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# Introduction

Castle Medical Center is proud to present our second Annual Quality Report. This report provides a comprehensive overview of data that reflect our pursuit of excellence in clinical and operational performance.

We celebrate our successes and take this opportunity to share our progress with our health care community in order to facilitate learning and inspire future success.

At the center of our quality initiatives is the patient. We continue to focus on excellent patient care through benchmarking, innovation, and education.

It is our hope that by sharing our efforts and successful achievements, patient care processes and outcomes will be improved, not only at Castle Medical Center, but also in the wider health care delivery environment.



Jen A. Poberts Kevin A. Roberts, R.N., F.A.C.H.E.

President and CEO



Kathryn A. Raethel, R.N., M.P.H., M.H.A., F.A.C.H.E. Vice President, Patient Care Services



Jary Clar ano.

Ramsay Hasan, M.D. Chief of Staff

#### The Medical Center

Located in Kailua, Hawai'i, Castle Medical Center serves all of Oʻahu and is the primary health care facility for the Windward side of the island. Castle is a full-service medical center offering a wide range of inpatient, outpatient, and home-based services. With 160 beds, more than 1,000 employees, 200 volunteers and 261 physicians, Castle has substantially expanded its services since first opening its doors in 1963. The hospital is owned by the Seventh-day Adventist Church and operated by Adventist Health.

#### Castle's services include:

- Inpatient Acute Care
- 24-hour Emergency Department
- Extensive outpatient and home-based services
- Wellness and Lifestyle Medicine Center
- Chemotherapy Clinic
- Women's Center
- Weinberg Outpatient Center
- Joint Care Center
- Interventional cardiology
- Inpatient Behavioral Health Services
- 32-multislice CT scanner
- Surgical Weight Loss Institute (Bariatric surgery)
- Satellite facilities in Kane'ohe and Kailua town

Castle Medical Center focuses on providing patient-centered health care in a caring environment that extends well beyond hospital and clinic walls. Our many programs serve the medical needs of all the communities we serve.

### **Awards**

#### American Heart Association Annual Achievement Award



The American Heart Association's "Annual Performance Achievement Award" for coronary artery disease is presented to hospitals that have had twelve consecutive months of 85% adherence to certain performance measures. As a result of this

award, Castle will be listed on the American Heart Association's Web site as a recognized hospital in the treatment of coronary artery disease.

#### Best Places to Work

Since 2005, Castle Medical Center has been named as one of the top "25 Best Places to Work in Hawai'i by *Hawai'i Business Magazine*. In 2007, Castle remained on the list and ranked in the top 6 out of "10 Best Places to Work" for large employers. Castle is the only hospital in the state recognized by this award.



# Top Performer in Patient Satisfaction

In June of 2007, Castle's Joint Care Center was recognized by the hospital's patient satisfaction survey vendor, the National Research Corporation + Picker, as a "Top Performer."

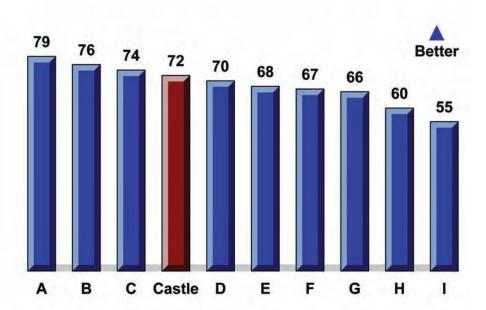


### **Awards**

#### Hospital Quality and Service Recognition Program

The Hawai'i Medical Service Association's (HMSA) Hospital Quality and Service Recognition Program compares Hawai'i hospitals with regard to complications, length of stay, satisfaction with service, the implementation of evidence-based guidelines, internal quality initiatives, and business operations. This year, Castle ranked fourth overall when compared to the other large-volume hospitals in the state.

# Hospital Quality and Service Recognition Scores for Large-Volume Hawai'i Hospitals, 2007



Castle Medical Center's patient satisfaction scores compare very favorably to other hospitals across the nation that use the same patient satisfaction survey. System improvements to further improve patient satisfaction include:

- Using patient satisfaction data and staff input to develop service standards
- Identifying a "service standard of the week"
- Implementing hourly patient rounds by nurses
- Daily patient rounds by nurse managers
- Unit comparison of patient satisfaction provided to staff
- A new Outpatient Surgery Center in 2008 to better meet the growing needs of Castle's community.

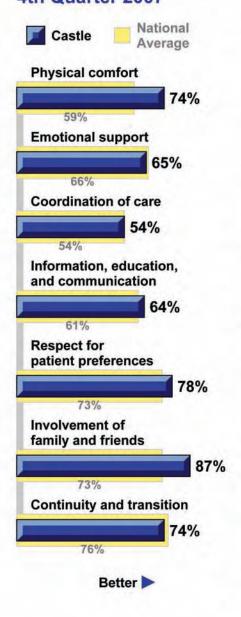
The four charts on this and the following two pages are snapshots of patient satisfaction with Castle for the last quarter of 2007.

# 4th Quarter 2007 National Castle Average Physical comfort 68% 59% Emotional support 62% 61% Coordination of care 56% 54% Information, education, and communication 58% 57% Respect for patient preferences 73% 72% Involvement of family and friends 69% 66% Continuity and transition 69% 69%

Inpatient

Satisfaction

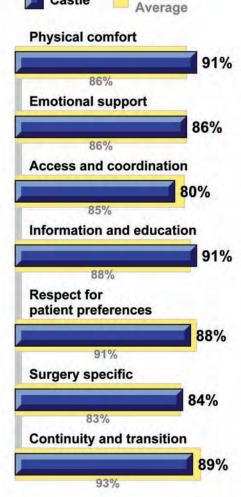
# Women's Center Patient Satisfaction 4th Quarter 2007



# Outpatient Surgery Satisfaction 4th Quarter 2007

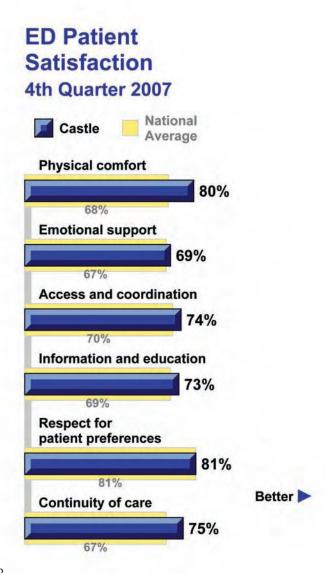
Castle

National



#### **Emergency Department (ED)**

The Emergency Department identifies a "service standard of the week" for its staff. Each standard focuses on important customer service strategies. The department has also developed a brochure for patients and their families to assist in preparing them for their ED experience.



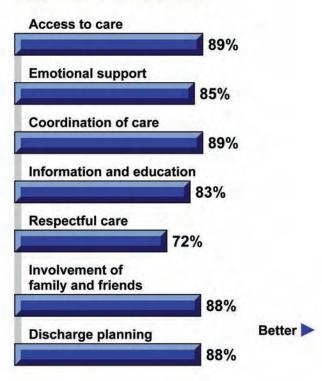
#### Behavioral Health

The graph on this page shows how patients of Castle's Behavioral Health Services rate their satisfaction in various dimensions of care. National data are not available in this area to use as a comparison.

Efforts to improve respectful care in the coming year will include:

- Complete rollout of the Conflict Prevention, Management, and Resolution (CPMR) training, in which respect is a core value
- Training on expressed emotion verses warmth, empathy, and genuineness
- Implementing a respectful prayer at the beginning of each shift.

# Behavioral Health Patient Satisfaction July to December 2007



#### Home Care

Castle's Home Care patients were very satisfied with the care they received in 2007, with 97% rating the quality of services as good or excellent, and with 99% stating that they would ask for Castle's services again.

# Home Care Patient Satisfaction Year 2007



No: 1%

# **Physician Satisfaction**

Hawai'i Medical Service Association (HMSA) conducts an annual physician satisfaction survey to see how physicians feel about its member hospitals. Scores are based on a five-point scale: 1 = poor, 2 = fair, 3 = good, 4 = very good, and 5 = excellent. System changes made that were designed to increase physician satisfaction include:

# **Physician** Satisfaction Years 2006 and 2007 Castle 2007 Hawai'i Castle 2006 Average **Hospital services** 3.9 3.9 3.7 Hospital staff 4.1 3.9 3.9 Administration and facilities 4.0 4.1 3.6 Overall satisfaction 4.0 3.7

- Facility expansion and remodeling
- Collaboration on the new Outpatient Surgery Center
- Expanded Emergency
   Department call schedule
- Increased anesthesia coverage
- Recruited key specialty physicians in cardiology, orthopedics, gastroenterology, and obstetrics/gynecology.
- Enhanced physician participation in the development of the electronic medical record
- Integration of the hospitalist program.

As always, the administration of the medical center maintains its open-door policy with all of Castle's physicians.

# **Employee Satisfaction**



In the most recent Associate Pride Survey in 2007, Castle scored higher than the Adventist Health average in all

eighteen categories measured, and was the highest-scoring hospital in all but one. Castle also sustained or improved its score in all categories compared to the previous survey, done in 2005.

Category	Castle 2007	Castle 2005	AH Average	AH Highest
Administration	4.2	4.0	3.9	4.2
Co-Workers	4.1	4.0	4.0	4.1
Communication	4.2	4.1	4.0	4.2
Dep't Director / Manager	4.0	4.0	3.9	4.0
<b>Employee Benefits</b>	4.1	3.9	3.8	4.1
<b>Guest Relations</b>	4.3	4.3	4.2	4.3
Hospital	4.4	4.4	4.1	4.4
Hours	4.1	4.1	4.0	4.1
Job Satisfaction	4.2	4.2	4.1	4.2
Job Security	4.2	4.2	4.1	4.3
Mission	4.4	4.3	4.3	4.4
<b>Opinion Survey</b>	3.8	3.6	3.6	3.8
Pay	3.7	3.7	3.6	3.7
<b>Personnel Policy</b>	3.9	3.8	3.7	3.9
Quality	4.3	4.3	4.2	4.3
Spiritual Emphasis	4.4	4.4	4.2	4.4
Status / Recognition	3.9	3.8	3.7	3.9
<b>Working Conditions</b>	4.0	3.9	3.8	4.0

Castle Medical Center is committed to the provision of quality health care in a highly complex and high-risk environment. For this reason, Castle Medical Center participates with organizations such as the Institute for Healthcare Improvement, the Leapfrog Group, the National Quality Forum, the American Heart Association, The Joint Commission, and Johns Hopkins University in implementing evidence-based, best practice guidelines to ensure that patients receive the highest quality care and achieve the best outcomes possible. The following pages highlight some of the recent improvements to patient safety and medical treatment that have been made based on these guidelines.



# Acute Myocardial Infarction (AMI), Heart Failure (HF), and Community Acquired Pneumonia (CAP)

Research has established guidelines for the optimal treatment of patients experiencing heart attack, heart failure, or pneumonia. Castle has shown great improvement over the last several years in its compliance with these guidelines. The hospital continues to focus its efforts on physician education and clinical feedback to make further improvements.

The following graphs represent the most recent public results listed on the Centers for Medicare

and Medicaid Services "Hospital

Compare" public Web site.

Abx **Antibiotics** 

ACEI Angiotensin-converting

enzyme inhibitor

ARB Angiotensin

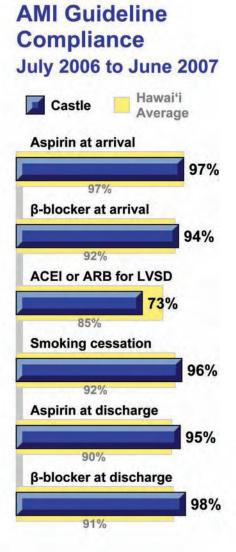
receptor blocker

LV Left ventricle

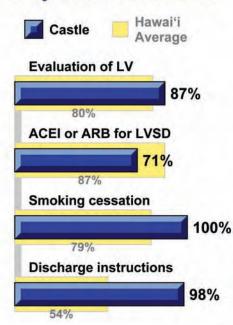
LVSD = Left ventricular

systolic dysfunction

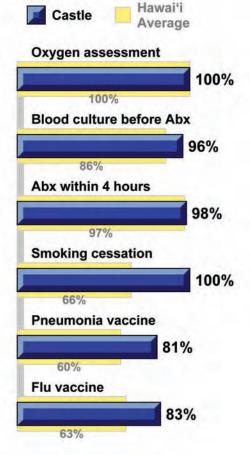
Better >



# HF Guideline Compliance July 2006 to June 2007



# CAP Guideline Compliance July 2006 to June 2007

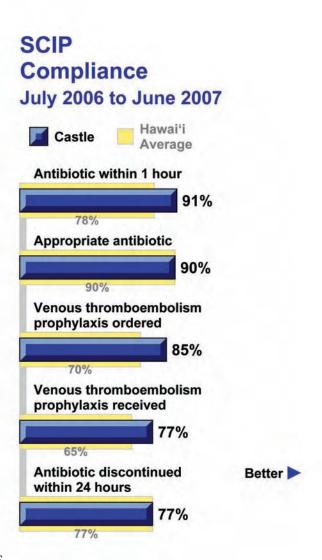


Better >

#### Surgical Care Improvement Project (SCIP)

Research has established guidelines that, when followed, produce the best outcomes for surgical patients.

Castle's post-operative class-1 surgical-site infection rate of 1.25% is well below the Center for Disease Control's goal of less than 3%.



# Stroke Guideline Compliance January to June 2007 National Castle Average Smoking counseling 100% 92% Antithrombotic medication within 48 hours 94% 96% Deep-vein thrombosis prophylaxis within 24 hours for non-ambulating patients 63% 88% Discharged on anticoagulation therapy 100% 65% Discharged on antithrombotic medication 94% 95% Discharged on cholesterol-reducing drugs

72%

#### Stroke

Better

92%

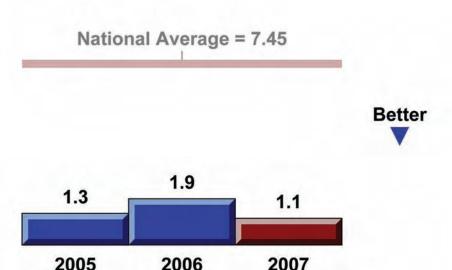
Castle has maintained its designation as an official "Get With The Guidelines" hospital for stroke since 2006, after implementing the secondary prevention guidelines issued by the American Heart Association and American Stroke Association.

One of Castle's goals for 2008 is improved deep-vein thrombosis (DVT) prophylaxis for stroke patients.

#### Ventilator-Associated Pneumonia

Castle Medical Center implemented all elements of the ventilator-associated pneumonia prevention bundle in 2005. Since that time, incidence of ventilator-associated pneumonia has been maintained well below nationally reported rates..

# Ventilator-Associated Pneumonia Rate per 1,000 Ventilator Days Years 2005 to 2007

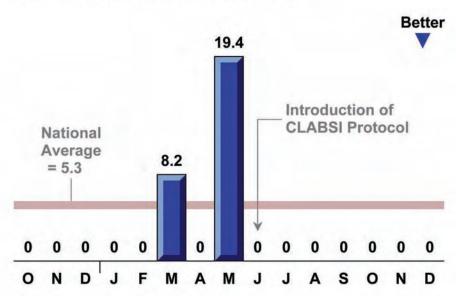


#### Central Line-Associated Bloodstream Infections (CLABSI)

Central line–associated bloodstream infections increase mortality rates by 10% to 20% and increase hospital length of stay and medical costs.

It is Castle's goal to eliminate these infections. There are evidence-based steps that standardize infection control practices in order to prevent CLABSI. From the introduction of the CLABSI protocol in June of 2007 until the end of 2007, Castle's ICU did not experience a single CLABSI.

# ICU Central Line Infections per 1,000 Central Line Days October 2006 to December 2007



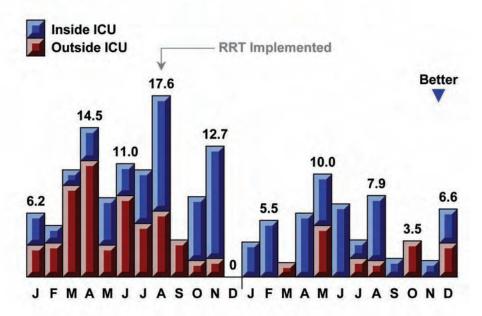
#### Rapid Response Team (RRT)

As a participating hospital in the Institute For Healthcare Improvement's "Save 100,000 Lives" Campaign and its "Protecting 5 Million Lives" Campaign, Castle implemented a Rapid Response Team. The team, comprising an ICU nurse, a respiratory therapist, and a lab technician, provides timely, intensive assessment anywhere in the medical center.

Following the implementation of the RRT in August of 2006, Castle has seen a remarkable decrease in the number of code blue events occurring outside of the ICU. The overall decrease in such events from the 2006 baseline to 2007 is 71%.

With the implementation of the RRT, Castle also wanted to validate that code blue events had not merely been shifted to the ICU. For that reason, the graph below also shows the incidence of code blue events occurring inside the ICU. The overall reduction in total code blue events from the 2006 baseline to 2007 is 34%

# Code Blue Events per 1,000 Discharges January 2006 to December 2007



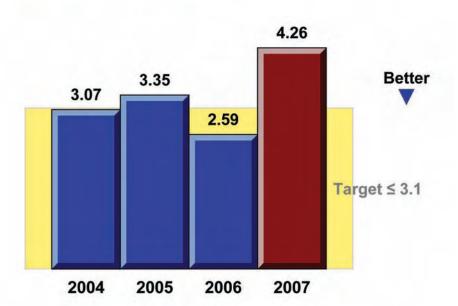
#### Patient Fall Rate in the Medical and Surgical Units

Based on the average number of patient falls reported by the California Nursing Outcomes Coalition, Castle Medical Center has set a target of 3.1or fewer patient falls per 1,000 patient days. Castle is troubled by the increase in the number of patient falls seen in 2007 and is working aggressively to reverse this trend.

In an effort to reduce the number of patient falls, Castle is implementing the following interventions:

- Improving the consistency of hourly patient rounds by nurses so that timely assistance can be provided
- Thoroughly investigating and documenting every patient fall within five minutes of the event.

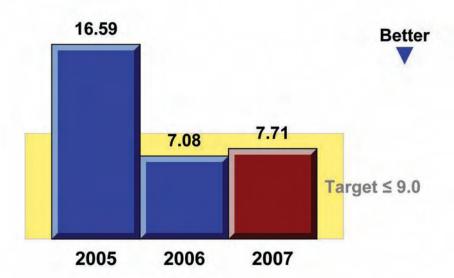
# Patient Falls per 1,000 Patient Days Years 2004 to 2007



#### Use of Restraints in Behavioral Health Services

Committed to reducing seclusion and restraint use, Behavioral Health Services implemented a more proactive training program in 2007 known as Crisis, Prevention, Management, and Resolution. This new eleven-hour training program includes the teaching of early interventional methods designed to reduce patient aggression that ultimately may lead to restraint or seclusion. By the end of 2008, all staff in Behavioral Health, as well as all staff in Security and the Emergency Department, will have completed this training. In addition, a new self-study module was introduced in 2007 to build a therapeutic alliance between staff and patients, effecting a safer and more supportive milieu.

# Use of Restraints in Behavioral Health per 1,000 Patient Days Years 2005 to 2007

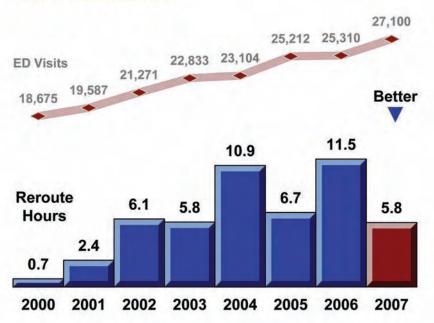


#### Reroute Hours

Reroute hours are hours of an emergency department's operation during which ambulance patients are unable to be admitted and need to be sent to other hospitals. Castle monitors reroute hours on a monthly basis, as it is important that the Windward Oʻahu community has access to our Emergency Department.

Decreasing reroute hours becomes more difficult with greater patient volume and increased demand for inpatient monitored beds. However, with the completion of Castle's inpatient renovation project in April of 2007, the hospital has expanded its number of monitored beds, and this has made its Emergency Department more available.

# Reroute Hours per 1,000 ED Visits Years 2000 to 2007



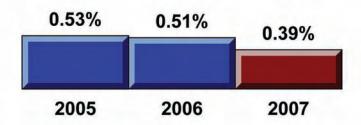
#### Patients Left Without Being Seen

Nationally, about 2% of emergency patients leave an emergency facility without being seen, usually out of frustration over wait times. Even though Castle's patient volume continues to grow, only about 0.5% of patients leave its Emergency Department without being seen. Castle attributes this success to efforts to expedite patient flow. This is evidenced by an ED wait time ranking of 84 out of 100 on the last Emergency Department patient satisfaction survey from the fourth quarter of 2007.

# ED Patients Left Without Being Seen Years 2005 to 2007

National Average = 2%



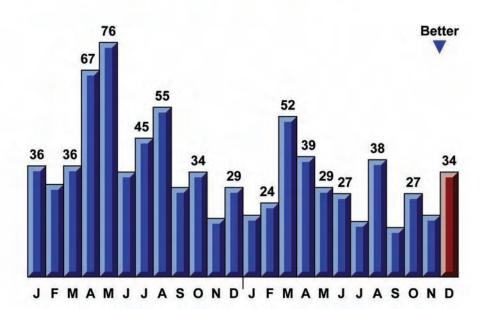


#### **Emergency Department Holds**

Emergency holds are patients who have to wait more than an hour for their inpatient beds after receiving inpatient admission orders. After noticing an increase in holds in the first part of 2006, a quality improvement team utilized the following interventions to reverse this trend:

- Expansion and remodeling of the Telemetry, Surgical, and Medical units
- Establishment of a dedicated employee to oversee patient flow and bed allocation
- Establishment of standard procedures for communication between the ED and inpatient care units
- Setting of goals for hand-off time for patients assigned to inpatient units
- Tracking of the ED's performance and providing feedback to staff and physicians.

# Emergency Department Holds January 2006 to December 2007

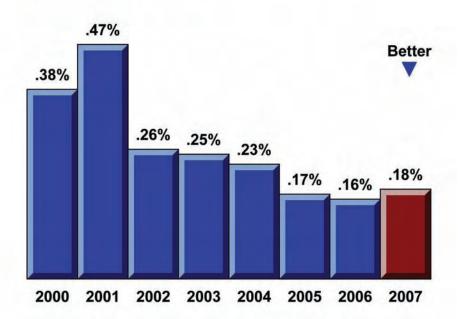


#### Use of Restraints in the Emergency Department

For the past five years, we have seen a reduction in the use of restraints in the Emergency Department. Accomplishing this has been a high priority. Interventions implemented over the past several years that were designed to achieve this reduction include:

- Assigning Security personnel who are dedicated to monitoring patients in the ED
- Provision of mandatory education for relevant staff in the practices of nonviolent intervention
- Providing feedback to staff members by displaying performance data related to restraint use.

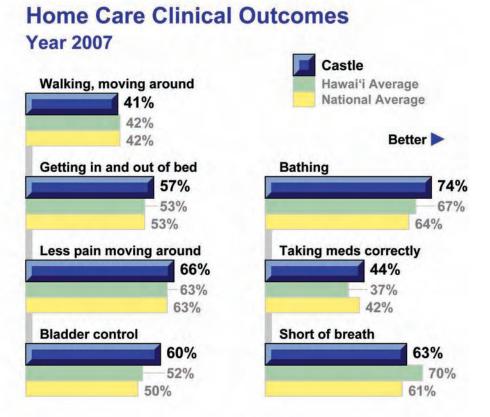
# Restraint Events as % of ED Visits Years 2000 to 2007



#### **Home Care**

#### Clinical Outcomes

The Centers for Medicare and Medicaid Services list the following home care measures on their "Hospital Compare" public Web site. Castle is proud of the fact that we perform higher than state and national averages in five out of seven categories. Disease management approaches are under development to address the remaining two categories.



#### Surgical Weight Loss Institute

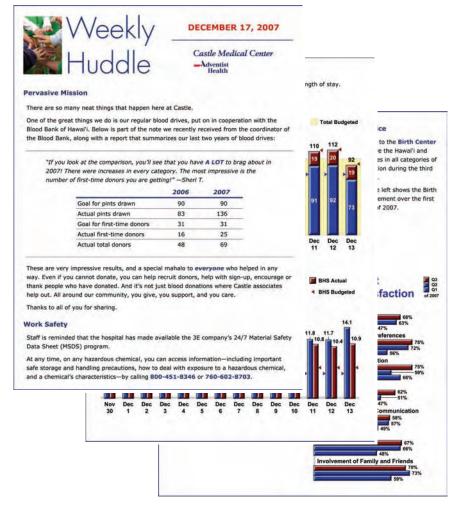
Bariatric (or weight loss) surgery has proven to be one of the most effective solutions for morbidly obese patients aiming for sustained weight loss. The Surgical Weight Loss Institute at Castle was established in April of 2006 to help patients who are morbidly obese to manage the health risks of obesity through a comprehensive, multidisciplinary approach to weight loss. Program elements that support the surgical component include individual evaluation and counseling, support groups, cooking classes, and individualized therapies.

The number of bariatric surgeries performed at Castle continues to grow steadily, with a monthly volume increase of 36% experienced in 2007.



#### Weekly Huddle

In early 2007, Castle Medical Center introduced a publication called the *Weekly Huddle* to communicate and reinforce key organizational goals, current events, and successes. Once a week, leaders in every department and on every shift "huddle" their staff together to read this publication aloud and answer any questions. We have found this to be an effective communication tool that also encourages an organization-wide approach to teamwork and quality improvement.



#### **Hourly Patient Rounds**

Castle Medical Center is implementing hourly patient rounds by its nursing staff in the wake of recent research that has demonstrated that rounding can reduce patient falls, skin breakdowns, and call-light use, while simultaneously increasing patient satisfaction.

Nurses are being trained to address the four "Ps"—position, pain, potty, and plan—during each of their hourly visits.



#### Johns Hopkins Comprehensive Unit-Based Safety Program

In 2007, Castle Medical Center, along with other Adventist Health hospitals, joined in a patient safety collaborative with the Johns Hopkins Medicine Quality and Safety Research Group. This collaborative is designed to improve the culture of safety on ICU units and to reduce central line–associated bloodstream infections (CLABSI).

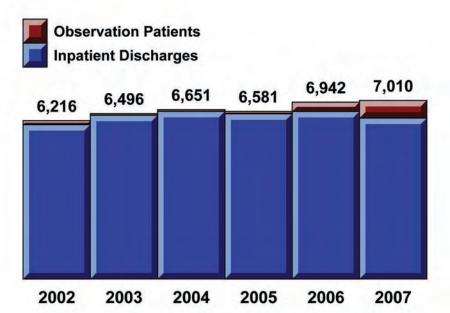
As a result of these improvement efforts, Castle's ICU has experienced seven straight months with zero central line–associated infection as of the end of 2007.



#### Inpatient Volume

Inpatient volume has continued to grow steadily, with observation patients making up a larger percentage of that volume.

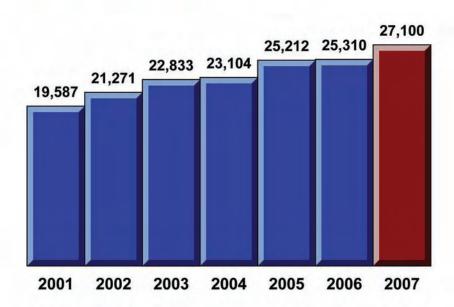
# Inpatient Volume Years 2002 to 2007



#### **Emergency Department Visits**

Emergency Department visits have experienced steady growth in recent years. Plans are being developed to expand and remodel this department to accommodate future growth.

# **Emergency Department Visits** Years 2001 to 2007

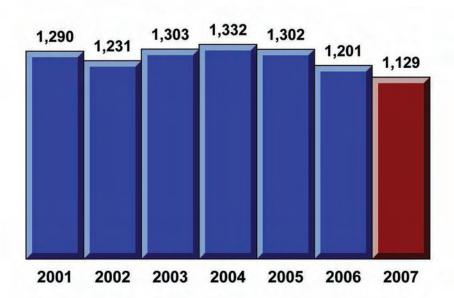


#### Behavioral Health Discharges

Over the past three years, Behavioral Health Services has experienced a small decline in annual inpatient discharges.

As one of only two acute behavioral health providers on O'ahu, Castle remains committed to serving this important community need.

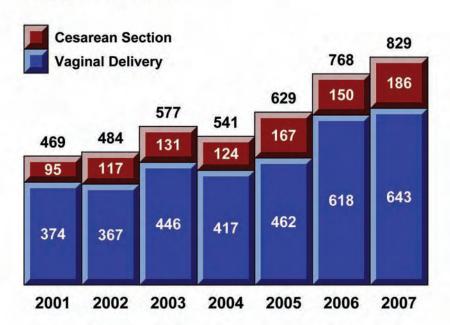
# Behavioral Health Discharges Years 2001 to 2007



#### Deliveries for Vaginal and Cesarean Section

The Women's Center continues to set new records for the number of babies delivered annually, both vaginaly and by cesarean section.

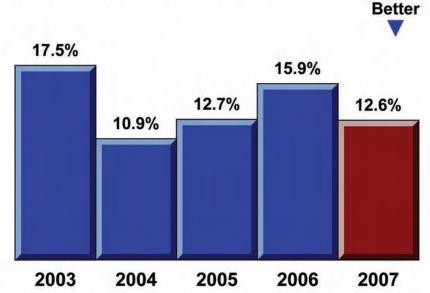
# Women's Center Deliveries Years 2001 to 2007



#### Vaginal Births After Cesarean (VBAC) Rates

The Women's Center takes pride in a cesarean section rate below the state average: 22.9% for Castle, as compared to 26% in Hawai'i in 2006. It is generally recognized, however, that for a woman who has had a cesarean section in the past, it is riskier to give birth vaginally than to have a repeat cesarean. For this reason, the Women's Center has a goal of having a VBAC rate at least as low as the national average of 9.2%.

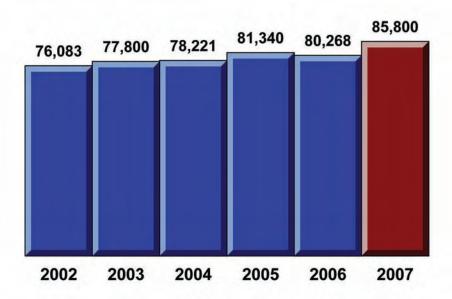




#### **Outpatient Visits**

This graph represents the number of outpatient visits to the Outpatient Clinic, Outpatient Surgery, Imaging, Cardiopulmonary, Cardiac Cath, Angiography, Laboratory, Rehabilitation, Audiology, Wellness and Lifestyle Medicine, and Home Care. The number of these visits has increased steadily over the past five years.

# Outpatient Visits (excluding Emergency) Years 2002 to 2007



#### Wellness and Lifestyle Medicine Center

During 2007, the Wellness and Lifestyle Medicine Center at Castle offered over forty types of programs, including support groups, fitness classes, wellness cooking classes, health and wellness lectures, one-on-one nutritional counseling and personal fitness training, one-on-one inpatient tobacco education, and smoking cessation classes. In addition, the center is involved in community outreach activities and programs that support wellness education in schools.

Over 2,600 people from our community participated in the center's programs for a total of 8,293 contacts.



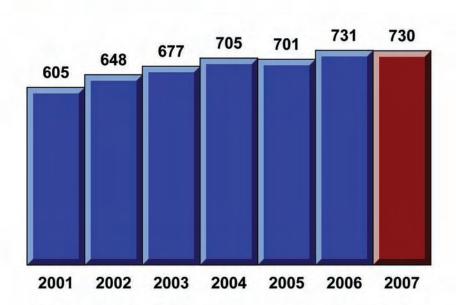
# **Staffing**

# Total Hospital Full-Time Equivalents (FTEs)

Growth in Castle's FTEs mirrors growth in patient volume over time.

Castle Medical Center is recognized as the second largest employer on Windward O'ahu.

# **Total Full-Time Equivalents (FTEs)** Years 2001 to 2007



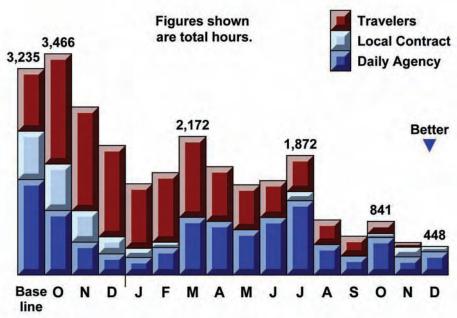
# **Staffing**

#### **BidShift**

BidShift is a software tool designed to fill clinical shifts that are left open, usually because of vacation, illness, or staffing vacancy. With BidShift, staff members can view—around the clock and from any computer with Internet access—exactly what hospital shifts may remain open. A staff member can then use BidShift to request to work an open shift for which he qualifies.

BidShift was implemented in October of 2006. As a result of its implementation, local contract, daily agency, and traveler use has significantly decreased compared to the baseline average for the preceding twelve months. This improvement has enabled Castle to provide more consistent work hours for its own employees and reduce its reliance on external, premium-cost staff.

# Effect of BidShift on Agency and Traveler Hours Baseline (9/05 to 9/06) to December 2007



# **Quality Improvement Goals for 2007 & Their Results**

Goal	Results	
Attain at least second-decile performance in recognized evidence-based clinical guidelines for:	Made significant improvements in each category, but did not attain second-decile performance.	
<ul> <li>Congestive heart failure</li> <li>Acute myocardial infarction</li> <li>Community-acquired pneumonia</li> <li>Hip and knee replacement</li> <li>Stroke</li> </ul>		
Implement the Surgical Care Improvement Project (SCIP)	Successfully implemented.	
Implement the following interventions from the Institute for Healthcare Improvement's (IHI) "Protecting 5 Million Lives" Campaign:	Successfully implemented four out of five interventions. Implementation of MRSA reduction targeted for 2008.	
<ul> <li>Medication reconciliation</li> <li>Prevention of central line–associated bloodstream infections</li> <li>Prevention of pressure ulcers</li> <li>Reduction in methicillin-resistant staphylococcus aureus (MRSA) infections</li> <li>The "Get Boards on Board" program</li> </ul>		
Reduce vaginal delivery after C-section (VBAC) rates	Dropped by 3.3%. Continue to improve.	
Improve the timeliness of critical test result communication from nurse to physician	Continue to improve.	
Improve hand-off communication	Successfully reached target.	
Improve medication labeling on and off the sterile field	Continue to improve.	

# Goals for 2008

Continue efforts to reach second-decile performance in recognized evidence-based clinical guidelines for:

- Congestive heart failure
- Acute myocardial infarction
- Community-acquired pneumonia
- Hip and knee replacement
- Stroke

Improve patient satisfaction

Improve DVT prophylaxis for stroke patients

Reduce patient falls

Improve medication reconciliation

Improve hourly rounding

Implement the sepsis bundles

Reduce MRSA infections

Reduce/eliminate hospital-acquired pressure ulcers

Reduce vaginal delivery after C-section (VBAC) rates to below national average

Participate in the Adventist Health corporate-wide culture of safety evaluation in collaboration with Johns Hopkins University

Apply for the National "Best Places to Work" Award

Apply for the Hawai'i Award of Excellence, based on the Malcolm Baldrige Health Care Criteria for Performance Excellence