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Chairman’s Report

I begin this report by acknowledging the efforts of Dr. Angus McIntyre as the bedrock of hematology/oncology program at Addison Gilbert and Beverly hospitals for close to two decades. In collaboration with Dr. Harriet Bering, he served the community with great compassion. Dr. McIntyre has also been the chairperson of the cancer committee and has reported upon the progress of cancer program regularly in the past.

Like any well-established cancer program, we continue to have regular multidisciplinary conferences for many tumor types, including thoracic and dermatology malignancies. We maintain a dedicated multidisciplinary clinic for newly diagnosed breast cancer patients. Not only did our colleagues from Lahey Cancer Institute participate in our tumor boards, we at NHC also became part of multimodality oncology committees within the Lahey system. The focus of these committees is not only to oversee world class and top notch cancer care but also reflect the commitment to bring more clinical research to the local communities. Participation in the Lahey Cancer Institute board meetings has allowed us to shape the future vision of the cancer program on the North Shore. We had many achievements this past year. A few examples are the creation of a survivorship program, the successful triennial reaccreditation by the American College of Surgeons Commission on Cancer speaks to the dedication of everybody linked with our cancer program and the successful recruitment of Dr. James Liebmann to the medical oncology team, he comes with immense experience in academic, as well as community oncology programs.

Education is an important part of any cancer program. We delivered educational programs through our community outreach program as well as with the help of our colleagues in American Cancer Society. Preventive screening programs were also offered. We continued to have a robust hematology/oncology invited speaker program. In addition, our NHC oncology providers regularly present in medical grand rounds at our hospitals. Erin Martinell, ARNP started holding regular around the table clinical care discussions with our nursing staff in addition to midlevel providers in other offices.

One of our major goals for 2017 was to start improving our clinical research program. Standard operating procedures were revamped during this year by the
efforts of Robbin Miraglia RN, PhD as well as Karin Leppanen RN, MS OCN. This is the first step in the process for enrollment into Central Institutional Review Board which will make it easier to open new clinical trials in the future, we expect to finalize the process this year. We were able to hire a clinical research nursing coordinator with extensive experience in oncology and have expanded the number of clinical trials offer to our patients locally, as well as at other institutions.

In 2017, we also started the process of merging medical institutions with Beth Israel Deaconess Medical Center and other community hospitals. As a member of the ‘cancer design team' which has the immense task of planning, coordinating and eventually implementing seamless cancer care in the new system, my focus has been to bring even further expertise to our established oncology program.

Every year brings its own opportunities and challenges. For the last few years, there have been many changes affecting medical care, how and where it is given. I have to say that we have the capability and the support of our colleagues within the Lahey Cancer Institute and eventually from an even bigger cancer program to not only deliver standard cancer care but to go beyond that with clinical research and education of our communities.

Respectfully submitted,

Shakeeb Yunus, M.D.
2017 Cancer Program Annual Report

2017 Cancer Committee Members

Melinda Adams, DPT
Director of Rehab Services

Stephen Barrand, MD
Radiology

Harriet Bering, MD
Medical Oncology

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Nursing

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Pastoral Care

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Pharm D Pharmacy

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Cancer Data Management

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Cancer Data Management

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Pathology

Marianne Feran, MD
Pathology

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Social Work

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Medical Oncology

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Director of Pastoral Care

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VP Lahey Health Cancer Institute

Lindsay Nicholson, MPH
American Cancer Society

Grace Numerosi
Community Relations

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Radiation Oncology

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Manager, Breast Health Center and Diagnostic Imaging

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Physician Outreach/Community Relations

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Chief Nursing Officer

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Surgery

Gary Rogers, MD
Surgery, Cancer Liaison Physician

Bethany Tierno, MD
Pathology

Robert Warren, MD
Care Dimensions (Hospice and Palliative Care)

Judith Wells, RN, OCN
Nursing

Kim Willis, NP-C, CBPN-IC
Breast Nurse Navigator

Gene Wong, MD
Radiation Oncology

Rebecca Yang, MD
Surgery

Shakeeb Yunus, MD
Medical Oncology, Medical Director
Breast Health Center

The Breast Health Center provides comprehensive management of breast care to individuals with varying conditions or disease processes which require therapy and/or interventions, as well as associated monitoring. The goals of the program are to perform comprehensive, yet specialized breast care-focused evaluations and assessments to determine appropriate therapies and/or interventions to effectively promote ongoing breast health and/or manage disease processes. Goals also include educating and counseling individuals about breast health management and/or their specific condition or disease process, as well as their medications and associated effects, enhancing identified outcomes.

The Breast Health Center saw growth in clinic visits by 5.7% last year. A number of initiatives took place during 2017:

- Expansion of our Genetics Program from one to two days/week with a Certified Genetics Counselor on site.
- Breast Cancer Survivors are seen by a Nurse Practitioner/Certified Breast Patient Navigator within six months of completing active treatment and no longer than one year from the date of diagnosis. The Nurse Practitioner provides the patient with a comprehensive, multidisciplinary “Survivorship Care Plan”, designed to facilitate and coordinate the post treatment care and follow up testing for the patient.
- Continued recognition as a Breast Imaging Center of Excellence from the American College of Radiology and the American College of Surgeons’ National Accreditation Program for Breast Centers (NAPBC)
- Implementation of an expanded breast cancer risk assessment program across all of the mammography sites of NHC. The Cancer Risk Assessment (CRA) program is offered to all screening mammogram patients and uses the patient’s personal and family health history to determine the lifetime risk of developing breast cancer. Patients of high risk (>20%) are encouraged to meet with a Nurse Practitioner in the Breast Health Center for consultation and development of an individualized treatment plan. CRA is also allowing us the opportunity to identify patients who also qualify for consultation in the Familial Cancer Risk Clinic for genetic testing in addition to those patients with new diagnosis of breast cancer which has been facilitated by the increased on site present of our genetics counselors.
- Participation in Lahey Health’s SEAL cancer rehabilitation program. In this program, patients with clinical impairments before, during and after cancer treatment are treated by various rehab disciplines to improve the impairment for better quality of life and positive long term outcomes.
2017 Cancer Conferences

The table on the right shows the number of cancer sites discussed at all of our conferences in 2017. A total of 415 cases were presented, composing 55% of our estimated total 752 analytic cases, exceeding the ACoS expectation requiring 10% of the analytic cases be presented.

NHC holds 4 types of cancer conferences during the month, general tumor board (weekly) and three specialty site conferences/tumor boards: dermatology (monthly), thoracic (biweekly) and breast (weekly). All of the conferences are shared via video connection with BH, AGH, LOCD and LHS clinical staff.

<table>
<thead>
<tr>
<th>Site Location</th>
<th># of Cases Discussed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anus</td>
<td>2</td>
</tr>
<tr>
<td>Bile Duct</td>
<td>4</td>
</tr>
<tr>
<td>Bone Marrow</td>
<td>7</td>
</tr>
<tr>
<td>Breast</td>
<td>165</td>
</tr>
<tr>
<td>Colon</td>
<td>22</td>
</tr>
<tr>
<td>Esophagus</td>
<td>5</td>
</tr>
<tr>
<td>Head/Neck</td>
<td>2</td>
</tr>
<tr>
<td>Hematopoietic</td>
<td>3</td>
</tr>
<tr>
<td>Kidney</td>
<td>4</td>
</tr>
<tr>
<td>Lung</td>
<td>83</td>
</tr>
<tr>
<td>Lymph Node</td>
<td>15</td>
</tr>
<tr>
<td>Melanoma</td>
<td>25</td>
</tr>
<tr>
<td>Oropharynx</td>
<td>1</td>
</tr>
<tr>
<td>Other (Apocrine)</td>
<td>1</td>
</tr>
<tr>
<td>Ovary</td>
<td>4</td>
</tr>
<tr>
<td>Pancreas</td>
<td>6</td>
</tr>
<tr>
<td>Pleura</td>
<td>1</td>
</tr>
<tr>
<td>Prostate</td>
<td>5</td>
</tr>
<tr>
<td>Rectum</td>
<td>3</td>
</tr>
<tr>
<td>Sarcoma</td>
<td>1</td>
</tr>
<tr>
<td>Skin/Non-Melanoma</td>
<td>40</td>
</tr>
<tr>
<td>Small Intestine</td>
<td>1</td>
</tr>
<tr>
<td>Stomach</td>
<td>2</td>
</tr>
<tr>
<td>Unknown Primary</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>415</td>
</tr>
</tbody>
</table>
Cancer Data Management (CDM)

The Cancer Data Management (CDM) department, sometimes referred to as the Cancer or Tumor Registry in various settings, is a required component of all cancer programs accredited by the American College of Surgeons' Commission on Cancer (CoC) and is supervised by the cancer committee. The department is staffed by one full time certified tumor registrar (CTR), a part time Assistant Cancer Registrar and per diem CTRs. The cancer registry provides the means to collect demographics, staging, treatment, and follow-up of each case of cancer seen at NHC. Cancer cases are submitted to the Massachusetts Cancer Registry and the National Cancer Database of the CoC. All rules established by HIPPA are observed. Data processed by the cancer registry is used to fulfill data requests by the organization, such as data required for the Lahey Health System’s participation in the CMS Oncology Care Model project. Staff had an opportunity to attend the CRANE Annual National Conference in Connecticut fulfilling the national education requirement for Commission on Cancer. In 2017, the cancer registry participated in NHC’s CoC triennial survey, receiving 3 department related commendations: Cancer Registry Education, Rapid Quality Reporting System participation, and NCDB Data Submission for accuracy of data. There were 825 total cancer cases recorded for the calendar year of 2016 at NHC (our most current completed year), with 752 newly diagnosed or analytic cancer cases. See the related graphs for breakdown by anatomic location, gender and year to year most frequent sites of disease. Of the 752 analytic cases in 2016, 338 were male and 414 were female. The median age of the group was 66 years old, with an age range from 17 to 95 years of age.
The most frequent sites for all 5 years were breast cancer followed by lung cancer with colorectal, prostate and melanoma.
Clinical Research 2017

At NHC, we believe in the importance of clinical trials and their positive impact on improved patient care and practice changes in the future. Within the Cancer Services department, we participate in a variety of National Cancer Institute (NCI) sponsored clinical trials through national cooperative research groups such as Alliance for Clinical Research in Oncology (Alliance), Southwest Oncology Group (SWOG), National Surgical Adjuvant Breast and Bowel Project (NSABP) and the Clinical Trials Support Unit (CTSU).

The Clinical Research nurses at NHC are nationally certified oncology nurses with decades of patient care experience driving the care that they provide. They work closely with the oncology physicians to identify new and appropriate trials for our patient population; review cases for eligibility to open trials at NHC and within the LHS system and then meet with qualified patients and their families, to provide education around the trial that they are considering. Once enrolled on a clinical trial, the nurses stay in close contact with the patient and their managing oncologist along every step of the way. They become an additional resource and navigator for the patient to ensure they have the necessary support and continued excellent care.
## Cancer Support Groups and Community Outreach Events

<table>
<thead>
<tr>
<th>Program/Activity FY 2017</th>
<th>AGH</th>
<th>BH</th>
<th>LOCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Cancer Support Group (ongoing)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Prostate Cancer Support Group (ongoing)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Melanoma Support Group (ongoing)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Polycythemia Vera Support Group (ongoing)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Look Good Feel Better Program (ongoing quarterly)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Summer Camp Slip, Slop, Slap Campaign</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Relay for Life - American Cancer Society (annually)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Livestrong Program with YMCA (ongoing)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Lahey Cancer Walk (annually)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reiki Clinic for cancer patients (ongoing)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Smoking Cessation Programs (ongoing)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Skin Cancer Screening &amp; Prevention Clinic (annually)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sun Safety Campaign at Market Street (ongoing)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

## Community Events Highlighting Cancer Services

<table>
<thead>
<tr>
<th>Event</th>
<th>AGH</th>
<th>BH</th>
<th>LOCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reid’s Ride (for Adolescent and Young Adults)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>North Shore Mall Health Expo</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Fall Prevention Day</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Beverly Homecoming Events</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Gloucester High School Health Fair</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Danvers Family Festival</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Gloucester Sidewalk Bazaar</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>LHS Conversations on Cancer (annually)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Community Program Activities

LIVESTRONG at the YMCA

Description: Beverly and Addison Gilbert Hospitals partnered with the Cape Ann, Ipswich and Greater Beverly YMCA for the LIVESTRONG program for cancer survivors. LIVESTRONG is a small-group, evidence-based class that helps cancer survivors, or those in the midst of their treatment, believe in and achieve a healthier tomorrow and envision life after cancer. Classes are tailored for all cancer survivors, regardless of stage of diagnosis or treatment, and adapted for all fitness levels. Each session is two (90-minute) classes each week for 12 weeks. Staff members are trained on the unique physical and emotional needs of cancer survivors, curriculum, and best practices. These staff members work with each participant to create an individual exercise program from pre-program assessment results and to teach and demonstrate exercise technique and safety considerations.

Goal: The program creates communities among cancer survivors and guides them through safe physical activity, helping them build supportive relationships leading to an improved quality of life.

Outcome: LIVESTRONG at the YMCA has an established research-based evaluation plan that uses pre- and post-assessment tests, including a detailed assessment of arm function, range of motion and lymph node prognosis; shoulder flexion, extension and abduction; and a thorough postural assessment. Body composition is also measured, which includes height, weight, body mass index, waist girth and hip girth. Program participants are asked to rate overall quality of life, ability to perform daily tasks, mobility, eating habits, fitness level, perceived body image, current energy levels and overall happiness.
Community Program Activities

Skin Cancer Awareness and Prevention Community Outreach Campaign

**Description:** According to the American Cancer Society, skin cancer is the most common type of cancer in the United States. More skin cancers are diagnosed each year than all other cancers combined, and the number of skin cancer cases has been going up over the past few decades. Education and awareness can help prevent skin cancer from occurring, and if detected early, skin cancer can often be treated effectively. As a result, NHC launched a skin cancer awareness and prevention campaign in conjunction with the American Cancer Society’s “Slip! Slop! Slap! … and Wrap” national campaign. In order to maximize its reach, NHC identified and participated in key community events throughout the spring and summer where information could be distributed to the largest audiences possible.

A partnership was also formed with the North Shore YMCA to supply sunscreen kits and information to all their campers. The staff reinforced the messaging though fun and interactive games and displays while distributing educational materials and skin cancer prevention items such as sunscreen, lip balm and UV-protection-approved sunglasses.

**Goal:** The overall goal of the skin cancer awareness and prevention campaign is to raise awareness of the risk factors associated with developing skin cancer and promote the importance of sun safety and early cancer detection.

**Outcome:** Over 2,000 people of all ages were reached at 12 different community events between April and August 2017 in the towns of Beverly, Danvers, Gloucester, Ipswich, Newburyport and Rockport.

**Community Partners:** North Shore YMCA, Trustees of Reservations, American Cancer Society.
Community Program Activities

Lahey Health Community Conversations on Cancer

Description: In response to the needs identified in the CHNA, Lahey Health provided a free community education forum called Conversations on Cancer to educate community members on the prevention, early detection and treatment of cancer, and increase awareness about support and survivorship programs for those diagnosed with cancer. The cancer topics addressed at the forum included colon, breast, lung, gynecological, prostate and skin cancer. The program included educational sessions facilitated by physician leaders from the Lahey Health Cancer Institute, followed by a panel discussion. In addition, attendees had the opportunity to visit an exhibit hall where they could participate in various cancer screenings, hands-on demonstrations, and consultations with physicians and clinicians. The screenings/exhibits included lung cancer prescreenings, skin cancer screenings, colon cancer prevention and screening education, breast cancer risk assessment consultations, and a gynecological cancer detection exhibit with hands-on demonstrations of the da Vinci robotic surgical system and envision life after cancer. Classes are tailored for all cancer survivors, regardless of stage of diagnosis or treatment, and adapted for all fitness levels. Each session is two (90-minute) classes each week for 12 weeks. Staff members are trained on the unique physical and emotional needs of cancer survivors, curriculum, and best practices. These staff members work with each participant to create an individual exercise program from pre-program assessment results and to teach and demonstrate exercise technique and safety considerations.

Goal: To educate community members about prevention, detection, treatment, management and support of cancer.

Outcome:
- 137 people from throughout Lahey Health’s service area attended the event.
- The attendees were 69% women, 31% male.
- Of the 137 attendees, 34% reported having a friend or family member with cancer, 24% attended for general interest, 15% reported being survivors and 6% reported being currently in treatment.
- 27 people participated in the skin cancer screening; four were referred for additional follow-up. 30,000 people accessed educational information through social media education and outreach leading up to the event.

Partner: American Cancer Society
Dermatologic Oncology/Mohs Program

This year, Dr Gary Rogers and the Dermatology Oncology ("Mohs") Clinic completed their 10th year at NHC. The program reached a new milestone in February of 2017, completing its 6000th Mohs surgery case and then continued to grow from there. While the program continues to service the local communities of the North Shore, over 20% of the referrals come from physicians practicing over 25 miles from our facility; primarily Maine, New Hampshire and the South Shore of Massachusetts. These referrals are most often for melanomas arising on the face, and particular tumors located on the nose, eyelids and ears. Dr. Rogers’ research and publications regarding the tissue-conserving approach to treating melanoma on critical anatomic sites avoids disfigurement without compromising local control of the cancer. The multi-disciplinary team of oncologists, dermatologists, head & neck surgeons, radiation oncologists and nurses enables state-of-the-art, patient-focused care of skin cancers, in a community setting.

Ethics Committee

The Ethics Committee is a multidisciplinary committee composed of representatives from medical, legal and spiritual disciplines, as well as local religious leaders and community members. The Ethics Committee is responsible for reviewing policies and procedures related to patient rights; educating the committee membership as well as medical staff, personnel and the community on the subject of bioethics and perhaps most importantly, providing a forum for medical staff, hospital staff, patients and families to discuss ethical issues. The Ethics Committee is not an arbitrating or decision-making body, but rather serves in an advisory capacity to assist medical professionals, staff, patients, and families to reach decisions based on ethics principles.
Hospice/Palliative Care

Care Dimensions Hospice and Palliative Care is partnered with NHC for these services both for inpatients and in the community. They are recognized locally and on the national level as leaders in palliative and end-of-life care. Care Dimensions is able to provide expert care, support, education and consultation for those affected by life-limiting illness, death and loss. Hospice care is a team-oriented approach to manage symptoms and enhance quality of life by integrating physical, emotional, social and spiritual support to meet the needs of the patient and loved ones. Care Dimensions offers support and involvement with various committees at Beverly and Addison Gilbert Hospitals to support the mission and goals of the organization. Inpatient hospice care at both hospitals is managed by the Hospitalist Physician Service, with support from the interdisciplinary team of Care Dimensions. Care Dimensions provides palliative care consultations at the Beverly Hospital campus with a physician or nurse practitioner five days a week, with additional support from a social worker if needed. For patients at end of life who need acute pain and symptom management, Care Dimensions provides seamless and expedient transfers to its Kaplan Family Hospice House, which provides inpatient-level care in a home-like environment. Care Dimensions also offers open access to patients who are hospice eligible, but who want to continue with selected treatments, such as palliative radiation for symptom management.

Below is the summary of 2017 patient involvement by the Care Dimensions team:

**Addison Gilbert Hospital:**
- **14** Patients received inpatient hospice care at the hospice suite on Steele 1.
- **8** Patients were transferred to a nursing home/assisted living facility with hospice services.
- **18** Patients went home with hospice services.
- **23** Patients were transferred to the Kaplan Family Hospice House.

**Beverly Hospital:**
- **21** Patients received inpatient hospice care on various units at the hospital.
- **38** Patients were transferred to a nursing home/assisted living facility with hospice services.
- **54** Patients went home with hospice services.
- **142** Patients went to Kaplan Family Hospice House.
Medical Oncology Hematology

In 2017, the oncology-hematology team consisted of Erin Martinell ARNP, Drs. Harriet Bering, James Liebmann, Ivan Lowenthal (locum), Angus McIntyre and Shakeeb Yunus, Medical Director. Needless to say, the whole team providing care to our patients is not complete without passionate participation from our front desk staff, medical assistants, chemotherapy trained infusion nurses and nurse navigators. The team managed the care of all adult hematology and oncology patients with the NHC system except for acute leukemias, including inpatient consultation at Beverly and Addison Gilbert hospitals. We held continuing medical education approved multiple tumor conferences and clinics where cases are discussed in a multidisciplinary setting and plans of care are identified. Working closely with the oncology nursing team, Radiation Oncology, Surgery, Pathology and Radiology they drive the care of the patient from moment of diagnosis, all along the continuum of care. Spectrum of cancer diagnoses were made, directly assessed and managed. In addition to usual chemotherapies, further advances in cancer management with targeted therapies and immunotherapies were implemented. Our providers are members of national professional organizations like American Society of Clinical Oncology, American Society of Hematology, European Society of Medical Oncology and Oncology Nursing Society. Required educational and learning credits for licensing were maintained. Collectively, they had more than 8,000 appointments in clinic with patients during 2017.

Nutrition

Registered licensed clinical dietitians see outpatients for nutritional assessment in the Oncology Clinics at both BH and AGH on a consultative basis. All new chemotherapy patients complete an initial nutrition screening form that is reviewed by a registered dietitian; nutrition consults may also be requested by an nurse or physician, as needed. Nutritional offerings in Outpatient Oncology include weekly office hours, the ability to schedule dietitian appointments in Epic, and using the nutrition screening form to allow for communication between infusion suite staff and dietitian.
Nursing in Cancer Services

The cancer services nursing team consists of dedicated RN’s who work with our patients from diagnosis through treatment and recovery. They help to provide direct care, education and support throughout their entire time of care. The nursing staff ensures that their cancer care knowledge is up to date through national certification, participation on our department journal club, ongoing continuing education and attendance at local/national conferences.

A great example of ongoing education that occurred in 2017 was the “Telephone Triage as Professional Nursing Practice, Improve Quality and Reduce Risk”. This was an in-depth program which was completed by the 4 nurses who manage incoming patient calls and navigate patient care.

Another 2017 achievement was the opportunity for 2 nurses from the Mohs Dermatology Oncology clinic to attend the national Dermatology Nurses' Association conference in San Diego, California.

This year also brought local, hands on training around chemotherapy spill management for all infusion nurses, monthly treatment or medication updates, and the implementation of a journal club on both campuses, after reviewing published article on topics ranging from a new medication class like immunotherapy to patient testing and risk assessment like genetic testing or side effect management, the nurses meet to discuss the topic and its application to their daily practice. The club is led each month by Erin Martinell ANRP.

During 2017 there were a total of 21 registered nurses, including the Nurse Manager for Cancer Services, all providing care to the oncology patients that we serve. 14 of the nurses have their national certification, “OCN” as well. This is truly a reflection of the high level of professionalism and dedication to their patients and their disease.

2017 Nursing Leadership for Beverly and Addison Gilbert Cancer Services Teams:

- Kristen Coughlin, RN
  Team Leader
  Mohs Dermatology Oncology at BH

- Jannell Foster, RN
  Nurse Manager J6

- Rebecca Gadon, MA RNC
  Nursing Director for Cancer Services

- Joanne Gibbs, RN OCN, RN
  Team Leader AGH

- Judy Wells, RN OCN, RN
  Team Leader BH

- Karin Leppanen, RN MS OCN
  Nurse Manager for Cancer Services

- Robbin Miraglia, RN PhD
  Nurse Educator

- Sandra Brown, RN OCN
  Team Leader BH
2017 Achievements under the CMS Oncology Care Model

Respectfully Submitted by Linda Weller-Newcomb, PhD, Vice President, Lahey Health Cancer Institute

What is the CMS Oncology Care Model?

CMS (also known as Medicare) launched the Oncology Care Model (OCM) demonstration project on July 1, 2016. The medical oncologists who furnish chemotherapy treatments within the Lahey Health Cancer Institute, comprised of cancer programs at Lahey Hospital & Medical Center, Lahey Medical Center, Peabody, Winchester Hospital Center for Cancer Care, and Beverly Hospital and Addison Gilbert Hospital, have participated in this demonstration project for the entire 2017 Calendar Year.

CMS has three overarching goals for the project: “Better care, smarter spending, healthier people.” The expressed goals of the Oncology Care Model (OCM) are to align financial incentives, improve care coordination, the appropriateness of care, quality, access, and reduce costs associated with Medicare patients receiving oral or intravenous chemotherapy. OCM incentivizes medical oncology practices to improve quality of care and lower costs, with a particular focus on preventing ER utilization and unplanned inpatient admissions, and utilizing Palliative Care services while receiving chemotherapy.

They included the following:

1) Manage chemotherapy events through risk stratification with Nurse Navigators: Lahey Health, including Beverly Hospital and Addison Gilbert Hospital, successfully adopted the Elders Risk Assessment Index (ERA) to risk stratify patients in the OCM project. The risk coefficients associated with comorbidities was built into EPIC Electronic Health Record in order to calculate patient risk from the Problem List, which is updated at the time of every MD/AP visit. The IT team developed Population Management reports for the nurse navigators to manage patients who became hospitalized, visited the ER, and started oral or intravenous chemotherapy.

2) Increased Care Coordination Using Dedicated Nurse Navigators for the Program:

In 2017, cancer programs implemented a Nurse Triage system. The 38 “COME HOME” nursing triage protocols were built into EPIC so that all patient symptoms are triaged identically, and are addressed in a standardized way. In addition, both the depression...
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Screenings using the PH-Q9 and the NCCN psychosocial distress screenings are managed to a standardize protocol within EPIC. The programs focused on engaging the patients in a “Call Us First campaign.”

3) **NCCN Guidelines:**
All chemotherapy plans in EPIC were assessed for full compliance with NCCN Guidelines and were flagged in EPIC to be associated with certain disease-sites. This allows the program to report compliance at the patient level.

4) **Palliative Care Services:**
Efforts to increase Palliative Care services in the outpatient setting occurred during 2017 with our Palliative Care MD partners.

5) **End of Life Care:**
The physicians focused attention on effectively managing end of life care and patient decision-making to ensure that chemotherapy is not over-utilized very near to end of life, not to increase ER visits and hospitalizations in the ICU for terminal patients, and not to underuse hospice services.

Oncology care under this model is evolving to value-based cancer care:

- We engage patients;
- Promote clinically meaningful outcomes;
- Focus on reducing the cost of cancer care;
- Improve the quality of life of patients;
- Provide patient-centered care that respects patient’s values and health choices; and
- Ensure access and equitable cancer care.
Pastoral Care

With an eye toward building a more inclusive scope of support, the Pastoral Care Department, has changed its name to Spiritual Care. Director, Cheryl McDevitt, and staff chaplain, Mary Ann Kiely, have reached out to staff in the clinics at Beverly and Addison Gilbert hospitals and are working toward establishing a consistent spiritual care presence for patients, family and staff. There are biweekly planned visits and availability of spiritual care team presence as needed for patients or families in crisis. We hope to continue exploring how we can offer meaningful support to our oncology patients and those who care for them in 2018.

Pathology Department

The pathology department is a full service anatomic and clinical pathology department certified by the College of American Pathologists (CAP). We are currently awaiting our next CAP inspection, which is scheduled to occur between February and May of 2018. There are three board certified AP/CP pathologists, with subspecialty training in breast pathology, gastrointestinal pathology, forensic pathology and cytopathology.

In 2017, there were 15,516 surgical cases examined from a variety of anatomic sites. Cases are routinely subjected to intra-departmental review at a daily pathology conference. Such cases include breast core biopsies and excisions, prostate biopsies, skin biopsies, new tumor diagnoses, and pap smears with high grade dysplasia. All frozen sections are also co-reviewed if another pathologist is available. All tumor cases are reported in a synoptic format according to the CAP guidelines. There was a recent update of all applicable synoptic reports to comply with the changes in the AJCC 8th Edition reporting requirements.

The cytology department is full service with three cytotechnologists. All non-gyn cytology as well as pap smears are pre-screened by a cytotechnologist before pathologist review. The Cytec thin prep system with automated image analysis remains in place. 11,130 Pap smears were reviewed in 2017. 1,473 Non-gyn cytology cases and 490 fine needle aspirates were also examined in 2017, a subset of which immediate interpretation was performed to determine adequacy.
Pharmacy

The Northeast Pharmacy program and team play an integral role in the care provided to Cancer Services’ patients. Pharmacy leadership and front line staff impact cancer care through their presence on various related committees including Cancer Committee, Beacon Epic teams (our EMR’s oncology module) and the Oncology Subcommittee. They have had opportunity to be part of patient education through the Newly Diagnosed Breast Cancer Support group. They are invaluable in attention to topics around safety – from handling of hazardous drugs, to system level warnings and alerts to improve clinician practice; through the Pharmacy and Therapeutics committee there is ongoing review, updating and additions to the hospital formulary to ensure access to new and cost effective medications in a timely fashion and coordinating related necessary staff education and also programming any needed adjustment to our “smart IV pumps” library of medications/doses/infusion rates – yet another safety feature for patients! This year saw the launch of a multidisciplinary team at NHC to guide practice changes necessary to meet the anticipated federal rules around handling of hazardous drugs, called “USP 800”. The local team also works with the other pharmacy colleagues across the LHS system to enhance standardization of pharmacy related activities.
2017 Quality Studies and Annual Goals

Each year the committee oversees and guides all activity around goals and quality studies to enhance the patient experience in the cancer services program at NHC. In 2017, the clinical goal identified and achieved was for ≥85% of oncology patient records to have clinical staging documented in the electronic medical record at the start of treatment. This set of data plays an important role in continuity of care, cancer treatment planning and also eligibility for participation in clinical trials. Our programmatic goal was the addition of an oncology social worker. This goal was also successful, and has raised the level of care provided to our patients with the accessibility of a trained, dedicated social worker practicing within the program.

Our 2017 quality studies truly reflect the multidisciplinary nature of cancer care. One study was collaboration between oncology nursing and Interventional Radiology physicians around patient wound closing/healing after placement of a “port-a-cath” or vascular access device. Another was a join effort between the IT Epic team and clinicians to build standard prompts within the medical record and oncology treatment plans containing Her2 targeted drugs, to ensure cardiac testing is performed prior to starting therapy and at the recommended intervals.

A third project involved nursing, physicians, nutrition and case management colleagues to look at improving the care of the patient undergoing a GT or JT placement to make the process more seamless, lining up all components of the care team in a timely fashion for a successful discharge to home with necessary services and equipment in place.

The final project was built around improving all aspects of ordering and reporting results of flow cytometry testing, which is critical in leukemia and lymphoma patient care. The physicians from pathology and medical oncology worked jointly on this project.
Department of Radiation Oncology at LMC Peabody

The Radiation Oncology service at Lahey Hospital Peabody is a compassionate and patient-centered environment. Our treatment philosophy consists of teamwork, ease of access and patient empowerment. We have state of the art equipment with a highly trained clinical team.

Our clinical team is dedicated to educating our patients allowing them to make informed treatment decisions that best suit their individual needs. Our treatment options are adapted to treat the patient with the least amount of radiation needed, as evidenced by our successful Intraoperative Radiotherapy program, our state of the art Stereotactic Radiotherapy programs and our comprehensive HDR program. This precise, focused approach to radiotherapy allows for superior outcomes, increased patient satisfaction and, most importantly, higher quality treatment. The five most frequent sites for radiation treatments for Lahey Hospital and Medical Center patients continue to be breast, lung, prostate, head and neck, and brain. Radiation Oncology site at Peabody is equipped with 2 linear accelerators, including a new, state of the art True Beam Linear Accelerator with Brain Lab patient motion management capabilities, 1 Computed Tomography Simulator, 1 High Dose Rate Brachytherapy unit, complete photon, electron and brachytherapy capabilities, on-board imaging using cone beam Computed tomography, as well as conformal 3D therapy, Intensity Modulated Radiation Therapy, Volumetric Modulated Arc Therapy, Image Guided Radiotherapy, stereotactic radiotherapy, stereotactic radiosurgery and low-dose rate brachytherapy.

Radiation Oncology received full re-accreditation by the American College of Radiology in 2017.

We continue to grow our research program.

Our staff is always looking for ways to improve patient experience. We currently offer our patients visits with our Therapy Dogs. We also regularly have musicians playing in our department for stress relief and general enjoyment.
Rehabilitation Services

Lahey Health services remains committed to offer the best survivorship services for oncology patients. The Lahey system had partnered with Oncology Rehab Partners’ STAR cancer rehabilitation program in 2015/2016, during this time, a large number of clinical staff at Beverly and Addison Gilbert Hospitals were trained and certified in the areas of identifying, treating and minimizing side effects from cancer and its treatments. In December 2016 Oncology Rehab Partners ceased operations and LHS has worked to develop its own oncology rehabilitation program, named Survivorship Evaluation at Lahey (or “SEAL”). The program continues to support patients and train staff in identifying and managing the many side effects related to cancer treatment and to improve the quality of life.

Oncology Social Work Services

With last year’s launch of the Oncology Care Model, Lahey was able to allocate part-time hours to a designated social work position covering both the Beverly Hospital and Addison Gilbert Hospital Outpatient Oncology clinics. Pamela E. Lucci LICSW was hired as the oncology social worker in February 2017 bringing over twenty years medical social work experience with her. Pam is a member of the Cancer Committee, as well as the Ethics Committee, and also continues to work on the inpatient medical floors. The social worker provides psychosocial assessment, individual and family counseling, support, resource provision and referral to community agencies as needed. The social worker can assist with many practical, as well as emotional concerns. These often can include financial/grant applications; transportation resources, information/referral to appropriate community therapists or support groups; brief treatment/counseling to patients and families.

The social worker collaborates closely with the nurses, Oncologists, Nurse Practitioner, as well as communication with Dr. Cary Meyer, PsyD Behavioral Oncologist when appropriate. To increase care coordination, a newly established networking relationship with social workers at Lahey-Peabody (Radiation-Oncology) and Winchester Hospitals’ Center for Cancer Care has also been initiated. Additionally at Beverly and Addison Gilbert Hospitals, master’s prepared social workers are members of the inpatient interdisciplinary teams, providing comprehensive discharge planning and supportive counseling to any patient with a new cancer diagnosis. The inpatient social worker works with the patient and family to identify and provide appropriate emotional support, facilitate care planning meetings, and provide information and resources for follow-up support and community services. The social worker on each inpatient unit also facilitates palliative care and hospice referrals in the education of the patient and the family regarding the consult.
Thoracic Surgery Clinic

The Beverly Hospital Oncology Clinic hosts a weekly Thoracic Surgery Clinic for patients with both benign and malignant lung, esophageal, and chest diseases. The patients are seen by a thoracic oncology nurse and their surgeon. Visits include pre-operative consultation, post-operative evaluation, long term follow up and patient education. Minor procedures can also be performed during the clinic visit. For patients who also see Drs. McIntyre, Yunus or Liebmann in the medical oncology practice, the appointments are coordinated for convenience and efficiency. In 2017, there were 174 patient appointments with Syed Quadri, MD and Elliot Servais, MD. The thoracic nursing team consists of Melissa Dube, RN, Amanda Marr, RN and Nichole Edwards, RN.
2017 Site Study: Melanoma

Respectfully submitted by Gary S Rogers, MD

The NHC Cancer Committee selected melanoma as a site to review for 2017. As shown in Graph 1, there were 79 new cases of melanoma in 2016. Graph X shows that 30 of those cases, or 39%, were documented as invasive melanoma. This site study will evaluate all stages of melanoma cases diagnosed and/or treated at NHC from 2016. Malignant melanoma was one of the five most frequent sites of cancer seen at NHC from 2011-2016. The study will evaluate surgical approach, performance of lymph node dissection, Breslow’s thickness (tumor thickness) and mitotic rate of invasive melanomas. This study looks exclusively at melanoma of the skin. Comparison data was obtained from the NCDB which contained 63,047 cases for the year 2015.

Graph 1 | 5 Year NHC Melanoma

Graph X | 2016 AJCC Stage NHC vs NCDB
2017 Site Study: Melanoma

According to the American Cancer Society’s Facts and Figures for 2017, there will be 1,688,780 new cases of cancer diagnosed in the United States. The population will develop 87,110 melanoma cases, accounting for about 1% of all new cancers. Risk factors for developing melanoma include personal or family history of melanoma, presence of atypical, large or more than 50 moles, excess exposure to ultraviolet light, frequent sunburns, natural blond or red hair color, immune system suppression, and prior history of skin cancer. Prevention measures include limiting sun exposure by use of sunscreen with SPF of 30 or greater, wearing UV protective clothing and limiting direct sun exposure between 10am and 4pm. Early detection is among the most important factors determining survival. Surgical management is the treatment of choice in early stage disease.
**Site Study: Melanoma**

1. **Surgical Management of Melanoma:**

Surgery is the mainstay of treatment for patients with primary melanomas and also for those with regional metastatic disease. The most common operations performed are: wide excision of the primary site, sentinel node biopsy (SNB) and regional lymph node dissection (RLND). Wide excision of a primary melanoma aims to achieve local control and results in cure in most cases of early stage disease. Recommendations for excision margins have been extensively reported. The current standard is 1cm margins of normal/healthy skin for tumors < 2.00mm in Breslow thickness and 2cm margins for tumors > 2.00mm in Breslow thickness. Wound closure after wide excision is either: primarily, by split or full thickness skin grafting (SG) or by flap repair using a variety of methods. The method of wound closure varies depending on the size of resection, anatomic location and local tissue characteristics. For melanomas on critical anatomic sites (eg: face, nose, ears) where the standard wide excision would be disfiguring, Mohs micrographic surgery has been used with success. Published data indicates equivalent survival and local control rates between Mohs and standard wide excision approaches. Mohs surgery for melanoma is only available at a limited number of cancer centers.

SNB is considered for melanomas >1 mm in Breslow thickness or possessing other adverse features. RLND is currently the recommended treatment for patients who have clinically apparent, biopsy-proven regional node melanoma metastases or a “positive SNB”, except in the setting of a clinical trial or if the patient is unfit for surgery. The second Multicentre Selective Lymphadenectomy Trial (MSLT II) is currently assessing the role of RLND in SNB-positive patients.

A link exists between the quality of surgery and patient outcomes for both improved local disease control and overall survival. A number of national guidelines, including the Australian and New Zealand Melanoma Management Guidelines and the National Comprehensive CancerNetwork recommendations, are available and detail the expected principles of care in melanoma patients. An EORTC (European Organization for Research and Treatment of Cancer) Melanoma Group survey concluded that the adequacy of surgery was most important in the management of local and regional melanoma but demonstrated significant variability in the extent of surgery utilized across Centers. The CoC and the American College of Surgeons (ACoS) have validated a series of 26 quality indicators to assess the standards of melanoma care in hospitals across the United States with the aim of improving adherence to clinical guidelines used as a staging procedure in patients with primary tumors.
## Site Study: Melanoma

### Table VI | 2016 Surgery for Invasive Melanoma NHC versus National

<table>
<thead>
<tr>
<th>Surgery</th>
<th>NHC TOTAL</th>
<th>NHC %</th>
<th>NCDB TOTAL</th>
<th>NCDB %</th>
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<tbody>
<tr>
<td>No Surgery</td>
<td>2</td>
<td>2.59</td>
<td>3471</td>
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<tr>
<td>Local tumor excision &amp; Cryosurgery</td>
<td>3</td>
<td>3.9</td>
<td>4777</td>
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<td>0</td>
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<td>1.3</td>
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<tr>
<td>Shave bx followed by gross excision of lesion</td>
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<td>19.09</td>
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<td>Punch biopsy followed by gross excision of lesion</td>
<td>1</td>
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<td>Mohs surgery</td>
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<td>62.34</td>
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<td>0</td>
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<td>Wide exc/re-exc of lesion or minor (local) amputation w/margins &gt;1cm, NOS</td>
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<td>3.9</td>
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<td>Wide excision w/margins more than 1 cm and less than 2 cm</td>
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<td>0</td>
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<tr>
<td>Wide excision w/margins greater than 2 cm</td>
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<td>2.59</td>
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<td>0</td>
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<tr>
<td>Major Amputation</td>
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<tr>
<td><strong>Total</strong></td>
<td>77</td>
<td>100</td>
<td>63047</td>
<td>100</td>
</tr>
</tbody>
</table>
Site Study: Melanoma

2. **Biopsy of suspicious pigmented lesions:**
NCCN and ACS guidelines suggest performing a skin biopsy prior to any definitive surgical resection. Based upon review of the 79 NHS cases, 100% had a biopsy prior to definitive surgery. We are in compliance with national guidelines.

3. **Sentinel lymph node biopsy:**
In 2016 the NCCN revised the guidelines for sentinel node biopsy for melanomas <1mm in Breslow thickness. NHS is in compliance with the guidelines. Chart review of the 31 to cases with invasive melanoma, 100% had discussion with the surgeon regarding sentinel lymph node biopsy. Of the 4 patients undergoing the sentinel node procedure, no complications were noted. One of the 4 cases had evidence for regional nodal disease. This patient underwent RLND at a facility outside this institution. The patient then underwent adjuvant chemotherapy at the Dana-Farber Cancer Institute. We are in compliance with national guidelines.

4. **Surgical margins for treating primary melanoma:** We deviate from published guidelines in use of Mohs procedure over wide excision.

The explanation for this deviation is threefold:

a. The NHC facility has access to a formally trained Mohs surgeon who practices within the hospital.
b. The NHC facility treats a higher percentage of melanomas located on the head and neck than the national average and all other Cancer Centers in New England with the exception of the Mass Eye and Ear Infirmary.
c. The NHC patient population with melanoma is significantly older, with a greater number of comorbidities, than the national average.

For these reasons a significantly higher percentage of melanomas are treated by Mohs technique at our facility. The use of Mohs surgery as opposed to wide local excision reduces operative morbidity, reduces the need for general anesthesia, reduces the need for extensive skin grafting or skin flaps (the majority are closed primarily) and provides a better outcome both functionally and cosmetically due to the smaller size of the post-resection defect compared to wide excision. Nationally, the published literature suggests an increasing number of centers are turning to the Mohs technique for melanoma. This is primarily based on the published work of Chang et al. Nevertheless, although we are different than national standards, based on the outcomes and low recurrence rates, I believe we exceed national standards for surgical care of patients with malignant melanoma.
Site Study: Melanoma

5. Enrollment in clinical trials:
All invasive melanomas and complex melanomas that are in situ on the head and neck are presented at our multidisciplinary tumor board. There is a dermatology specific tumor board on the 1st Tuesday of every month. Review of Tumor Board minutes indicates that with all patients there was a discussion of appropriate therapies and potential enrollment in existing clinical trials.

6. Management of metastatic melanoma:
For each patient with Stage III and IV disease, a full discussion with surgery, medical oncology and radiation oncology was performed at Tumor Board. The appropriate use of scans (PET/CT, MRI and CT scans) was discussed as well as role for adjuvant therapies. The discussion met NCCN and ACS guidelines around multidisciplinary management of care planning.

CONCLUSIONS: The NHC facility is in full compliance with the NCCN Melanoma (version 2.2016) and ACS guidelines. The only deviation from the standard is the higher incidence of using Mohs micrographic surgery to resect the tumor rather than performing standard wide excision with 1cm and 2cm margins. Furthermore, the Dermatologic Oncology Clinic at NHC sees a disproportionately higher percentage of melanomas compared to other cancers (Graphs 2 and 3). This may be due, in part, to the advanced surgical technology available. We see a higher percentage of in situ and stage I melanomas compared to the national average as well, and this may be due, in part, to community outreach and physician education. NHC conducts free skin cancer screenings each year as part of secondary prevention and there are CME events for physicians regarding early detection strategies. NHC is else unique in that they have made an effort for primary prevention of skin cancer. The nurses have gone to the local high schools and educated the students regarding risks associated with tanning beds and excessive sun exposure. The nurses make a great effort regarding sun safety education as a way to prevent skin cancer before it can develop.
Site Study: Melanoma

Graph 2 | 2012-2016 Female Melanoma NHC vs ACS
Site Study: Melanoma

Graph 3 | 2012-2016 Male Melanoma NHC vs ACS

Appendix:

1. Quality Assurance in Melanoma Surgery, EJSO, 2015
3. National Assessment of Melanoma Care Using Formally Developed Quality Indicators, JCO, 2009
5. Cutaneous head and neck melanoma treated with Mohs micrographic surgery, JAAD, 2005
Glossary

**ACS:** American Cancer Society

**ACoS:** American College of Surgeons

**Accessioned:** A term defined as the cases entered into the Cancer Registry database according to the year of first contact

**AGH:** Addison Gilbert Hospital

**AJCC Staging (TNM staging – tumor, lymph nodes and metastases):** Standard system used to stage selected cancers of the head/neck, digestive system, thorax, musculoskeletal, skin, breast, gynecologic tumors, GU cancer, prostate cancer, colorectal, ophthalmic, lymphomas and pediatric cancer

**Analytic Cases:** Cases seen at an organization with a new diagnosis of cancer and/or receiving part of first course of treatment at the organization

**BH:** Beverly Hospital

**CoC:** Commission on Cancer quality program of the American College of Surgeons

**FDA MQSA:** US Food and Drug Mammography Quality Standards Act and Program

**First course of treatment:** The initial tumor-directed treatment or series of treatments, initiated within four months following diagnosis

**Follow-up:** To monitor all patients entered into the Cancer Registry database to ensure follow-up through contacting physician offices, hospital readmission

**FORDS:** Facility Oncology Registry Data Standards. Provides guidelines for cancer registry operations beginning with 2003 cases

**Incidence:** The extent to which disease occurs in the population. Cancer incidence is the number of new cases of cancer diagnosed each year in a population

**LHS:** Lahey Health System

**LOCD:** Lahey Outpatient Center Danvers

**Localized:** A cancer that appears to be confined to the organ of origin

**Median:** The middle value by sorting the observations in order of smallest to largest

**NAPBC:** National Accreditation Program for Breast Centers – a division ACoS

**NCCN Guidelines:** The National Comprehensive Cancer Networks Guidelines. Nationally accepted, evidence-based guidelines often used as a basis to determine cancer treatment

**NCDB:** National Cancer Data Base, a subdivision of the American College of Surgeons Commission on Cancer which provides a nationwide outcomes data base for more than 1,500 CoC accredited programs

**NHC:** Northeast Hospital Corporation which includes Addison Gilbert Hospital, Beverly Hospital, and LOCD

**Non-analytic:** term referring to the cases first seen at an organization after a full course of therapy has been completed or that were first diagnosed at autopsy with unsuspected malignancy. (The organization did not provide cancer treatment to these individuals but their pathology is recorded here)

**OCM:** The Oncology Care Model. Center for Medicare Services’ 5 year demonstration project to “create better care, smarter spending and healthier people”, NHC is a participant in the program

**Radiation therapy:** using ionizing radiation, generally as part of cancer treatment to control or kill cancer cells, while sparing healthy normal tissue

**Relative Survival Rate:** A measurement of the proportion of persons surviving regardless of cause of death

**RBA (Reportable by agreement) cases:** Cases not specified by FORDS Manual as reportable malignancies but reportable for the Massachusetts Central Cancer Registry, and/or the Cancer Committee

**SEER:** Surveillance, Epidemiology and End Results program; providing cancer statistics, supported by the National Cancer Institute

**Stage of Disease:** A system of evaluating the spread of malignant tumors; extent of disease
References


Commission of Cancer, National Cancer Data Base (NCDB) Hospital Comparison Benchmark Reports

Metriq software by Elekta

National Cancer Institute, www.cancer.gov
Notes