First Total Artificial Heart Implant in New England Performed by BWH Cardiovascular Team

A team of cardiovascular specialists at Brigham and Women’s Hospital has performed the first total artificial heart implant in New England and joins a select number of hospitals nationwide to offer the procedure.

New Melanoma Clinical Trials Build on Recent Successes

Medical oncologists in the Center for Melanoma Oncology at Dana-Farber/Brigham and Women’s Cancer Center are pioneering new treatment approaches, including new trials of combination and adjuvant therapies, for all forms of melanoma.

Deep Brain Stimulation Improves Quality-of-Life for Patients with Movement Disorders, OCD, and Depression

Specialists in the Movement Disorder Center at Brigham and Women’s Hospital remain among few in New England to offer Deep Brain Stimulation (DBS) and have recently expanded indications for this innovative treatment.

Orthopedic Trauma Service and Geriatrics Partner to Improve Outcomes after Falls

The Orthopedic Trauma Service at Brigham and Women’s Hospital has added a full-time geriatrician to its service to optimize the care and management of elderly patients who have incurred injuries related to a fall.

Brigham and Women’s Hospital Surgeons Perform 2,000 Robotic Cases

Surgeons in the Brigham and Women’s Hospital Center for Robotic Surgery have performed more than 2,000 robotic cases and offer a comprehensive, multispecialty robotic surgery program.
A team of cardiovascular specialists at Brigham and Women’s Hospital has performed the first total artificial heart implant in New England and joins a select number of hospitals nationwide to offer the procedure. The total artificial heart was implanted in a 66-year-old male patient with cardiac amyloidosis.

“Left with no options, the patient had only a few weeks to months had we not performed the procedure,” said Mandeep Mehra, MBBS, FACC, FACP, Executive Director of the Center for Advanced Heart Disease.

“Wait times for donor hearts remain between 6 and 12 months in New England,” said Gregory S. Couper, MD, Surgical Director of the Mechanical Circulatory Support and Heart Transplantation Program. “This device provides a much needed option for patients with biventricular heart failure when a donor heart has not yet become available and other devices are unsuitable.”

The team announced last year that it was the first in New England to participate in a clinical study of a 13.5-pound portable driver for the total artificial heart. The portable driver enables patients who meet stability criteria following successful total artificial heart implantation to begin a phased discharge from the hospital.

“It’s very important for us to be able to offer eligible patients a way to return home to their families while awaiting heart transplantation,” said Michael M. Givertz, MD, Medical Director of the Mechanical Circulatory Support and Heart Transplantation Program.

Case Study: Total Artificial Heart Implantation

Presentation:
A 66-year-old man with cardiac amyloidosis presented with biventricular heart failure. His echocardiogram showed severe concentric ventricular hypertrophy, a left ventricular ejection fraction of 20 percent, and restrictive filling indices. Hemodynamic evaluation confirmed elevated cardiac filling pressures and low cardiac output. Renal and hepatic function was impaired with a creatinine clearance of 31 cc/min and a total bilirubin of 2.3 mg/dl, respectively. The patient was experiencing severe dyspnea, edema, and marked fatigue, and his nutritional status was poor. Current biventricular assist devices were deemed inappropriate due to the small internal dimensions of his cardiac chambers. The patient was placed on a heart transplant waiting list in January 2012, but his condition deteriorated as no suitable donor organs were identified.

Treatment:
The patient received a total artificial heart implant on February 17, 2012, as a bridge-to-transplantation. The procedure, led by Surgical Director Gregory S. Couper, MD (shown at left), took approximately eight hours to complete. The device replaced the patient’s right and left ventricles, connecting to his pulmonary artery, right and left atria, and aorta.

Follow-up:
The patient’s condition has greatly improved since the total artificial heart implant. His nutrition and strength have returned to normal. As of this publishing, he is walking on a treadmill continuously for more than a mile without limitation. His blood pressure and systemic perfusion are normal, however, his renal function did not recover as anticipated after surgery, and he remains supported on dialysis. He is currently waiting for a combined heart and kidney transplant.

The Mechanical Circulatory Support and Heart Transplantation Program provides a comprehensive range of options for patients with advanced heart disease and has led the region’s investigation of novel circulatory support devices. Since 1984, the team has completed 619 heart transplants, the highest volume in the region.
New Melanoma Clinical Trials Build on Recent Successes

Medical oncologists in the Center for Melanoma Oncology at Dana-Farber/Brigham and Women’s Cancer Center are pioneering new treatment approaches, including new trials of combination and adjuvant therapies, for all forms of melanoma.

Groundbreaking Discoveries

The team led the Phase III trial of ipilimumab, the first drug to demonstrate a survival benefit for patients with metastatic melanoma and the first drug to be FDA-approved for melanoma in 13 years (N Engl J Med. 2010 Aug 19;363(8):711-23.). Approved in March 2011, ipilimumab is a CTLA-4 inhibitor and part of a new class of drugs that is being evaluated in the treatment of other cancers as well.

“Clinical trials are a cornerstone of our Center,” said F. Stephen Hodi, MD, Director, Center for Melanoma Oncology. “We are building on results we have seen with ipilimumab, combining this drug with other agents and evaluating other new immunotherapies and targeted therapies to enhance treatment response.”

Next-Generation Treatment Approaches

Today, Center specialists are spearheading the investigation of the next generation of treatments for melanoma. Select current clinical trials offered at the Center incorporate numerous early-phase studies, including:

Combination Therapies

• Randomized Phase II Trial of Vemurafenib (PLX4032/RG7204) With or Without Bevacizumab in Patients With Stage IV BRAFV600 Mutant Melanoma – Dr. Hodi is the Co-Principal Investigator of this national trial designed to determine the effectiveness of using vemurafenib, a BRAF inhibitor, and bevacizumab, a VEGF inhibitor, together relative to vemurafenib alone;

• Phase I Trial of Bevacizumab Plus Ipilimumab in Patients With Unresectable Stage III or IV Melanoma – Dr. Hodi is the Principal Investigator of this regional trial, which is examining the safety, tolerability, and maximum tolerated dosing for the combination of bevacizumab plus ipilimumab in patients with unresectable stage III or stage IV melanoma.

Adjuvant Therapy

• Phase III Randomized Study of Adjuvant Ipilimumab Anti-CTLA4 Therapy Versus High-Dose Interferon Alpha-2b for Resected High-Risk Melanoma – This national Phase III clinical trial is studying ipilimumab or high-dose interferon alfa-2b in treating patients with high-risk stage III or stage IV melanoma that has been surgically resected. Dr. Hodi is the Co-Principal Investigator of this trial.

Acral and Mucosal Melanoma Trials

• Phase II Study of Nilotinib (AMN107) In TKI Resistant or Intolerant Patients With Metastatic Mucosal, Acral or Chronically Sun Damaged Melanoma – Dr. Hodi is the Principal Investigator of this regional study evaluating the effectiveness of nilotinib in treating advanced acral, mucosal, or melanoma arising from sun-damaged skin which has not responded to treatment with another tyrosine kinase inhibitor (including but not limited to imatinibmesylate, sunitinib, or dasatinib treatment) or was not tolerated;

• Phase II Study of SU011248 in Patients With Metastatic Mucosal or Acral/Lentiginous Melanoma – Dr. Hodi is the Principal Investigator of this regional trial evaluating the efficacy of SU011248, a protein-tyrosine kinase inhibitor and c-kit inhibitor, in treating advanced acral lentiginous and mucosal melanoma.

For more information on clinical trials in the Center for Melanoma Oncology, please contact Research Nurse Kristina Kelley, RN, at (617) 582-8687 or Research Nurse Amanda Livengood, RN, at (617) 632-5789.

The team sees patients in weekly multidisciplinary clinics, which facilitate the development of multimodality treatment plans. These clinics also provide multidisciplinary management of dermatologic side effects of treatments and enable screening of patients for new melanomas or recurrence of primary melanomas, as well as treatment of other non-melanoma skin cancers.

Information and Referrals

For more information regarding our specialists, or to arrange a patient consultation, please call 1-877-332-4294 to speak with one of our experienced referral coordinators.
Deep Brain Stimulation Improves Quality-of-Life for Patients with Movement Disorders, OCD, and Depression

Specialists in the Movement Disorder Center at Brigham and Women’s Hospital are among few in New England to offer Deep Brain Stimulation (DBS) and have recently expanded indications for this innovative treatment.

Approved for use in patients with Parkinson’s disease and essential tremor, DBS also is offered for select patients with dystonia or intractable obsessive compulsive disorder (OCD) and is being evaluated for patients with severe depression on a case-by-case basis.

“We’re seeing more of a role for this therapy in patients with mental health disorders, and we expect further expansion of conditions treated with DBS down the road. In addition, the psychological benefits of DBS actually dovetail with movement benefits, as many patients with Parkinson’s disease also suffer from depression, fatigue, and cognitive issues,” said Michael T. Hayes, MD, a Brigham and Women’s Hospital neurologist in the Center with more than 20 years of experience in movement disorders.

“As the brain circuits underlying psychiatric conditions are identified, we are increasingly able to pinpoint areas in the brain, the modulation of which can provide relief to patients suffering from severe, refractory disorders,” said David Silbersweig, MD, Chair, Department of Psychiatry, and Chair, Institute for the Neurosciences, at Brigham and Women’s Hospital.

Team Approach to Evaluation and Treatment
A multidisciplinary team of specialists, including a neurologist, neurosurgeon, psychologist, psychiatrist, neuropsychologist, and neuroimaging specialist, in the Movement Disorder Center evaluates each prospective DBS patient during a single visit. Together, these specialists provide a complete assessment of motor and cognitive functioning.

DBS is performed by Travis S. Tierney, MD, PhD, a Brigham and Women’s Hospital neurosurgeon who is fellowship trained in functional neurosurgery. Detailed magnetic resonance images are used prior to device implantation to coordinate targets.

Microelectrode mapping and tracking of electrical cellular activity guide placement of probes, and testing of the system in the OR ensures that placement is improving symptoms without adversely affecting other areas, such as language or cognitive function. In addition, the team works with colleagues in Cardiovascular Medicine and other disciplines to manage patients with co-existing medical conditions.

Brigham and Women’s Hospital neurosurgeon Travis S. Tierney, MD, PhD (above left), performs deep brain stimulation in a 74-year-old male patient with bilateral essential tremor.

High Rates of Success
Studies of patients who have undergone DBS for movement disorders have shown:

- Up to an 80 percent decline in medication doses and similar declines in off-time and dyskinetic movements in patients with Parkinson’s disease;
- A 51 percent average decline in symptoms 12 months following the procedure, as well as demonstrated functional improvements in quality-of-life, walking, hygiene, and eating, among patients with dystonia;
- Eighty-one percent declines in tremor score among patients with essential tremor.

The team at Brigham and Women’s Hospital completed more than 20 DBS cases last year and offers a range of treatment options for patients with movement disorders. Dr. Hayes provides close post-surgical follow-up and adjustment of the implanted device to achieve the best clinical response. For convenience, he sees patients at both Brigham and Women’s Hospital in Boston and South Shore Hospital in Weymouth, Massachusetts, where he serves as Chief of the Brigham and Women’s Neurology Service at South Shore Hospital.

Brigham and Women’s Hospital specialists also are interested in evaluating possible neuroprotective properties of DBS using imaging and plan to initiate studies in the near future. Other potential uses for DBS on the horizon include epilepsy and obesity.
Case Study: DBS for Essential Tremor

Background:
A 74-year-old male patient with bilateral essential tremor in his arms, as well as Parkinsonian symptoms, presents for deep brain stimulation (DBS) treatment. Left-side tremor is more pronounced than the right. The patient is under anticoagulation for Factor V Leiden mutation and has experienced previous bilateral pulmonary emboli. Medications include Sinemet 100/25 mg (two pills in morning and two in afternoon), propranolol 40 mg b.i.d., primidone 50 mg twice a day, pantoprazole 40 mg daily for reflux, and Coumadin for anticoagulation.

Approach:
Plan for anticoagulation bridging leading up to and following the procedure was detailed with Cardiovascular Medicine and Hematology at BWH. Prior to the procedure, the patient was transitioned from Coumadin to Levenox to heparin. Inferior vena cava filter placement was performed by Interventional Radiology at BWH. Heparin was discontinued six hours prior to the procedure, and, to reduce time off anticoagulants, both parts of the procedure were performed sequentially in the OR. Electrodes were placed in the subthalamic nucleus (using MRI-identified targets) while the patient was awake. General anesthesia was administered for the internal pulse generator (IPG) and lead placement.

Follow-up:
As of this publishing, the patient has undergone two programming sessions. He has seen marked decrease in tremor of the left side, resulting in ability to bring a water bottle to his mouth to drink. On the right side, he has had less dramatic tremor reduction but is now better able to write his name and draw a spiral. Additional programming will be done to achieve effective tremor capture on the right side as well. His medications also have been reduced to Sinemet 100/25 mg once per day, propranolol 40 mg b.i.d., primidone 50 mg a day, and pantoprazole for reflux. He has resumed Coumadin for anticoagulation.
Orthopedic Trauma Service and Geriatrics Partner to Improve Outcomes after Falls

The Orthopedic Trauma Service at Brigham and Women’s Hospital recently added a full-time geriatrician to its service to optimize the care and management of elderly patients who have incurred injuries related to a fall.

“Nearly 40 percent of our patients are over the age of 70, and many of these patients present with multiple associated medical conditions,” said Mitchel B. Harris, MD, Chief of the Orthopedic Trauma Service.

Houman Javedan, MD, a Brigham and Women’s Hospital geriatrician from the Division of Aging, works as an integral part of the Orthopedic Trauma Service team, evaluating every patient over the age of 70.

“A fall among an elderly patient is often a symptom of other medical conditions, and the mortality and morbidity among these patients is extremely high,” said Dr. Javedan. “It is critical to look at the big picture in order to improve both short- and longer-term outcomes.”

Dr. Javedan conducts a thorough evaluation of patients’ medical, cognitive, and emotional status, in addition to speaking with their family members. Then, he works with the trauma team to implement personalized geriatric-based patient care.

“As the general population continues to age, the incidence of fractures among the elderly is climbing,” said Michael Weaver, MD, an orthopedic surgeon in the Orthopedic Trauma Service. “We are taking the steps needed to best care for this population.”

Case Study:
Hip Fracture in Patient with Multiple Conditions

Background:
A 90-year-old male patient with moderate dementia, gait instability, atrial fibrillation, gastro-esophageal reflux, hypertension, and hypercholesterolemia presents after fall and injury incurred by tripping on his walker because of poor safety insight, a common problem resulting from executive dysfunction of dementia.

Approach:
The patient was admitted directly to the Orthopedic Trauma Service to be evaluated by a multidisciplinary team, including orthopedic surgeons, a dedicated geriatrician, anesthesiologists, nurses, occupational therapists, physical therapists, and a case manager. He received a comprehensive geriatric assessment prior to surgery. His pain medication regimen was set, his anticholinergic medications were held, and appropriate recommendations for possible post-operative delirium were implemented. His time to surgery was minimized in order to best achieve pre-trauma level activity after surgery, and specialized orthopedic trauma surgeons performed the surgery.

His fracture was typical of someone with osteoporosis, in this case a comminuted and displaced inter-trochanteric hip fracture (Figure 1). Given the fracture pattern and his overall medical condition, a minimally invasive technique was selected for the treatment of this injury. The fracture was continued on back cover

Information and Referrals
For more information, or to refer a patient, please contact our Referral Coordinators at (617) 732-9894 or email bwhreferrals@partners.org.
Brigham and Women’s Hospital Surgeons Perform 2,000 Robotic Cases

Surgeons in the Brigham and Women’s Hospital (BWH) Center for Robotic Surgery at BWH and Faulkner Hospital have performed more than 2,000 robotic cases. The Center comprises more than a dozen surgeons and two da Vinci® Surgical Systems and offers a wide range of robotic procedures, including:

**Robotic Urologic Surgery**
- Radical and partial nephrectomy;
- Radical prostatectomy;
- Radical cystectomy;
- Pyeloplasty.

**Surgeons:**
Steven L. Chang, MD; Adam S. Kibel, MD

**Robotic Gynecologic Oncology Surgery**
- Total radical hysterectomy;
- Trachelectomy;
- Tumor and lymph node staging.

**Surgeons:**
Colleen M. Feltmate, MD; Neil S. Horowitz, MD; Michael G. Muto, MD

**Robotic Gynecologic Surgery**
- Total hysterectomy;
- Myomectomy;
- Tubal reanastamosis.

**Surgeons:**
Jon I. Einarsson, MD, MPH; Antonio R. Gargiulo, MD; James A. Greenberg, MD; Serene Srouji, MD; Karen Wang, MD

**Robotic Head and Neck Surgery**
- Transoral robotic surgery (TORS)

**Surgeons:**
Donald J. Annino, Jr., MD, DMD; Tom Thomas, MD, MPH

**Robotic Thoracic Surgery**
- Esophagectomy;
- Esophageal and bronchogenic cyst excision;
- Lobectomy and segmentectomy;
- Lymph node biopsy.

**Surgeon:**
Jon O. Wee, MD

Brigham and Women’s Hospital Launches Mobile Physician Directory

Brigham and Women’s Hospital has launched a new mobile site that includes the BWH physician directory, links to referrals and inpatient transfers, and videos of procedures and grand rounds.

The new site is designed for smartphones and offers a physician search by name, specialty, location, and languages spoken. Referring physicians also can reach the Physician Referral Line and MDCONNECT line for inpatient transfers. In addition, a link to an online video education center provides access to procedural videos and Grand Rounds presentations, with an option to search videos by topic.

Simply visit us at [brighamandwomens.org](http://brighamandwomens.org) on your smart phone to view the new mobile site.
Continuing Medical Education

Brigham and Women’s Hospital is pleased to offer the following courses, occurring in September and October 2012, through the Harvard Medical School Department of Continuing Education. Please call (617) 384-8600 or visit www.cme.hms.harvard.edu for more information.

September 19 –21
Update in Hospital Medicine
Location: The Fairmont Copley Plaza Hotel, 138 St. James Avenue, Boston, MA
Directors: Glen M. Kim, MD, MPH; Christopher L. Roy, MD, SFHM
Offered by: Brigham and Women’s Hospital, Department of Medicine; Brigham and Women’s Hospital, Hospitalist Service

September 30 – October 5
Cancer Medicine and Hematology
Location: The Fairmont Copley Plaza Hotel, 138 St. James Avenue, Boston, MA
Director: Robert J. Mayer, MD
Offered by: Dana-Farber Cancer Institute; Brigham and Women’s Hospital; Massachusetts General Hospital

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reduced indirectly and fixed through two small incisions on the thigh. A titanium intramedullary hip screw stabilized the fracture and allowed for healing.

Follow-up:
All members of the team continued to see the patient daily after surgery. He was encouraged to ambulate with the assistance of physical therapy and was able to stand at the bedside on the first day following surgery. The patient experienced mild delirium, which cleared by the second post-operative day. Geriatrics identified the delirium early, closely titrating the pain regimen, reviewing post-operative medications and holding unessential medications, removing his foley early, removing unessential continuous monitoring, minimizing overnight disruptions, encouraging family to be bedside, and working with nursing staff to adjust care and diet consistency to prevent aspiration. His medical co-morbidities were managed without decompensation, and he was discharged to an appropriate rehabilitation facility on the third post-operative day.

The patient was seen in clinic periodically following his discharge from the hospital. At three months post-procedure, he had returned to independent ambulation with the aid of a cane. Radiographs at his most recent clinic visit demonstrate the presence of the intramedullary hip screw and show the fracture to be fully healed in a good position (Figure 2).