



Your health deserves a partner.

We ease our community's cancer burden by preventing cancer, finding cancer early, 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.

Welcome

We are pleased to present Lehigh Valley Topper Cancer Institute's 2022 annual report for Lehigh Valley Hospital-Pocono, featuring 2021 data as well as information about our oncology services. We value the partnerships we build with our patients and strive to always provide hope and more to them: more clinical trials, more innovative treatment technology and more compassionate support on their cancer journey. Our cancer program offers services in prevention, detection, diagnosis, genetics, patient navigation, nutrition, social and psychological support, rehabilitation, clinical trials, multidisciplinary and coordinated care, surgery, radiation, chemotherapy, immunotherapy, hemophilia care, survivorship, palliative care and hospice support.

Lehigh Valley Hospital (LVH)-Pocono, Monroe County's cancer care leader, has advanced the level of cancer care available to patients right in their community by extending the Memorial Sloan Kettering (MSK) Cancer Alliance membership at Dale and Frances Hughes Cancer Center at LVH-Pocono in June 2018.

Lehigh Valley Topper Cancer Institute became the second member of the MSK Cancer Alliance in 2016 and provides the alliance's advanced oncology care at LVH-Cedar Crest and LVH-Muhlenberg. Teams of oncology specialists from both health care organizations reviewed processes and clinical standards from across six disease specialties and disciplines within Lehigh Valley Topper Cancer Institute melanoma, breast, colon, endometrial, lung and prostate - to ensure alignment with MSK standard of care.

SPECIALIZED ONCOLOGY CARE

Recognizing that most oncology patients receive care in community health care settings, Lehigh Valley Topper Cancer Institute's membership in the MSK Cancer Alliance emphasizes innovation and collaboration. Patients at Lehigh Valley Topper Cancer Institute have access to MSK clinical trials as well as to the genetic sequencing tool MSK-IMPACT. Lehigh Valley Topper Cancer Institute also aligned with MSK to initiate site-specific disease management teams (DMTs).

HIGHLIGHTS

Disease management teams - Each DMT is comprised of clinicians who specialize in a particular type of cancer care. DMTs meet weekly to review and discuss new findings within their areas of expertise and interpret the data, helping to determine necessary changes within standardof-care practice. Cases that pose unique challenges are discussed by experts at MSK and the Cancer Institute to offer individual patients a collective treatment plan.

Elite clinical trials – Lehigh Valley Topper Cancer Institute offers access to many limited cancer-clinical trials, including new kidney cancer clinical trials.

Radiation immunotherapy - This precise technique enhances immune system response by "dose painting" radiation at the center of the tumor.

Mobile mammography coach - Our mobile mammography coach features the same imaging technology used in our facilities, and this expertise is extended to workplaces and the community. Throughout the year, more than 1,800 women were screened on the coach at more than 52 locations throughout the region.

Gynecologic oncology services - Christine Kim, MD, LVPG Gynecologic Oncology, sees patients at Dale and Frances Hughes Cancer Center at LVH-Pocono and Cancer Center at LVH-Muhlenberg. Dr. Kim is board-certified by the American Board of Obstetrics and Gynecology. She trained in a gynecologic oncology fellowship at Memorial Sloan Kettering Cancer Center and brings years of experience treating women with complex cancers.

DALE AND FRANCES HUGHES CANCER CENTER CASE INFORMATION

The faculty of the cancer program consists of physicians who are cancer care specialists and board-certified in their fields. In calendar year 2021, the cancer program saw more than **700** new cancer patients. In fiscal year 2021, outpatient infusion volumes comprised 10,400 visits, and radiation oncology comprised 496 new treatments.

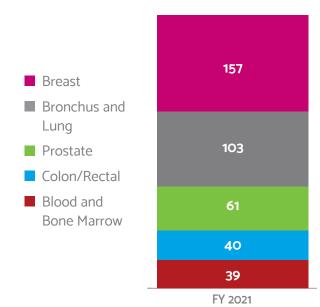




Dale and Frances Hughes Cancer Center Case Information

In 2021, Lehigh Valley Hospital-Pocono provided diagnostic care, second-opinion recommendations and treatment to **703** patients from **12** Pennsylvania counties. In addition, 14 patients came to our cancer program from other communities across the United States.

TOP FIVE MOST PREVALENT SITES OF CANCERS TREATED AT LVH-POCONO, 2021



TOP SEVEN CANCER PRIMARIES, LVH-POCONO (FIVE-YEAR COMPARISON)

SITE DESCRIPTION	2017	2018	2019	2020	2021
BREAST	149	127	135	130	157
BRONCHUS AND LUNG	106	119	89	94	103
PROSTATE GLAND	47	46	71	65	61
COLON/RECTAL	55	36	50	44	40
BLOOD AND BONE MARROW	34	26	42	41	39
URINARY BLADDER	35	30	27	17	27
CORPUS UTERI	20	33	26	20	23
TOTAL	446	417	440	411	450

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 IOINT COMMITTEE ON CANCER (AICC) STAGING

A classification system used for describing the extent of disease progression based on the evaluation of the tumor size/invasion, nodal status and metastasis at the time of diagnosis. AJCC staging is important in determining treatment plans.

ANALYTIC CANCER CASE

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.

NATIONAL CANCER DATABASE (NCDB)

The NCDB, a joint project of the American Cancer Society and the Commission on Cancer (CoC), collects information on cancer cases diagnosed and/or treated at hospitals throughout the country. This patient-anonymous information is used to present scientifically reviewed descriptions of patient diagnosis, treatment and outcome. The most recent data from NCDB for comparison is on cases newly diagnosed in 2020.

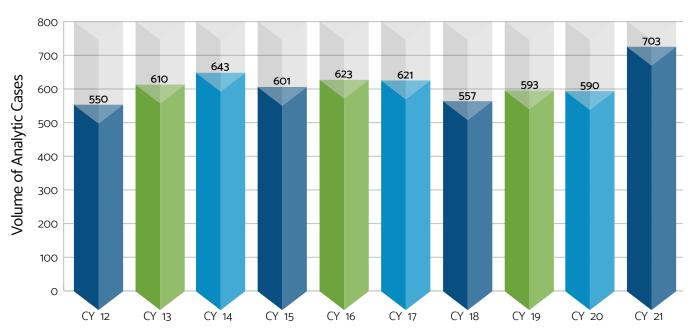
RAPID CANCER REPORTING SYSTEM (RCRS)

The CoC's National Cancer Database has implemented a change to its technology infrastructure with the transition to a new data platform system referred to as the RCRS. formerly known as RQRS.

RCRS, launched on Sept. 28, 2020, is a web-based data collection and reporting system that analyzes information gathered through the American College of Surgeons' Quality Data Platform vendor, IQVIA. RCRS now serves as the new single-source of data submission for all CoC-accredited hospital registries resulting from the combining of the prior two systems, RQRS and NCDB. Cases submitted to RCRS will include all disease sites from 2007 and going forward.

The Lehigh Valley Topper Cancer Institute actively participates in the RCRS data collection and reporting program. As a nationwide oncology case repository for real-time and historical data, RCRS enables assessment of hospital-level adherence to quality of cancer care measures for all CoC-accredited programs. Resulting case analysis contributes to a body of evidence-based cancer care knowledge. Based on the evidence, RCRS alerts participants each month to "anticipated care" for their cancer patients. The value in these alerts is to avoid having patients miss out on adjuvant care or therapy that they could receive in addition to their main treatment plan.

Total Annual Analytic Cases



Analytic Cases by County of Residence

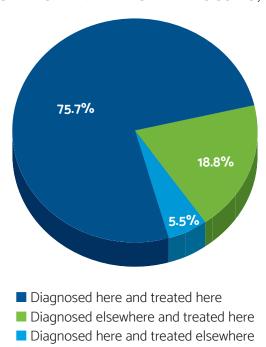
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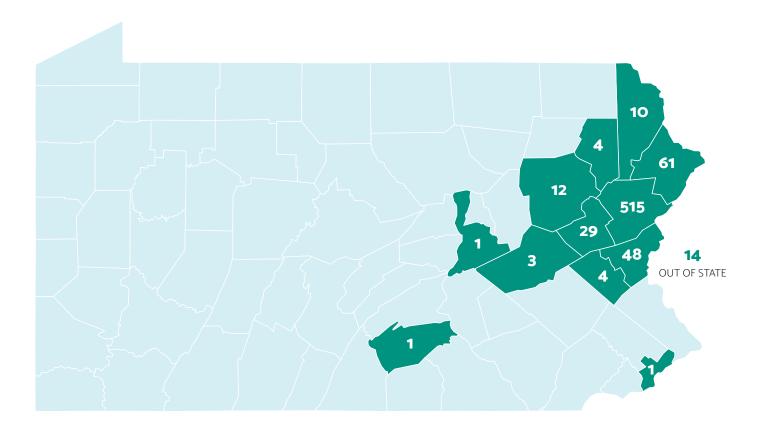
INCIDENCE BY COUNTY OF RESIDENCE – ANALYTIC CASES

COUNTY OF RESIDENCE	2021	PERCENTAGE
CARBON	29	4.1%
CUMBERLAND	1	0.1%
LACKAWANNA	4	0.6%
LEHIGH	4	0.6%
LUZERNE	12	1.7%
MONROE	515	73.3%
NORTHAMPTON	48	6.8%
NORTHUMBERLAND	1	0.1%
PHILADELPHIA	1	0.1%
PIKE	61	8.7%
SCHUYLKILL	3	0.4%
WAYNE	10	1.4%
OUT OF STATE	14	2.0%
TOTAL	703	100%

Note: Because of rounding, percentage totals above and elsewhere in this report may be slightly higher or lower than 100.

CASE CLASSIFICATION BASED ON PATIENT MIGRATION PATTERNS: LVH-POCONO, 2021





LVH-Pocono Prevalence by Disease Sites

2021 ANALYTIC CASES BY PRIMARY BODY SITE

PRIMARY SITE	TOTAL
HEAD AND NECK	23
DIGESTIVE ORGANS	85
ESOPHAGUS	10
STOMACH	6
SMALL INTESTINE	5
COLON	34
RECTOSIGMOID JUNCTION	1
RECTUM	5
ANUS AND ANAL CANAL	1
LIVER AND BILE DUCTS	4
GALLBLADDER	1
OTHER BILIARY TRACT	1
PANCREAS	17
THORAX	106
BRONCHUS AND LUNG	103
THYMUS	1
HEART MEDIASTINUM PLEURA	2
MUSCULOSKELETAL/SOFT TISSUE SITES	4
BLOOD AND BONE MARROW	39
SKIN	18
BREAST	157
FEMALE GENITAL ORGANS	58
VULVA	6
CERVIX UTERI	13
CORPUS UTERI	23
UTERUS NOS	1
OVARY	14
OTHER FEMALE GENITAL ORGAN	1

PRIMARY SITE	TOTAL
MALE GENITAL ORGANS	64
PROSTATE GLAND	61
TESTIS	3
URINARY TRACT ORGANS	45
KIDNEY	17
KIDNEY, RENAL PELVIS	1
URINARY BLADDER	27
CENTRAL NERVOUS SYSTEM	31
MENINGES	24
BRAIN	5
OTHER NERVOUS SYSTEM	2
ENDOCRINE GLANDS	21
THYROID GLAND	10
ADRENAL GLAND	1
OTHER ENDOCRINE GLANDS	10
OTHER	2
PERIPHERAL NERVES AND AUTONOMIC NERVOUS SYSTEM	1
RETROPERITONEUM AND PERITONEUM	1
LYMPH NODES	33
UNKNOWN PRIMARY	17

Data source: LVHN tumor registry March 3, 2023



INCIDENCE OF BREAST CANCER BY AGE AT DIAGNOSIS: LVH-POCONO, 2021

AGE AT DIAGNOSIS	0-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	TOTAL
(N)	0	3	4	15	40	50	35	10	157

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR BREAST CANCER: LVH-POCONO, 2021

TREATMENT	STAGE O	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
SURGERY + RADIATION + HORMONE THERAPY	14	38	2	0	0	1	55	37.9%
SURGERY + HORMONE THERAPY	3	12	0	0	0	0	15	10.3%
SURGERY + RADIATION THERAPY	1	11	0	0	0	0	12	8.3%
SURGERY ALONE	7	4	0	0	1	0	12	8.3%
SURGERY + CHEMOTHERAPY + RADIATION + HORMONE THERAPY	0	8	0	1	0	0	9	6.2%
SURGERY + CHEMOTHERAPY + RADIATION THERAPY	0	3	3	0	0	0	6	4.1%
SURGERY + CHEMOTHERAPY	0	3	1	1	0	0	5	3.4%
SURGERY + CHEMOTHERAPY + HORMONE THERAPY	0	3	0	0	1	0	4	2.8%
HORMONE THERAPY ALONE	0	2	0	0	2	0	4	2.8%
CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	2	1	0	3	2.1%
CHEMOTHERAPY + RADIATION + IMMUNOTHERAPY	0	0	0	1	1	0	2	1.4%
CHEMOTHERAPY ALONE	0	0	1	1	0	0	2	1.4%
SURGERY + CHEMOTHERAPY + IMMUNOTHERAPY	0	0	1	1	0	0	2	1.4%
SURGERY + CHEMOTHERAPY + RADIATION + HORMONE THERAPY + IMMUNOTHERAPY	0	2	0	0	0	0	2	1.4%
SURGERY + CHEMOTHERAPY + RADIATION + IMMUNOTHERAPY	0	2	0	0	0	0	2	1.4%
CHEMOTHERAPY + HORMONE THERAPY + IMMUNOTHERAPY	0	0	0	0	1	0	1	0.7%
CHEMOTHERAPY + RADIATION + HORMONE THERAPY + IMMUNOTHERAPY	0	0	0	0	1	0	1	0.7%
NO FIRST-COURSE TREATMENT	0	2	2	1	2	1	8	5.5%
TOTAL	25	90	10	8	10	2	145*	100%

^{*}Nine cases excluded because stage classification performed after initial modality therapy and three cases excluded for having no AJCC stage system (e.g., phyllodes tumor and lobular carcinoma in situ, or LCIS).

INCIDENCE OF LUNG CANCER BY AGE AT DIAGNOSIS: LVH-POCONO, 2021

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL	
(N)	0	0	1	16	39	37	9	1	103	

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR NON-SMALL CELL LUNG CANCER: LVH-POCONO, 2021

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
RADIATION ALONE	26	1	1	1	0	29	30.2%
SURGERY ALONE	16	0	1	0	0	17	17.7%
CHEMOTHERAPY + RADIATION + IMMUNOTHERAPY	0	0	5	5	0	10	10.4%
CHEMOTHERAPY + RADIATION THERAPY	1	1	6	1	0	9	9.4%
SURGERY + CHEMOTHERAPY + RADIATION THERAPY	0	1	1	1	0	3	3.1%
SURGERY + CHEMOTHERAPY	0	1	0	1	0	2	2.1%
CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	2	0	2	2.1%
CHEMOTHERAPY ALONE	0	0	0	2	0	2	2.1%
RADIATION + IMMUNOTHERAPY	0	0	0	2	0	2	2.1%
SURGERY + RADIATION THERAPY	1	0	0	0	0	1	1.0%
CHEMOTHERAPY + HORMONE THERAPY	0	0	0	1	0	1	1.0%
IMMUNOTHERAPY ALONE	1	0	0	0	0	1	1.0%
NO FIRST-COURSE TREATMENT	7	1	3	6	0	17	17.7%
TOTAL	52	5	17	22	0	96	100%

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR SMALL CELL LUNG CANCER: LVH-POCONO, 2021

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
CHEMOTHERAPY + RADIATION THERAPY	0	1	0	0	1	2	28.6%
CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	2	0	2	28.6%
CHEMOTHERAPY + RADIATION + IMMUNOTHERAPY	0	0	0	1	0	1	14.3%
RADIATION ALONE	1	0	0	0	0	1	14.3%
NO FIRST-COURSE TREATMENT	0	0	0	1	0	1	14.3%
TOTAL	1	1	0	4	1	7	100%

INCIDENCE OF PROSTATE CANCER BY AGE AT DIAGNOSIS: LVH-POCONO, 2021

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	TOTAL
(N)	0	1	1	7	27	20	5	61

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR PROSTATE CANCER: LVH-POCONO, 2021

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
RADIATION + HORMONE THERAPY	1	14	10	0	0	25	41.0%
RADIATION ALONE	0	13	0	0	0	13	21.3%
SURGERY ALONE	4	3	0	0	1	8	13.1%
HORMONE THERAPY ALONE	0	1	0	4	1	6	9.8%
SURGERY + RADIATION + HORMONE THERAPY	0	0	1	1	0	2	3.3%
SURGERY + RADIATION THERAPY	0	0	1	0	0	1	1.6%
NO FIRST-COURSE TREATMENT	1	3	0	1	1	6	9.8%
TOTAL	6	34	12	6	3	61	100%

INCIDENCE OF COLON CANCER BY AGE AT DIAGNOSIS: LVH-POCONO, 2021

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	TOTAL
(N)	0	1	1	7	14	7	4	34

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR COLON CANCER: LVH-POCONO, 2021

TREATMENT	STAGE 0	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
SURGERY ALONE	1	4	3	0	1	2	11	36.7%
SURGERY + CHEMOTHERAPY	0	0	3	6	1	0	10	33.3%
SURGERY + CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	0	2	0	2	6.7%
CHEMOTHERAPY ALONE	0	0	0	0	2	0	2	6.7%
NO FIRST-COURSE TREATMENT	0	0	0	1	4	0	5	16.7%
TOTAL	1	4	6	7	10	2	30*	100%

^{*}Four cases are excluded because of stage classification performed after initial multimodality therapy.

INCIDENCE OF RECTAL CANCER BY AGE AT DIAGNOSIS: LVH-POCONO, 2021

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	1	0	1	1	0	1	1	5

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR RECTAL CANCER: LVH-POCONO, 2021

TREATMENT	STAGE 0	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
SURGERY ALONE	0	1	0	1	0	0	2	40.0%
CHEMOTHERAPY ALONE	0	0	0	0	1	0	1	20.0%
CHEMOTHERAPY + RADIATION THERAPY	0	0	1	0	0	0	1	20.0%
NO FIRST-COURSE TREATMENT	0	0	0	0	0	1	1	20.0%
TOTAL	o	1	1	1	1	1	5	100%

INCIDENCE OF BLOOD AND BONE MARROW CANCER BY AGE AT DIAGNOSIS: LVH-POCONO, 2021

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	2	0	5	14	14	3	1	39

INITIAL TREATMENT BY AJCC STAGE FOR BLOOD AND BONE MARROW CANCER: LVH-POCONO, 2021

TREATMENT	STAGE IE	STAGE IV	STAGE NA	TOTAL	%
CHEMOTHERAPY ALONE	0	0	16	16	41.0%
CHEMOTHERAPY + RADIATION + IMMUNOTHERAPY	1	0	2	3	7.7%
CHEMOTHERAPY + IMMUNOTHERAPY	0	1	1	2	5.1%
RADIATION + IMMUNOTHERAPY	0	0	1	1	2.6%
OTHER THERAPY	0	0	1	1	2.6%
IMMUNOTHERAPY ALONE	0	0	1	1	2.6%
CHEMOTHERAPY + HORMONE THERAPY + IMMUNOTHERAPY	0	0	1	1	2.6%
NO FIRST-COURSE TREATMENT	1	1	12	14	35.9%
TOTAL	2	2	35	39	100%



Suresh Nair, MD, Appointed Chair of American Board of Internal Medicine's Medical Oncology Board

Suresh Nair, MD, Physician in Chief of Lehigh Valley Topper Cancer Institute, was appointed to the American Board of Internal Medicine's (ABIM) Council as Chair of its Medical Oncology Board.

"I am honored to take on this role and I look forward to working with national leaders in research, education and standard-setting to ensure our specialty's board-certification requirements are reflective of the ever-evolving nature of the medical oncology field," Dr. Nair says.

Founded in 1936, the ABIM is a physician-led evaluation organization dedicated to establishing standards for physicians specializing in internal medicine and 21 subspecialties. The organization certifies nearly one in four physicians across the country, with more than 200,000 physicians board-certified in internal medicine and related specialties through ABIM.

As a member of the ABIM Council, Dr. Nair also will help oversee certification requirements that are fundamental across all medical specialties.

Dr. Nair has more than 32 years of medical oncology expertise and has worked at Lehigh Valley Topper Cancer Institute for more than 18 years. He was instrumental in starting the Cancer Institute's Hematology Oncology Fellowship Program. He also leads its membership in the Memorial Sloan Kettering Cancer Alliance, which expands the Cancer Institute's ability to offer premier cancer treatment and clinical trials to people throughout our region.

Annual Goal: High-Risk Breast Cancer

Each calendar year, the Lehigh Valley Health Network cancer committee establishes and implements one goal to meet the requirement of the American College of Surgeons' Commission on Cancer standards. The 2021 goal set by our cancer committee was on the high-risk breast program. Goal specifics included risk calculations, ordering high-risk screening studies as appropriate and performing clinical breast exams as outlined by the National Comprehensive Cancer Network highrisk breast cancer quidelines within the calendar year.

The goal was measured by scheduling audits, and it was attained using data abstraction by using the key term "high risk" in the clinician's schedule. The results achieved were to correctly identify high-risk breast cancer patients appropriately scheduled during clinic times in which the outcome will vary based on referred patients.

The goal was attained using data abstraction by using the key term "high risk" in the clinician's schedule.

There were roadblocks that developed: scheduling and establishing new-patient visits solely with a certified registered nurse practitioner, obtaining full reimbursement for the office visits, extracting the number of patient appointments seen within the high-risk clinic as new patients and follow-ups, and also clinician availability. These roadblocks were resolved by creating and solidifying the schedule for the high-risk breast program; educating staff on scheduling patients for the clinic by using high-risk breast-patient criteria; and allocating additional time for clinicians to see patients in the clinic. This goal was completed and continues to be ongoing.

Prevention

On Oct. 6. 2022, the annual Pink Light Walk was held in person, beginning on the campus of East Stroudsburg University and ending at the Dale and Frances Hughes Cancer Center at Lehigh Valley Hospital-Pocono.

This walk raises awareness about breast cancer, emphasizing the importance of early screening and detection and remembering those who were lost to this disease.



Quality Improvement and Screening

Each calendar year, Lehigh Valley Topper Cancer Institute's cancer committee identifies one cancer-specific quality improvement problem under the quidance of the cancer liaison physician, the quality improvement coordinator and the cancer committee.

For 2021, LVH-Pocono participated in the Plan/Do/Study/Act project that also included standard 8.3 cancer screening. This project aimed to improve lung cancer screening to our COVID-19 pre-pandemic average of 44.5 encounters per month by November 2021. During the COVID-19 pandemic months of September 2020 through January 2021, the average rate of lung cancer screening fell to 33 encounters.

We surpassed our goal of 44.5 by averaging 63 screenings a month for that period.

Our initial intervention to improve our low-dose computed tomography (LDCT) scan screening rate was offering awareness and education of the lung cancer screening guidelines, and messaging information to both primary and specialty care clinicians at LVH-Pocono via email. The plan for our clinicians was to identify those ages 55-77 who currently smoke 30 or fewer packs a year or who have quit fewer than 15 years ago.

Secondly, once patients are identified, they will receive education on the importance of and encouraged to obtain LDCT screening by a clinician. Clinicians will order the LDCT screening, and eligible patients will obtain the screen.

With this intervention, we expected to increase our lung cancer screening rate to pre-pandemic rates and fulfill Commission on Cancer standards: 8.3, 7.3 and 9.1. The number of screens were monitored monthly beginning June 2021 and ending November 2021.

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LOCATION		2021										
LOCATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	ост.	NOV.	DEC.
LEHIGH VALLEY IMAGING	56	48	104	63	72	83	85	84	77	92	76	82
LVH-MUHLENBERG	39	43	84	51	50	58	60	58	42	59	53	51
LVH-17TH STREET	7	17	37	19	12	17	21	20	18	11	17	26
IMAGING SERVICES-CETRONIA ROAD	10	14	27	24	9	17	21	16	14	17	14	15
LVH-HECKTOWN OAKS		(BEGAN	N SCREEN	iings jui	Y 2021)		21	11	15	21	32	15
LVH-HAZLETON	13	15	22	11	23	17	16	30	26	21	23	23
LVH-POCONO	32	41	78	32	30	64	67	74	43	60	70	46
LVH-SCHUYLKILL	12	16	25	17	30	21	18	25	24	19	27	16
NETWORK TOTAL	169	194	377	217	226	277	309	318	259	300	312	274

RESULTS OF STUDY:

- From June 2021 through December 2021, 424 LDCT screenings were completed at LVH-Pocono
 - 12 positive screens
 - Of the 12 biopsies, 10 were stage 1 cancers
- · Physician offices will continue to recommend LDCT screenings

Expanded Cancer Services at New Carbon County Hospital

CANCER PROGRAM BLENDS CLINICAL EXCELLENCE WITH CLOSE-TO-HOME CONVENIENCE

The new Lehigh Valley Hospital (LVH)-Carbon campus, along Route 443 just outside Lehighton, now boasts a location of Lehigh Valley Topper Cancer Institute. The Cancer Institute is the only cancer center in the region that is part of the prestigious Memorial Sloan Kettering (MSK) Cancer Alliance.

For people in the area, the cancer program at LVH-Carbon will offer convenient access to an array of cancer services and an experienced hematology oncology team.

LESS DRIVING, MORE THRIVING

Lehigh Valley Health Network (LVHN) had already established a reputation for first-rate oncology care among Carbon County residents. In the past, however, cancer patients and caregivers had to drive to LVH-Cedar Crest near Allentown for many diagnostic and treatment services. Now, thanks to the expanded program at LVH-Carbon, the commute for cancer care in many cases is much shorter.

Services such as infusion and imaging are on-site. That is great news for the entire community, and it may be a particular advantage for older patients, who often find it difficult to travel longer distances.

HIGH-QUALITY ONCOLOGY CARE

Patients at LVH-Carbon now benefit from the same compassionate care and clinical expertise that they have come to expect from all Cancer Institute locations.

Among the hematology oncology services available at the LVH-Carbon campus:

- · Infusion treatments, including chemotherapy, immunotherapy, hydration therapy and blood transfusions.
- Phlebotomy services, including blood draws for benign hematologic conditions.
- · Advanced imaging, including computed tomography, MRI and ultrasound capability.
- Virtual consults with the Cancer Institute's large network of multidisciplinary cancer specialists, including surgical oncologists and radiation oncologists.
- · Genetic counseling to help people make informed decisions about their health.

As a member of the MSK Cancer Alliance, the Cancer Institute also provides access to world-class clinical trials. Cancer patients at LVH-Carbon will be screened for trials offered at other Cancer Institute locations.







LVPG-Delta Medix, Together With LVH-Dickson City, Brings Comprehensive Care to Scranton Area

A NEW HOSPITAL IN DICKSON CITY CATERS TO EVERY SURGICAL NEED. INCLUDING MINIMALLY INVASIVE AND ROBOTIC PROCEDURES

Delta Medix, the premier multispecialty practice in the Scranton area, joined forces with Lehigh Valley Physician Group (LVPG). Now known as LVPG-Delta Medix, the practice provides an unmatched range of exceptional health care services to Northeast Pennsylvania.

The acquisition of Delta Medix allows LVPG to expand into a very well-run and highly regarded multispecialty practice. As part of Lehigh Valley Health Network (LVHN), LVPG provides additional services, specialists and ancillary resources.

The 2022 opening of Lehigh Valley Hospital (LVH)-Dickson City highlights the benefits of this union. The new, state-of-the-art facility offers a wide array of patient care and diagnostic testing services. The hospital has a particular focus on surgical care, with seven operating rooms, two procedure rooms and advanced robotic technology. There was already a large surgery-component to Delta Medix, and joining LVPG allows it to continue to provide outstanding surgical care - but now across a larger breadth of services with a deeper bench of physicians and other clinicians.

Procedures offered at LVH-Dickson City include:

- Spinal surgery
- Urologic surgery
- Joint replacement
- Bariatric surgery
- General orthopedic surgery
- Gastrointestinal surgery
- Hand surgery
- · Hernia repair
- Otolaryngological surgery
- General surgery

The integration of Delta Medix into LVPG not only enables the new practice to sustain and grow these services, it also will help recruit quality surgeons to the area and replenish the surgical workforce.

READY ACCESS TO LVHN RESOURCES

For Delta Medix clinicians and patients, the move to LVPG facilitates access to:

- Lehigh Valley Topper Cancer Institute, which offers top-of-the-line cancer care and clinical trials, enhanced by membership in the prestigious Memorial Sloan Kettering Cancer Alliance.
- · Lehigh Valley Institute for Surgical Excellence, which focuses on innovative, minimally invasive procedures, including a robotic surgery program that has grown into one of the busiest in the nation.
- · Lehigh Valley Heart and Vascular Institute, which boasts the region's most experienced heart and vascular teams, as well as specialized programs in women's heart health, sports cardiology and more.

Gamma Knife[®] Icon[™] Procedure Provides Safe, Effective Radiation Therapy

TREATING TUMORS, VASCULAR ABNORMALITIES AND MORE

Lehigh Valley Health Network (LVHN) long has been committed to leadership in neuro-oncology, neurosurgery and radiation oncology. This commitment is evident in the ongoing management of the region's only Gamma Knife Icon unit, which allows LVHN's experienced neurosurgeons and radiation oncologists to treat a variety of benign and malignant conditions in a single outpatient procedure.

The Gamma Knife has been in place at Lehigh Valley Hospital-Cedar Crest since 2004, part of Lehigh Valley Topper Cancer Institute. About 2,000 Gamma Knife procedures have been performed since the program started, and current volumes are around 150 cases annually. All physicians who use LVHN's Gamma Knife have received special training and are certified in its use.

Gamma Knife is the noninvasive gold standard for treating both malignant and benign conditions of the brain and upper spine.

GOLD STANDARD

Gamma Knife is the noninvasive gold standard for treating both malignant and benign conditions of the brain and upper spine that otherwise are difficult to safely treat. It is very effective compared to other modalities and less time-consuming, offering significant advantages for metastases and other tumors.

In development since the 1950s, the Gamma Knife came into use in clinical practice in the late 1980s. However, the Gamma Knife came into broader use in the 1990s, after integration with the computer. Gamma Knife is the most precise form of radiation therapy for intracranial targets. Such precision allows us to treat lesions with minimal risk to surrounding normal structures.

Among the most important advances in recent years has been the added capability to treat most patients without employing the head frame to the skull, used for immobilization of the head during treatment. While only minimally invasive, placement of the head frame may add to patient stress and cause temporary discomfort.

Following the Gamma Knife Icon upgrade, most patients are treated using a custom-fit thermoplastic mask that holds the head securely in place during treatment. The addition of a computed tomography scanner and an optical tracking system to the Gamma Knife makes possible the use of the frameless approach.

TREATING A RANGE OF CONDITIONS

Conditions that can be treated with the Gamma Knife include acoustic neuromas, pituitary adenomas, pinealomas, craniopharyngiomas, meningiomas, chordomas, brain metastases, glial tumors, arteriovenous malformations and a variety of functional disorders including trigeminal neuralgia. LVHN also offers stereotactic radiosurgery with the Varian Edge linear accelerator for conditions not suitable for treatment with Gamma Knife.

Detecting Earliest Signs of Cancer Recurrence

STRATA SENTINEL TRIAL OFFERS CUSTOM-DESIGNED GENOMIC MONITORING

Patients at Lehigh Valley Topper Cancer Institute have access to an innovative clinical trial that will help advance the ability to detect cancer recurrence in its earliest stages and monitor treatment effectiveness. The Strata Sentinel trial will enroll people with stage 1, 2 and 3 solid tumors who have completed or are planning to undergo curative surgery or definitive cancer therapy.

Strata Oncology will use tumor and blood samples from these individuals to create a personalized genomic profile of the tumor tissue and design a StrataMRD (minimal residual disease) test targeting specific mutations.

Individuals will then have blood draws every three months to search for circulating tumor DNA. This is the first time that the StrataMRD test will be used to monitor people who have had solid tumors.

SECOND SITE IN THE NATION

The Cancer Institute will be only the second site in the U.S. to enroll people in the trial, which is expected to include 20,000 people who will be followed for up to five years.

Almost every solid-tumor type except for brain tumors may be included in the trial; the hope is to enroll at least 50 Lehigh Valley Health Network (LVHN) patients.

ONGOING PARTNERSHIP

The Sentinel trial is LVHN's second collaboration with Strata Oncology, a genomic testing and precision medicine company based in Ann Arbor, Mich. 711 people have signed consent forms for the initial Strata trial, with **672** people receiving results.

Individuals enrolled in the Sentinel trial may benefit in several ways, whether or not they elect to know the results of their blood tests, and whether or not their cancer recurs. Physicians tend to underestimate the risk of recurrence, but patients are more realistic. Being closely monitored with ongoing genomic testing may provide a lot of reassurance. Depending on the results, physicians may choose to change imaging or treatment protocols.

The specificity of the testing also allows for mutations to be detected via a blood sample, which could lead to options for targeted therapy for patients as well.

In future trials, we may be able to get quantitative measures of the amount of circulating tumor DNA to see if it is increasing over time. Eventually, the hope is to be able to map treatments to a patient's specific tumor profile. This is a very ambitious project, and Lehigh Valley Topper Cancer Institute is well poised to maximize its potential.









LVHN's Robotic Surgery Team Surpasses 25,000 Procedures

EMPLOYING TOP-TIER TECHNOLOGIES TO DELIVER OUTSTANDING CARE **ACROSS 13 SURGICAL SPECIALTIES**

In 2022, Lehigh Valley Health Network (LVHN) celebrated a milestone: 25,000 surgeries performed by its robotic surgery team since 2008, when the program launched.

PRIORITIZING PATIENT OUTCOMES

The program has accelerated very quickly to the point where it rivals the best in the country. LVHN has helped thousands of individuals through robotic surgeries with fewer incisions, less blood-loss, less pain and less scarring, resulting in quality outcomes and a faster return to normal activity.

The Robotic Surgery Center for Excellence was created with the explicit reason of constantly improving our outcomes. Our continued investment in acquiring the latest surgical technologies shows our commitment to offering patients the best possible care.

NONSTOP GROWTH AND DEVELOPMENT

In the beginning, LVHN's robotic team focused primarily on urologic and gynecologic surgeries using the trailblazing da Vinci Surgical Systems. Surgical techniques have evolved along with the various da Vinci system iterations, the S, Si, HD, X and Xi. LVHN is one of the very few health systems to offer the SP (single port), which is used in delicate surgeries through a one-inch incision.

Today, the team consists of more than 100 robotic surgeons in:

- General surgery
- Urology
- · Bariatric surgery
- Surgical oncology
- Spine

- Colorectal surgery
- Thoracic surgery
- Gynecologic oncology
- Urogynecology
- Orthopedic surgery

- Gynecology
- · Ear, nose and throat

Reproductive surgery

Cancer Data Management

TUMOR REGISTRY

The cancer data management department of Lehigh Valley Health Network (LVHN) captures a complete summary of demographics, history, diagnosis and treatment status for every cancer patient seen at LVHN. These important data are collected and stored in a cancer registry, an information system designed for collection, management and analysis of data on persons with a diagnosis of malignant neoplastic disease. In turn, these data are used by medical clinicians and local, state and national agencies (e.g., Pennsylvania Cancer Registry and National Cancer Database) to make important decisions, including:

- · Evaluate patient outcome and quality of life and implement procedures for improvement
- · Provide follow-up information for cancer surveillance
- Provide information for cancer program activities
- · Allocate resources at the health care facility and community, region or state level
- · Develop educational programs for health care clinicians, patients and the general public
- · Report cancer incidence
- · Evaluate efficacy of treatment modalities

Aside from case abstracting, the department also performs case-finding of cancer cases in LVHN and lifetime patient follow-up, organizes cancer conferences, handles multidisciplinary tumor boards wherein treatment and management of cancer cases are discussed, participates on the cancer committee and handles reporting to local, state and national agencies.

Radiation Oncology

Radiation therapy may play a crucial role in your cancer treatment. Lehigh Valley Topper Cancer Institute's department of radiation oncology offers patients the availability of the finest state-of-the-art technology and techniques.

LATEST PROTOCOLS AND TECHNOLOGIES

Lehigh Valley Hospital-Pocono received new:

Brachytherapy equipment (Varian):

- · 1-Universal Endometrial Applicator Set
- 1-Universal Cervix Probe Set, even lengths
- · 40-Plastic Needle blunt 320mm, ø2.0mm 40
- 1-VS 200 Needle ClickFit TGT Set Ch 1-10 1

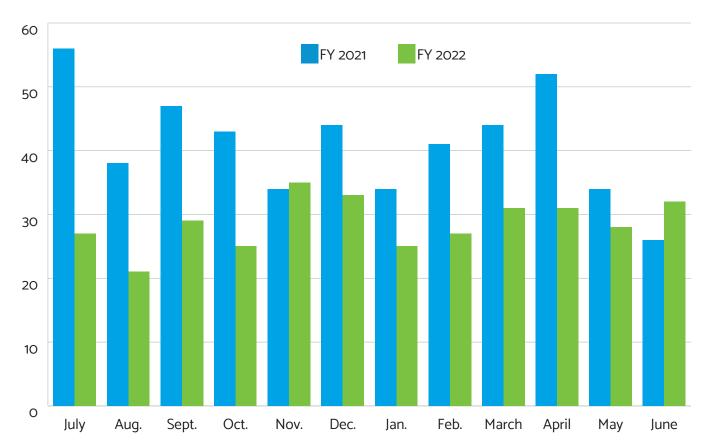
- · 1-VS 200 Needle ClickFit TGT Set Ch 11-20 1
- 1-Blue Locking collets for 2mm (pack 25)
 - Locking collets designed for 2.0mm needle versions of the Kelowna GYN
 - Template and Crook Prostate Template

- 1-Kelowna GYN Template for 2.0mm needles
- · 1-Needle collet wrench
 - Wrench for tightening and loosening needle collets
- 1-Cylinder Ø25mm, 140mm length

Computed tomography scanner:

GE Discovery

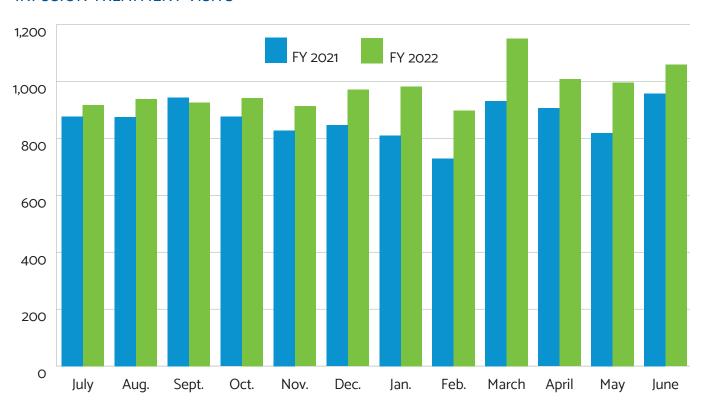
RADIATION ONCOLOGY NEW STARTS



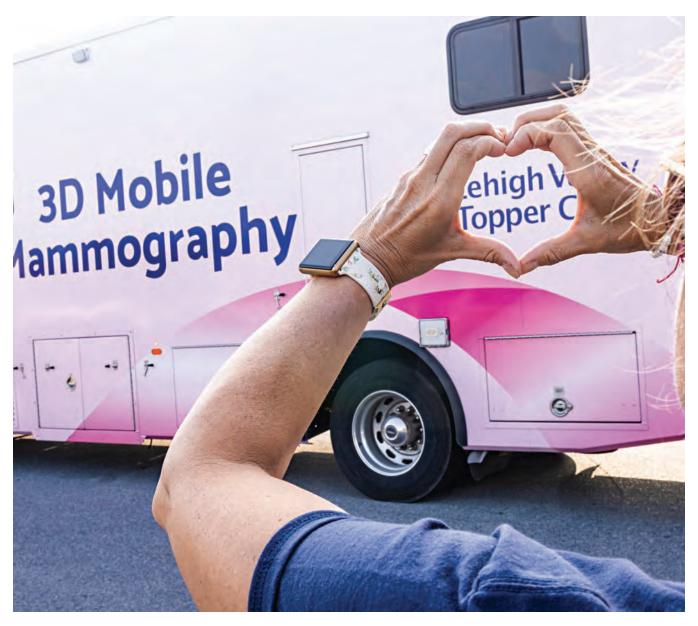


Infusion

INFUSION TREATMENT VISITS



Breast Health Services









Lehigh Valley Topper Cancer Institute

Cancer genetics through the Gregory and Lorraine Harper Cancer Risk and Genetic Assessment Program is staffed with four full-time, board-certified licensed genetic counselors as well as a part-time genetics nurse navigator. We have one dedicated genetic counselor who sees patients at the Dale and Frances Hughes Cancer Center at Lehigh Valley Hospital-Pocono on the first and third Thursdays of the month as well as on the second Tuesday. Sonyo Shin, MD, is the medical director.

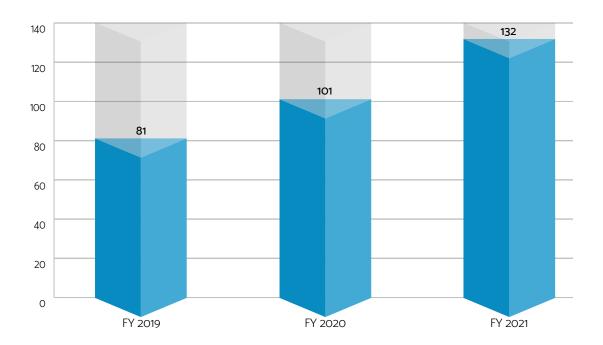
Additionally, there is a genetics outreach coordinator who provides support on the on-site days. Two clinical assistants, an office coordinator and extra support are provided by cancer support services staff.

While the majority of cancer is sporadic, approximately 10% of cancer has a hereditary cause. Understanding if there is a hereditary contribution to cancer can aid in treatment, surveillance and risk-reducing options for individuals and their families. Additionally, we are working with our medical oncology colleagues to help understand the results of somatic (tumor) mutations, which can not only help dictate treatment decisions but also can help identify families with hereditary cancer syndromes.

This program meets with individuals who are interested in cancer-risk assessment and genetic testing for hereditary cancer syndromes. An appointment consists of in-depth counseling and education regarding personal and family history of cancer, cancer-risk assessment and discussion of medical management guidelines to reduce/prevent cancer. If genetic testing is warranted, a discussion between patient and physician or other clinician determines the most appropriate type of testing (single-gene vs. multi-gene panels). Genetic test results as well as personal and family risk factors help clinicians personalize a medical management and surveillance plan. Patients who test positive are invited to attend the genetics multidisciplinary clinic, where an annual appointment continues to offer recommendations for cancer-risk reduction. The Cancer Risk and Genetic Assessment Program also helps facilitate entry into clinical or research studies when appropriate.

Our program continues to see substantial growth. (See accompanying graph.) In FY 2021, we saw 129 new patients and three follow-ups for a total of 132 visits. This includes several months when we were unable to see patients for in-person visits because of COVID-19.

TOTAL NUMBER OF GENETIC COUNSELING VISITS



Summary Report

SOCIAL WORK, SUPPORT, SURVIVORSHIP AND PSYCHOSOCIAL SERVICES: DALE AND FRANCES HUGHES CANCER CENTER SUMMARY REPORT, JANUARY TO DECEMBER 2021

Psychosocial

Distress screenings are completed and entered into electronic medical records for all new chemotherapy and radiation treatment patients during their first physician visit, with follow-up by the social worker as referrals are made or requested/ needed. The social worker continues to aim to meet with each new oncology patient as they begin treatment.

A total of **945** distress screenings were completed during January to December 2021.

Distress noted at 4 or above: 227 patients.

On-site referrals: 474.

Off-site referrals: 324.

Note: 107 patients who were screened noted transportation concerns.

Support/Survivorship Programs

LEUKEMIA AND LYMPHOMA SUPPORT **GROUP**

- · Meets quarterly for patients and family members/ caregivers of blood-related cancers.
- · Co-facilitated by Miranda Zinn, LSW, and Michelle Zeruth, RN.
- Total attendees for the year: Two meetings were held; six attendees.

US TOO PROSTATE SUPPORT GROUP

- · Meets once per month for patients and family members/ caregivers of prostate cancer.
- · Co-facilitated by Miranda Zinn, LSW, and Richard Kerr, prostate cancer survivor.
- · Total attendees for the year: 11 meetings were held; 39 attendees.

Financial Assistance

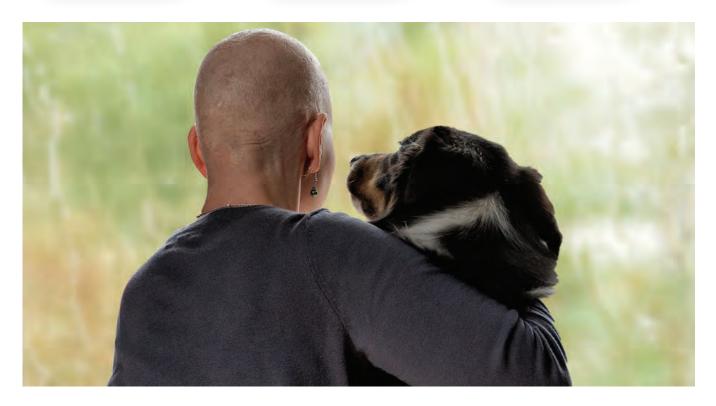
APPLICATIONS PROCESSED	JANUARY-DECEMBER 2021					
Hope for Strength Breast Fund	25	\$6,858.38				
Howard Canfield Fund for Men	1	\$500.00				
Suzanne Zale Buck Fund (for gynecological cancers)	5	\$923.97				
Woman to Woman Fund	15	\$5,387.32				
Doreen Miram's Fund	23	\$14,690.27				
Melanie Humphrey Breath of Life Fund	8	\$2,816.00				
Total	77	\$31,175.94				

Financial Counseling









Services

- Pet therapy has been brought back in a limited capacity through the Lehigh Valley Hospital-Pocono volunteer department.
- The American Cancer Society (ACS) suspended its Road to Recovery program as of March 15, 2020, because of COVID-19. The ACS is gradually restoring its transportation program in certain areas, depending on COVID cases, capacity and driver interest. Other transportation resources, including the local county Shared Ride programs, have continued to be available.
- The Dale and Frances Hughes Cancer Center collaborated with the ACS to provide wig fittings by appointment for women at the center.

Nutrition Counseling

• Two dietitians are available to meet with patients and families before, during and after treatments to assess nutritional needs and determine appropriate goals and strategies to reach those goals. In 2021, our dietitians completed 104 assessments.



Cancer Rehabilitation

Cancer rehabilitation services help patients manage functional activities of daily living that are affected by the cancer experience. Individualized treatment programs are designed to enable the patient to resume normal activities. If you are suffering from fatigue, weakness, balance problems, lymphedema or other symptoms related to your condition and/or treatment, our trained rehabilitation therapists can help provide relief or recommend steps you can take to mitigate your symptoms. We offer lymphedema services at Stroudsburg, Tobyhanna and Dickson City. We are uniquely qualified to understand the effects of cancer and cancer treatments on daily life. LVHN Rehab Services can help the cancer patient overcome obstacles related to surgery, cancer or side effects from treatment.

Navigation

Our certified patient- and family-support navigators guide you through your screening, treatment or survivorship journey, all to make life just a little easier. They not only understand the system, but many have also been in your shoes. Our patient- and family-support navigator program is a valued approach to care.

Clinical Trials

Offering our patients excellence in cancer care and access to the latest and most promising therapies is the mission of Lehigh Valley Health Network's (LVHN) clinical trials program. Our dedicated clinical-trials staff helps ensure we follow the strictest of clinical trial protocols and deliver clear results, while providing compassionate care for our patients. Enhancing our already robust and well-respected program further, LVHN was invited to join the Memorial Sloan Kettering (MSK) Cancer Alliance. LVHN cancer patients work with their LVHN physician or other clinician to determine if an early phase MSK cancer clinical trial is right for them. In addition to potentially improving life span or quality of life, the LVHN/MSK clinical trial collaboration will help advance cancer treatment knowledge to benefit all patients.

STRATA ONCOLOGY ELITE GENOMIC TRIALS

In June 2019, LVHN partnered with Strata Oncology, a precision oncology company, to bring tumor molecular-profiling to patients at no cost. In addition to 400 cancer genes being analyzed for research, the molecular profiling analyzes about 100 actionable cancer genes. For patients who have these actionable cancer genes, there may be a treatment available to specifically target their disease.

From the results of Strata Oncology testing, patients also may be matched, via cancer genes discovered during testing, to available clinical trials. LVHN is in the process of activating additional treatment clinical trials to offer to patients who have these matches.

Strata Oncology estimates that 100,000 patients will be enrolled into this clinical trial, across all open sites. To date, LVHN is the only site in Pennsylvania partnered with Strata Oncology and has enrolled 95 patients into the tumor molecular-profiling clinical trial.

CLINICAL RESEARCH ACCRUAL 2021 SUMMARY TO DATE

- · Strata (Basic Science): An Observational Trial Assessing the Clinical Benefit of Molecular Profiling in Patients with Solid Tumors NCTo3061305 - eight enrollments
- · 2021 analytic: 659
- Accrual percentage for 2021: 1.2%
- Just Ask QI/Research Study completed for standard 9.1 credit









Our Locations

Lehigh Valley Topper Cancer Institute offers a range of services in convenient, patient-focused locations.

Lehigh Valley Physician Group (LVPG) practices provide services in Allentown, Bethlehem, East Stroudsburg, Easton, Hazleton, Lehighton, Pottsville and Scranton.

Dale and Frances Hughes Cancer Center at Lehigh Valley Hospital-Pocono

Breast Health Services at Bartonsville

Radiology and Laboratory Services at East Stroudsburg

















Our Awards, Certifications and Accreditations

AMERICAN COLLEGE OF RADIOLOGY (ACR) LUNG CANCER SCREENING CENTER

ACR Lung Cancer Screening Center program recognizes facilities committed to providing quality screening care to patients at the highest risk for lung cancer.

ACR FOR BREAST MAMMOGRAPHY

Lehigh Valley Health Network has earned accreditation from the ACR for breast mammography.

ACR AND THE AMERICAN **SOCIETY FOR RADIATION ONCOLOGY 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.

ACR-CERTIFIED QUALITY BREAST CENTER OF EXCELLENCE

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

ACR DIAGNOSTIC IMAGING CENTER OF EXCELLENCE

Achieving this designation demonstrates we implement a rigorous program that produces high-quality diagnostic images, promotes patient safety and provides superior patient care.

COMMISSION ON CANCER

Continuously since 1992, the Dale and Frances Hughes Cancer Center 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 providing the best in cancer diagnosis and treatment, while also complying with standards established by the CoC.

NATIONAL QUALITY **MEASURES FOR BREAST** CENTERS-CERTIFIED QUALITY BREAST CENTER OF EXCELLENCE™

Breast Health Services at Lehigh Valley Hospital (LVH) and LVH-Pocono were named Certified Quality Breast Centers of Excellence in the National Quality Measure for Breast Centers by the National Consortium of Breast Centers.

THE IOINT COMMISSION

The Joint Commission accreditation and certification are recognized nationwide as symbols of quality that reflect an organization's commitment to meeting safe and effective care of the highest quality and value.

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.

