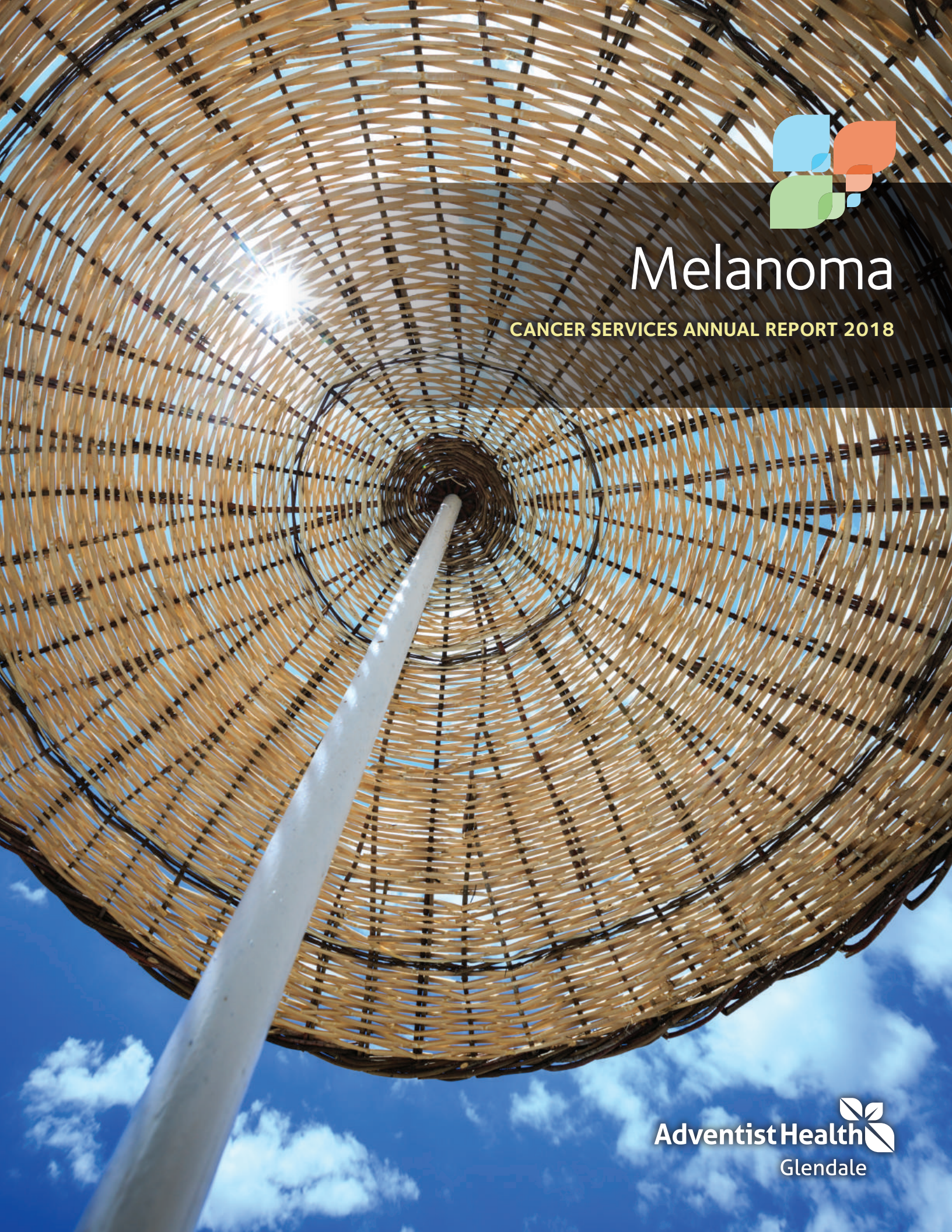


Melanoma

CANCER SERVICES ANNUAL REPORT 2018

Adventist Health
Glendale

Table of Contents

Welcome

KAREN BRANDT-MAYO
Operations Executive

Adventist Health Glendale is pleased to present our *2018 Cancer Services Annual Report* with a spotlight focus on melanoma. This year we are proud to announce new state-of-the art radiation therapy technology providing unprecedented precision and results. In the clinical forefront, trials in molecular genetics through next-generation sequencing to help identify mutations and presence of cancer in the blood are taking place at the hospital. We also continue to develop educational resources and support groups in collaboration with national organizations such as the American Cancer Society to meet the needs of our community. Through the hospital's mission "Living God's love by inspiring health, wholeness and hope" we work each day to help our patients through their journey with cancer.

In this report, you will be introduced to the cancer center's new Varian TrueBeam® Linear Accelerator. Through this radically redefined technology, Adventist Health Glendale brings leading cancer care to both patients and physicians. As the only cancer center in Glendale with the TrueBeam® Linear Accelerator, patients can stay close to home availing themselves to the full support of family and loved ones while receiving this advanced treatment. In the coming months, the cancer center will also start a renovation project to improve patient and visitor comfort. The new area will create a welcoming environment for our patients during their treatment visits.

We are also proud to be the only cancer program in Glendale to be accredited by the American College of Surgeons Commission on Cancer as a Community Comprehensive Cancer Program. As part of these exceptional standards, there is strong collaboration among our physicians and cancer specialists for excellence in patient care. We believe in taking care of the whole patient - including physical, mental and spiritual aspects for the best outcomes.

In closing, we are committed to the future of improving cancer care and providing the best resources for our patients and our community. We are grateful for the expertise of our outstanding physicians, nurses and associates who care for our patients and work tirelessly to fight against cancer.

Blessings,

Karen Brandt-Mayo
Operations Executive

Rendition of new cancer center reception area.

I CAN DO ALL THINGS THROUGH CHRIST WHO STRENGTHENS ME.

PHILIPPIANS 4:13

New Varian TrueBeam® Linear Accelerator.

Cancer Committee Chairman's Message

BORIS BAGDASARIAN, D.O.
Hematology and Oncology,
Chairman, Cancer Committee

Dear colleagues and friends,

As chairman of the cancer committee, I am pleased to present the 2017 programs and developments at Adventist Health Glendale. I am proud to be part of an exceptional team that provides outstanding care for our community. As the only accredited Cancer Center in Glendale by the American College of Surgeons (ACS) Commission on Cancer, we have met and exceeded the highest standards with numerous commendations.

Coupled with strong collaboration and communication, the cancer committee is made up of a multidisciplinary team of representatives with various physician specialties, nursing, administration, quality services and the cancer registry. The group meets quarterly to ensure program elements are in place and functioning as required by the ACS Commission on Cancer. The goal of the cancer committee is to encourage plans for improvement, evaluate all cancer-related activities and further strengthen services available to our patients.

We continue to believe that there is no doubt that prevention and early detection are key in the battle against cancer. The recent implementation of the lung cancer screening program in 2017 offers the latest low-dose computed tomography (CT) technology to detect early stage lung cancer. Through support with education, a very detailed lung cancer lecture series was presented, which encompassed every aspect of the disease - from prevention, to detection, diagnosis, and the latest cutting edge therapeutic options.

Adventist Health Glendale has always been committed to remaining on the forefront of technology. The recent purchase of the Varian TrueBeam® Linear Accelerator is a testament to the hospital's commitment to provide the best care for our community. The TrueBeam®, which became operational in December 2017, was designed from the ground up to treat moving targets with advanced speed and accuracy. The technology platform is a fully-integrated system for image-guided radiotherapy and radiosurgery. The TrueBeam® system treats cancer anywhere in the body where radiation treatment is indicated including lung, breast, prostate, head and neck cancers. (See pg. 31 for more features and benefits of the new accelerator).

The road ahead still provides many challenges. I am confident that through our collaborative efforts we will continue to achieve the best outcomes for all our patients. I would like to sincerely thank the medical staff and health care professionals who work hard each year to enhance the care we provide for our patients and their families.

Thank you to all who attend the tumor board conferences, and to the ACS cancer program coordinators for 2017: **Dennis Quagliani**, director of cancer services, quality improvement coordinator; **Denise Cleveland**, cancer registry manager, cancer registry quality coordinator; **Tracey Sanders**, community outreach coordinator, Ingeborg's Place Apart; **Lily Villalobos**, clinical trials, clinical research representative; **Cynthia Klinger**, M.F.T., psychosocial services coordinator; **Sam Carvajal**, M.D., physician, ACS liaison; and myself, **Boris Bagdasarian**, D.O., cancer conference coordinator.

Cancer Care Guild

Where Life, Love and Hope Connect

Adventist Health Glendale's Cancer Care Guild, under the leadership of president **Anita Aghajanian**, experienced a busy year in 2017. Activities included the bi-annual Courage Awards, a Massage Envy-Spa fundraiser and a membership appreciation luncheon that featured emotional testimonials of two cancer survivors treated at Adventist Health Glendale.

The Courage Awards dinner celebrated cancer survivors and those dedicated to fighting cancer. Honorees awarded: **Fran Buchanan**, community volunteer; **Marianna Clarizio**, radiation therapist; **Sara H. Kim**, M.D., physician; **Guadalupe Mendoza** and **Mary Nazari**, courageous patients.

Funds raised from the Cancer Care Guild activities provide free programs and services to cancer patients (regardless of where they are being treated) through Ingeborg's Place Apart/Positive Image Center. Services range from personal and family counseling to support groups and free wigs, hats and scarves.

The year culminated in the consolidation of the Cancer Care Guild and the Founders Guild, now known as The Guild at Adventist Health Glendale, with installation of new officers.

Pictured below are The Guild board of directors.

Community Outreach 2017

The Adventist Health Glendale cancer services program reaches out to the community by hosting and participating in a number of health outreach activities.

Good nutrition during cancer treatment, March 13, 2017. Dietician Julie Ji held this informative class and healthy snacks were provided.

Bras for a Cause, April 29, 2017. This annual Soroptimist of Glendale sponsored event raises money and awareness for breast cancer. Supported by cancer services, a group of cancer patients and survivors submitted an entry for 'Bras for a Cause' and attended the fundraiser dinner. This year's entry won the Most Beautiful Award entitled, A Golden Goddess.

Cancer Survivors' Day, July 31, 2017. The 'Bravery in the Line of Cancer' themed event was attended by over 125 cancer survivors and their caregivers. Keynote speaker was cancer survivor and Glendale Police Department Public Information Officer, Tahnee Lightfoot. The Flame of Hope award was presented to the Glendale Police Department, for their continued support to Adventist Health Glendale. A special feature of this event included a performance by Trinity Rose, a 14-year old award-winning singer, songwriter and musician.

Cancer prevention through good nutrition and exercise, September 11, 2017. Adventist Health Glendale dietician, Julie Ji and athletic trainer, Junko Nakayama provided information regarding good eating habits and the value of regular exercise. Junko demonstrated some easy exercises. Samples of nutritious foods were provided. Pre- and post-survey questionnaires were distributed to participants. Follow-up regarding opportunities for improvement were undertaken.

Relay for Life, September 30, 2017. Cancer services donated snacks to this annual event.

Prostate cancer screening and colon cancer screening via occult blood tests, October 5, 2017. A prostate cancer screening was held at the cancer center with 79 participants. Fifty-seven occult blood testing kits were distributed for colon cancer screening. Physicians and family practice residents volunteered as well as many employees. Follow ups were conducted with patients and their physicians for any suspicious findings.

Adventist Health Glendale Goes Pink! Mammography Screening Program, October 2017. During the month of October, community leaders promoted breast cancer awareness. Cancer services hosted the Glendale Police pink cruiser for display. Other events included the Go Pink Glendale Galleria event, Massage Envy in Pink Partnership, Cafeteria Go Pink and free mammograms (13 free mammograms were provided to the community).

Christmas party, December 2017. An annual Christmas party at the cancer center featured wonderful music, food, and the opportunity to celebrate the season with staff, fellow patients, and survivors. The cancer services staff hosted this event, always mindful of the joy of giving and helping our patients at Christmas and throughout the year.

An inspiring evening at the Courage Awards

The power of a positive attitude, hope, love, and the support of family and friends was an inspiring theme throughout the recent Courage Awards recognition dinner, a celebration of cancer survivors and those dedicated to fighting cancer at Adventist Health Glendale. Courage Awards are presented bi-annually by the Cancer Care Guild, in partnership with the medical center's Foundation. Awards were presented to **Sara H. Kim**, M.D., medical director, radiation oncology; **Guadalupe Mendoza** and **Mary Nazari**, cancer patients; **Fran Buchanan**, community leader; and **Marianna Clarizio**, radiation therapist.

Buchanan, a well-known real estate broker, is a devoted supporter of the cancer center, specifically Ingeborg's Place Apart/Positive Image Center, which provides free wigs and a variety of free classes to anyone in the community with a cancer diagnosis.

Clarizio is an important member of the radiation therapy team, who treats hundreds of Adventist Health Glendale patients each year. A colleague praised her, saying: "She is extremely dedicated to our cancer program and our patients. She models the compassionate service we provide."

Dr. Kim joined Adventist Health Glendale's medical staff in 2003 and oversees the treatment of patients undergoing radiation therapy for various types of cancers. A former patient wrote recently of Dr. Kim: "She was so caring, and I will always be grateful for her expertise. Seventeen years cancer-free!"

Of Mendoza, a friend wrote: "She is a person who is always ready to help others. She has a great positive attitude." Mendoza supports the cancer center through her participation in events such as the annual Cancer Survivors' luncheon, including performances as a member of the CanDancers.

Nazari's recovery from cancer so inspired herself and family members that they have become devoted supporters of the cancer center and awareness programs. Although quite reserved, Nazari does not hesitate to share her story with others and encourage them to join the cause.

In addition to honoring special people, the Courage Awards event raises funds on behalf of the cancer center's free programs provided through Ingeborg's Place Apart/Positive Image Center.

Pictured from left are Fran Buchanan; Marianna Clarizio; Sara H. Kim, M.D.; Guadalupe Mendoza; and Mary Nazari.

Community Support

Free Classes and Services

Ingeborg's Place Apart / Positive Image Center
Wigs, hair cuts, caps and scarves provided free of charge. Services are provided from a licensed cosmetologist. Appointments are encouraged.

Chair yoga
Learn gentle yoga movements and relaxation techniques. Good for any level of fitness. Held Mondays and Wednesdays from 5:30PM- 6:30PM at the staff training center on the hospital campus. Wear comfortable clothing.

Knitting class
Learn the art of knitting. No previous experience required. Needles, yarn and instruction are provided. Classes are every Monday from 11:00AM-1:00PM in the Cancer Center Conference Room.

Fun with art
Express your creativity with other survivors. Classes are the second and fourth Friday of each month from 11:00AM-1:00PM in the Cancer Center Conference Room.

Jewelry making class
Learn to design and create jewelry. Supplies are provided. Classes are held the third Friday of each month from 12:00PM-2:00PM in the Cancer Center Conference Room.

Look Good, Feel Better
Cope with skin changes and hair loss using cosmetics and skin care products donated by the cosmetic industry. A trained volunteer cosmetologist gives individual consultations on the proper application of makeup. This class is sponsored by the American Cancer Society. Registration is required to attend.

Fitness classes
Recapture strength and balance during and after treatment and recovery. Classes held at the Therapy & Wellness Center, Tuesdays and Thursdays from 10:00AM-11:00AM. Mandatory assessments are required prior to first class.

Free Support Groups, Counseling, Classes and Imaging Services

Cancer support group
Designed for cancer survivors at any stage of cancer, from the newly diagnosed to those with years of survivorship. Caregivers are welcome. Meetings are held every Wednesday from 11:00AM- 12:30PM in the Cancer Center Conference Room.

Cancer grief and loss support group
This support group is open to survivors and anyone affected by cancer loss. Meetings are held the second and fourth Wednesday of each month from 6:00PM-7:30PM in the Cancer Center conference room.

Brain tumor support group
Open to people with primary brain tumors and brain metastases. Caregivers are welcome. Meetings are held the first and third Wednesday of each month from 6:00PM-7:30PM in the Cancer Center Conference Room.

Individual and family counseling
Counseling allows participants to explore issues related to the cancer experience. Provided at no charge.

Adventist Health Glendale Prostate Screening, October 5, 2017
Physicians: S.C. Lee, M.D., Sara Kim, M.D., Kamyar Ebrahimi, M.D., Ben Shenassa, M.D., and family practice residents: Norris Tran Duc, M.D., and Gloria Vo, M.D.

79 Participants		
43	Patients with normal findings	54%
16	Patients with normal PSA with BPH	20%
3	Patients with normal PSA with abnormal DRE	4%
3	Patients with normal PSA only	4%
3	Patients with abnormal PSA only	4%
3	Patients with abnormal PSA 7 and normal DRE	4%
5	Patients with abnormal PSA and BPH	6%
3	Patients with abnormal PSA and abnormal DRE	4%
Summary for 2017		
14	Abnormal PSA tests	18%
Summary for 2016		
7	Abnormal PSA tests	9%

*Percentiles less than 100% due to rounding.

Colon cancer screening:
57 males participated in occult blood screening. Of the 32 (56%) specimens returned, there were no positives.

Spiritual Reflection

AL GARCILAZO
Senior Chaplain

Clinging to Hope

A cancer diagnosis can be devastating, and the feelings that emerge can be overwhelming: fear, anger, guilt, remorse. Feelings of abandonment are also common. I've encountered cancer patients who believe God has abandoned them or is punishing them for something they did wrong. These feelings are all normal.

Yet, I always try to reassure patients that God is present in the midst of their pain and that there is one thing they can cling to: hope. Hope comes easy for some and is difficult to fathom for others, especially when facing a serious illness. I believe a hopeful attitude can be a source of strength when facing cancer.

If clinging to hope is difficult for you, then I encourage you to consider the following suggestions as articulated by the LIVESTRONG organization in their article *Finding Hope*:

Share your hopes with other people. Talk about hope with your friends, family and healthcare team. Include your feelings of hopelessness. If these individuals are good listeners, they will help you deal with these negative feelings.

Write down your thoughts and feelings about hope in a journal. Record helpful sayings, note your progress, and list the things that make you hopeful on a particular day. Include your feelings, as well as your hopes and fears.

Talk to a survivor. Sometimes it's helpful to meet with others who have been able to live fully despite a cancer diagnosis. What they have to say may surprise you and encourage you.

Find a support group. Support groups provide a safe environment to share experiences. Many individuals learn new ways to handle difficult situations and also get a chance to talk about emotions. Many find this very therapeutic.

Although a cancer diagnosis can be devastating, we can always cling to hope. I conclude with these inspirational words reminding us that God is present in the midst of our pain: "God is our refuge and strength, an ever-present help in trouble. Therefore we will not fear, though the earth give way and the mountains fall into the heart of the sea. The Lord Almighty is with us; the God of Jacob is our fortress." (Psalm 46, New International Version).

American Cancer Society

IRENE TAMAYO
Health Systems Manager
American Cancer Society

Invasive melanoma accounts for only 1% of all skin cancers, but causes the vast majority of skin cancer deaths – an estimated 9,730 in the US this year. Some 87,110 new cases of melanoma were diagnosed in 2017, most commonly among non-Hispanic whites, and the incidence has risen rapidly over the past 30 years. From 2004 to 2013, the rate increased 2-3% among adults age 50 and older, but had stabilized among those under 50.

Risk factors include a family history of melanoma and the presence of atypical, large, or numerous (more than 50) moles. High exposure to UV radiation from sunlight and indoor tanning is a risk for all skin cancers. Risk is also increased for people who burn easily or have naturally blonde or red hair; those who have a history of sunburns; are immunosuppressed and have a history of sunburns.

Gene mutations that increase melanoma risk can be passed down through families, but these account for only a small portion of melanomas. Genetic mutations may apply if several family members on one side have had melanoma; a family member has had more than one melanoma; a family member has had both melanoma and pancreatic cancer; or you have had more than one melanoma.

The American Cancer Society currently invests $21 million in skin cancer research grants to 64 scientists across the country. At Yale University, Leah Ferrucci, Ph.D., is developing a web-based intervention to reduce indoor tanning among young women recently diagnosed with a non-cancerous skin condition related to UV exposure. Dr. Ferrucci will also develop a method to prevent adolescent girls from trying indoor tanning, which could potentially result in fewer skin cancer cases and deaths. The Society recommends people avoid tanning beds completely.

At the University of Connecticut, Kyle Hadden, Ph.D., is investigating whether vitamin D, which the body creates naturally in the sun, can be used in the creation of new drugs to treat skin cancer. Dr. Hadden is working with vitamin D because it has been shown to inhibit a pathway in the body's cells which, if it mistakenly activates, may contribute to the development of a variety of tumors, including skin. Blocking malfunctioning pathways with vitamin D may be a treatment strategy for these tumors.

At the University of Chicago, Yu-Ying He, Ph.D., is focusing on another high-risk group for skin cancer: organ transplant recipients, whose numbers are growing as more people survive these procedures. The immune-suppressing drugs needed to prevent organ rejection leave organ transplant recipients highly vulnerable to the skin-damaging effects of UV exposure. Dr. He is looking at whether suppression of the immune system is the only factor at play or if other mechanisms make these patients more susceptible to UV damage. The hope is to develop targeted strategies to prevent skin cancer in this group.

The American Cancer Society promotes sun safety through public health campaigns such as Don't Fry Day and Slip (on a shirt), Slop (on sunscreen), Slap (on a hat). A recent partnership with the NFL has provided fans with free sunscreen at many games.

Multidisciplinary Surgical & Breast Tumor Conferences

DENISE CLEVELAND, RHIT, CTR
Cancer Data Manager

The conferences provide a forum for physicians to have meaningful discussions relating to the treatment of cancer on an individual patient basis. This promotes communication and collaboration for excellent patient outcomes at Adventist Health Glendale.

Adventist Health Glendale Tumor Board Conferences are held weekly, Wednesdays, at 7:00AM in Committee Rooms A/B.

The designated breast tumor board is held the 1st Wednesday of the month and co-moderated by a radiologist specializing in mammography, breast MRI and disease relating to the breast. Non-breast cases are not refused at these meetings when treatment decisions are needed.

The surgical tumor boards are designated for the 2nd, 3rd and 4th Wednesdays. Breast cases are not refused at these meetings when treatment decisions are needed.

The cancer registry staff gathers the information required for discussion including medical history and pertinent pathology and radiology materials for review. Multi-disciplinary tumor boards are moderated by a surgeon, medical oncologist or radiation oncologist. Both prospective and retrospective cases are discussed. Sometimes a case may be represented for further follow-up education and to report outcomes. Physicians are encouraged to bring cases they feel treatment discussion would be of benefit for both the physician and the patient.

Tumor boards provide the presenting physicians with the opportunity to obtain treatment information from the multi-disciplinary perspective. Physicians take with them the treatment recommendations to advise their patients accordingly of their options.

The American College of Surgeons requires that the number of cases presented annually is proportional to 15% of the analytic caseload and represents the institution's case mix. Our 2016 analytic caseload was 718 and 18% were presented at the tumor board conferences.

Total cases presented at tumor board, both analytic and non-analytic. Some of these cases are analytic from neighboring hospitals that may not have tumor boards.

The cancer registry participates in Cancer Program Practice Profile Reports (CP3R) and the Rapid Quality Reporting System as quality of care based on monitoring compliance with evidence-based guidelines supported by the American College of Surgeons.

2016 PRIMARY SITES DISCUSSED	CASES
ANUS	1
APPENDIX	3
BLADDER	6
BRAIN	1
BREAST	42
CERVIX, UTERINE	1
ESOPHAGUS	1
GALLBLADDER	1
HEAD/NECK	5
INTESTINE – Large	5
INTESTINE – Small	2
KIDNEY	5
LEUKEMIA	1
LUNG	5
LYMPHOMA	4
OVARY	1
PANCREAS	4
PENIS	1
PROSTATE	14
RECTUM	3
SKIN-Squamous Cell	1
SKIN – Melanoma	2
SOFT TISSUE	8
STOMACH	5
TESTIS	2
THYMOMA	1
THYROID	1
UNKNOWN PRIMARY	5
TOTAL	131

This total reflects sites presented. Some were represented at following meetings for further discussion and outcomes.

Continuing Medical Education Lectures 2017

Target Audience: Physicians, residents, nurses, and allied health professionals.

August 30, 2017

Lung Cancer: Screening, Diagnosis, and Surgery

Clayton Lau, director of radiology; Judy Liu, M.D., radiologist; and Randall Roberts, M.D., surgeon.

September 6, 2017

Lung Cancer: Pathology of Lung Cancer, Medical Oncology, and Radiation Oncology

Dariush Sahmedini, M.D., pathologist; Boris Bagdasarian, D.O., hematologist/oncologist; and Sara Kim, M.D., radiation oncologist.

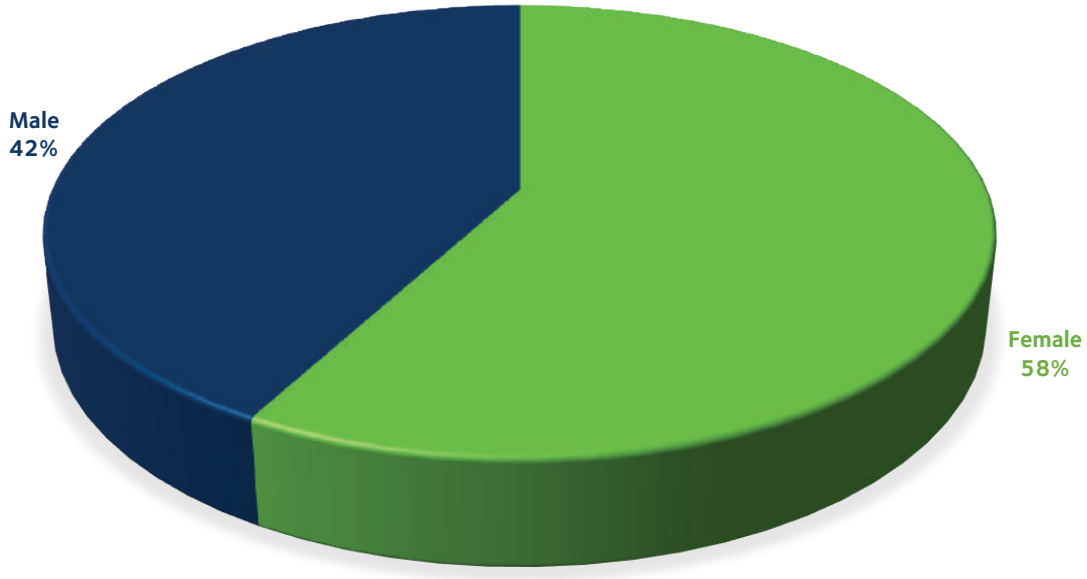
2016 Primary Sites Comparison

Primary Site	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
All Sites	547	567	578	624	627	609	564	618	731	725
Oral Cavity/ Pharynx	9	12	15	20	17	21	24	14	8	8
Esophagus	3	5	2	8	5	2	3	2	3	3
Stomach	19	11	23	18	20	17	14	17	26	26
Colon	46	51	55	57	56	59	44	49	64	57
Rectum rectosigmoid	21	23	23	21	16	18	18	14	27	30
Pancreas	15	11	16	21	14	19	14	15	16	9
Lung	45	53	65	82	62	63	57	79	65	69
Leukemia myeloma/ Hematopoietic	22	24	22	26	27	23	24	26	29	25
Soft tissue	4	1	3	4	3	6	4	5	5	11
Melanoma of the skin	10	7	6	7	11	14	5	14	13	11
Breast	88	120	101	91	120	115	103	131	178	173
Corpus uteri	17	14	21	15	21	18	17	23	19	25
Ovary	5	11	8	10	16	17	11	6	7	9
Prostate	38	30	29	43	40	33	32	32	36	42
Bladder	30	21	25	32	40	26	32	29	52	48
Kidney/Renal	8	21	7	10	12	14	16	15	13	14
Brain/Nervous system	47	49	36	55	47	29	27	33	42	42
Endocrine	32	26	41	34	39	35	36	26	47	39
Lymphatic system	28	28	32	27	27	29	33	40	34	29
Unknown primary	9	7	8	14	4	9	10	5	13	6

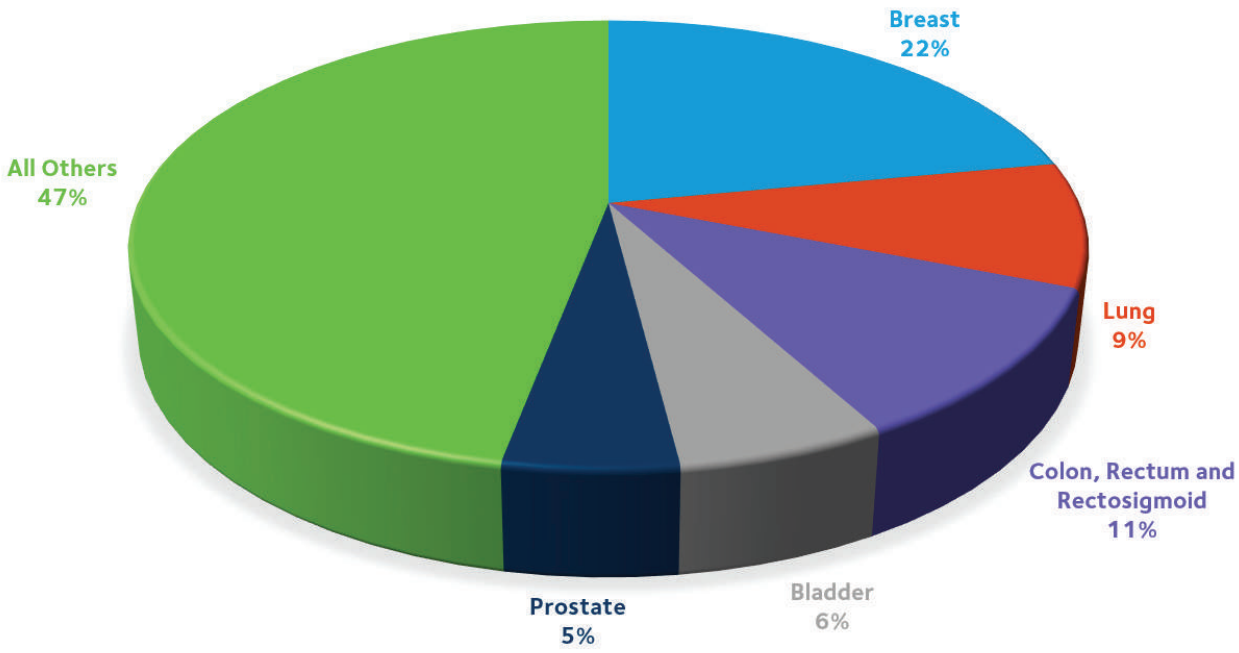
Includes analytic cases only (diagnosed and/or received first course of treatment at Adventist Health Glendale).

Facts & Figures

2016 MALE/FEMALE RATIO N = 786



2016 TOP FIVE SITES N = 786



2016 Primary Sites Table

Site Group	Total Cases*	Class		Sex		Stage							
		Analytic	Non-Analytic	M	F	Stage 0	Stage I	Stage II	Stage III	Stage IV	Unknown	Not Applicable	Missing
ALL SITES	786	725	61	328	458	37	175	136	101	111	88	77	0
BREAST	181	173	8	0	181	17	57	49	24	7	19	0	0
LUNG/BRONCHUS-NON SM CELL	68	62	6	39	29	0	12	6	15	22	6	1	0
COLON	61	55	6	27	34	4	6	16	8	14	7	0	0
BLADDER	53	48	5	42	11	13	18	10	1	3	3	0	0
PROSTATE	48	42	6	48	0	0	3	17	5	8	9	0	0
THYROID	35	34	1	8	27	0	18	3	8	3	2	0	0
RECTUM & RECTOSIGMOID	33	30	3	16	17	0	6	7	7	3	7	0	0
NON-HODGKIN'S LYMPHOMA	32	29	3	16	16	0	7	5	4	10	3	0	0
STOMACH	28	26	2	16	12	2	4	0	2	10	8	0	0
CORPUS UTERI	27	25	2	0	27	0	7	3	2	1	12	0	0
OTHER NERVOUS SYSTEM	23	20	3	9	14	0	0	0	0	0	0	20	0
BRAIN	22	22	0	16	6	0	0	0	0	0	0	22	0
HEMERETIC	18	15	3	8	10	0	0	2	0	1	1	11	0
KIDNEY AND RENAL PELVIS	16	14	2	9	7	0	6	1	3	2	2	0	0
SOFT TISSUE	12	11	1	7	5	0	4	3	2	2	0	0	0
MELANOMA OF SKIN	12	11	1	10	2	0	7	1	2	1	0	0	0
MYELOMA	11	10	1	5	6	0	0	0	0	0	0	10	0
CERVIX UTERI	11	10	1	0	11	0	3	2	4	0	1	0	0
OVARY	10	9	1	0	10	0	2	2	1	4	0	0	0
PANCREAS	9	9	0	5	4	0	3	3	0	2	1	0	0
LUNG/BRONCHUS-SMALL CELL	8	7	1	5	3	0	1	0	2	4	0	0	0
LIVER	7	6	1	5	2	0	0	1	4	1	0	0	0
TESTIS	7	7	0	7	0	0	4	1	0	0	2	0	0

Site Group	Total Cases*	Class		Sex		Stage							
		Analytic	Non-Analytic	M	F	Stage 0	Stage I	Stage II	Stage III	Stage IV	Unknown	Not Applicable	Missing
UNKNOWN OR ILL-DEFINED	7	6	1	4	3	0	0	0	0	0	0	6	0
LARYNX	6	6	0	4	2	1	3	1	0	1	0	0	0
TONGUE	5	4	1	4	1	0	1	0	1	2	0	0	0
OTHER ENDOCRINE	5	5	0	4	1	0	0	0	0	0	0	5	0
ANUS, ANAL CANAL, ANORECTUM	4	4	0	1	3	0	0	0	2	0	2	0	0
ESOPHAGUS	3	3	0	3	0	0	0	0	1	1	1	0	0
OROPHARYNX	2	2	0	2	0	0	1	0	1	0	0	0	0
SMALL INTESTINE	2	2	0	2	0	0	0	0	1	0	1	0	0
GALLBLADDER	2	2	0	1	1	0	0	0	0	2	0	0	0
BONE	2	2	0	0	2	0	0	1	0	1	0	0	0
OTHER SKIN	2	2	0	0	2	0	1	1	0	0	0	0	0
VULVA	2	2	0	0	2	0	0	0	0	1	1	0	0
OTHER FEMALE GENITAL	2	2	0	0	2	0	0	0	0	2	0	0	0
SALIVARY GLANDS, MAJOR	1	0	1	0	1	0	0	0	0	0	0	0	0
TONSIL	1	1	0	1	0	0	1	0	0	0	0	0	0
NASOPHARYNX	1	1	0	0	1	0	0	0	1	0	0	0	0
BILE DUCTS	1	1	0	1	0	0	0	1	0	0	0	0	0
RETROPERITONEUM	1	1	0	1	0	0	0	0	0	1	0	0	0
PERITONEUM, OMENTUM, MESENT	1	1	0	0	1	0	0	0	0	1	0	0	0
OTHER DIGESTIVE	1	0	1	0	1	0	0	0	0	0	0	0	0
NASAL CAVITY, SINUS, EAR	1	1	0	1	0	0	0	0	0	0	0	1	0
PENIS	1	1	0	1	0	0	0	0	0	1	0	0	0
OTHER URINARY	1	1	0	0	1	0	0	0	0	0	0	1	0

* Sorted from most to least common cancer.

Clinical Trials: Next Generation Sequencing

Technological advances in molecular diagnostics have evolved at an unprecedented pace. As a result, we are currently witnessing a molecular revolution. A revolution that has significantly affected the clinical trial industry.

Next-generation sequencing (NGS), also known as high-throughput sequencing, is the catch-all term used to describe a number of different modern sequencing technologies. As a result, we are able to sequence DNA and RNA much more quickly and cheaply than the previously used sequencing methods, and as such have revolutionized genomics and molecular biology.

NGS technology has influenced the clinical trial industry by providing the groundwork for the creation of powerful diagnostic tests, tests that could be used to detect cancer-specific mutations in the blood. For example, at the 2017 American Society of Clinical Oncology (ASCO) meeting, the results of a trial presented by Memorial Sloan Kettering found that a blood assay that measures circulating tumor DNA (ctDNA) proved useful in identifying genetic mutations that indicated the presence of cancer in the body. The assay was created using a NGS method.

Clinical trials conducted through Adventist Health Glendale's Office of Integrated Research supports the hospital's mission, "Living God's love by inspiring health, wholeness and hope." As part of the exceptional standards that accompany the accreditation awarded to the Cancer Center by the American College of Surgeons Commission on Cancer as a Community Comprehensive Cancer Program, we are able to effectively coordinate cancer research activities involving the various applications of treatments among surgeons, medical and radiation oncologists, diagnostic radiologists, pathologists and other cancer specialists, resulting in improved patient care.

Building relationships within the oncology research community has helped to expand our research activities, thereby offering patients treatment options that include innovative therapies targeted at reducing the burden of cancer. Clinical trials being conducted at Adventist Health Glendale include NGS, breast cancer, lung cancer, and biobanking.

If you are interested in participating in clinical research trials at Adventist Health Glendale, please contact the Office of Integrated Research at 818-409-8009.

Melanoma: A Top Three Dermatologic Malignancy

Don Mehrabi, M.D.
Dermatology

Melanoma is one of the top three dermatologic malignancies, and by those numbers, the most serious and deadly. As opposed to more commonly occurring basal cell carcinomas and squamous cell carcinomas, melanomas can exhibit much more unpredictable and dangerous behavior that can lead to morbidity and death. Melanomas are much more likely to change rapidly, invade quickly, and metastasize to other organs. Even those melanomas that are small, less invasive, and caught early, can have an unpredictable course. Fortunately, it is true that catching a melanoma early and performing a rapid and complete surgical removal is a highly successful way to treat and survive melanoma.

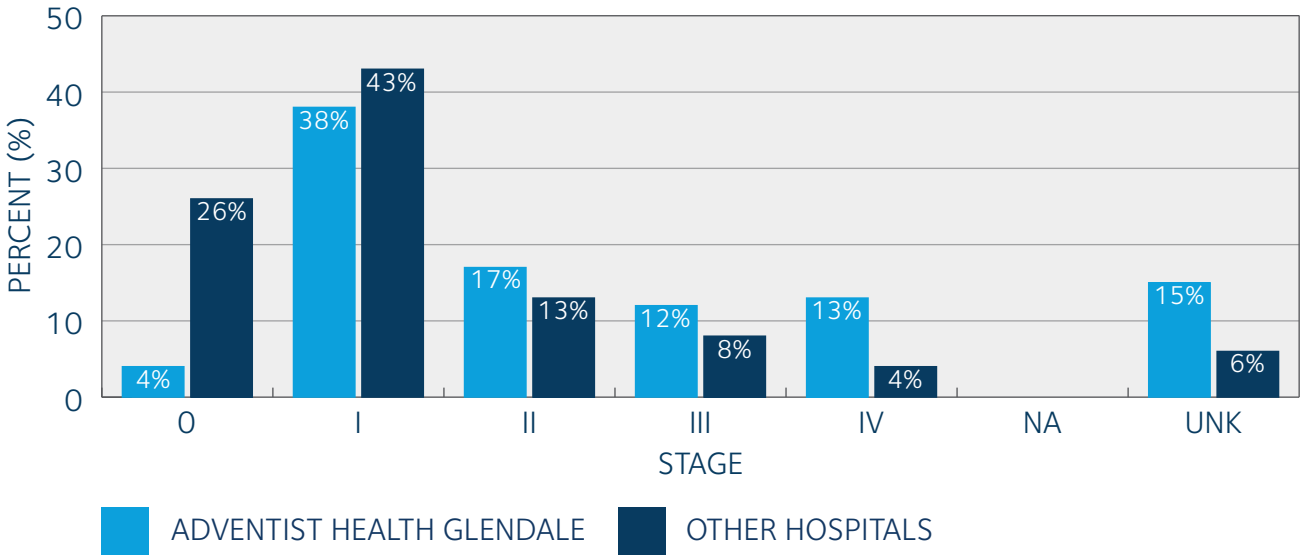
As can be seen by the graph below, the majority of cases at Adventist Health Glendale compared to the National Cancer Database (NCDB) are diagnosed at Stage I or less.

In addition, melanoma cases are evenly split between males and females vs. the remainder of the country where the ratio favors a 60/40 male predominance. (See graph on next page).

Melanomas are derived from melanocytes, the skin color-producing cells in the skin. These cells are not only in the skin, but also in the eyes, since both areas derive their cells from melanocyte precursors. Melanocytes give our skin its color, and, also are grouped together in moles. Melanoma is the result of a malignant (cancerous) transforma-

Continued on ***NEXT PAGE***

MELANOMA CONSIDERING STAGES
Skin Cancer Diagnosed 2010-2014
Adventist Health Glendale vs. All Hospital Types in the U.S.
All Diagnosis Types - Data from 1,376 Hospitals



tion of melanocytes. As there is melanoma of the skin, there is also ocular melanoma. Risk factors for melanoma include family history and sun exposure. Melanomas can initiate from previous moles or can start de novo (on its own without a previous mole present). A vast majority of new melanomas are the risk of cumulative sun exposure on sun exposed skin, especially if that sun exposure included a history of strong or intense sunburns. A first degree relative (parents, siblings, and children) with melanoma also increases an individual's risk of developing melanoma.

Melanomas are best identified through routine skin exams, both at home and in a primary physician's or dermatologist's office. Skin exams should be performed monthly with particular attention to any moles that seem new, different than other moles (ugly duckling sing), or changing shape in any way (ABCDEs) as follows:

Asymmetry: one half of the mole looks different than the other half.

Borders: moles should be round and brown; if the edges are scalloped, or if the mole looks like a country on a map, that would be suspicious.

Color: any other color than brown or dark brown (red, blue, black, white, purple) is suspicious.

Diameter: not used as often. Melanomas can be small or large.

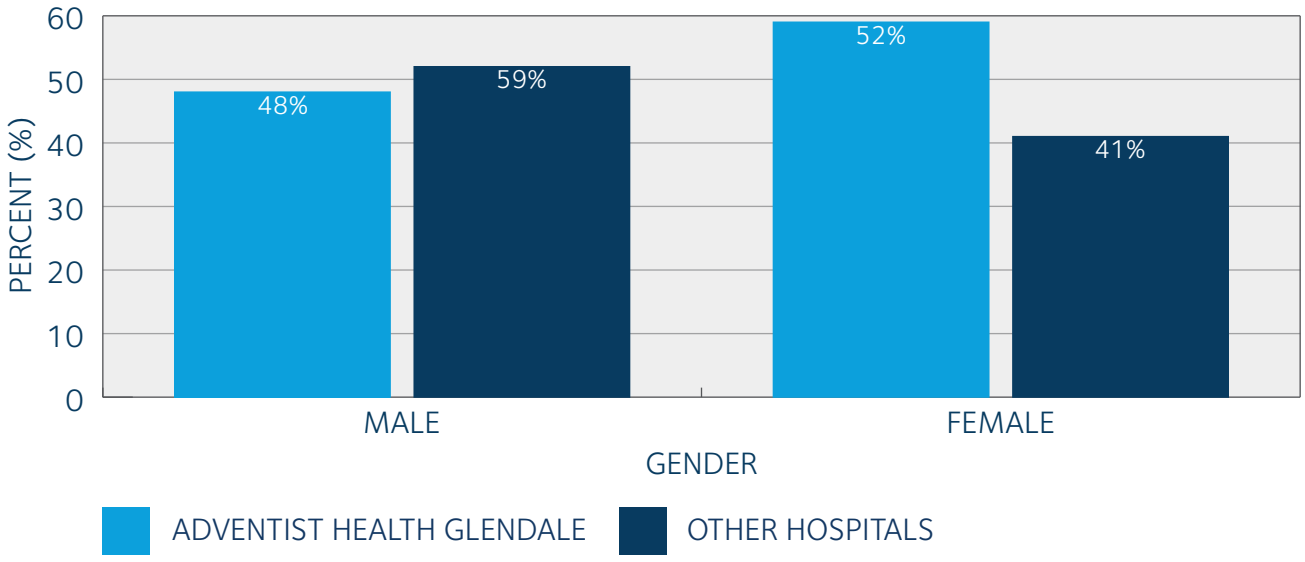
Evolving: any mole or growth that is changing in any way (size, shape, borders, and color) is suspicious.

Helpful patient tips in skin exams include looking between toes and paying attention to non-sun exposed areas (buttocks, genitals). It's recommended to ask a friend or family member to look at the back, and do full body photography including more detailed pictures of moles that seem more concerning to follow. Should a new lesion arise, it's important to take new pictures and compare to the previous pictures. Should there be any questions or issues, patients should seek a physician opinion immediately.

The treatment for melanoma depends on the depth of the tumor, lymph node involvement, (see *Melanoma Measures* article on pg. 32) and metastasis. All primary melanomas without evidence of obvious metastasis are treated with surgery. Thinner melanomas are excised with a very high five-year survival rate. Deeper melanomas require a more extensive surgery and possible lymph node removal. Likewise, invasive melanomas may also require more intensive screening (x-rays, CT scans, labs, etc.). In all cases, routine follow-up is strongly recommended.

MELANOMA CONSIDERING GENDER

Skin Cancer Diagnosed 2010-2014
Adventist Health Glendale vs. All Hospital Types in the U.S.
All Diagnosis Types - Data from 1,376 Hospitals



Age of diagnosis is in line and similar to the rest of the country. As seen in graph below there is a significant disparity when looking at the over 80 age group. More melanomas were diagnosed in this age group at Adventist Health Glendale vs. the national population.

Melanoma prevention and early detection is essential. Prevention involves using protective clothing, an SPF 30 or higher, and direct sun avoidance. Early detection can involve doctor office visits, self-photography, and routine monthly self-skin exams.

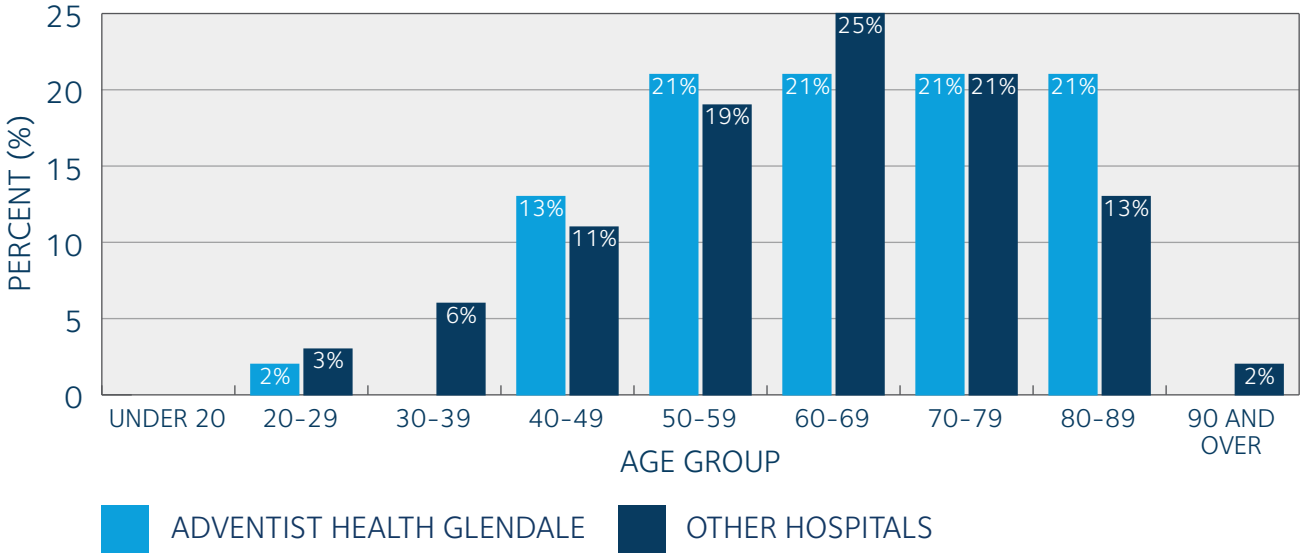
Dermatologists can aid in the education, prevention, and detection of melanomas. Dermatologists will biopsy any suspicious lesions first, and then will recommend the correct treatment based on the depth and characteristics of the lesion once confirmed. Routine excision and closures for melanomas can be done in the dermatologist's office for those confirmed melanomas of less than 0.75mm in depth on microscopic exam.

Those deeper than 0.75mm may need a sentinel lymph node biopsy (the first lymph node that the area drains to) and are usually referred to general surgeons for the excision. Additional screening can be done by a dermatologist or the general surgeon. There are now tests to indicate metastasis risk (such as DecisionDx by Castle Biosciences Inc.), so that screening is adjusted more or less aggressively depending on the result.

References

CA Cancer J Clin 2017; 67:7-30.
American College of Surgeons, NCDB Hospital Comparison Benchmark Reports, 2010-2014.
California: Cancer Facts & Figures 2017.
Adventist Health Glendale, Cancer Registry Database

MELANOMA CONSIDERING AGE GROUPS
Skin Cancer Diagnosed 2010-2014
Adventist Health Glendale vs. All Hospital Types in the U.S.
All Diagnosis Types - Data from 1,376 Hospitals



Melanoma and Understanding Pathology

Chandrika Seneviratne, M.D.
Pathology

Melanoma is the sixth most common cancer in the United States with an average lifetime risk of one in 39 men and one in 58 women. Stage I melanoma makes up approximately 78 percent of all newly diagnosed cutaneous melanomas per the American Joint Committee on Cancer.

Melanocytes normally reside along the basal cell layer of the epidermis of the skin and transfer melanosomes through their dendritic processes. These melanocytes lose their dendritic process and proliferate in a clonal fashion to form tumors. Histopathology is the gold standard of diagnosis.

Histologic types of melanoma

I. Superficial spreading melanoma
This is the most common variant as seen in Fig. 1. There is asymmetric proliferation of uniformly atypical melanocytes at all levels of epidermis and dermis with prominent junctional activity. The arrow in slide 1 demonstrates microsatellosis further illustrated in slide 2. Typically the cells are epithelioid with large amounts of cytoplasm.

II. Nodular melanoma
A dermal mass of dysplastic tumor cells without significant epidermal spread. Tumor cells are epithelioid with hyperchromatic nuclei. (See Fig. 2.)

III. Lentigo maligna melanoma
Atypical melanocytes in the basal layer of the epidermis occurring as nests and single cells with a contiguous proliferation without pagetoid spread. As seen in Fig. 3, cells are associated with pigment and large angulated hyperchromatic nuclei with prominent nucleoli. This is usually associated with solar damage.

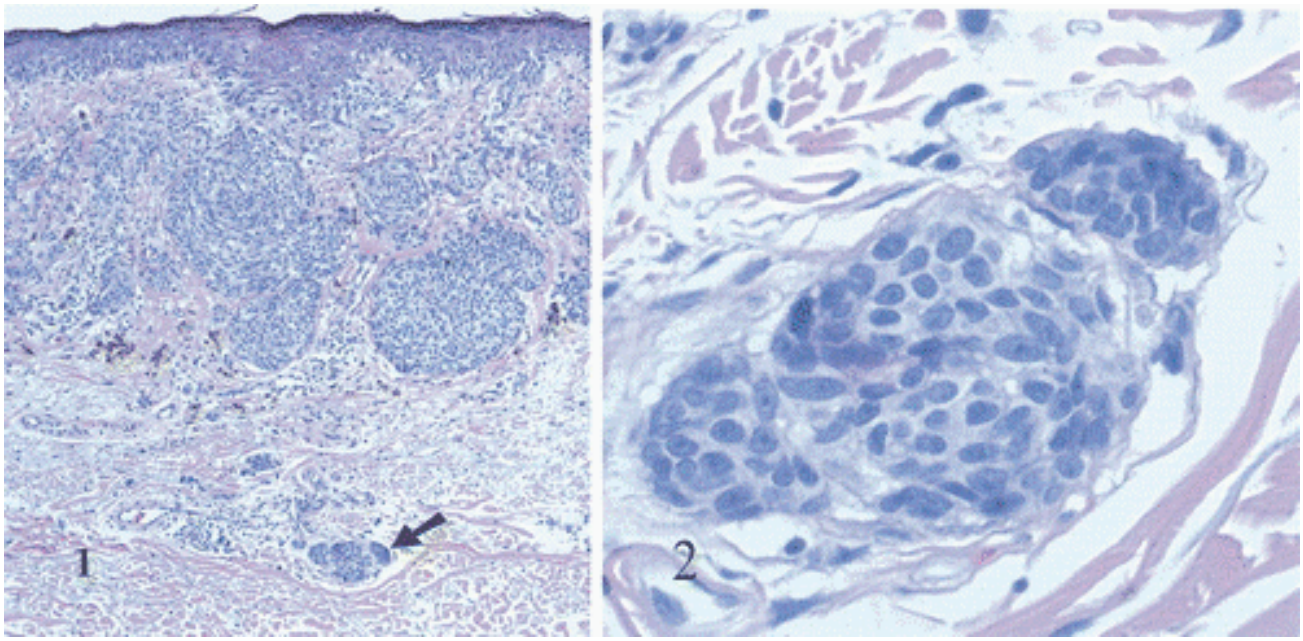


Fig. 1. ***SUPERFICIAL SPREADING MELANOMA*** *Courtesy of pathology outlines*

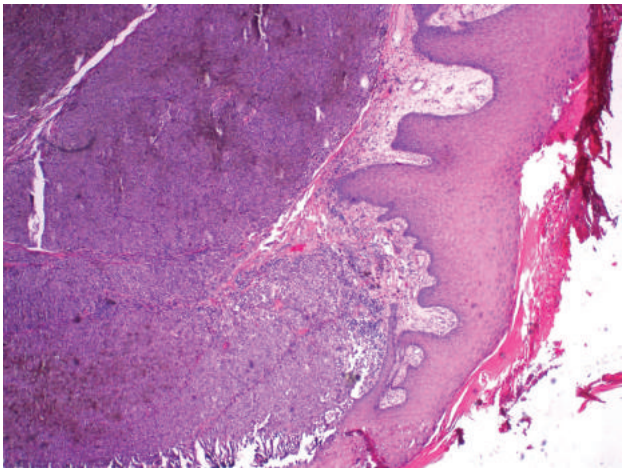


Fig. 2. ***NODULAR MELANOMA***

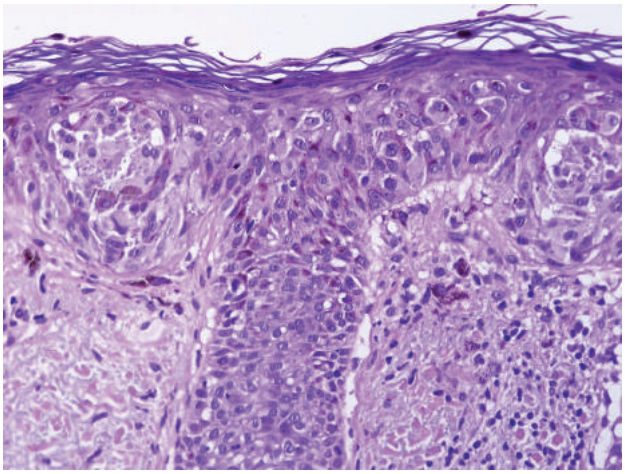


Fig. 3. ***LENTIGO MALIGNA MELANOMA***
Courtesy of pathology outlines

VI. Acral lentiginous melanoma

Broad lentiginous proliferation of melanocytes with atypia at dermoepidermal junction as seen in Fig. 4 a,b,c.

Histologic indicators of poor prognosis of melanoma

1. Increased Breslow thickness.
   - Thin melanoma <1 mm (lower risk of metastases). Comprises 70% of melanomas in the United States. These melanomas usually have a radial growth phase.
   - Intermediate melanoma 1-4 mm.
   - Thick melanoma >4 mm. These melanomas have a vertical growth phase with an expansive tumor filling the papillary dermis and or invasion of reticular dermis and fat. Once a melanoma enters a vertical growth phase it has the potential of metastases.
2. Ulceration (increased risk of spread and recurrence).

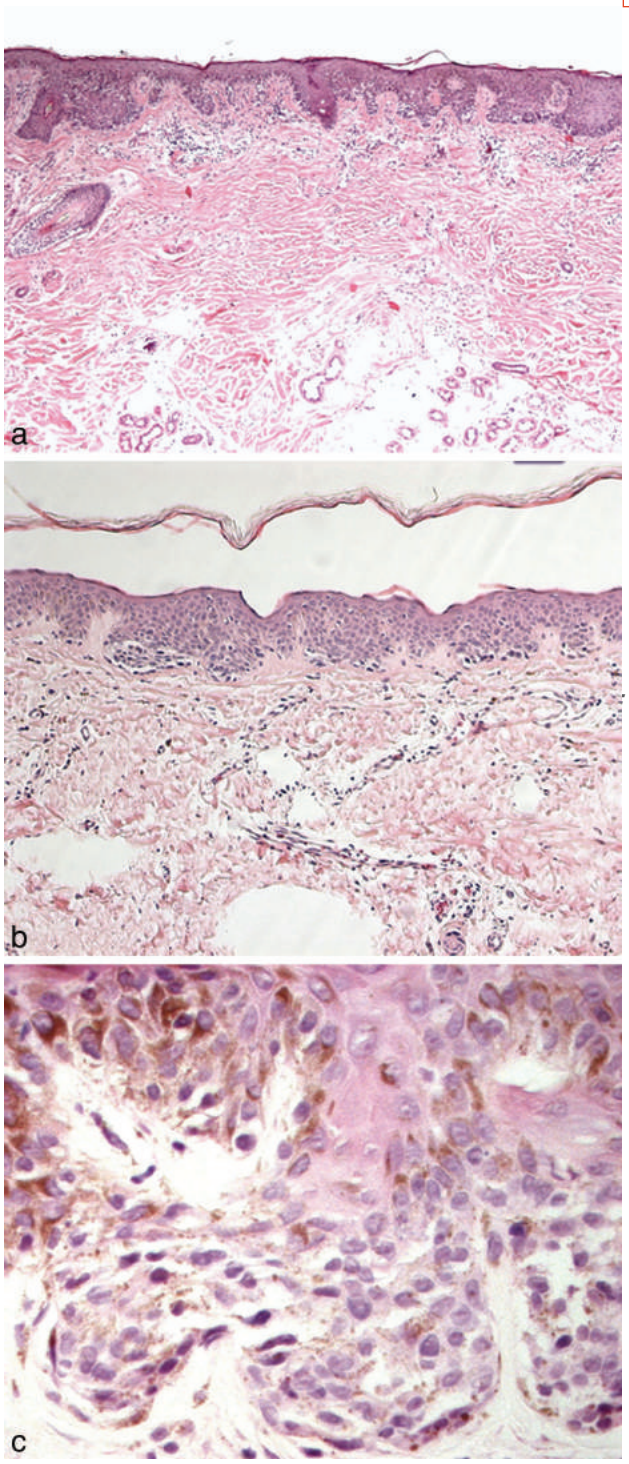


Fig. 4. ***LENTIGINOUS MELANOMA***
Courtesy of pathology outlines

3. Lymphovascular and perineural invasion.
4. Increased mitotic rate (measured as number of mitoses per square millimeter).
5. Regression.
6. Tumor-infiltrating lymphocytes.
7. Microsatellitosis.
8. Margin status whether melanoma cells can be seen at the edge of the biopsy sample.

Continued on ***NEXT PAGE***

Sentinel lymph nodes in melanoma

Approximately 20% of patients with cutaneous melanoma metastasize to the sentinel lymph nodes. (See Fig. 5.) Detection of positive sentinel lymph nodes indicates a poorer prognosis for patients with cutaneous melanoma.

Immunohistochemistry is particularly used in difficult cases or in lymph node metastases. Most widely used markers are S-100, Mart-1, and HMB-45 (see Fig. 6 and 7).

Fluorescence *in situ* hybridization

This involves the cytogenetic analysis of tumors through chromosomal aberrations. This method is particularly useful in cases where melanoma diagnosis is uncertain.

Recommendations for sentinel lymph node biopsy

1. Intermediate thickness melanoma (Breslow's thickness 1-4 mm).
2. Thick melanoma (Breslow's thickness >4 mm).
   - Recommended for staging purposes and to facilitate regional disease control.
3. Thin melanoma (Breslow's thickness <1 mm).
   - Overall risk of node involvement is estimated to be approximately 5.1%.
   - Considered in selected patients with high risk features (ulceration, mitotic rate more than 1/mm). These patients have been reported to have positive sentinel lymph nodes in up to 20% of patients.

Nodal disease, whether disease was occult or clinically apparent, was noted to be the most significant independent predictor of survival in patients with stage III melanoma.

Processing of sentinel lymph nodes

Sentinel lymph nodes of melanoma are examined routinely with processed material (formalin fixed) and discourage the use of frozen sections. The current recommendations propose more than one hematoxylin and eosin (H&E) stain section with additional immunohistochemistry.

In the 20% of cases with positive sentinel nodes, 16% are detected in the initial H&E stain slide and the remaining 4% detected with serial sectioning or immunohistochemistry. Evaluation of sentinel lymph node is certainly becoming a widespread technique and agree on its prognostic power for staging patients with cutaneous melanoma.

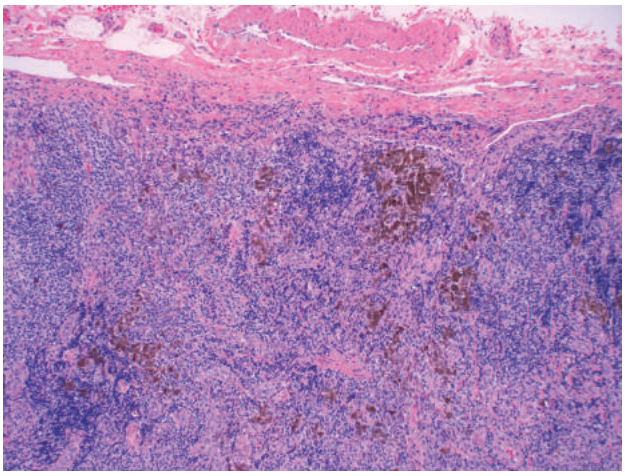


Fig. 5. ***SENTINEL LYMPH NODE WITH METASTASES WITH PIGMENT***

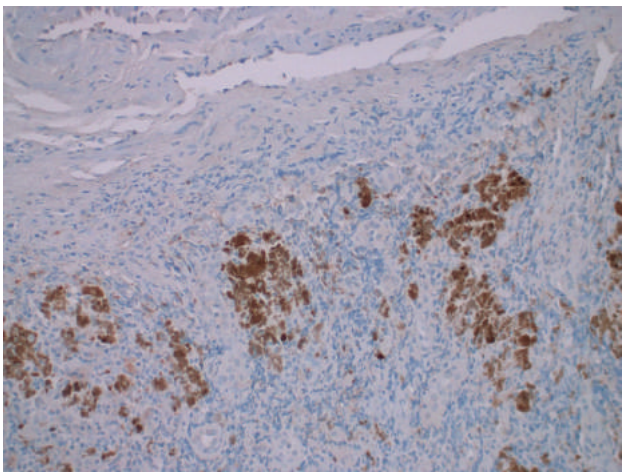


Fig. 6. ***S-100 IMMUNOSTAIN***

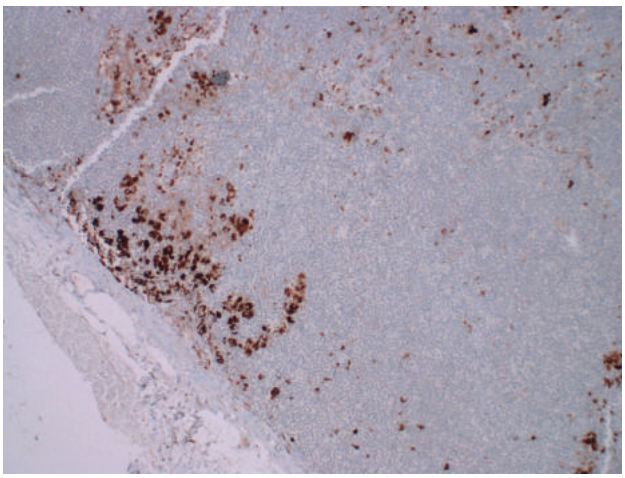


Fig. 7. ***HMB-45 IMMUNOSTAIN***

Gene mutation and melanoma

All patients with advanced cutaneous melanoma should have their tumors assayed for the presence of mutations.

BRAF mutations – The most common genetic alteration in melanoma is found in the BRAF gene. This mutation is found in about 50% of melanomas. Of these mutations, 90% occur at amino acid 600(V600E or V600k). Patients with tumors containing the BRAF mutations can be treated with BRAF inhibitors.

NRAS mutation – This mutation is found in about 20% of patients with melanoma.

Kit mutations – Mutation is found more commonly in melanoma that develops from mucous membranes, hands and feet or chronically sun damaged skin such as lentigo maligna melanoma. This is seen in 15-20% of patients with chronic skin damage.

Above mutations in melanoma tissue predict response to targeted inhibitors. Specimen characteristics such as type of fixative, duration of fixation and tumor quantity are some of the factors that influence the test accuracy.

Future testing is likely to analyze multiple genes and resistance to mutations to determine optimal therapy.

Pathologic Staging (pTNM) (Notes L and M)

Primary tumor (pT)
pTis: Melanoma in situ (i.e., not an invasive tumor: anatomic level I).

pT1: Melanoma 1.0 mm or less in thickness, with or without ulceration.

pT2: Melanoma 1.01 to 2 mm in thickness, with or without ulceration.

pT3: Melanoma 2.01 to 4.0 mm in thickness, with or without ulceration.

pT4: Melanoma greater than 4.0 mm in thickness, with or without ulceration.

Regional lymph nodes (pN) (applicable to invasive tumor only).

pN1: Metastasis in one regional lymph node.

pN2: Metastasis in two to three regional nodes or intralymphatic regional metastasis without nodal metastasis.

Pn3: Metastasis in four or more regional nodes.

Distant metastasis (pM) (required only if confirmed pathologically in this case).

pM1: Distant metastasis (documented in this specimen).

The diagnostic and prognostic information provided by the pathologic review of the surgical specimen greatly influence the selection of treatment for patients with melanoma and thus play a pivotal role in the outcome of these patients.

References

Lynette M.Sholl, M.D. et al, Arch Pathol Lab Med-Vol 140 2016.
Alfredo A. Santillan et al, J Clin Onco 28:481-486 2009.
Sandra L.Wong et al, J Clin Onco 30 2012.
Victor G.Prieto M.D., Ph.D. Arch PatholoLab Med- Vol 134 2010.
Andrez Slominski, M.D., Ph.D.; Arch Path Lab Med-Vol 125, 2001.
Pathology outlines.

Melanoma Therapeutic Options

BORIS BAGDASARIAN, D.O.
Hematology and Oncology

The advances in understanding melanoma and the immune system have set the stage for development of innovative immunotherapeutic and targeted options. A good proportion of patients have already derived significant long-term benefits and are now living years longer than in the past.

Within the next several phases is utilization of novel agents in combination to optimize disease control, extending survival and markedly improving the quality of life for all patients. Many other novel approaches are also on the horizon. The hope is to turn metastatic melanoma from a deadly disease into a manageable chronic condition. We will now take a look at the latest cutting edge recommendations.

Treatment recommendations based on stage of cancer

1. Stage 0 and IA
Tumor less than 1 mm thickness, no ulceration, mitotic rate less than 1 over mm^2.

Wide excision surgery.

Common follow-up recommendations for all patients with emphasis on nodes and skin, every 6-12 months for five years, then annually.

2. Stage IB and IIA
IB: Tumor less than 1 mm thick and has ulceration; or more than 1 mm but less than 2 mm thick, with no ulceration.

IIA: Tumor more than 1 mm but no more than 2 mm thick, with ulceration; or more than 2 mm but no more than 4 mm thick, with no ulceration.

Sentinel lymph node biopsy and wide excision surgery.

Common follow-up recommendations for all patients with emphasis on nodes and skin, every 6-12 months for five years, then annually.

3. Stage IIB or IIC
IIB: Tumor more than 2 mm but no more than 4 mm thick, with ulceration.

IIC: Tumor more than 4 mm thick with ulceration.

Surgery recommended for stage IIB or IIC with sentinel lymph node biopsy, if node positive, complete dissection of nodal basin is performed.

Routine imaging not recommended for stage 0, IA, IB, and IIA.

Consider baseline imaging for IIB which includes brain MRI, CT or PET scan. Consider imaging every 3-12 months to screen for recurrence or metastatic disease. Routine imaging to screen for asymptomatic recurrence or metastatic disease is not recommended after 3-5 years.

Observation or interferon alpha or clinical trial.

Genetic counseling for p16/CDKN2A mutation testing in the presence of three or more invasive melanomas, or with history of pancreatic cancer, melanoma, and astrocytoma diagnosis in an individual or family.

4. Stage III
Surgical excision is recommended with complete lymph node dissection for node positive disease.

Consider radiation therapy to nodal basin if stage IIIC disease is present with multiple lymph nodes involved or macroscopic extra-nodal extension.

Recommend imaging for baseline staging which includes MRI of brain, CT scan or PET scan. Consider imaging every 3-12 months to screen for

recurrence or metastatic disease. Routine imaging to screen patients for asymptomatic recurrence or metastatic disease is not recommended after 3-5 years.

Ipilimumab is recommended in the adjuvant treatment for patients; recommended regimen is 10 mg/kg IV every three weeks for four doses followed by 10 mg/kg every 12 weeks for up to three years.

Interferon alpha–2b: 20 million international units per meter square 4-5 times weekly for four weeks, then 10 million international unites per meter square subcutaneous three times weekly for 48 weeks, total of one year treatment. Significantly decreased disease-free survival and improved overall survival.

Nivolumab 3 mg/kg every two weeks for one year. Improved disease-free survival, more data needed for overall survival.

5. Stage IV Melanoma
In stage IV, the cancer has spread to other places in the body, such as the lungs, brain, liver, bone, or soft tissues, including the skin far from the site of origin.

Limited Disease

Treated surgically initially if amendable. At times systemic therapy is initiated to allow section.

Advanced Disease

Immunotherapy
Melanoma is an immune response disease, the older IL-2 and interferon therapies are toxic and ineffective for the majority of patients.

Anti PDL-1 antibodies
These class of antibodies bind the Programed Death 1 (PDL-1) molecule, which is responsible for deactivating our immune system. There are two FDA drugs approved, Nivolumab (Opdivo) and Pembrolizumab (Keytruda). Responses can range from 25-45%.

CheckMate 238 trial
Discovered drug Nivolumab was safer and more effective in treating patients versus Ipilimumab (as a single agent), with a significantly longer disease free survival. At 18 months, Nivolumab survival was 66.4% vs 52.7% with Ipilimumab.

Anti CTLA-4 antibodies
CTLA-4 is a negative regulatory molecule expressed by activated T-cells. Ipilimumab (Yervoy), was the first FDA antibody. The mechanism is presumed to involve the release of anti-tumor effector T-cells from CTLA-4 inhibition, thereby enhancing and increasing T-cell activity toward the tumor. Responses can range between 15-25%.

Combination CTLA-4 and PDL-1 antibodies
Ipilimumab/Nivolumab combination therapy is associated with improved overall response and disease free survival compared to single agent Ipilimumab. However, the toxicities are greater. Overall survival data is pending.

Targeted Treatment

BRAF inhibitors
BRAF is expressed in 50% of melanomas. The FDA has approved two drugs for the treatment of melanomas that express the V600k or V600E, Vemurafenib (Zelboraf) and Dabrafenib (Tafinlar).

MEK inhibitors
Specific targets for the MEK protein are available. Trametinib (Mekinist) targets the protein MEK responsible for cancer growth and survival.

Combination of BRAF and MEK inhibitors
The FDA has approved the combination of Trametinib with Dabrafenib. Results demonstrate better responses, and improved survival compared to single agent therapy of BRAF or MEK inhibition.

Role of Radiation Therapy in Melanoma

Sara H. Kim, M.D.
Radiation Oncology

Primary treatment for melanoma is surgical excision.

Adjuvant radiation is recommended for desmoplastic melanoma, positive margins, locally recurrent disease, Breslow > 4mm with ulceration or satellitosis. [1]

Post-operative radiation improved local control compared with published series.[2] Adjuvant radiation therapy should be considered for high risk patients, including positive surgical margins, multiple lymph node (LN) involvement, and large LN with extracapsular extension.

BELOW: Sara H. Kim, M.D. and cancer services director Dennis Quagliani with the new linear accelerator for radiation therapy

References

Ballo MT et al. Oncology. 2004 Jan; 18 (1):99-107. Radiotherapy for cutaneous malignant melanoma: rationale and indications.
Stevens G. et al. Cancer 2000 Jan 1;88: (1):88-94. Locally advanced melanoma: results of postoperative hypofractionated radiation therapy.

Radiation Therapy and Center Advancements

A major advancement in cancer treatment is being celebrated at Adventist Health Glendale with the installation of a Varian TrueBeam®® linear accelerator, the latest in radiation therapy.

The TrueBeam® places Adventist Health Glendale's radiation oncology treatment capabilities on a level with other major medical centers in Southern California and even across the world. It's the only cancer center in Glendale offering patients the advanced TrueBeam® technology.

"This is a significant step forward for the hospital and for the health of our community," said **Sara H. Kim**, M.D., radiation oncology medical director. "Most of all, cancer patients and their families are the beneficiaries. I cherish the times when I tell my patients, 'you are cancer free.'"

Greater Precision, Less Time

The TrueBeam® offers several updated features beyond the cancer center's previous linear accelerator, including shorter treatment times, lower toxicity, real time imaging in tracking the tumor, and extremely precise targeting of the radiation treatments.

"With this additional level of daily precision, it may be possible to further reduce dosage to surrounding normal tissue, and the accuracy of targeting the tumor will be improved," Dr. Kim explains. "With the added feature of RapidArc technology, the linear accelerator has the ability to deliver radiation with higher monitor units per minute, and this translates into less time a patient spends in treatment."

The TrueBeam® is equipped for stereotactic radiosurgery (SRS), which means the vast majority of SRS cases previously referred to other facilities can now be treated at Adventist Health Glendale.

The TrueBeam® is so precise that tumors located close to critical structures of the brain and other vital organs may be treated while sparing normal healthy tissue.

Cancer Center Renovations

As the new linear accelerator begins treating patients, the next phase in the cancer center's $4.5 million renovation and technology upgrade will soon get underway.

Improving patient and visitor comfort is a priority. Already completed is the linear accelerator vault, with more comfortable aesthetics and lighting, new flooring and ceiling.

Renovation of portions of the center's first floor is a four- to five-month project, which will include a new lobby and reception area on the north end of the building, spacious private dressing areas, updated infusion areas and public restrooms.

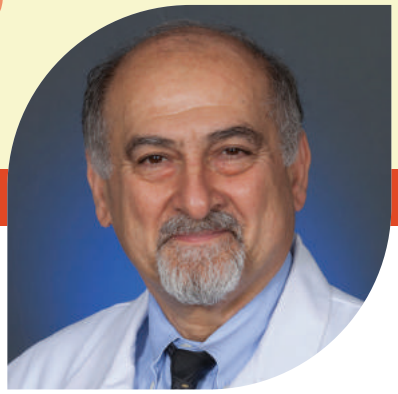
During the renovation, infusion patients will move to another part of the center and continue their treatment without interruption.

Funding Campaign Continues

Most of the project's funding is already raised through the hospital's capital investment and other local philanthropy. However, the Adventist Health Glendale Foundation is working to raise the final $1 million of the project.

A meaningful and personal way that individuals can support this project is by making a tribute gift honoring a loved one, a physician colleague, nurse or caregiver. Special recognition will be given for gifts of $2,500 and above. To make a donation, contact the Foundation at 818-409-8055 or go online to www.ahglendalefoundation.org

Melanoma Measures



Simon Keushkerian, M.D.
General and Vascular Surgery

Beginning April 2016, the American College of Surgeons initiated a new CP3R surveillance measure for melanoma. The study was implemented to coincide with the topic of the *2018 Cancer Services Annual Report* for quality of care of melanoma patients.

Guideline

- Completion lymph node dissection use after positive sentinel lymph nodes biopsy (MCLND) (>.75 mm in depth).
- At least 10 regional lymph nodes are removed and examined in axillary lymph node dissection (M10AxLN).
- At least five regional lymph nodes are removed and examined in inguinal lymph node dissection (M05lgLN).

Problem Statement

To identify the practice trend at Adventist Health Glendale in the sampling of lymph nodes with the diagnosis of melanoma of the skin.

Impact, opportunity, evidence-based

To improve survival of patients diagnosed with melanoma based on the findings of metastases to inguinal and axillary lymph nodes.

Process

In February 2017, the Adventist Health Glendale cancer committee elected to write this year's annual report on melanoma, utilizing the benchmark of the Commission on Cancer quality care measures. It was decided to perform a study encompassing when this measure was initiated (April 2016) to the end of 2016. During the nine month period of 2016, there were only three patients with melanoma that had axillary lymph nodes removed.

Analysis and Methodology: Axillary

Of the three patients seen within this time frame, none met the criteria. (See Table 1.)

Analysis and Methodology: Inguinal

During the same time frame, there was one patient that had inguinal lymph nodes removed.

The one patient met criteria and had greater than five lymph nodes removed. (See Table 2.)

Summary

In summary, Adventist Health Glendale had one patient during 2016 that met the criteria of the CP3R melanoma measure for completion lymph node dissection use after positive sentinel lymph node biopsy with a depth of >.75mm. This patient's work-up was compliant with the guideline of having five or more lymph nodes removed. The patient had seven lymph nodes removed.

Follow-up

The above information was provided to cancer committee on November 14, 2017 and will continue to be monitored annually.

This work was done in collaboration with the Adventist Health Glendale cancer registry data.

Table 1. ***ANALYSIS AND METHODOLOGY: AXILLARY***

	Melanoma cases diagnosed with lymph nodes removed	Cases where sentinel lymph nodes were positive	Cases where depth of invasion was >.75mm	Cases that met criteria of CP3R guideline with 10 lymph nodes removed
April–December 2016 axillary lymph nodes removed	3	0	0	0

Table 2. ***ANALYSIS AND METHODOLOGY: INGUINAL***

	Melanoma cases diagnosed with lymph nodes removed	Cases where sentinel lymph nodes were positive	Cases where depth of invasion was >.75mm	Cases that met criteria of CP3R guideline with five or more lymph nodes removed
April–December 2016 inguinal lymph nodes removed	1	1	1	1

Time Frame Study: Breast Cancer

Quality Improvement Measure, Standard 4.7

At cancer committee on November 15, 2016, Linh Chen, M.D., medical director of mammography, stated that the Southern California Radiology Association had established a quality improvement initiative for 2017. Adventist Health Glendale is participating in this initiative. (Subsequently updated at cancer committee on February 16, 2017 and September 19, 2017.)

Problem Statement

Providing optimal diagnostic services from the time of an abnormal diagnostic mammogram identified to the date of biopsy. Through the efforts of the Breast Cancer Surveillance Consortium (BCSC) a performance benchmark was derived. The national average of business days from diagnostic mammogram to needle/core biopsy was seven days.

Performance with ACOS guidelines, CP3R:
As an American College of Surgeons Community Comprehensive Cancer Program (CCCP), Adventist Health Glendale participates in the Cancer Quality Improvement Program (CQIP). In the CQIP Annual Report of 2016 (updated February 2017), it is noted that data reflected:

BREAST, 2014, nBx: Image or palpation-guided needle biopsy (core or FNA) is performed for the diagnosis of breast cancer at the 89.8% level. This was compared to the Commission on Cancer (CoC) data for our program type (CCCP) of 91.5%. Image or palpation-guided needle biopsy (core or FNA) is performed to establish diagnosis of breast cancer. CP3R data as of January 13, 2017.

Plan

Our study is focused from the time of an abnormal diagnostic mammogram to the biopsy and diagnosis of breast cancer. Develop a team to track the patient from diagnostic mammogram to the biopsy and diagnosis of breast cancer within the Adventist Health network.

Goal

Improve the time frame from initial screening mammogram to diagnostic mammogram and then from diagnostic mammogram to definitive diagnosis with biopsy to initiate treatment of the patient's cancer within the network. Goal is to meet the national or regional benchmark. If the benchmark is not available, then recommend 10% improvement from last year.

Process

Utilize national average data. If not available, utilize previous year data for comparison.

Analysis and Methodology: NCBC = National

(See Table 1.)

Summary

During the 1st quarter, 63 patients returned for a diagnostic mammogram. Some of the delay was noted due to patient preference and authorization requirements. Anywhere from 75-80% of the diagnostic mammograms required authorization. It takes between five to 10 business days to obtain authorization.

Adventist Health Glendale is below the national benchmark of seven business days. No benchmark found for number of days from screening mammogram to diagnostic mammogram. Therefore, we compared it with last year's data. We saw improvement from 17.5 to 13.9 business days.

Recommendations

Contact patient directly once the screening mammogram result becomes available and schedule diagnostic mammogram at the time of calling if no prior authorization is required. Work with patient access department to evaluate further process improvements.

Follow-up

Assign a dedicated staff member to notify patient and schedule patient for the follow up at time of notification. For those requiring authorization, send the patient information to scheduler for authorization process to start immediately. Compare available data if there is any improvement. Modify the process when necessary for improvement. Continue to monitor.

TABLE 1. ***ANALYSIS AND METHODOLOGY: NCBC = NATIONAL***

2017	Number of days from screening mammogram to diagnostic mammogram (Number of patients)	2016 data from screening to diagnostic mammogram	Number of business days from diagnostic mammogram to needle/core biopsy (number of patients)	NCBC benchmark: Number of business days from diagnostic mammogram to needle/core biopsy
1st Qtr	**13.9 days (63)**	**17.5 days**	**5.8 days (28)**	**7 days**

Cancer Patient Care Improvement

New Lung Cancer Screening Technology for a Predominant Population of Smokers, Standard 4.7

A quality improvement was identified for the immigrant population of Glendale, CA where smoking rates per capita are some of the highest in all of Los Angeles County. The American Cancer Society states that lung cancer is the leading cause of cancer related deaths nationally.

Prompt

Studies at Adventist Health Glendale statistically recognize that we are diagnosing lung cancer predominantly in the stage III and stage IV range. Five-year survival rates for lung cancers detected in stages I and II can be 35-50% higher than those detected in stage IV.

Problem Statement

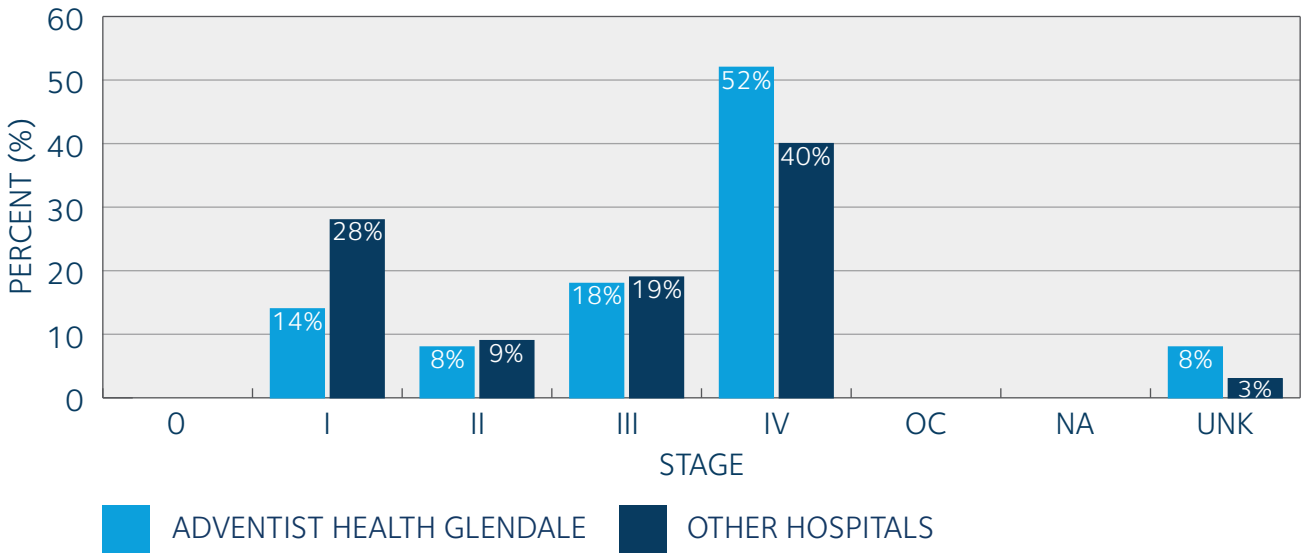
There was no cohesive early detection program for screening and following these patients who were high risk for the development of lung cancer.

Criteria

Per National Lung Screening Trial (NLST) and National Comprehensive Cancer Network (NCCN) guidelines: target population for low-dose CT screening should include individuals 55-77 years old, have smoked a pack of cigarettes per day for 30+ years and stopped smoking less than 15 years ago or are currently a smoker.

LUNG, BRONCHUS - NON-SMALL CELL CARCINOMA CONSIDERING STAGES

Cancer diagnosed 2013-2015
Adventist Health Glendale vs. All Hospital Types in the U.S.
All Diagnosis Types - Data from 1,387 Hospitals



Community Partners

a. Referring physicians
b. American Lung Association
c. American Cancer Society
d. INVIVO
e. National Comprehensive Cancer Network (NCCN)
f. American College of Surgeons (ACS)
g. Oncology Nursing Society (ONS)
h. American College of Radiology (ACR)

Process

During the 2nd Qtr of 2017, Adventist Health Glendale was in the process of software implementation. Our radiology department is ACR approved. Medicare and other insurance companies provide reimbursement for this screening. Our marketing department is developing a plan to advertise, educate patients and physicians from their individual perspectives.

Plan

Our goal is to implement software no later than Q4 2017 and screen a minimum of 75 individuals in 2018. Software provides critical tools to aid with the identification, tracing, and management of relevant information to help physicians reach a quick and definitive diagnosis.

Adventist Health Glendale will develop and implement a communications plan to increase awareness of the importance of early detection via low-dose CT screening for lung cancer. This communication will target physicians and the Glendale community. Eliminating barriers to care, most insurance companies and Medicare are accepting low-dose CT screening when the criteria is met. Navigation through the process will include education through brochures and flyers designed for both physicians and patients. A patient navigation component will also be included in the design and implementation of this lung health program.

Implementation

During November of 2017, the program was implemented to screen patients that fit the high risk criteria. Education was raised through on-line risk assessments via the hospital website, press releases, and flyers. Physician order is required.

Follow-up

Patients are to be followed at appropriate intervals to monitor both patients without nodules and those who are found to have an indication.

Quality Improvement: Oncology Unit

Infection Control 2017

Clostridium Difficile Reservoirs, Standard 4.8

A quality improvement infection control study implemented on the oncology unit (2-East) during March of 2017.

Prompt

The quality improvement initiative began due to two incidences of hospital acquired *Clostridium difficile* infection in March of 2017. A unit based council meeting in February 2017 reported incidence of curtains from isolation rooms not being changed after discharge.

Problem Statement

Hospital curtains that surround patients' beds to provide privacy have been shown to be contaminated and can be a source of pathogens on the health care provider's hands. Since health care providers are less likely to perform hand hygiene after contact with inanimate objects such as curtains than direct contact with patients, the pathogens on the curtains can travel to patients via the contaminated hands of the health care provider. Since privacy curtains are normally not changed until visibly contaminated or at routine frequency, they may represent a reservoir for epidemiologically important health care associated pathogens such as MRSA, VRE, *Acinetobacter*, *C. difficile* or other multidrug resistant pathogens. (Infection Control Report)

Recommendation

Change curtains at discharge of patients classified as 'Contact Precautions'.

Performance

Oncology unit department (2-East) "Curtain Change Project" for patients with contact precautions began after March 2017 when two patients had hospital acquired *C. difficile* infections. This project has shown substantial improvement in controlling spread of infection.

Process/Plan

Data table developed that includes:

- Room number
- Admission date
- Isolation type
- Date discharged
- Curtains changed

Each time an isolation patient is admitted, their information is added to this table for monitoring.

Goal

To continue to have no incidences of hospital acquired *C. difficile* infections.

Hospital Acquired	Jan 2017	Feb 2017	Mar 2017	April 2017	May 2017	June 2017	July 2017	Aug 2017	Sept 2017
C. difficile Infections	0	0	2	0	0	0	0	0	0

Summary

During the time period of implementation and monitoring (January 2017 to September 2017), there have been no hospital acquired *C. difficile* infections on the oncology unit.

Recommendations/Follow-up

Continue process to monitor isolation precaution patients and change curtains at discharge.

Supporting background information from health agencies

It has been found by the CDC that antibiotic resistance threats in the United States categorizes *C. difficile* as one of only three micro-organisms labeled as the highest threat level of urgent, noting 250,000 infections, 14,000 deaths, and $1 billion in excess medical costs annually. Effective treatment of *C. difficile* infection (CDI) can be challenging. In two recent studies of patients with concomitant hematologic malignancies and CDI, 61.0% and 49.3% of patients experienced CDI treatment failure (Yoon 2014, Parma 2014, respectively). Furthermore, in Parmar and colleagues' study, 20.5% of patients had recurrent CDI.

Sustained clinical response of CDI treatment is critical, particularly since this infection can cause deleterious outcomes in patients with cancer.

NCCN Guidelines Version 2.2017 – Prevention and Treatment of Cancer Related Infections: Patients with recent antibiotic therapy or recent chemotherapy are at risk of developing *C. difficile* assay. The link between fluoroquinoline use and severe *C. difficile* as well as MRSA infections provides an additional cautionary note regarding excess use of fluoroquinolones.

Centers for Disease Control recommends: Carefully clean hospital rooms and medical equipment that have been used for patients with *C. difficile*. Ensure adequate cleaning and disinfection of environmental surface and reusable devices, especially items likely to be contaminated with feces and surfaces that are touched frequently.

Extensive environmental contamination has been demonstrated in numerous outbreaks. Colonized sites have included bed rails, bedside tables, surfaces of ventilators, sinks, suction equipment, mattresses, resuscitation equipment, curtains, slings for patient lifting, mops, buckets, door handles, stethoscopes, incubators, and computer keyboards. (Am J Infect Control 2010;38:S25-33)

The CDC/Hospital Infection Control Practices Advisory Committee guidelines for environmental infection control in healthcare facilities and sterilization and disinfection in healthcare facilities should form the basis for institutional policies regarding surface disinfection.

OSHA: 29 CFR 1910.1030 recommends: Bag or otherwise contain contaminated textiles and fabrics at the point of use. (Routine Handling of Contaminated Laundry)

Infection Control Hosp Epidemiol 2008;29:1074-1076 stated that 4% of hospital privacy curtains were contaminated with *C. difficile*. Hospital primary curtains were frequently contaminated with pathogens, and these organisms could be acquired on hands.

Quality Improvement: Language Barrier

Cancer Registry Communication Barrier with Armenian Population, Standard 4.8

A quality improvement for the cancer registry was noted when we were not receiving our patient follow-up letters back. There were occasional phone calls from patient family members and survivors asking why they had received a letter from us that they could not read because it was in English and they only are able to read and communicate in the Armenian language.

Prompt

There is a barrier for the registry to obtain treatment and survival follow-up from our Armenian population due to correspondence provided only in English.

Recommendation

The problem of lack of patient follow-up letters being returned was brought to the attention of cancer committee on February 21, 2017 to discuss how to resolve the problem in communication and education regarding their cancer care. The committee recommended that the registry contact our Adventist Health Glendale CINAHL Information Systems Education Library to obtain information regarding translation of our patient follow-up letter as a quality care improvement. The registry was advised that this library has the means to prepare an electronic follow-up letter so that we may send it to our patients who speak only Armenian.

Process

The registry data manager printed a patient follow-up letter and presented it to the librarian for review. The librarian provided the follow-up letter to the translator/transcriber to convert the English language letter to the Armenian language.

Goal

To send Armenian patients their follow-up letters in their native language to eliminate the communication barrier.

Summary

At the September 19, 2017 cancer committee meeting, the translated patient follow-up letter was distributed to the cancer committee for review.

Recommendation/Follow-up

Armenian patient follow-up letters are to be utilized for those patients in our community who are not able to read English.

Cancer Committee

A special thank you to the cancer committee members for their dedicated leadership and efforts to advance cancer patient care at Adventist Health Glendale.

Member	Specialty/Department
Boris Bagdasarian, D.O. Chairman, Cancer Committee	Medical Oncology
Emillie Battig, RN Marc Cruz, RN, Manager	2-East Oncology; Nursing Director; Nursing Administration
Wende Brookshire-DePietro, RN Gus Lomeli, Alternate	Home Care/Hospice/ Administrative Director
Irene Bourdon	Healthcare Foundation President
Sam Carvajal, M.D., Physician Liaison Simon Keushkerian, M.D., Alternate	Surgery
Denise Cleveland, RHIT, CTR	Data Manager; Cancer Registry
Sharon Correa, Administration	VP and CIO
Val Emery, RHIA Joan Burns, RN, Alternate	Director, Organizational Performance/Quality Manager
Sharon Fill	Clinical Educator
Julie Fu	Case Management/Social Work
Amy Fuller, RN, OCN	Manager, Cancer Services Navigator
Al Garcilazo	Senior Chaplain
Julie Ji, RD Barbara Schons, RD, Alternate	Nutrition Services
Nicole Kalout	Ingeborg's Place Apart/Positive Image Coordinator
Sara Kim, M.D.	Radiation Oncology
Cynthia Klinger, MFT	Focus on Healing Coordinator
Sze-Ching Lee, M.D.	Urology

*Continued on **NEXT PAGE***

Member	Specialty/Department
Judy Liu, M.D. Linh Chen, M.D., Alternate	Radiology
Allen Molina, RN, OCN	Infusion Center
Dennis Quagliani	Director, Cancer Services
Cristy Quon Viktoriya Stepanyan, Alternate Jonathan Nasseri, Director	Palliative Care Case Management/Social Work
Chandrika Seneviratne, M.D. Michele Cosgrove, M.D., Alternate	Pathology
Tracy Sanders	Past - Positive Image Coordinator
Irene Tamayo	American Cancer Society
Suzanna Tamazyan, RN	Infusion Center
Lily Villalobos	Clinical Research Director
Marion Watson, PT, MBA Jan Adduci	Rehabilitation

Class of Case Collaboration

Class of Case

Analytic: Cases that are first diagnosed and/or receive all or part of their first course of treatment at Adventist Health Glendale.

Non-Analytic: Cases that have been diagnosed and have received their entire first course of treatment elsewhere and are first seen at Adventist Health Glendale for subsequent care.

Collaboration

To accomplish the goals of supporting a comprehensive community cancer program requires time and dedication. The contributions of the medical staff, nursing staff and many other professionals who have offered their expertise for the implementation of our cancer program throughout the year are greatly appreciated. Special recognition is given to all members of the cancer committee and the cancer registry for their involvement in preparing this annual report.

Directory

DEPARTMENT	EXT.
Admitting	8142
Cancer Registry	8174
Cancer Services and Radiation Therapy	8198
Clinical Trials	8009
Chaplains Office	8008
Focus on Healing	3530
Foundation	8055
Infusion Center	8077
Ingeborg's Place Apart/Positive Image Center	8218

Our Mission

Living God's love by inspiring health, wholeness and hope