The Problem
In 2014, UCSF Medical Center issued a best practice advisory to limit postoperative Foley catheterization in accordance with SCIP-9 (Surgical Care Improvement Project), establishing CMS, mandating additional documentation for Foley catheters in place for >36 hours. A preliminary audit of approximately 15% of all surgical admissions to the gynecology and gynecologic oncology service January-February 2014, demonstrated that 66% percent of all patients who underwent exploratory laparotomy had Foley catheter removed on the postoperative day number two, thereby failing to meet the 36-hour post-op catheter removal. Moreover, 80% of patients undergoing laparoscopic hysterectomy had Foley catheters removed on postoperative day number one, despite evidence from the literature proposing no difference in retention and reduced rates of infection with six hour post-op catheter removal. Our proposal aimed to address the lack of consistent practices for perioperative Foley catheter management within our gynecologic surgical services, which we felt lead to unnecessary and prolonged Foley catheter placement, increasing risk for patient discomfort, genitourinary infection, and prolonging length of stay.

Project Goal
Our goal was for 80% of surgical patients to meet appropriate guidelines derived from expert consensus and established literature for perioperative Foley catheter use (including placement and duration).

Project Plan

Actions taken:
- Guidelines for perioperative Foley catheter use in GYN and GYN/ONC procedures were created based on best practices.
- Obtained approval of guidelines from division heads.
- Residents, nurse practitioners, and attendings were made aware of the QI project goals and reminders were sent out every six weeks.
- Analysis completed on all postoperative patients on gynecology and gynecologic oncology services each quarter to determine if guidelines met.
- Patients with extensive bladder dissection during surgery, with surgeries complicated by cystotomy, or who underwent urogynecology procedures were excluded from data analysis.

Primary outcome measured:
- Use and duration of Foley catheterization as adherent to the guidelines below.

Secondary outcomes measured:
- Duration of Foley catheterization (in hours)
- Time of day of catheter removal (morning, afternoon, evening)
- Mode of voiding trial (passive versus active)
- Length of stay (in days)
- Incidence of postoperative bladder dysfunction defined by inability to void and/or PVR>100cc
- For patients with bladder dysfunction: rates of straight catheterization, second voiding trial and re-catheterization

Results: Q1-Q3

Distribution of Procedure Type

- Laparoscopic major: 36.8%
- Laparoscopic minor: 33.7%
- Minor: 21.5%
- Open major: 8.1%

- Overall, 88.1% of all cases during Q1-Q3 met Foley guidelines for perioperative catheterization while 11.9% did not.
- 81.6% of laparoscopic majors, 97.3% of laparoscopic minors, 94.1% of minor cases and 86.7% of open major cases met guidelines.
- There was no difference in rates of urinary retention among patients meeting criteria for Foley removal and patients not meeting criteria for Foley removal (8% in each group).

Results (cont):

<table>
<thead>
<tr>
<th>Procedure Type</th>
<th>No %</th>
<th>Yes %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>GYN</td>
<td>36</td>
<td>13</td>
<td>283</td>
</tr>
<tr>
<td>Laparoscopic major</td>
<td>27</td>
<td>34%</td>
<td>52</td>
</tr>
<tr>
<td>Laparoscopic minor</td>
<td>4</td>
<td>4%</td>
<td>104</td>
</tr>
<tr>
<td>Minor</td>
<td>1</td>
<td>10%</td>
<td>9</td>
</tr>
<tr>
<td>Open major</td>
<td>4</td>
<td>5%</td>
<td>82</td>
</tr>
<tr>
<td>GYN/ONC</td>
<td>25</td>
<td>11%</td>
<td>203</td>
</tr>
<tr>
<td>Laparoscopic major</td>
<td>8</td>
<td>7%</td>
<td>103</td>
</tr>
<tr>
<td>Laparoscopic minor</td>
<td>0</td>
<td>0%</td>
<td>38</td>
</tr>
<tr>
<td>Minor</td>
<td>0</td>
<td>0%</td>
<td>7</td>
</tr>
<tr>
<td>Open major</td>
<td>17</td>
<td>24%</td>
<td>55</td>
</tr>
<tr>
<td>Grand Total</td>
<td>61</td>
<td>12%</td>
<td>450</td>
</tr>
</tbody>
</table>

Percentage of meeting Foley catheterization guidelines stratified by surgical service (gynecology vs gynecologic oncology) and type of procedure.

Moving Forward

Overall, we met our goal for all three quarters in which data has been collected for the 2014-2015 academic year. We made dramatic improvements in decreasing perioperative Foley catheterization and were able to standardize our approach to individual patients based on procedure type and surgical service.

We have room for improvement with respect to reducing duration of catheterization for laparoscopic major cases. While 93% of laparoscopic major cases for the gynecologic oncology service met criteria, only 66% of the benign gynecology laparoscopic major cases did. Education for providers including residents, attendings, and nurses will be helpful in improving our performance in this arena.

Additionally, as we have now collected data for almost 9 months of surgical cases, providing individual feedback for residents for performance during their time on service and attendings for the cumulative year may address weaknesses and improve adherence in the future as well as help elucidate areas for improvement.

Finally, we now have data which addresses prevalence of urinary complications (e.g. retention, need for straight catheterization, reinsertion of Foley catheter). We plan to use this data to refine our Foley catheterization guidelines as needed for the future.