Sinai Cancer Program
2015 Annual Report

“It’s about focusing on the fight and not on the fright”
Robin Roberts
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A Message from Sinai Leadership

Mount Sinai Hospital’s Cancer Services Program began with the idea that it is possible to provide the highest quality cancer care to some of Chicago’s most economically challenged communities.

A notoriously dreadful illness, cancer is the second leading cause of death in the United States. It strikes regardless of race, socioeconomic status, gender, or age.

Our challenge is formidable, but our commitment to exceptional cancer care is steadfast. Under the leadership of Dr. Pam Khosla, we have built a cancer program that unites all disciplines and physicians together to treat and ultimately conquer cancer.

Mount Sinai Hospital’s Cancer Services Program is a Commission on Cancer® accredited program. This honor takes into consideration the five elements key to the success of a CoC®-accredited cancer program: the clinical services provide state-of-the-art pretreatment evaluation, staging, treatment, and clinical follow-up for cancer patients seen at the facility for primary, secondary, tertiary, or end-of-life care. The Cancer Committee leads the program through setting goals, monitoring activity, evaluating patient outcomes, and improving care. The Cancer Conferences provide a forum for patient consultation and contribute to physician education. The quality improvement program is the mechanism for evaluating and improving patient outcomes. The cancer registry and database are the basis for monitoring the quality of care.

Our commitment to partner with cancer community organizations is second to none. Notable partnerships include the American Cancer Society and Gilda’s Club. The Cancer Program has received a grant from The Coleman Foundation, an independent foundation established in Illinois in 1951, which provides grant funding for organizations providing cancer treatment, education and support in the Chicago Metropolitan area. This grant, partners us with surrounding area cancer programs to improve performance in the area of supportive oncology care.

I congratulate the Mount Sinai Hospital Cancer Services Program on an exceptional year of accomplishments and look forward to its future success.

Karen C. Teitelbaum  
President & CEO  
Sinai Health System
A Message from the Chief of Hematology Oncology

It is my privilege to introduce the 2015 Sinai Cancer Program Annual Report. The primary goal of the report is to provide an overview of the many activities our Cancer Program has realized over the past year. One improvement has been with our Survivorship Program. On page 6, the results of our study, *Survivorship Care for Breast Cancer Survivors Study*, discusses our methods, results and conclusions.

According to the National Cancer Institute (NCI), in 2015 an estimated 1,658,370 new cases of cancer will be diagnosed in the United States and approximately 589,430 people will die from the disease.

In the United States, the overall cancer death rate has declined since the early 1990s. The most recent *Annual Report to the Nation on the Status of Cancer*, published in March 2015, shows that from 2002 to 2011, cancer death rates decreased by:

- 1.8 percent per year among men
- 1.4 percent per year among women

As the overall cancer death rate has declined, the number of cancer survivors has increased. According to the NCI’s Division of Cancer Control and Population Sciences, as of January 2014, it is estimated that there are 14.5 million cancer survivors in the United States. This represents over 4% of the population. These trends show that progress is being made against the disease, but much work remains. Although rates of smoking, a major cause of cancer, have declined, the U.S. population is aging, and cancer rates increase with age. Obesity, another risk factor for cancer is also increasing.

Our Cancer Services Program participates in our patients’ survivorship by developing and implementing a process to disseminate a comprehensive care summary and follow-up plan to patients with cancer who are completing cancer treatment. This is in compliance with Commission on Cancer Standard 3.3 *Survivorship Care Plan*.

In partnership with The Coleman Foundation, an independent foundation established in Illinois in 1951, which provides grant funding for organizations providing cancer treatment, education and support in the Chicago Metropolitan area, we are participating in the performance improvement of our supportive care processes, in which survivorship is included.

As performance improvement is ongoing with our Survivorship Program, we look forward to refining our efforts in the months to come.

Pam Khosla, MD
Chief of Hematology/Oncology
Department of Internal Medicine
Mount Sinai Hospital
2015 Cancer Committee Membership

At Mt. Sinai Hospital Oncology Services, our Cancer Committee oversees activities of the cancer program and is responsible for ensuring quality care and facilitating advancements. The multidisciplinary cancer committee is composed of medical, allied health and administrative personnel. We also are proud partners with the American Cancer Society.

<table>
<thead>
<tr>
<th>Member Name</th>
<th>Discipline</th>
</tr>
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<tbody>
<tr>
<td>Arreola, Maria CTR</td>
<td>Certified Tumor Registrar</td>
</tr>
<tr>
<td>Bobba, Kishore MD</td>
<td>Palliative Care &amp; Hospice</td>
</tr>
<tr>
<td>Carino, Mildred Phar.D.</td>
<td>Oncology Pharmacy</td>
</tr>
<tr>
<td>Cerniglia, Kerry PT</td>
<td>Rehabilitation Coordinator</td>
</tr>
<tr>
<td>Drake, MaSheila</td>
<td>Director Health Information Management</td>
</tr>
<tr>
<td>Duncan, Rolean RN, BSN</td>
<td>Outreach Coordinator Oncology Nurse Navigator</td>
</tr>
<tr>
<td>Hunter, Dianne</td>
<td>Director Public Affairs</td>
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<tr>
<td>Jackson, Cheryl LPN</td>
<td>Financial Navigator</td>
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<tr>
<td>Kanoon, Jacqueline</td>
<td>Sinai Urban Health Institute</td>
</tr>
<tr>
<td>Kassem, Mohammed MD</td>
<td>Medical Oncology Quality Improvement Coordinator</td>
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<tr>
<td>Khosla, Pam MD</td>
<td>Cancer Committee Chairperson</td>
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<tr>
<td>Kuznetsova, Marina MD</td>
<td>Radiation Oncology</td>
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<tr>
<td>Lorimer, Monica MD</td>
<td>Surgery Cancer Liaison Physician</td>
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<td>Manching, Romulo</td>
<td>Director Pastoral Care</td>
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<td>Marcouiller, Nicole, MSW</td>
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<td>Martinez, Hilda</td>
<td>Tumor Registry</td>
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<td>Neely, Kathy RN, MSN, MBA, NE/A</td>
<td>Chief Nursing Officer &amp; Vice President of Patient Services</td>
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<tr>
<td>Patel, Niraj</td>
<td>Clinical Research Coordinator</td>
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<tr>
<td>Roberts, Raquel RN, BSN</td>
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<td>Sanders, Antoinette MBA</td>
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<tr>
<td>Shepard, Dore RN, MHA, OCN</td>
<td>Cancer Program Director Palliative Care Team Member</td>
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<tr>
<td>Shrestha, Shakuntala RN, APN</td>
<td>Genetics Cancer Risk</td>
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<tr>
<td>Wright, Amy RN</td>
<td>Performance Improvement/Quality</td>
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<tr>
<td>Vaca, Lorena</td>
<td>Cancer Conference Coordinator</td>
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<td>Vucic, Ivica MD</td>
<td>Diagnostic Radiology</td>
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<tr>
<td>Ying, Shan-Ching MD</td>
<td>Pathology Cancer Registry Quality Coordinator</td>
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<tr>
<td>Zabinsky, Beth RCD</td>
<td>Clinical Dietician</td>
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2014 Cancer Case Information

Mt. Sinai Hospital was involved in the diagnosis and/or treatment of more than 386 cancer patients in 2014. Over ninety-eight percent (379) of those cases were considered analytic cases directly diagnosed and/or treated with the health network.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MOST TREATED</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
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<tr>
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<td>Breast</td>
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<td>Bronchus/Lung</td>
<td>Colon</td>
<td>Hematology Corpus Uteri</td>
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<td>Hematology</td>
<td>Colon</td>
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<td>2012</td>
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<td>Hematology</td>
<td>Bronchus/Lung</td>
<td>Colon</td>
</tr>
<tr>
<td>2011</td>
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<td>Prostate</td>
<td>Bronchus/Lung</td>
<td>Hematology</td>
<td>Colon</td>
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<td>2010</td>
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<td>Prostate</td>
<td>Bronchus/Lung</td>
<td>Colon</td>
<td>Hematology</td>
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<tr>
<td>2009</td>
<td>Breast</td>
<td>Prostate</td>
<td>Bronchus/Lung</td>
<td>Colon</td>
<td>Hematology</td>
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</table>

Commonly Used Terminology

**American Joint Committee on Cancer (AJCC) Staging:** A classification system used for describing the extent of disease progression based on the evaluation of the tumor size/invasiveness (T), nodal status (N) and metastasis (M) at the time of diagnosis. AJCC stage is important in considering treatment plans.

**Analytic Cancer Case:** analytic cases are cases for which the facility provided the initial diagnosis of cancer and/or for which the facility contributed to all or part of the first course of treatment.

**Collaborative Staging:** Collaborative Stage is a unified data collection system designed to provide a common data set to meet the needs of all three staging systems:
  - (TMN)
  - Surveillance, Epidemiology and End Results (SEER) Extent of Disease (EOD)
  - Summary Stage (SS)

It provides a comprehensive system to improve data quality by standardizing rules for timing, clinical and pathologic assessments, and compatibility across all of the systems for all cancer sites. The Collaborative Stage project is sponsored by the American Joint Committee on Cancer (AJCC) in collaboration with several standard-setting organizations, including the SEER Program.

**National Cancer Database:** The nationally recognized National Cancer Data Base (NCDB)—jointly sponsored by the American College of Surgeons and the American Cancer Society—is a clinical oncology database sourced from hospital registry data that are collected in more than 1,500 Commission on Cancer (CoC)-accredited facilities. NCDB data are used to analyze and track patients with malignant neoplastic diseases, their treatments, and outcomes. Data represent approximately 70% of newly diagnosed cancer cases nationwide and 30 million historical records.
Survivorship Care for Breast Cancer Survivors Study
Pam Khosla, MD and Shakuntala Shrestha RN, APN along with Rosalind Franklin University of Medicine and Science and Northwestern University were the collaborators for this study.

Background:
To provide comprehensive services and meet Commission on Cancer (CoC) accreditation requirements, we developed and evaluated a customized breast cancer Survivorship Care Plan (SCP) template and delivery model.

Objective:
To implement and pilot test Survivorship Care Plan (SCP) delivery for breast cancer survivors.

Methods:
Clinicians at a safety net hospital [MSH] partnered with investigators at an academic institution to start a breast cancer survivorship care program. We developed an SCP template that is CoC-compliant and responsive to input gathered in 2 focus groups with breast cancer survivors (n = 12) and interviews with staff (n = 8). Oncologists and nurses identified and referred English-speaking women who had completed breast cancer treatment. Participants completed baseline measures prior to receiving individualized SCPs in a survivorship consultation visit with a dedicated APN. In response to high volume of no-show rates, we expanded clinic scheduling to harmonize with participants’ other medical appointments.

Results:
A total of 154 patients were screened to reach target enrollment (n = 80) within 20 months. Participant median age was 60±11; 71% were African Americans, 18% Hispanic; 11% Non-Hispanic White. 92% had household incomes <$20,000. Average time, in minutes, to abstract patient clinical information in preparation for survivorship visit was 30 ± 13.4. Minutes for completing individual SCPs was 25 ± 16. To review/deliver the SCPs with patients took 22 ± 7.65 minutes.
The difference in the no-show rate between first 3-month recruitment period (clinic limited to one day a week) and next 17 months (clinic appointment expanded to accommodate patients’ schedule) was statistically significant, p=0.028.

Conclusions:
Tailoring SCP templates and delivery models to the needs of a safety net hospital aided the sustainability of a new survivorship clinic. Patient non-adherence to scheduled visits was significantly improved by expanded clinic hours. Significant clinician time was spent preparing SCPs and a level 4 (25 minutes) does not adequately reflect this effort.
**Clinical Trials**
Niraj Patel
Clinical Trial Coordinator

Clinical trials are studies in which people volunteer to take part in tests of new drugs or procedures. Doctors use clinical trials to develop new treatments for serious diseases such as cancer.

In a clinical trial, participants receive specific interventions according to the research plan or protocol created by the investigators. These interventions may be medical products, procedures; or changes to participants' behavior. Clinical trials may compare a new medical approach to a standard one that is already available, to a placebo that contains no active ingredients, or to no intervention.

Clinical trials used in drug development are sometimes described by phase. These phases are defined by the Food and Drug Administration (FDA). Our program participates in Phase III Clinical Trials where the general intention is to study the efficacy and reduction in mortality rate by the drug used.

Our Cancer Services Program participates in screening trials, treatment trials, quality of life trials (supportive care) and other trials. For 2014, our total clinical trial accrual was 60 patients for an accrual rate of 15.5%, per 386 cases.

Our accrual rate of 15.5% exceeds the Commission on Cancer minimum standard for clinical trial accrual percentage of 2% for our Community Cancer Center Program. In fact, our Mount Sinai Hospital Cancer Services Program well exceeds the percentage for commendation which is set by the Commission on Cancer at 4%.
Population Health: Our Cancer Community Assessment Overview

Dore Shepard RN, MHA, OCN
Director Cancer Services

The Institute of Medicine Roundtable on Population Health Improvement agreed on a set definition for Population Health: “The health outcomes of a group of individuals, including the distribution of such outcomes within the group.” [1] It is an approach to health that aims to improve the health of an entire human population.

While not a part of the definition itself, it is understood that such population health outcomes are the product of multiple determinants of health, including medical care, public health, genetics, behaviors, social factors, and environmental factors.

The Institute for Healthcare Improvement has emphasized the role that healthcare organizations may play in improving population health through its Triple Aim Initiative which advocates the following:

- Simultaneous improvement of the patient experience of care (including quality and satisfaction)
- Reduction in the per capita cost of health care
- Improvement of the health of populations [2]

Our cancer program remains acutely aware of our patient population’s multiple determinants of health as we participate with the Sinai Health System’s Population Health initiative. Below are five characteristics of our cancer patient population in our community.

Population Health: Our Cancer Population Defined

1. **Insurance Status**

   In 2012, out of all the cancer patients treated at Mount Sinai Hospital, approximately 10.5% of cancer patients were not insured as compared to 3.5% from all CoC programs. This variation in numbers can be attributed to uninsured patients.

   In 2012, the majority of cancer patients in our program were covered by Medicaid at a rate of 48% as compared to 6% of all CoC programs. The number of patients covered by private insurance is 14% compared to all CoC programs at 39%. These statistics make sense for Mount Sinai Hospital as we are one of 36 designated safety-net hospitals, representing 17.1% of Illinois hospitals, as a major source of medical care for low-income, uninsured and vulnerable populations. Safety net hospitals provide essential health services, including speciality services to individuals who otherwise would lack access to health care.

   **Our Call to Action from Mount Sinai Hospital Cancer Services:**
   - Two designated Oncology Social Workers
   - Two dedicated Oncology Financial Navigators
• One dedicated Oncology Nurse Navigator (Bilingual)
• Robust Interpreter Program
• Adherence to cancer treatment pathways thus lowering the cost of care
• Drug Replacement Program

2. **Distance Traveled**
Assessing the distance traveled of our top four cancers treated at Mount Sinai Hospital Cancer program represents our cancer population in the immediate service area. The majority of patients travel less than 5 miles for treatment. By understanding this data, we can better plan for prevention, detection and screening sessions for our community.

| Distance Traveled (<5 Miles) to Mt. Sinai Hospital Cancer Services in 2012 |
|-----------------------------|----------------|----------------|----------------|
|                            | Breast        | Prostate       | Lung           | Colon         |
| MSH Oncology               | 31.9%         | 58.8%          | 67.7%          | 61.9%         |
| CoC Aggregate              | 19.0%         | 14.7%          | 19.0%          | 22.0%         |

**Our Call to Action from Mount Sinai Hospital Cancer Services:**
• Transportation Services provided by the American Cancer Society
• Community events promoting prevention, detection and screening
• Two designated Oncology Social Workers
• Psycho-Social Distress Screen includes inquiry regarding transportation issues
3. **Patients with Breast Cancer Received Radiation Therapy at Mount Sinai Hospital 2012**

In 2012, for patients with breast cancer who needed radiation therapy, 95.2% (n=40) were treated at Mt. Sinai Hospital. Only two patients went elsewhere. The average distance traveled for the 40 patients with breast cancer to radiation therapy at Mt. Sinai Hospital was 7.1 miles.

**Our Call to Action from Mount Sinai Hospital Cancer Services:**
- Weekly multidisciplinary rounds on all patients receiving Radiation Therapy
- Two designated Oncology Social Workers
- Transportation Services provided by the American Cancer Society

4. **Age Group of all Sites Cancer Diagnosed at Mt. Sinai Hospital 2012**

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Under 20</td>
<td>2</td>
<td>0.53%</td>
</tr>
<tr>
<td>20-29</td>
<td>6</td>
<td>1.6%</td>
</tr>
<tr>
<td>30-39</td>
<td>24</td>
<td>6.4%</td>
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<tr>
<td>40-49</td>
<td>56</td>
<td>14.93%</td>
</tr>
<tr>
<td>50-59</td>
<td>95</td>
<td>25.33%</td>
</tr>
<tr>
<td>60-69</td>
<td>122</td>
<td>32.53%</td>
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<td>70-79</td>
<td>52</td>
<td>13.87%</td>
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<tr>
<td>80-89</td>
<td>18</td>
<td>4.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>375</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

**Our Call to Action from Mount Sinai Hospital Cancer Services:**
- Planned implementation of Geriatric considerations within the Psycho-Social Distress Screen

5. **Ethnicity of all Sites Cancer Diagnosed at Mount Sinai Hospital 2012**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>212</td>
<td>56.53%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>116</td>
<td>30.93%</td>
</tr>
<tr>
<td>White</td>
<td>30</td>
<td>8.0%</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>7</td>
<td>1.87%</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>2.67%</td>
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<tr>
<td><strong>Total</strong></td>
<td>375</td>
<td>100%</td>
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</table>
Our Call to Action from Mount Sinai Hospital Cancer Services:

- Patient educational material translated into Spanish
- Community partnerships within our municipality
- On site translation services
- Bilingual Nurse Navigator and Medical Assistants
- Increasing number of African Americans in Clinical Trials

For more information on what the Cancer Program used to assess community needs, please go to the Sinai Intranet’s “P” drive and access the 2013 AHRQ National Health Care Disparities Report and the Mt. Sinai Hospital 2013 Community Needs Assessment.

References
2015 Screening and Prevention Program: Head & Neck
Dore Shepard RN, MHA, OCN
Director Cancer Services

The head and neck region is an anatomically diverse area of the body that is composed of soft tissue, bones, skin, and a variety of glands and organs. Head and neck cancer encompasses a wide range of tumors that can develop in several areas of the head and neck, including the throat, larynx (voice box), nose, sinuses, and mouth. Each year, approximately 48,000 Americans are diagnosed with a head or neck cancer. These tumors account for up to 5 percent of all cancers in the US.

Most head and neck cancers are squamous cell carcinomas — malignant growths that begin in inner lining in many parts of the head and neck. A tumor limited to this layer of cells is usually called carcinoma in situ. A tumor that grows beyond the squamous cells and moves into deeper tissues is called invasive squamous cell carcinoma. Adenocarcinomas arise in glandular cells, such as those found in the salivary glands.

Symptoms

Below are some general symptoms and warning signs of head and neck cancer. Each type of head and neck cancer may be associated with a more specific group of symptoms. Many of these symptoms can also be caused by other health conditions. Symptoms:

- A lump or swelling in the neck
- A sore in the mouth that won’t heal (the most common symptom) or that bleeds easily
- A red or white patch in the mouth that doesn’t go away
- Frequent nosebleeds, ongoing nasal congestion, or chronic sinus infections that do not respond to treatment
- Persistent sore throat
- Persistent hoarseness or a change in the voice
- Persistent pain in the neck, throat, or ears
- Blood in the sputum
- Difficulty chewing, swallowing, or moving the jaws or tongue
- Numbness in the tongue or other areas
- Loosening of teeth
- Dentures that no longer fit
- Changes or discoloration in a mole; a skin sore that is crusting or ulcerated, or that fails to heal (these are also signs of skin cancer)
Prevention
Making certain lifestyle changes can significantly lower a person’s risk of developing a head and neck cancer. The two major known risk factors for head and neck cancer are exposure to tobacco and heavy use of alcohol. Quitting smoking can substantially reduce the risk, even for those who smoked for many years. People who already have a head and neck cancer and quit using tobacco can reduce the risk of developing a second tumor by as much as 60 percent.

Smoking Treatment
Other groups offer programs and resources that help people take steps toward a healthy lifestyle. The Cancer Information Service (1-800-4-CANCER), the American Lung Association, and the American Cancer Society offer online resources, booklets, and referrals to local programs.

Screening
Although no particular screening method has been proven to improve survival for people with head and neck cancers, Mount Sinai Hospital Cancer Services physicians advise that all individuals visit their primary care physician for a yearly physical examination of the head and neck and oropharynx (the middle section of the throat that includes the soft palate, the base of the tongue, and the tonsils). Our doctors also recommend a yearly routine dental evaluation that includes examination of the neck and inspection of the oropharynx and the mouth.

Mount Sinai Hospital Cancer Services Head and Neck Screening and Quit Smoking Day
For our 2015 Cancer Committee goal, we selected Head and Neck cancer prevention and screening program. Approximately 6.2% of our 2014 patient cancer cases involved cancers of the head and neck.

We partnered with a pharmaceutical company, the American Cancer Society and the American Lung Association to provide educational material on preventing head and neck cancer and smoking cessation programs. Our target audience was our community of Mount Sinai Hospital employees and community guests. American Cancer Society and American Lung Association educational materials were available. A video on head and neck cancer prevention and detection was on a continuous loop for our audience.

The educational prevention material was presented on the day of the screening to approximately 122 individuals. A large display table hosted by Cancer Services staff displayed smoking cessation information. We also answered questions related to quitting smoking. The information was well received by all 122 individuals who took information with them.

Two Oncologists, a Speech Pathologist and a Dentist participated in the screening. Of the 22 folks screened, zero had suspicious findings.
Potential in Patient Care: Women with Certain Genetic Mutations have up to a 78% Increase in Breast Cancer Risk

By the time Pam Khosla, MD, chief of Hematology and Oncology at Mount Sinai Hospital, sees women with breast cancer, many have such advanced disease that their odds of cure are slim. Chances are they’ve never have had a mammogram or regularly see a primary care physician. The lack of preventive screening for breast cancer is especially worrisome in women of color. There is evidence that Latinas with a family history of breast cancer may have a higher prevalence of the genetic mutations that greatly increase the likelihood of developing breast and ovarian cancer. Other emerging research shows that black women may develop a more aggressive form of breast cancer, necessitating that the cancer is detected and treated very early.

If women are aware they are at increased risk for breast and other cancers, however, they can do something about it, including preventing it from ever occurring. About 10% of breast cancer and 10% of ovarian cancer in the general population is hereditary, arising from a genetic mutation passed on by a parent. A woman who has one or more relatives with breast or ovarian cancer, or who is of Ashkenazi Jewish descent, has a much greater risk of carrying a deleterious mutation, such as on the BRACA1 or BRAC2 gene. Dr. Khosla offers genetic testing to patients at high risk of cancer to determine if they carry gene mutations that will predispose them to several different types of cancers.

After learning that the lump in her breast was cancerous, Guadelupe Buenrostro, 34, discovered from her mother that three family members also had breast or ovarian cancer. Since Buenrostro was so young and had a strong family history of cancer, Dr. Khosla urged her and her 37-year-old sister to have genetic testing. When the tests showed that both Buenrostro women carried a genetic mutation that increased their odds of getting cancer, Dr. Khosla helped them sort through their options. “At our comprehensive breast center, we spend a considerable amount of time educating patients about their test results and preparing them psychologically and emotionally so we can make decisions together about managing their risk of cancer,” says Dr. Khosla.

Guadelupe decided to have a double mastectomy, to eliminate the tumor in one breast and to prevent cancer from striking the other breast, as well as removal of her ovaries. Her sister also had surgery to reduce her risk of cancer.

Genetic testing gives women more control over their lives and an opportunity to advocate for their health, says Dr. Khosla. Many begin seeing a primary care physician for the first time and getting regular preventative screenings, such as mammograms and colonoscopies, while convincing their daughters and other relatives to do the same. “We’re able to dramatically
change women’s individual stories and we become partners for life with them, which is very gratifying,” says Dr. Khosla.

**Cancer Services Role in Genetic Risk Assessment**

*Shakuntala Shrestha RN, APN*

Commission on Cancer® Standard 2.4: Risk Assessment and Genetic Testing, defines that cancer risk assessment, genetic counseling, and testing services are provided to patients either on site or by referral, by a qualified genetics professional.

For our program, we utilize Myriad® Genetics for genetic testing. For genetic counseling, our referrals are to Certified Genetic Counselors from UIC and Rush.

Patients with a hereditary cancer are at significant risk for developing an initial cancer and a second primary cancer. Hereditary cancer is more prevalent than might be expected. Approximately five to ten percent of all cancers are hereditary. Identifying patients, who may be “carrying” a hereditary risk, through appropriate testing can potentially lead to improved treatment options, more appropriate plans for risk management, and better outcomes.

It is best to know your family history of disease, for our purposes, your family cancer history. The risk of hereditary cancer can be passed down through generations on both sides of the family. Until Cancer Family History is collected, shared and utilized every medical decision may have an information gap. Thus, optimal patient care may be at risk.

Signs of hereditary cancer may include:

- EARLY occurrence (<50 years old) of cancer in any family member (male or female)
- MULTIPLE cases of cancer in personal and/or family history
- RARE or uncommon occurrences of cancer in personal and/or family history.

**COMMON HEREDITARY CANCERS:**

- Breast
- Colorectal
- Ovarian
- Pancreatic
- Stomach
- Uterine

**COMMONLY USED TERMINOLOGY**

- **Genetics:** The field of science that looks at how traits are passed down from parents to their children through genes.

- **Genes:** The basic physical unit of heredity. DNA (deoxyribonucleic acid) inside each of our cells instructs them how to make the proteins the body needs to function. DNA is the genetic “blueprint” found in each cell. Genes affect inherited traits passed on from a parent to a child, such as hair color, eye color, and height. They also affect whether a person is likely to develop certain diseases, such as cancer.
• **Chromosomes:** Twenty three (23) pairs of long strands of DNA encoded with genes are called *chromosomes*. In most cells, humans have 22 pairs of these *chromosomes* plus the two sex *chromosomes* (XX in females and XY in males) for a total of 46. One of each chromosome pair comes from the mother, and the other from the father. Each chromosome can contain hundreds or thousands of genes that are passed from the parents to the child.

• **Mutations:** Changes to genes are called *mutations*. Gene mutations play an important role in the development of cancer. Mutations can cause a cell to make or not to make proteins that affect how it grows and divides into new cells. Certain mutations can cause cells to grow out of control, which can lead to cancer. Usually several gene changes are needed before a cell becomes cancer.

**NCCN Eligibility Criteria for Risk Evaluation and/or Genetic Testing**

1. **Personal history of breast cancer + one or more of the following:**
   - Diagnosed age ≤45 y, with or without family history
   - Diagnosed age ≤50 y or two breast primaries, with ≥1 close blood relative(s) with breast cancer ≤50 y and/or ≥1 close blood relative(s) with epithelial ovarian/fallopian tube/primary peritoneal cancer
   - Two breast primaries when first breast cancer diagnosis occurred prior to age 50
   - Diagnosed age <60 y with a triple negative breast cancer (ER-, PR-, HER2-)
   - Diagnosed age <50 y with a limited family history, defined as fewer than 2 first- or second-degree female relatives or female relatives surviving beyond 45 years in either lineage
   - Diagnosed at any age, with ≥2 close blood relatives with breast and/or epithelial ovarian/fallopian tube/primary peritoneal cancer, at any age
   - Close male blood relative with breast cancer
   - Personal history of epithelial ovarian/fallopian tube/primary peritoneal cancer
   - If of certain ethnicity associated with higher mutation frequency, (e.g., Ashkenazi Jewish) no additional family history required
   - a close relative with a known BRCA1 or BRCA2 gene mutation

2. **Personal history of epithelial ovarian/fallopian tube/primary peritoneal cancer**

3. **Personal history of male breast cancer**

4. **Personal history of pancreatic cancer or aggressive prostate cancer** (Gleason score >=7) at any age with ≥2 first, second or 3rd degree blood relatives (on the same side of family) with breast and/or ovarian cancer and/or pancreatic cancer or aggressive prostate cancer (GS >=7) at any age

5. **Family history only:**
• 1\textsuperscript{st} or 2\textsuperscript{nd} degree blood relative meeting any of the above criteria
• 3\textsuperscript{rd} degree blood relative with breast cancer and/or ovarian/fallopian tube/primary peritoneal cancer with >=2 1\textsuperscript{st}, 2\textsuperscript{nd} or 3\textsuperscript{rd} degree blood relatives (on the same side of family) with breast cancer (at least one breast cancer <=50 years) and/or ovarian/fallopian tube/primary peritoneal cancer)