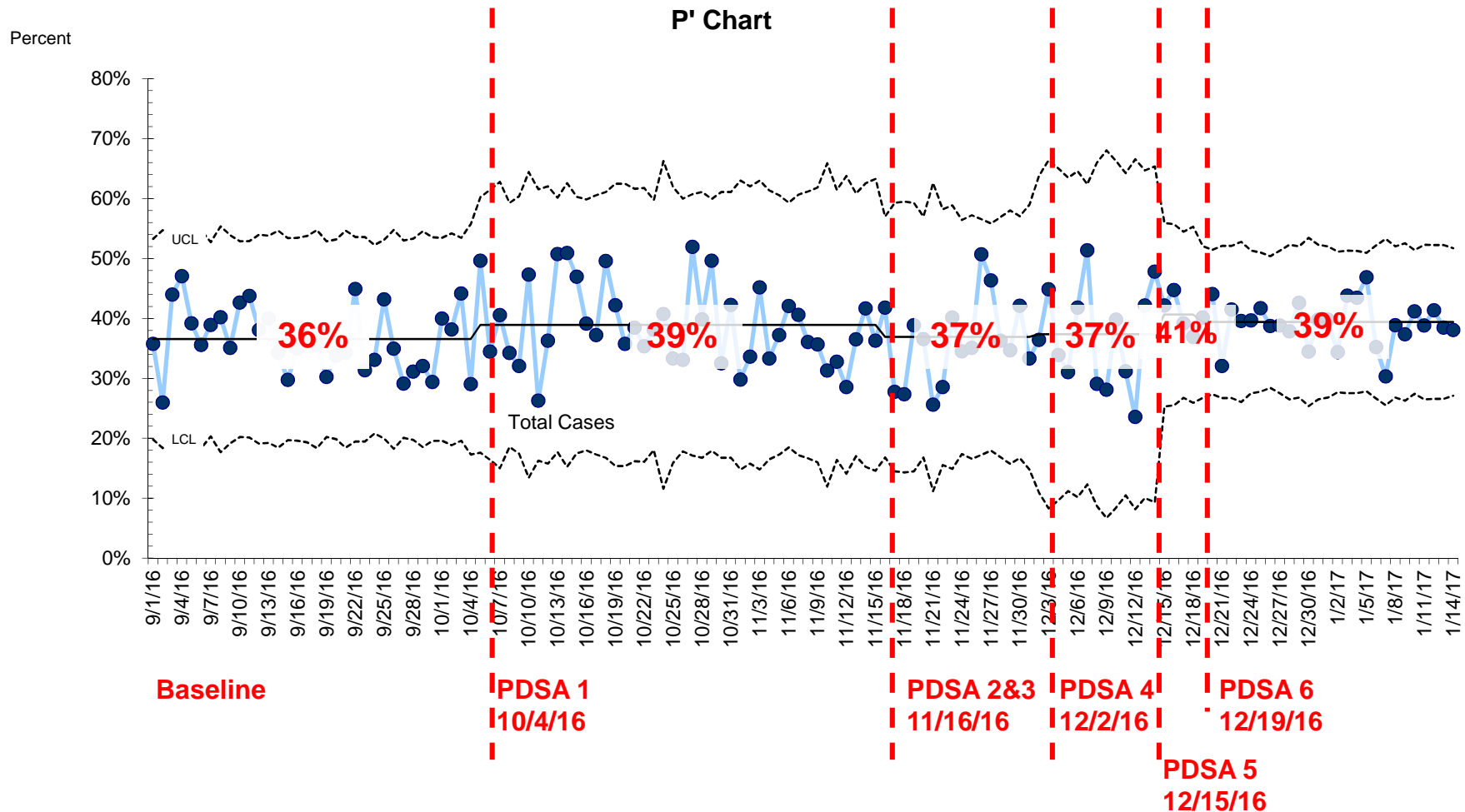
- Improved average % meeting target "Dispo to Discharge" time
- Decreased daily variability
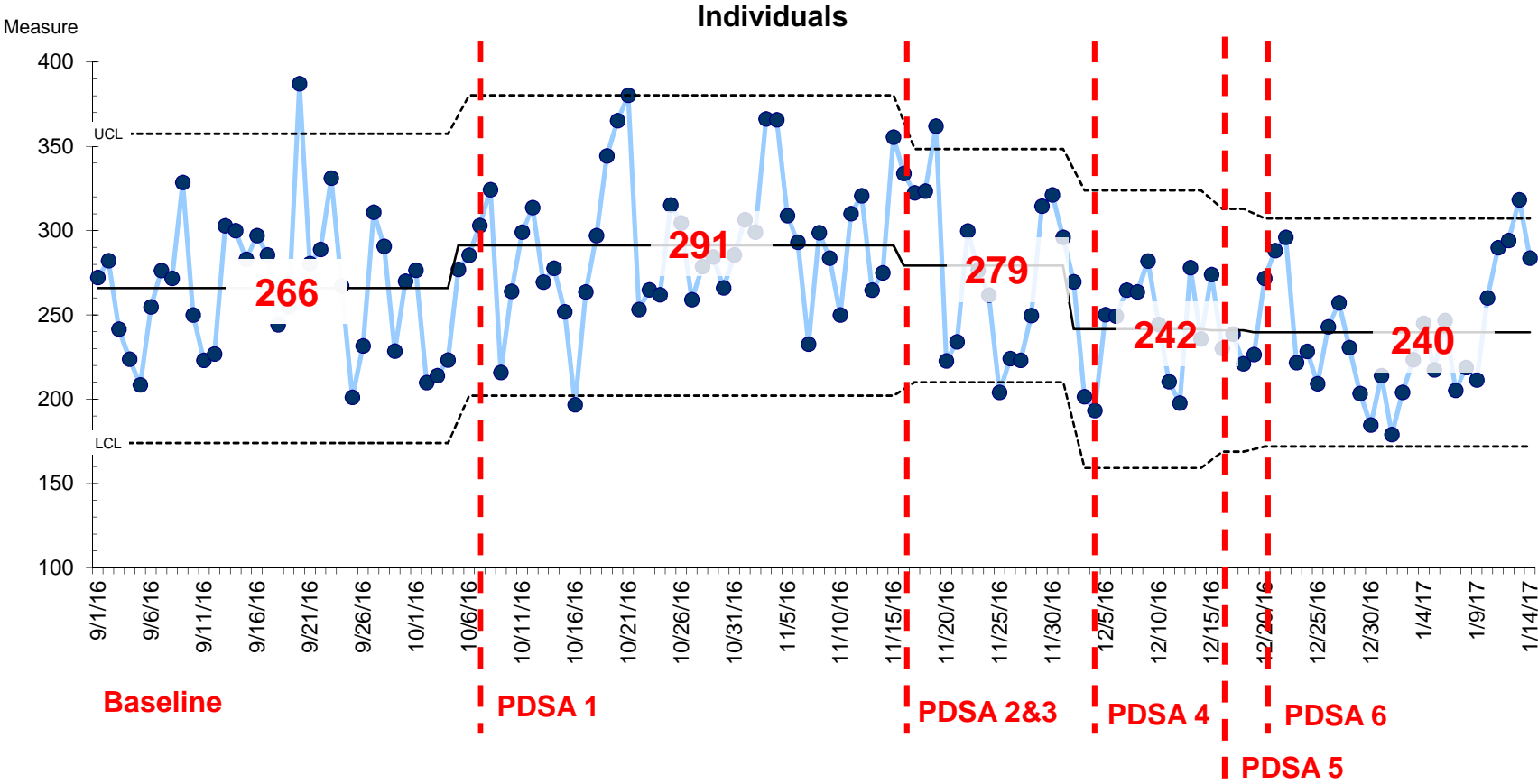- Improved Lower Control Limit by >5 percentage points

Balancing Measure
Average Time from Dispo to Discharge

Individuals
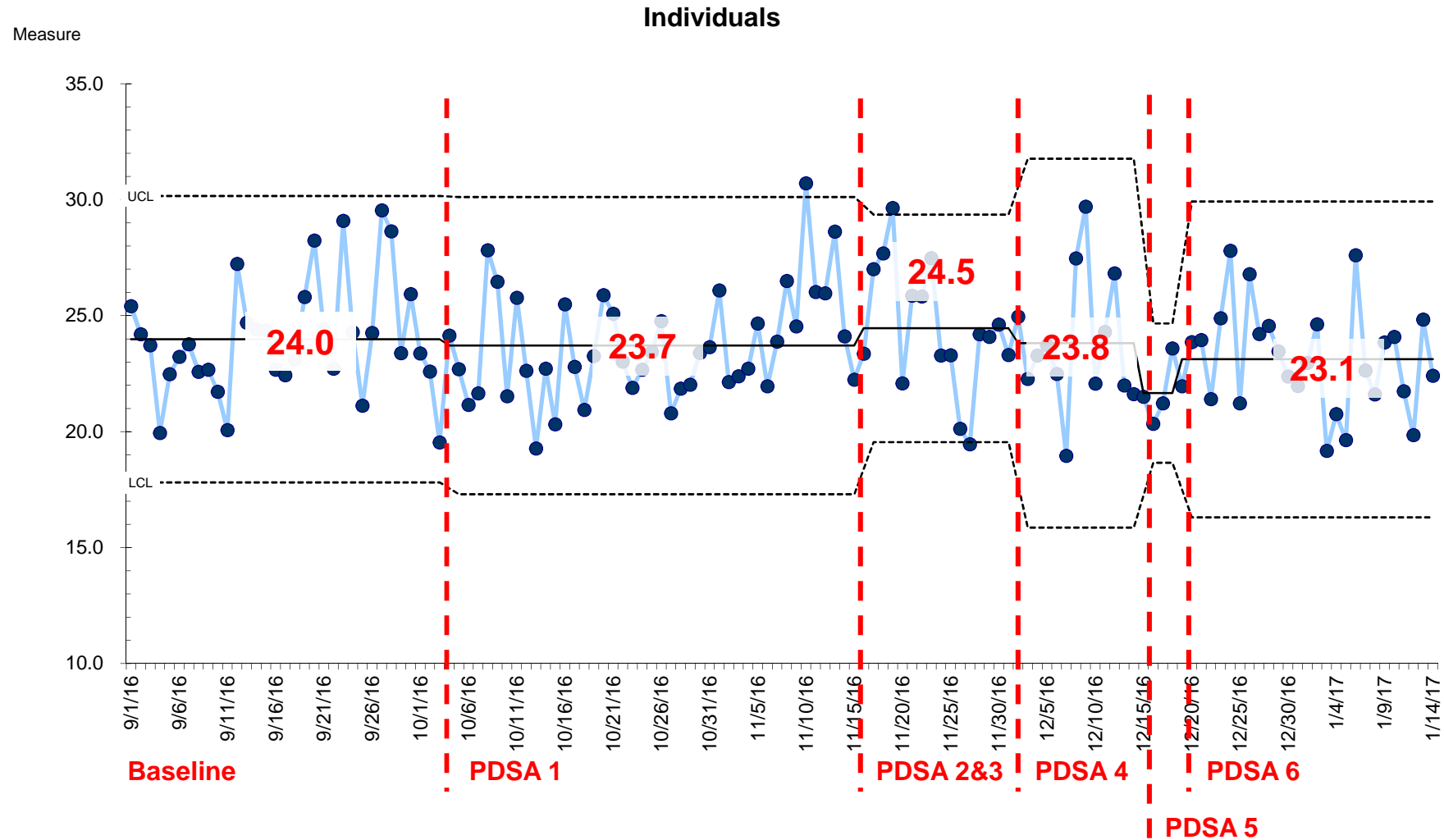
- **No negative effect on average "Dispo to Discharge" time**
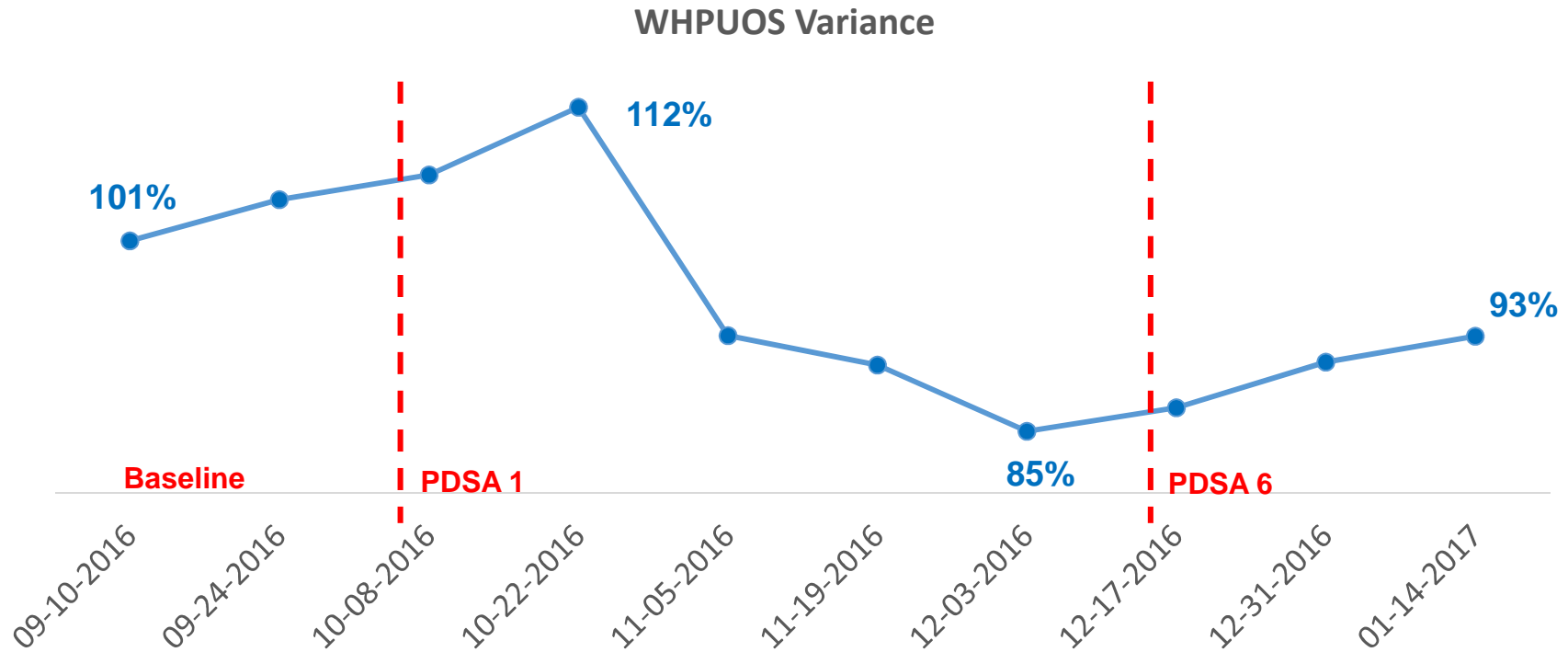- **Improved "Dispo to Discharge" time by ~1 minute (& LCL by 1.5 min)**

Balancing Measure
Average Time in Department for Patients Discharged Home

- **Average time in department for patients discharged home decreased by 26 minutes**
- **UCL decreased by 50 minutes**

Balancing Measure
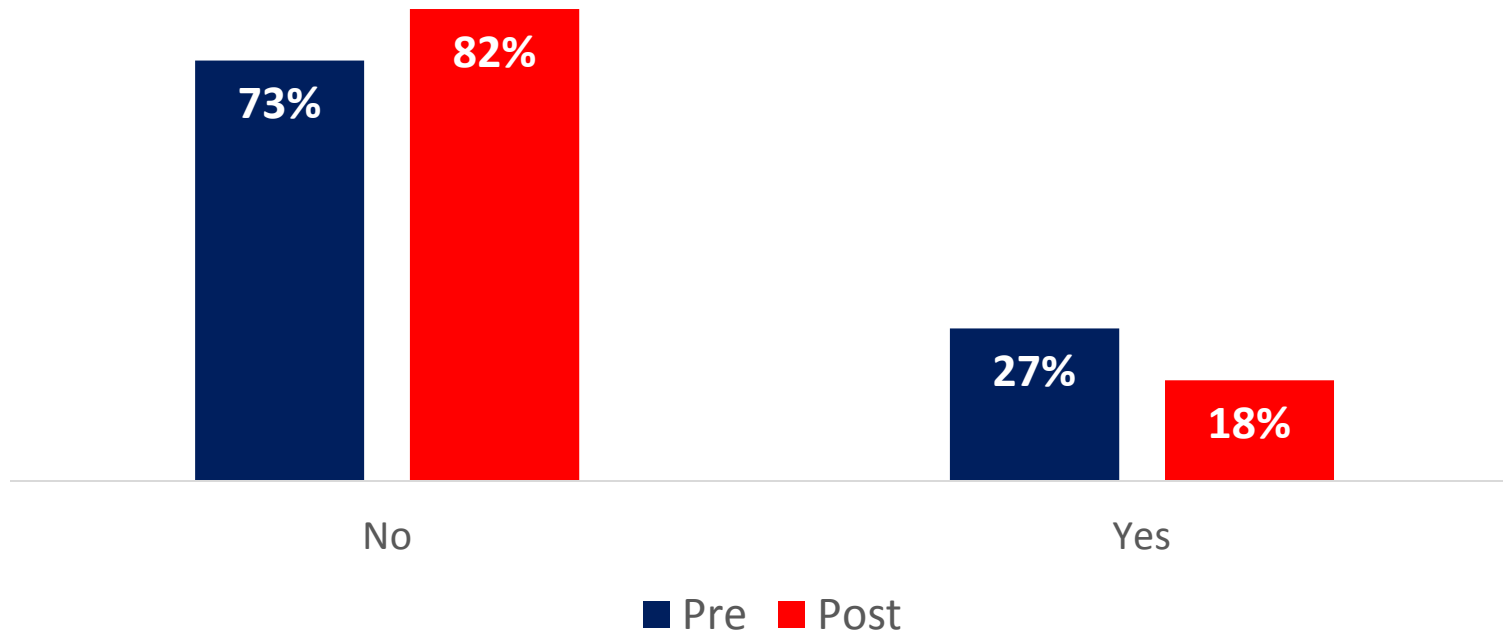*Worked Hours per Unit of Service (WHPUOS)*

WHPUOS Variance

**WHPUOS has improved significantly since baseline period.
No negative impact noted.**

Barriers to Discharge Survey
Awareness of readiness for discharge

Do you find it difficult to know when your patient is ready for discharge?

No: Pre 73%, Post 82%
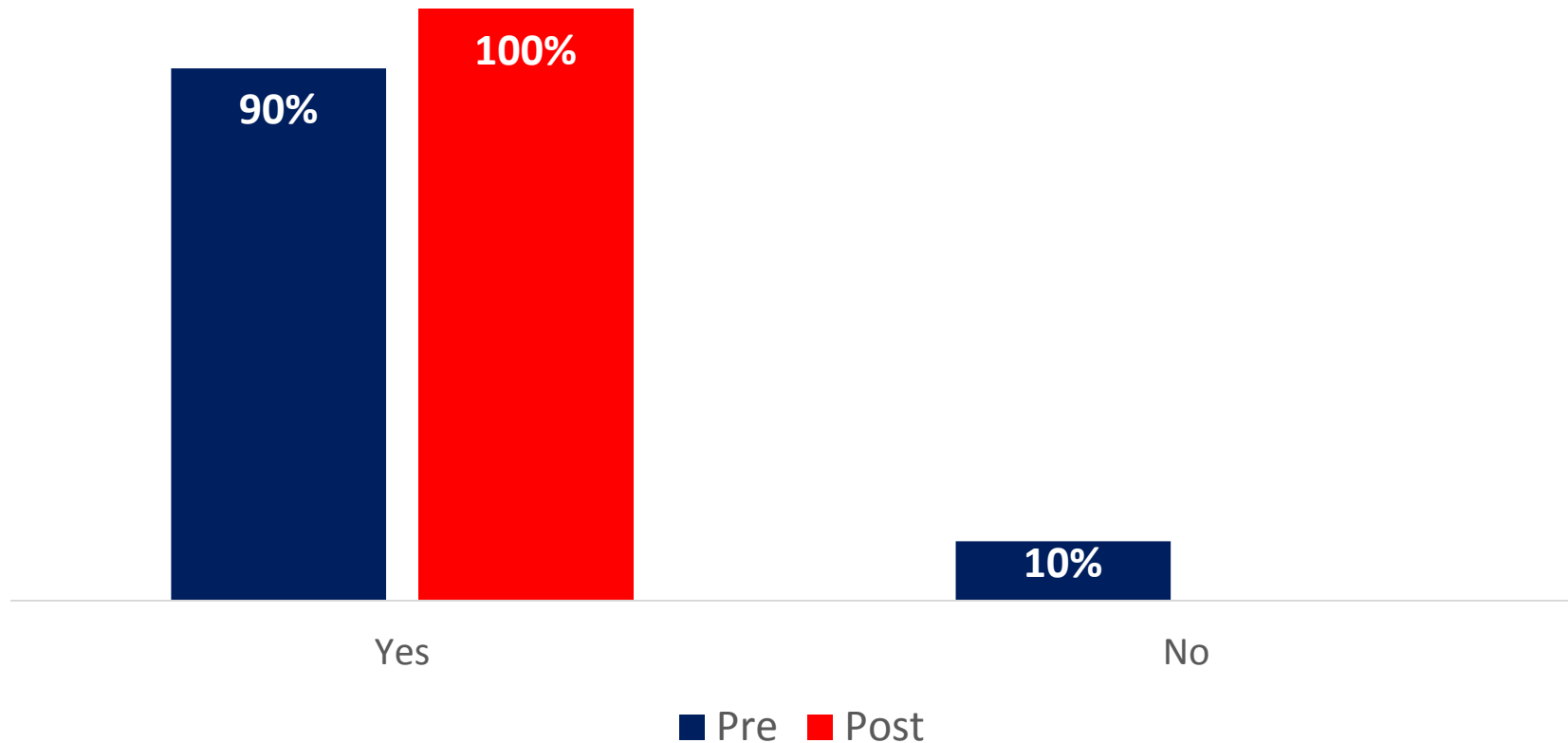**Yes**: Pre 27%, Post 18%

■ Pre ■ Post

Survey sent to all EC nurses:
- Pre survey sent 11/14/16 (30 respondents)
- Post survey sent 1/19/17 (17 respondents)

Barriers to Discharge Survey

Ease of locating discharge prescriptions

Do you ever have a problem locating prescriptions?
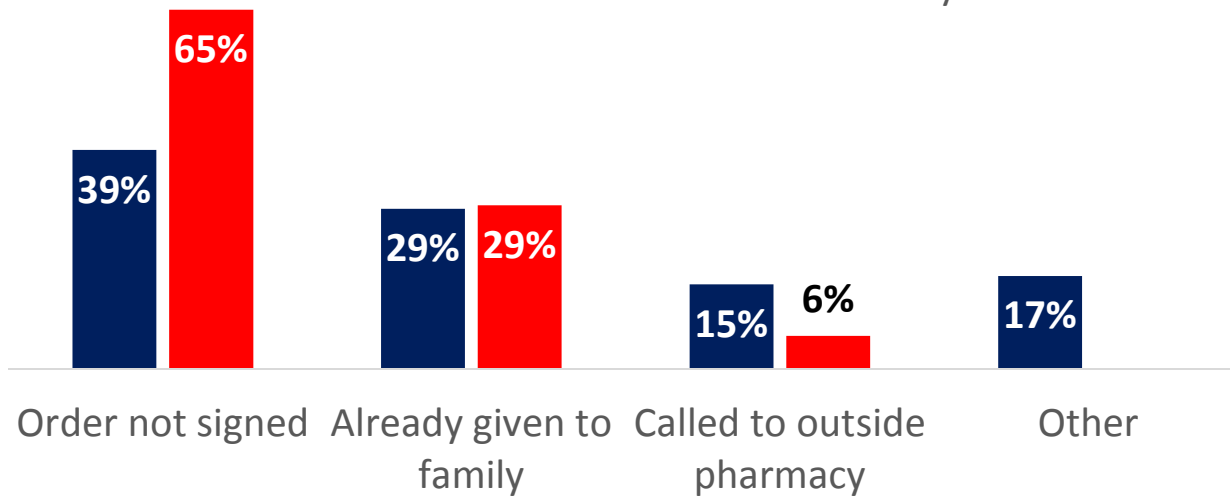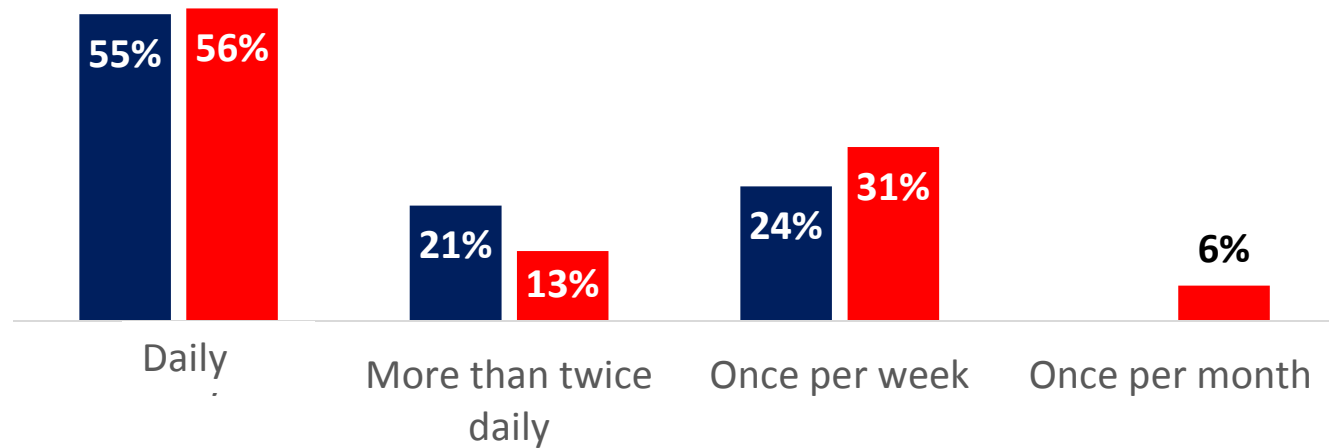

Survey sent to all EC nurses:
- Pre survey sent 11/14/16 (30 respondents)
- Post survey sent 1/19/17 (17 respondents)

Barriers to Discharge Survey
Ease of locating discharge prescriptions

If you have a problem locating prescriptions . . . . .

How often are you
unable to locate
prescriptions?

	Daily	More than twice daily	Once per week	Once per month
Pre	55%	21%	24%	
Post	56%	13%	31%	6%

Please indicate
reasons for difficulty
finding prescriptions

	Order not signed	Already given to family	Called to outside pharmacy	Other
Pre	39%	29%	15%	17%
Post	65%	29%	6%	

■ Pre ■ Post

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Barriers to Discharge Survey
Impact of reallocated resource

To what degree do you think the addition of the "float" resource has contributed to the timeliness of discharge?
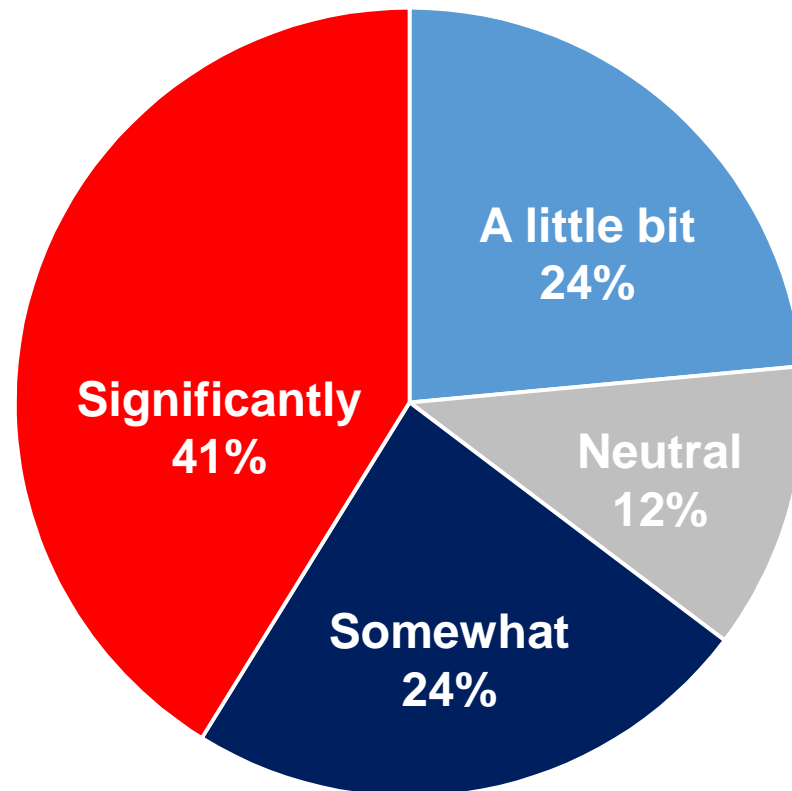
Survey sent to all EC nurses:
- Pre survey – Question not included on pre-survey
- Post survey sent 1/19/17 (17 respondents)

Key learnings

➢ Critical success factors for identifying improvements included:

- Obtaining input from front-line staff

- Having team with varying backgrounds/perspectives

➢ Process mapping is extremely valuable

➢ Reallocating rather than adding resources can yield significant improvements

➢ Compliance with a manual process (e.g., discharge prescriptions) is difficult when many people are involved. **Consider automating process (e-prescribing).**

➢ Multiple interventions are often required to reach desired results

➢ Additional interventions will be required and are being implemented by EC leadership

Project Aim: Results

We will improve the average daily percentage of patients being discharged to home that have a "Disposition to Discharge" time of 15 mins or less by 20% by January 15, 2017 by:

- ✓ Improving team communication — Achieved
- ✓ Improving resource allocation — Achieved
- ▪ Standardizing the discharge prescription process — Ongoing

36%
Baseline

39%
Actual

43%
Project Goal