Improving the Completion and Faculty Co-Signature Rate of the Electronic Pre-Operative Evaluation Form used by the Department of Anesthesia at the University of Utah

University of Utah Hospitals and Clinics
October 13, 2004
Background

Completion and signature of the Preoperative Anesthetic Evaluation Form has gone unchecked since the Department of Anesthesia started using an electronic record around 2 ½ years ago.

Determination of the rate of completion has also not been able to be documented.
Background cont.

The paper version of the Preoperative Anesthetic Evaluation Form is still available for use. Although the use of this form seems to be concentrated to procedural areas that do not have a heavy patient load. The cumbersome nature of the current electronic platform prevents its efficient use in certain clinical settings.
Aim Statement

- Improve perioperative documentation for the Department of Anesthesiology, University of Utah. Specifically target faculty finalization of the electronic preoperative record. The target population will be the faculty of the Department of Anesthesia. This project will lead to better perioperative documentation as a whole, improved compliance with JCAHO, hospital and departmental policies, more “user friendly” and innovative computer platforms for perioperative record keeping, and ultimately better patient care.
Stretch Goal

- The goal will be a compliance rate of 100% in 4 months.
Project Customers

- Faculty of the Department of Anesthesiology, University of Utah
- All the clinical members of the Department of Anesthesiology
- Regulatory Agencies (JCAHO, state law, etc.)
- University of Utah Hospitals and Clinics
- Surgical Patients at University of Utah Hospitals and Clinics
Team Members

- Scott Richardson, M.D. – Team Leader
- Jeffrey Lu, M.D. – Computers and Information Technology
- Kevin Jones – Performance Monitoring and Improvement, data analysis
- Julie McCarren – Department of Health Information, data collection
Finalization of the Preop EMR

1. Finalizing Preoperative Evaluation
   - Locate Terminal
   - Boot Computer
   - Activate Power Chart
   - Enter User Name and Password

2. Type in Patient Identifiers
   - Activate E-Chart Icon
   - Choose Preoperative Evaluation from Drop Down

3. Preoperative Evaluation Present?
   - Yes
     - Correct History Section
     - Enter or Correct Physical Exam
     - Enter Anesthetic Plan
     - Enter Pain Control Options
     - Enter Electronic Signature (Finalize)
   - No
     - Generate Electronic Preoperative Evaluation
     - Transcribe Paper Preop to Electronic Record

4. Preoperative Evaluation Performed?
   - Yes
     - Have Resident or CRNA Perform Preop
   - No
     - Faculty Perform Preop

5. Enter or Correct Paper Preoperative Evaluation
Leverage Points and Dates

- June 1, 2004 – Agreement with Health Information Department to begin monitoring for finalization of the Preop EMR

- July 21, 2004 – Established defined roles for completion and finalization of Preop EMR

- September 21, 2004 – Performance feedback to individual faculty. “Wall of Shame”
Data Gathering Process

- Patients and Faculty were identified through the Ormis Surgical Billing Database.

- Using the FIN and Powerchart each Preop Evaluation Form was identified and evaluated for finalization.
## EMR Data Gathering Tool

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Pre-op Present</th>
<th>Pre-op Finalized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Faculty 1</td>
<td>///</td>
<td>//</td>
</tr>
<tr>
<td>Faculty 2</td>
<td>//</td>
<td>//</td>
</tr>
<tr>
<td>Faculty 3</td>
<td>/////</td>
<td>//</td>
</tr>
<tr>
<td>Faculty 4</td>
<td>//</td>
<td>//</td>
</tr>
<tr>
<td>Faculty 5</td>
<td>///</td>
<td>//</td>
</tr>
<tr>
<td>Faculty 6</td>
<td>///</td>
<td>//</td>
</tr>
<tr>
<td>Faculty 7</td>
<td>/////</td>
<td>//</td>
</tr>
<tr>
<td>Faculty 8</td>
<td>//</td>
<td>//</td>
</tr>
<tr>
<td>Faculty 9</td>
<td>//</td>
<td>//</td>
</tr>
<tr>
<td>Totals</td>
<td>27</td>
<td>7</td>
</tr>
</tbody>
</table>
### EMR Data Worksheet

<table>
<thead>
<tr>
<th>Faculty</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Num total</td>
<td>633</td>
<td>13</td>
<td>21</td>
<td>26</td>
<td>42</td>
<td>11</td>
<td>5</td>
<td>1</td>
<td>26</td>
<td>16</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td>Den total</td>
<td>856</td>
<td>18</td>
<td>30</td>
<td>28</td>
<td>51</td>
<td>13</td>
<td>14</td>
<td>7</td>
<td>43</td>
<td>25</td>
<td>26</td>
<td>32</td>
</tr>
<tr>
<td>Stnd. Dev.</td>
<td>0.02</td>
<td>0.11</td>
<td>0.09</td>
<td>0.05</td>
<td>0.05</td>
<td>0.10</td>
<td>0.13</td>
<td>0.14</td>
<td>0.08</td>
<td>0.10</td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>UCL</td>
<td>0.77</td>
<td>0.94</td>
<td>0.87</td>
<td>1.03</td>
<td>0.93</td>
<td>1.05</td>
<td>0.62</td>
<td>0.42</td>
<td>0.75</td>
<td>0.83</td>
<td>0.99</td>
<td>0.68</td>
</tr>
<tr>
<td>LCL</td>
<td>0.71</td>
<td>0.51</td>
<td>0.53</td>
<td>0.83</td>
<td>0.72</td>
<td>0.64</td>
<td>0.10</td>
<td>-0.14</td>
<td>0.46</td>
<td>0.45</td>
<td>0.70</td>
<td>0.32</td>
</tr>
<tr>
<td>Percent</td>
<td>0.74</td>
<td>0.72</td>
<td>0.70</td>
<td>0.93</td>
<td>0.82</td>
<td>0.85</td>
<td>0.36</td>
<td>0.14</td>
<td>0.60</td>
<td>0.64</td>
<td>0.85</td>
<td>0.50</td>
</tr>
<tr>
<td>Department</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
</tr>
<tr>
<td>4/5/2004</td>
<td>23</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/13/2004</td>
<td>28</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/13/2004</td>
<td>33</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/21/2004</td>
<td>16</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/29/2004</td>
<td>18</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/5/2004</td>
<td>20</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/21/2004</td>
<td>29</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Statistical Worksheet

<table>
<thead>
<tr>
<th>Date</th>
<th>Present</th>
<th>Finalized</th>
<th>Percent</th>
<th>StdDev</th>
<th>95% UCL</th>
<th>95% LCL</th>
<th>ChartMean</th>
<th>95% UCL</th>
<th>95% LCL</th>
<th>95% UCL</th>
<th>95% LCL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/5/2004</td>
<td>41</td>
<td>23</td>
<td>56.10%</td>
<td>7.85%</td>
<td>84.15%</td>
<td>53.39%</td>
<td>68.77%</td>
<td>96.82%</td>
<td>40.72%</td>
<td>84.12%</td>
<td>53.43%</td>
</tr>
<tr>
<td>4/13/2004</td>
<td>33</td>
<td>28</td>
<td>84.85%</td>
<td>6.34%</td>
<td>81.20%</td>
<td>56.35%</td>
<td>68.77%</td>
<td>96.82%</td>
<td>40.72%</td>
<td>84.12%</td>
<td>53.43%</td>
</tr>
<tr>
<td>4/21/2004</td>
<td>29</td>
<td>16</td>
<td>55.17%</td>
<td>9.40%</td>
<td>87.19%</td>
<td>50.35%</td>
<td>68.77%</td>
<td>96.82%</td>
<td>40.72%</td>
<td>84.12%</td>
<td>53.43%</td>
</tr>
<tr>
<td>4/29/2004</td>
<td>35</td>
<td>18</td>
<td>51.43%</td>
<td>8.57%</td>
<td>85.57%</td>
<td>51.97%</td>
<td>68.77%</td>
<td>96.82%</td>
<td>40.72%</td>
<td>84.12%</td>
<td>53.43%</td>
</tr>
<tr>
<td>5/5/2004</td>
<td>29</td>
<td>20</td>
<td>68.97%</td>
<td>8.74%</td>
<td>85.91%</td>
<td>51.64%</td>
<td>68.77%</td>
<td>96.82%</td>
<td>40.72%</td>
<td>84.12%</td>
<td>53.43%</td>
</tr>
<tr>
<td>9/15/2004</td>
<td>25</td>
<td>21</td>
<td>84.00%</td>
<td>7.48%</td>
<td>83.44%</td>
<td>54.10%</td>
<td>68.77%</td>
<td>96.82%</td>
<td>40.72%</td>
<td>84.12%</td>
<td>53.43%</td>
</tr>
<tr>
<td>9/23/2004</td>
<td>31</td>
<td>24</td>
<td>77.42%</td>
<td>7.63%</td>
<td>83.73%</td>
<td>53.81%</td>
<td>68.77%</td>
<td>96.82%</td>
<td>40.72%</td>
<td>84.12%</td>
<td>53.43%</td>
</tr>
<tr>
<td>9/30/2004</td>
<td>27</td>
<td>24</td>
<td>88.89%</td>
<td>6.16%</td>
<td>80.85%</td>
<td>56.69%</td>
<td>66.78%</td>
<td>96.82%</td>
<td>40.72%</td>
<td>84.12%</td>
<td>53.43%</td>
</tr>
<tr>
<td>10/1/2004</td>
<td>35</td>
<td>22</td>
<td>62.86%</td>
<td>8.29%</td>
<td>85.01%</td>
<td>52.53%</td>
<td>66378%</td>
<td>96.82%</td>
<td>40.72%</td>
<td>84.12%</td>
<td>53.43%</td>
</tr>
</tbody>
</table>
| Totals     | 285     | 196       | 68.77%  | 14.31% | standard deviation of rates (Percent column) | average of standard deviations (StdDev column)

Grand Mean | 7.83%
University of Utah Hospitals & Clinics
Rate of Finalized Pre-Operative Evaluations in the E. M. R.
p-Chart, uniform control limits, standard deviation of rates
Leverage Points and Dates

- June 1, 2004 – Agreement with Health Information Department to begin monitoring for finalization of the Preop EMR

- July 21, 2004 – Established defined roles for completion and finalization of Preop EMR

- September 21, 2004 – Performance feedback to individual faculty. “Wall of Shame”
University of Utah Hospitals & Clinics
Rate of Finalized Pre-Operative Evaluations in the E. M. R.

p-Chart, uniform control limits, standard deviation of rates
Individual Faculty Compliance Rates

University of Utah Hospitals & Clinics
Pre-Operative Anesthetic Assessment Finalization
Review of Random Days from April 2004 to Oct 2004
Coded Doctor ID’s showing their Percentage & Upper/Lower Control Limits
with Departmental Average Trendline (74%)
Future Plans

- Complete paperless perioperative charting system
- Cerner based Preoperative Evaluations
- Wireless PDA interface with the Power Chart program
- Implementation of single, electronic perioperative charting system across all clinical anesthesia service locations
PROJECT ABSTRACT

Improving the Completion and Faculty Co-Signature Rate of the Electronic Pre-Operative Evaluation Form used by the Department of Anesthesia at the University of Utah

University of Utah Hospitals and Clinics

Scott Richardson, M.D.
Department of Anesthesiology
3C 444 SOM
Salt Lake City, Ut.  84132-2304
Scott.Richardson@hsc.utah.edu

Responsible Project Members
1. Scott Richardson, M.D.
2. Kevin Jones, B.S. QI Specialist

The purpose of this project was to improve faculty utilization of the preoperative EMR, specifically finalization, (co signature) of that document. Strategies for improvement included increasing awareness and monitoring, more clearly defining roles and responsibilities and providing feedback to the faculty. We were able to demonstrate a significant improvement in faculty compliance from a departmental mean of 61.57% to 79.5% during the four months duration of this project. We conclude that through formal project design and implementation improvement in faculty performance (utilization of the preoperative EMR) can occur. Ultimately this should lead to better compliance with departmental, hospital and regulatory agency requirements, and improved acceptance and utilization of the EMR by the faculty in the future.

Key words: EMR, electronic medical record, compliance, co signature, finalization