Dear Industry Leaders, Care Providers and Patients,

Producing outstanding patient care outcomes requires a fastidious dedication to preventing adverse events—ensuring patients don’t get harmed or sicker from preventable hospital-acquired conditions. That requires a commitment to excellence and a lot of hard work behind the scenes. Almost ten years ago, when most did not even consider it feasible, the New England Baptist Hospital Board of Trustees adopted a goal of eliminating preventable harm to our patients, such as surgical site infections and medication errors. The Board’s directive galvanized clinical and organizational efforts to improve outcomes.

These efforts were accelerated in 2006 when Blue Cross Blue Shield of Massachusetts selected us as one of only five organizations invited to participate in an innovative program called “LEAD.” Their goal was to promote transformational change in Massachusetts health care and they were looking for partners that had demonstrated leadership and an organizational commitment to quality and patient safety. Under the program, we adopted three audacious goals—to eliminate medication events, surgical site infections and post-operative blood clots. Our work in the LEAD program enhanced our ongoing improvement efforts, illustrated in this report. The program ended in 2009, with infection rates near zero. However, our quest for “zero” complications for our patients continues.

We believe that our patients are vital partners in the care delivery process on multiple levels. We invite patients to become involved in their own care through preoperative teaching classes and email newsletters, and by telling us about any special concerns. We engage our patients in their goal-setting during the hospital stay. Patients are also encouraged to provide feedback after their visits, and are welcomed to our Patient and Family Advisory Council, established in 2010.

Although our progress in the past decade has been substantial, we will never cease our commitment to excellence and the quest for “zero” complications for our patients.

Trish Hannon
President and Chief Executive Officer
Dear Colleagues,

We are pleased to share with you the first annual New England Baptist Hospital Quality Report. I am often asked how we are able to achieve superior results in orthopedics and musculoskeletal care while taking on a complex case mix and maintaining value for our patients and insurance providers. At times it does seem like magic. In this report, we “unmask the magic,” so to speak, and explain what we do and how we do it.

A longtime leader in orthopedics and musculoskeletal care, the Hospital has devoted itself to a series of ambitious goals—zero infections and zero medication errors, zero falls and the top 1% in patient satisfaction and loyalty. The result has been a set of stellar outcomes, which have gained us national recognition from insurers, external government agencies and our patients, who have given us the highest rankings for patient satisfaction, compared with our national and regional peers.

In recent years, we have improved our outcomes through a series of interdisciplinary projects to head off potentially difficult problems before they occur. Taking lessons from manufacturing, we retooled processes to identify problems early in treatment before they can turn into larger problems later on. The result is reduced length of stay, fewer readmissions and adverse events, and improved safety.

For example, we reorganized our preadmission process to identify high-risk patients and make sure that they receive additional focus. We ask patients to sign a fall prevention “contract” prior to surgery to engage their cooperation in our efforts to keep them safe. After surgery, we encourage early walking and physical therapy, helping patients to get on their feet and back home more quickly.

We could not have achieved these outcomes without the leadership of the Physician Department Chairmen and the Senior Vice President for Patient Care Services as well as the cooperation of their dedicated teams of physicians, nurses and support staff in clinical and non-clinical areas. The synergy they have created is part of the “Baptist way”, which we will attempt to describe in the following pages through statistics and graphs but will always be more than the sum of its parts.

Respectfully,

Maureen Broms, RN, MS
Vice President, Health Care Quality, Informatics and Research
Clinical Leadership

Frederick C. Basilico, MD
Chair, Department of Medicine

Robert H. Bode, MD
Chair, Department of Anesthesia

James V. Bono, MD
Vice Chair, Orthopedics

Stephen J. Camer, MD
Chair, Department of Surgery

Diane Gulczynski, RN, MS, CNOR
Senior Vice President, Clinical Operations and CNO

Jihad Hayek, MD
Chair, Department of Pathology

Gary Kearney, MD
Vice Chair, Department of Surgery
President, Medical Staff

Joel S. Newman, MD
Chair, Department of Radiology

John C. Richmond, MD
Chair, Department of Orthopedics
Our Mission Statement

New England Baptist Hospital transforms the lives of those we serve by promoting wellness, restoring function, lessening disability, alleviating pain, and advancing knowledge in musculoskeletal diseases and related disorders. Our mission is delivered on a foundation of Respect, Ownership, Superior Service, and Excellence in all that we do.

Our Vision

New England Baptist Hospital will be recognized as the premier and preferred destination for musculoskeletal care. NEBH will lead the region as the most trusted source for care and education for patients with musculoskeletal disease and related disorders. We will earn our leadership position among the nation's top hospitals through clinical excellence, innovation, scholarship, efficiency, and legendary service to our patients.

Values

We are committed to upholding our core values of Respect, Ownership, Superior Service, and Excellence.

- **Respect** – Acting with integrity in all things. Being trustworthy and respectful of fellow employees, physicians, patients and our community.

- **Ownership** – Being accountable to our core values and our patient outcomes, while we act as stewards of precious resources.

- **Superior Service** – Behaving in a manner which recognizes that all customer requests are important and that we address these needs in a timely, accurate, compassionate and friendly manner—thereby creating a legendary experience.

- **Excellence** – Striving to reach ever higher levels of performance in all that we do through continuous improvement in care delivery, education and support processes.

Operating Principles of Our Leadership

1. Our patients are at the center of all that we do. Their needs come first and we are partners in the plan of care.

2. Mutual trust, respect, teamwork and professionalism will characterize the interactions among our board members, leadership team, physicians and staff.

3. Individual and organizational integrity and transparency are critical to our success.

4. A commitment to physician-hospital partnership that enables ever greater collaboration will be key to achieving our vision.

5. A commitment to team and loyalty to the institution as a whole will create a legacy of stewardship by clinical and administrative leaders.

6. A commitment to excellence will be realized through innovation, shared accountability, and a drive to continuously improve.
Distinctions

Selected by *U.S. News & World Report* as a top hospital for orthopedics for the 8th year in a row and the second time for neurosurgery.

Official Hospital of the Boston Celtics, serving athletes and the organization with the finest musculoskeletal services from prevention of injuries to urgent care services.

National Blue Distinction Center for Hip and Knee Replacement and for Spine Surgery.


Three-time Press Ganey National Summit Award Recipient 2008, 2009, 2010, for excellence in patient satisfaction. This award is given only to organizations that have achieved the 95th percentile or better for a minimum of three consecutive years. In 2010, the Baptist ranked in the 99th percentile.
Top performer in the national HCAHPS survey. HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) conducted by the federal government is a national, standardized survey of hospital patients.

Betsy Lehman Patient Safety Award for implementation of a MRSA and MSSA eradication program (2007).

Association of Operating Room Nurses Perioperative Hand Hygiene Champions Award—NEBH Infection Control (2010).

New England Society for Healthcare Communications (NESHCo)—Lamplighter Award for staff education hand hygiene campaigns, which include “Bug Beat Fairs” (2010).

Teaching affiliate of Tufts University School of Medicine.

Conducts teaching programs in affiliation with the Harvard School of Public Health and Harvard Medical School.

New England Baptist Hospital and Tufts University School of Medicine

New England Baptist Hospital and Harvard School of Public Health and Harvard Medical School
DLin/Fischer Award for best research, Academy of Psychosomatic Medicine (2008) for a study conducted at NEBH on post-operative delirium.

Accredited by the Joint Commission.
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Our Unique Approach to Better Outcomes

Since our founding in 1893, New England Baptist Hospital has developed a reputation for excellence in patient care and innovation in surgery. Our approach leads to a higher rate of positive outcomes—even with the most complex cases—greater cost efficiency, and low rates of adverse events such as infections, falls and skin breakdown.

Our focus on orthopedics began in 1968, when Dr. Otto E. Aufranc established the Hospital’s first Orthopedic Department. Along with other Baptist surgeons, Dr. Aufranc developed and implanted one of the first American replacement hips. During the past 50 years, the Hospital’s skill and reputation in orthopedics and musculoskeletal care has grown tremendously.

The Baptist now performs more complex orthopedic procedures than any other hospital in Massachusetts. We also have the highest annual volume of patients requiring reconstructive orthopedic procedures in New England, and we have become a nationally-renowned referral center. Through the expertise gained by our experience, we have become innovators in quality, patient care and safety.

Although patient satisfaction has always been important, the Hospital initiated a Legendary Service program five years ago, along with additional measures to further integrate patient care with quality and safety. Since then, we have seen continuous reductions in key metrics such as rates of surgical site infection, falls and skin breakdown, and a meteoric rise in patient satisfaction. Highlights include:

- A near-zero infection rate, thanks to a surgical site infection program that incorporates a groundbreaking MRSA elimination protocol. The award-winning protocol, the subject of a July 2010 article in the Journal of Bone and Joint Surgery, has received widespread recognition.
- Consistent performance at the highest levels of patient satisfaction, recognized both on Centers for Medicare & Medicaid Services and Press Ganey surveys. In 2010, we were the only hospital in Massachusetts to receive the prestigious Press Ganey Summit Award, our third year as a recipient.
- Innovative medication safety measures that begin with the patient’s first preoperative visit, including the implementation of barcode scanners for bedside medication verification in 2010.
- Cutting-edge rehabilitation and occupational therapy techniques, which get healthy patients on their feet more quickly and have resulted in a continuous reduction in length of stay.
A Commitment to Transparency—Public Outcomes Reporting

In recognition that patient safety begins with transparency, the Hospital is committed to sharing information about patient outcomes and best practices. Our clinical outcomes are posted on our website and the Hospital participates in several major public reporting initiatives:

- Joint Commission Performance Measurement Initiative (qualitycheck.org)
- Centers for Medicare & Medicaid (CMS) Hospital Compare (hospitalcompare.hhs.gov)
- The Massachusetts Hospital Association’s PatientCareLink (patientcarelink.org)
- Our public website reports data on key patient safety measures.

The Volume Advantage

Our high volume gives us an advantage in patient safety as well as value. Studies show that patients undergoing complex medical procedures can reduce their risk of dying by up to 40 percent if they select a hospital that regularly performs the procedures. Our orthopedic volume has been high for decades, but since 2005 it has steadily increased. During the same period, length of stay has dropped (see page 6), improving value for patients and insurers.

Since fiscal year 2008, the total number of orthopedic cases performed annually has risen 11 percent, from 8884 to 9839. During the same period, the mix of cases has trended away from general surgery and more towards orthopedics.
**SERVICE VOLUME**

<table>
<thead>
<tr>
<th>Measure</th>
<th>FY05</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Acute Total Patient Admissions</td>
<td>6966</td>
<td>7254</td>
<td>7162</td>
<td>7250</td>
<td>7096</td>
<td>7195</td>
</tr>
<tr>
<td>Inpatient Acute Total Inpatient Days</td>
<td>30191</td>
<td>31755</td>
<td>29747</td>
<td>28960</td>
<td>28330</td>
<td>27022</td>
</tr>
<tr>
<td>Inpatient Acute Average LOS</td>
<td>4.3</td>
<td>4.4</td>
<td>4.2</td>
<td>4.1</td>
<td>4.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Outpatient Visits</td>
<td>118512</td>
<td>126765</td>
<td>129350</td>
<td>125020</td>
<td>123573</td>
<td>145251</td>
</tr>
</tbody>
</table>

Source: Meditech Inpatient Location Statistics Report

**CASE MIX**

<table>
<thead>
<tr>
<th>Service</th>
<th>FY05</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthopedic</td>
<td>77%</td>
<td>79%</td>
<td>82%</td>
<td>84%</td>
<td>84%</td>
<td>86%</td>
</tr>
<tr>
<td>Medical</td>
<td>14%</td>
<td>13%</td>
<td>10%</td>
<td>10%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>General Surgery</td>
<td>9%</td>
<td>8%</td>
<td>9%</td>
<td>7%</td>
<td>7%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Source: Meditech Service Volume Report

**Case Severity**

Many of our patients turn to the Baptist when other hospitals have neither the resources nor the expertise to handle their cases. According to the Massachusetts Health Data Consortium, we perform more complex orthopedic procedures than any hospital in Massachusetts. We accept patients with significant comorbidities—cardiac disease, diabetes, mobility issues, obesity, obstructive sleep apnea, and substance abuse, among others—that might prevent them from having surgery elsewhere. We believe that with careful attention to these comorbidities, we can safely provide an appropriate resolution to the patient’s musculoskeletal disorder. More than half of our patients have a body mass index (BMI) of 30 or greater, and half of those have a BMI greater than 35.

The complexity of our cases is reflected in our Case Mix Index, which measures the complexity of all of our cases against a Medicare benchmark. A hip or knee replacement without complications in FY10 received a 2.1 severity ranking from Medicare, while our Case Mix Index was at 2.22, and has remained consistently above average over the past five years.
Despite the complexity of our cases, we consistently achieve high outcomes. From preadmission to discharge and beyond, our approach to the continuum of patient care is characterized by attention to detail, prevention rather than reaction, and application of best practices, all while being flexible and innovative. Several recent initiatives, outlined below, improve value for our patients and insurers.

**Streamlined Preadmission Screening Process**

While we already had one of the most thorough and detailed preadmission screening programs in the country, we thoroughly reworked the process in 2008 and 2009 to better meet patient needs. Rather than moving the patient from room to room, patients now stay put in a single room while nurses, physical therapists, and other caregivers come to see them. A pharmacist meets with the patient to discuss the medications they are currently taking, and any necessary consults are ordered and completed. Throughout the process, communication with the primary provider is maintained to eliminate duplicate testing. High-risk cases are referred to our medical director and nurses for review.

**High-Risk Screening to Prevent Downstream Problems**

Identifying patients who might be likely to have a problem after surgery saves time, effort and cost, as well as avoiding safety problems. Patients are considered high risk if they have a history of cardiac disease, hematological issues, including history of deep vein thrombi (DVTs) or
pulmonary emboli (PEs), prior surgeries, postoperative delirium, or psychological issues. Identified during preadmission, high-risk patients are evaluated by our medical director, anesthesiologists and other specialists, and followed by our dedicated hospitalists. The plan of care is focused on prevention of complications.

New Protocol to Reduce Postoperative Delirium

Postoperative delirium, an acute confusional state, is a problem in any hospital, more so when the case mix is almost entirely surgical. Many delirium patients require transfer to the intensive care unit, which not only increases costs and prolongs the hospital stay but also can be a trying experience for the patient. In 2009, a Hospital task force began work on reducing postoperative delirium, developing new methods for identifying at-risk patients and putting in place medication and other protocols aimed at preventing delirium. As a result, we have seen fewer cases of postoperative delirium and even fewer patients requiring transfer to intensive care.

Early Walking and Physical Therapy

Many patients are surprised that we expect them to get out of bed the same day of having their hip replaced. Evidence shows, however, that patients recover more quickly if they do so. We encourage both hip- and knee-arthroplasty patients to walk as soon as possible—sometimes even the day of surgery for hip patients and the second day after surgery for knee patients. Several of our surgeons are engaged in a new “25-hour hip” protocol, which requires healthy patients to stand and walk the day of surgery so they can be sent home the following day. Our physical and occupational therapists begin working with patients on the day of surgery. Eventually, patients progress to a special “gym” that is configured like a home so they can practice moving around. Patients who are in good shape, particularly younger patients, appreciate this option, allowing them to reach their recovery goals more quickly. We are working on more innovative opportunities to enhance our programs including family training for care at home, to encourage continued mobility of the patient.
Reduced Length of Stay

By preventing complications, revising our preadmission screening process, and encouraging movement in healthy patients, we have seen a steady reduction in length of stay over the past five years. The use of a communication tool known as “the Baptist pathway” involves patients in a goal-based care process and gets them home sooner. Through this process, our average inpatient acute length of stay has fallen from 4.1 days in FY08 to 3.7 days in FY10.
Low Readmission Rates

Our attention to detail is reflected in a steady decrease in our readmission rate, which already compared favorably with national benchmarks. For unplanned 15-day readmissions, our rate was 2.2 readmissions per 100 admissions in FY05. By FY10, it had dropped to 1.5. For 30-day readmissions, the rate dropped from .9 in FY05 to .6 in FY10.

Innovative Teamwork Drives Continuous Improvement

Our commitment to patient safety can be seen in ongoing efforts throughout the Hospital to reduce patients’ risk of harm. Innovative, collaborative projects among physicians, nurses and pharmacists, as well as physical and occupational therapists and a highly supportive and flexible information technology department, run throughout the patient care continuum at the Baptist. Recent examples of successful teamwork include:

- Nurses and doctors working together to develop a protocol to reduce the incidence and duration of postoperative delirium.
- Our falls prevention team bringing together nurses and physical therapists to search out new ways of eliminating falls.
- Pharmacists stationed in high-volume prescription areas to clarify orders via face-to-face communication with physicians.
- An electronic medication reconciliation program, one of the first in the area, and the use of barcode scanners at the bedside to verify medications.

* Source: DHCFP
Patient Safety Outcomes

Infection Prevention

At the Baptist, we take a comprehensive approach to infection prevention, combining staff and patient education with leading-edge practices like anti-microbial-impregnated sutures for all surgeries, silver-impregnated catheters, chlorhexidine surgical skin preparation, and advanced elimination measures for drug-resistant bacteria. The result: more successful procedures and fewer infections. Beginning in 2005, we committed ourselves to reducing our already low patient infection rate to zero. Our orthopedic infection rate is already well below the national average, and our performance on nationally recognized best practice measures is near perfect. In FY10 we performed 9,839 orthopedic procedures, with only 33 surgical site infections.
Hip Infection Rates

<table>
<thead>
<tr>
<th>Year</th>
<th>New England Baptist Hospital</th>
<th>Expected Rate Based on NHSN/NNIS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY05</td>
<td>0.2</td>
<td>0.35</td>
</tr>
<tr>
<td>FY06</td>
<td>0.4</td>
<td>0.35</td>
</tr>
<tr>
<td>FY07</td>
<td>0.3</td>
<td>0.35</td>
</tr>
<tr>
<td>FY08</td>
<td>0.3</td>
<td>0.35</td>
</tr>
<tr>
<td>FY09</td>
<td>0.49</td>
<td>0.35</td>
</tr>
<tr>
<td>FY10</td>
<td>0.41</td>
<td>0.35</td>
</tr>
</tbody>
</table>

* Risk-adjusted expected rate per NHSN database; NHSN database is previously known as NNIS (FY06 & FY07)

Knee Infection Rates

<table>
<thead>
<tr>
<th>Year</th>
<th>New England Baptist Hospital</th>
<th>Expected Rate Based on NHSN/NNIS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY05</td>
<td>0.7</td>
<td>0.35</td>
</tr>
<tr>
<td>FY06</td>
<td>0.4</td>
<td>0.35</td>
</tr>
<tr>
<td>FY07</td>
<td>0.3</td>
<td>0.35</td>
</tr>
<tr>
<td>FY08</td>
<td>0.5</td>
<td>0.35</td>
</tr>
<tr>
<td>FY09</td>
<td>0.39</td>
<td>0.35</td>
</tr>
<tr>
<td>FY10</td>
<td>0.35</td>
<td>0.35</td>
</tr>
</tbody>
</table>

* Risk-adjusted expected rate per NHSN database; NHSN database is previously known as NNIS (FY06 & FY07)
Core Measures—Surgical Care Improvement Project (SCIP)

Core Measures are a set of best practices for medical and surgical care. The national Surgical Care Improvement Project (SCIP) is a group of Core Measures that includes a range of interventions for preventing infection in surgical care, such as appropriate antibiotic timing, timely removal of urinary catheters, and use of appropriate hair-removal methods. Over the past five years, the Hospital’s performance in the SCIP has exceeded the national database for most of the SCIP measures.

Groundbreaking MRSA Elimination Program

In 2006, with concerns about drug resistance on the rise, the Hospital committed to eliminating Methicillin-resistant *Staphylococcus aureus* (MRSA) and Methicillin-sensitive *Staphylococcus aureus* (MSSA) among patients scheduled for elective inpatient surgery. The Hospital undertook a study from July 2006 through September 2006 to evaluate the effectiveness of an institution-wide prescreening program, including rapid onsite testing and nasal swab MRSA cultures for all inpatients undergoing elective surgery. During the study period, 4.4 percent of patients were identified as MRSA carriers. These patients were treated with Bactroban (mupirocin ointment) and chlorhexidine showers and then re-tested. Those who were still carriers were placed on contact precautions during surgery. Those who were no longer carriers were given a prophylactic treatment prior to surgery. At the conclusion of the study, our researchers found...
that the MRSA infection rate was less than a third of what it had been during the control period (.06% vs. .19%).

Published in 2010 in the Journal of Bone and Joint Surgery, the study concluded: “Implementation of an institution-wide prescreening program for the identification and eradication of Methicillin-resistant and Methicillin-sensitive Staphylococcus aureus carrier status among patients undergoing elective orthopedic surgery is feasible and can lead to significant reductions in postoperative rates of surgical site infection.” We expect the results of our study to form the basis of best-practice recommendations for other hospitals.

**COMPARISON OF SURGICAL SITE INFECTION RATES BETWEEN STUDY AND CONTROL PERIODS**

<table>
<thead>
<tr>
<th></th>
<th>Study Period (July 2006 to September 2007)</th>
<th>Control Period (October 2005 to July 2006)</th>
<th>P Value (Chi-Square Test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of cases of MRSA</td>
<td>4 (0.06%)</td>
<td>10 (0.19%)</td>
<td>0.0315</td>
</tr>
<tr>
<td>infection (rate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of cases of MSSA</td>
<td>9 (0.13%)</td>
<td>14 (0.25%)</td>
<td>0.0937</td>
</tr>
<tr>
<td>infection (rate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of cases of</td>
<td>13 (0.19%)</td>
<td>24 (0.45%)</td>
<td>0.0093</td>
</tr>
<tr>
<td>surgical site infection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(rate)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


In 2006, an editorial in The New York Times by Betsey McCaughey, founder of the Committee to Reduce Infection Deaths, recognized the Baptist for its groundbreaking MRSA work. The MRSA elimination protocol continues to be used for all inpatient surgeries, and rates remain at less than a third the national average.

**New Strategies Applied in Infection Prevention**

In 2009 and 2010, new strategies for infection prevention included:

- The implementation of a central line checklist, standardizing best practices for the insertion of a central line, more formally known as a central venous catheter.
- A study, currently underway, to determine whether hematomas (pockets of internal bleeding) play a role in infection. Several hip infections in 2009 were associated with hematomas, prompting the study.
- The continuation of staff and patient hand hygiene education programs, including “Bug Beat Fairs,” which were recognized by the New England Society for Healthcare Communications (NESHC) in 2010 through the Lamplighter Award.
Central Line and Ventilator Infection Prevention

Recent studies show that using a checklist approach to inserting and maintaining catheters and other tubes can prevent hospital-acquired infections. We have already implemented checklists in our Intensive Care Unit for ventilator tubes, and a checklist was implemented in 2010 for central lines. We do not often require central lines or ventilators for our patient population—all the more reason to use checklists to make certain we do it right. The approach is working. In FY09, we had only one case each of ventilator-associated pneumonia, bacteremia, and central line infection. In FY10, we had no cases of ventilator-associated pneumonia and three central line catheter-associated infections.

Central Line Infections

Our low rate of catheter-related blood stream infections is attributed to our interdisciplinary team approach to patient care, patient and staff education, and adherence to evidence-based practices, as outlined in our protocol and checklist. The practices include but are not limited to the use of protective clothing and mask, supplies to cleanse the insertion site, proper hand hygiene, and assessing and educating patients.

* Source: National Healthcare Safety Network (data 1/06-12/08)/American Journal Infection Control, 12/09
Patients on ventilators are at increased risk for developing pneumonia. To reduce this risk, patients in our Intensive Care Unit are placed on a specific protocol. The protocol includes best practices such as using chlorhexidine mouthwash every 2 to 4 hours and elevating the head of the bed at greater than 30 degrees. It also requires meticulous documentation, including daily physician order sheets and a separate nursing flow sheet for each patient on a ventilator. The protocol seems to be effective. Only three cases of ventilator-associated pneumonia occurred in the last five years.
Falls Prevention Program

Across the nation, there are more than three falls for every thousand days patients spend in the hospital, a rate of 3.6 falls per 1,000 patient days. Our fall rate (at 1.15) is two-thirds lower than the national average, which is particularly notable when one considers that many of our patients undergo orthopedic procedures, putting them at increased risk for falls. Our goal is to entirely eliminate falls. To do that, we implemented a unique "falling star" program, which has been refined every year since 2005, with an accompanying drop in our fall rate.
Falling Star Program

The Falling Star program includes a variety of measures to identify patients at risk for falls and uses a combination of incentive, prevention and communication strategies to minimize that risk. It invites the collaboration of patients, nurses and therapists in preventing falls and falls with injury. Initial measures included:

- Daily assessment of each patient’s risk of falling, especially when there is a change in the patient’s condition.
- Posting an orange star outside the door of each patient identified as a fall risk.
- Providing at-risk patients with orange wrist bands and orange non-skid socks to alert the staff that the patient may need help walking and getting in and out of bed.
- Developing an individualized safety plan for each patient, which includes posting the patient’s fall risk on the communication board in each patient’s room.
- Educating patients, family members, and visitors about techniques to reduce the likelihood of falling.

Fall Huddles: The Latest Innovation for Falls Prevention Team

In 2008, a multidisciplinary Falls Prevention Team, including representatives from nursing, pharmacy, physical therapy and Health Care Quality, began to evaluate each fall. A fall huddle group, which meets after each fall at the location of the fall, conducts an in-depth, real-time assessment. The group recommends remedial action, if appropriate, and reports its findings to the inpatient unit manager and the quality improvement manager. Unit staff also complete an incident report about the fall using Safety Advisor, the Hospital’s electronic incident reporting system. The inpatient unit manager and the pharmacy director review Safety Advisor reports of all patient falls. The Falls Prevention Team meets monthly to review the huddle reports.

A “Contract” Engages Patients in Falls Prevention

In 2009, the Falls Prevention Team noticed that some relatively young and alert patients were falling because they became over-confident and tried to move without help. The Team developed a Partnership for Safety “contract” for the patient to sign, agreeing not to try to move without assistance. The document engages patients in a discussion with a physical therapist prior to surgery, lending seriousness to the discussion and helping patients retain the message postoperatively. Other measures implemented in 2009 and 2010 included:
- Reassessment and revision of the tool used by nursing staff to assess patient fall risk. The revised tool gives more flexibility to the nurse and physical therapist evaluating the patient and allows for a more rapid switch to a “falling star” classification.
- Application of certain fall prevention strategies to all patients, not just those with “falling star” status.
- Implementation of recommendations by occupational therapists for improving patient safety in the bathroom.
Increasing Medication Safety

The Elimination of Medication Errors that Reach the Patient

Medication errors are one of the most common preventable causes of patient injury. The Institute of Medicine estimates that there are 400,000 preventable drug-related injuries in hospitals each year. To prevent such errors, the Hospital implemented numerous safeguards, including communication protocols, built-in safety measures in the electronic medical record, face-to-face handoffs, and medication reconciliation. In 2006, we implemented a new electronic incident reporting system, which, by design, increased the reporting of medication events. Four years later, we began using barcode scanning and continued our progress toward a fully electronic medical record. Reported medication events rose in FY07 with the addition of electronic reporting, but have decreased every year thereafter.

![Overall Medication Events Chart]

Medication Reconciliation

Patient safety experts agree that the first step in preventing medication errors is a process known as medication reconciliation: comparing a list of medications the patient takes at home with any new medications that have been prescribed in the hospital. Since 2006, we have used a computerized system to help us reconcile medications for all inpatients at every stage of their journey, from admission through discharge, ensuring that patients are taking the correct medications at each level of care. Patients feel more secure when this is done, and the process reduces communication difficulties after discharge.
Improving Communication Between Pharmacists and Ordering Practitioners

Medication errors are usually caused by system failures, rather than singular mistakes. Each error may be preceded by dozens of harmless "events," such as delays or confusion about medication. To help prevent these failures, we station pharmacists in two of the departments with the highest volume of medication orders, enabling them to interact directly with physicians and ensuring that all medication orders are clear. By preventing errors at the point when the order is given, we hope to reduce “downstream” errors as the patient moves through the Hospital.

Under our old system, in which physicians would write orders and secretaries would fax them to the pharmacy, up to 40 percent of the pharmacist’s time was spent clarifying orders. By speaking with the ordering practitioner face-to-face, the pharmacist can clarify the order on the spot. If the practitioner orders an unavailable drug, the pharmacist can suggest one that is available. There is also the opportunity to discuss allergies and dosing.

After implementing this new system, nearly 64 percent of order sets had at least one improvement. Previously, many would have required phone calls, resulting in a delay. Our prediction of downstream improvement also seems to be holding, with a steady decrease in the volume of medication events that reach our patients.

Electronic Medical Record

An electronic medical record eliminates medication errors based on illegible handwriting or unsafe or incorrect abbreviations. Many components of our medical record are already electronic, and we are in the process of transitioning the remaining items, with a goal of being paperless by 2015.

Bedside Medication Verification: A New Layer of Safety

Medication errors occur most frequently in prescribing and administering, according to the Institute of Medicine. In April 2010, we implemented a new process, called the bedside medication verification process (BMVP), to improve the safety of medication administration. BMVP uses a hand-held scanner to first verify a patient’s identity on the wristband, then to check each medication. Most medications now come pre-packaged with a barcode that is scanned prior to administration. Once scanned, the medication is highlighted in a patient’s electronic medication administration record (eMAR). BMVP was the outcome of a year’s teamwork among nursing, pharmacy, respiratory therapy, health care quality, and information
technology staff. It adds another layer of safety to our existing medication delivery process by allowing caregivers to:

- Confirm patient identity and medication information against the Hospital’s online medication administration record prior to administration.
- Check for drug interactions, allergies and duplications in the patient record and formulary dictionary.
- More quickly complete medication administration records, providing physicians with faster and easier access to critical information to manage patient care.

In order for BMVP to work, the pharmacy implemented a new software program to map the National Drug Code (NDC) to the Meditech drug dictionary, correlating hundreds of barcodes with the appropriate drug. This is an ongoing process, as new drugs enter the formulary each day. The pharmacy also created a labeling and packaging program for the 15 percent of medications that do not come individually packaged from the manufacturer and/or are brought to the Hospital by patients from home.

We expect BMVP to reduce medication errors by strengthening patient identification, reducing illegible medication orders, reducing dosing and scheduling errors, and checking for drug allergies and incompatibilities.

Preventing Medical Emergencies

Improving response to changes in a patient’s condition is one of the Joint Commission’s National Patient Safety Goals. As many as six hours before a critical inpatient event such as heart or respiratory failure occurs, changes in a patient’s condition may be a warning sign of an impending emergency. The Joint Commission believes that improved response can help reduce deaths. A Rapid Response Team (RRT) is a small group of caregivers, including nurses, a hospitalist or nurse practitioner, a critical care nurse, and a respiratory therapist, called to the patient’s bedside, in non-emergency situations, to rapidly assess and treat as indicated a change in the patient’s condition. Its purpose is to try to respond to the patient’s symptoms before an urgent situation develops and an emergency code must be called.

Our RRTs have preempted emergency code calls on numerous occasions, leading to increased patient safety and better outcomes. The Hospital’s Division of Research has undertaken a formal project to evaluate the impact of the RRTs on the rate of emergency codes and unexpected transfers to the intensive care or telemetry units. In 2010, RRTs were called for 247 patients; however, interventions prevented 155 of these patients from having to be transferred for intensive care.
Innovation in Anticoagulation Safety

Due to the complexity of dosing and monitoring, anticoagulation is a high-risk treatment for blood clots that can lead to adverse drug events and/or excess bleeding. As part of the Joint Commission’s National Patient Safety Goals and our own ambitious goal to eliminate pulmonary emboli (PE) and deep vein thrombi (DVT), we have undertaken several measures to improve the safety of anticoagulation therapy. In addition to a Coumadin (warfarin) hotline, which we have maintained for a number of years, we added a DVT risk assessment in 2008 for all orthopedic patients, daily patient education while in the Hospital, education monitored on an interdisciplinary education form, and discharge teaching by the physician, nurse, nurse practitioner, and case manager. Patients are stratified by risk of DVT, and high-risk patients receive a separate assessment. A full-time hematologist is dedicated to anticoagulation safety. Between FY09 and FY10, our rate of PEs and DVTs dropped from .35 per 100 patients discharged to .07.

In our continuing quest to improve anticoagulation safety and efficiency, we undertook a research study to evaluate various methods of preventing DVTs in patients undergoing elective knee replacement. Findings from a previous study at the Baptist suggest that low-dose Coumadin combined with lower leg compression may be as effective as other more expensive methods of prophylaxis. The current randomized study focuses on cost and patient benefits, with the goal of contributing to general knowledge about best practices, in addition to improving safety for our own patients.

(See “Low-Dose Warfarin Coupled with Lower Leg Compression Is Effective Prophylaxis Against Thromboembolic Disease after Hip Arthroplasty,” Bern et. al, J. Arthro. Vol. 22, No. 5, 2007.)
Eliminating Skin Breakdown

With a high proportion of obese and bedridden patients, we have to be particularly careful about preventing skin breakdown, also known as pressure ulcer formation. With pressure ulcers occurring in 33 percent of our patients, we made a number of changes in 2003, including purchasing new beds and training staff. By 2006, the rate had dropped, but was still above the national average.

We suspected that some pressure ulcers were not hospital-acquired, but rather had been present on admission. We implemented a quarterly prevalence survey, along with a variety of new measures for the prevention of pressure ulcers, including patient education. In FY07, we began tracking Stage II through IV pressure ulcers separately from Stage 1 ulcers. Since then, we have seen a dramatic decrease in all types of pressure ulcers, with a rate of only 1.25 percent for FY10. During FY10, two quarterly pressure ulcer prevalence studies found no patients with pressure ulcers.

We continue to employ strategies to decrease the likelihood of hospital-acquired pressure ulcers, including:

- Standardizing care and products used for morning and evening care.
- Educating new nurses and nursing assistants during orientation on the standards of skin care. Prevention of skin breakdown and a review of the standard of care are addressed in annual competencies.
- Providing a Kinnair bariatric bed for any patient at an increased risk for pressure ulcers related to disease process or with an ulcer present on admission. These beds help us better position challenging obese patients and allow them to get in and out of bed more easily. They also are safer for both patients and staff than conventional hospital beds.

![Graph showing Health Care Acquired Skin Breakdown - Stages II - IV](http://patientcarelink.org/)

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Excellence in Nursing Care Shows Commitment to Quality

Performance on Nursing-Sensitive Measures

Nursing-sensitive measures gauge the contribution made by nurses to patient safety, including processes, outcomes and structural proxies that are affected and influenced by nursing care. The National Quality Forum (NQF) endorses performance indicators to measure the quality of nursing care across the continuum of services and patient conditions. For example, nursing care hours per patient day is a structure related to quality of care, and the patient fall rate is an outcome directly influenced by the quality of nursing care.

The NQF has identified a set of 15 nursing-sensitive measures to evaluate nursing performance. Eight measures relevant to our patient mix are reviewed briefly below and in greater detail throughout the body of this report.

![Nursing Care Hours Per Patient Day](image_url)
# Nursing-Sensitive Measures Performance

<table>
<thead>
<tr>
<th>Measure</th>
<th>NEBH Response</th>
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<tbody>
<tr>
<td>Pressure Ulcer Prevalence—percentage of inpatients who have a hospital-acquired pressure ulcer Stage II or greater.</td>
<td>Surveillance and prevention program with prevalence compared with our state-wide peer group as reported on the Massachusetts Hospital Association’s Patient Care Link. See page 21.</td>
</tr>
<tr>
<td>Falls prevalence—number of inpatient falls per inpatient days.</td>
<td>Our rate of falls is 1.15 falls per patient day, about a third the national benchmark. See page 15.</td>
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<tr>
<td>Falls with injury—number of inpatient falls with injury per inpatient days.</td>
<td>Our fall rate with injury is .19 per 1,000 patient days, compared with the Massachusetts hospital database Patient Care Link benchmark of .45 for surgical cases and .89 for medical-surgical cases. See page 14.</td>
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<td>Rate of bloodstream infections associated with use of central line catheters for ICU.</td>
<td>FY10: 2.71 per 1000 patient days. See page 12.</td>
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<tr>
<td>Rate of ventilator-associated pneumonia for ICU patients.</td>
<td>FY09: 0.57 per 100 ICU ventilator days FY10: 0.0.</td>
</tr>
<tr>
<td>Skill mix—a comparison of the percentage of care hours provided by the following categories: registered nurse (RN), licensed practical nurse (LPN), unlicensed assistive personnel, and contract personnel.</td>
<td>As of FY10, 70% of our staff are registered nurses while 30% are non-nurses.</td>
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<td>Nursing care hours per patient day (RN and all others).</td>
<td>FY2010: 7.9 hours per patient day. See page 22.</td>
</tr>
<tr>
<td>Voluntary turnover rates for RNs and all other nursing staff.</td>
<td>For FY10, our voluntary turnover rate for RNs was 1.28%.</td>
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Patient Satisfaction Reflects Excellent Care and Outcomes

Our patients recognize, appreciate and cooperate with all we do to ensure their safety and positive outcomes. They tell us so on independent surveys tabulated both by private and government surveyors.

Highest in Massachusetts on HCAHPS

The Center for Medicare & Medicaid Services’ HCAHPS program (pronounced “H-caps”) was created to publicly report the patient’s perspective of hospital care. The survey asks a random sample of recently discharged patients about important aspects of their hospital experience. Consumers can access these scores, which are updated quarterly, via the Hospital Compare website www.hospitalcompare.gov to assist in making health-care decisions. Data collection for HCAHPS officially began October 1, 2006, after a dry-run period earlier in 2006, and was first made public in the fall of 2007. In the spring of 2008, CMS recognized the Hospital for ranking the highest of any hospital in Massachusetts on the HCAHPS survey, with 86 percent of our patients stating that they would definitely recommend us to others. Our HCAHPS scores have improved since then, even as they track well with the scores produced by Press Ganey, an independent surveyor.

HCAHPS Scores FY06 to FY10

<table>
<thead>
<tr>
<th>Year</th>
<th>New England Baptist Hospital</th>
<th>Press Ganey Peer Group*</th>
<th>Eastern Massachusetts*</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY06</td>
<td>89%</td>
<td>70%</td>
<td>65%</td>
</tr>
<tr>
<td>FY07</td>
<td>87%</td>
<td>75%</td>
<td>70%</td>
</tr>
<tr>
<td>FY08</td>
<td>91%</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>FY09</td>
<td>92%</td>
<td>85%</td>
<td>85%</td>
</tr>
<tr>
<td>FY10</td>
<td>92%</td>
<td>90%</td>
<td>90%</td>
</tr>
</tbody>
</table>

* Source: Press Ganey

Higher is Better

% of Patients Who Responded "Definitely Yes" They Would Recommend This Hospital
Since 1994, the Hospital has partnered with an independent surveyor, Press Ganey, to measure inpatient and ambulatory patient satisfaction. Press Ganey has more than 20 years of experience and more than 7,000 health-care facilities as clients. The surveys are a reliable and comprehensive method of measuring our quality of care as perceived by patients. The results direct the course of patient care delivery improvements and serve as positive reinforcement for staff behavior. As we know, satisfied patients become loyal ones and refer others.

Each inpatient and outpatient receives a copy of the Press Ganey survey approximately three to seven days after discharge. The mean score is an average of the sum of the numerical responses given by patients. The mean score for all participating hospitals is put into a database and a percentile rank is achieved by comparing our mean score to the highest and lowest scores in the database.

In FY05, the Hospital’s goal was to score in the 95th percentile nationally. In December 2004, we surpassed that goal by achieving the 99th percentile nationally and the 99th percentile locally. The Hospital has ranked at the 99th percentile for inpatient satisfaction nationally for the last two and a half years, and more than five years locally. We also received the Press Ganey Summit Award—given annually to organizations that have ranked above the 95th percentile for three consecutive years—three years running: 2008, 2009 and 2010.
Quality—An Ongoing Journey

Our commitment to quality shows in what we do, not in what we say. Charts, graphs and statistics like those in this report certainly help to illustrate how we improve the patient experience at the Baptist, but they don’t—can’t—tell the whole story.

Patient safety and quality are embedded in the very fabric of care at New England Baptist Hospital. We have become the value leader in orthopedics and musculoskeletal care because everything we do flows through our commitment to continuous quality improvement. From our senior leadership and physicians to our nurses and therapists and throughout our entire organization, quality and safety is a promise we make to every patient who walks through our doors.

There is no endpoint on our journey to become THE national leader in orthopedics and musculoskeletal care. We must and will continually work to maintain our reputation through clinical excellence and legendary service. That is our unwavering pledge to our patients.