

Quality Story 1

Quality Story #1

Improving the Care of the Child Undergoing the Voiding Cystourethrogram (VCUG)

Goal

Our goal was to provide children a comfortable environment to minimize the stress of the VCUG procedure. The specific SMART Aim of our process improvement project was to achieve a Provider Assessment of Sedation Score (PASS) of 4 or 5 for at least 80% of our cases within a 9-month period. Our second goal was to achieve an ideal Pediatric Sedation State Scale (PSSS) of 2 or 3 for at least 70% of our cases, and a score of 2 or 3 or 4 for at least 90% of the cases.

This goal of this project falls within the Institute of Medicine domains of health care quality, to include the delivery of care that is safe, effective, and patient-centered.

Metrics Measured

1. Successful completion of the VCUG procedure
2. The Provider Assessment of Sedation Score (PASS)
3. The Pediatric Sedation State Scale (PSSS)
4. Adverse events (nausea or vomiting (NOV), desaturation) (balancing measure)

Project Description

We started our VCUG sedation program 3 years ago with a multi-modal approach to reduce the pain and discomfort from bladder catheterization by providing inhaled nitrous oxide (N₂O), pre-procedural education for the patient and their family, and refocusing techniques during the procedure. We flowcharted the processes that the patient and their family would experience.

Our baseline data revealed variable levels of satisfaction by the providers with 60% of the cases having a PASS of 4 or 5. We discovered that patients who received less than 70% inhaled N₂O had lower satisfaction scores.

Our first PDSA cycle was to standardize the use of inhaled N₂O to 70% with the balancing measures of recording the incidence of adverse events, namely NOV. We found 90% of the cases had PASS of 4 or 5, but we had one patient who had experienced catheter dislodgement when they were transferred from the sedation suite to the fluoroscopy room. There were no episodes of NOV.

Our second PDSA cycle was to perform the catheter insertion in the fluoroscopy room. We found 100% of the cases achieved PASS of 4 or 5, and thus exceeded our planned goal. Additionally, we had no catheter dislodgement and no episodes of nausea or vomiting.

Given that the PASS score could be subjective, we began to use the PSSS in our third PDSA cycle. We modified the PSSS to categorize an ideal, acceptable, or undesired score. We found that 75% (15 of 20) of the cases had scores in the ideal range, with 20% in the acceptable range, and only 1 score (5%) in the unacceptable range. No patients had altered cardiopulmonary parameters.

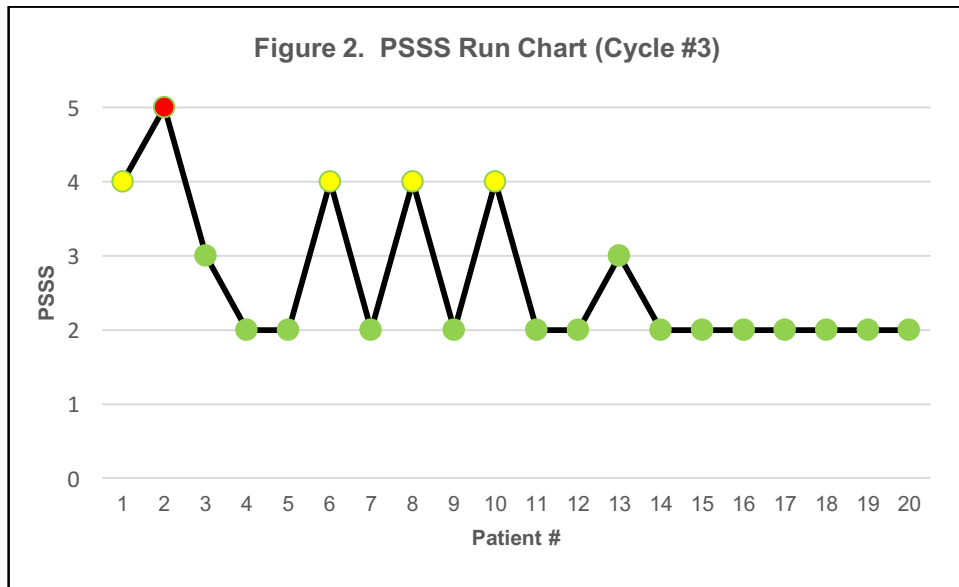
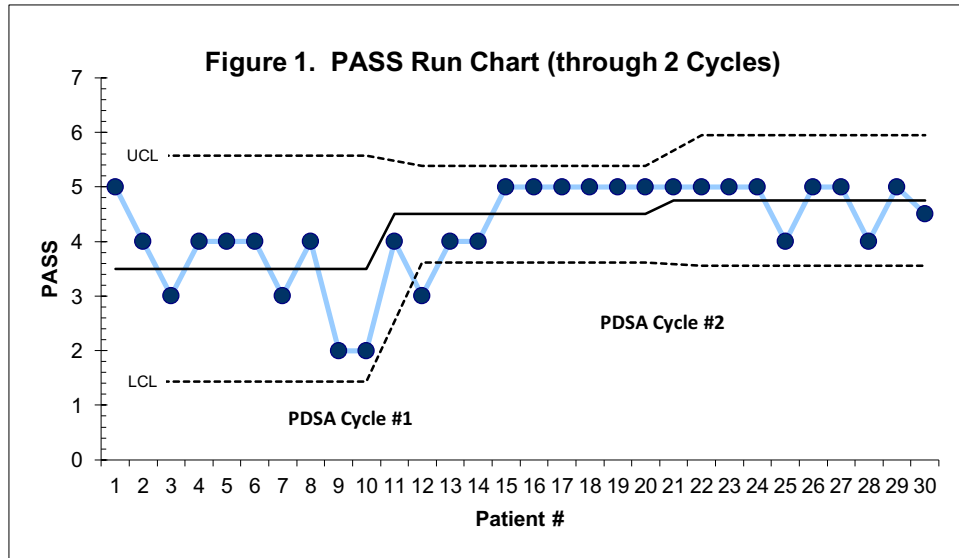
Challenges

1. Minimizing patient care variation across multiple providers.
2. Convincing the radiology techs that this was a better approach than prior practice

Lessons Learned

1. We learned to use several process improvement techniques as we further develop our program.
2. We learned to reach across multiple disciplines to accomplish a singular goal.

Appendices



| Figure 3. Provider Assessment of Sedation Score (PASS) | | | |
|--|-----------------------|-------------------------|----------------------------|
| PASS | Provider Satisfaction | Fussiness and/or Crying | Degree of Being Consolable |
| 5 | Very Satisfied | Minimal/none | Easily |
| 4 | Satisfied | Brief | Easily |
| 3 | Neutral | Prolonged | Easily |
| 2 | Unsatisfied | Prolonged | Slow to |
| 1 | Very Unsatisfied | Inconsolable | Difficult to |

Figure 4.
Key Drivers Diagram

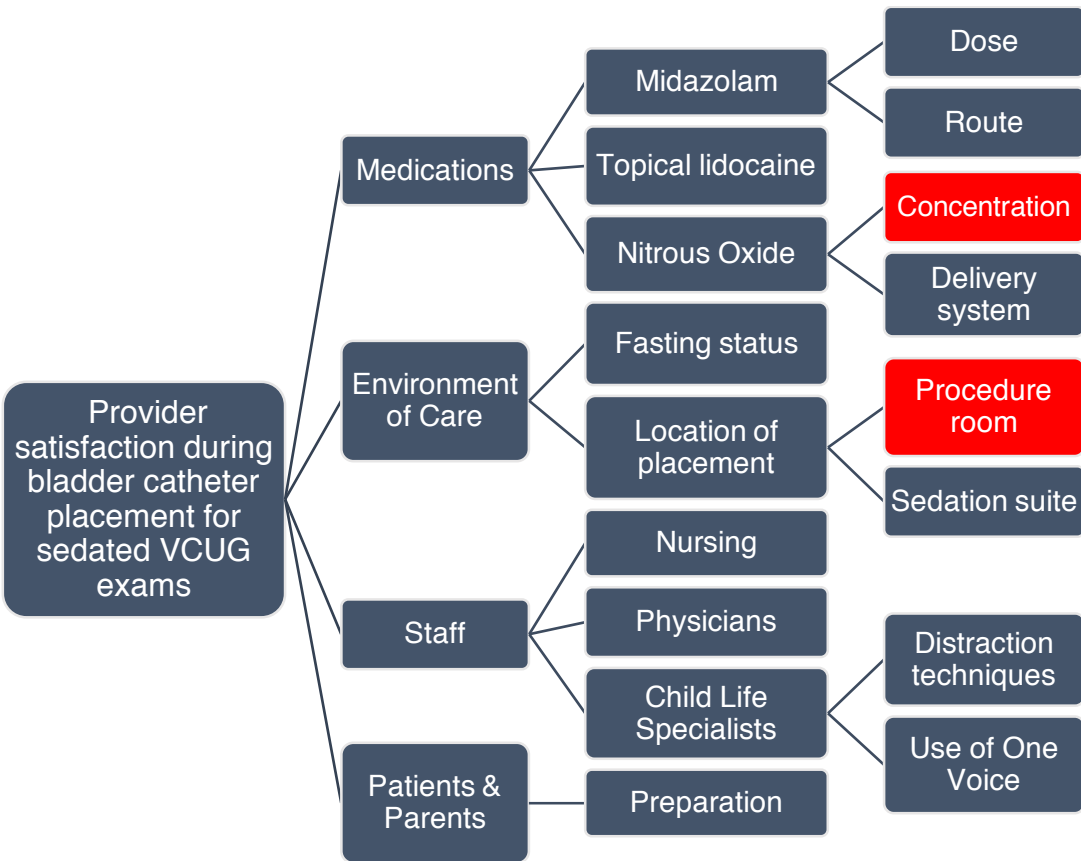


Figure 5.
VCUG Modified - Pediatric Sedation State Score (VM-PSSS)*

| Score | Description |
|--------------|--|
| 5 | Patient is moving in a manner that impedes the proceduralist and requires forceful immobilization. |
| 4 | Moving during the procedure that requires gentle immobilization for positioning. May verbalize some discomfort or stress, but there is no crying or shouting that expresses stress or objection. |
| 3 | Expression of pain or anxiety on face but does not require restraint to stop movement during the procedure. |
| 2 | Quiet (asleep or awake), not moving during procedure, and no frown indicating pain or anxiety. |
| 1 | Deeply asleep with normal vital signs, but requiring airway intervention and/or assistance (SpO2 <90, BP 30% below baseline, bradycardia requiring Rx). |
| 0 | Sedation associated with abnormal physiologic parameters that require acute intervention. |

*The modification of the PSS is the color scheme which is not part of the original PSSS.

(from Cravero Jp, Askins N, Sriswasdi P, et al. Validation of the Pediatric Sedation State Scale. Pediatrics 2017;139(5):e20162897.)

| Color | Score | Score Description |
|--------------|--------------|--------------------------|
| Green | 2 or 3 | "Ideal" |
| Yellow | 4 | "Acceptable" |
| Red | 0, 1, or 5 | "Undesired" |