PATIENT SAFETY FIRST
PHASE I RESULTS
(2010-2012)
Improving Patient Safety and Perinatal Care Across California

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EXECUTIVE SUMMARY

To address the critical issue of patient safety in hospitals, five key industry stakeholders came together in 2010 to develop and implement Patient Safety First…a California Partnership for Health (PSF). At the end of 2012, this innovative partnership completed its third year of existence (phase 1) with over 180 California hospital participants.

Patient Safety First utilizes regional peer-to-peer learning networks to accelerate the adoption of patient safety practices and strategies for improvement. At the start of phase 1, PSF set ambitious three-year goals to be able to consistently measure progress and drive improvement in targeted areas. At the end of three years, significant improvements were made towards its original goals in the areas of sepsis mortality, ventilator acquired pneumonia (VAP), catheter associated urinary tract infections (CAUTI), central line blood stream infections (CLBSI) and elective deliveries prior to 39 weeks gestational age. The following rate changes are all statistically significant except for CAUTI:

- **Ventilator Associated Pneumonia** rate declined from 2.21 per 1,000 ventilator days in 2009 to 0.94 in 2012, 57% reduction of the way toward a goal of zero (N=50)
- **Catheter Associated Urinary Tract Infections** rate declined from 1.19 per 1,000 patient days in 2009 to 0.90 in 2012, 24% of the way toward a goal of zero (N=25)
- **Central Line Blood Stream Infections** rate declined from 2.24 per 1000 central line days in 2009 to 1.27 in 2012, 43% of the way toward a goal of zero (N=47)
- **Sepsis Mortality** rate declined from 22.58 per 100 sepsis cases in 2009 to 16.62 in 2012, 87% of the way towards the goal of a statewide 30% reduction (N=49)
- **Perinatal gestational age deliveries under 39 weeks** declined from 9.94% of all deliveries in 2010 to 2.57% in 2012, reaching the goal of 5% or less (N=31)

In addition to these reductions in rates,
- Over 3,576 lives have been saved as a result of reducing sepsis mortality
- An estimated $64 million in healthcare costs were avoided as a result of this initiative

Lessons Learned

1. Diverse hospitals can come together to successfully reduce the risk of potential harm resulting from hospitalization.
2. Hospital staff suffer from data fatigue, making obtaining complete data a challenge for hospitals.
3. Participating hospitals have seen significant improvements; other activities in addition to PSF may have influenced results.
4. Moving forward it will be important to focus on the implementation and measurement of best practices used at each hospital to maximize impact.

By bringing diverse hospitals together to learn from each other, implement evidence-based best practices and collect data toward shared outcomes, PSF participating hospitals have achieved significant improvements in patient safety and quality and reduced health care costs. PSF is an example of how patient safety and quality of care can be improved in hospitals while reducing costs on a large scale. As a result of the initial success of Patient Safety First, the statewide collaborative has continued through 2013 with sustained funding from Anthem Blue Cross. Starting in 2013, Patient Safety First took on new initiatives to address which include Clostridium difficile and surgical safety with a focus on eliminating retained surgical sponges and towels. In its fourth year, Patient Safety First will continue to build upon the inroads it has made in quality and safety to work towards making California a leader in patient safety and quality care. In addition, the success of PSF has served as an inspiration for the expansion of broader statewide quality efforts.
INTRODUCTION

December 2012 marked the closing of the third year/phase I of Patient Safety First…a California Partnership for Health. With over 180 hospitals participating, from 2010-2012, Patient Safety First (PSF) was the largest statewide collaborative effort focused on patient safety in the nation. Not only is PSF unique in its size and scale, but it is distinctive in that it brings together a health plan, hospital associations and a non-profit organization as partners in an effort to improve care, health outcomes and reduce healthcare costs. The model relies on regional associations to plan the collaborative events, hospitals to send quality teams, a health plan to provide financial support and incentivize hospital participants and an unbiased outside non-profit organization to manage and evaluate the program.

The Partners have worked diligently over the last three years of PSF to make progress towards three-year program goals in the areas of hospital acquired infections, sepsis mortality and perinatal care. The purpose of this report is to highlight the final results and outcomes of the first phase of this innovative partnership. Using data gathered from PSF partners, this report describes:

• The PSF program and its goals
• The peer to peer learning model and promotion of best practices utilized to reach goals
• Process outcomes achieved
• Progress toward achieving clinical outcomes
• Cost avoidance results
• The future of Patient Safety First and statewide quality efforts

A Unique Partnership Produced Results

• 3 Regional Hospital Associations
• Health Plan
• Non-profit Organization

BACKGROUND

Since the 2009 Institute for Healthcare Improvement (IHI) report, To Err is Human, patient safety has become a growing national priority with the demand for improving patient safety coming from all areas in healthcare, including individual hospitals, hospital systems, and quality improvement authorities such as the Agency for Healthcare Research and Quality (AHRQ), The Joint Commission (TJC), and National Quality Forum (NQF). Based on heightened awareness in the healthcare industry and the need for coordination among California’s patient safety efforts, Patient Safety First…a California Partnership for Health was launched in January 2010.

PSF was developed to improve the quality of care provided to Californians, save lives and reduce healthcare costs. Anthem Blue Cross (Anthem) provided $6 million dollars over three years to fund this initiative. PSF partners include the three California regional hospital associations (Hospital Association of Southern California (HASC), Hospital Council of Northern and Central California (HCNCC), Hospital Association of San Diego & Imperial Counties (HADIC)), National Health Foundation (NHF) and Anthem. Each organization plays an important role in the organization and implementation of PSF.

The Regional Hospital Associations (RHA) are not-for-profit 501(c)(6) regional trade associations comprised of hospitals and health systems, related professional associations and associate members. Combined, the three associations represent 95% (n=395) of all hospitals in the state. Their mission is to serve the political, economic, informational and educational needs of hospitals in their regions, and improve the quality and accessibility of health care services and thereby improve the health status of communities. RHAs are the direct connection between the PSF initiative and participating hospital partners. At the start of the initiative each RHA was charged with recruiting hospitals to participate in their regional improvement collaboratives. Each RHA organizes and facilitates in-person meetings and educational activities for their hospitals and reports progress back to PSF partners. The CEO from each of the RHAs participates in a PSF leadership team which helps frame the strategic direction of the initiative.

National Health Foundation (NHF) is a non-profit 501 (c)(3) charitable organization. The mission of NHF is to improve and enhance the health of the underserved by developing and supporting innovative projects that 1) can become independently viable, 2) provide systematic solutions to gaps in healthcare access and delivery and 3) have the potential to be replicated nationally. NHF is the program manager, evaluator and fiscal administrator for PSF. As such, NHF convenes and leads the project team, leadership team and all hands meetings. NHF also developed and maintains a web-based data collection and reporting system used to collect data from participating hospitals and RHAs. NHF’s
CEO participates in and facilitates the PSF leadership team meetings.

**Anthem Blue Cross** is the trade name of Blue Cross of California. Anthem Blue Cross and Anthem Blue Cross Life and Health Insurance Company are independent licensees of the Blue Cross Association. ® ANTHEM is a registered trademark of Anthem Insurance Companies, Inc. The Blue Cross names and symbols are registered marks of the Blue Cross Association. As a collaborative partner, Anthem funds the PSF initiative and participates in the project team meetings as well as the leadership team meetings. Anthem meets regularly with National Health Foundation to ensure the initiative has the support needed to advance its goals.

### PSF INITIATIVES

The focus areas for PSF were determined by the partners at the start of the project through a collaborative decision making process. The following initiatives were chosen as a result of Regional Hospital Associations’ existing patient safety efforts, the continued need for improvement in these areas and an assessment of potential impact\(^1\). PSF initiatives included:

- Hospital Acquired Infections (HAIs): Ventilator Associated Pneumonia (VAP), Central Line Blood Stream Infections (CLBSI), Catheter Associated Urinary Tract Infections (CAUTI)
- Sepsis Mortality
- Perinatal Birth Trauma
- Non Medically Indicated Elective Deliveries Prior to 39 Weeks Gestational Age

After these focus areas were determined, three-year program goals were developed for each initiative (see Table 1).

At the end of the first year of PSF, collaborative partners decided to remove perinatal birth trauma from the PSF goals and initiatives. This decision was based upon the lack data being reported for this initiative as well as feedback from hospitals that stated that this initiative was too broad (i.e. in ICD-10 “birth trauma” occupied 49 individual codes) to tackle or address in a general way. Therefore, this report does not include data findings or outcomes for this initiative.

### PEER TO PEER LEARNING MODEL

In order to facilitate improvement in the aforementioned focus areas, PSF adopted components of the Institute for Healthcare Improvement’s (IHI) Breakthrough Series Collaborative Model for Achieving Breakthrough Improvement developed in 1995\(^2\). This model is a validated learning system that brings together a large number of teams from hospitals or clinics to seek improvement in a focused topic area. The key elements of the Breakthrough Series adopted by PSF include:

- **Facilitating Learning Sessions**: These sessions are face to face meetings through which peer-to-peer learning takes place among participating hospitals. Both expert faculty and peers present and share evidence-based practices and strategies for improvement. Lessons learned as well as barriers and success stories from hospitals are shared in breakout sessions and through informal dialogue and networking.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>3 Year Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilator Associated Pneumonia (VAP)</td>
<td>Hospitals will reach a rate of zero VAPs</td>
</tr>
<tr>
<td>Catheter Associated Urinary Tract Infections (CAUTI)</td>
<td>Hospitals will reach a rate of zero CAUTIs</td>
</tr>
<tr>
<td>Central Line Blood Stream Infections (CLBSI)</td>
<td>Hospitals will reach a rate of zero CLBSIs</td>
</tr>
<tr>
<td>Sepsis Mortality</td>
<td>Statewide 30% reduction in sepsis mortality</td>
</tr>
<tr>
<td>Perinatal Gestational Age Deliveries</td>
<td>Hospitals will reduce elective deliveries prior to 39 weeks to 5% or less</td>
</tr>
</tbody>
</table>
• **Model for Improvement:** This model was developed by Associates in Process Improvement and identifies four key elements of successful process improvement: specific and measurable aims, measures of improvement that are tracked over time, key changes that will result in the desired improvement, and a series of testing “cycles” during which teams learn how to apply key change ideas to their own organizations. PSF hospitals are encouraged to use this process within their organizations to facilitate change and improvement.

• **Measurement and Evaluation:** Regular measurement and assessment are critical to ensure and sustain successful improvement. PSF requires hospitals to enter data for its initiatives and makes real time reports available to hospitals. NHF conducts data analysis and reports out aggregate results to all stakeholders.

**Patient Safety Practices**
The peer to peer learning model is a learning system that promotes best practices; it does not however measure the implementation of best practices in hospitals. That being said, specific methodologies and evidence-based patient safety practices were continuously and successfully promoted and used. According to the Agency for Healthcare Research & Quality (AHRQ) patient safety practices are a type of process or structure whose application reduces the probability of adverse events resulting from exposure to the health care system across a range of diseases and procedures. While PSF promoted these practices, it was not the intent of this project to be prescriptive in determining which of these interventions hospitals should adopt to improve safety and quality of care within their unique settings. In this same vein, the project did not track the degree to which each hospital implemented specific best practices and/or strategies for improvement, of which, there are varieties shared at the collaborative meetings to address the PSF initiatives. See Appendix A for a sample of promoted safety practices from all the Regions including IHI bundles for HAIs and the Perinatal Toolkit from March of Dimes.

**Patient Safety Highlight: SimSuite Mobile Training**
In an effort to increase participation in PSF and provide hospitals with an innovative learning opportunity, regions contracted SimSuite, Medical Simulation Corporation, to provide mobile simulation training focused on sepsis. SimSuite programs accelerate and sustain healthcare provider knowledge and confidence in applying the evidence-based guidelines for early recognition and treatment of conditions, such as sepsis, for increased implementation of the guidelines. Over the last three years, the SimSuite mobile simulation van visited several PSF hospitals across the state providing medical staff teams with a hands-on opportunity to learn about early sepsis detection and treatment techniques on a mannequin that simulates a real patient.

The simulation training was first piloted in HCNCC’s region and based on the extremely positive response to the training, both HASDIC and HCNCC contracted with SimSuite to bring the van to Southern California. To-date, 650 healthcare providers at PSF hospitals have received training through SimSuite. In the next year, when more data is available, NHF will assess the impact of the SimSuite training on reducing the rate of sepsis mortality at participating hospitals.
DATA REPORTING

Evaluation and data collection, cornerstones of the PSF initiative, serve to measure change in outcomes of participating hospitals. National Health Foundation was responsible for overseeing the evaluation of the initiative to track and measure outcomes. As a part of the evaluation process participating hospitals signed a letter of agreement to commit to shared three-year outcomes goals and to submit required data in order to ensure this statewide initiative achieves its overall targeted performance improvements.

PSF hospitals submitted metric specific data on a quarterly basis to NHF through a secured, password protected web-based data collection and reporting system. To ensure standardized data was collected, data definitions for VAP, CLBSI, CAUTI, sepsis mortality, and elective deliveries under 39 gestational weeks were developed by PSF partners at the start of the initiative and shared with hospitals (see Appendix C). Using these definitions, hospitals provided retroactive data from 2009 for the purpose of establishing baseline measurement. NHF assessed progress on a quarterly and annual basis to support continuing improvement in PSF measures over the three year project. Through the web portal hospitals were able to view reports on their progress compared to the aggregate progress of hospitals participating in their region and across the state.

In addition to outcomes data collection by hospitals, RHAs collected process level data including number of hospitals recruited, number of meetings/webinars conducted, etc. and reported this to NHF via the data collection and reporting system. NHF used this data to track progress on process level goals and objectives developed at the beginning of the initiative and reported progress to partners annually and as requested.

PSF recognized that data entry into the PSF database, while potentially burdensome and time consuming for hospital staff, was critical to ensuring the collaborative was making inroads in improving patient safety. To recognize and reward hospitals for timely data entry, Anthem created a special quality demarcation on their online Provider Finder portal which allows Anthem patients to find providers and medical facilities in their area. The quality demarcation was assigned to PSF hospitals that met the data entry criteria, which was to have data for at least 2 PSF initiatives in the last three successive quarters. The demarcation enabled Anthem members to see which hospitals were actively and fully participating in the PSF collaborative. The list of hospitals receiving the demarcation was refreshed biannually to incentivize hospitals to be consistent with data entry and to capture hospitals that began entering data at different intervals. Hospitals were informed of each refresh and NHF noticed a 20% increase in data entry as a result of the demarcation incentive.

To further incentivize hospitals to participate in PSF and enter data, Anthem aligned their Quality-In-Sights®: Hospital Incentive Program (Q-HIP®) with PSF initiatives. The Q-HIP is Anthem’s performance-based reimbursement program for hospitals. Hospitals are required to provide Anthem with data on measures outlined in the Q-HIP Manual. The mission of Q-HIP is to help improve patient outcomes in a hospital setting and promote healthcare value by financially rewarding hospitals for practicing evidence-based medicine and implementing best practices. In 2012, Anthem included all the PSF initiatives (VAP, CLBSI, CAUTI, Sepsis and Early Elective Deliveries) into their QHIP measures.

OUTCOMES

As part of the evaluation process, NHF collected information on process measures including hospital and individual participation, meetings and webinars conducted and the number of hospitals submitting data. Clinical outcomes for all initiatives are also collected for VAP, CLBSI, CAUTI, sepsis mortality and elective delivery prior to 39 weeks. Outcomes discussed represent aggregate results from 2010 - 2012.
Process Measures
At the beginning of the PSF initiative, hospital recruitment goals were set for regions based on the total number of hospital members in each respective association (see Table 2). Each of the regions worked independently to recruit hospitals to participate in the PSF initiative. In its first year of implementation, PSF recruited 148 hospitals across the state, which cumulatively met the set participation goals. By the close of phase I, all regions had met regional specific recruitment goals (Table 2).

**TABLE 2. NUMBER OF PSF HOSPITALS PARTICIPATING 2010-2012**

<table>
<thead>
<tr>
<th>Region</th>
<th>Hospital Recruitment Goal</th>
<th>2012 Participating Hospitals</th>
<th>2012 Total RHA Member Hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>HASC</td>
<td>80</td>
<td>101 (58.0%)</td>
<td>175</td>
</tr>
<tr>
<td>HASDIC</td>
<td>18</td>
<td>20 (57.0%)</td>
<td>35</td>
</tr>
<tr>
<td>HCNCC</td>
<td>50</td>
<td>61 (33.0%)</td>
<td>185</td>
</tr>
<tr>
<td>Total</td>
<td>148</td>
<td>182 (46.0%)</td>
<td>395</td>
</tr>
</tbody>
</table>

Source: NHF Data Collection System

RHAs engaged hospital participants in local collaboratives which utilize the peer-to-peer learning model described above. The core activities for the collaboratives were the in-person meetings which brought together teams of 2-3 individuals from each hospital to participate in learning sessions focused on strategies and best practices for making improvement in HAI, sepsis and perinatal initiatives. In addition, webinars were facilitated in-between the in-person meetings to ensure continuous engagement and interaction with hospital participants. Table 3 provides a synopsis of the activities conducted in each region.

**TABLE 3. PSF PARTICIPATION BY ACTIVITY 2010-2012**

<table>
<thead>
<tr>
<th>Measure</th>
<th>HASC</th>
<th>HASDIC</th>
<th>HCNCC</th>
<th>PSF Total</th>
</tr>
</thead>
<tbody>
<tr>
<td># Hospitals Participating</td>
<td>101</td>
<td>20</td>
<td>61</td>
<td>182</td>
</tr>
<tr>
<td>-# Participating in Perinatal Track</td>
<td>55 (55%)</td>
<td>15 (75%)</td>
<td>39 (64%)</td>
<td>109 (60%)</td>
</tr>
<tr>
<td># Meetings &amp; Webinars Conducted</td>
<td>47</td>
<td>24</td>
<td>69</td>
<td>140</td>
</tr>
<tr>
<td># Attendees Participating</td>
<td>2,519</td>
<td>508</td>
<td>1,366</td>
<td>4,393</td>
</tr>
</tbody>
</table>

Source: NHF Data Collection System
While 182 hospitals participated and attended PSF activities statewide, the overall number of hospitals that entered data for any measure in 2010 is 80% (146), 88% (160) in 2011, and 87% (159) in 2012 (see Table 4). The number of hospitals that entered paired data (data for consecutive years and quarters) was less (see Table 5).

**TABLE 4. PSF HOSPITALS SUBMITTING ANY DATA 2010-2012**

<table>
<thead>
<tr>
<th>Initiative and Year</th>
<th>Initiative</th>
<th>HASC</th>
<th>HASDIC</th>
<th>HCNCC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>VAP</td>
<td>2010</td>
<td>76</td>
<td>75%</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>80</td>
<td>79%</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>79</td>
<td>78%</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>CLBSI</td>
<td>2010</td>
<td>76</td>
<td>75%</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>82</td>
<td>81%</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>80</td>
<td>79%</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>CAUTI</td>
<td>2010</td>
<td>69</td>
<td>68%</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>78</td>
<td>77%</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>79</td>
<td>78%</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>Sepsis</td>
<td>2010</td>
<td>51</td>
<td>50%</td>
<td>16</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>57</td>
<td>56%</td>
<td>15</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>62</td>
<td>61%</td>
<td>16</td>
<td>80%</td>
</tr>
<tr>
<td>Perinatal Birth</td>
<td>2010</td>
<td>38</td>
<td>69%</td>
<td>8</td>
<td>53%</td>
</tr>
<tr>
<td>Trauma</td>
<td>2011</td>
<td>41</td>
<td>75%</td>
<td>8</td>
<td>53%</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>37</td>
<td>67%</td>
<td>4</td>
<td>27%</td>
</tr>
<tr>
<td>Gestational Age</td>
<td>2010</td>
<td>42</td>
<td>76%</td>
<td>7</td>
<td>47%</td>
</tr>
<tr>
<td>Deliveries</td>
<td>2011</td>
<td>47</td>
<td>85%</td>
<td>8</td>
<td>53%</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>50</td>
<td>91%</td>
<td>4</td>
<td>27%</td>
</tr>
</tbody>
</table>

*Source: NHF Data Collection System*
To ensure statistical reliability, measurement of change has only been analyzed using data from like hospitals with paired data, e.g. those hospitals submitting data for consecutive years and quarters. The number of hospitals that entered paired data is less than those entering any data but still provides statistically significant results (see Table 5).

**TABLE 5. PSF HOSPITALS SUBMITTING PAIRED DATA FOR 2009, 2010, 2011 AND 2012**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HASC</td>
<td>N 31</td>
<td>30</td>
<td>12</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>% 31%</td>
<td>30%</td>
<td>12%</td>
<td>21%</td>
<td>38%</td>
</tr>
<tr>
<td>HASDIC</td>
<td>N 6</td>
<td>6</td>
<td>5</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>% 30%</td>
<td>30%</td>
<td>25%</td>
<td>60%</td>
<td>7%</td>
</tr>
<tr>
<td>HCNCC</td>
<td>N 13</td>
<td>11</td>
<td>8</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>% 21%</td>
<td>18%</td>
<td>13%</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>Total</td>
<td>N 50</td>
<td>47</td>
<td>25</td>
<td>49</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>% 27%</td>
<td>26%</td>
<td>14%</td>
<td>27%</td>
<td>28%</td>
</tr>
</tbody>
</table>

*Source: NHF Data Collection System*
Clinical Outcomes
Hospitals participating in PSF have shown significant improvement in patient safety over the past three years. Specifically, hospitals have shown statistically significant improvement in reduction of HAIs, sepsis mortality and peri-natal gestational age deliveries under 39 weeks. Below is a synopsis of outcomes achieved in 2010, 2011 and 2012.

2010
First year results showed impressive movement in HAI and sepsis mortality measures, however outcomes for the perinatal measures were not discernible as a result of the small number of hospitals reporting data for those measures.

2010 Outcome Summary using Paired Data 2009-2012
• There were 0.43 fewer VAP cases per 1,000 ventilator days in 2010 than in 2009 (p=0.15)
  - Representing a 19% reduction towards the goal of a zero VAP rate
• There were 0.28 fewer CAUTI cases per 1,000 catheter days in 2010 than in 2009 (p=0.07)
  - Representing a 24% reduction towards the goal of a zero CAUTI rate
• There were 0.75 fewer CLBSI cases per 1,000 central line days in 2010 than in 2009 (p<0.01)
  - Representing a 33% reduction towards the goal of a zero CLBSI rate
• There were 3.80 fewer Sepsis deaths per 100 sepsis cases in 2010 than in 2009 (p<0.01)
  - Representing a 17% reduction, more than a half of the way towards the goal of a 30% decline over 3 years

2011
In the second year of PSF, hospitals continued to build upon their initial improvement in HAIs and sepsis mortality. Because of the initial gains made in 2010, major movement was more difficult to demonstrate in 2011; however results show consistent movement toward the three year PSF goals. In 2011, data entry by hospitals for early elective deliveries allowed for the first analysis of this measure which demonstrated a positive decline.

2011 Outcome Summary using Paired Data 2009-2012
• There were 0.84 fewer VAP cases per 1,000 ventilator days in 2011 than in 2009 (p=0.02)
  - Representing a 38% reduction towards the goal of a zero VAP rate
• There were 0.34 fewer CAUTI cases per 1,000 catheter days in 2011 than in 2009 (p=0.11)
  - Representing a 29% reduction towards the goal of a zero CAUTI rate
• There were 0.85 fewer CLBSI cases per 1,000 central line days in 2011 than in 2009 (p<0.01)
  - Representing a 38% reduction towards the goal of a zero CLBSI rate
• There were 4.61 fewer Sepsis deaths per 100 sepsis cases in 2011 than in 2009 (p<0.01)
  - Representing a 20% reduction, about two-thirds of the way towards the goal of a 30% decline over 3 years
• Elective deliveries prior to 39 weeks represented 9.94% of all deliveries in 2010, but only 4.22% of deliveries in 2011 (p<0.01)
  - Representing a 58% reduction, meeting the goal of 5% or less within 3 years

2012
Because of the gains made in 2010 and 2011, major movement was more difficult to demonstrate in 2012; however results show consistent movement toward the three year PSF goals (see Table 6). In 2012, early elective deliveries demonstrated further decline despite already attaining the goal in 2011 (see Table 7).

2012 Outcome Summary using Paired Data 2009-2012
• There were 1.27 fewer VAP cases per 1,000 ventilator days in 2012 than in 2009 (p<0.01)
  - Representing a 57% reduction towards the goal of a zero VAP rate
• There were 0.29 fewer CAUTI cases per 1,000 catheter days in 2012 than in 2009 (p=0.21)
  - Representing a 24% reduction towards the goal of a zero CAUTI rate
• There were 0.97 fewer CLBSI cases per 1,000 central line days in 2012 than in 2009 (p<0.01)
  - Representing a 43% reduction towards the goal of a zero CLBSI rate
• There were 5.96 fewer Sepsis deaths per 100 sepsis cases in 2012 than in 2009 (p<0.01)
  - Representing a 26% reduction, nearly meeting the goal of a 30% decline over 3 years
• Elective deliveries prior to 39 weeks represented 9.94% of all deliveries in 2010, but only 2.57% of deliveries in 2012 (p<0.01)
  - Representing a 74% reduction, meeting the goal of 5% or less within 3 years
The following graphs illustrate the rate change over time of HAI initiatives;

**TABLE 6. COMPARISON OF 2009 AND 2012 HAI AND SEPSIS OUTCOMES**

<table>
<thead>
<tr>
<th>Outcome</th>
<th># Hospitals</th>
<th>Average Rate 2009</th>
<th>Average Rate 2012</th>
<th>Absolute Difference</th>
<th>T-statistic</th>
<th>p-value</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAP cases/1,000 ventilator days</td>
<td>50</td>
<td>2.21</td>
<td>0.94</td>
<td>-1.27</td>
<td>3.76</td>
<td>&lt;0.01</td>
<td>57%</td>
</tr>
<tr>
<td>CAUTI cases/1,000 catheter days*</td>
<td>25</td>
<td>1.19</td>
<td>0.9</td>
<td>-0.29</td>
<td>1.28</td>
<td>0.21</td>
<td>24%</td>
</tr>
<tr>
<td>CLBSI cases/1,000 central line days</td>
<td>47</td>
<td>2.24</td>
<td>1.27</td>
<td>-0.97</td>
<td>3.2</td>
<td>&lt;0.01</td>
<td>43%</td>
</tr>
<tr>
<td>Sepsis deaths/100 sepsis cases</td>
<td>49</td>
<td>22.58</td>
<td>16.62</td>
<td>-5.96</td>
<td>6.16</td>
<td>&lt;0.01</td>
<td>26%</td>
</tr>
</tbody>
</table>

*Not statistically significant

Source: NHF Data Collection System

The rate of VAP cases from 2009 until 2012 has seen a steady and significant decline as illustrated in Graph 1. While this data represents 50 hospitals over three years, it is much larger in terms of cases represented. The number of VAP cases in all PSF hospitals ranged from 165,418 to 177,085 per year during this time period. The average number of VAP cases per year was 170,644.
GRAPH 2:

**Average Central Line Blood Stream Infections per 1,000 Central Line Days PSF 2009-2012 (N=47)**

The rate of CLBSI cases from 2009 until 2012 has seen a steady and significant decline as illustrated in Graph 2. While this data represents 47 hospitals over three years, it is much larger in terms of cases represented. The number of CLBSI cases in all PSF hospitals ranged from 270,759 to 279,132 per year during this time period. The average number of CLBSI cases per year was 274,645.

GRAPH 3

**Average Catheter Acquired Urinary Tract Infections per 1,000 Patient Days PSF 2009-2012 (N=25)**

The rate of CAUTI cases from 2009 until 2012 has overall seen a decline illustrated in Graph 3, however results are not significant. While this data represents 25 hospitals over three years, it is much larger in terms of cases represented. The number of CAUTI cases in all PSF hospitals ranged from 602,964 to 653,876 per year during this time period. The average number of CAUTI cases per year was 625,778.
The rate of Sepsis mortality from 2009 until 2012 has seen a steady and significant decline as illustrated in Graph 4. While this data represents 49 hospitals over three years, it is much larger in terms of cases represented. The number of Sepsis cases in all PSF hospitals ranged from 28,430 to 36,741 per year during this time period. The average number of Sepsis cases per year was 33,530.

The rate of average elective deliveries prior to 39 weeks from 2010 until 2012 has seen a steady and significant decline as illustrated in Graph 5. While this data represents 49 hospitals over three years, it is much larger in terms of cases represented. The number of elective deliveries in all PSF hospitals ranged from 584 to 2,456 per year during this time period. The average number of elective deliveries per year was 1,346.
Progress towards Goals

All initiatives showed improvement towards reaching PSF goals (see Table 8). While VAP shows some hospitals consistently reaching zero, CLBSI and CAUTI show less success (see Chart 7). It must be noted that once rates start approaching zero it is significantly more difficult to see change over time. In addition, once rates are nearing zero it will be important to measure whether they can maintain zero. While it is important to look at overall goals, from a PSF perspective it was also instructive to examine trends on a hospital level. Many hospitals can be applauded for reaching zero in some initiatives (e.g. 20 hospitals reported no VAP cases over the three years of the initiative), however maintaining that zero over time is more difficult and something to be considered in future initiatives in terms of both measurement and intervention.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Three Year Goal</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilator Associated Pneumonia (N=50)</td>
<td>Rate of zero VAPs</td>
<td>Rate declined from 2.21 in 2009 to 0.94 in 2012, 57% of the way toward zero.</td>
</tr>
<tr>
<td>Catheter Associated Urinary Tract Infection (N=25)</td>
<td>Rate of zero CAUTIs</td>
<td>Rate declined from 1.19 in 2009 to 0.90 in 2012, 24% of the way toward zero.</td>
</tr>
<tr>
<td>Central Line Blood Stream Infections (N=47)</td>
<td>Rate of zero CLBSIs</td>
<td>Rate declined from 2.24 in 2009 to 1.27 in 2012, 43% of the way toward zero.</td>
</tr>
<tr>
<td>Sepsis Deaths (N=49)</td>
<td>30% reduction in Sepsis Mortality</td>
<td>Rate declined from 22.58 in 2009 to 16.62 in 2012, 88% of the way towards the goal.</td>
</tr>
<tr>
<td>Perinatal Gestational Age Deliveries (N=31)</td>
<td>Reduce elective deliveries prior to 39 weeks to 5% or less</td>
<td>Percentage declined from 9.94% in 2009 to 2.57% in 2012, goal has been met!</td>
</tr>
</tbody>
</table>

Source: NHF Data Collection System

Reaching and Maintaining Zero

A total of 20 hospitals reported zero VAP cases for every quarter in 2010, 2011, and 2012 (see Chart 7). There were 10 hospitals that reported zero VAP cases for all but one quarter during the 2010-2012 period. There were 101 hospitals that reported at least one quarter to ten quarters of no VAP cases from 2010-2012.
Very few hospitals (N=3) reported zero CAUTIs for every quarter of 2010-2012 (see Chart 8). Thirty-two hospitals reported having no CAUTIs for one or two quarters during 2010-2012, while 56 hospitals reported having no CAUTIs for three to eleven quarters during the period.
Only five hospitals reported having zero CLBSIs for all of 2010-2012 and 12 reported zero CLBSIs for all but one quarter (see Chart 9). Ten hospitals reported zero CLBSIs for only one quarter during the period and 22 hospitals reported having zero CLBSIs for five quarters during the period.

**CHART 9. HOSPITALS REACHING ZERO CLBSI INFECTIONS (2010-2012)**

In addition, those hospitals that reported a higher number of zeros for VAP also reported a higher number of zeros for CLSBI (N=125) and CAUTI (N=82). Likewise, hospitals which reported a higher number of zeros for CLSBI also reported a higher number of zeros for CAUTI (N=85). Out of 159 hospitals that reported a zero value for at least one initiative during 2010-2012, 49 percent (78 hospitals) reported zeros during at least one quarter for VAP, CLSBI, and CAUTI.

Many PSF hospitals have reached zero for one or more HAIs, however many still have work to do to achieve and sustain that goal. Those that have reached zero are looked to as case examples of how to successfully reduce hospital acquired infections.
COST AVOIDANCE

A reduction of HAI’s, sepsis mortality and early elective deliveries is not only good for the patient, but also significantly reduces healthcare costs. The cost avoidance analysis uses paired data for 2010-2012 to provide the most accurate assessment of cost reduction generated during the three years of the PSF initiative and is based on the following cost avoidance calculation:

\[
\text{Costs Avoided} = \text{Average cost per case} \times \text{Number of avoided cases}
\]

\[
\text{Number of avoided cases} = \text{Expected number of cases} - \text{Observed number of cases}
\]

Number of device-days in comparison year. Number of device-days in efferent year.

The key points of the cost avoidance analysis are as follows:

- **3,576** lives saved, using paired data for avoided sepsis mortality for 2010-2012
- **$63,804,021** amount of costs avoided overall, using paired data for 2010-2012

The major limitation for all of the methods is that relatively few hospitals have reported complete data. All methods use the assumption that the rates in the cases avoided year would have been the same as the baseline rates to calculate the cases avoided. A major drawback of this approach is that only hospitals that report paired data are used in the analysis, so less data is being used than collected. It is likely that cost avoidance calculations would be much greater if there were more paired data.
CONCLUSION

“This three year Patient Safety First program demonstrates that when over 180 hospitals identify a problem, utilize a common data base and work collaboratively to make hospitals safer, significant progress can be made. Particularly impressive is that these outcomes have been achieved in spite of the fact that participating hospitals are extremely diverse; large and small, not-for-profit and for profit, sectarian and non-sectarian, independent or in systems and geographically dispersed throughout California.”

J. Eugene Grigsby, CEO
National Health Foundation

By bringing diverse hospitals together to learn from each other, implement evidence-based best practices and collect data toward shared outcomes, PSF participating hospitals have achieved significant improvements in patient safety and quality and reduced health care costs. Over the past three years, partners have made significant progress towards their original three year program goals in the areas of hospital acquired infections, sepsis mortality and perinatal care.

All initiatives have shown improvement towards reaching PSF goals; all of these changes are statistically significant except for CAUTI. In addition, over 3,576 lives have been saved as a result of reducing sepsis mortality. Improvement in patient safety has also been translated into significant cost savings. Based on paired data for 2010, 2011, and 2012 in comparison to 2009, an estimated $63.8 million of costs has been avoided statewide. This is most likely an underestimate as the figure is based only on hospitals that have submitted paired data over four years (2009-2012).

Not only have hospitals shown quality improvement but PSF has created a robust data set over three years that no group has collected systematically before. This has implications for future work in quality and safety and can be used as a baseline or comparative data set.

Lessons Learned
Throughout the three year project, all partners have learned valuable lessons in operating a successful quality improvement partnership.

1. It is possible to get a group of diverse hospitals who do not share a common system to collaborate with the specific aim of reducing the risk of potential harm resulting from hospitalization. PSF could serve as a model as healthcare reform moves forward in how to unite disparate hospitals to reduce hospital associated infections, increase patient satisfaction and reduce healthcare costs.

2. While it is evident that participating hospitals that are submitting data are showing significant improvement and cost savings, it continues to be a challenge to collect data consistently from all participating hospitals. Currently, there are multiple regional, statewide and quality efforts that require hospitals to submit data. Therefore many PSF participating hospitals are experiencing data fatigue. It remains to be seen whether or not full implementation of the ACA which will penalize hospitals for not showing quality improvement will motivate increase data submission.

3. While participating hospitals of PSF have seen significant improvements in patient safety and quality, it is unknown if there is a direct significant correlation with PSF due to concomitant quality initiatives. It is postulated that PSF has made a direct impact as it is the largest and most comprehensive statewide quality initiative and has worked the longest on specific initiatives. Running a case control study to determine if PSF has a direct significant correlation with improvement would be optimal, however due to additional initiatives that hospitals participate in, it is impossible to find pure cases and controls.

4. While strategies for improvement were promoted to PSF hospitals, they were not prescriptive and/or measured. Moving forward it will be important to focus on strategies or best practices that individual hospitals are using and measure the use of these best practices in relationship to improvement. This will entail more focused one on one work and assistance for hospitals facing challenges in making progress. This could be a possibility for future collaboratives that are more instructive within institutions on how to use best practices followed by measurement of improvement.

Implications for the Future
In light of the passage of the Affordable Care Act (ACA), the Centers for Medicare and Medicaid Services (CMS) is pushing to improve quality while reducing cost which entails
adequate quality improvement programming and measurement of quality indicators nationally and statewide. Hospitals now have a financial incentive to improve quality as focus moves from volume to improved outcomes. With the passage of the ACA, various mechanisms for reimbursement of hospitals based on quality will be available including value based purchasing and new ACO (Medicare) and Medicaid quality/cost based reimbursement structures (see Appendix G).

Additionally, in 2011 the ACA facilitated the creation of the Health Research and Educational Trust (HERT) in partnership with the American Hospital Association which in turn has created Hospital Engagement Networks (HENs) of which California is a participant. Many of the participants in the initiatives coincide with PSF initiatives. Additionally, within California, other quality initiatives already exist and are evolving such as California Hospital Patient Safety Organization (CHPSO) which focuses on measuring retained surgical items.

In light of multiple statewide quality efforts and the importance of reducing duplicative efforts, the California Hospital Association and three regional hospital associations created a statewide non-profit organization to serve as an umbrella for all quality improvement efforts. Consequently, Hospital Quality Institute (HQI) was established April, 2013 to realize statewide impact to improve patient safety and quality care for all Californians; to accelerate the rate of improvement; and to advance California as a national leader in quality performance. Based on the success of Patient Safety First and other statewide initiatives, the California Hospital Association realized the importance of working together across regions throughout California to make the largest impact.

Moving forward Patient Safety First will become a part of HQI and the other statewide efforts. The other core programs of HQI are:

CALIFORNIA HOSPITAL PATIENT SAFETY ORGANIZATION (CHPSO): Which analyzes reports of harm, near misses and system vulnerabilities. Communicates lessons learned, and identifies leverage points for change and safer care. Provide interprofessional and experiential education in safety systems and practices. Provides peer review protection of work products.

HOSPITAL ENGAGEMENT NETWORK (CalHEN): Which decreases readmissions by 20 percent and hospital acquired conditions by 40 percent through targeted interventions, benchmarking and spread of best practices, with ongoing new targets to set the theoretical limits of what is possible (zero defect or 100 percent compliance).

VEHICLES OF ENGAGEMENT, COMMUNICATION AND PROBLEM SOLVING: A network of committees and workgroups exists to provide broad multidirectional communication, alignment, and problem-solving across hospitals and subject matter experts on focused topics, such as healthcare-acquired infections (HAI), and healthcare-acquired conditions (HAC). The Hospital Quality Committee (HQC) exists to share information and learning, and to gauge the rate of progress in improvement.

PSF has been a pioneer in aiming to improve quality and reduce costs and continues to be an example and roadmap for the creation and expansion of other statewide initiatives. PSF member hospitals have already shown improvement in four important hospital based avoidable harms’ initiatives. Because of the success of PSF hospitals, the “low hanging fruit” has already been picked in terms of improvement. For this reason and for the sake of achieving the largest statewide impact, PSF must align itself with other statewide initiatives moving forward. It is imperative that all potential initiatives be aligned with one another to avoid repetition and to maximize impact.

Based on lessons learned and given the goals of the ACA and HQI, some of the things the new organization might address include the following:

1. Facilitate complete data submission from hospitals
2. Reduce the disparity of improvement results between hospitals
3. Identify what it takes to get hospitals to achieve and maintain “zero”
4. Make quality data transparent to California residents
5. Engage physicians in quality improvement efforts
6. Create and maintain a centralized Patient Safety Quality database
7. Produce periodic reports on the outcomes of various Patient Safety initiatives statewide and nationally
Phase 2 of PSF is currently underway. While data collection continues for phase 1 initiatives, there have been deletions and additions in PSF initiatives and goals moving forward. Current phase 2 focus areas include:

- Sepsis Mortality
- Clostridium Difficile
- Surgical Safety
- Perinatal Gestational Age Deliveries Under 39 Weeks

PSF partners hope to maintain past successes and improvements and achieve the same with new initiatives.

1. According to the Centers for Disease Control and Prevention (CDC), approximately 1 out of every 20 hospitalized patients will contract an HAI (www.cdc.gov/HAIburden.html) and hospitalization for septicemia or sepsis more than doubled from 2000 to 2008 (www.cdc.gov/nchs/data/databriefs/db62.htm).

2. The Breakthrough Series: IHI’s Collaborative Model for Achieving Breakthrough Improvement. IHI Innovation Series white paper. Boston: Institute for Healthcare Improve-

3. Associates in Process Improvement (API) develops methods, works with leaders and teams, and provides education and training to help organizations improve their prod-


5. The hospitals participating in the perinatal track are a subset of those participating in the overall collaborative; therefore the 109 participating are included in the 182 total.


7. Jarvis W. The United States approach to strategies in the battle against healthcare-associated infections, 2006: transitioning from benchmarking to zero tolerance and clini-


10. Expected number of cases = (Observed number of cases in referent year) x (Number of device-days in comparison year)/(Number of device-days in referent year).

11. Device days are defined by the CDC as a daily count of the number of patients with a specific device in the patient care location during a time period.
### APPENDIX A.
PATIENT SAFETY PRACTICES/STRATEGIES SAMPLE FROM REGIONS

<table>
<thead>
<tr>
<th>PSF Initiative</th>
<th>Intervention/ Best Practice</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sepsis</td>
<td>Early Goal Directed Therapy (EGDT)</td>
<td>Goal-directed therapy has been used for severe sepsis and septic shock in the intensive care unit. This approach involves adjustments of cardiac preload, afterload, and contractility to balance oxygen delivery with oxygen demand. <a href="http://www.nejm.org">www.nejm.org</a></td>
</tr>
<tr>
<td></td>
<td>Algorithms and Order Sets</td>
<td>A step by step protocol for the treatment of sepsis. Used in conjunction with EGDT to increase recognition and early treatment of sepsis.                                                                 <a href="http://www.nursing.sdsu.edu/inr/miscfiles/sepsis.ppt">www.nursing.sdsu.edu/inr/miscfiles/sepsis.ppt</a></td>
</tr>
<tr>
<td></td>
<td>Rapid Response Team</td>
<td>The Rapid Response Team — known by some as the Medical Emergency Team — is a team of clinicians who bring critical care expertise to the bedside. Simply put, the purpose of the Rapid Response Team is to bring critical care expertise to the patient bedside (or wherever it’s needed). <a href="http://www.ihi.org/explore/RapidResponseTeams/Pages/default.asp">http://www.ihi.org/explore/RapidResponseTeams/Pages/default.asp</a></td>
</tr>
<tr>
<td>CLBSI</td>
<td>Central Line Placement Checklist</td>
<td>Implementing a central line checklist at the time of insertion will help to ensure that all processes related to central line placement are executed for each line placement, thereby leading to a reliable process. The checklist includes a list of activities that are considered standard work before, during, and after the procedure, as well as a safety checklist. <a href="http://www.ihi.org/knowledge/Pages/Tools/CentralLineInsertionChecklist.aspx">http://www.ihi.org/knowledge/Pages/Tools/CentralLineInsertionChecklist.aspx</a></td>
</tr>
<tr>
<td></td>
<td>CLIP Forms</td>
<td>Central line insertion practices (CLIP) adherence monitoring forms are designed to monitor processes performed at the time of central line insertion. Feedback of adherence data has been a component of multifaceted interventions that have successfully reduced CLBSI rates. <a href="http://www.dhcs.ca.gov/provgovpart/initiatives/nqi/.../CDPHCLIPInstr.doc">www.dhcs.ca.gov/provgovpart/initiatives/nqi/.../CDPHCLIPInstr.doc</a></td>
</tr>
<tr>
<td>CAUTI</td>
<td>CAUTI Bundle</td>
<td>A series of interventions related to catheter care that, when implemented together, will achieve significantly better outcomes than when implemented individually. <a href="http://www.ihi.org">www.ihi.org</a></td>
</tr>
<tr>
<td>Perinatal Birth Trauma</td>
<td>CMQCC OB Hemorrhage Toolkit</td>
<td>A resource for health care providers to improve readiness, recognition, response and reporting of hemorrhage. Obstetric hemorrhage is a leading cause of pregnancy-related morbidity and mortality but has major opportunities for improved outcomes. <a href="http://www.cmqcc.org/ob_hemorrhage">http://www.cmqcc.org/ob_hemorrhage</a></td>
</tr>
<tr>
<td>Non-Medically Indicated Elective Deliveries &lt;39 weeks</td>
<td>March of Dimes Less than 39 weeks toolkit</td>
<td>A comprehensive toolkit that includes a step-by-step guide to assist hospitals leaders with the implementation of policies to eliminate non-medically indicated deliveries before 39 weeks gestational age. Available to all hospitals across the country. <a href="http://www.marchofdimes.com/professionals/medicalresources_39weeks.html">www.marchofdimes.com/professionals/medicalresources_39weeks.html</a></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Physician/Staff Education</td>
<td>Effective interventions for reducing early elective deliveries begins with educating clinical providers and support staff about changes that are necessary for improving care. <a href="http://www.marchofdimes.com/professionals/medicalresources_39weeks.html">www.marchofdimes.com/professionals/medicalresources_39weeks.html</a></td>
<td></td>
</tr>
<tr>
<td>Policy/Procedure Revision</td>
<td>This includes developing new process for scheduling inductions aimed toward decreasing inappropriate inductions, establishing standards that follow ACOG and national criteria and establishing policies that provide clear direction to nursing staff and clerks for scheduling process. <a href="http://www.marchofdimes.com/professionals/medicalresources_39weeks.html">www.marchofdimes.com/professionals/medicalresources_39weeks.html</a></td>
<td></td>
</tr>
<tr>
<td>“Hard Stop” Policy</td>
<td>A strict policy that eliminates elective deliveries under 39 weeks gestation without documented pulmonary maturity studies. Research shows this is the most effective way to reduce and eventually eliminate elective deliveries &lt;39. <a href="http://www.scha.org/files/documents/ajog_obstetrics_article.pdf">www.scha.org/files/documents/ajog_obstetrics_article.pdf</a></td>
<td></td>
</tr>
</tbody>
</table>
### APPENDIX B.
**PATIENT SAFETY FIRST...A CALIFORNIA PARTNERSHIP**
**FOR HEALTH**
**PERFORMANCE MEASUREMENT PLAN FOR HOSPITALS**

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Measurement Plan</th>
<th>Three Year Goal</th>
</tr>
</thead>
</table>
| **Perinatal Birth Trauma**     | **Definition: Birth trauma rate per 1,000 live births**  
   Numerator= The # of neonates discharged with an ICD-9CM code* for birth trauma  
   Denominator= The # of all live newborns  
   AHRQ – PSI 17  
   *Birth trauma diagnosis codes: 767, 767.0, 767.11, 767.2, 767.3, 767.4, 767.5, 767.7, 767.8, 767.9  
   Excludes pre-term infants < 2,000 grams; excludes infants with diagnosis code for injury to brachial plexus; excludes infants with diagnosis code for osteogenesis imperfecta.  
   **Source:** Hospital information system- administrative data, code based.  
   **Baseline:** 2009 results data by quarter  
   Hospitals will reduce associated birth trauma by 25 % within 3 years. |                                                                                                                                                             |
| **Perinatal Gestational age deliveries** | **Definition – Percentage of elective deliveries at <39 weeks gestational age**  
   Numerator = The # of elective* deliveries at <39 weeks gestational age  
   Denominator =The # of singleton live births meeting the following criteria:  
   Gestational age by best clinical estimate (usually US confirming LMP): documented at 37+0 to 38+6 weeks  
   **“Elective” = scheduled birth either CS or induction. Induction includes all forms of induction: oxytocin, prostaglandin, Foley, and AROM when not in labor. Elective CS also means that the woman is not in labor (many repeat CS are done in early labor but will not have an ICD9 code for labor as that does not exist.)  
   **Exclusions:** Indications for delivery that make it not elective are the ACOG list or a woman with spontaneous labor on admission.  
   **Source:** Data may reside in various places including sources such as: Hospital information system, Birth log, Medical Record  
   **Baseline:** 1st quarter data submission will create baseline for each hospital-collaborative will determine intersection of trend line for establishing baseline.  
   Hospitals will reduce elective deliveries prior to 39 weeks to 5% or less within 3 years. |                                                                                                                                                             |

**Guidelines for Assessing Fetal Maturity (ACOG Prac Bull #97; August 2008)**
- Fetal heart tones have been documented for 30 weeks by Doppler  
- It has been 36 weeks since a positive serum or urine HCG pregnancy test  
- Ultrasound measurement at less than 20 weeks of gestation supports gestational age of 39 weeks or greater  
- An ultrasound supports menstrual dating if:  
  - Obtained in the first trimester with CRL measurement within 1 week of menstrual dating  
  - Obtained at up to 20 weeks with assessment by multiple fetal biometric parameters that is within 10 days of menstrual dating.  
- Amniocentesis and documentation of fetal maturity
| **Sepsis** | **Definition – Sepsis Mortality Rate**  
Numerator = # of sepsis patients who expired  
Denominator = # sepsis patients  
**Source:** Hospitals – No statewide standard measure exists, therefore we recommend the following definition if not already using one used by the INLP (Integrated Nurse Leadership Program with the California Health Care Foundation)  
Commonly used sepsis codes: 38.0 38.9 Septicemia codes – this is run as a primary range (usually about 90% of the sepsis cases are coded using this range of codes)  
The sepsis codes are run as a 2nd (running these codes as well may identify additional cases)  
995.92 Severe Sepsis – one organ failure or 785.52 Septic shock  
**Baseline:** 2009 data results by quarter  
[http://www.survivingsepsis.org/How_to_Improve/Pages/Setting_Aims.aspx](http://www.survivingsepsis.org/How_to_Improve/Pages/Setting_Aims.aspx)  
[http://www.survivingsepsis.org/Bundles/Pages/default.aspx](http://www.survivingsepsis.org/Bundles/Pages/default.aspx)  
| Statewide 30% reduction in Mortality within 3 years |
| **Central Line Blood Stream Infections (CLBSI)** | **Definition:** CLBSI rate per 1,000 central line days  
Numerator = # of CLBSI cases in all ICUs in the organization  
Denominator = # of central line days in all ICUs  
*If your hospital does not have any ICUs please report hospital-wide data.  
**Source:** Collection of cases via the Infection Preventionist  
**Baseline:** 2009 data results  
| Hospitals will target zero CLBSI within 3 years. |
| **Ventilator-Associated Pneumonia (VAP)** | **Definition:** VAP rate per 1,000 ventilator days  
Numerator = # of VAP cases in all ICUs in the organization  
Denominator = # of ventilator days in all ICUs  
**Source:** Collection of cases via the Infection Preventionist  
**Baseline:** 2009 data results  
| Hospitals will target zero infections within 3 years. |
| **CAUTI** | **Definition:** Catheter Associated Urinary Tract Infection rate, hospital acquired.  
Numerator = # of catheter associated hospital acquired urinary tract infections  
Denominator = # of patient days  
**Source:** Collection of positive urine culture cases by Infection Preventionist from the medical record  
**Baseline:** Intersection of first quarter data point  
CDC for Numerator:  
| Hospitals will target a goal of Zero catheter associated UTI’s. |
APPENDIX C.
PATIENT SAFETY FIRST...A CALIFORNIA PARTNERSHIP FOR HEALTH
AWARDS & RECOGNITION

2011 National Patient Safety Foundation
Forum-Poster Presentation
Mia Arias, Program Director, presented a poster on PSF at the NPSF 13th Annual Patient Safety Congress. This is a premier annual Congress of patient safety experts and practitioners from around the globe.

2011 Blue National Summit Presentation
Tracy Wang, Anthem Blue Cross Public Health Program Director, presented “Collaborations to Drive Community Wide Engagement” using PSF as the model.

2011 Best of Blue Clinical Distinction Award
This award recognizes the achievements of the Blue Plans that take a leadership role in:

• Making healthcare safe
• Improving care quality, accessibility and affordability
• Engaging providers, consumers and communities

Tracy Wang accepted this award on behalf of Anthem Blue Cross and Patient Safety First partners.

2012 WellPoint Pinnacle Award
This internal WellPoint leadership award recognizes exemplary programs that work to advance the company’s mission and business and business objectives. Dr. Lisa Latts and Mark Morgan accepted this award on behalf of Anthem Blue Cross (a subsidiary of WellPoint) and Patient Safety First partners.

2012 Institute for Healthcare Improvement (IHI) -Poster Presentation
Mia Arias, Program Director, presented a poster on PSF at this annual event which draws nearly 6,000 health care leaders from around the world to Orlando, FL and thousands more via satellite broadcast.

2012 National Patient Safety Foundation
Forum-Poster Presentation
PSF presented year 2 outcomes at the NPSF 14th Annual Patient Safety Congress.

2013 Academy for Healthcare Improvement’s Conference
PSF presented year 2 outcomes at the 2013 Academy for Healthcare Improvement’s Conference on “Doing Research at the Front Line of Improving Health Care”, April 25-26, 2013 in Arlington, Virginia

2013 URAC Quality Summit, Best Practices Awards
PSF is a finalist for the 2013 URAC Awards for Best Practices in Health Care Consumer Engagement and Protection in the Health Plans category. The winners will be announced at the conference which is taking place in Washington D.C. in early October.
APPENDIX D. LIST OF PARTICIPATING HOSPITALS

Adventist Health - Reedley (Sierra Kings District Hospital)
Adventist Medical Center - Hanford
Adventist Medical Center - Selma
AHMC Anaheim Regional Medical Center
Alhambra Hospital Medical Center
Alvarado Hospital
Antelope Valley Hospital
Arrowhead Regional Medical Center
Bakersfield Memorial Hospital
Barlow Respiratory Hospital
Barton Hospital
Bellflower Medical Center
California Hospital Medical Center
Catalina Island Medical Center
Cedars-Sinai Medical Center
Centinela Hospital Medical Center
Central Valley General Hospital
Chino Valley Medical Center
Citrus Valley Medical Center - Inter-Community
Citrus Valley Medical Center - Queen of the Valley
City of Hope - Helford Clinical
Coalinga Regional Medical Center
Coastal Communities Hospital
Colusa Regional Medical Center
Community Hospital of the Monterey Peninsula
Community Memorial Hospital
Community Regional Medical Center
Corcoran Hospital
Corona Regional Medical Center
Dameron Hospital Association
Desert Regional Medical Center
Desert Valley Hospital
Doctors Medical Center, Manteca
Doctors Medical Center, Modesto Downey Regional Medical Center
East LA Doctors’ Hospital
El Centro Regional Medical Center
Emmanuel Medical Center
Encino Hospital Medical Center
Feather River Hospital
Foothill Presbyterian Hospital
Fountain Valley Regional Hospital and Medical Center
Fremont-Rideout Hospital
Garden Grove Hospital and Medical Center
Garfield Medical Center
Glendale Adventist Medical Center/
Adventist Health
Glendale Memorial Hospital and Health Center
Goleta Valley Cottage Hospital
Good Samaritan Hospital Healdsburg District Hospital
Hemet Valley Medical Center
Henry Mayo Newhall Memorial Hospital
Hi-Desert Medical Center
Hoag Memorial Hospital Presbyterian
Hollywood Presbyterian Medical Center
Huntington Beach Hospital
Huntington Memorial Hospital
JFK Memorial Hospital
John Muir Health System, Concord Campus & Walnut Creek Campus
Kaiser Foundation Hospital Fresno
Kaiser Permanente Fremont Medical Center
Kaiser Permanente Hayward Medical Center
Kaiser Permanente Manteca Medical Center
Kaiser Permanente Modesto Medical Center
Kaiser Permanente Vacaville Medical Center
Kaiser Permanente Vallejo Medical Center
Kaweah Delta Medical Center
Keck Hospital of USC
Kern Medical Center
Kern Valley Healthcare District
Kindred Hospital - La Mirada
Kindred Hospital - San Diego
LA Metropolitan Medical Center
La Palma Intercommunity Hospital
LAC Olive View
Lakewood Regional Medical Center
Lodi Memorial Hospital
Loma Linda University Medical Center
Lompoc Valley Medical Center
Long Beach Memorial Medical Center
Los Alamitos Medical Center
Madera Community Medical Center
Marian Medical Center
Marin General Hospital
Marina Del Rey Hospital
Marshall Medical Center
Mayers Memorial Hospital District
Memorial Hospital of Gardenia
Memorial Medical Center, Modesto
Menifee Valley Medical Center
Mercy Hospital of Folsom
Mercy Medical Center Merced
Methodist Hospital of Southern California
Mills Peninsula Health Services
Mission Hospital
Montclair Hospital Medical Center
Monterey Park Hospital
Northern CA Rehabilitation Hospital
Oak Valley Hospital District
O’Connor Hospital
Ojai Valley Community Hospital
Olympia Medical Center
Orange Coast Memorial Medical Center
Pacific Alliance Medical Center
Pacific Hospital of Long Beach
Palmdale Regional Medical Center
Palomar Medical Center
Paradise Valley Hospital
Parkview Community Hospital Medical Center
Pioneers Memorial Healthcare District
Placentia-Linda Hospital
Pomerado Hospital
Pomona Valley Hospital Medical Center
Providence Holy Cross Medical Center
Providence Little Company of Mary Medical Center - San Pedro
Providence Little Company of Mary Medical Center - Torrance
Providence Saint Joseph Medical Center
Providence Tarzana Medical Center
Rady Children’s Hospital - San Diego
Redlands Community Hospital
Riverside County Regional Medical Center
Saddleback Memorial Medical Center
Saint John’s Hospital and Health Center
Salinas Valley Memorial Healthcare System
San Antonio Community Hospital
San Bernardino Mountains Community Hospital District
San Dimas Community Hospital
San Francisco General Hospital
San Joaquin General Hospital
San Joaquin Valley Rehab Hospital
Santa Barbara Cottage Hospital
Santa Ynez Valley Cottage Hospital
Scripps Green Hospital
Scripps Memorial Hospital Encinitas Scripps Memorial Hospital La Jolla
Scripps Mercy Hospital
Scripps Mercy Hospital Chula Vista
Seton Medical Center
Sharp Chula Vista Medical Center
Sharp Coronado Hospital
Sharp Grossmont Hospital
Sharp Mary Birch Hospital for Women and Newborns
Sharp Memorial Hospital
Shasta Regional Medical Center
Sherman Oaks Hospital
Shriners Hospitals for Children - Los Angeles
Shriners Hospitals for Children Northern California
Sierra View District Hospital
Silver Lake Medical Center
Southwest Healthcare
St. Francis Medical Center
St. Francis Memorial Hospital
St. John's Pleasant Valley Hospital
St. John's Regional Medical Center
St. Joseph Hospital
St. Joseph's Medical Center
St. Jude Medical Center
St. Mary Medical Center
St. Mary's Medical Center
St. Rose Hospital
St. Vincent Medical Center
Sutter Tracy Community Hospital
Tehachapi Regional District Hospital
Torrance Memorial Medical Center
Tri-City Medical Center
Tulare Regional District Hospital
UC Davis Medical Center
UC San Diego Medical Center
UC San Diego Thornton Hospital
UCSF Medical Center
Ukiah Valley Medical Center
University of California - Ronald Reagan
UCLA Medical Center
University of California - Santa Monica Medical Center
University of California Irvine Healthcare
VA Greater Los Angeles Healthcare System
Valley Presbyterian Hospital
Ventura County Medical Center
Verdugo Hills Hospital
Victor Valley Community Hospital
West Anaheim Medical Center
Western Medical Center - Anaheim
Western Medical Center - Santa Ana
White Memorial Medical Center/Adventist Health
Whittier Hospital Medical Center
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All participating hospitals as referenced in Appendix D.

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