Cancer Center

Beth Israel Deaconess Medical Center

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Leon V. & Marilyn L. Rosenberg Clinical Cancer Center

2015 Annual Report

From Standard of Care to Standard of Cure

2015: An Exciting Challenge Gets Underway

How to eradicate cancer and improve treatment and outcomes?

This goal motivates us every day at BIDMC. Our clinicians, our scientists and our staff never tire of asking this question. While we are proud of our legacy, we are always looking for ways to improve. You will read about many of these efforts in this annual report.

One of the most significant developments of 2015 occurred toward the end of the year. In early December, Dr. Manuel Hidalgo joined us as Director of our Leon V. and Marilyn L. Rosenberg Clinical Cancer Center, following in the large footsteps of his predecessor, Dr. Lowell Schnipper. Dr. Hidalgo came to us from the Spanish National Cancer Center in Madrid, where he was Director of the Clinical Research Program.

One of Dr. Hidalgo's goals is to increase patient participation in clinical trials at BIDMC. Our rich array of studies has long provided patients with innovative treatment options that go beyond the standard of care. We believe the potential exists to expand these opportunities. This crucially important, complex endeavor will undoubtedly figure in annual reports for years to come.

Clinical research is where the scientific and the clinical sides of the BIDMC Cancer Center come together for the benefit of present and future patients. This nexus is one of the things that makes our work, as a cancer center within an academic medical center, truly exciting. With great enthusiasm, we welcome Dr. Hidalgo and look forward to the critical ways in which his leadership will touch the lives of our patients.

Pier Paolo Pandolfi, MD, PhD
Director, Cancer Center at Beth Israel Deaconess Medical Center

Leon V. & Marilyn L. Rosenberg Clinical Cancer Center at BIDMC

2015 Annual Report

About this Report

The Leon V. & Marilyn L. Rosenberg Clinical Cancer Center at Beth Israel Deaconess Medical Center is recognized as a Cancer Center of Excellence by the American College of Surgeons (ACOS) Commission on Cancer. It is an international leader in translating research from bench to bedside. Our goal is to move from the standard of care to the standard of cure.

Contents

Cancer Care Committee Report

Beth Israel Deaconess Medical Center (BIDMC) in Boston, Massachusetts, is a major teaching hospital of Harvard Medical School. The Cancer Center offers leading-edge, personalized, multi-disciplinary approaches to diagnosis, treatment, supportive services and clinical trials for patients with all types of cancer. As both a research and clinical Cancer Center, Beth Israel Deaconess Medical Center offers specialized patient care for complex cancers.

The Cancer Center is committed to meeting the highest standards in personalized patient care, continuing physician education and research. Comprehensive clinical services are available at BIDMC in Boston, and many services are available in the community through a variety of affiliations with owned and independent community hospitals. BIDMC, a founding member of the Dana-Farber/Harvard Cancer Center (DF/HCC), is active in a wide range of basic research, translational research and clinical trials.

The BIDMC Cancer Care Committee is responsible for setting overall cancer program goals, monitoring all cancer program activities, evaluating patient outcomes and focusing on improving care for all cancer patients seen at BIDMC. One coordinator from the Cancer Committee is assigned to monitor each of the specific Commission on Cancer areas of cancer program activity, cancer conferences, quality of cancer registry data, quality improvement and community outreach.

2015 Achievements

To learn more about the 2015 Cancer Center achievements, please see The Year in Review on page 8.

Goals for 2016

The Cancer Committee will continue to provide oversight, and develop and implement standards of care as they relate to the care of cancer patients at BIDMC. Goals include:

- Provide outstanding clinical care at all owned and affiliated community hospitals, adhering to best medical practices
- Continue collaboration with network oncology services via videoconferencing and curbside consultations
- Continue patient navigator programs and interpreter services
- Provide survivorship care plans to 25% of cancer patients
- Continue the Dana-Farber/Harvard Cancer Center community outreach and education activities in minority communities

These goals are based on the following Standards:

- Standard 3.1 Patient Navigation Process: A patient navigation process, driven by a community needs assessment will be established to address health care disparities and barriers to care for patients.
- Standard 3.2 Psychosocial Distress Screening: The cancer care committee will play a role in developing and implementing a process to integrate and monitor on-site psychosocial distress screening and referral for the provision of psychosocial care.

- Standard 3.3 Survivorship Care Plan: The cancer care committee will develop and implement a process to disseminate a comprehensive care summary and follow up plan to patients who are completing their treatment.

Community Outreach Goals for 2016

- Continue Dana-Farber/Harvard Cancer Center community outreach and education activities in minority communities.
- Present photo exhibit in March 2016. The *Faces of Faith Exhibit* features photographs and inspiring quotes from cancer survivors from the faith-based Boston community, showcasing individuals living vibrant, active lives after a cancer diagnosis.

Ongoing Activities for 2016

- Implement Rapid Quality Reporting System (RQRS).
- Re-design the BIDMC BreastCare Center and prepare for full renovation
- Monitor the BIDMC academic program
- Monitor the integrated network cancer program
- Support clinical research by providing data from the BIDMC Cancer Registry
- Monitor the quality of Cancer Registry data
- Complete a site-specific cancer study with comparison survival data
- Ensure that patients and their families experience a welcoming, respectful, and inclusive environment while receiving culturally responsive care

Respectfully submitted on behalf of the Cancer Care Committee,
Mary Jane Houlihan, MD, Co-Chair
Irving Kaplan, MD, Co-Chair

The Year in Numbers

2015 Tumor Registry Data

The BIDMC Cancer Registry is part of the hospital's Health Information Management Department, under the direction of Gerry Abrahamian, RHIT, and the manager of the Cancer Registry is Matthew Cadorette, CTR. The entire Registry is staffed by certified tumor registrars.

The Cancer Registry is currently following 34,418 patients who have been treated or diagnosed since January 1, 2005 at a follow-up rate of 82%. In addition, 20,114 of these patients are being followed since January 1, 2010 at a follow-up rate of 90%. To ensure quality data, physician members of the Cancer Care Committee review at least 10% of newly diagnosed cancer cases that have been abstracted by the registry.

Demographics

In 2015, the BIDMC Cancer Registry abstracted 3,948 analytic (newly diagnosed) cases and 257 non-analytic (recurrent) cases for a total of 4,205 cancer cases for each location. For comparison, in 2014, the Registry abstracted 3,643 analytic cases and 320 non-analytic cases for a total of 3,963.

Please see figures 1-5 below for more detail about our cases in 2015.

- Figure 1: 2015 Frequency Report
- Figure 2: Most Frequent Cancer Sites – 2015 Comparison: BIDMC to US
- Figure 3: Most Frequent Invasive Female Cancer Sites – 2015 Comparison: BIDMC to US
- Figure 4: Most Frequent Male Cancer Sites – 2015 Comparison: BIDMC to US
- Figure 5: 2015 BIDMC New and Recurrent Cancer Cases – Place of Residence

Figure 1:

2015 FREQUENCY REPORT

Body System Site Group Report	2015 NEW	%	2015 RECURRENT	%	2015 TOTAL
ALL SITES	**3,948**		**257**		**4,205**
Oral Cavity & Pharynx	**37**	**0.9**	**3**	**1.2**	**40**
Tongue	12		1		
Salivary Glands	4		1		
Gum and Other Mouth	7				
Nasopharynx	2				
Tonsil	5				
Oropharynx	5				
Other Oral Cavity & Pharynx	2		1		

Body System Site Group Report	2015 NEW	%	2015 RECURRENT	%	2015 TOTAL
Digestive System	**818**	**20.7**	**33**	**12.8**	**851**
Esophagus	39				
Stomach	72		2		
Small Intestine	32		2		
Colon Excluding Rectum	149		4		
Rectum & Rectosigmoid	92		8		
Anus, Anal Canal & Anorectum	19		2		
Liver & Intrahepatic Bile Duct	161		4		
Gallbladder	12		1		
Other Biliary	42		3		
Pancreas	180		7		
Retroperitoneum	1				
Peritoneum, Omentum & Mesentery	4				
Other Digestive Organs	15		2		
Respiratory System	**385**	**9.8**	**19**	**7.4**	**404**
Larynx	9				
Lung & Bronchus	372		19		
Nose, Nasal Cavity & Middle Ear	3				
Trache, Mediastinum & Other Respiratory	1				
Bones & Joints	**6**	**0.2**			**6**
Soft Tissue (including Heart)	**20**	**0.5**	**3**	**1.2**	**23**
Skin (Excluding Basal & Squamous)	**249**	**6.3**	**16**	**6.2**	**265**
Melanoma-Skin	235		15		
Other Non-Epithelial Skin	14		1		
Breast	**711**	**18**	**21**	**8.2**	**732**
Female Genital System	**316**	**8**	**15**	**5.8**	**331**
Cervix Uteri	36		3		
Corpus & Uterus, NOS	164		9		
Ovary	71		1		
Vulva	26		1		
Vagina & Other Genital	19		1		
Male Genital System	**433**	**11**	**61**	**23.7**	**494**
Prostate	414		58		
Testis	14		3		
Penis & Other Genital	5				
Urinary System	**234**	**5.9**	**35**	**13.6**	**269**
Urinary Bladder	92		14		
Kidney & Renal Pelvis	134		21		
Ureter & Other Urinary Organs	8				
Eye & Orbit			**1**	**0.4**	**1**
Brain & Other Nervous System	**169**	**4.3**	**18**	**7**	**187**
Endocrine System	**187**	**4.7**	**7**	**2.7**	**194**
Thyroid	164		3		
Other Endocrine	23		4		

Body System Site Group Report	2015 NEW	%	2015 RECURRENT	%	2015 TOTAL
Lymphoma	**189**	**4.8**	**11**	**4.3**	**200**
Hodgkin Lymphoma	19		11		
Non-Hodgkin Lymphoma	170				
Myeloma	**46**	**1.2**	**6**	**2.3**	**52**
Leukemia	**84**	**2.1**	**5**	**1.9**	**89**
Lymphocytic Leukemia	32		3		
Myeloid & Monocytic Leukemia	48		2		
Other Leukemia	4				
Other Bone Marrow Primaries	**21**	**0.5**	**3**	**1.2**	**24**
Mesothelioma	**5**	**0.1**			**5**
Kaposi Sarcoma	**3**	**0.1**			**3**
Other & Unspecified Primary Sites	**35**	**0.9**			**35**
TOTAL	**3,948**		**257**		**4,205**

New Total = Patients whose malignancy was first diagnosed and treated at BIDMC in 2015.

Recurrent Total = Patients who have never before been diagnosed or treated at BIDMC and were first seen here in 2015 for the treatment of a recurrent tumor or for progression of disease.

Percentages may not add up to 100 due to rounding.

Figure 2:

MOST FREQUENT CANCER SITES 2015 COMPARISON: BIDMC TO US

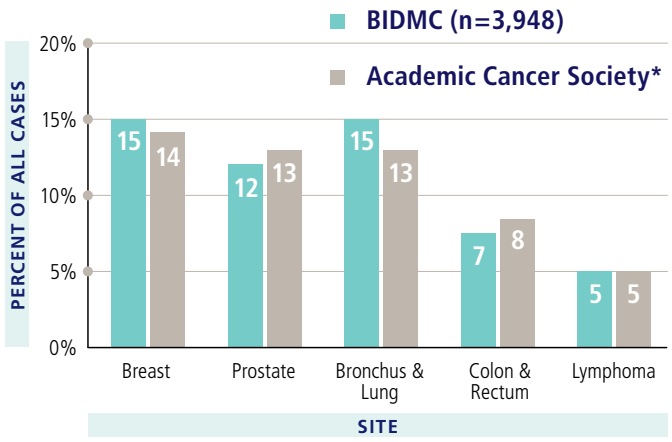
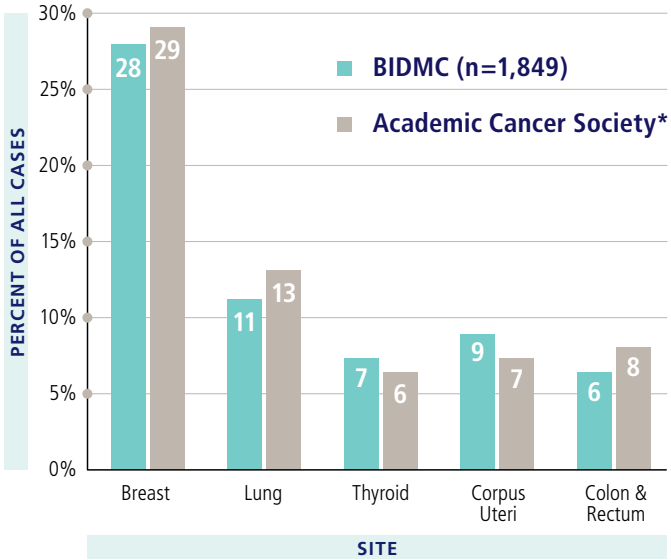


Figure 3:

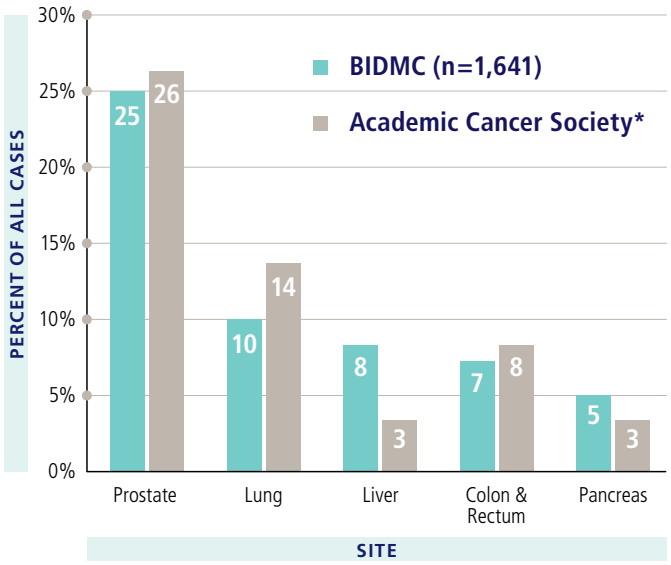
MOST FREQUENT INVASIVE FEMALE CANCER SITES 2015 COMPARISON: BIDMC TO US



* *Excludes basal & squamous cell skin cancers & in situ carcinomas except urinary bladder*

Figure 4:

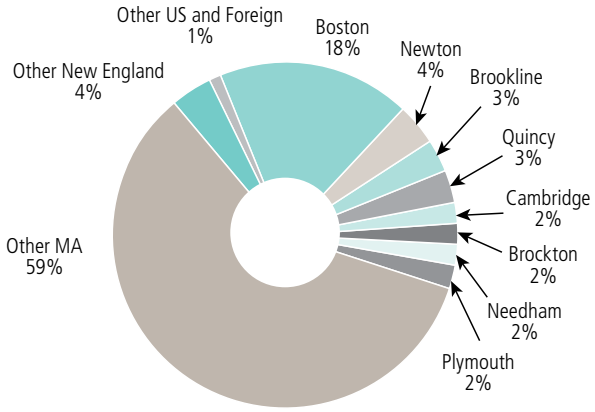
MOST FREQUENT MALE CANCER SITES 2015 COMPARISON: BIDMC TO US



* *Excludes basal & squamous cell skin cancers & in situ carcinomas except urinary bladder*

Figure 5:

2015 BIDMC NEW AND RECURRENT CANCER CASES – PLACE OF RESIDENCE



2015 Cancer Clinical Trial Accruals at BIDMC

- 784 interventional and therapeutic trials
- 927 BIDMC cancer patients enrolled in studies (approximately 10% of new patients enrolled in therapeutic trials)
- 381 active trials
- 280 trials led by BIDMC investigators that include all clinical program areas
- 30 lead investigators

Type of Trial	Patients Accrued	Active Trials	BIDMC Led Trials	Lead Investigators
AIDS	1	8	10	1
Biologics	114	56	52	1
BMT	99	99	45	2
Breast	433	38	30	2
GI	14	28	27	2
GU	141	39	40	1
GYN	17	28	4	2
Head & Neck			0	1
Neuro	77	10	8	1
Other			1	1
Pathology	0	8	22	4
Phase 1	16	22	1	2
Rad/Onc	5	8	19	2
Surgery	0	7	10	4
Thoracic	10	23	2	1
Thrombosis	0	5	7	1
TOTAL	**927**	**381**	**280**	**30**

The Year in Review

AWARDS

Research Grant Awards

The National Cancer Center (NCI) awarded the BIDMC Cancer Center significant grants totaling more than $25 million. These include a five-year grant renewal for leadership of the NCI Kidney Cancer SPORE (third renewal of the Specialized Program of Research Excellence), an extraordinary accomplishment for the small number of highly competitive awards available. The SPORE consists of a consortium of 35 investigators from BIDMC and collaborating institutions, working on a number of key research projects to advance the diagnosis and treatment of kidney cancer. The SPORE is headquartered at BIDMC and led by Co-Principal Investigator **David McDermott, MD,** Director of the Biologic Therapy Kidney Cancer Program. It is the only SPORE in the country focused on kidney cancer.

Another SPORE initiative is overseen by **Frank Slack, PhD,** Director of the Cancer Center's Institute for RNA Medicine (iRM) who, with researchers at Yale, is co-leading a project examining microRNAs as a therapeutic agent for non-small-cell lung cancer, as part of an NCI Lung Cancer SPORE.

In addition to these two significant grants, Cancer Center investigators **Pier Paolo Pandolfi, MD, PhD,** and **Daniel Tenen, MD,** received Outstanding Investigator Awards from the NCI. Drs. Pandolfi and Tenen are among only 60 Outstanding Investigator recipients in the country. This new NCI "genius grant" program funds research of exceptional potential conducted by investigators with outstanding records of productivity and achievement.

Commitment to Palliative Care Recognized

Mary Buss, MD, MPH, a medical oncologist and palliative medicine specialist at BIDMC, received a 2015 Hastings Center Cunniff-Dixon Physician Award in recognition of her leadership and commitment to promoting patient-centered care for patients near the end of life. Dr. Buss, who founded and directs the outpatient palliative care clinic at BIDMC, was honored in the early career category for her work to "alter the perception of palliative care" and for "her role as an important bridge between oncology and palliative care."

Director of the Cancer Center at BIDMC now a Knight

A native of Rome, but now a US citizen and residing in the United States since 1994, **Pier Paolo Pandolfi, MD, PhD,** was named to a chivalric order, Officer of the Star of Italy, by the president of the Italian Republic. "This honor belongs to my entire team," said Dr. Pandolfi (Signore Pier Paolo), "but it is especially humbling for me to be recognized by my own country for our efforts to cure cancer and alleviate suffering. The honor makes me more motivated than ever in the quest to eradicate cancer."

APPOINTMENTS AND PROMOTIONS

David Avigan, MD, Director, Hematologic Malignancies/Bone Marrow Transplant in the Division of Hematology/Oncology, was promoted to Professor of Medicine at Harvard Medical School and named a 2015 Game Changer by *The Boston Globe*. Avigan, who has been working on a personalized cancer vaccine, was recognized for his efforts to improve treatment for cancer patients with hematologic malignancies. In collaboration with Jacalyn Rosenblatt, MD, and investigators across the Harvard Cancer Center, he developed a vaccine that uses the patient's immune system to attack the cancer. Dr. Avigan is currently leading a national study using an open source approach with leading cancer centers across the country to test the vaccine's effectiveness on patients with blood cancer myeloma.

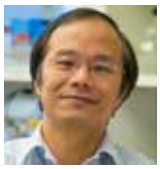
Vandana Dialani, MBBS, Director of Breast MRI, has been promoted to Assistant Professor of Radiology at HMS.

Robert Fisher, MD, Chief, Division of Transplant Surgery and Director of the Transplant Institute, was appointed Professor of Surgery at Harvard Medical School. Fisher has been a National Institutes of Health (NIH)-funded investigator for 17 years, pursuing research in the areas of hepatocyte transplantation for liver failure, as well as living donor transplantation and the treatment of liver cancer. He is the principle investigator of the NIH-funded Adult-to-Adult Living Donor Live Transplant study.

Sidhu Gangadharan, MD, Chief, Division of Thoracic Surgery and Interventional Pulmonology, was promoted to Associate Professor of Surgery at Harvard Medical School. Gangadharan is Program Director of BIDMC's Cardiothoracic Residency Program, Assistant Program Director of the General Surgery Residency Program and an internationally recognized expert in minimally invasive thoracic surgery and airway surgery. He specializes in the surgical treatment of tracheobronchomalacia (TBM).

Kevin M. Haigis, PhD, was named director of the Genetics Program within the Cancer Research Institute (CRI). The goal of the program is to promote the use of clinical genetic information as a hypothesis-generating tool for basic science researchers in cancer biology. New technology allows researchers to sequence whole cancer genomes and to focus on understanding their functions and to identify ways to therapeutically target genetically defined cancers.

Manuel Hidalgo, MD, PhD, was named the new Director of the Leon V. & Marilyn L. Rosenberg Clinical Cancer Center and Chief of the Division of Hematology/Oncology. Dr. Hidalgo is a renowned oncologist and researcher whose groundbreaking work has led to key advances in the treatment of pancreatic cancer. Dr. Hidalgo came from the Spanish National Cancer Center in Madrid Spain where he served as Director of the Clinical Research Program and Vice Director. Dr. Hidalgo exemplifies the BIDMC philosophy that research and patient care inform and complement one another, and that the skill and expertise of both disciplines are required to find the right path for curing cancer.



Kun Ping Lu, MD, PhD, was named director of the Translational Therapeutics Program of the Cancer Research Institutes as well as chief of the new Division of Translational Therapeutics within the Department of Medicine. In this role, Dr. Lu will support colleagues working to translate basic cancer research into therapies that will benefit patients.

Senthil Muthuswamy, PhD, joined the BIDMC Cancer Research Institute as the new Director of the Cell Biology Program. Dr. Muthuswamy's work focuses on the development of 3D "organoid" models, most recently for pancreatic cancer. These cellular models, which function as mini-tumors in culture dishes and serve as an innovative platform for cancer research and treatment, provide an opportunity to test targeted therapies and drug responses in a rapid, cost-effective manner. Prior to joining BIDMC, he was a faculty member at the University of Toronto.

SYMPOSIA, CONFERENCES AND SPECIAL EVENTS

2015 Annual BIDMC Cancer Symposium

Leading researchers convened for the BIDMC Cancer Center's eighth annual Cancer Symposium, "Cancer Hallmarks and Therapies," hosted by Pier Paolo Pandolfi, MD, PhD, Director of the BIDMC Cancer Center. This year's day-long symposium attracted more than 400 attendees. In what has now become an annual fall tradition, the BIDMC program brings together prominent cancer researchers from around the world for a day of presentations and discussions. This year's program focused on promising new research platforms and therapies. Speaker topics ranged from a discussion on the current state of cancer genetics in the era of precision medicine to descriptions of the latest research on pancreatic cancer and unique approaches to the use of radiation oncology.

BIDMC 2015 Cancer Symposium presenters from left: Kevin Haigis, PhD; Senthil Muthuswamy, PhD; Vikas Sukhatme, MD, ScD; Manuel Hidalgo, MD, PhD; Pier Paolo Pandolfi, MD, PhD; Titia de Lange, PhD; Siliva Formenti, MD; Stephen Elledge, PhD; Daniel Peeper, PhD and Luis Parada, PhD.

First Annual Non-Coding RNA Symposium

2015 RNA Symposium presenters included Sidney Altman, PhD; Phillip Sharp, PhD; Carlo Croce, MD; Victor R. Ambros, PhD; Gary Ruvkun, PhD; Samie R. Jaffrey, MD, PhD; Jeannie T. Lee, MD, PhD; Judy Lieberman, PhD, MD; Rachel Meyers, PhD; David Root, PhD and John Rinn, PhD.

The Institute for RNA Medicine (iRM) of the Cancer Center at BIDMC held its first annual Non-Coding RNA Symposium in April. The day-long event drew an overflow crowd and brought together a distinguished roster of prominent speakers whose talks described the many ways that non-coding RNA actually exerts tremendous influence over protein-coding genes to impact health and disease, including cancer. The Institute for RNA Medicine (iRM) is an integral component of the BIDMC Cancer Center and was officially launched in July 2014.

This year's **Looking Back, Facing Forward** conference, chaired by Nadine Tung, MD, brought together nearly 150 current and former cancer patients and family members who are affected by hereditary breast and ovarian cancer syndromes caused by mutations in the BRCA genes. The conference offered both plenary and breakout sessions. The conference is a joint project of BIDMC, MGH and DFCI.

"Faces of Faith," a photographic exhibit featured photographs and inspiring quotes from cancer survivors from the faith-based Boston community, showcasing individuals who shared stories of hope and resilience from their own cancer experiences. The exhibit was developed in partnership with the Dana-Farber/Harvard Cancer Center (DF/HCC), of which BIDMC is a founding member, and the Faith-Based Cancer Disparities Network, a consortium of nine Boston-area churches, the American Cancer Society and the Black Ministerial Alliance of Greater Boston. The overall goal of the project is to demystify cancer and to show that one can maintain a vibrant life as a cancer survivor.

BRICKS AND MORTAR – ENHANCING PATIENT CARE

Cancer Center in Needham Celebrates First Anniversary

John Fogarty, CEO, Needham Hospital; Robb Friedman, MD, Medical Director and Stuart Berman, MD, Medical Director, Radiation Oncology at the Cancer Center at BID–Needham

The Beth Israel Deaconess Cancer Center and Surgical Pavilion in Needham celebrated its one-year anniversary in October. The three-floor, 30,000 square foot facility combines the latest technologies in advanced cancer diagnostics and therapies with state-of-the-art surgical suites, as well as BIDMC's world-renowned care. In its first year, Radiation Oncology alone saw hundreds of new patients and provided over 5,000 treatments. The Cancer Center is home to 10 chemotherapy bays, a private chemotherapy room, an onsite laboratory and multiple clinical exam rooms. For patient convenience, cancer care services are located on two floors with patient exam rooms and radiation therapy on the ground floor, which is usually found in basements because of heavy lead and concrete construction requirements. Chemotherapy bays are located on the first floor and flooded with light from large windows. Parking is available at the ground floor entrance.

Anna Jaques Cancer Center Opens

Anna Jaques Cancer Center
Affiliated with
Beth Israel Deaconess Medical Center
Harvard Medical School Teaching Hospital

Comprehensive cancer care offered by a multi-disciplinary team of experts became available in Newburyport with the opening, in March, of the Anna Jaques Cancer Center affiliated with Beth Israel Deaconess Medical Center. A ribbon-cutting celebration with a tour of the facility was held at the Anna Jaques Cancer Center, located at the Newburyport Medical Center on the Anna Jaques Hospital campus. Radiation oncology services at the Anna Jaques Cancer Center are provided by Claire Fung, MD. The Center brings together experts from Anna Jaques and BIDMC to diagnose and direct the treatment of patients with all types of cancers and hematological diseases. A full array of community-based cancer services is offered in Newburyport and, when needed, advanced treatment options and specialists are provided at BIDMC in Boston.

Leaders from both institutions participated in the ribbon cutting. Representatives from Anna Jaques Hospital (AJH) and Cancer Center included Jonathan Eneman, MD, Medical Director, Laura Rossi, RN, Director, Oncology Services and Richard Maki, RN, Vice President, Chief Nursing Officer (AJH). Stanley Lewis, MD, Chief System Development and Strategy Officer, Mark Garnick, MD, Director of Community Cancer Services and Stuart Berman, MD, Director of Community Radiation Oncology represented Beth Israel Deaconess Medical Center and Cancer Center.

PROGRAM UPDATES

Ceremony at Fenway Honors State-of-the-Art Pancreatic Cancer Program Team

Members of the Pancreatic Cancer Program

The Pancreatic Cancer Program at BIDMC is recognized as an international leader in pancreatic cancer care and research, specializing in complex pancreatic cancers and rare pancreatic conditions. In recognition of their work, these physician scientists took to the field in Fenway Park before the Red Sox faced the New York Yankees along with members of Project Survival with whom they are collaborating to cure pancreatic cancer. **A. James Moser, MD,** Co-Director of the Pancreas and Liver Institute, is the driving force behind Project Survival, a unique scientific collaboration aimed at finding a cure for pancreatic cancer by identifying diagnostic and treatment biomarkers for the disease.

The Quality Oncology Practice Initiative (QOPI), an affiliate of the American Society of Clinical Oncology (ASCO), recertified the BIDMC Cancer Center. This accreditation provides a three-year certification for outpatient hematology-oncology practices that meet nationally recognized standards for quality cancer care.

QOPI® The Quality Oncology Practice Initiative

Quality Cancer Care: Pursuing Excellence

New Cardio-Oncology Program Addresses Cancer Patients' Heart Issues

James D. Chang, MD, became Director of the newly formed Cardio-Oncology Program at the CardioVascular Institute. The program is designed to a protect cancer patient's cardiovascular system from potentially harmful effects of chemotherapy and radiation therapy. Patients are evaluated before, during and after treatment is completed.

The Cancer Center and JAX Get to Work

The Jackson Laboratory

The BIDMC Cancer Center and the Jackson Laboratory are collaborating to provide new genomics-based training programs and programs to disseminate knowledge about innovative diagnostics beyond academic medical centers to community-based physicians. Each institution has committed equally to a pool of $600,000 to provide awards of pilot grants for translational research with teams of scientists from each institution working together on a specific project. Of the 19 projects proposed, seven were selected for the first pilot grant awards. Areas of research include triple negative breast, myeloma, brain, lung and prostate cancers.

PHILANTHROPY

Grateful Patients Give Back

A Reason to Ride Bike–A–Thon, an annual family cycling event that began in 2008, has raised more than $500,000 to support cancer research and cancer care at BIDMC. The event is organized by **Tom DesFosses,** a retired executive and brain cancer patient, in appreciation of his neuro-oncologist, Dr. Eric Wong. More than $60,000 was raised in 2015.

Support Services

The Cancer Center provides comprehensive support services to its patients, including those listed below.

- BreastCare Center Survivorship Program
- Oncology social work programs/Oncology support programs
- Patient navigator programs for Chinese, Latino and other patients
- Oncology support groups for:
  - Breast and gynecological cancers
  - Melanoma
  - Prostate cancer
  - Caregivers and family members of melanoma and bone marrow transplant patients
  - NEW IN 2015: Patients with head and neck cancers
- Pain management
- Palliative Care Program/Hospice/Pastoral Care
- Physical therapy

Community Outreach

In 2015, BIDMC continued its strong commitment to increasing access to community-based cancer prevention, treatment and support services. Through six affiliated community health centers, we sponsored numerous outreach activities for neighborhood residents as well as educational forums for health center providers.

One example of the work of community access and support is an annual retreat that grew out of the deaths of three longtime members of a support group for women with metastatic cancer, facilitated by Hester Hill Schnipper, LICSW, and the Cancer Center's Program Manager of Oncology Social Work. The three-day retreat allows the participants to build community, to help women feel less alone in different situations and to help them develop strategies to live better.

Psychosocial programs available in Spanish and Chinese include a Latina breast cancer support group held at BIDMC and *Tea Time*, a program for women in the Chinese community who are receiving treatment or are survivors of cancer.

In addition, the Cancer Center conducted a full complement of programs designed to support patients in underserved communities. Many of the activities were undertaken with the support of the American Cancer Society (ACS).

- Goal: Increase the number of mammograms and colon cancer screenings at community health centers and in the mobile van for low income individuals
  - 458 patients received mammograms at Outer Cape Health Services and 437 at Fenway Health
  - 2,633 low income women received a mammogram
  - 1,825 low income patients received a colon cancer screening

- Goal: Coordinate and host city-wide Patient Navigator Network
  - Twenty-five patient navigators representing eight healthcare institutions participated in two network luncheons

The collaboration between BIDMC and the ACS has provided patient navigator services to BIDMC patients and families and is an integral part of BIDMC's overall patient navigation program. A Chinese-speaking patient navigator and a Spanish-speaking navigator help individual patients as well as support a number of psychosocial programs.

The program serves a racially and culturally diverse population. During 2015, the Chinese Patient Navigator met with 401 active patients of which 156 were new patients, providing a total of 2,324 encounters. The Latina Patient Navigator received 625 service requests of whom 494 were referred to the Patient Navigator and of which 221 were newly diagnosed patients. Because racial self-identification is optional, the following statistics reflect only those who self-identified: 29% Caucasian/White; 17% Latino/Hispanic and 3% African American/Black. The remaining 51% did not provide racial information.

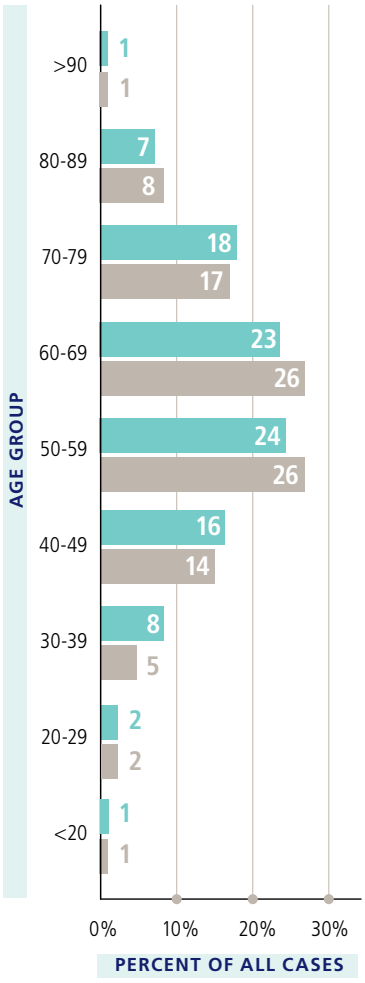
Additional information related to our community outreach and psychosocial programs is provided below.

- Referrals were made to *Reach to Recovery*, a program that matches newly diagnosed breast cancer patients with breast cancer survivors; *Man to Man*, the prostate cancer support program; *Road to Recovery,* providing information about transportation and *Look Good Feel Better*, personal care workshops.
- A multicultural cancer support group organized by BIDMC is held at the American Cancer Society's AstraZeneca Hope Lodge in Boston.
- Interpreter services at BIDMC are available for cancer patients in more than 40 languages.
- The top five disease types served by the Patient Navigator Program were breast (93); prostate (73); lung (20); pancreas (18) and endometrial (17). Combined, these patients made 221 requests for supportive services accounting for 42% of all requests.
- Information for local *Relay for Life Survivorship Celebrations* was provided via bulletin boards and through conversations with the patient navigator.
- Educational sessions were provided by 2 physicians from BIDMC at the 18th Annual Massachusetts Prostate Cancer Symposium in Newton on May 16, 2015.
- The brochure *Is a Clinical Trial The Right Choice For Me?* is available in waiting areas and from the patient navigator.
- *Nutrition for the Person with Cancer during Treatment: A Guide for Patients and Families* is available for patients from the patient navigator.
- "I Can Cope" nutrition information is available online, for patients/caregivers with access to the internet.
- American Cancer Society brochures in several languages are available in outpatient clinics, in Radiation Planning, at the BreastCare Center and on in-patient units.
- The BIDMC's Human Subject Protection Office (HSPO) provides a quarterly educational program titled "Truly Consenting Adults." The interactive presentations, targeting both clinicians and researchers incorporates principles of providing health literacy and cultural/linguistic considerations in the informed consent process.

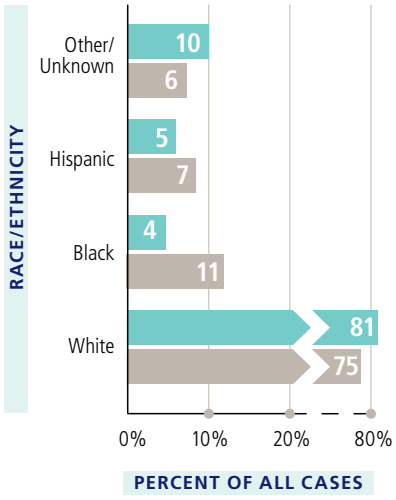
Program Outcomes

OVARIAN CANCER

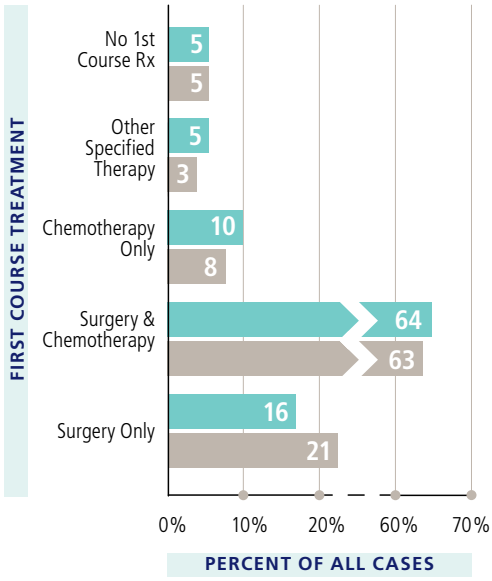
- BIDMC
- Academic Comprehensive Program Hospitals in All States Combination: Class of Case 10-14 and Class of Case 20-22 Data from 240 Hospitals



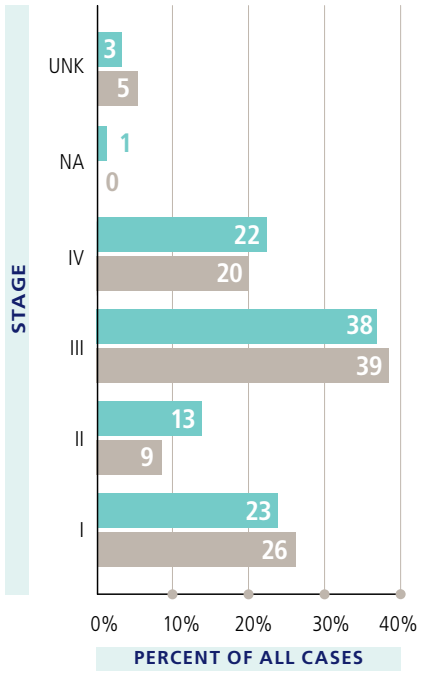
AGE GROUP OF OVARIAN CANCER CASES DIAGNOSED IN 2010-2012



RACE/ETHNICITY OF OVARIAN CANCER CASES DIAGNOSED IN 2010-2012



FIRST COURSE TREATMENT OF OVARIAN CANCER CASES DIAGNOSED IN 2010-2012

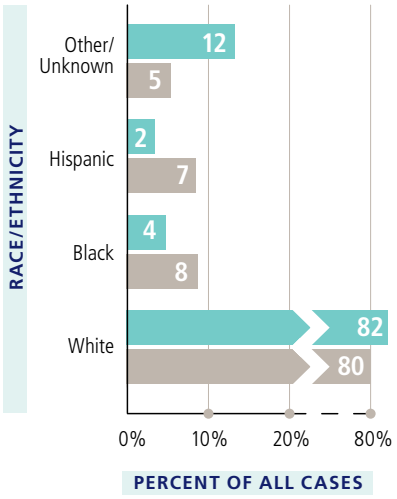


STAGE OF OVARIAN CANCER CASES DIAGNOSED IN 2010-2012

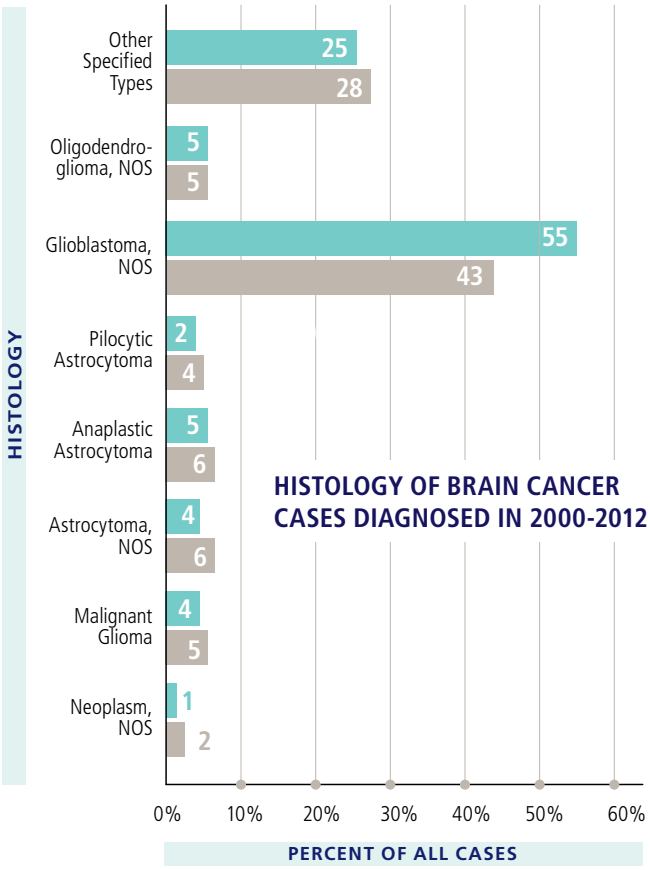
BRAIN CANCER

- BIDMC
- Academic Comprehensive Program Hospitals in All States
  Data from 250 Hospitals

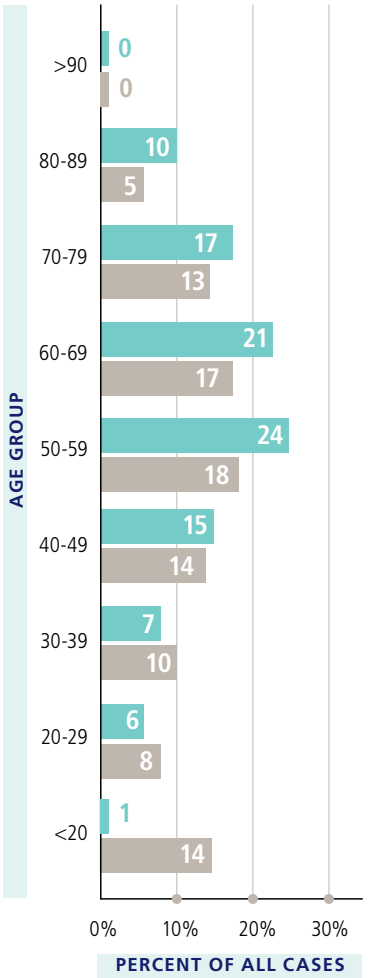
RACE/ETHNICITY OF BRAIN CANCER CASES DIAGNOSED IN 2000-2012



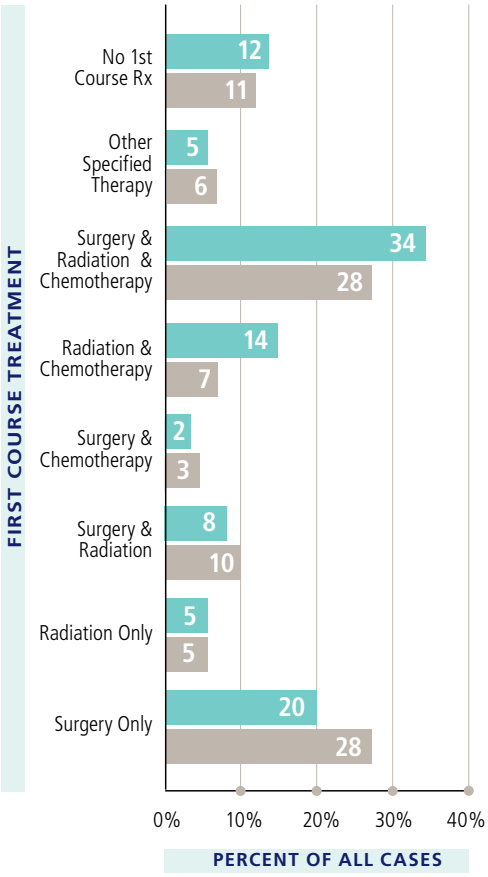
HISTOLOGY OF BRAIN CANCER CASES DIAGNOSED IN 2000-2012



AGE GROUP OF BRAIN CANCER CASES DIAGNOSED IN 2000-2012

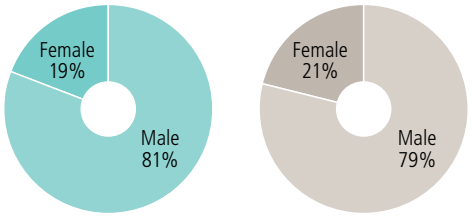


FIRST COURSE TREATMENT OF BRAIN CANCER CASES DIAGNOSED IN 2000-2012

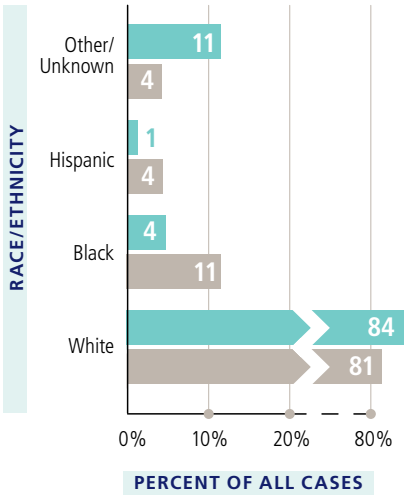


ESOPHAGEAL CANCER

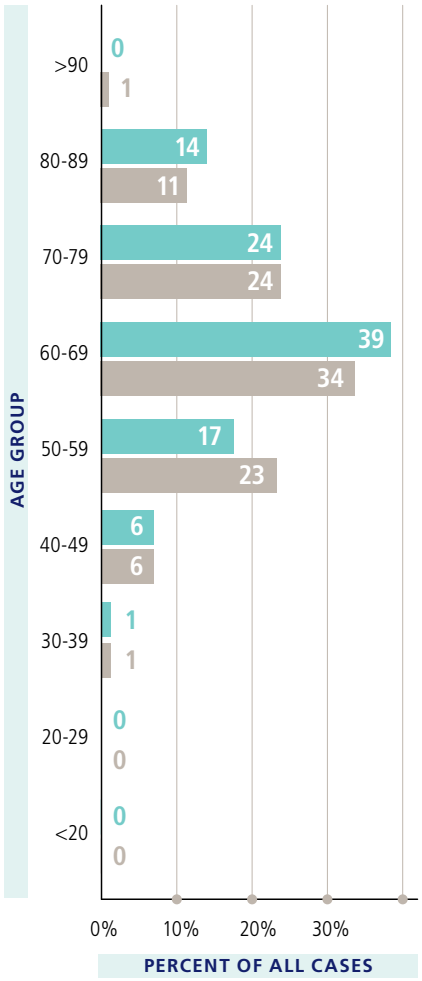
- BIDMC
- Academic Comprehensive Program Hospitals in All States Combination: Class of Case 10-14 and Class of Case 20-22 Data from 238 Hospitals



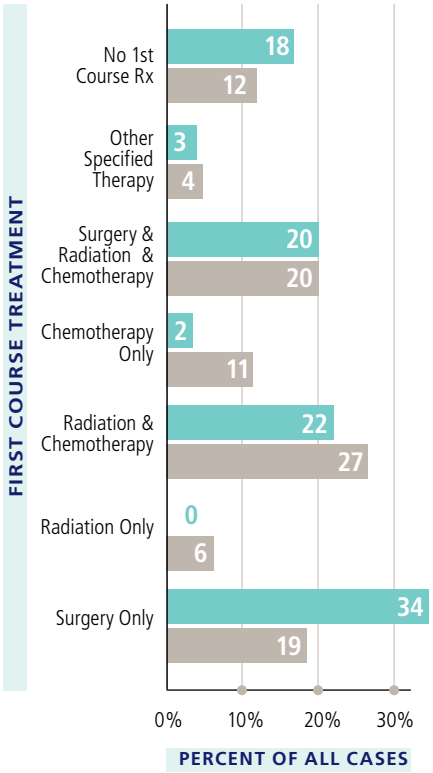
GENDER OF ESOPHAGEAL CANCER CASES DIAGNOSED IN 2010-2012



RACE/ETHNICITY OF ESOPHAGEAL CANCER CASES DIAGNOSED IN 2010-2012



AGE GROUP OF ESOPHAGEAL CANCER CASES DIAGNOSED IN 2010-2012

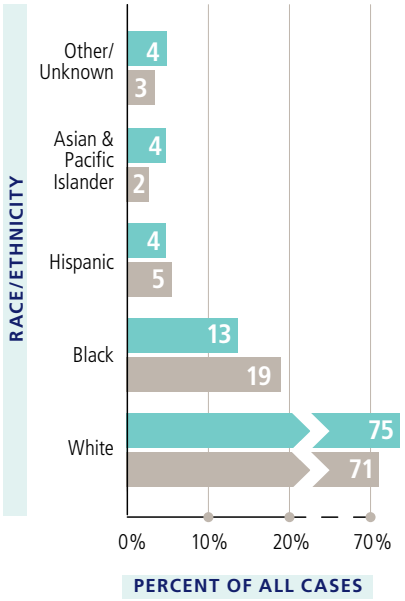


FIRST COURSE TREATMENT OF ESOPHAGEAL CANCER CASES DIAGNOSED IN 2010-2012

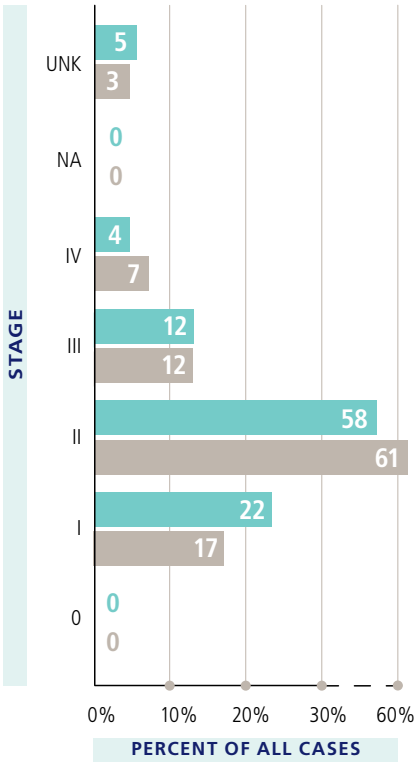
PROSTATE CANCER

- BIDMC
- Academic Comprehensive Program Hospitals in All States Combination: Class of Case 10-14 and Class of Case 20-22 Data from 246 Hospitals

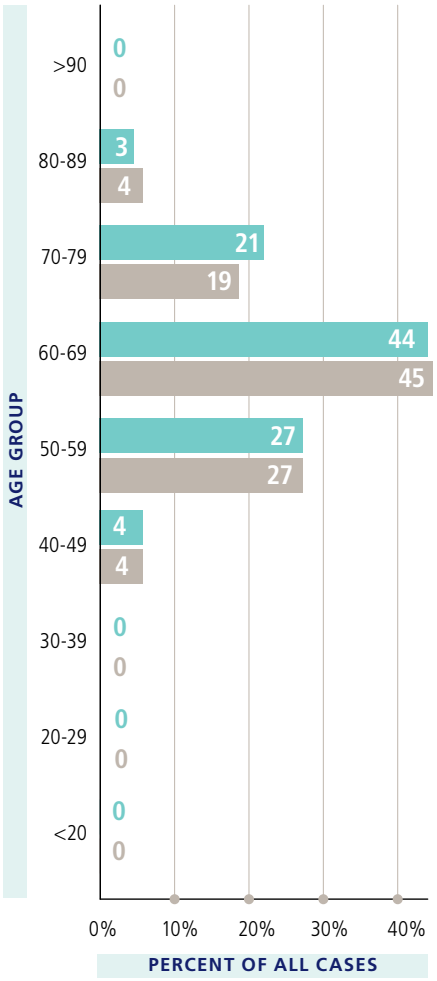
RACE/ETHNICITY OF PROSTATE CANCER CASES DIAGNOSED IN 2009-2013



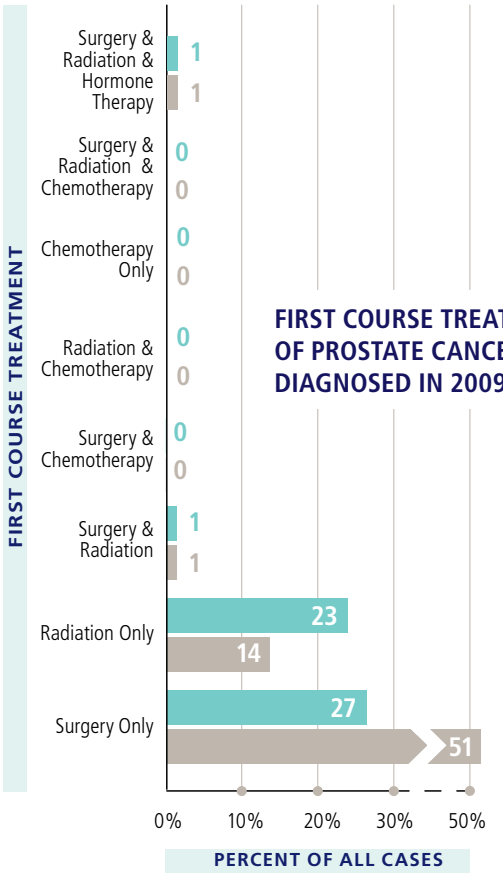
STAGE OF PROSTATE CANCER CASES DIAGNOSED IN 2009-2013



AGE GROUP OF PROSTATE CANCER CASES DIAGNOSED IN 2009-2013



FIRST COURSE TREATMENT OF PROSTATE CANCER CASES DIAGNOSED IN 2009-2013



2015 Silverman Quality and Process Improvement

The Silverman Institute for Health Care Quality and Safety hosts an annual "Celebrating Improvement" event. The event includes a display of posters from all areas of the hospital. The posters presented here represent those directly involved in cancer care in an ongoing effort to improve quality and safety throughout the Cancer Center every day.

- A Cancer Center – Built from the Patient Up
- Breast Surgery – Imaging Sustainability
- Pelvic Floor Physical Therapy for Cancer Patients
- Prior Authorization Process for Pharmacy Specialty Medications in Oncology
- Raising the Safety Bar/The Hematology/Oncology Patient Safety Committee
- Safe Chemotherapy Administration in the Home
- Understanding of Treatment Intent in Patients Receiving External Beam Radiation for Cancer

Beth Israel Deaconess Medical Center

Beth Israel Deaconess Hospital *Needham*

Putting People First

JACA architects

Result = A Cancer Center "Built From The Patient Up"

LEVEL 2

LEVEL 1

GROUND FLOOR

1. ENTRANCES
2. WINDOWS OF HOPE
3. RECEPTION/WAITING
4. RESOURCE ROOM
5. GARDEN
6. CONSULT/MEETING ROOM
7. EXAM ROOMS
8. NURSE STATIONS
9. CONTROL ROOM
10. SUB WAITING
11. LINAC TREATMENT RM
12. INFUS. TREAT. BAYS (10)
13. INFUSION ISOLATION RM
14. OFFICE/ADMIN
15. STAFF LOUNGE
16. BLOOD DRAW
17. LABORATORY
18. CAFE
19. PHARMACY
20. PREOP/POSTOP BAYS
21. PACU ISOLATION ROOM
22. NEW OPERATING RMS
23. EXIST. OPERATING RMS
24. LOCKER ROOMS
25. STERILIZATION

JACA architects

Beth Israel Deaconess Medical Center

A teaching hospital of Harvard Medical School

Putting People First

10th Annual GBMP Northeast Lean Conference OCTOBER 1 & 2, 2014 • SPRINGFIELD, MA

Industry & Site Stats

This new **Beth Israel Deaconess Cancer Center & Surgical Pavilion** will consolidate BIDMC's west suburban cancer services into an innovative, comprehensive center in Needham, Massachusetts. Designed through a collaboration of BIDMC medical staff, patients, hospital facilities and JACA architects, the new three-story suburban center provides patient-centered surgery and treatment solutions closer to home. The three-story, 30,000-square foot center, completed in September 2014, is located on the footprint of BID-Needham's former administration building. Combining radiation and hematological oncology services on one floor, the new center offers patients an integrated, team-based treatment process. Additionally, state-of-the-art surgical pavilion is located directly above, on the center's third floor.

Platform for Implementing Lean

- The BIDMC Lean transformation process is based upon three pillars:
  - Respect for People – the thinking of every person, provider and patient is valued
  - Process Closest to Staff – the best information comes from those closest to the process.
  - Getting Patients Involved – the voice of the customer is paramount to our improvement process.
- To plan the BIDMC West Suburban Cancer Center layout, a team of three dozen clinicians, administrators and facilities staff worked with patients and architects over a one-year period to develop a process focused on patient needs and care effectiveness. The team, supported by an executive steering committee, used a specific Lean process know as Production Preparation Process (3P).

Approaches & Methods

Production Preparation Process (3P) is a hands-on model simulation process developed originally at Toyota to stimulate breakthrough thinking in new product and process design. Adapting this method to healthcare, the cross-functional BIDMC team first defined the current condition for cancer care and compared this to a Lean ideal condition based upon perfect care for the patient. Next, using a specialized process map, the team brainstormed improvements, translating these first to simple bubble diagrams and later to tabletop floor layouts for evaluation and critique. Finally, using cardboard and brown paper, the team built full-sized models of treatment bays, the radiation vault, nurses stations, and other key areas, simulating actual staff and patient movement. The resulting design is indeed a breakthrough in patient care.

Results & Impacts

- Radiation and hematological care was consolidated to a single floor for creating more cohesive treatment and reducing patient walking by 75%
- The radiation vault, traditionally located in the basement, was elevated to the second floor, providing a sunny, welcoming environment for patients.
- Radonc and Hemonc disciplines, previously operated in separate locations, are now collocated for better coverage, teamwork and handoffs.
- Collaborative efforts included all services to the patient, from patient check-in, to phlebotomy, nursing, and tech, IT, ancillary services and facilities. The resulting breakthrough processes came from "the experts", the healthcare providers and administrative employees who are closest to the patient.
- Patient focus groups first provided input to initial design, and later validated and improved initial center design concepts.
- JACA Architects and BIDMC facilities provided technical advise from the very earliest stages of the process.
- Team involvement accelerated the design process and reduced later changes.
- A concurrent project to design a state-of-art surgical pavilion on the floor above the cancer center followed the same 3P method, creating a layout that in the word of one doctor "we would never have otherwise considered."
- The finished products have buy-in and enthusiastic support from all stakeholders.

Cancer Center

Beth Israel Deaconess Medical Center

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

The Silverman Institute *For Health Care Quality and Safety*

BREAST SURGERY/IMAGING SUSTAINABILITY

Beth Israel Deaconess Medical Center, Boston, MA

Issue: Coordinating Day of Surgery (DOS) for Breast Cancer Patients

Providing an optimal surgical experience for patients newly diagnosed with breast cancer is a priority at BIDMC; feedback from patients highlighted this need for improvement. Up to 70% of breast cancer patients require imaging procedures immediately prior to surgery. Breast care center support staff found it difficult and time consuming to coordinate mammography services (needle localizations), nuclear medicine (lymphoscintigraphy), operating room (OR) time and surgeons' schedules. There was suboptimal utilization of resources (imaging equipment and ORs), delays on the day of surgery (DOS), and overall patient and staff dissatisfaction.

Goals

1. Develop a standardized process *that improves the patient experience* for breast surgical cases requiring preoperative imaging
2. Have procedures on DOS start and end on time
3. Develop a means to track patient location and flow on DOS

Project Team

Elena G. Canacari, RN, CNOR
Kevin Donohoe, MD
Susan Dorion, RN, MSN
Donna Hallett, BS, RT(R)
Mary Jane Houlihan, MD
Dace Jansons, CNMT
April Isaac Jefferson, BA, MBA
Jeff Jankun, MD
Katie Kilroy, RN
Nancy Littlehale, NP
Tejas Mehta, MD, MPH
Dottie Sarno, RN
Ross W. Simon, BA
Michael Wertheimer, MD, FACS

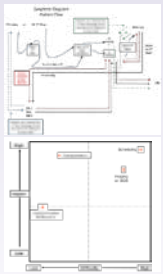
Analysis

Value Stream Process Map: Reviewed steps required to schedule a patient for surgery and mapped steps the patient took on DOS. Identified problems encountered with each step and brainstormed ideas for improvement.

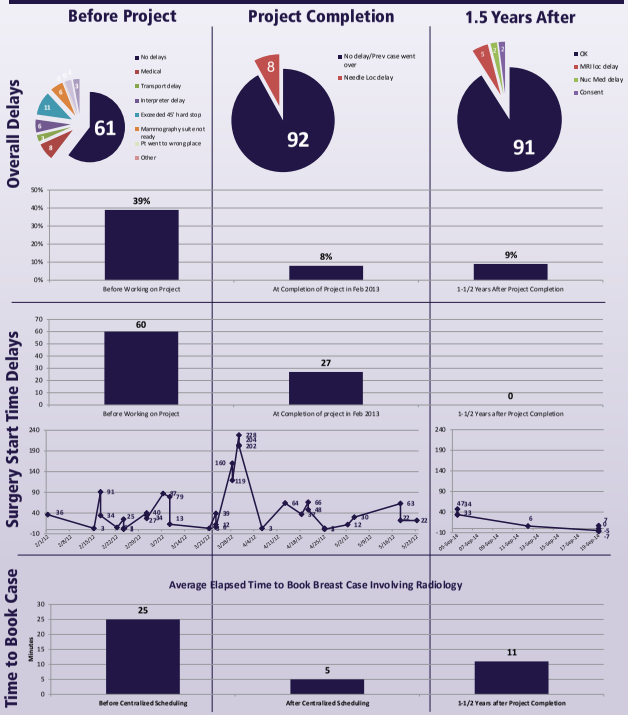
Spaghetti Diagram: Physically walked the path the patients take on DOS and created spaghetti diagram illustrating its long, convoluted nature

Patient input: Sought out breast surgery patients who volunteered to provide feedback which highlighted the need to reduce delays and improve the transport process

Impact/Difficulty Grid: Categorized problems, determined level of impact each problem had, and how difficult it was to resolve the problem. This provided a strategy for the order in which problems should be solved.



Demonstrating Sustainability



Problems/Solutions

1. SCHEDULING

PROBLEM: The surgeon's office must call 3 different numbers and locations to schedule appointments for needle localization, lymphoscintigraphy, and OR.

SOLUTION: **Created an integrated schedule which allows trained OR schedulers to book all appointments for DOS.**

2. IMAGING TIME SLOTS/OPENINGS

PROBLEM: Ample needle localization and lymphoscintigraphy appointments were available but were not coordinated with OR availability increasing patient LOS on DOS. Variability in block release times (select surgeons > 72 hrs. other surgeons 48-72 hrs.) led to underutilization of resources, and equipment (imaging and OR). This was compounded by variability in imaging time by nuclear medicine physicians.

SOLUTION: **A new schedule was created pairing needle localization and lymphoscintigraphy appointment times. Nuclear medicine imaging time was limited. Results include:**

- **Equal access to imaging appointments by all surgeons.**
- **Appointment times were aligned around data validated times of demand.**
- **Imaging in nuclear medicine limited to 45 minutes unless clinically indicated by surgeon.**

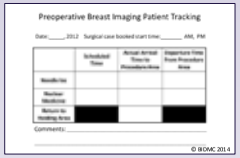
Needle Localization & Nuclear Medicine Schedule

Monday	Loc 8:00 am		Nuc 8:00 am Loc 10:00 am	Nuc 9:30 am Loc 11:00 am	Nuc 3:00 pm
Tuesday	Loc 8:00 am		Nuc 8:00 am Loc 10:00 am	Nuc 9:30 am Loc 11:00 am	Nuc 3:00 pm
Wednesday	Loc 8:00 am Loc 8:00 am	Loc 9:00 am	Nuc 8:00 am Loc 10:00 am	Nuc 9:30 am Loc 11:00 am	Nuc 3:00 pm
Thursday	Loc 8:00 am	Loc 9:00 am	Nuc 8:00 am Loc 10:00 am	Nuc 9:30 am Loc 11:00 am	Nuc 3:00 pm
Friday	Loc 8:00 am	Loc 9:00 am	Nuc 8:00 am Loc 10:00 am	Nuc 9:30 am Loc 11:00 am	

3. TRANSPORTATION - TIMELINESS

PROBLEM: Procedures on DOS performed in different buildings and floors at BIDMC. Hospital transporters and caregivers lacked awareness of the patient path on DOS leading to major delays. There was inability to reliability track the patient by location.

SOLUTION: **Discovered that hospital transport considered these patients as 'outpatients' and thus 'less urgent' than 'inpatients'. The transport team was educated to understand the impact of delays to the patients and to the ORs. The Preoperative Breast Patient Tracking Tool was developed and implemented; it's used in audits that help us continuously improve.**



4. PATIENT CHECK-IN/COMMUNICATION

PROBLEM: Patient check-in locations varied based on location of appointments resulting in the inability for the OR staff to reliably track progress or patient location. Patients did not have clear directions as to where to go and when to be there.

SOLUTION: **All patients are asked to check-in at OR holding area, regardless of which procedure they have first. Outline created for employees and patients.**

Lessons Learned

1. Interdepartmental team, facilitator and engaged sponsors are critical to success.
2. Important to communicate and understand what goes on in areas outside of one's own department.
3. Small changes can result in major improvements.

Future Steps

1. Continue to monitor if implemented changes maintain level of impact.
2. Aim for continued increase in imaging utilization rates.
3. Determine if enough OR time can be saved to add additional case(s) in a given day.
4. Objectively measure patient and employee satisfaction with implemented changes.

For More Information Contact: Tejas Mehta, MD, MPH tmehta@bidmc.harvard.edu; Dottie Sarno, RN dsarno@bidmc.harvard.edu; Michael Wertheimer, MD, FACS mwerthei@bidmc.harvard.edu

Pelvic Floor Physical Therapy for Patients with Prostate Cancer Undergoing Radical Prostatectomy

The Problem

Patients with Prostate Cancer who undergo radical prostatectomy (surgical removal of the prostate) may suffer from temporary and sometimes permanent stress urinary incontinence (leakage of urine with coughing, sneezing, or other vigorous activity)

- Cancer Survivorship, which includes improving the quality of life for cancer patients, is a primary mission of the BIDMC Cancer Center
- Although most patients recover urine control, urine leakage has a significant negative impact on quality of life during the 2-year recovery period
- There is evidence supported by a randomized controlled trial that pelvic floor physical therapy with biofeedback can accelerate recovery of urine control[1]
- BIDMC did **not** have a program in pelvic floor PT for prostate cancer patients
- The effectiveness and patient-centeredness of our survivorship efforts were less than ideal without a pelvic floor PT program.

Aim/Goal

- Goal #1**:** To build a ***team*** of professionals and start a ***brand new program*** in pelvic floor PT for prostate cancer patients undergoing radical prostatectomy
- Goal #2: To increase the number of radical prostatectomy patients who undergo pelvic floor PT
- Goal #3: To have every patient undergoing radical prostatectomy at BIDMC be offered pre-operative and post-operative pelvic floor physical therapy

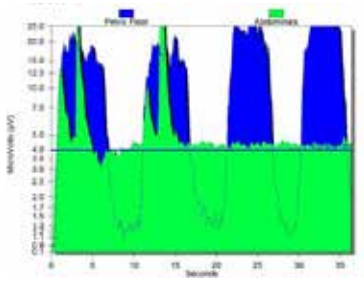
The Team

Peter Chang, MD, MPH; Director, BIDMC Prostate Cancer Care Center
Analesa Baraka, NP, BIDMC Prostate Cancer Care Center, Division of Urology
Alexandra Gatti PT, DPT, Department of Outpatient Rehabilitation Services
Allison Snyder PT, MSPT, Department of Outpatient Rehabilitation Services

The Interventions

- Individualized strengthening program for pelvic floor musculature
- Education regarding strategies to reduce post-operative leakage
- Computer assisted EMG biofeedback used for visual and auditory feedback to facilitate correct exercise technique

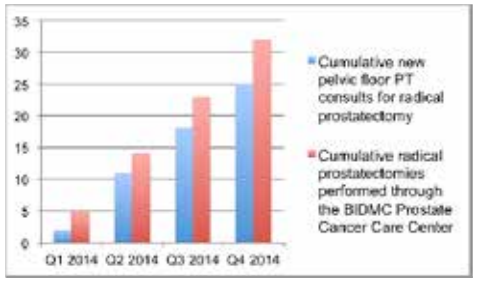
Biofeedback Equipment



Sample biofeedback result
Pelvic floor muscles = blue (desired)
Abdominal muscles= green (undesired)

Results

- The Pelvic Floor PT program for Prostate Cancer patients undergoing radical prostatectomy was successfully built **from the ground up**
- 75-100% of patients seen at the BIDMC Prostate Cancer Care Center who undergo radical prostatectomy now benefit from the new program
- Patient feedback has been overwhelmingly positive



Lessons Learned

- Pelvic floor PT Evaluation of radical prostatectomy patients is feasible
- Biofeedback was most helpful tool for teaching pelvic floor muscle contraction while avoiding use of extraneous muscle groups

Next Steps/What Should Happen Next

- Aim to have 100% of all radical prostatectomy patients at BIDMC be offered pelvic floor PT both pre- and post-operatively
- Conduct further analysis of patient-reported QOL to evaluate whether urinary QOL has improved overall since initiation of the program

[1] Burgio KL et al. Preoperative biofeedback assisted behavioral training to decrease post-prostatectomy incontinence: a randomized, controlled trial. J Urol. 2006 Jan;175(1):196-201

For more information, contact:
Allison Snyder or Alexandra Gatti, Physical Therapists
asnyder@bidmc.harvard.edu or agatti@bidmc.harvard.edu

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Prior Authorization Process for Pharmacy Specialty Medications in Oncology

The Problem

Specialty pharmacy medications in Oncology were not billable because the prior authorization group was not notified when a specific agent was ordered. Rather the prior authorization group was notified weeks later when the drug was denied payment from the payor or from the patient who was billed for the medication.
The challenge was identified by the Outpatient Pharmacological Authorization team(Scott Keller and Polly Harisi) and Scott Keller contacted the OMS team to see if there was anything automated that could be done to improve the efficiency of detecting when specific medications were prescribed.

Impact:

1. Aprepitant 37 missing prior authorizations for Harvard Pilgram from October to April 2014.
2. Impact to patients; some patients were billed directly for the medication as it was denied by their insurance company. The incorrect billing caused increased patient stress and dissatisfaction with BIDMC.
3. Impact to BIDMC: Lost revenue due to inefficiency to comply with payor rules.

Goal

The goal was to automatically notify the pharmacy billing group of all new oncology orders containing filgrastim, peg- filgrastim, and fosaprepitant in order to meet deadline for prior approval in 100% of the cases.

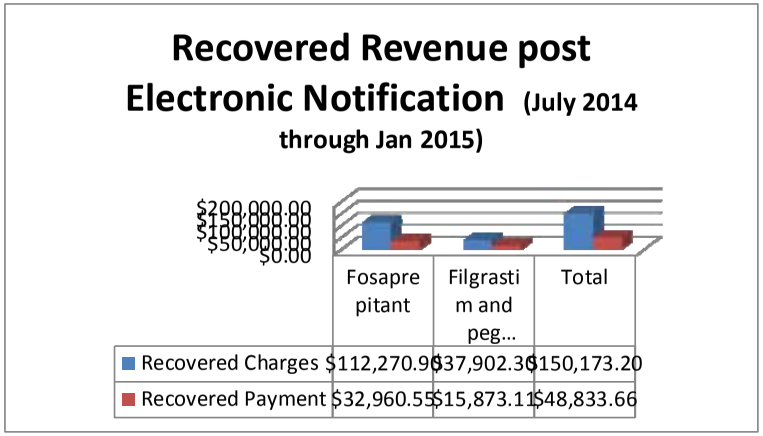
Team:

- Patty Diagacomo –RN, OMS,
- Jon Gersh -Information Systems,
- Jean Hurley- Manager, Information Systems
- Scott Keller –Outpatient Pharmacological Authorization Specialist,
- Loi Nguyen –RPH, OMS,
- Margie Reilly- PharmD, OMS Project Manager

The Interventions

- Group Brainstorming to identify issue, scope, options and requirements
- Automated email prototype was developed by IS programmer in collaboration with OMS team to send to a Prior Authorization billing group every time one of the following medications was ordered in the OMS system; filgrastim, peg-filgrastim, and fosaprepitant.
- Minor changes made to email
- The process was tested, and vetted with the team and code review performed. Then an implementation date was set for June 26, 2014.

The Results



- 100 % of prior authorizations are now sent to payors. The electronic notification process has enabled the billing group to obtain authorization in time to comply with payor requirements for prior authorizations.
- Patients no longer have to deal erroneous bills due to these specialty medications.
- Recovered charges and payment has successfully occurred and are projected to be 225 K and 73K for the first 12 month period.

Lessons Learned

1. Agility is important as priorities are constantly changing.
2. It is important to recognize opportunities that can have a tight implementation and lead to significant impact.

Next Steps

As new pharmacologic agents are added to the specialty payor list requiring prior authorization, it is important to have IS support to update programming of drug list.

For more information, contact:
Margaret Reilly PharmD, MS, Project Manager OMS;
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Raising the Safety Bar: The Hematology/Oncology Patient Safety Committee

The Problem

Enhancing healthcare safety is a cornerstone of the Institute of Medicine's Aims. The Hematology/Oncology Patient Safety Committee (HOPSC) at Beth Israel Deaconess Medical Center (BIDMC) is a multidisciplinary team of healthcare providers that meets monthly to review inpatient and ambulatory adverse events, near misses, and medical errors that impact patient safety.

Aim/Goal

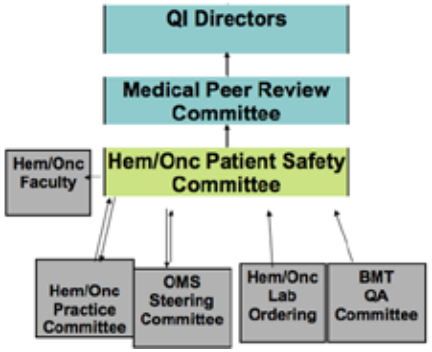
To quantify and qualify the cases that the HOPSC reviewed during 2012-2013

We reviewed the number of events reported to the HOPSC and those that were elevated to the Medical Peer Review Committee (MPRC). Events were subdivided into setting (inpatient and ambulatory), reporting provider type (physician/advanced practice provider and nurse), and type (medication and non-medication related).

The Team

Stephen Cannistra	Committee Chair	Hematology/Oncology
Cheryle Totte	Patient Safety Coordinator	Health Care Quality
Lowell Schnipper	Division Chief	Hematology/Oncology
Jim Levine	Dir. of Quality Improvement	Bone Marrow Transplant Program
Jody Blumberg	Dir. of Ambulatory Operations	Hematology/Oncology
Annie Whatmough	Dir. of Ambulatory Clinical Ops.	Hematology/Oncology
May Adra	Clinical Coord. Med. Safety	Pharmacy
Phyllis West	Associate Chief Nurse	East Campus
Chris Garabedian	Nurse Manager	Hematologic Malignancy
Michelle McGrory	Nurse Manager	Medical Oncology
Jessica Zerillo	Clinical Fellow	Hematology/Oncology

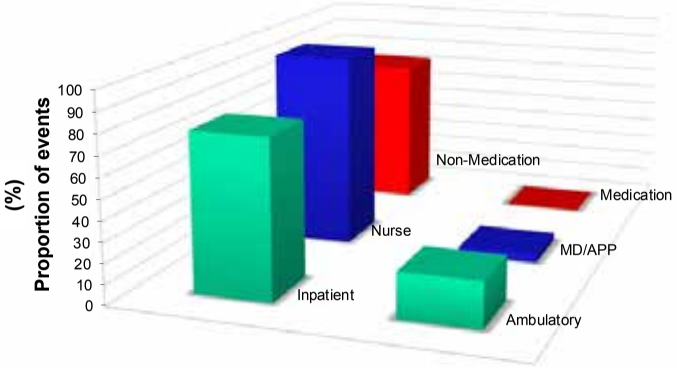
Organizational Chart



The Results/Progress to Date

- 1,061 events were reported to HOPSC over 2 calendar years.
  - 8 events were escalated to MPRC.
- 77.8% events were inpatient and 22.2% were ambulatory.
- 3.8% events were reported by physicians/advanced practice providers (MD/APP) and 96.2% were reported by nurses.
- 24.4% events were medication-related and 75.6% were non-medication-related.

Proportion of Event Reports by Setting, Provider and Type



Lessons Learned

- Through review of healthcare provider event reports, the HOPSC has identified several types of adverse events and near misses in the Hematology/Oncology division at BIDMC.
- Events are mostly reported by inpatient nurses and are primarily non-medication-related.

Next Steps/What Should Happen Next

- This report of HOPSC operations may guide oncology practices elsewhere and subspecialty divisions within BIDMC in developing patient safety peer review committees.
- Follow-up of implemented action plans with assessment of both process and outcome measures would further demonstrate the value of the HOPSC.
- Given the skewed reporting pattern, we will investigate reasons why reporting by physicians, especially in the ambulatory setting, is limited.

For more information, contact:
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Safe Chemotherapy Administration in the Home

Quality Cancer care

Many patients undergoing treatment for colorectal cancer, pancreatic cancer, head & neck cancers and others, are prescribed chemotherapy regimens that require prolonged continuous infusion. Receiving these infusions at home, using a portable infusion device is preferable to the option of an extended hospital stay. Our existing home infusion process required referring patients to one of several home infusion therapy companies, who would deliver the compounded medications and infusion pumps to our clinic to be connected to patients on the day of their clinic visit. Over time, challenges surfaced including inconsistent practices between companies as to compounding, packaging and labeling of medications, communication challenges, delays in patient care and patient inconvenience. This caused us to investigate better, safer alternatives.

Evaluate the impact

Avoiding errors was paramount in the initiative. Having BIDMC Pharmacy provide the chemotherapy infusion was felt by all to be optimal. Although many safety checks were in the place, the potential for problems and a poor-quality patient experience were still concerning. We also sought to improve the quality of care to our patients by improving the workflow. We determined that insourcing to our pharmacy and providing on-site availability of infusion equipment via a pump consignment (InfuSystem) would reduce risk, extended wait times and inefficiencies in workflows.

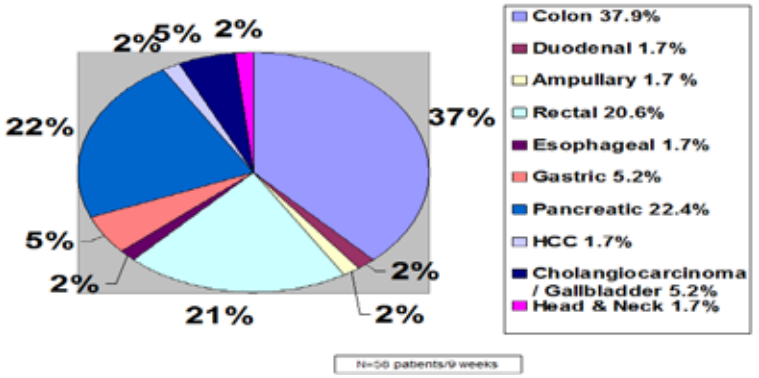
The Team

- Outpatient Hematology/Oncology nursing & staff Shapiro 9
- Holly Dowling, RN, BSN Outpatient Hematology Oncology Nurse Manager
- Linda Yanes, RN Outpatient Hematology/Oncology Nurse Case Manager
- Outpatient Hematology/Oncology pharmacy staff Shapiro 9
- Frank Mitrano, M.S., R.Ph., Director, Pharmacy Services
- Denise Arena, RPh, Clinical Pharmacist Supervisor
- Peggy Stephan, RPh, MS, Clinical Pharmacist Supervisor
- Zaven Norigian, PharmD, BCOP Clinical Pharmacy Coordinator – Oncology
- Holly Creveling, Pharm. D., Clinical Pharmacist Supervisor
- Mike Carvalho, RPh
- Tim White, RPh
- Outpatient Hematology/Oncology nursing staff 7 Stoneman
- Toni Abren, RN BSN 7Stoneman Unit Based Educator
- Oncology Management System Team in collaboration with Jon Gersh (IS)

The Change: a smaller, lighter, quieter pump

- Assessment of what tools and resources are required by all departments and clinicians to support the change.
- Pharmacy assessment of resources required to provide home infusion medications and programming of infusion pumps.
- Nursing and Physician meetings to anticipate patient and staff obstacles to changing such as the need to have patients return to the medial center for pump disconnect.
- "Dry Run" sessions where physicians, pharmacists, nurse practitioners, case manager and nursing staff verbalize steps in the new process from ordering, compounding and verification to patient education, communication and disposal.
- Communicated in GI Team meetings, nursing staff meetings and by email.
- Coordinate training of all nursing and pharmacy staff in use of the new pump
- Gain IT support to incorporate IPad teaching tool
- Collaboration with Oncology Management System team to revise home infusion chemotherapy orders/create "auto-fax" for communication with *InfuSystem*
- Partner with distribution to incorporate InfuSystem supplies into the supply chain

Distribution of Continuous Infusion Chemotherapy patients by Disease



What else can we do?

- Patients on clinical trials requiring home infusion chemotherapy are transitioning to the system, but would benefit from electronic chemotherapy ordering.
- A process for evaluating which patients are appropriate for self-disconnect of the chemo pump, and define teaching/competency assessment of the patient.

For more information, contact:
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Understanding of Treatment Intent in Patients Receiving External Beam Radiation for Cancer

The Problem and Study Design

Weeks et.al [1] reported that a substantial percentage of patients receiving palliative chemotherapy for metastatic cancer did not understand that the chemotherapy was unlikely to be curative. This study and others raised questions about patient's understanding of treatment. The Department of Radiation Oncology conducted a QI project to determine how well patients undergoing external radiation understand the intent of treatment. Typically patients meet with the physician at the time the patient undergoes imaging to plan the radiation treatment. The informed consent document is reviewed with the patient. The consent forms for external beam radiation list four reasons (intent) radiation is being administered:

1) To prevent the tumor from coming back after surgery
2) To cure it without surgery
3) To shrink the tumor to allow surgery
4) To shrink the tumor to prevent or relieve symptoms.

Subsequently, a nurse meets with the patient immediately before the first treatment to review the treatment and the potential side effects of therapy. This meeting with the nurses is an opportune time to assess if patients understand the intent of treatment. Patients were given a questionnaire containing a single question. There were five responses. The exact wording for the intent of treatment from the consent form (see above) was used. A fifth response- "not sure" was added.

Aim/Methods

The aim of this project is to determine if there was good concordance between physicians and patients as to the intent of treatment. If significant discordance was observed, changes to consent form and consenting process will be implemented to improve patient understanding.

- 40 patients were given the single item questionnaire immediately prior to initiation of radiation by Radiation Oncology nurses
- Treating physicians in the Department of Radiation Oncology were given a list of their patients and asked what they perceived as treatment intent
- The patient's answers were compared to the treating physician's assessment

The Results/Progress to Date

The sample size for this project was 40 patients. One patient answered multiple choices and was excluded (39 remaining).

Sample - N=39
Patients answering "not sure"=3/39
Number of patient's where answer differs from physician=8/39
Number of patient were physician defined goal as palliative were patients answered treatment is potentially curative 3/8
Number of patients being treated for palliation who answered correctly that treatment was palliative 3/7

The three patients answering "not sure" were being treated for CNS lymphoma, pancreas and lung cancer. In four (of eight) cases discordance was observed was between answer "to prevent the tumor from coming back after surgery" and "to cure it without surgery."

Lessons Learned

This study differ from the study reported by Weeks[1] were the objective was assess patients understanding of the outcome of treatment. Our aim was determined if patients understand the aim of therapy. Physicians in Radiation Oncology had communicated the intent of treatment correctly when the treatment intent was curative. 8% answered "not sure" A significant percentage of patients being treated with palliative intent did not understand (43%).

Next Steps/What Should Happen Next

- Communicate results with physician staff
- Potentially have patients initial treatment intent on the consent form
- implement or sustain the improvement achieved
- Increase sample size with more patients being treated with palliative intent.
- Repeat this project after physician education and changes in the consent process to assess if there is an improvement in patient's understanding of the intent of radiation treatments.
- Present these findings to the Cancer Committee to encourage similar projects in other areas in oncology (Medical Oncology and Surgical Oncology) to improve patient understanding.

[1] Weeks JC, Catalano PJ, Cronin A et al. 2012; NEJM 367:17

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Appendices

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