

2014

Annual Report (2014): Cancer Center Statistical Report

Lehigh Valley Health Network

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RING FOR
LOVE

RING FOR
HOPE

2014

THE CANCER CENTER
STATISTICAL REPORT



RING FOR
COURAGE

WELCOME

We are pleased to present the Lehigh Valley Health Network (LVHN) Cancer Program's 2014 Statistical Report, featuring data about our cancer cases in 2013, as well as information about our cancer services. Cancer care programs offered by LVHN include prevention, detection, diagnosis, genetics, patient navigation, nutritional services, social and psychological support, rehabilitation, clinical trials, multidisciplinary and coordinated care, surgery, radiation, chemotherapy and hemophilia care.

AMONG OUR ACCOMPLISHMENTS

LVHN's Cancer Program has achieved a three-year reaccreditation with commendation 2014-2017 Silver Level, by the American College of Surgeons Commission on Cancer (ACOS/CoC).

OUR CANCER PROGRAM'S BREAST HEALTH SERVICES HAS ACHIEVED

- ▶ Reaccreditation by the National Accreditation Program for Breast Centers (NAPBC), napbc-breast.org
- ▶ Designation as a Certified Quality Breast Center from [National Quality Measures for Breast Cancer](#) (NQMBC)
- ▶ Breast Center of Excellence designation from the [American College of Radiology](#) (ACR)

In February 2012, our department of radiation oncology received three-year full accreditation from the American College of Radiology/American Society for Therapeutic Radiation Oncology.

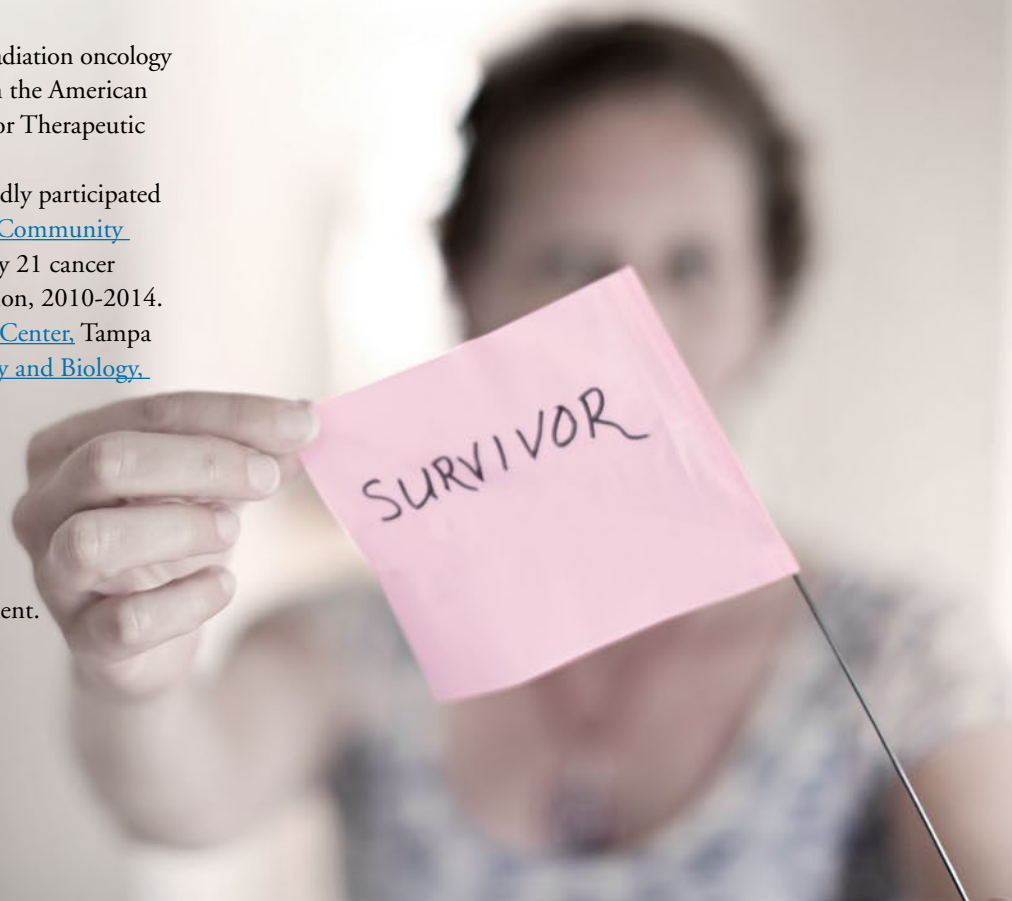
The LVHN Cancer Program also proudly participated in the National Cancer Institute's (NCI) [Community Cancer Centers Program](#) (NCCCP). Only 21 cancer institutions nationwide hold this distinction, 2010-2014. We are also an affiliate of [Moffitt Cancer Center](#), Tampa Fla., and [The Wistar Institute of Anatomy and Biology](#), Philadelphia.

ABOUT THE COVER

The finality bell is a symbol of cancer survivorship and hope. Patients are encouraged to ring the finality bell to celebrate the completion of cancer treatment.

OUR MISSION

We ease our community's cancer burden
by preventing cancer,
by finding cancer early,
by providing comprehensive diagnostic, consultative, treatment, support and survivorship services,
and by educating health care professionals and residents of the communities we serve about advances in cancer care.

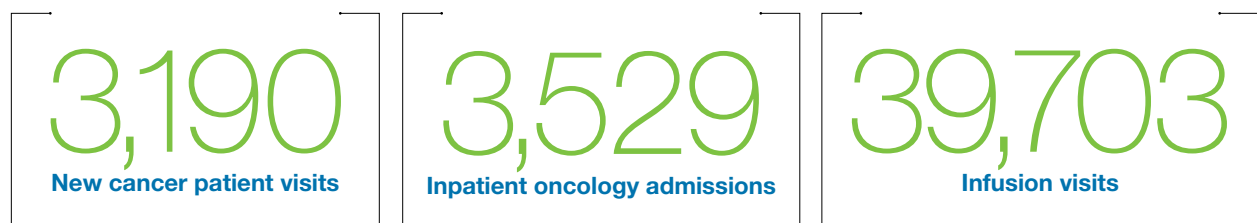
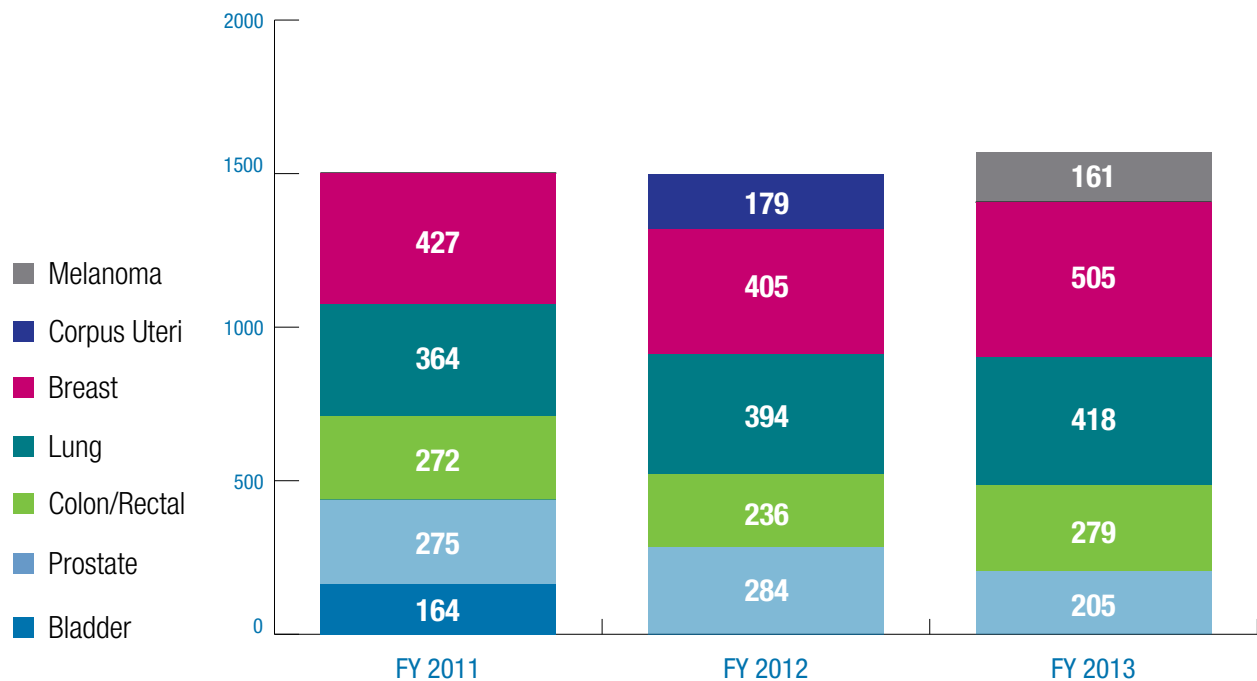


LVHN CANCER CASE INFORMATION

The LVHN Cancer Program offers a range of cancer services in convenient, patient-focused locations, including the John and Dorothy Morgan Cancer Center at Lehigh Valley Hospital (LVH)–Cedar Crest, the Cancer Center at LVH–Muhlenberg, and the Health Center at Bangor. Patient care also is provided through Lehigh Valley Physician Group practice offices in Allentown, Bethlehem, Hazleton, Bangor and Lehigh. Breast Health Services is offered in eight locations throughout the region.

The faculty of the Cancer Program is composed of physicians who are cancer care specialists and board-certified in their fields. In calendar year 2013, the Cancer Program saw more than 3,190 new cancer patients. Inpatient oncology admissions were 3,529 in the fiscal year ending June 30, 2014, and outpatient volumes comprised of 3,718 unique patients for radiation procedures and 39,703 infusion visits.

TOP FIVE SITES MOST PREVALENT CANCERS TREATED AT LVHN



CANCER STAGING AND INCIDENCE TERMINOLOGY

Cancer diagnosis, staging, incidence and treatment have a language of their own. Here are some commonly used terms and resources for more information:

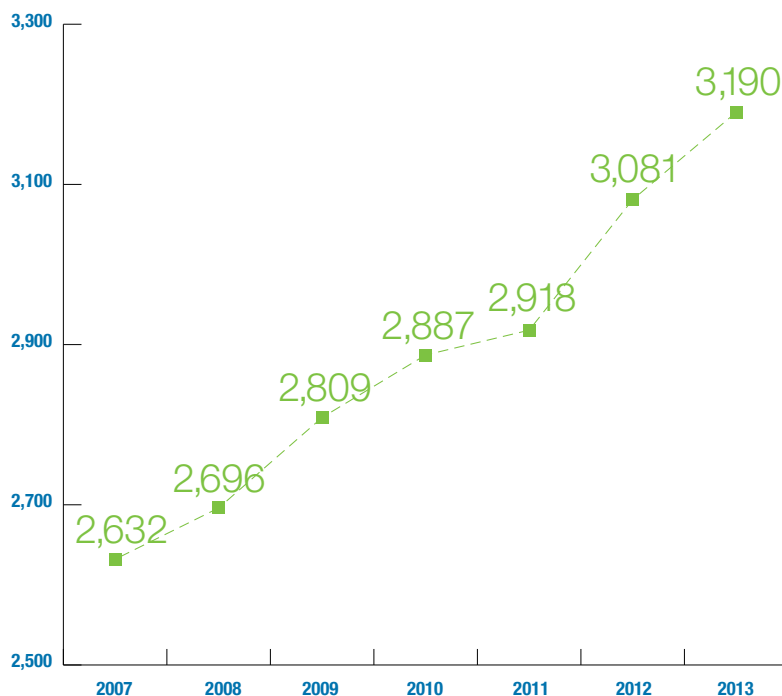
American Joint Committee on Cancer (AJCC) staging: A classification system used for describing the extent of disease progression based on the evaluation of the tumor size/invasion (T), nodal status (N) and metastasis (M) at the time of diagnosis. [AJCC](#) staging is important in determining treatment 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: Cancer stage historically has been collected using three different staging systems: AJCC (TNM), [Surveillance, Epidemiology and End Results \(SEER\)](#), Extent of Disease (EOD) and Summary Stage (SS). Collaborative staging is a unified data collection system designed to provide a common data set to meet the needs of all three staging systems and provide a comprehensive system to improve data quality by standardizing rules for timing, clinical and pathological assessments, and compatibility across all systems for all cancer sites.

National Cancer Database (NCDB): The [NCDB](#) is a joint project of the American Cancer Society and the Commission on Cancer. This database collects information on cancer cases diagnosed and/or treated at hospitals throughout the country. This non-patient-identified information is used to present scientifically reviewed descriptions of patient diagnosis, treatment and outcomes. The most recent data from NCDB is on cases newly diagnosed in 2012.

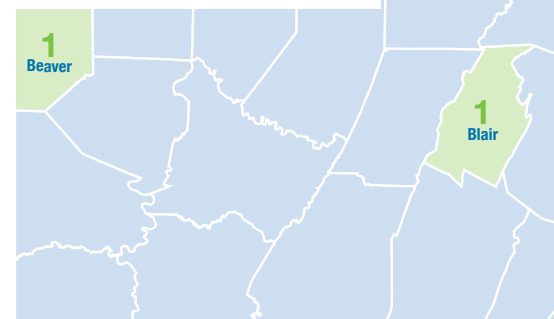
TOTAL ANNUAL ANALYTIC CASES



NON-ANALYTICAL CASES

YEAR	NUMBER OF CASES
2007	208
2008	156
2009	165
2010	227
2011	234
2012	323
2013	342

**Diagnosed and all first course of treatment received elsewhere prior to coming to Lehigh Valley Health Network.*



2013 ANALYTIC CASES BY PRIMARY BODY SITE

THIS CHART NOTES THE PRIMARY BODY SITE INVOLVED IN EACH PATIENT'S CANCER DIAGNOSIS.

PRIMARY SITE	TOTAL
HEAD AND NECK	87
DIGESTIVE ORGANS	549
ESOPHAGUS	32
STOMACH	44
SMALL INTESTINE	17
COLON AND RECTUM	279
ANUS AND ANAL CANAL	21
LIVER AND BILE DUCTS	33
GALLBLADDER	5
OTHER BILIARY TRACT	8
PANCREAS	107
OTHER DIGESTIVE ORGANS	3
RESPIRATORY ORGANS	429
TRACHEA	1
BRONCHUS AND LUNG	418
THYMUS	2
HEART MEDIASTINUM PLEURA	8
MUSCULOSKELETAL SITES	31
BLOOD AND BONE MARROW	160
SKIN	172
BREAST	505
FEMALE GENITAL ORGANS	263
VULVA	9
VAGINA	2
CERVIX UTERI	29
CORPUS UTERI	157
UTERUS (NOT OTHERWISE SPECIFIED-NOS)	9
OVARY	49
OTHER FEMALE GENITAL ORGANS	8

PRIMARY SITE	TOTAL
MALE GENITAL ORGANS	222
PENIS	4
PROSTATE GLAND	205
TESTIS	13
URINARY TRACT ORGANS	288
KIDNEY	124
KIDNEY, RENAL PELVIS	5
URETER	5
URINARY BLADDER	151
OTHER AND UNSPECIFIED URINARY ORGANS	3
CENTRAL NERVOUS SYSTEM	156
ENDOCRINE GLANDS	126
THYROID GLAND	110
OTHER ENDOCRINE GLANDS	16
OTHER	2
RETROPERITONEUM AND PERITONEUM	10
ILL DEFINED SITES	2
LYMPH NODES	134
UNKNOWN PRIMARY	56

3,190
Analytic cases

PRIMARY BODY SITES: FIVE MOST FREQUENTLY TREATED AT LVHN

BREAST CANCER

INCIDENCE OF BREAST CANCER BY AGE AT DIAGNOSIS LVHN 2013

AGE AT DIAGNOSIS	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	18	82	141	130	80	48	6	505

BREAST CANCER TREATMENT BY STAGE AT DIAGNOSIS

FIRST COURSE	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage OC	Stage UNK	TOTAL
SURGERY ONLY	43	27	11	1	0	0	0	82
SURGERY AND RADIATION	22	29	5	0	0	0	0	56
SURGERY AND CHEMOTHERAPY	0	15	23	7	0	1	0	46
SURGERY, RADIATION AND CHEMOTHERAPY	0	18	14	10	1	0	0	43
SURGERY, RADIATION AND HORMONE THERAPY	25	88	20	3	0	0	0	136
SURGERY AND HORMONE THERAPY	9	26	10	0	1	0	1	47
SURGERY, RADIATION, CHEMOTHERAPY AND HORMONE THERAPY	0	8	16	12	0	0	0	36
SURGERY, CHEMOTHERAPY AND HORMONE THERAPY	0	3	5	3	0	0	0	11
OTHER SPECIFIED THERAPY	1	1	3	5	19	0	1	30
NO FIRST COURSE TREATMENT	1	8	5	0	4	0	0	18
TOTAL	101	223	112	41	25	1	2	505

LUNG CANCER

INCIDENCE OF LUNG CANCER BY AGE AT DIAGNOSIS LVHN 2013

AGE AT DIAGNOSIS	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	1	2	14	64	128	140	65	4	418

LUNG CANCER TREATMENT BY STAGE AT DIAGNOSIS

FIRST COURSE	Stage 1	Stage 2	Stage 3	Stage 4	Stage OC	Stage UNK	TOTAL
SURGERY ONLY	79	19	8	4	0	0	110
RADIATION ONLY	10	0	9	33	0	0	52
SURGERY AND CHEMOTHERAPY	3	7	6	2	1	0	19
RADIATION AND CHEMOTHERAPY	2	2	31	56	0	0	91
CHEMOTHERAPY ONLY	1	0	3	35	1	0	40
SURGERY, RADIATION AND CHEMOTHERAPY	0	3	9	1	0	0	13
OTHER SPECIFIED THERAPY	2	1	1	13	0	0	13
NO FIRST COURSE TREATMENT	6	1	15	43	4	7	76
TOTAL	103	33	82	187	6	7	418

COLON AND RECTAL CANCER

INCIDENCE OF COLON CANCER BY AGE AT DIAGNOSIS LVHN 2013

AGE AT DIAGNOSIS	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	1	1	2	16	31	41	50	48	16	206

COLON CANCER BY STAGE AT DIAGNOSIS

FIRST COURSE	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage UNK	TOTAL
SURGERY ONLY	4	22	52	14	8	1	101
SURGERY AND CHEMOTHERAPY	0	0	6	33	18	0	57
CHEMOTHERAPY ONLY	0	0	0	0	11	0	11
SURGERY, RADIATION AND CHEMOTHERAPY	0	0	3	3	1	0	7
OTHER SPECIFIED THERAPY	0	0	1	5	1	1	1
NO FIRST COURSE TREATMENT	1	0	3	4	13	7	28
TOTAL	5	22	64	55	52	8	206

INCIDENCE OF RECTAL CANCER BY AGE AT DIAGNOSIS LVHN 2013

AGE AT DIAGNOSIS	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	3	6	22	18	14	7	3	73

RECTAL CANCER TREATMENT BY STAGE AT DIAGNOSIS

FIRST COURSE	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage UNK	TOTAL
SURGERY ONLY	1	14	2	0	1	3	21
SURGERY AND CHEMOTHERAPY	0	1	0	3	0	0	4
RADIATION AND CHEMOTHERAPY	0	0	2	2	4	0	8
CHEMOTHERAPY ONLY	0	0	0	0	1	0	1
SURGERY, RADIATION AND CHEMOTHERAPY	0	1	11	12	1	0	25
OTHER SPECIFIED THERAPY	1	0	3	0	1	1	6
NO FIRST COURSE TREATMENT	0	2	1	2	2	1	8
TOTAL	2	18	19	19	10	5	73

PROSTATE CANCER

INCIDENCE OF PROSTATE CANCER BY AGE AT DIAGNOSIS LVHN 2013

AGE AT DIAGNOSIS	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	0	4	52	97	35	14	3	205

PROSTATE CANCER TREATMENT BY STAGE AT DIAGNOSIS

FIRST COURSE	Stage 1	Stage 2	Stage 3	Stage 4	Stage UNK	TOTAL
SURGERY ONLY	11	63	9	0	1	84
RADIATION ONLY	9	13	0	1	0	23
SURGERY AND HORMONE THERAPY	1	34	1	7	0	43
SURGERY, RADIATION AND HORMONE THERAPY	1	1	3	1	0	6
SURGERY AND HORMONE	0	4	1	1	1	7
SURGERY AND RADIATION	1	0	6	0	0	7
HORMONE THERAPY ONLY	0	1	0	5	0	6
OTHER SPECIFIED THERAPY	0	1	0	0	0	1
NO FIRST COURSE TREATMENT	23	3	1	1	0	28
TOTAL	46	120	21	16	2	205

MELANOMA

INCIDENCE OF MELANOMA OF THE SKIN BY AGE AT DIAGNOSIS LVHN 2013

AGE AT DIAGNOSIS	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	3	6	19	36	40	34	22	1	161

MELANOMA OF THE SKIN BY STAGE AT DIAGNOSIS

FIRST COURSE	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage UNK	TOTAL
SURGERY ONLY	25	85	19	3	0	9	141
SURGERY AND IMMUNOTHERAPY	0	0	0	4	1	0	5
SURGERY, CHEMOTHERAPY AND OTHER	0	0	0	2	0	0	2
SURGER AND RADIATION	0	0	3	0	0	0	3
SURGERY, RADATION AND OTHER	0	0	1	0	1	0	2
SURGERY, CHEMOTHERAPY AND RADIATION	0	0	0	0	1	0	1
OTHER SPECIFIED THERAPY	0	0	1	1	2	0	4
NO TREATMENT	0	0	0	0	2	1	3
TOTAL	25	85	24	10	7	10	161

INNOVATIONS AND IMPACT

Year after year, the Cancer Program at Lehigh Valley Health Network continues to grow. Not only have we experienced steady growth in the number of patients for whom we provide care, we also have become a leader in our area offering specialized procedures and treatments. Among our areas of specialization: clinical trials, robotic surgery, liver and pancreatic surgeries, (Whipple procedure), neuro-oncology specialization, thyroid surgery and stereotactic radiosurgery.

CLINICAL TRIALS

When you face a cancer diagnosis, clinical trials sometimes offer the best possibility for extending life expectancy. At Lehigh Valley Health Network, our clinical trials program is as robust as you will find anywhere in the U.S.

Our success is a result of many factors:

- ▶ Our selection as a [National Cancer Institute Community Cancer Centers Program–NCCCP](#) (2010-2014)
- ▶ Partnerships with [Moffitt Cancer Center](#) in Tampa, Fla., and with [The Wistar Institute](#) in Philadelphia;
- ▶ Dedicated clinical trials staff that helps ensure we follow the strictest of clinical trial protocols and deliver clear results, while providing compassionate care for our patients.

358
 2014 Clinical trial participants

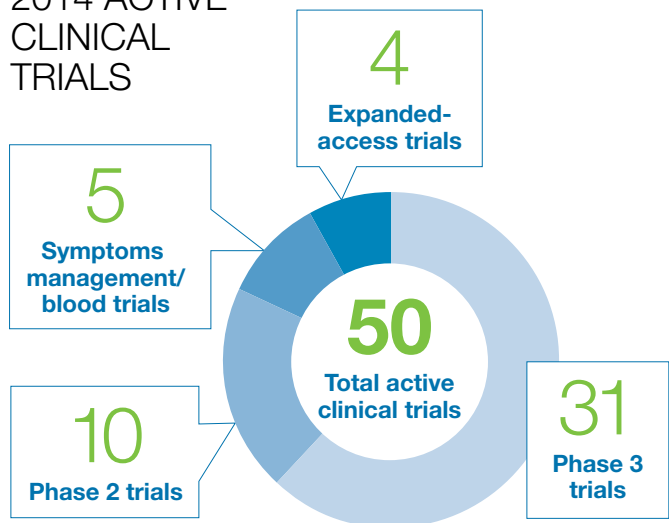
OUR PROGRAM IS ABLE TO OFFER STUDIES THAT PROVIDE EARLY ACCESS TO TREATMENTS AND THERAPIES:

Phase 2 – Study to measure the effectiveness of therapy; available at limited number of centers

Phase 3 – Larger study to measure effectiveness

Having access to clinical trial medicines in a phase 2 study provides the latest advancements in cancer care to our patients close to home.

2014 ACTIVE CLINICAL TRIALS



SUCCESS AGAINST MELANOMA

LVHN is the only academic community hospital among eight major medical institutions selected to take part in five early-phase clinical trials conducted over the last year and a half involving immunotherapy and stage 4 melanoma. One phase 2 trial tested the sequential use of two immunotherapy drugs: ipilimumab (Yervoy) and anti-PD-1 (Nivolumab), both of which boost the immune system's response to melanoma cells.

Three out of the four LVHN patients who received treatment for the clinical trial are now one year out and in complete remission. With these three immunotherapy drugs – interleukin-2 (IL-2), ipilimumab and anti-PD-1 – there is more hope than ever for long-term remissions and potential cures for patients with advanced cases of melanoma.



30

Specialties

3

Robots

23

Physicians trained
in robotics

ROBOTIC SURGERY PROGRAM

At LVHN, our robotic surgery program features one of the nation's largest teams skilled in using da Vinci® Si HD Surgical Systems. Each robotic system offers high-definition, 3-D views of the surgery site coupled with precise instrument control. Using this tool, our surgeons can perform complex and delicate surgeries, such as gynecologic and fertility-sparing surgery, urologic, thoracic, colon-rectal as well as other surgeries.

Robotic surgery usually involves three to five small incisions. For some conditions, Lehigh Valley Health Network now offers da Vinci® Single Site® Surgery, where the surgeon operates through a single small incision of less than 1 inch long.

BENEFITS OF ROBOTIC SURGERY MAY INCLUDE:

- ▶ Smaller incisions
- ▶ Less pain, scarring and recovery time
- ▶ Shorter hospital stay
- ▶ Lower risk for infection
- ▶ Less blood loss and fewer transfusions
- ▶ Quicker return to normal activities

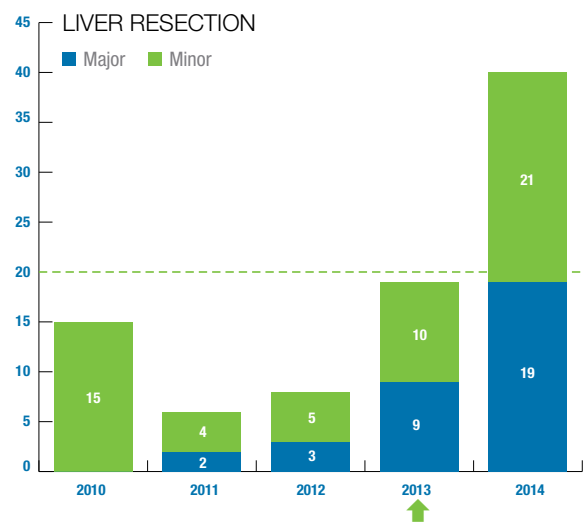
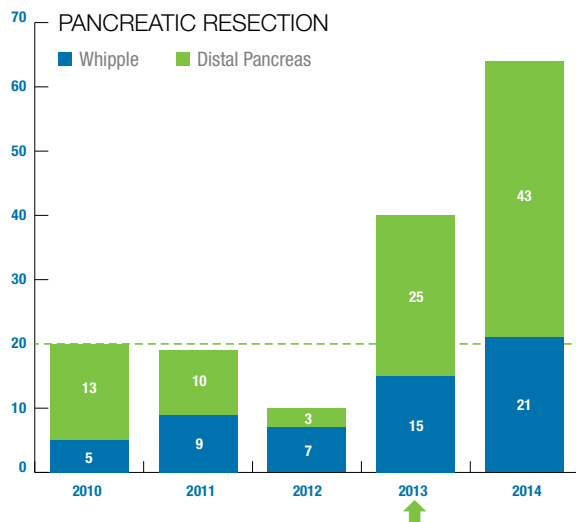
4,000+

Procedures

EXPERTISE IN PANCREATIC AND LIVER SURGERIES

Surgical techniques in pancreatic and liver surgeries at Lehigh Valley Health Network (LVHN) are improving outcomes for oncology patients. By using a precise, anatomic-based approach to these complex surgeries, LVHN's surgical oncologist and hepatic and pancreatobiliary specialist have significantly reduced typical operating times.

At LVHN we performed more than 100 pancreatic and liver surgeries in 2014, well above the standard that measures "high volume" which is set at a minimum of 20 pancreatic resections and 20 liver resections annually. Studies suggest a correlation between improved patient outcomes and high-volume centers and high-volume surgeons.



LIVER RESECTION		LVHN
MAJOR		100%
TIME		2 hr. 42 min.
BLOOD TRANSFUSION		8%
LENGTH OF STAY		4
ICU		12%
WHIPPLE		LVHN
EBI		350
OR TIME		3.7 hr.
LOS		7
PANCREATIC COMPLICATIONS		23%
ICU		23%

WHAT IS HIGH VOLUME?

- ▶ **Pancreatic resection**
a minimum of 20 per year
- ▶ **Liver resection**
a minimum of 20 per year

◆ Indicates start of surgical oncologist at LVH

NEURO-ONCOLOGY

When a person hears the words, “You have a brain tumor,” there is a rush of worry about the future and wondering, “What’s next?” The neuro-oncology team at Lehigh Valley Health Network is comprised of individuals who exemplify the definition of a “multidisciplinary team.” Each member of our neuro-oncology team – neurosurgeons, neuroradiologists, radiation oncologists and a neuro-oncologist – is focused on treating each patient with dignity and compassion during a difficult time, while also developing a treatment protocol that not only treats your brain tumor, but preserves healthy brain tissue and function for a better outcome.

HOW THE LVHN NEURO-ONCOLOGY TEAM CARES FOR YOU

Each patient’s treatment plan results from the recommendations of a multidisciplinary care team. Among the techniques the team may utilize:

- ▶ Gamma Knife® radiosurgery, performed with the newest-generation Gamma Knife Perfexion™ technology. Lehigh Valley Hospital–Cedar Crest is the first hospital in the region to offer this model, which provides faster setup and treatment times, reduces radiation to unintended areas and offers enhanced ability to form complex treatment plans and care for a wider range of targets.
- ▶ The latest research studies and research-based treatments. As the region’s only National Cancer Institute Community Cancer Centers Program (2010-2014), LVHN patients have access to limited-availability studies and trials.

SPECIALTY TEAM

- ▶ Four board-certified neurosurgeons, including two who are fellowship-trained in neuro-oncology
- ▶ The region’s only board-certified neuro-oncologist who participates in the team approach to patient care
- ▶ Ten specialty-trained neuroradiologists
- ▶ Two specialty-trained radiation oncologists specializing in the care of brain tumor patients
- ▶ A team of neurophysiologists dedicated to intraoperative monitoring
- ▶ The only neuropathology/molecular pathologist in the region

THE ONLY

Board-certified neuro-oncologist
and neuropathology/molecular
pathologist in the region

2

Specialty-trained radiation
oncologists specializing in the
care of brain tumor patients

4

Board-certified neurosurgeons

10

Specialty-trained
neuroradiologists

RADIATION ONCOLOGY

Radiation therapy may play a crucial role in your cancer care. At Lehigh Valley Health Network, you have the security of knowing you are receiving care from experienced physicians, nurses, therapists and other professionals who are specialists in their fields and who have helped thousands of patients confront cancer.

Radiation oncology at the LVHN Cancer Center offers patients the availability of the finest state-of-the-art technology and techniques. Radiation oncology facilities at LVHN include:

- ▶ Linear accelerators (six)
- ▶ Stereotactic body radiotherapy (SBRT)
- ▶ Gamma Knife® radiosurgery
- ▶ Intensity-modulated radiation therapy (IMRT)
- ▶ CT simulators (two)
- ▶ Brachytherapy – high-dose and low dose
- ▶ 3-D treatment planning
- ▶ Image-guided radiation therapy (IGRT)
- ▶ Respiratory gating
- ▶ RapidArc technology

OUR PROGRAM ALSO OFFERS THE LATEST IN TREATMENT PROTOCOLS AND TECHNOLOGIES, INCLUDING:

Metal artifact reduction software (MAR): LVHN is among a few select cancer centers in the United States – and the only hospital in northeastern Pennsylvania – offering a special type of CT scan, used for preparing radiation therapy treatments, that reduces the undesirable display of artifacts in the CT images produced by metal in the body. Metal artifacts are caused by objects like dental fillings, joint replacement implants, screws, metal plates or pins that are commonly used for back, spinal or bone procedures.

When you have a traditional CT scan, which is a type of X-ray, metal artifacts can appear as white and black streaks on the image. These streaks may obscure part of your internal anatomy, making it more challenging to develop the radiation treatment plan. However, at LVHN, if you have metal objects in the area to be treated, you can have your simulation CT scans performed with the GE Optima580RT CT scanner. This device features revolutionary software that reduces the streaks created by metal objects and helps ensure treatment plans are made with the best visualization possible.

Prone breast radiation therapy: Prone breast radiation therapy is performed with the patient lying face down on a special table, which allows the breast to fall away from the chest wall. This positioning reduces the radiation doses to the heart and lungs, and is especially helpful for women with large breasts.

Pediatric radiation oncology: Children and adolescents with a malignancy have a unique set of needs. For patients requiring radiation therapy The Children's Hospital at Lehigh Valley Hospital offers benefits specific to pediatric patients, beginning with our full-time physicists and dosimetrists who develop custom radiation treatment plans for children.

Our professional staff also ensures patients and their families understand the child's treatment. We follow a structured, child-friendly education program (using iPad®s and even crafts) to orient patients and parents to radiation oncology technology and treatment. The child-friendly experience extends to the children's area of the radiation oncology department where walls are decorated with a mural created by the Baum School of Art, Allentown.



INFUSION SERVICES

2013 INFUSION ENCOUNTERS

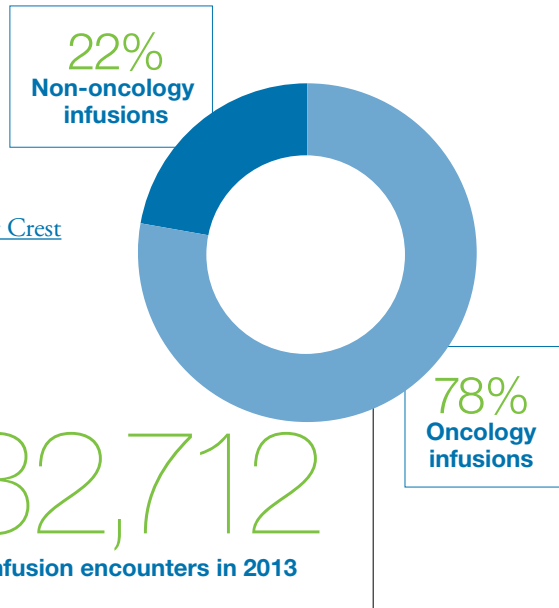
Patients who require intravenous (IV) therapy for oncology or non-oncology disorders may receive their care at one of our three convenient and comfortable infusion locations:

- ▶ [Health Center at Bangor infusion services](#)
- ▶ Multipurpose area infusion services at the [John and Dorothy Morgan Cancer Center at Lehigh Valley Hospital \(LVH\)–Cedar Crest](#)
- ▶ Multipurpose-satellite infusion services at [Lehigh Valley Hospital–Muhlenberg](#)

Health Center at Bangor: 12 infusion bays

LVH–Cedar Crest: 38 infusion bays

LVH–Muhlenberg: 24 infusion bays



BREAST HEALTH SERVICES (BHS)

Breast Health Services of Lehigh Valley Health Network offers women a caring environment for breast screening and diagnostic studies provided by staff members who excel in their profession. Among our designations:

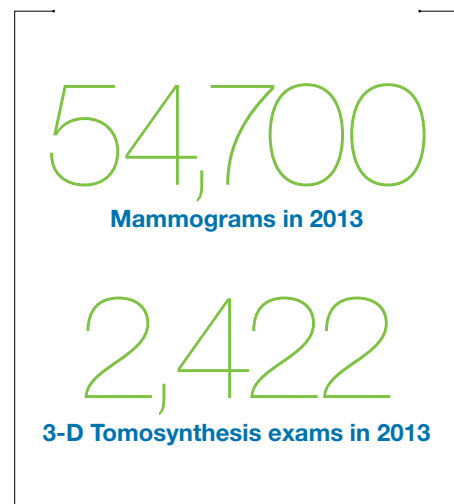
- ▶ Accredited by the National Accreditation Program for Breast Centers (NAPBC)
- ▶ Designated Breast Center of Excellence by the American College of Radiology (ACR)
- ▶ “Certified Quality Breast Center” by the National Quality Measures for Breast Centers (NQMBC)

3-D DIGITAL TOMOSYNTHESIS

Women with dense breast tissue may wish to have a mammogram done using [3-D digital tomosynthesis](#). This technology provides clear, 3-D images of breast tissue by showing results in very thin cross-section images.

- ▶ Provides improved view enabling doctors to more effectively pinpoint any abnormalities.
- ▶ Reduces the false positive rate of screening mammograms. Study results at LVHN: Use of 3-D tomosynthesis reduced the recall rate for further screening by 36 percent (presented at 24th National Consortium of Breast Centers Conference, March 15-19, 2014, Las Vegas).
- ▶ Allows very small cancers to be seen at an earlier stage.

BHS at LVH–Muhlenberg was the first in the region to offer this technology in September 2012. We now offer 3-D tomosynthesis at three BHS locations: LVH–Muhlenberg, LVH–Cedar Crest, and Breast Health Services Trexlertown.



TUMOR REGISTRY

To help us zero in on cancer and its characteristics, LVHN tracks important data about patient tumors leading to an understanding of how cancer presents, how it is treated and the outcomes of therapy in our patient population.

The Cancer Data Management department captures a complete summary of patient history, diagnosis, treatment and status for every cancer patient seen at LVHN. The data is used to evaluate patient outcome, quality of life, calculate survival rates, report cancer incidence as required by the PA Cancer Registry and the National Cancer Database, and evaluate effectiveness of treatment modalities in an effort to improve the quality of care we deliver. As part our commitment to long-term care and education, we offer lifetime patient follow-up to gather data that benefits our patients now and into the future.

30,096

Patients followed for life

1,317

Patient cases were reviewed at a multidisciplinary Tumor Board in 2013

13 SITE-SPECIFIC TUMOR BOARDS

- 1 Adolescent and young adult
- 2 Breast
- 3 Colon-rectal
- 4 Combined tumor board
- 5 Ear nose throat
- 6 Endocrine
- 7 Gynecology
- 8 Hepatobiliary
- 9 LVH–Muhlenberg general tumor board
- 10 Neurology
- 11 Pulmonary
- 12 Skin and soft tissue
- 13 Urology

TUMOR BOARD MEMBERS

- ▶ Medical oncologist
- ▶ Surgical oncologist
- ▶ Diagnostic radiologist
- ▶ Pathologist
- ▶ Radiation oncologist
- ▶ Genetic counselor
- ▶ Support counselor
- ▶ Palliative care provider
- ▶ Nurse navigator
- ▶ Tumor Registrar and many more

MULTIDISCIPLINARY CLINICS (MDC)

When you are faced with a cancer diagnosis, it is important to understand your options. At Lehigh Valley Health Network, we offer a multidisciplinary team approach to your care. This means you will have access to doctors and support staff that understand the facets of your condition and can provide you with the information you need to make important decisions. An MDC coordinates all of your oncology team members through one appointment and can be used as a primary appointment for treatment discussions or as a second opinion service. A nurse navigator will coordinate your appointment and stay with you through treatment completion.

MULTIDISCIPLINARY CLINICS OFFERED BY LVHN

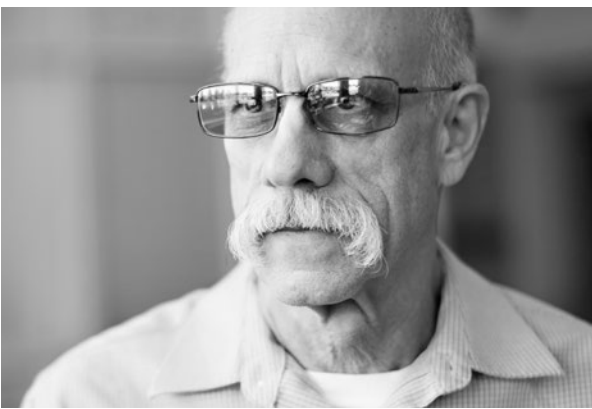
- ▶ Breast
- ▶ Genetics
- ▶ Gynecology
- ▶ Prostate
- ▶ Survivor PLACE
- ▶ Thoracic

1,285

Patients were seen in MDC clinics in fiscal year 2014



our survivors



CANCER SUPPORT SERVICES

COUNSELING SERVICES

A cancer diagnosis can create strong feelings of grief, sadness, anger or fear. Our licensed counselors with an expertise in cancer care are available to support patients, their families and caregivers cope with the diagnosis in an effort to help feel less distressed. Counselors can make visits to the doctor's office or treatment area. They are also available by appointment.

FINALITY BELL

The finality bell is a symbol of cancer survivorship and a source of hope. LVHN has three, donated by patients, so fellow survivors can ring the bell as a way to celebrate their final day of cancer treatment.

CANCER RISK AND GENETIC ASSESSMENT

While most cancers are not inherited, family and personal medical histories are important to identify people at higher risk for certain cancers.

Three board-certified genetic counselors and a medical oncologist are available to meet with patients and families to discuss benefits of genetic testing and perform a personalized cancer risk assessment. The genetic counselors provide an in-depth review of results, counsel patients and family members on implications, and provide comprehensive treatment and surveillance recommendations.

FINANCIAL COORDINATION

The LVHN Cancer Program provides five financial coordinators to assist patients in reducing financial barriers to care. They answer questions related to precertification requirements, health insurance and medical bills. Financial coordinators also connect patients with support agencies to assist them in receiving free or reduced-cost services and medical supplies if they qualify.

- ▶ Financial coordinators assisted 152 patients in obtaining \$3.3 million dollars in free or reduced-cost oral medications in fiscal year 2014.

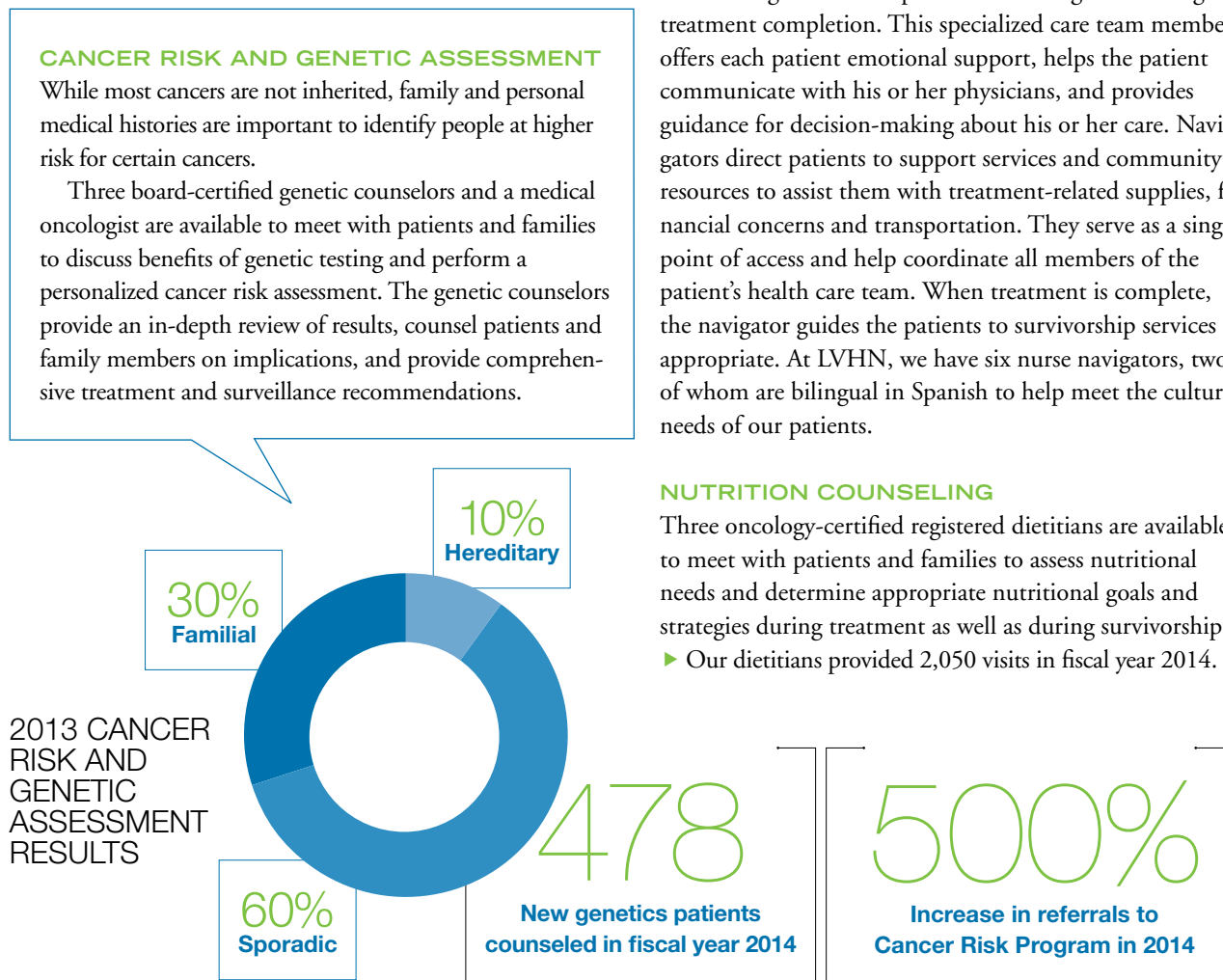
NURSE NAVIGATION

Nurse navigators follow patients from diagnosis through treatment completion. This specialized care team member offers each patient emotional support, helps the patient communicate with his or her physicians, and provides guidance for decision-making about his or her care. Navigators direct patients to support services and community resources to assist them with treatment-related supplies, financial concerns and transportation. They serve as a single point of access and help coordinate all members of the patient's health care team. When treatment is complete, the navigator guides the patients to survivorship services as appropriate. At LVHN, we have six nurse navigators, two of whom are bilingual in Spanish to help meet the cultural needs of our patients.

NUTRITION COUNSELING

Three oncology-certified registered dietitians are available to meet with patients and families to assess nutritional needs and determine appropriate nutritional goals and strategies during treatment as well as during survivorship.

- ▶ Our dietitians provided 2,050 visits in fiscal year 2014.

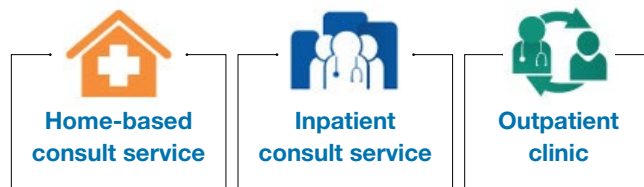


PALLIATIVE CARE

Managing one complex illness such as congestive heart failure (CHF) is difficult. If you have two or more complex illnesses, such as CHF and cancer, then additional medical assistance is often needed. That's where palliative care can help. The word "palliate" means to comfort, and at LVHN a team called OACIS (optimizing advanced complex illness support) provides comfort and care. The OACIS team includes doctors, nurse practitioners, social workers, clergy and community groups.

How it's different from hospice care – Hospice care provides services for people at the end of life. Palliative care is for anyone facing one or more serious illnesses, at any stage of illness. That said, if you are facing a terminal illness, OACIS can assist you with completing advance directives and will work closely with hospice as needed. We also can help you through the difficult decision on whether to focus on curing your illness or managing your pain and symptoms.

How to access OACIS – Ask your doctor for a palliative medicine consultation so he or she can refer you to receive OACIS care.



- ▶ In your home through our home-based consult service
- ▶ As a patient in one of LVHN's hospitals
- ▶ By making an appointment at the OACIS outpatient clinic

CANCER REHABILITATION

If you are suffering from fatigue, weakness, balance problems, lymphedema or other symptoms related to your condition and treatment, our trained rehabilitation therapists can help provide relief or recommend steps you can take to improve your symptoms.

COMMUNITY OUTREACH 2014

Lehigh Valley Health Network works with community organizations such as the American Cancer Society, Lymphoma & Leukemia Society, the Mark J. Young, MD, Community Health and Wellness Center, the Allentown Health Bureau and other community representatives to accomplish outreach activities.

Prevention, along with early detection and screening programs, are offered to residents of our area utilizing nationally accepted evidence-based guidelines and interventions.

FREE CANCER SCREENINGS

- ▶ **Breast: 737 mammograms**
- ▶ **Cervical: 735 Pap tests**
- ▶ **Skin: 105 skin exams**
- ▶ **Oral: 31 oral exams**

2014 EDUCATION AND PREVENTION WORKSHOPS

- ▶ Nutritional Education Series
- ▶ Kinnon Breast Cancer Survivor workshop
- ▶ Latino Cancer Survivor Education Series
- ▶ The Legacy Program for Cancer Survivors
- ▶ Survivor Celebration and Robotic Olympics
- ▶ LVHN Health Fair Night at Coca-Cola Park
- ▶ Catch Them Early – Importance of Skin Cancer Detection
- ▶ I Pink I Can – Advances in Breast Cancer Detection

OUR AWARDS, CERTIFICATIONS AND ACCREDITATIONS

NATIONAL ACCREDITATION PROGRAM FOR BREAST CENTERS (NAPBC)



Lehigh Valley Health Network's Breast Health Services is accredited by the National Accreditation Program for Breast Centers (NAPBC).

COEMIG™ DESIGNATION



Eight of our doctors also have earned COEMIG™ designation from the AAGL (American Association of Gynecologic Laparoscopists), whose mission is advancing minimally invasive gynecology worldwide.

ACR AND THE AMERICAN SOCIETY FOR RADIATION ONCOLOGY (ASTRO) SEAL OF ACCREDITATION



Lehigh Valley Hospital–Cedar Crest and Lehigh Valley Hospital–Muhlenberg have been awarded the ACR and the American Society for Radiation Oncology (ASTRO) seal of accreditation.

AMERICAN COLLEGE OF RADIOLOGY (ACR) FOR BREAST MAMMOGRAPHY



Lehigh Valley Health Network has earned accreditation from the American College of Radiology (ACR) for breast mammography.

BREAST IMAGING CENTER OF EXCELLENCE



LVHN Breast Health Services is also designated as a Breast Imaging Center of Excellence by the ACR.

U.S. NEWS & WORLD REPORT



Each year, U.S. News & World Report ranks hospitals according to patient satisfaction, patient outcome and access to leading-edge care across many specialties. In cancer care, U.S. News & World Report recognizes Lehigh Valley Hospital as “high performing” in recognition of our qualified staff, patient access to advanced technologies and patient survival.

BLUE DISTINCTION CENTER FOR COMPLEX AND RARE CANCERS



Highmark Blue Shield has named Lehigh Valley Hospital–Cedar Crest as a Blue Distinction Center for Complex and Rare Cancers, focusing on complex inpatient and surgical care.

COMMISSION ON CANCER



Continuously since 2005, Lehigh Valley Health Network has been an accredited cancer program through the American College of Surgeons Commission on Cancer® (CoC), a designation only granted when a facility voluntarily commits to provide the best in cancer diagnosis and treatment, while also complying with standards established by the CoC.

AMERICAN SOCIETY OF CLINICAL ONCOLOGY (ASCO) QOPI® CERTIFICATION PROGRAM (QCP™)



Hematology-Oncology Associates of Allentown, Bethlehem and Bangor, a practice of Lehigh Valley Physician Group, actively participates in the American Society of Clinical Oncology (ASCO) QOPI® Certification Program (QCP™) and has been continuously certified since 2011.

NATIONAL COMMITTEE FOR QUALITY ASSURANCE (NCQA)



Hematology-Oncology Associates (HOA) at Lehigh Valley Hospital–Cedar Crest and Lehigh Valley Hospital–Muhlenberg has been recognized by the National Committee for Quality Assurance (NCQA) for three years.

NATIONAL CANCER INSTITUTE'S COMMUNITY CANCER CENTERS PROGRAM (NCCCP)



Lehigh Valley Health Network's Cancer Center was one of 21 sites in the United States selected to be part of the National Cancer Institute's Community Cancer Centers Program (NCCCP) (April 2010 to June 2014).

PUBLICATIONS AND POSTERS AUTHORED BY OUR ONCOLOGY TEAM

Patient and tumor characteristics and BRAF and KRAS

mutations in colon cancer, NCCTG (Alliance N0147). Gonsalves, WI, Mahoney MR, Sargent DJ, Nelson GD, Alberts SR, Sinicrope FA, Goldberg RM, Limburg PJ, Thibodeau SN, Grothey A, Hubbard JM, Chan E, Nair S, Berenberg JL, McWilliams RR
Journal of the National Cancer Institute: 2014, Jun 12; 106 (7).
PMID 24925349

KRAS Codon 12 and 13 mutations in relation to disease-free survival in BRAF wild type stage III colon cancer from an adjuvant chemotherapy trial (N0147 Alliance). Yoon HH, Tougera D, Shi Q, Alberts SR, Mahoney MR, Nelson GD, Nair SG, Thibodeau SN, Goldberg RM, Sargent DJ, Sinicrope FA: Alliance for Clinical Trials in Oncology. *Clinical Cancer Research*: 2014 Jun 1; 20(11): 3033-43. PMID 24687927

Comparison of FOLFIRI with or without cetuximab in patients with resected stage III colon cancer; NCCTG (Alliance) intergroup trial N0147. Huang J, Nair SG, Mahoney MR, Nelson GD, Shields AF, Chan E, Goldberg RM, Gill S, Kahlenberg MS, Quesenberry JT, thibodeau SN, Smyrk TC, Grothey A, Sinicrope FA, Welb TA, Farr GH, Pockaj BA, Berenberg JL, Mooney M, Sargent DJ, Alberts SR; *Clinical Colorectal Cancer*. 2014 Jun 13 (2): 100-9. PMID 24512953

Hypoxia induces phenotypic plasticity and and therapy resistance in melanoma via the tyrosine kinase receptors ROR1 and ROR2. O'Connell MP, Marchbank K, Webster MR, Valiga AA, Kaur A, Vultur A, Li L, Herlyn M, Villanueva J, Liu Q, Yin X, Widura S, Nelson J, Ruiz N, Camilli TC, Indig FE, Flaherty KT, Wargo JA, Frederick DT, Cooper ZA, Nair S, Amaravadi RK, Schuchter LM, Karakousis GC, Xu W, Xu X, Weeraratna AT.
Cancer Discovery 2013 Dec;3(12):1378-93. PMID 24104062

Plasmablastic lymphoma of the maxillary sinus in an HIV-negative patient: a case report and literature review. Saraceni C, Agostino N, Cornfield DB, Gupta R.
Springerplus. 2013 Apr 3;2(1):142. Print 2013 Dec. PMID:23667804

Pneumococcal sepsis-induced purpura fulminans in an asplenic adult patient without disseminated intravascular coagulation. Saraceni C, Schwed-Lustgarten D
American Journal of the Medical Sciences. 2013 Dec;346(6):514-6. doi:10.1097/MAJ.0b013e31829e02d3. PMID:24185261

Cystic Brain Metastases in NSCLC harboring the EML4-ALK Translocation after Treatment with Crizotinib.

Christine Saraceni, DO, P. Mark Li, MD, Justin F Gainor, MD, Gary A. Stopyra, MD and Eliot L. Friedman, MD. *Accepted by Journal of Thoracic Oncology*.

A prospective evaluation of vascular endothelial growth factor (VEGF) and the immune system in stage III/IV melanoma.

Agostino NM, Weiss M, Shi W, Nevala WK, Hemperly S, Markovic S, Nair S. *Journal of Clinical Oncology* 31, 2013 (suppl; abstr e20046)

A rare case of acute lymphoblastic leukemia in a patient with light chain (AL) amyloidosis treated with lenalidomide. Nair R, Gheith S, Popescu D, Agostino NM. *International Journal of Clinical and Experimental Pathology* 2014;7(5):2683-2689

Measurement of Patient Satisfaction with and Oncology Navigator Program. Beaupre, L, McHugh D, Morrone D., Sevedge K, Zubia, J., Roman-Rosado R. and Chicas M. Poster presented at 4th Annual Conference Academy of Oncology Nurse Navigators, November 2013 in Memphis, Tenn.

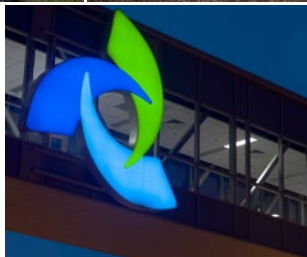
Development and Utilization of an Acuity Scale for Oncology Patient Navigation. Roman-Rosado R, and Beaupre L. Poster presented at 5th Annual Conference Academy of Oncology Nurse Navigators, 2014 in Orlando, Fla.

Introducing and Evaluating 3D Digital Breast Tomosynthesis. Marie Hrinknoish
Poster presented at 25th Annual National Consortium of Breast Centers, March 2013 in Las Vegas, Nev.

Identifying Barriers to Weight Management for Cancer Survivors. Levine E., Gilboy J. and Brennan J.
Poster presented at Pennsylvania Academy of Nutrition Dietetics, 2014 in Bethlehem, Pa.

"Financial Coordination Services at Lehigh Valley Health Network". Tobias, Pamela and Ring, Kathleen.
Association of Community Cancer Centers 2014 Patient Assistance and Reimbursement Guide. pp. 4-9.

"Survivor PLACE - Evolution of a multidisciplinary approach to survivorship care." Kathleen Sevedge, RN, MA. AOCN; Dorothy Morrone, RN,MS, OCN; Sue Gardner, MSN,CRNP, AOCNP; Janelle M. Sharma, MSN, CRNP; Cory Kukuvka, PT, DPT; Nancy Kinzi, MS,OTR/L, CLT-LANA; Sandra Kanapathy.
Oncology Issues: Oncology Economics & Program Management. 28 (5): 24-33 2013 Sept/Oct.



CONTACT US
If you have a question about Lehigh Valley Health Network services or the Cancer Program, please call 610-402-CARE.



OUR LOCATIONS

THE LVHN CANCER PROGRAM OFFERS A RANGE OF SERVICES IN CONVENIENT, PATIENT-FOCUSED LOCATIONS.

Allentown – John and Dorothy Morgan Cancer Center at Lehigh Valley Hospital (LVH)–Cedar Crest

Bethlehem – Cancer Center at Lehigh Valley Hospital–Muhlenberg

Bangor – Health Center at Bangor

We also provide patient care at Lehigh Valley Physician Group practice offices in Allentown, Bangor, Bethlehem, Hazleton and Lehigh.

BREAST HEALTH SERVICE LOCATIONS

Breast Health Services – 17th Street, Allentown

Breast Health Services – LVH–Cedar Crest

Breast Health Services – LVH–Muhlenberg

Health Center at Bangor

Health Center at Bath

Health Center at Bethlehem Township

Health Center at Moselem Springs

Health Center at Trexlertown

OVERNIGHT ACCOMMODATION FOR PATIENTS AND GUESTS

The [Hackerman-Patz House](#) at Lehigh Valley Hospital–Cedar Crest is a convenient and affordable alternative to an expensive hotel or daily trips to and from a distant home. Whether you are receiving care here, or your loved one is a patient at our hospital, the Hackerman-Patz House offers you comfortable accommodations and a supportive environment that allows you to focus on healing. Financial assistance is available.

Reserve your room at the Hackerman-Patz House. Call 610-402-9500 or visit LVHN.org/familylodge.



**Lehigh Valley
Health Network**