



Dale & Frances Hughes Cancer Center Lehigh Valley Hospital-Pocono

2020 STATISTICAL REPORT



LEHIGH VALLEY CANCER INSTITUTE 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.

We are pleased to present Lehigh Valley Cancer Institute's 2020 annual report for Lehigh Valley Hospital (LVH)-Pocono featuring 2019 data as well as information about our oncology services. We value our partnerships with patients and strive to provide hope through more clinical trials, more innovative treatment technology and more compassionate support throughout 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.

In June 2018, Memorial Sloan Kettering Cancer Alliance Partnership was extended to LVH-Pocono at the Dale and Frances Hughes Cancer Center. Lehigh Valley Cancer Institute became the second member of the MSK Alliance in 2016 and also 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 Cancer Institute - melanoma, breast, colon, endometrial, lung and prostate - to ensure alignment with MSK standards of care.

Specialized Oncology Care

Recognizing that most oncology patients receive care in community health care settings, Lehigh Valley Cancer Institute's membership in the MSK Cancer Alliance emphasizes innovation and collaboration. Patients at Lehigh Valley Cancer Institute have access to MSK clinical trials as well as the genetic sequencing tool MSK-IMPACT.

Lehigh Valley Cancer Institute also aligned with MSK to initiate site-specific disease management teams (DMTs). DMTs meet weekly to review and discuss new findings within their areas of expertise and interpret the data, helping to determine necessary changes within standard-of-care practice. Cases that pose unique challenges are discussed by experts at MSK and Lehigh Valley Cancer Institute to offer patients a collective treatment plan.

HIGHLIGHTS

Disease management teams – Each DMT is comprised of clinicians who specialize in a particular type of cancer care. Our clinical providers work closely with their MSK counterparts, including on individual patient cases.

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

Radiation Oncology IMRT (VMAT) – This precise technique enhances immune system response by “dose painting” radiation at the center of a tumor.

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

Gynecologic oncology service expansion – Christine Kim, MD, joined M. Bijoy Thomas, MD, and sees patients at Dale and Frances Hughes Cancer Center at LVH-Pocono and Cancer Center at LVH-Muhlenberg. 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.





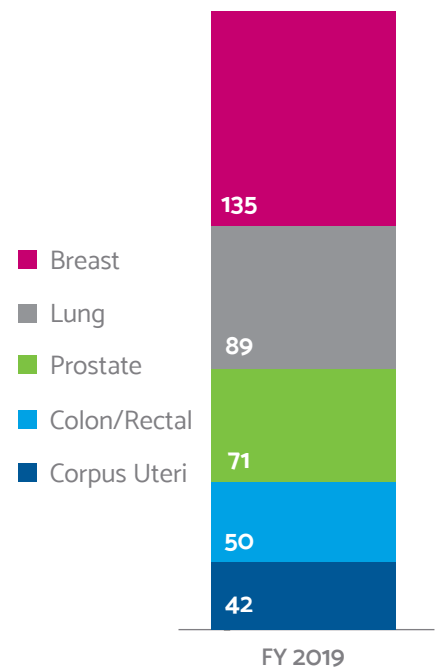
Dale and Frances Hughes Cancer Center Case Information

Lehigh Valley Cancer Institute physicians are cancer care specialists and board certified in their specialty. In calendar year 2019, the cancer program saw more than 593 new cancer patients. In fiscal year 2019, outpatient infusion volumes comprised 10,706 visits, and radiation oncology comprised 455 new treatments.

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

SITE DESCRIPTION	2015	2016	2017	2018	2019
BREAST	138	149	149	127	135
BRONCHUS & LUNG	90	112	106	119	89
PROSTATE GLAND	40	47	47	46	71
COLORECTAL	65	58	55	36	50
BLOOD & BONE MARROW					42
CORPUS UTERI				33	
URINARY BLADDER	28	34	35		
TOTAL	361	400	392	361	387

2019 LVH-POCONO TOP FIVE CANCER SITES



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 evaluation of the tumor size/invasion (T), nodal status (N) and metastasis (M) at 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, 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 for comparison is on cases newly diagnosed in 2017.

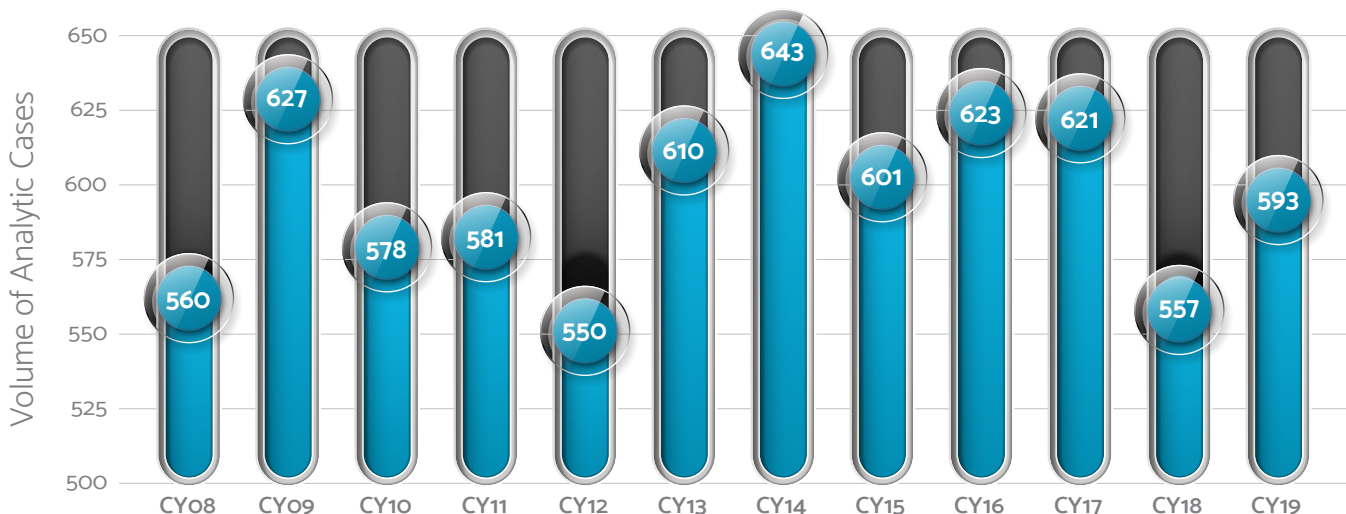
RAPID CANCER REPORTING SYSTEM (RCRS)

The Commission on Cancer (CoC) National Cancer Database (NCDB) has implemented a change to its technology infrastructure, with the transition to a new data platform system referred to as the Rapid Cancer Reporting System (RCRS), formerly known as RQRS.

RCRS, launched Sept. 28, 2020, is a web-based data collection and reporting system that analyzes information gathered through the American College of Surgeons (ACoS) 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 2004 through current.

Lehigh Valley 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 Analytic Cases – LVH–Pocono



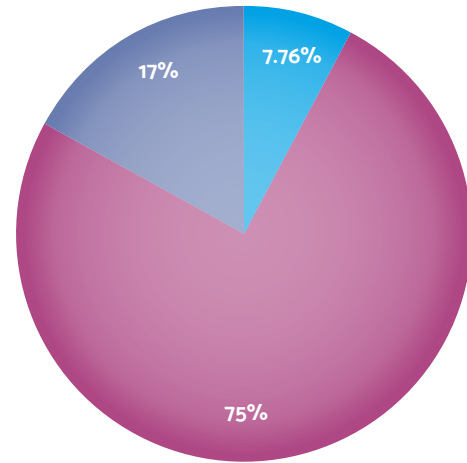
Analytic Cases by County of Residence

In 2019, LVH-Pocono provided diagnostic care, second opinion recommendations and treatment to 593 patients from 13 Pennsylvania counties. In addition, 13 patients came to our cancer program from communities across the United States.

INCIDENCE BY COUNTY OF RESIDENCE - ANALYTIC CASES

COUNTY OF RESIDENCE	2019	PERCENTAGE
BERKS	1	0.17%
CARBON	18	3.04%
LACKAWANNA	5	0.84%
LEHIGH	3	0.51%
LUZERNE	8	1.35%
MONROE	451	76.05%
NORTHAMPTON	25	4.22%
PHILADELPHIA	1	0.17%
PIKE	59	9.95%
SUSQUEHANNA	1	0.17%
WAYNE	7	1.18%
WYOMING	1	0.17%
OUT OF STATE	13	2.19%
TOTAL	593	100%

CASE CLASSIFICATION BASED ON PATIENT MIGRATION PATTERNS LVH-POCONO 2019



- Diagnosed here and treated elsewhere
- Diagnosed here and treated here
- Diagnosed elsewhere and treated here

LVH-Pocono Prevalence by Disease Sites

2019 ANALYTIC CASES BY PRIMARY BODY SITE

PRIMARY SITE	TOTAL
HEAD AND NECK	23
DIGESTIVE ORGANS	77
ESOPHAGUS	8
STOMACH	3
SMALL INTESTINE	1
COLON	35
RECTOSIGMOID JUNCTION	3
RECTUM	12
ANUS & ANAL CANAL	0
LIVER & BILE DUCTS	1
GALLBLADDER	0
OTHER BILIARY TRACT	2
PANCREAS	12
OTHER DIGESTIVE ORGANS	0
THORAX	89
BRONCHUS & LUNG	89
THYMUS	0
HEART MEDIASTINUM PLEURA	0
MUSCULOSKELETAL/SOFT TISSUE SITES	5
BLOOD AND BONE MARROW	42
SKIN	4

PRIMARY SITE	TOTAL
BREAST	135
FEMALE GENITAL ORGANS	44
VULVA	1
VAGINA	0
CERVIX UTERI	9
CORPUS UTERI	26
UTERUS NOS	1
OVARY	6
OTHER FEMALE GENITAL ORGANS	1
PLACENTA	0
MALE GENITAL ORGANS	74
PENIS	0
PROSTATE GLAND	71
TESTIS	2
OTHER & UNSPECIFIED MALE GENITAL ORGANS	1
URINARY TRACT ORGANS	38
KIDNEY	11
KIDNEY, RENAL PELVIS	0
URETER	0
URINARY BLADDER	27
OTHER & UNSPECIFIED URINARY ORGANS	0

PRIMARY SITE	TOTAL
CENTRAL NERVOUS SYSTEM	5
MENINGES	4
BRAIN	1
OTHER NERVOUS SYSTEM	0
ENDOCRINE GLANDS	21
THYROID GLAND	20
ADRENAL GLAND	0
OTHER ENDOCRINE GLANDS	1
OTHER	0
ORBIT, OCULAR	0
OTHER ILL-DEFINED SITES	0
RETROPERITONEUM & PERITONEUM	0
LYMPH NODES	24
UNKNOWN PRIMARY	12

(Data source: LVHN Tumor Registry)
10/02/2020)



ANALYTIC CASES

INCIDENCE OF BREAST CANCER BY AGE AT DIAGNOSIS LVH-POCONO 2019

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	3	14	31	41	31	13	2	135

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR BREAST CANCER: LVH-POCONO* 2019 DATA TO NCDB^ 2017 DATA

TREATMENT	STAGE 0	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	LVH-P TOTAL	LVH-P %	NCDB TOTAL
SURGERY + RADIATION + HORMONE THERAPY	3	29	1	0	0	19	52	41.3%	64,252
SURGERY + RADIATION	1	7	0	0	0	4	12	9.5%	14,694
SURGERY + HORMONE THERAPY	1	4	0	0	0	6	11	8.7%	38,943
SURGERY ONLY	4	4	0	0	0	3	11	8.7%	33,833
SURGERY + RADIATION + CHEMOTHERAPY + HORMONE	0	6	1	1	0	0	8	6.3%	21,526
SURGERY + RADIATION + CHEMOTHERAPY	0	5	1	0	0	2	8	6.3%	11,475
SURGERY + CHEMOTHERAPY	0	4	0	2	0	0	6	4.8%	9,369
SURGERY + RADIATION + CHEMOTHERAPY + HORMONE + IMMUNOTHERAPY	0	3	0	0	0	0	3	2.4%	0
HORMONE THERAPY ONLY	0	3	0	0	0	0	3	2.4%	4,561
SURGERY + CHEMOTHERAPY + HORMONE THERAPY	0	2	0	0	0	0	2	1.6%	7,260
CHEMOTHERAPY ONLY	0	0	0	1	1	0	2	1.6%	2,683
SURGERY + CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	0	0	0	0	0.0%	3,886
CHEMOTHERAPY + HORMONE	0	0	0	0	0	0	0	0.0%	1,954
CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	0	0	0	0	0.0%	1,397
RADIATION + HORMONE THERAPY	0	0	0	0	0	0	0	0.0%	609
RADIATION + CHEMOTHERAPY	0	0	0	0	0	0	0	0.0%	485
RADIATION THERAPY ONLY	0	0	0	0	0	0	0	0.0%	322
OTHER SPECIFIED THERAPY	0	1	0	0	0	1	2	1.6%	22,620
NO FIRST COURSE RX	2	2	0	0	0	2	6	4.8%	8,072
TOTAL	11	70	3	4	1	37	126	100%	247,941

*8 cases excluded due to stage classification performed after initial multimodality therapy; 1 Phyllodes tumor excluded.

^NCDB data represents analytic cases in all states from 1,299 hospitals.

INCIDENCE OF LUNG CANCER BY AGE AT DIAGNOSIS LVH-POCONO 2019

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	0	1	19	25	35	8	1	89

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR NON-SMALL CELL LUNG CANCER LVH-POCONO* 2019 DATA TO NCDB^ 2017 DATA

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	LVH-P TOTAL	LVH-P %	NCDB TOTAL	NCDB %
RADIATION ONLY	14	3	0	6	0	23	28.8%	23,518	17.2%
CHEMOTHERAPY + RADIATION	2	0	9	8	0	19	23.8%	21,066	15.4%
SURGERY ONLY	7	0	1	0	2	10	12.5%	28,377	20.8%
SURGERY + CHEMOTHERAPY	1	2	3	0	0	6	7.5%	6,332	4.6%
CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	6	0	6	7.5%	3,708	2.7%
IMMUNOTHERAPY	1	0	0	3	0	4	5.0%	0	0.0%
SURGERY + CHEMOTHERAPY + RADIATION	0	0	0	0	0	0	0.0%	2,823	2.1%
OTHER SPECIFIED THERAPY	0	0	0	3	0	3	3.8%	27,079	19.8%
NO FIRST COURSE RX	1	1	1	6	0	9	11.3%	23,727	17.4%
TOTAL	26	6	14	32	2	80	100%	136,630	100%

*1 case excluded due to stage classification performed after initial multimodality therapy; 1 case excluded due to histology classification of other.
 ^NCDB data represents analytic cases in all states from 1,300 hospitals.

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR SMALL CELL LUNG CANCER: LVH-POCONO* 2019 DATA TO NCDB^ 2017 DATA

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	LVH-P TOTAL	LVH-P %	NCDB TOTAL	NCDB %
CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	3	0	3	42.9%	199	0.9%
CHEMOTHERAPY + RADIATION	0	0	1	0	1	2	28.6%	8,202	38.9%
RADIATION + CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	1	0	1	14.3%	0	0.0%
CHEMOTHERAPY ONLY	0	0	0	0	0	0	0.0%	5,857	27.8%
RADIATION THERAPY ONLY	0	0	0	0	0	0	0.0%	1,125	5.3%
SURGERY + CHEMOTHERAPY + RADIATION	0	0	0	0	0	0	0.0%	264	1.3%
OTHER SPECIFIED THERAPY	0	0	0	0	0	0	0.0%	1,069	5.1%
NO FIRST COURSE OF RX	0	0	1	0	0	1	14.3%	4,345	20.6%
TOTAL	0	0	2	4	1	7	100%	21,061	100%

^NCDB data represents analytic cases in all states from 1,269 hospitals.

INCIDENCE OF PROSTATE CANCER BY AGE AT DIAGNOSIS LVH-POCONO 2019

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	0	0	13	31	23	4	0	71

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR PROSTATE CANCER LVH-POCONO* 2019 DATA TO NCDB^ 2017 DATA

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNKN	LVH-P TOTAL	LVH-P %	NCDB TOTAL	NCDB %
SURGERY ONLY	4	5	1	0	1	11	15.5%	52,152	41.3%
RADIATION + HORMONE THERAPY	0	8	6	2	0	16	22.5%	18,303	14.5%
RADIATION ONLY	3	22	2	0	1	28	39.4%	15,078	11.9%
ACTIVE SURVEILLANCE	0	0	0	0	0	0	0.0%	13,105	10.4%
NO FIRST COURSE RX	4	2	0	0	0	6	8.5%	8,313	6.6%
HORMONE THERAPY ONLY	0	1	2	0	0	3	4.2%	7,316	5.8%
SURGERY & HORMONE THERAPY	0	1	0	0	0	1	1.4%	3,118	2.5%
SURGERY + RADIATION + HORMONE	0	2	3	0	0	5	7.0%	2,625	2.1%
OTHER RX	0	1	0	0	0	1	1.4%	6,310	5.0%
TOTAL	11	42	14	2	2	71	100%	126,320	100%

^NCDB data represents analytic cases in all states from 1,284 hospitals.

INCIDENCE OF COLON CANCER BY AGE AT DIAGNOSIS LVH-POCONO 2019

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	2	2	7	9	8	6	1	35

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR COLON CANCER: LVH-POCONO* 2019 DATA TO NCDB^ 2017 DATA

TREATMENT	STAGE 0	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNKN	LVH-P TOTAL	LVH-P %	NCDB TOTAL	NCDB %
SURGERY ONLY	2	3	8	3	6	2	24	68.6%	40,716	54.7%
SURGERY + CHEMOTHERAPY	0	0	1	8	0	0	9	25.7%	17,638	23.7%
OTHER SPECIFIED THERAPY	0	0	0	0	0	0	0	0.0%	10,014	13.4%
NO FIRST COURSE OF RX	0	1	0	0	0	1	2	5.7%	6,125	8.2%
TOTAL	2	4	9	11	6	3	35	100%	74,493	100%

*2 additional cases of primary site rectosigmoid excluded for consistent comparison with NCDB.

^NCDB data represents analytic cases in all states from 1,304 hospitals.

INCIDENCE OF BLOOD AND BONE MARROW CANCER BY AGE AT DIAGNOSIS LVH-POCONO 2019

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	0	2	8	12	10	9	1	42

COMPARISON OF INITIAL TREATMENT BY AJCC STAGE FOR BLOOD AND BONE MARROW CANCER: LVH-POCONO* 2019 DATA TO NCDB^ 2017 DATA

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE NA	STAGE UNK	LVH-P TOTAL	LVH-P %	NCDB TOTAL	NCDB %
CHEMOTHERAPY ONLY	0	0	0	1	16	0	17	40.5%	15,402	44.0%
CHEMOTHERAPY & IMMUNOTHERAPY	0	0	0	0	2	0	2	4.8%	1,511	4.3%
OTHER SPECIFIED THERAPY	0	0	0	0	2	0	2	4.8%	10,451	29.9%
NO FIRST COURSE OF RX	0	2	1	2	13	3	21	50.0%	7,601	21.7%
TOTAL	0	2	1	3	33	3	42	100%	34,965	100%

^NCDB data represents analytic cases in all states from 1,127 hospitals.

Clinical Goal

DEVELOPMENT OF OPIOID TOOLKIT FOR ONCOLOGY

In 2017, Lehigh Valley Cancer Institute embarked on an evidence-based project with Memorial Sloan Kettering related to opioid abuse and management in the oncology population. This project led to the 2019 clinical goal of an “opioid toolkit” to support providers in the ordering, assessment and management of patients receiving opioids for chronic cancer pain. This toolkit is based on an opioid toolkit used in the network for non-cancer chronic pain with modifications based on National Comprehensive Cancer Network guidelines. The toolkit provides guidance for assessing pain, screening for abuse and monitoring recommendations, as well as contracts and drug screening recommendations.

The development of a cancer institute opioid toolkit goal was completed in 2019. Gillian Beauchamps, MD, who successfully launched the network opioid toolkit, led the committee. The oncology committee consisted of providers, RNs and pharmacists. All were educated on the available tools in Epic and what needs to be completed for safe opioid prescribing. This ultimately led to the creation of two checklists for standard-risk patients versus high-risk patients for the providers to utilize when prescribing opioids. The checklists were shared with the providers and advanced practice clinician, and were implemented into practice.

Programmatic Goal

Epic Implementation: As part of LVHN's commitment to high-quality care, Lehigh Valley Cancer Institute now uses the Epic electronic medical record system.

EPIC ELECTRONIC HEALTH RECORDS SYSTEM

In October 2019, LVH-Hazleton, LVH-Pocono and LVH-Schuylkill, as well as outpatient departments and services in those communities, all implemented the Epic electronic health record (EHR) system, the same EHR system used at all other Lehigh Valley Health Network (LVHN) hospitals and Lehigh Valley Physician Group (LVPG) practices. By transitioning to Epic, each patient has one individual health record that can be accessed by LVHN providers throughout the organization. This helps to improve patient care and standardize practices. An added benefit for patients is access to MyLVHN, the patient portal. MyLVHN offers an easy way to schedule appointments, send secure messages to your health care team, see information from previous appointments, have video visits and more.

TO TRANSITION TO EPIC:

- 23,315** scheduled appointments converted from prior systems to Epic over a weekend
- 2,010** computer monitors installed
- 2,293** new peripherals installed
- 1,428** endpoint computing devices installed
- 293** providers trained
- 4,100** colleagues trained in Epic with round-the-clock training classes
- 3,049** training classes held



PREVENTION

The Pink Light Walk was held Oct. 3, 2019. The walk is a movement to unite breast cancer survivors and to support awareness and education around yearly mammograms. Over 400 people attended the event. During the event, a two-time breast cancer survivor who was treated at LVHN spoke about the exceptional care she received and her journey with breast cancer.

SCREENING

Mobile Mammo at Stroudsburg Islamic Center breast screenings were held May 19, 2019. Six patients were screened, and the breast navigator provided education about breast health and awareness based on NCCN guidelines. Two of the six called.



5 out of 6 women were Muslim, ages 41, 43, 45, 47 and 52.

4
women insured

2
women underinsured

3
women received first-time mammogram

2
Pakistani

3
African American

1
South American

0
non-Hispanic



Quality Studies

2019 STUDY: DO WE HAVE A PROBLEM WITH NEULASTA OBI FAILURE RATE?

There is a perceived problem among clinicians that the failure rate is higher than normal. Quantitative data from Jan. 1, 2019, to Dec. 31, 2019, from two EMRs (Aria and Epic) were utilized during this period. A total of 288 patients received Neulasta on-body device in an outpatient area of Lehigh Valley Hospital–Pocono. Of the 288 patients, nine failures were reported. Of the nine failures, four injectors fell off at home, and there was a device malfunction where the light did not turn on and the device didn't fire for three patients. The Amgen manufacturer data literature reports a 2%–3% failure rate due to numerous reasons. The result of our study demonstrated a failure rate within normal expectations. No further investigation was required, and use of the injector will continue per medical indication.



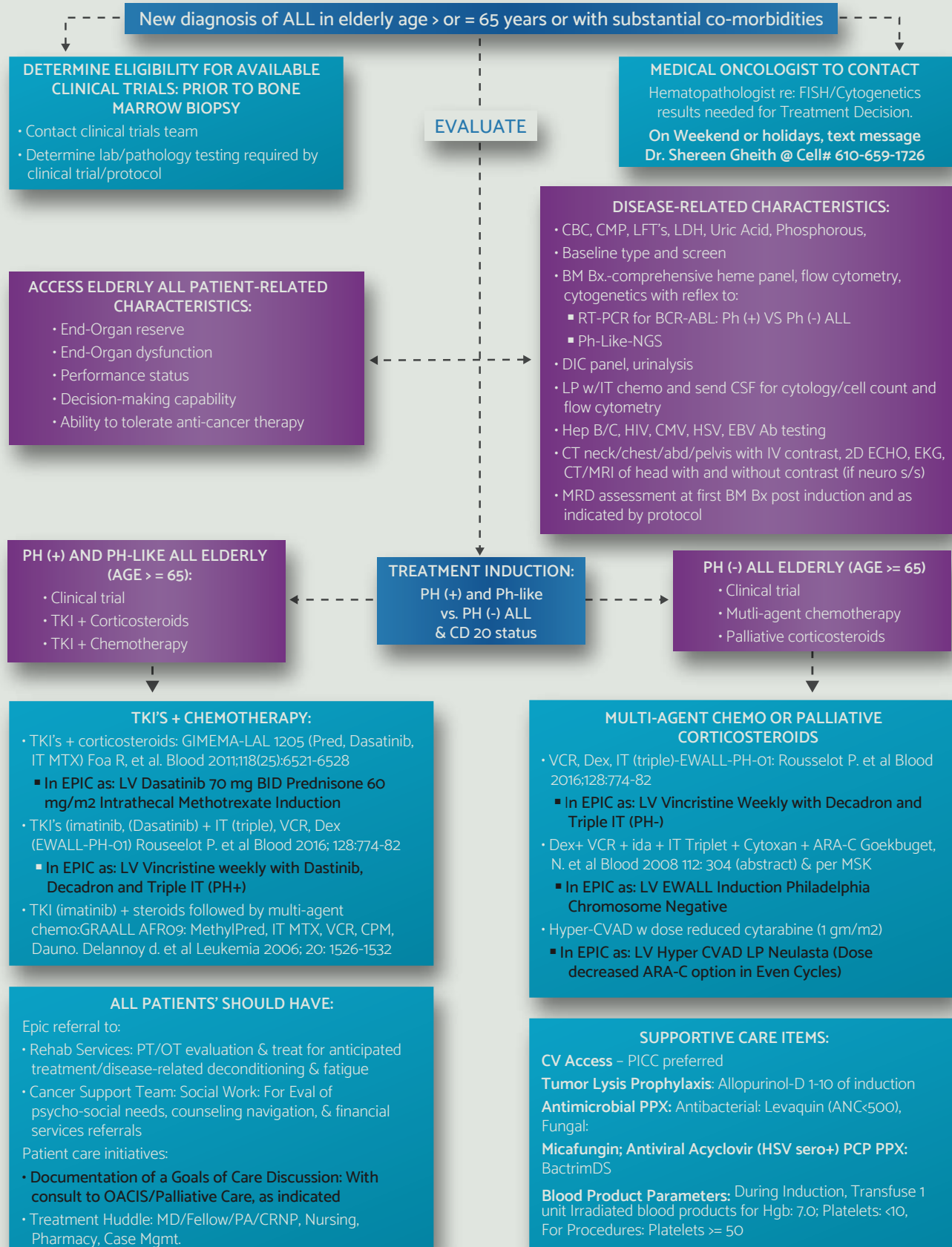
PATIENTS RECEIVED
NEULASTA ON-BODY DEVICE

SUMMARY OF IMPROVEMENT AS FOLLOWS:

- Committee includes providers, RNs (quality, inpatient and office), fellows, rehab services, palliative care.
- Initial meetings focused on prophylactic neutropenia management and diagnostic test ordering.
- Developed an algorithm to guide patient medical management and supportive care referrals.
- Medical management guided by NCCN guidelines and evidence-based practice.

Quality Improvement

2019 Improvement: Development of an Elderly Acute Lymphocytic Leukemia algorithm



Cancer Data Management

TUMOR REGISTRY

The cancer data management department of Lehigh Valley Health Network (LVHN) captures a complete summary of patient demographics, history, diagnoses and treatment status for every cancer patient seen at LVHN. This important information is 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, the data is used by medical providers and local, state and national agencies, i.e., Pennsylvania Cancer Registry and National Cancer Database (NCDB), to make important decisions including:

- Evaluate patient outcome, 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, community, region or state level
- Develop educational programs for health care providers, patients and 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, lifetime patient follow-up, organizes cancer conferences, multidisciplinary tumor boards wherein treatment and management of cancer cases are discussed, Cancer Committee, and reporting to local, state and national agencies.



Surgery

Women with breast cancer are being cured at higher rates. The average five-year survival rate for women with noninvasive breast cancer is now 99%, according to the American Society of Clinical Oncology. As patients get back to their daily routines, they often want nothing more than to put the experience behind them, but obvious surgical scars can serve as a constant reminder of what they went through. Hidden Scar™ breast surgery is offered by two Lehigh Valley Cancer Institute breast surgeons, both certified to perform the advanced surgical technique.

Hidden Scar breast surgery, also known as oncoplastic surgery, combines the latest plastic surgery techniques with breast surgical oncology. The procedure allows malignant tissue to be removed through small incisions in an inconspicuous area while preserving the natural shape of the breast.

Placing one or two 4-centimeter incisions in the axilla, around the areola or in the inframammary folds can result in a scar that's barely perceptible or is completely hidden. Through those small incisions, surgeons can do a lumpectomy and test lymph nodes. If lymph node testing isn't necessary, the surgeon can remove the tumor through an inframammary fold. To make the technical surgery possible, the surgeon uses a special retractor with bright illumination and texture that enhances visibility. Hidden Scar breast surgery can be performed for a lumpectomy or nipple-sparing mastectomy.

Radiation

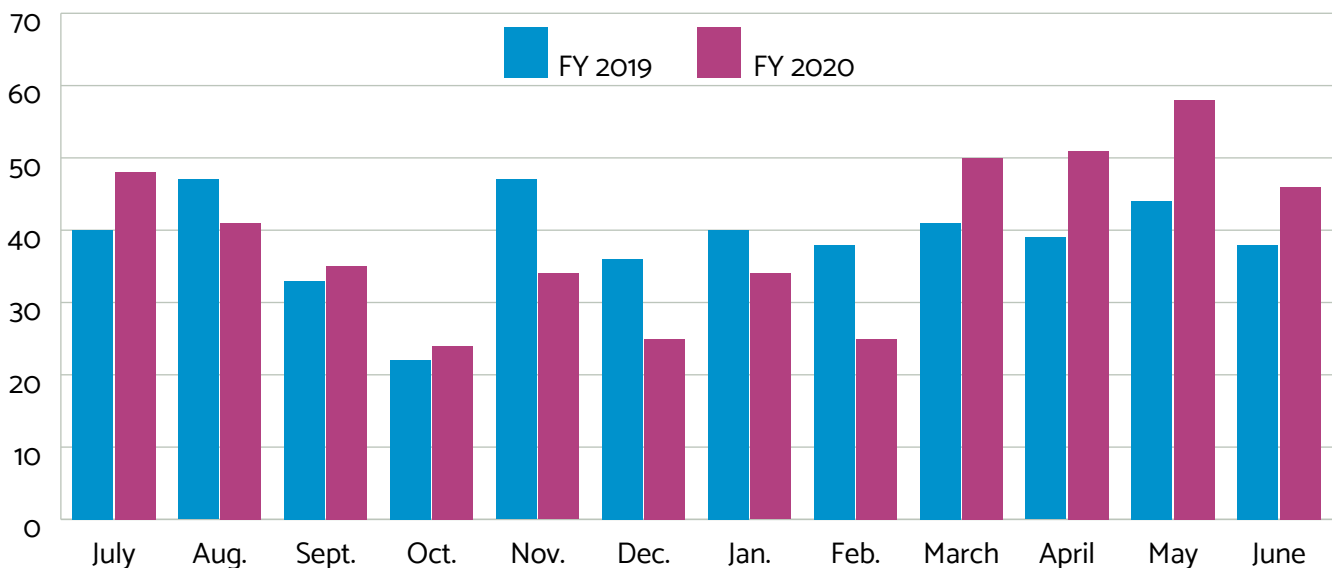
RADIATION ONCOLOGY

Radiation therapy may play a crucial role in your cancer treatment. Lehigh Valley Cancer Institute's department of radiation oncology offers patients the availability of the finest state-of-the-art technology and techniques being offered at LVH-Cedar Crest and LVH-Muhlenberg facilities.

LATEST PROTOCOLS AND TECHNOLOGIES

- Two linear accelerators
- Stereotactic body radiotherapy (SBRT)
- Prostate stereotactic body radiotherapy (SBRT)
- Prostate stereotactic body radiotherapy (SBRT) with SpaceOAR®
- Linac-based single fraction cranial radiosurgery (SRS)
- Intensity-modulated radiation therapy (IMRT)
- Large-bore 16-slice computed tomography (CT) simulators with latest technology
- Brachytherapy – high-dose and low-dose
- 3D treatment planning
- Image-guided radiation therapy (IGRT)
- Respiratory gating
- Optical surface monitoring system (OSMS)
- Dose painting technique

RADIATION ONCOLOGY NEW STARTS

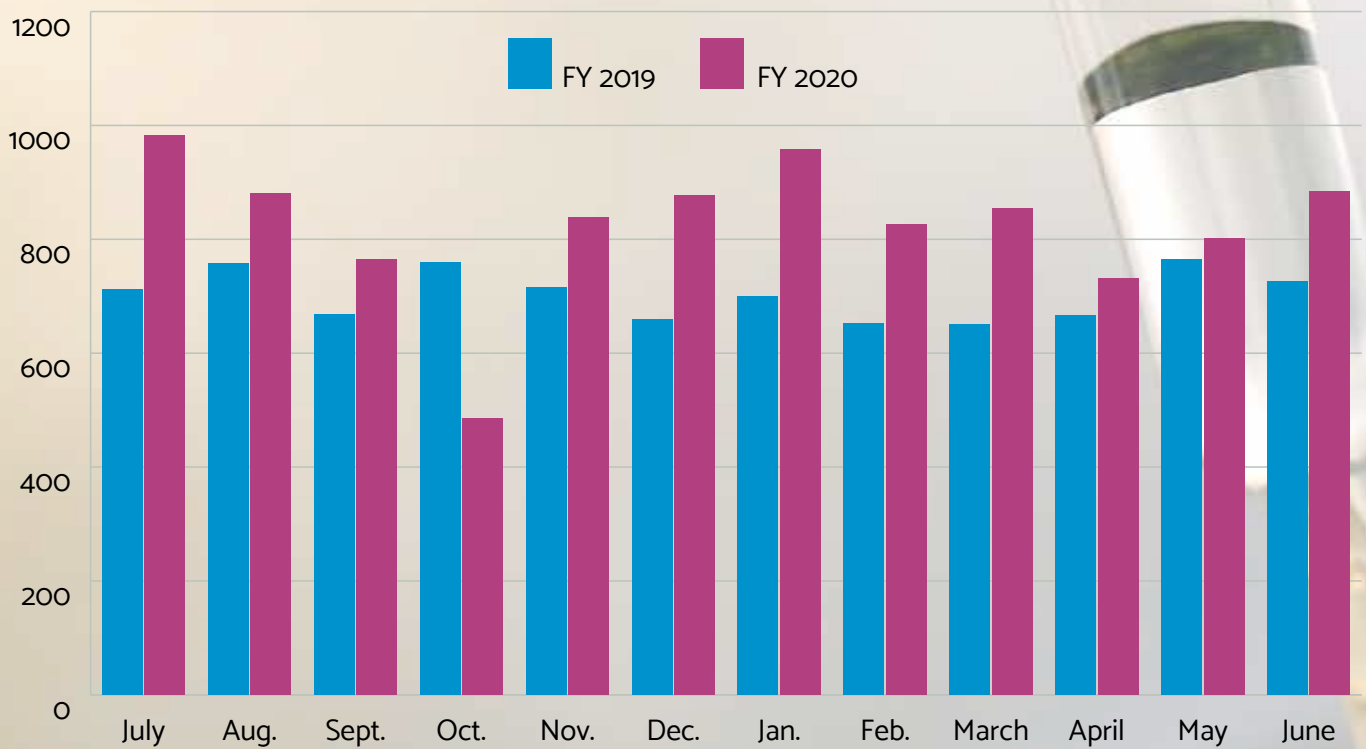


NEW IMPROVEMENTS

- **Real-time imaging:** An advanced imaging technique used for prostate SBRT cases. When treating with RapidArc® IMRT, the machine will stop periodically and take images. This confirms positioning and allows for shift to be made if the patient has moved.
- **Varian Edge with six degrees of freedom tabletop:** Varian Edge is the most advanced stereotactic radiosurgery delivery system. Part of this system is a tabletop that can be moved in six directions, reducing patient setup errors and improving target positioning for high-dose stereotactic treatments and intensity-modulated radiotherapy (IMRT). This allows for a higher level of accuracy and reproducibility.
- **Calypso:** This is a localization system designed for use during radiation therapy that provides accurate and continuous target localization information for patient alignment and target position monitoring during treatment delivery. Calypso technology is used with Varian Edge. A transponder (beacon) is implanted in or near the treatment target.
- **Varian Edge Micro Multi-Leaf Collimators (MLC):** This device has smaller leaflets in comparison to the standard linear accelerator that allows for improved planning conformity and sparing of surrounding tissue.
- **Optical Surface Monitoring System (OSMS):** Allows for motion tracking throughout the treatment delivery. OSMS continuously updates the tracking display to show motion. This technology is being used with SBRT patients and certain breast patients.

Infusion

INFUSION TREATMENT VISITS



Bhavana Singh, MD, joins team at LVPG Hematology Oncology

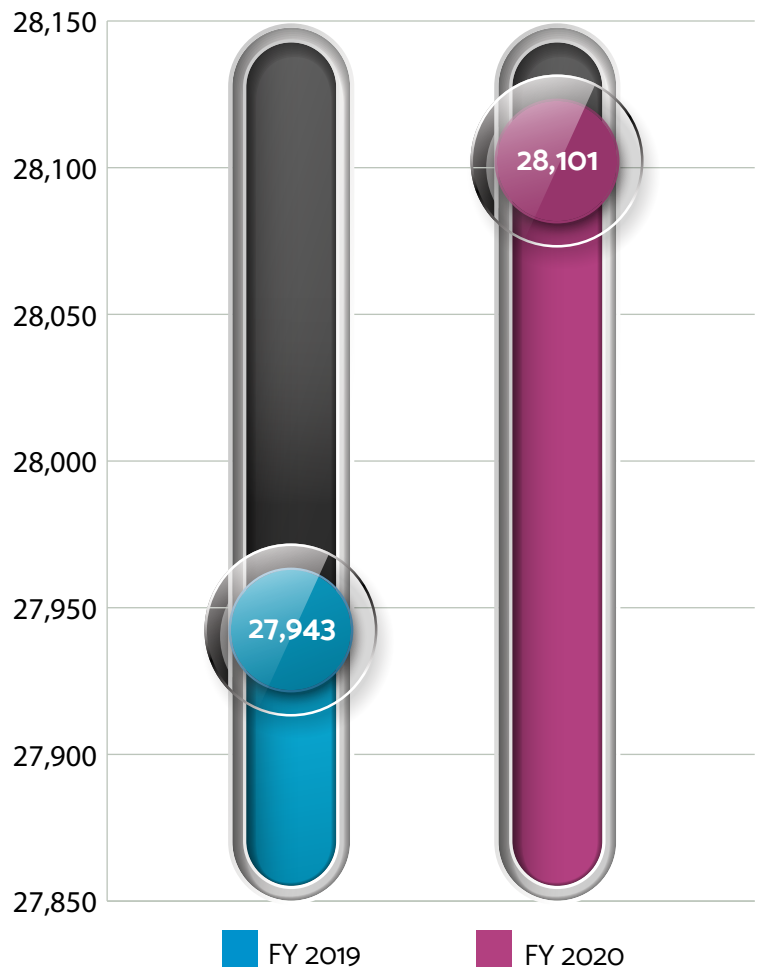


We are proud to welcome Bhavana Singh, MD, to our LVPG Hematology Oncology team. Singh brings her expertise in hematology oncology to Dale and Frances Hughes Cancer Center at LVH-Pocono.

Singh completed her medical training at University of Miami Miller School of Medicine and her internal medicine and hematology/medical oncology residencies at Duke University Medical Center. She did her fellowship at Medstar Georgetown University Hospital, Washington, D.C., and is board certified in internal medicine. Her philosophy of care includes treating the patient's medical condition while considering all other factors that may play a part in the delivery of health care. As a Bethlehem native, she looks forward to working with her patients to deliver exceptional medical care to the community.

Breast Health Services

TOTAL NUMBER OF ALL ANNUAL MAMMOGRAMS

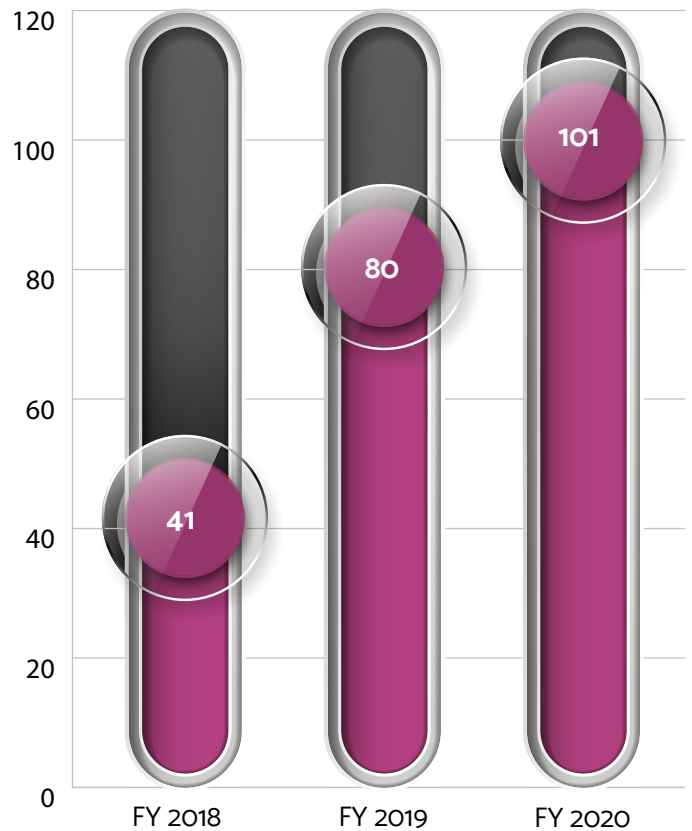


Lehigh Valley Cancer Institute Genetic Counseling

The Gregory and Lorraine Harper Cancer Risk and Genetic Assessment Program is staffed by 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 on the first and third Thursday of the month as well as 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 not only can 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 provider 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 graph, right). In FY 2020, we saw 100 new patients for a total of 141 total visits. This includes several months when we were unable to see patients for in-person visits due to COVID-19.

TOTAL NUMBER OF FACE-TO-FACE VISITS LVH-POCONO



TOTAL VISITS FY 2020

Cancer Committee

SOCIAL WORK, SUPPORT, SURVIVORSHIP AND PSYCHOSOCIAL SERVICES

Dale and Frances Hughes Cancer Center Summary Report, January–December 2019

Psychosocial emotional needs assessments were completed January–September 2019. Starting with EPIC rollout in October 2019, the distress screening tool is being completed within the EMR for oncology patients during their first pivotal visit, with follow-up by the social worker, as requested/needed.

344 total emotional needs assessments were completed January–September 2019.

572 total distress screenings were completed October–December 2019.

305 patients noted distress 4 or above:

364 on-site referrals

132 off-site referrals

61 patients who were screened noted transportation concerns.



EMOTIONAL NEEDS ASSESSMENTS
COMPLETED JANUARY–SEPTEMBER 2019

Support/Survivor Programs

LEUKEMIA AND LYMPHOMA SUPPORT GROUP

- Meets quarterly for patients and family members/caregivers of those with blood-related cancers
- Co-facilitated by Lynn Steele, LSW, OSW-C, and Michelle Zeruth, RN
- Total attendees this year: two meetings were held, 12 attendees

US TOO PROSTATE SUPPORT GROUP

- Meets once per month for patients and family members/caregivers of those with prostate cancer
- Total attendees this year: 12 meetings were held, 48 attendees

Komen Grant Program

(JANUARY–MARCH 2019 ONLY)

Free Mammo Voucher program services: screening and diagnostic mammograms and breast ultrasounds, transportation, survivorship, and physician office visits.

**April 1, 2018–March 31, 2019, Dale and Frances Hughes Cancer Center was awarded a \$34,756 grant from Susan G. Komen of Northeastern Pennsylvania to provide preventive, diagnostic, transportation, educational, lymphedema sleeves and survivorship services.*

**Susan G. Komen 2019–2020 grants were not offered. Breast and cervical prevention services are available through the PA Healthy Woman Program, now called the Pennsylvania Breast and Cervical Cancer Early Detection Program (PA-BCCEDP).*

70

patients
received
services

102

diagnostic
and screening
services

5

office
visits

0

transportation
assistance

0

breast
cancers
detected

Financial Assistance

LVH-POCONO FOUNDATION FUNDS

Hope for Strength Breast Fund	12	\$3,257.10
Howard Canfield Fund for Men	0	
Suzanne Zale Buck Fund for gynecological cancers	7	\$3,121.47
Woman to Woman Fund	11	\$3,862.86
Doreen Miram's Fund	26	\$8,420.68
Melanie Humphrey Breath of Life Fund	7	\$2,255.80
Total	63	\$22,524.97

Financial Counseling



PATIENTS ASSISTED WITH
PRIMARY OR SECONDARY
INSURANCE INFORMATION NEEDS



RECEIVED PRESCRIPTION
ASSISTANCE PENNSYLVANIA
PACE/PACENET



BCCPT APPLICATIONS
(MEDICAID FOR
BREAST CANCER)

Additional Support Services

CREATIVE EXPRESSIONS WORKSHOP

EVERY WEDNESDAY 431 PARTICIPANTS

REIKI 121 PARTICIPANTS

MOVING MEDITATION 294 PARTICIPANTS

BEADING 174 PARTICIPANTS

PET THERAPY



BE KIND TO YOURSELF BREAST CANCER SURVIVORSHIP PROGRAM FEB. 13, 2019

18 participants

COMMITMENT TO KINDNESS: FOUR-WEEK SURVIVORSHIP PROGRAM MARCH 2019

8 participants

Participants learn about a variety of tools to use for emotional health, stress reduction and overall well-being, as well as learning breathing exercises and meditations to use in daily practice. Participants were asked to rate the program using a scale (1= lowest measurement and 5= highest measurement).

- Average awareness of mindfulness before program was **2.67** and average after completion of program was **4.83**.
- Average awareness of self-kindness before program was **2.83** and average awareness after program was **4.83**.
- Overall quality of program was rated at **5**.
- Increased rate of coping was rated at **5**.
- Reduction in stress averaged to **4.83**.
- Increased sense of hopefulness averaged to **4.83**.
- Increased sense of well-being was rated at **5**.
- Likelihood to utilize these skills in self-care was noted at **5**.

MUSIC THERAPY CANCER SURVIVORSHIP WORKSHOPS

January 2019, 13 participants

Music therapist Cheryl Mozdian explored the theme “What does courage look like?” Survivors participated in dance, a drum activity and song to express courage. There was a **41.49%** decrease in distress. Level of well-being increased by **34.21%**. Appreciation for music increased by 18.67% and optimism increased by **23.50%**.

February 2019, 15 participants

Music therapist Cheryl Mozdian explored the theme “Empathy vs. Sympathy.” Survivors participated in playing instruments to communicate and listen to one another. This practice was derived from communications between villages in African societies. No survey completed.

March 2019, 10 participants

Music therapist Cheryl Mozdian provided a relaxation workshop. Survivors participated in guided meditation, singing and muscle relaxation techniques explored through music. No survey completed.



OVERALL QUALITY RATING OF COMMITMENT TO KINDNESS PROGRAM

Be Kind to Yourself


BREAST CANCER SURVIVORSHIP PROGRAM FEB. 13, 2019

This program included presentations by Lynn Steele, LSW, Caroline McConnell, BSN, Aalih Hussein, LSW, and Anita Bondi, PhD. The program aimed to provide breast cancer survivors with tools to practice self-kindness and self-compassion through interactive presentation. Steele completed a mindfulness-based guided meditation. McConnell and Hussein reviewed aspects of self-compassion, which include self-kindness, mindfulness and common humanity. A compassionate exercise was completed among the group in addition to the creation of a self-kindness tree. Bondi led the group in interactive activities, such as prayer gestures, dancing and giving permission slips to one another.

There was a **77.62%** decrease in distress. Levels of awareness of mindfulness increased by 41.11%. Awareness of self-kindness increased by **42%** and awareness of common humanity increased by **38.52%**. On a scale from 1 to 5 (1=poor, 5= very good), average for increased sense of coping was calculated to be **4.94** and average for reduced pain was **4.75**. Survivors found all presenters to be effective.

Comments about the program include:


- Caroline and Aalih helped us focus on the kindness wand, the importance even for self.
- Anita is always captivating.
- Lynn's meditation was what I needed for the evening.
- I learned about mindful and sitting in the moment.
- Thank you, Anita! In helping me know what to say to myself and what to look for in others as they reject themselves. Very effective and thought-provoking.
- I learned how to relax and access meditations in my home.



Caroline and Aalih helped us focus on the kindness wand, the importance even for self.

What will you take away from the program:

- Practicing mindfulness
- Instead of putting myself down, as I sometimes do, look to being kind to others and myself.
- Be kind to myself.
- The fellowship and to focus on different things
- Others may be hating themselves and lash out, but we can give love and kindness (compassion) back and not take it personally. Get on it, get off, get over it!
- Gratitude is the best kindness we can bring forward.
- I found in my deep reflection: People with chronic illness have certain commonalties. We have learned to give up our authenticity in order to (hopefully) get our needs met. When this does not happen, we get angry at ourselves. We don't have good coping strategies or the tools to help us process anger. "Get on it, get off it, get over it" may be the key to our wellness.



Gratitude is the best kindness we can bring forward.

Commitment to Kindness

Commitment to Kindness was a four-week Breast Cancer Survivorship program dedicated to mind, body, emotions and spirit. The program was hosted by Anita Bondi, PhD, who established the following objectives for the program:

1. At the conclusion of session 1, participants will be able to do a simple four-minute exercise routine that will target 16 muscle groups, release nitric oxide in the body, and help cleanse the lymphatic system.
2. At the conclusion of session 2, participants will leave with an individually created vision board to use at home as a mindfulness tool.
3. At the conclusion of session 3, participants will have a variety of tools to use for emotional health, stress reduction and overall well-being.
4. At the conclusion of session 4, participants will have mastered breathing exercises and meditations to use in daily practice.

The program was a closed group, and there were eight participants in total. The following survey results were yielded from six completed surveys. Participants were asked to rate the program using a scale (1= lowest measurement and 5= highest measurement).

- Average awareness of mindfulness before program was **2.67** and average after completion of program was **4.83**.
- Average awareness of self-kindness before program was **2.83** and average awareness after program was **4.83**.
- Overall quality of program was rated at **5**.
- Increased rate of coping was rated at **5**.
- Reduction in stress averaged to **4.83**.
- Increased sense of hopefulness averaged to **4.83**.
- Increased sense of well-being was rated at **5**.
- Likelihood to utilize these skills in self-care was noted at **5**.



The program goal aimed for all participants to be empowered to trust their inner authority as they make decisions for their own self-care. They will gain a variety of mindfulness tools and practices for use in their daily lives to reduce stress and enhance well-being. Participants were encouraged to respond to the goal.

1. I enjoyed this program very much. We get to learn so many kinds of things to do there. I hope that we keep this program.
2. Even though I was only able to attend the last session, I found it incredibly helpful! I am experiencing a great deal of stress and depression, and my anxiety level definitely improved after only one session! I hope to use the skills I learned to improve my self-care. Excellent program!
3. I learned about my parasympathetic and sympathetic nervous systems. I learned decision-making and too much “wrangling”= “no.” I learned our personal feelings and impressions of something matter in order to relieve internal conflict. This program was not long enough! Truly a bonding experience for us!
4. I feel so blessed to have learned new tools for caring with my illness. Tools to relax and the courage to be open about myself.
5. I love learning new things!

I enjoyed this program very much. We get to learn so many kinds of things to do there.



Music for Wellness Jan. 16, 2019


Music therapist Cheryl Mozdian explored the theme “What does courage look like?” Survivors participated in dance, a drum activity and song to express courage. There was an **41.49%** decrease in distress. Level of well-being was increased by **34.21%**. Appreciation for music was increased by **18.67%**, and optimism was increased by **23.50%**. There were 13 survivors in attendance and their comments are listed below:

Question #1: What will you take away from the program?

- Music and meditation can help me forget difficult issues.
- Music, laughter and physical activity with friends reduce stress. It only takes one person to encourage courage.
- I forgot how uplifting music can be.
- Have the courage to say what you have to...even if it isn't easy.
- Worthwhile program for anyone suffering from chronic disease
- Calms me down – knowing that I'm not alone and I can get through my difficulty with others.

Question #2: Do you feel empowered?

- Yes, I have been trying to be more of myself out in the community. The presenter reminded me that the goal is to present more of myself outside of group more often.
- Yes, received a sense of comradery and support from group.



Courage is in there.
Just act on it. I don't
have to please
everyone...

- Yes, being with the people and dancing together.
- Yes, drumming the words spoken was empowering.
- Yes, music has such power to relax your body and mind.
- Yes, I know I can do anything as long as I have courage and a positive state of mind.

Question #3: What aspects were most beneficial?

- It reminded me to find my courage and to keep trying to meet my goals to find more authentic relationships outside our group.
- The courage theme
- Dancing
- The theme of courage as I have difficult conversations that I need to address.
- Letting my feelings out

Question #4: What aspects did you learn about yourself?

- I'm not alone in this world.
- Courage is in there. Just act on it. I don't have to please everyone and sometimes, I need to be first.
- I can dance around other people.
- I like music, and I have a good sense of rhythm.
- Somewhere inside of me, courage exists.
- I am courageous...I just don't show it.
- I need to work to improve my well-being. I also learned it is possible.

Question #5: Has this workshop rekindled your appreciation for music?

- Music is helpful and can help us get to our happy relaxed place. The more often I am able to get there and the longer I stay there can be ultimately the answer to wellness. I learned I can go there anytime I want.
- Yes, listen to it more.
- Yes, I will try drumming at home. Will continue to practice piano.
- More dancing when listening to music
- I will go back to some of my favorite CDs. May be fun to try an instrument.

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 fiscal year 2019, our dietitians saw approximately 140 new patients and 25 follow-up appointments.

CANCER REHABILITATION

Cancer rehabilitation services helps patients manage functional activities of daily living that are affected by the cancer experience. Individualized treatment programs are designed to enable a patient to resume normal activities. 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.



NEW PATIENTS SEEN BY DIETITIANS

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, many have 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 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 provider to determine if an early-phase MSK cancer clinical trial is right for them. In addition to potentially improving lifespan or quality of life, the LVHN/MSK clinical trials collaboration will help advance cancer treatment knowledge to benefit all patients.

Strata Oncology Offers

ELITE GENOMIC TRIALS

In June 2019, LVHN officially 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 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 129 patients into the tumor molecular profiling clinical trial.

CLINICAL RESEARCH ACCRUAL 2019 SUMMARY TO DATE

- External referrals enrolled in Clinical Trials or Biorepositories - 0
- NMDB (National Mammography Database) - 133
- ACR LSR (American College of Radiology Lung Screening Registry) - 7
- Strata - 7
- TAPUR - 1
- A011401 BWEL - 1
- Total - 149
- 2019 Analytic = 573
- Accrual Percentage for 2019 = 26%



Our Locations

Lehigh Valley Cancer Institute offers a range of services in convenient patient-focused locations. We also provide patient care at Lehigh Valley Physician Group practice offices in Allentown, Bangor, Bethlehem, Hazleton and Lehighton.

Dale and Frances Hughes Cancer Center
Lehigh Valley Hospital-Pocono

BREAST HEALTH SERVICES

Breast Health Services at Bartonsville





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 American College of Radiology (ACR) for breast mammography.

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.

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

This achievement is a one-of-a-kind program that takes your department or practice to the next level of imaging, efficiency, safety and quality care.

COMMISSION ON CANCER

Continuously since 1992, 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 provide the best in cancer diagnosis and treatment, while also complying with standards established by the CoC.

NATIONAL QUALITY MEASURES FOR BREAST CENTERS (NQMBC) CERTIFIED QUALITY BREAST CENTER OF EXCELLENCE™

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

THE JOINT COMMISSION (TJC)

The Joint Commission accreditation and certification is recognized nationwide as a symbol of quality that reflects 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.



Ring this bell
three times well
its toll to clearly say,
my treatment's done
this course is run
and I am on my way!