Golden Hour Part I: Delivery Room Management update

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FPQC Neonatal-Focused Meeting
September 30, 2014
Objectives

- Provide project overview

- Discuss initiative-wide results
  - Team work
  - Thermoregulation
  - Oxygen administration
  - Delayed cord clamping

- Discuss opportunities for improvement
Selection of Pilot Hospitals

- Participate in FPQC
- Deliver babies with
  - GA ≤ 30 6/7 wks
  - Anticipated BW ≤ 1500g
- Expressed interest in participation

Looked for variety in:
- # births
- extent of existing quality infrastructure
Selection of Pilot Hospitals

ACADEMIC
USF/TGH
ACH/Johns Hopkins

NON-ACADEMIC
St. Joseph’s Hospital
Florida Hospital Tampa
Sarasota Memorial Hospital
Baptist Hospital Miami
South Miami Hospital
Broward Health Systems
Plantation Hospital
Table 1. Mean birth weight and gestational age

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth weight in grams</td>
<td>671</td>
</tr>
<tr>
<td>Gestational age in weeks</td>
<td>671</td>
</tr>
</tbody>
</table>

*Data to 7/31/2014*

*In 2012 ~2,250 VLBW infants in VON’s FPQC database*  
*From 10/2013-7/2014=9 months*  
*Estimate ~1,688 VLBW infants*  

*Our efforts affected the care of ~33% of these infants*  

*n=565 in prospective database (i.e., after 10/1/2014)*
Evidence-Based Measures in DR Management

1. TEAMWORK
2. THERMOREGULATION
3. OXYGEN ADMINISTRATION
4. DELAYED CORD CLAMPING
Readiness bundle:
Pre-delivery DR preparation & DR debriefing
Goal: ≥80% of DR team debriefings w/in 4 hours of delivery
Exclusive DR team roles

Goal: ≥90% of DR teams having exclusive DR roles
Opportunities for improvement

- Advantage of debriefings
- Goal: 1-3 documented opportunities for each delivery
- Total # opportunities to date: 201 (for 565 deliveries)
- Pareto principle or the “80-20 rule”
  - 80% of output is created by 20% of input
  - Opportunities grouped into general themes
  - Helps highlight important areas to direct focused efforts
Opportunities for improvement (n=201)

General themes

- Teamwork: 92 opportunities, 63% improvement
- Respiratory care: 35 opportunities, 46% improvement
- Delayed cord clamping: 33 opportunities
- IV fluids or access: 29 opportunities
- Thermoregulation: 12 opportunities

Overall, 94% improvement was observed.
Teamwork
opportunities for improvement \( (n=118) \)

General themes

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Equipment check</th>
<th>Communication w/ team</th>
<th>Team roles</th>
<th>Communication w/OB</th>
<th>Positive responses</th>
<th>NICU admission delays</th>
<th>X-ray delays</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>38</td>
<td>19</td>
<td>17</td>
<td>16</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>
IV fluids & access opportunities for improvement (n=29)

General themes

- Obtaining access: 12 (41%)
- Hypoglycemia: 8
- IV fluid prepared: 7
- Other: 2

Percentage: 100%
Effects of level of engagement on team work

<table>
<thead>
<tr>
<th>Measures of team work</th>
<th>Opportunities</th>
<th>Airway</th>
<th>Circulation</th>
<th>Team Lead</th>
<th>Scribe</th>
<th>Briefing</th>
<th>Equipment</th>
<th>Radiant Warmer</th>
<th>Debriefing</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>49%</td>
<td>66%</td>
<td>64%</td>
<td>66%</td>
<td>56%</td>
<td>67%</td>
<td>73%</td>
<td>73%</td>
<td>52%</td>
</tr>
<tr>
<td>low</td>
<td>22%</td>
<td>83%</td>
<td>42%</td>
<td>48%</td>
<td>39%</td>
<td>43%</td>
<td>54%</td>
<td>55%</td>
<td>29%</td>
</tr>
</tbody>
</table>

% compliance per # of births
Evidence-Based Measures in DR Management

1. **TEAMWORK**

2. **THERMOREGULATION**

3. **OXYGEN ADMINISTRATION**

4. **DELAYED CORD CORD CLAMPING**
Admission Temperature

Goal temperature: 36.5-37.5°C

- 36.5-37.5°C: 50%
- 36.0-36.5°C: 25%
- 32-35.9°C: 20%
- >37.5°C: 5%

~50% of VLBWs have abnormal admission temperature

*FPQC data is similar to VON network data

2012 VON FPQC data, n=2,399 infants
**NICU admission temperature**

*Goal: ≥80% with NICU admission temperature of 36.5°-37.5°C*

<table>
<thead>
<tr>
<th>Month of Birth</th>
<th>Percent of infants within temperature range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>60%</td>
</tr>
<tr>
<td>October 2013</td>
<td>62%</td>
</tr>
<tr>
<td>November</td>
<td>60%</td>
</tr>
<tr>
<td>December</td>
<td>67%</td>
</tr>
<tr>
<td>January 2014</td>
<td>55%</td>
</tr>
<tr>
<td>February</td>
<td>71%</td>
</tr>
<tr>
<td>March</td>
<td>70%</td>
</tr>
<tr>
<td>April</td>
<td>73%</td>
</tr>
<tr>
<td>May</td>
<td>71%</td>
</tr>
<tr>
<td>June</td>
<td>70%</td>
</tr>
<tr>
<td>July</td>
<td>64%</td>
</tr>
</tbody>
</table>

Initiative-Wide Data
NICU admission temperature

Temperature in degrees Celsius

UCL: 38.5
CL: 36.7
LCL: 34.9

July 2013 → February 2014 : March 2014 → July 2014

Initiative-Wide Data
Thermoregulation opportunities for improvement (n=33)
Evidence-Based Measures in DR Management

1. TEAMWORK

2. THERMOREGULATION

3. OXYGEN ADMINISTRATION

4. DELAYED CORD CLAMPING
Pre-ductal oxygen saturation at 10 minutes

Goal: ≥80% compliance with NRP oxygen targets (85-95%) at 10 min

The following infants are excluded –
1. Infants with SPO2 >95% despite receiving FiO2 of 21% and 2. Infants with SPO2 <85% despite receiving FiO2 100%

The graph shows the percent of infants within the oxygen saturation goal range for each month of birth. The graph includes data points with excluded infants and the goal line is represented as a red line. The goal is to achieve at least 80% compliance with the NRP oxygen targets (85-95%) at 10 minutes.
Pre-ductal oxygen saturation at 10 minutes

Note: The following infants are excluded –
1. Infants with SPO2 >95% despite receiving FiO2 of 21%
2. Infants with SPO2 <85% despite receiving FiO2 100%
Pre-ductal oxygen saturation at 10 minutes

Initiative-Wide Data
Respiratory care opportunities for improvement (n=35)

General themes

- Equipment check: 11 (31%)
- Pulse ox: 9 (57%)
- Surfactant: 5
- CPAP: 5
- Intubation difficulty: 3
- Other: 2

Opportunities:

- 0 to 10%
- 10 to 20%
- 20 to 30%
- 30 to 40%
- 40 to 50%
- 50 to 60%
- 60 to 70%
- 70 to 80%
- 80 to 90%
- 90 to 100%
Evidence-Based Measures in DR Management

1. TEAMWORK
2. THERMOREGULATION
3. OXYGEN ADMINISTRATION
4. DELAYED CORD CLAMPING
Delayed Umbilical Cord Clamping

Goal: ≥80% compliance with delayed cord clamping for 30-60 seconds

Initiative-Wide Data
Some final thoughts...

- Our efforts are affecting the care of a significant number of VLBWs delivered in FL
- Engage your team members & share how well your site is doing with them!
- There is always room for improvement – keep working through your PDSA cycles.
- Start developing strategies to sustain your gains.