Green Belt Six Sigma Project Report Out
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ODMHAS/ Twin Valley Behavioral Healthcare
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MEDICATION ADMINISTRATION IMPROVEMENT PROJECT
MED ADMIN IMPROVEMENT PROJECT:

- Twin Valley Behavioral Healthcare
  - Facilitator-Tara Tallarico RN, Peer Review Nurse
  - Mentor-Adam Negley, Black Belt
  - Team Co-Lead: Tara Tallarico RN, Amy Rucker RN
  - Team Champion/Sponsor: Veronica Lofton, CEO
  - Process Owner: Gwendolyn Janeczek, acting DON
  - Team Members: Tara Tallarico RN, Amy Rucker RN, 8 randomly selected and anonymous RNs and LPNs.
  - Subject Matter Experts: 8 randomly selected and anonymous RNs and LPNs. (The nurses were ensured anonymity in order to see the true process rather than the “textbook method” without fear of scrutiny.)
BACKGROUND- SCOPE

- **Background**: Following the change to a new electronic medical record system, many nurses verbalized concern over the increased length of time needed to complete medication administration in the allotted time per policy.

- **Problem/Opportunity**: During the course of this project, medication administrations will be observed and studied on various units, each consisting of a different flow, different level of client stability and variable systems to determine contributing factors into the increased length of time to complete.

- **Scope**:
  - **First Step**: The nurse logs into the computer
  - **Last Step**: The nurse signs off the last med electronically
**Project Goals**: To administer medication consistently within the time frame established per policy; To establish best practices within our hospital system to decrease variance; To better comprehend the impact of the new electronic system upon nursing duties.

**Boundaries**: Outcomes are limited to the 11 units within TVBH under the supervision of ODMHAS. Limitations apply to the modification of the electronic recording system. The two hour window cannot be extended.

**Projected Benefits**: The nurse will be freed up to allow for increased treatment and programming. Patients will get medications in a timely manner which will positively influence the tone and mood of the entire unit. There will be less frustration and rushing on the nurse’s part leading to fewer errors.
Tara Tallarico RN and Amy Rucker RN observed 8 medication passes including different units, different nurses, 1\textsuperscript{st} and 2\textsuperscript{nd} shift and encompassing acute, civil forensic and Moritz units. The duration of the medication administrations ranged from 1 hour 43 minutes to 3 hours 13 minutes. The mean was 2 hours 14 minutes. Median was 2 hours 9 minutes.
How does the volume of meds impact the time taken to administer?

This scatter plot shows a weak positive slope and indicates that the number of individual medications ordered slightly impacts the overall time needed to complete medication administration. The decision was made to process map each observation to better visualize the process and its differences.
The 8 process maps all consisted of 1 swim lane (the medication nurse) and the focus was on the bright pink post-its. They designated a delay or wasted time in the process and varied between observations.
STUDYING THE DELAYS/WASTED TIME

- Total time collectively spent observing med admin across 8 units was 1068 minutes.
- During that 1068 minutes, 380 minutes (4 hours 15 minutes) were spent in a delay of some sort.
Breaking down the delays further, we noticed that they can be separated into two main groups:

**Human Factor Delays** accounted for 255 minutes or 67% of the total delays (380 minutes).

**System Issues Delays** accounted for 125 minutes or 33% of the total delays (380 minutes).
**HUMAN FACTOR DELAYS BREAKDOWN**

- **Most Frequent Delays: Human Factor**
  - PRN Requests – 22 occurrences
  - Staff Interruptions – 10 occurrences
  - Waiting on TPW/PAT to get patients – 10 occurrences
  - Patient questions unrelated to med pass – 6 occurrences
  - Needing juice/water – 4 occurrences
  - Medication unavailable on unit – 4 occurrences
  - Need to call pharmacy/supervisor for assistance – 4 occurrences
  - Housekeeping mopping floor, cleaning sink, getting trash – 3 occurrences
  - Incoming phone calls – 2 occurrences
  - Friday med count with another nurse during med pass – 1 occurrence
  - Another nurse has the computer and nurse pulling meds has to wait – 1 occurrence
  - Medication discrepancy – 1 occurrence
  - Forced med situation – 1 occurrence

- **Most Time Consuming Delays: Human Factor**
  - PRN Requests – 85 minutes
  - Waiting on TPW/PAT to get patients – 39 minutes
  - Staff Interruptions – 22 minutes
  - Another nurse has the computer and nurse pulling meds has to wait – 20 minutes
  - Medication unavailable on unit – 20 minutes
  - Forced med situation – 17 minutes
  - Needing juice/water – 14 minutes
  - Patient questions unrelated to med pass – 10 minutes
  - Housekeeping mopping floor, cleaning sink, getting trash – 9 minutes
  - Friday med count with another nurse during med pass – 6 minutes
  - Medication discrepancy – 6 minutes
  - Need to call pharmacy/supervisor for assistance – 5 minutes
  - Incoming phone calls – 2 minute
Most Time Consuming Delays: Human Factors

- PRN requests
- Staff interruptions
- Nurse has no computer
- Meds unavailable on unit
- Forced meds
- Needing juice/water
- Patient questions unrelated to meds
- Housekeeping mopping, cleaning, etc.
- Med counts
- Med discrepancies
- Calling for assistance
- Incoming calls

Most Time Consuming Delays: Human Factor
- Time in minutes
- Cumulative %
Most Frequent Delays: System Issues

- Avatar delay in highlighting/administering feature – 16 occurrences
- Meds show up as given late by the time they’re signed off. Must override system to change time – 11 occurrences
- Continuously needing to touch Pyxis screen to prevent log out – 6 occurrences
- Pyxis screen timed out with system issues getting back in – 5 occurrences
- Logging on problems – 4 occurrences
- Pyxis and Avatar screen inconsistencies – 3 occurrences
- E-mar froze – 2 occurrences
- Lose place in signing off following interruption (no font or color indicator) – 2 occurrences
- Pop-ups in avatar related to team issues prevent moving forward with e-mar – 1 occurrence
- Over-ride system to explain IM sites. System only allows for one site choice but many require two separate syringes and sites – 1 occurrence

Most Time Consuming Delays: System Issues

- Avatar delay in highlighting/administering feature – 40 minutes
- Logging on problems – 25 minutes
- Pyxis and Avatar screen inconsistencies – 13 minutes
- Meds show up as given late by the time they’re signed off. Must override system to change time – 13 minutes
- Pyxis screen timed out with system issues getting back in – 12 minutes
- E-mar froze – 12 minutes
- Lose place in signing off following interruption (no font or color indicator) – 4 minutes
- Pop-ups in avatar related to team issues prevent moving forward with e-mar – 2 minutes
- Continuously needing to touch Pyxis screen to prevent log out – 2 minutes
- Over-ride system to explain IM sites. System only allows for one site choice but many require two separate syringes and sites – 2 minutes
PARETO CHART - SYSTEMS ISSUE DELAYS

Most Time Consuming Delays: Systems Issues

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

Delay in avatar highlight/administer feature
Login delays
Pyxis and Avatar screen inconsistencies
Over-ride system to change time
Pyxis screen time out issues
E-mail freeze
Lose place when signing off
Pop-up for team interrupt
Continuously touch Pyxis screen to prevent time...
Over-ride system to explain IM site

Most Time Consuming Delays: Systems Issues  Time in minutes
Most Time Consuming Delays: Systems Issues  Cumulative %
RECOMMENDATIONS TO ELIMINATE DELAYS

Human Factors:

1. Consider scheduling a patient’s PRNs that are routinely requested.
2. Enforce the standard that medication nurses are to have no interruptions from anyone except in case of an emergency. This includes other nursing staff, housekeeping, patients, clinic staff, etc.
3. A TPW/PAT/fellow nurse working the unit should be assigned to a med window post. This post includes getting juice, water and patients upon request by the med nurse without hesitation. This also deflects patient interruptions at the med window and ensures greater compliance by monitoring for cheeking.
4. The off-going nurse should be finished with the laptop prior to the on-coming nurse’s arrival. If necessary, the off-going nurse can use a desktop computer.
5. Further exploration is needed to determine why meds are unavailable on the units with such frequency.
RECOMMENDATIONS CONTINUED (SYSTEM ISSUES)

Systems Issues:

1. Meds ordered AM, BID, TID, HS, etc. should all have standardized administration times unless a clear medical explanation is documented.
2. Pyxis screen inactivity log out time should be extended.
3. Explore e-mar logging in delays and administration/highlighting feature delays – attempt to determine why the system requires so much time to accept these actions.

Results are to be determined by follow up observation once the selected recommendations have been put into place by nursing management.
QUESTIONS/COMMENTS