Improving the Perioperative Antibiotic Administration Workflow

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Background
The WakeMed Cary Hospital Surgical Services department was experiencing multiple delays and defects with the perioperative antibiotic administration workflow. Antibiotic orders were being entered late, incorrectly, in the wrong phase of care or not at all. Standard work was needed to enter perioperative antibiotic orders in a timely fashion to prevent delays and other patient and staff dissatisfiers.

Project Strategy
A team led by the Kaizen Promotion Office selected a Rapid Process Improvement Workshop (RPIW) as the improvement method for the perioperative antibiotic administration workflow. An RPIW is a five-day workshop that includes a multidisciplinary team of participants to identify wastes in the process and generate ideas to eliminate those wastes.

If the improvements implemented during the workshop are successful, standard work is created to sustain and expand the improvement. At the end of the week, the team reports out to the organization's leadership and staff on the improvements made during the week. Improvements continue to be measured every 30 days to ensure standard work is being followed.

Issues

Patients not visible in electronic medical record (EMR) prior to 5:30 am

Order sets not utilized

Orders placed incorrectly for antibiotics

Antibiotics not routinely discussed at huddle

Preop Antibiotic Workflow

| Provider enters preop orders | Nurse gathers EMR or paper order sets | Huddle nurse prepares for preop huddle | Preop huddle with RN/MD/CRNA | Pharmacy verishes and acknowledges orders | Volunteer or PAR registers patient day of surgery | Nurse releases orders as available to allow meds to be obtained | Nurse prepares medication | Nurse administers medication |

Actions Taken
- Reorganized the huddle sheet by start time
- Added a verification of antibiotics to the huddle review
- Revised preop order sets
- Created tip sheets to assist providers and staff on how to place orders
- Moved patient arrival time to allow additional prep time
- Changed schedule of registration clerk to match patient arrival time
- Implemented pharmacy procedures to process orders overnight for surgical cases, preventing delays in preop

Summary of Results
The actions taken to improve this process resulted in improvements in the project metrics.
- Training the providers on how to utilize the order sets and providing tip sheets as a reference led to a 60% improvement for order set utilizations.
- Evaluating and improving order sets and phases of care led to an improvement in orders being entered in the correct phase of care.
- Overall there was a 100% improvement in orders not entered in the correct phase of care or not timed correctly.

<table>
<thead>
<tr>
<th>Metric (Unit of Measurement)</th>
<th>Baseline</th>
<th>Target</th>
<th>30 days</th>
<th>60 days</th>
<th>90 days</th>
<th>15 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality (Defects) (%)</td>
<td></td>
<td></td>
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<tr>
<td>Order set utilization by providers</td>
<td>62.5%</td>
<td>75%</td>
<td>92%</td>
<td>86%</td>
<td>87%</td>
<td>100%</td>
</tr>
<tr>
<td>Orders not entered in correct phase of care or not timed correctly</td>
<td>37.5%</td>
<td>25%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
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