Decreasing Disposition to Discharge Time in the EC

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AQI Executive Sponsors
- Roxanne Vara
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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
Baseline Data

P Chart for Baseline Phases

% of patients with “Dispo to Discharge” of 15 minutes or less

Baseline

36%

36%

40%*

36%

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

Process Measure(s)
- Improving RN workflow

Outcome Measure
- Increasing the % of patients with Disposition to Discharge Time of 15 minutes of less

Balancing and Efficiency Measure(s)
- 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

- Start
  - Notification
  - After Visit Summary
  - Discharge Prescriptions
  - MDIs & Topicals
  - Patient & Family Questions
  - RN Availability
  - Final Vitals and Discharge

✅ Process phase addressed by PDSA cycles
START
(Physician Selects Discharge Disposition of "Discharge Home" in Epic)

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

2. **AVS**
   - Nurse prints After Visit Summary (AVS) for patient.

3. **Discharge Prescriptions**
   - Nurse looks for prescription on printer or on patient chart.
   - Nurse finds physician and obtains information about location of prescription. Patient waits if physician not available.
   - Nurse looks for prescription (e.g., with family) or obtains prescription from physician.
   - Nurse finds physician and obtains signature on prescription. Patient waits if physician not available.

4. **MDIs & Topicals**
   - Nurse takes MDI to EC pharmacy and has MDI relabeled for home use.
   - Nurse gives relabeled MDI to patient.
   - Nurse takes topical pharmaceutical to EC pharmacy and has item relabeled for home use.

5. **Patient/ Family Questions**
   - Nurse finds physician and has physician come answer questions. Patient waits until physician is available.

6. **RN Availability**
   - Nurse available to discharge patient?

7. **Final Vitals & Discharge**
   - 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.

8. **END**
   - Nurse changes discharge status to reflect patient has left and documents vital signs (if applicable).

Emergency Center
Patient Discharged Home
Discharge to Dispo Process

1. Nurse prints After Visit Summary (AVS) for patient.

2. Nurse finds physician and obtains information about location of prescription. Patient waits if physician not available.

3. Nurse looks for prescription (e.g., with family) or obtains prescription from physician.


5. Nurse takes MDI to EC pharmacy and has MDI relabeled for home use.


7. Nurse takes topical pharmaceutical to EC pharmacy and has item relabeled for home use.

8. Nurse provides AVS, prescription and other items/information (MDI, instructions, etc.) to patient/family.

9. Nurse instructs family that they can leave.

10. Nurse changes discharge status to reflect patient has left and documents vital signs (if applicable).

END
(Patient status automatically changed in EPIC and timestamped)
**Key Drivers**

**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 prescriptions
  - Re-labing of home medications such as MDI

- **PEOPLE**
  - Families requiring education
  - Providers not signing scripts
  - Nurse unavailable for discharge
  - No one available to do vitals

- **EQUIPMENT**
  - Printers not working

- **ENVIRONMENT**
  - Unable to locate scripts
  - Unable to locate providers
  - Providers spread throughout EC

Delay in “Dispo to Discharge” time
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
Introducing 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.

Main Campus EC physicians, nurses, respiratory therapist and registration staff

10/5/2016 – present

Utilize EPIC timestamped data

Went from a baseline daily average of 36% of patients discharged within 15 minutes to 39% during period following PDSA 1 (and prior to PDSA 2).

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.

Continue to enhance care team model to improve effectiveness and efficiency.
PDSA #2

*Education to staff about MDI re-labeling*

<table>
<thead>
<tr>
<th>What did you pilot?</th>
<th>Re-education of staff that re-labeling of MDIs for home use is not required. Communicated via email and posted in EC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who was involved?</td>
<td>Main Campus EC physicians, nurses, respiratory therapists, and pharmacy staff</td>
</tr>
<tr>
<td>Timeframe?</td>
<td>11/16/2016 – present</td>
</tr>
<tr>
<td>Data Collection Plan</td>
<td>Utilize EPIC timestamped data</td>
</tr>
<tr>
<td>Results</td>
<td>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.</td>
</tr>
<tr>
<td>What was learned?</td>
<td>Need for re-education and ongoing communication regarding standard operating procedures</td>
</tr>
<tr>
<td>What next steps were planned as a result of what was learned?</td>
<td>Continue to educate staff regarding process</td>
</tr>
</tbody>
</table>
PDSA #2

Education to staff about MDI re-labeling

HEY EC.....
DID YOU KNOW????

MDI’S do not have to go back to pharmacy for re-labeling for home use... They are ready for home use from the time dispensed from Pharmacy
### PDSA #3

**Standardize take-home prescription process and communicate to current staff and providers**

<table>
<thead>
<tr>
<th>What did you pilot?</th>
<th>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</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who was involved?</td>
<td>Main Campus EC providers and RNs</td>
</tr>
</tbody>
</table>
| 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)**

<table>
<thead>
<tr>
<th>What did you pilot?</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who was involved?</td>
<td>Main Campus EC staff (day shift only)</td>
</tr>
<tr>
<td>Timeframe?</td>
<td>12/2/2016 – present</td>
</tr>
</tbody>
</table>
| 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**

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

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

<table>
<thead>
<tr>
<th>What did you pilot?</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who was involved?</td>
<td>Main Campus EC staff (night shift)</td>
</tr>
<tr>
<td>Where?</td>
<td>Main Campus EC</td>
</tr>
<tr>
<td>Timeframe?</td>
<td>12/19/2016 – present</td>
</tr>
</tbody>
</table>
| 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

- 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

- 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?

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

Please indicate reasons for difficulty finding prescriptions

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

- **Significantly**: 41%
- **Somewhat**: 24%
- **A little bit**: 24%
- **Neutral**: 12%

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