

## Lehigh Valley Topper Cancer Institute: 2019 Statistical Report

Lehigh Valley Health Network

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A microscopic view of several cancer cells, some appearing as bright pink spheres with internal structures, others as darker, more textured spheres. The background is dark blue with small yellow and white specks, suggesting a cellular or molecular environment.

**2019** STATISTICAL REPORT



The background of the page is a photograph of the Lehigh Valley Cancer Institute building, overlaid with a semi-transparent blue filter. The building's name is visible on the facade. The Lehigh Valley Cancer Institute logo, a stylized blue and green figure, is positioned in the upper left corner.

## 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.**

Welcome to Lehigh Valley Cancer Institute's annual report for 2019, featuring calendar year 2018 statistical data and information about new innovative approaches to cancer care. 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.

# Memorial Sloan Kettering Cancer Alliance in 2019

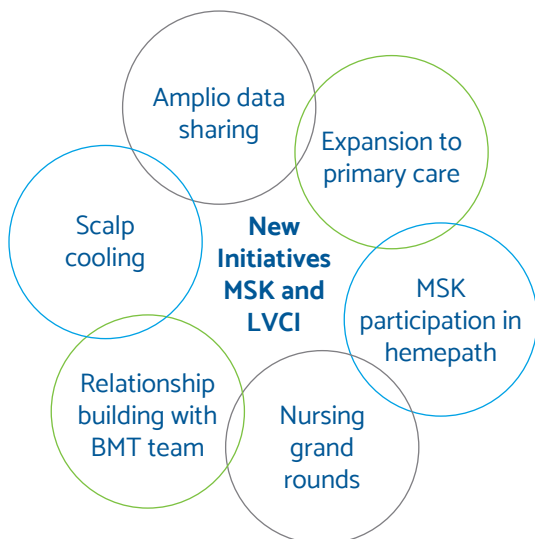
## DISEASE MANAGEMENT TEAM

Since our relationship with Memorial Sloan Kettering began in 2016, our partnership has grown. As one of three MSK Cancer Alliance partners in the nation, we have provided patients of Lehigh Valley Cancer Institute with access to precision medicine testing, expanded leading-edge clinical trials, and collaborated on patient management and second opinions.

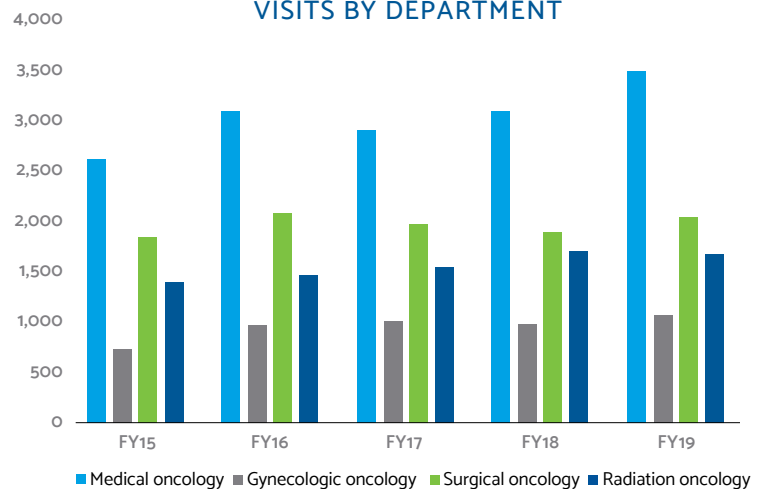
Watch a video about MSK Cancer Alliance featuring Lehigh Valley Cancer Institute patients and learn more at [LVHN.org/MSK](http://LVHN.org/MSK).

The top five disease sites we treat are: breast, colon, lung, prostate and blood/bone marrow.

Treatments are in alignment with MSK standards of care. The Cancer Institute’s Disease Management Team (DMT) meets monthly and reviews treatment patterns, new care paradigms and establishes standards of care for our patients.



**CANCER INSTITUTE GROWTH NEW PATIENT VISITS BY DEPARTMENT**



# Lehigh Valley Cancer Institute Case Information

Lehigh Valley Cancer Institute offers a range of cancer services in convenient, patient-focused locations, including the John and Dorothy Morgan Cancer Center at Lehigh Valley Hospital (LVH)–Cedar Crest, the Cancer Center at LVH–Muhlenberg and the Health Center at Bangor. Patient care also is provided through Lehigh Valley Physician Group practice offices in Allentown, Bethlehem, Hazleton, Bangor and Lehigh. Breast Health Services is offered in 15 locations throughout the region, and now through mobile mammography.

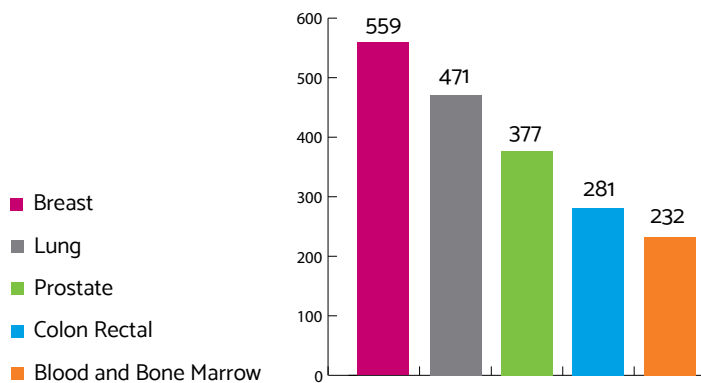
The faculty of Lehigh Valley Cancer Institute is composed of physicians who are cancer care specialists and board certified in their fields. In calendar year 2018, the cancer program saw more than 3,600 new cancer patients.

# 3,686

New cancer patients 2018

## TOP FIVE MOST PREVALENT SITES OF CANCERS TREATED AT LVHN

LVH–Cedar Crest and LVH–Muhlenberg

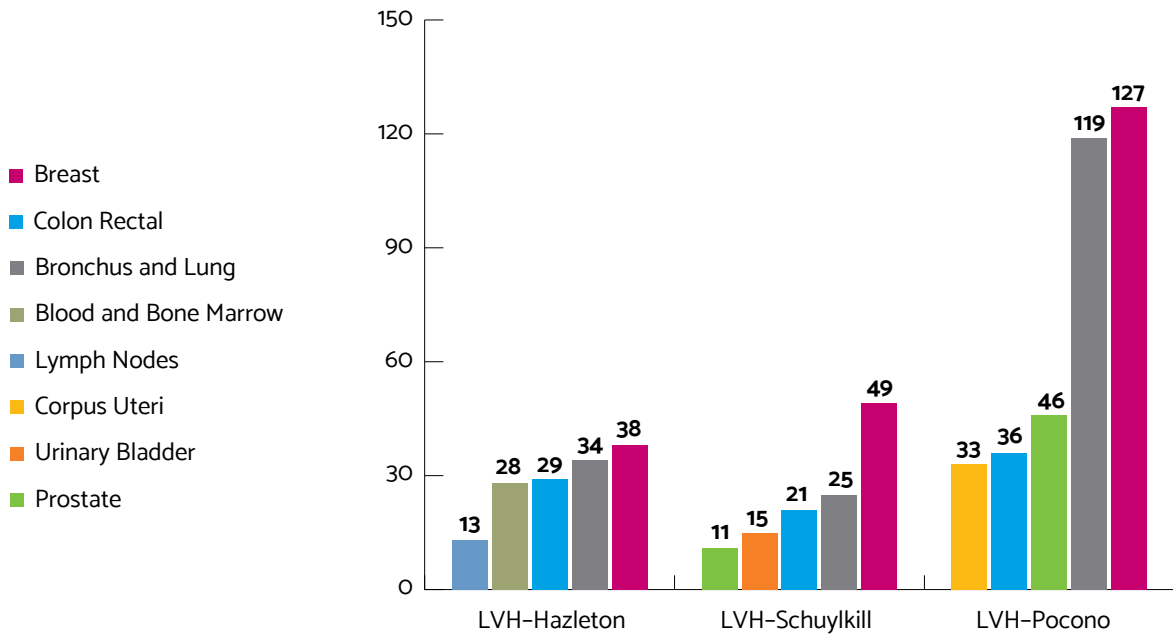


## TOP FIVE CANCER PRIMARIES, 2018 LVH–CEDAR CREST/MHC (5 YEAR COMPARISON)

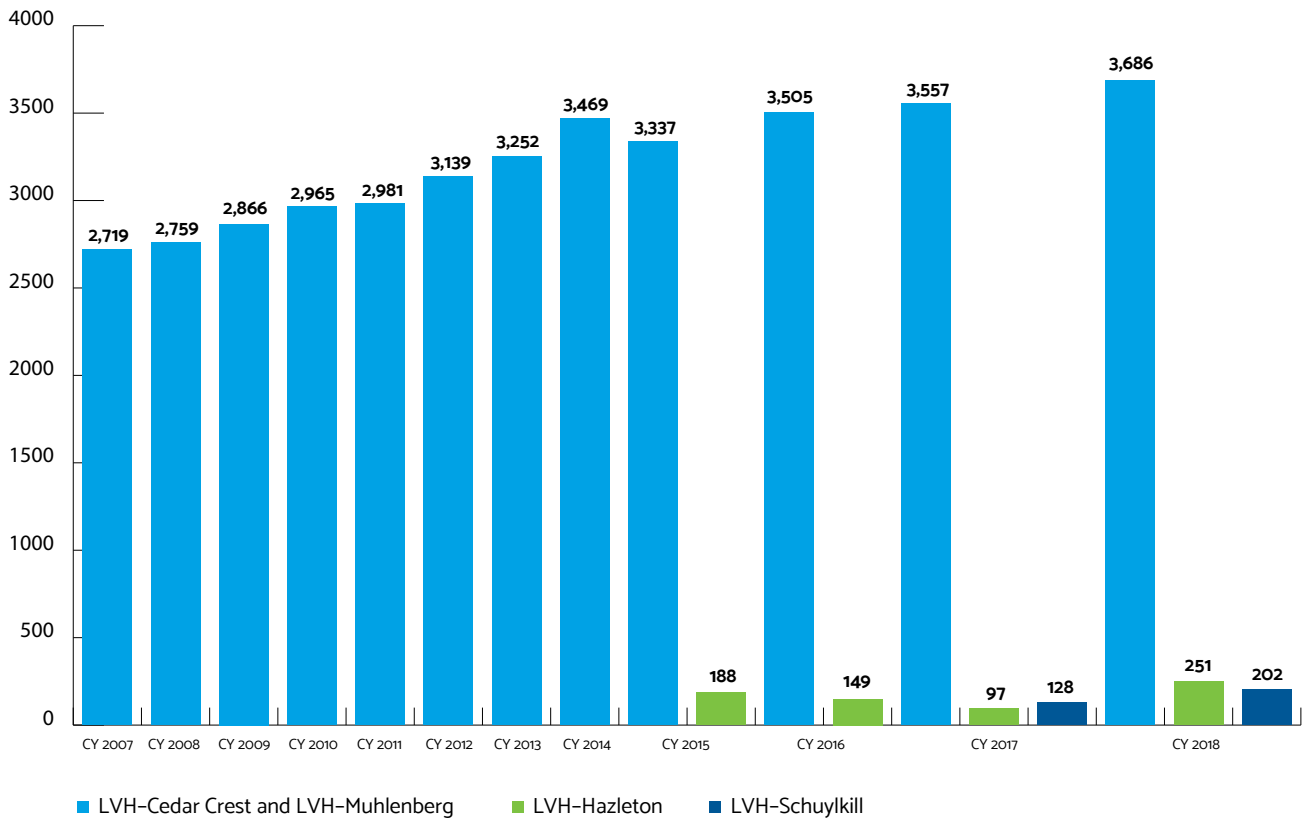
SITE	2014	2015	2016	2017	2018
BREAST	484	474	426	504	559
BRONCHUS & LUNG	433	404	411	446	471
PROSTATE GLAND	270	245	274	290	377
COLORECTAL	264	298	300	267	281
BLOOD & BONE MARROW		188	217	226	232
URINARY BLADDER	204				
Total	1655	1609	1628	1733	1920

**TOP FIVE MOST PREVALENT SITES OF CANCER TREATED AT LEHIGH VALLEY HEALTH NETWORK REGIONAL CENTERS FROM 2018**

LVH-Hazleton, LVH-Pocono and LVH-Schuylkill



**TOTAL ANNUAL ANALYTIC CASES** by CY 2018



## ANALYTIC CASE INCIDENCE BY COUNTY OF RESIDENCE

Lehigh Valley Cancer Institute provides cancer care for patients in our community and serves as a tertiary referral center. In 2018 we provided diagnostic care, second opinion recommendations and treatment to more than 3,680 patients from 29 Pennsylvania counties. In addition, 57 patients came to our cancer program from communities across the United States.

COUNTY OF RESIDENCE	2016	2017	2018
BERKS	222	226	277
BRADFORD	1	0	3
BUCKS	58	45	55
CAMBRIA	1	1	0
CARBON	210	227	186
CENTRE	0	1	0
CHESTER	2	4	8
CLINTON	1	0	1
COLUMBIA	4	0	4
CUMBERLAND	0	1	1
DAUPHIN	0	1	1
DELAWARE	0	2	0
FRANKLIN	1	0	0
GREENE	0	0	1
JEFFERSON	0	0	2
LACKAWANNA	29	28	41
LANCASTER	5	3	0
LEBANON	1	1	0
LEHIGH	1,513	1,566	1,470
LUZERNE	144	133	153
LYCOMING	4	2	3
MONROE	166	154	151
MONTGOMERY	89	83	71
MONTOUR	2	0	0
NORTHAMPTON	768	764	920
NORTHUMBERLAND	0	1	2
PHILADELPHIA	4	3	1
PIKE	13	15	24
POTTER	0	0	1
SCHUYLKILL	191	204	228
SOMERSET	0	1	0
SULLIVAN	1	0	0
SUSQUEHANNA	3	2	5
TIOGA	0	1	2
VENANGO	0	0	1
WAYNE	2	10	13
WYOMING	4	5	3
YORK	0	0	1
OUT OF STATE	66	73	57
<b>TOTAL</b>	<b>3,505</b>	<b>3,557</b>	<b>3,686</b>

## 2018 ANALYTIC CASES BY PRIMARY BODY SITE

Chart notes the primary body site involved in each patient's cancer diagnosis.

### LVH-CEDAR CREST AND LVH-MUHLENBERG CASES

PRIMARY SITE	TOTAL
HEAD AND NECK	90
DIGESTIVE ORGANS	625
ESOPHAGUS	33
STOMACH	58
SMALL INTESTINE	23
COLON	197
RECTOSIGMOID JUNCTION	15
RECTUM	69
ANUS & ANAL CANAL	19
LIVER & BILE DUCTS	68
GALLBLADDER	8
OTHER BILIARY TRACT	12
PANCREAS	121
OTHER DIGESTIVE ORGANS	2
THORAX	481
BRONCHUS AND LUNG	471
THYMUS	4
HEART MEDIASTINUM PLEURA	6
MUSCULOSKELETAL/SOFT TISSUE SITES	38
BLOOD AND BONE MARROW	232
SKIN	113
BREAST	559
FEMALE GENITAL ORGANS	324
VULVA	24
VAGINA	3
CERVIX UTERI	30
CORPUS UTERI	192
UTERUS NOS	5
OVARY	56

PRIMARY SITE	TOTAL
OTHER FEMALE GENITAL ORGANS	14
MALE GENITAL ORGANS	386
PENIS	1
PROSTATE GLAND	377
TESTIS	8
URINARY TRACT ORGANS	296
KIDNEY	129
KIDNEY, RENAL PELVIS	12
URETER	6
URINARY BLADDER	146
OTHER AND UNSPECIFIED URINARY ORGANS	3
CENTRAL NERVOUS SYSTEM	187
MENINGES	89
BRAIN	81
OTHER NERVOUS SYSTEM	17
ENDOCRINE GLANDS	167
THYROID GLAND	129
ADRENAL GLAND	3
OTHER ENDOCRINE GLANDS	35
OTHER	13
RETROPERITONEUM AND PERITONEUM	9
ORBIT, NOS AND OVERLAPPING LESION	2
OTHER ILL-DEFINED SITES	2
LYMPH NODES	126
UNKNOWN PRIMARY	49
<b>TOTAL ANALYTIC CASES</b>	<b>3,686</b>

### LVH-HAZLETON CASES

PRIMARY SITE	TOTAL
HEAD AND NECK	18
DIGESTIVE ORGANS	63
BRONCHUS AND LUNG	34
CONNECTIVE AND SUBCUTANEOUS AND SOFT TISSUE	2
BLOOD AND BONE MARROW	28
SKIN	9
BREAST	38
FEMALE GENITAL ORGANS	6
MALE GENITAL ORGANS	7
URINARY TRACT ORGANS	10
CENTRAL NERVOUS SYSTEM	5
ENDOCRINE GLANDS	9
LYMPH NODES	13
UNKNOWN PRIMARY	8
OTHER	1
<b>TOTAL ANALYTIC CASES</b>	<b>251</b>

### LVH-SCHUYLKILL CASES

PRIMARY SITE	TOTAL
HEAD AND NECK	14
DIGESTIVE ORGANS	35
BRONCHUS AND LUNG	25
BLOOD AND BONE MARROW	11
SKIN	6
BREAST	49
FEMALE GENITAL ORGANS	7
PROSTATE GLAND	9
URINARY TRACT ORGANS	21
CENTRAL NERVOUS SYSTEM	7
ENDOCRINE GLANDS	4
LYMPH NODES	8
UNKNOWN PRIMARY	6
<b>TOTAL ANALYTIC CASES</b>	<b>202</b>



## #1 Breast Cancer

### INCIDENCE OF BREAST CANCER BY AGE AT DIAGNOSIS, LVHN 2018

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	6	24	70	105	157	143	45	9	559

### BREAST CANCER TREATMENT BY AJCC STAGE AT DIAGNOSIS, LVHN 2018

FIRST COURSE	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage UNK	TOTAL	%
SURGERY ONLY	24	26	4	0	1	7	62	12.11%
CHEMOTHERAPY ONLY	0	2	2	1	0	0	5	0.98%
SURGERY AND RADIATION	27	14	4	0	0	3	48	9.38%
SURGERY AND CHEMOTHERAPY	0	9	2	1	1	1	14	2.73%
SURGERY, CHEMOTHERAPY AND RADIATION	0	11	5	2	0	0	18	3.52%
SURGERY, RADIATION AND HORMONE THERAPY	34	149	11	0	0	3	197	38.48%
SURGERY AND HORMONE THERAPY	8	32	3	0	1	4	48	9.38%
SURGERY, CHEMOTHERAPY, RADIATION AND HORMONE THERAPY	0	17	6	7	0	0	30	5.86%
SURGERY, CHEMOTHERAPY, RADIATION AND IMMUNOTHERAPY	0	11	0	0	1	0	12	2.34%
SURGERY, CHEMOTHERAPY, RADIATION, HORMONE THERAPY AND IMMUNOTHERAPY	0	12	2	0	0	0	14	2.73%
SURGERY, CHEMOTHERAPY AND HORMONE THERAPY	0	2	1	0	0	1	4	0.78%
SURGERY, CHEMOTHERAPY, HORMONE THERAPY AND IMMUNOTHERAPY	0	2	0	0	0	0	2	0.39%
SURGERY, CHEMOTHERAPY AND IMMUNOTHERAPY	0	4	3	0	0	0	7	1.37%
CHEMOTHERAPY, RADIATION AND HORMONE THERAPY	0	0	0	0	6	0	6	1.17%
HORMONE THERAPY ONLY	0	4	0	2	4	0	10	1.95%
OTHER SPECIFIED THERAPY	0	6	0	0	9	1	16	3.13%
NONE	2	5	2	0	10	0	19	3.71%
<b>TOTAL</b>	<b>95</b>	<b>306</b>	<b>45</b>	<b>13</b>	<b>33</b>	<b>20</b>	<b>512</b>	<b>100%</b>

\*46 cases excluded due to Stage Classification Performed After Initial Multimodality Therapy; ~1 case excluded due to Histology of Phyllodes Tumor

## #2 Lung Cancer

### INCIDENCE OF LUNG CANCER BY AGE AT DIAGNOSIS, LVHN 2018

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	1	1	16	50	156	162	70	15	471

### LUNG CANCER TREATMENT BY AJCC STAGE AT DIAGNOSIS, LVHN 2018

FIRST COURSE	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage UNK	TOTAL	%
SURGERY ONLY	1	50	1	0	0	6	58	12.3%
RADIATION THERAPY ONLY	0	57	7	5	33	14	116	24.6%
SURGERY AND CHEMOTHERAPY	0	0	5	0	0	0	5	1.1%
CHEMOTHERAPY AND RADIATION	0	1	8	33	17	3	62	13.2%
CHEMOTHERAPY ONLY	0	0	0	4	23	2	29	6.2%
SURGERY, CHEMOTHERAPY AND RADIATION	0	2	1	4	1	0	8	1.7%
IMMUNOTHERAPY ONLY	0	0	0	2	8	2	12	2.5%
RADIATION AND IMMUNOTHERAPY	0	0	0	1	6	0	7	1.5%
CHEMOTHERAPY AND IMMUNOTHERAPY	0	0	0	2	26	1	29	6.2%
CHEMOTHERAPY, RADIATION AND IMMUNOTHERAPY	0	0	1	1	20	4	26	5.5%
OTHER SPECIFIED THERAPY	0	2	0	1	2	1	6	1.3%
NO FIRST COURSE TREATMENT	1	18	5	21	55	13	113	24.0%
<b>TOTAL</b>	<b>2</b>	<b>130</b>	<b>28</b>	<b>74</b>	<b>191</b>	<b>46</b>	<b>471</b>	<b>100%</b>

## #3 Prostate Cancer

### INCIDENCE OF PROSTATE CANCER BY AGE AT DIAGNOSIS, LVHN 2018

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	0	0	67	166	108	34	2	377

### PROSTATE CANCER TREATMENT BY AJCC STAGE AT DIAGNOSIS, LVHN 2018

FIRST COURSE	Stage 1	Stage 2	Stage 3	Stage 4	Stage UNK	TOTAL	%
SURGERY ONLY	8	67	26	1	23	125	33.2%
RADIATION THERAPY ONLY	4	16	0	1	7	28	7.4%
SURGERY AND HORMONE THERAPY	0	4	5	4	3	16	4.2%
SURGERY, RADIATION AND HORMONE THERAPY	0	0	7	4	0	11	2.9%
RADIATION AND HORMONE THERAPY	0	36	28	8	11	83	22.0%
SURGERY AND RADIATION	0	1	5	0	0	6	1.6%
HORMONE THERAPY ONLY	0	1	1	14	4	20	5.3%
OTHER SPECIFIED THERAPY	0	0	0	9	0	9	2.4%
NO FIRST COURSE TREATMENT	47	12	2	1	17	79	21.0%
<b>TOTAL</b>	<b>59</b>	<b>137</b>	<b>74</b>	<b>42</b>	<b>65</b>	<b>377</b>	<b>100%</b>

## #4 Colon Cancer

### INCIDENCE OF COLON CANCER BY AGE AT DIAGNOSIS, LVHN 2018

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	3	6	10	29	53	44	42	10	197

### COLON CANCER TREATMENT BY AJCC STAGE AT DIAGNOSIS, LVHN 2018

FIRST COURSE	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage UNK	TOTAL	%
SURGERY ONLY	5	42	44	17	3	10	121	61.4%
SURGERY AND CHEMOTHERAPY	0	0	6	35	7	1	49	24.9%
SURGERY, CHEMOTHERAPY AND IMMUNOTHERAPY	0	0	0	0	2	0	2	1.0%
CHEMOTHERAPY ONLY	0	0	0	0	4	0	4	2.0%
CHEMOTHERAPY AND IMMUNOTHERAPY	0	0	0	0	3	1	4	2.0%
OTHER SPECIFIED THERAPY	0	0	0	0	2	0	2	1.0%
NO FIRST COURSE TREATMENT	0	1	0	0	8	6	15	7.6%
<b>TOTAL</b>	<b>5</b>	<b>43</b>	<b>50</b>	<b>52</b>	<b>29</b>	<b>18</b>	<b>197</b>	<b>100%</b>

## #5 Rectal Cancer

### INCIDENCE OF RECTAL CANCER BY AGE AT DIAGNOSIS, LVHN 2018

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	1	0	6	25	18	11	8	0	69

### RECTAL CANCER TREATMENT BY AJCC STAGE AT DIAGNOSIS, LVHN 2018

FIRST COURSE	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage UNK	TOTAL	%
SURGERY ONLY	2	9	1	0	0	8	20	29.0%
SURGERY AND CHEMOTHERAPY	0	0	2	4	0	0	6	8.7%
SURGERY, CHEMOTHERAPY AND RADIATION	0	1	5	14	2	0	22	31.9%
CHEMOTHERAPY AND RADIATION	0	0	1	2	4	0	7	10.1%
CHEMOTHERAPY AND IMMUNOTHERAPY	0	0	0	0	3	0	3	4.3%
CHEMOTHERAPY ONLY	0	0	0	2	1	0	3	4.3%
RADIATION THERAPY ONLY	0	0	0	1	1	0	2	2.9%
CHEMOTHERAPY, RADIATION AND IMMUNOTHERAPY	0	0	0	0	1	1	2	2.9%
OTHER SPECIFIED THERAPY	0	0	0	0	1	1	2	2.9%
NONE	0	0	0	1	1	0	2	2.9%
<b>TOTAL</b>	<b>2</b>	<b>10</b>	<b>9</b>	<b>24</b>	<b>14</b>	<b>10</b>	<b>69</b>	<b>100%</b>

## #6 Blood and Bone Marrow Cancer

### INCIDENCE OF BLOOD AND BONE MARROW CANCER BY AGE AT DIAGNOSIS, LVHN 2018

AGE AT DIAGNOSIS	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	8	3	5	2	12	29	60	69	37	7	232

### BLOOD AND BONE MARROW CANCER TREATMENT

FIRST COURSE	TOTAL	%
CHEMOTHERAPY ONLY	66	28.4%
CHEMOTHERAPY AND HORMONE THERAPY	37	15.9%
CHEMOTHERAPY, HORMONE THERAPY AND IMMUNOTHERAPY	10	4.3%
CHEMOTHERAPY AND STEM CELL TRANSPLANT	4	1.7%
IMMUNOTHERAPY ONLY	7	3.0%
CHEMOTHERAPY, HORMONE THERAPY, IMMUNOTHERAPY AND STEM CELL TRANSPLANT	4	1.7%
CHEMOTHERAPY AND IMMUNOTHERAPY	5	2.2%
CHEMOTHERAPY, RADIATION AND HORMONE THERAPY	3	1.3%
CHEMOTHERAPY, RADIATION, HORMONE THERAPY, IMMUNOTHERAPY AND STEM CELL TRANSPLANT	1	0.4%
RADIATION THERAPY ONLY	1	0.4%
OTHER SPECIFIED THERAPY	9	3.9%
NO FIRST COURSE TREATMENT	85	36.6%
<b>TOTAL</b>	<b>232</b>	<b>100%</b>

1240

 **Lehigh Valley  
Cancer Institute**  
LEHIGH VALLEY HEALTH NETWORK



Memorial Sloan Kettering Cancer Alliance  
MEMBER

**John and Dorothy Morgan  
Cancer Center**



## Next-Generation Surgical Robot Comes to LVHN

The Lehigh Valley Institute for Surgical Excellence at Lehigh Valley Health Network (LVHN) has acquired the newest generation of robotic surgery technology, the da Vinci® single port (SP™) robotic surgery system, which makes it possible for surgeons to enter the body through a single incision. More than 50 surgeons, spanning 11 specialties, including surgical oncology, have performed more than 15,000 robotic procedures at LVHN since 2008.

LVHN is the first network in the region, and one of few in the world, to offer surgery with the da Vinci SP. The U.S. Food and Drug Administration (FDA) has cleared da Vinci SP for urological procedures that are appropriate for a single-port approach. Future applications may include otolaryngology and colorectal procedures.

### SINGLE-PORT SURGERY

The da Vinci SP's surgical arm includes a flexible endoscopic camera and three instrument drives, which can be outfitted with a suite of uniquely articulating EndoWrist® SP instruments that mimic the movement of the human wrist, shoulder and elbow.

These instruments provide access to all four quadrants of the abdomen, allowing unparalleled flexibility and movement and enabling our skilled surgeons to work around nerves and other vital structures.

### PATIENT BENEFITS FROM ROBOTIC SURGERY

- Less tissue disturbance
- Less pain
- Faster recovery

### AREA'S LARGEST ROBOTIC SURGERY PROGRAM

The da Vinci SP at Lehigh Valley Hospital (LVH)-Cedar Crest enhances the Institute for Surgical Excellence robotic surgery program, the largest and most advanced in the region. The program now includes 10 robots, with at least one at six LVHN hospital campuses, including LVH-Cedar Crest, LVH-17th Street, LVH-Muhlenberg, LVH-Schuylkill, LVH-Hazleton and LVH-Pocono.

# Lehigh Valley Reilly Children's Hospital

Lehigh Valley Health Network (LVHN) has cared for more kids than any other health system in the area since the 1970s. As part of its commitment to the care of children, the Children's Hospital of LVHN was opened in 2012. In 2018, local philanthropists J.B. and Kathleen Reilly presented a gift to the children's hospital to expand specialty health care offerings. Among Lehigh Valley Reilly Children's Hospital's more than 30 pediatric specialties, our team offers expert and compassionate pediatric cancer care, taking care of kids and supporting their families.

## LEHIGH VALLEY REILLY CHILDREN'S HOSPITAL

- A Member of the Children's Oncology Group (COG) conducts multi-institutional clinical trials for the treatment of childhood cancers
- Region's only children's emergency department, pediatric intensive care unit (PICU) and highest level 4 neonatal intensive care unit (NICU)
- Only level 2 pediatric trauma center in the region
- More than 100 pediatric subspecialists

## ADOLESCENT AND YOUNG ADULT TUMOR BOARD

The adolescent and young adult (AYA) tumor board at LVHN provides a forum specifically designed to meet the unique needs of oncology patients, ages 15 to 39 years.

AYA tumor board features expert specialists in hematology oncology, pediatric hematology oncology, reproductive endocrinology, radiation oncology, oncology nurse practitioners, clinical nurse specialists and several supportive care staff. AYA meets monthly to evaluate patients who have hematologic malignancies, sarcomas and other oncology diagnoses.

Case presentation and discussion focus on the age-related concerns associated with adolescent and young adult cancers including:

- Use of chemotherapy and radiation and its effect on reproductive health
- Eligibility for clinical trials. Some AYA patients enter adult clinical trials. Others are better served through pediatric trials, which may accept patients into their 30s.
- Potential long-term effects of treatment
- Psychosocial concerns, financial needs and any potential barriers to care

An individual plan of care is developed for each patient to address their specific diagnosis in consideration of his or her unique needs. A wide range of cancer support services – social workers, financial and psychological counselors, and a patient navigator, participate in the AYA tumor board to address the full spectrum of patient care concerns utilizing a multidisciplinary, collaborative approach.



# Cancer Screening Outcomes

THE COMMISSION ON CANCER STANDARDS: 4.2 CANCER SCREENING; 4.3 CANCER PREVENTION

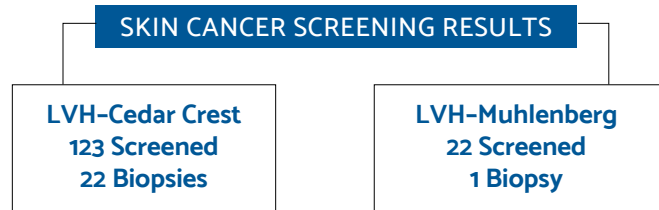
## SKIN SCREENING

Our community health needs assessment provided information showing 34 percent of adults in the Lehigh Valley do not use sunscreen before outdoor activities. Most skin cancers are caused from exposure to sunlight or tanning beds. This exposure damages your skin’s DNA, altering the skin cell growth.

Screening reduces the number of people who develop cancer or die from the disease. LVHN has cancer screening services available for many cancers. We can connect uninsured and underinsured patients with low-cost or free screening services directly and through our partnership with local health bureaus.

## HELP PREVENT SKIN CANCER

- Avoid sun exposure during peak hours
- Wear sunscreen at least SPF 30; reapply every two hours to exposed skin
- Wear protective clothing and hat
- Avoid tanning beds
- Awareness for sun-sensitizing medications
- Check your skin often for changes



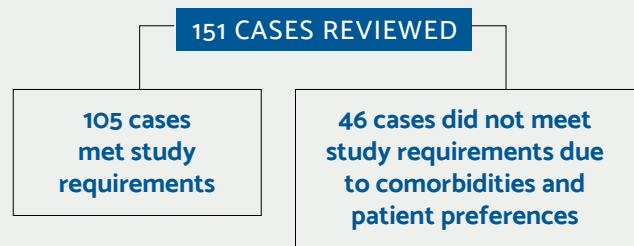
Results	LVH-Cedar Crest	LVH-Muhlenberg
Positive biopsy	2	0
Abnormal biopsy - no treatment	2	0
Abnormal biopsy - with treatment	1	0
Negative biopsies	4	0
Follow-up - no biopsy needed	3	1
Scheduled appointment	2	0
Plan to make appointment	3	0
No follow-up planned by patient	0	0
Unable to contact patient	5	0

# Evidence-Based Study

THE COMMISSION ON CANCER STANDARD 4.6; MONITORING COMPLIANCE WITH EVIDENCE-BASED NATIONAL GUIDELINES

## TREATMENT AND SURVIVAL STATUS OF MUSCLE-INVASIVE BLADDER CANCER

Each year, a cancer committee physician completes an in-depth analysis to ensure compliance with evidence-based national guidelines in the treatment of Lehigh Valley Cancer Institute patients. This year, a retrospective study was conducted to examine patient outcomes in stage T2-T3 muscle-invasive bladder cancer from 2014 to 2018. A review of treatment modalities and compliance to NCCN National Guidelines were analyzed with the following results:



## MULTIDISCIPLINARY CLINIC BRINGS PATIENTS MORE STREAMLINED, EFFECTIVE TREATMENT

Lehigh Valley Cancer Institute has long offered multidisciplinary clinics (MDCs) for cancers of the breast, lung, gastrointestinal system and prostate. Now, the Cancer Institute has added the head and neck cancer MDC to this list.

The head and neck cancer MDC brings together everyone involved in a patient’s treatment and recovery in one place, including specialists in head and neck surgery, medical oncology, radiation oncology, and other areas (such as speech therapy, nutrition, plastic surgery), to provide coordinated care and assistance.

The MDC team can weigh treatment options together, in real time, and answer all questions a patient may have at the same visit. Clinical trials specialists from the Cancer Institute also evaluate every patient for enrollment in the latest therapeutic trials.

### MDC BENEFITS TO PATIENTS

- Better communication between providers
- Better communication to patient
- Access to more clinical trials
- Greater likelihood to enroll in clinical trial
- Team discusses multiple ways to treat

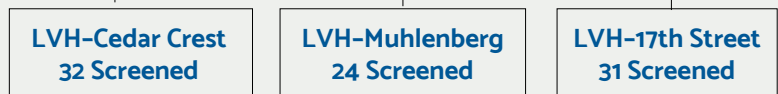
## HEAD AND NECK SCREENING

Our community needs assessment provided information showing 18 percent of adults in the Lehigh Valley drink excessively, and 20 percent of adults are current smokers. The largest risk factor for head and neck cancers (85 percent) are linked to tobacco and alcohol use, increasing the risk for cancers in the mouth, pharynx, larynx and esophagus.

### HELP PREVENT HEAD AND NECK CANCER

- Stop tobacco use
- Avoid alcohol
- Avoid marijuana use
- Use lip balm with SPF when exposed to UV sun rays
- Reduce HPV exposure (human papillomavirus)
- Practice good oral hygiene

## ORAL CANCER SCREENING RESULTS

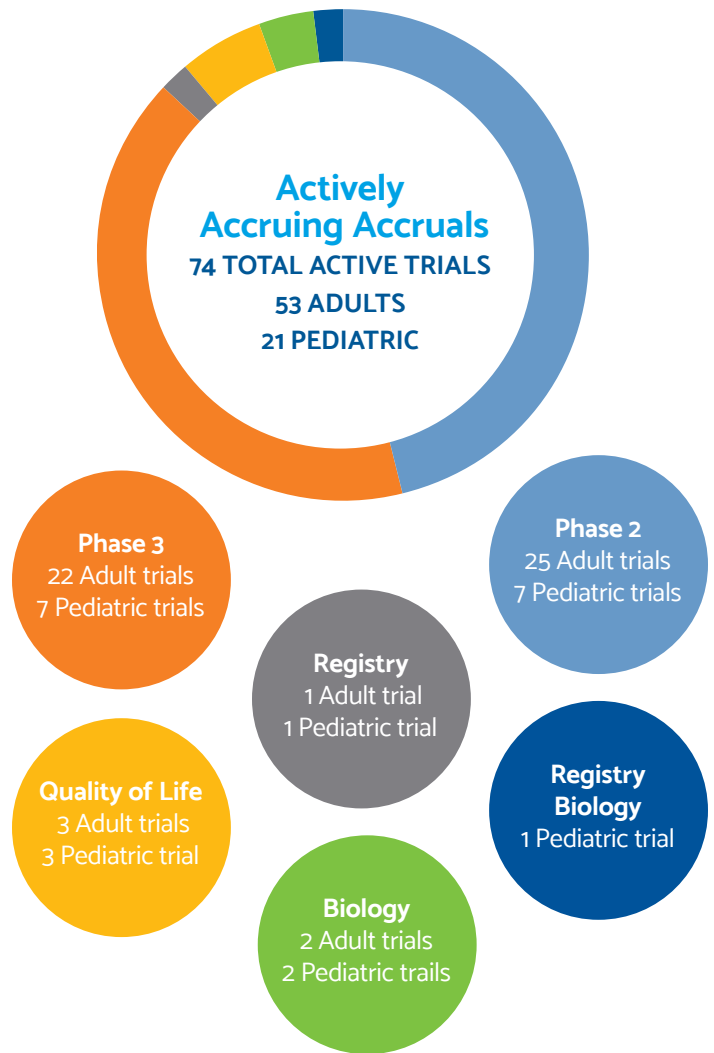


RESULTS	LVH-Cedar Crest	LVH-Muhlenberg	LVH-17th Street
Referral to oral surgeon	1	0	0
No patients referred, no abnormal findings	0	0	0
Referred for follow-up	0	0	4
Follow-up private dentist, negative findings	0	0	2
Follow-up LVH-17th Street dental clinic, no show	0	0	1
No patient response multiple calls	0	0	1

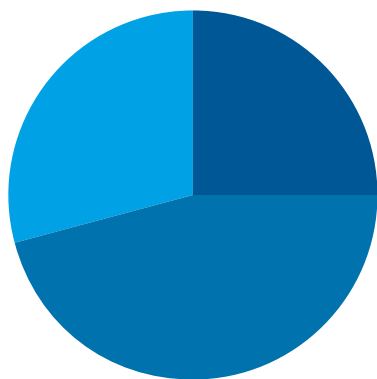


# Clinical Trials

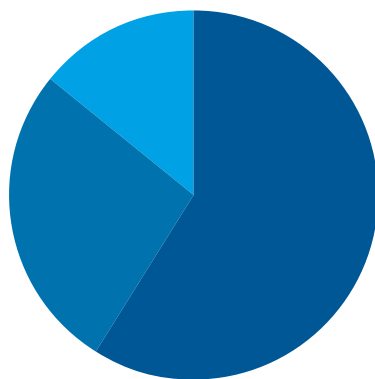
Offering our patients excellence in cancer care and access to the latest and most promising therapies is the mission of Lehigh Valley Health Network's clinical trials program. Our dedicated clinical trials staff helps to ensure we follow the strictest of clinical trial protocols and deliver clear results while providing compassionate care for our patients. Lehigh Valley Cancer Institute was invited to join the Memorial Sloan Kettering (MSK) Cancer Alliance in 2016. Lehigh Valley Cancer Institute patients work with their 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 helps advance cancer treatment knowledge to benefit all patients.



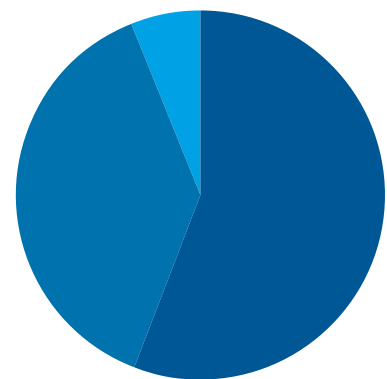
Fiscal Year 2018  
Clinical Trial Accruals



Fiscal Year 2018  
Treatment Trial Accruals



Fiscal Year 2018  
Non-Therapeutic Trial Accruals



■ MSK ■ Pharma ■ NCORP

NCI Community Oncology Research Program (NCORP)

# Strata Oncology

## 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.



PUBLISHED IN BETTER MEDICINE SPRING 2019

## NEW FLUORESCENCE-GUIDED BRAIN TUMOR RESECTION TECHNIQUE

Lehigh Valley Health Network's (LVHN) brain tumor center began offering fluorescence-guided resection in June 2019. The surgical technique uses an optical imaging agent, aminolevulinic acid hydrochloride (ALA HCL), which was recently approved by the FDA.

With fluorescence-guided resection, brain tumors and their vasculature are made visible with the combination of the fluorescing agent and a special microscope filter. Typically, brain tumors can have finger-like projections that interface with normal brain tissue. Fluorescence-guided resection should allow for better identification of tumor tissue from normal brain for improved removal. LVHN is the only hospital network to offer fluorescence-guided resection in the Lehigh Valley.

The new surgical technique has been cleared for high-grade primary brain tumors, such as glioblastoma and grade 3 anaplastic astrocytoma and oligodendroglioma.

## SPECIALIZED TREATMENT TEAM

LVHN's brain tumor multidisciplinary program treats roughly 50 cases of glioblastoma annually as well as the entire spectrum of brain tumors in patients of all ages.

## OUR PROGRAM FEATURES:

- Three neurosurgeons who have specialty training in brain tumor surgery
- Team of radiation oncologists who specialize in the treatment of brain tumors with stereotactic radiosurgery (SRS)
- Large neuroradiology department
- Dedicated neuropathologist
- Board-certified neuro-oncologist



## Multidisciplinary Care

### MULTIDISCIPLINARY CLINICS

Lehigh Valley Cancer Institute prides itself by offering patients opportunities to have their diagnosis and care options assessed and discussed by a team of clinicians through our multidisciplinary clinics (MDC). Multidisciplinary clinics are comprised of providers representing medical, surgical, oncology and radiation oncology along with oncology nurse navigators and support staff including social workers, counselors, rehabilitation staff, dietitians and genetics counselors. The team provides advocacy and support for each individual patient. MDCs are available for patients with cancers of skin and soft tissues, gastrointestinal, breast, lung, head and neck, and prostate.

**455**

Total MDC visits FY19

**1,072**

Number of new navigated patients FY19

**1,873**

Total navigator-assisted patients FY19

### SOCIAL WORK

Social workers provide valuable assistance to patients by advocating for them, raising awareness and helping to identify resources available in the community, state agencies, grant-funded programs and organizations such as the Cancer Support Community and the American Cancer Society. Lehigh Valley Cancer Institute has two full-time social workers who assist our patients overcome possible barriers to their care like transportation and financial issues. Our social workers coordinate closely with other staff members including financial coordinators and oncology nurse navigators to identify patients who might have needs or are encountering difficulties that impede their care. Our social workers offer support and help facilitate access to needed resources.

**997**

New referrals

**3,575**

Encounters

**897**

Encounters specific to travel barriers (25% of encounters)

**1,512**

Encounters specific to financial barriers (45% of encounters)

**93**

PT referrals non-network community-based financial aid \$29,560

# Cancer Program Annual Goals

Annually, the Cancer Committee establishes one programmatic and one clinical goal related to cancer care. The Commission on Cancer Standard 1.5 requires the Cancer Committee to monitor the outcomes.

## **PROGRAMMATIC GOAL: DEVELOPMENT OF A PHASE I, CLINICAL TRIAL UNIT**

- 1. Identification of clinical space for phase I treatments.**
- 2. Education of nurses, fellows, pharmacists, navigators and clinical trials team.**
- 3. Clinical trial priorities.**

The infusion center at Lehigh Valley Hospital–Cedar Crest has a dedicated space and appropriate equipment for patients receiving treatment through phase I clinical trials. The clinical trials leadership team has developed and implemented a clinical trials course for nurses, fellows, pharmacists and other staff members to provide advanced education in understanding clinical trials, reviewing protocols and documentation requirements. This course was offered four times in 2019 and attended by over 50 members of the Lehigh Valley Cancer Institute team.

## **CLINICAL GOAL: DEVELOPMENT OF AN ONCOLOGY OPIOID TOOLKIT**

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. In addition, the toolkit provides contracts and drug screening recommendations.

PUBLISHED IN BETTER MEDICINE AUGUST 2019

## **ROBOTIC LUNG RESECTION IS NEW OPTION FOR LUNG CANCER TREATMENT**

For patients with stage 1, 2 or 3 lung carcinoma, a lobectomy offers the best chance for survival. During surgery, the lung is detached from the heart and resected, along with lymph nodes and drainage patterns from veins and arteries. The standard open operation, a thoracotomy, involves fracturing ribs and making a large incision through back muscles, which results in a lengthy and painful patient recovery. Video-assisted thoracoscopic surgery (VATS) is employed as a replacement for standard thoracotomy, but still involves incisions to insert the camera and surgical instruments.

At Lehigh Valley Institute for Surgical Excellence, however, eligible patients with lung cancer can benefit from robotic lung resection, a new minimally invasive surgical approach that involves resecting the lung from only a few incisions of just 1 centimeter.

### **ROBOTIC SURGERY APPROACH**

Robotic lung resection with da Vinci Xi®, the most advanced robotic surgery system approved for thoracic surgery, offers several advantages compared to open surgery. In particular, there is no muscle cutting. Everything is done between the ribs, which allows resection of the tumor in the lung without a large incision.

Through small incisions, surgeons insert instruments and a camera for viewing. The da Vinci Xi approach for lung resection offers enhanced visualization, with 10 to 20 times magnification.

Postoperatively, patients require less pain medication, and they are up and moving the same day.

# Community Health Needs Assessment

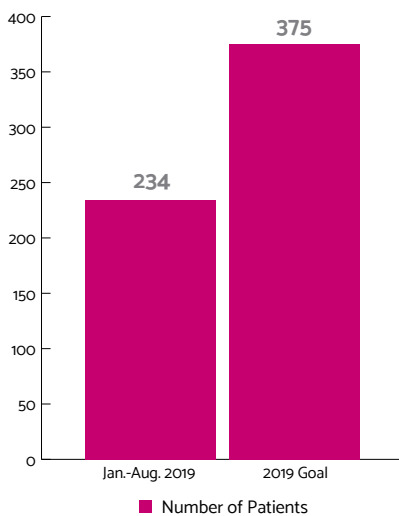
The Lehigh Valley Cancer Institute conducts a triennial community health needs assessment (CHNA) that aims to review community demographics, existing services, gaps in services, measurement of factors that cause cancer (e.g., smoking rates), as well as factors that help prevent or catch cancer at an earlier stage (e.g., colonoscopy screening rates). To ensure that we hear the voices of our patients and community members, we obtain input from our Patients and Family Advisory Council (PFAC) and by conducting a community-wide survey. Additionally, we partner with different community agencies and utilize the power of social media to gather a large representative response to the survey. Information gathered from the survey helps us to identify gaps and plan for future services to address those gaps.

## THE 2019 TRIENNIAL COMMUNITY HEALTH NEEDS ASSESSMENT, CONDUCTED IN 2018 PROVIDED THE FOLLOWING RESULTS:

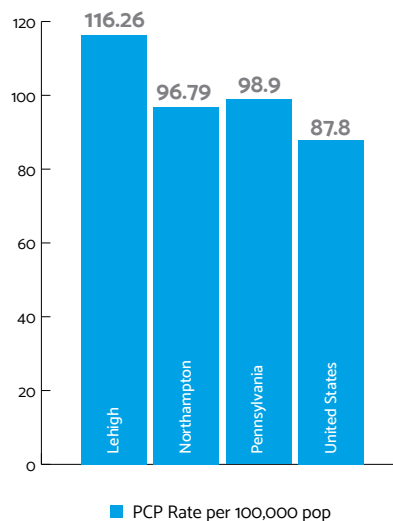
- Respondents asked for a greater presence from health care systems in the community where there was limited access to primary care physicians.
- The rate of breast cancer in Northampton County is higher than the rates for both Pennsylvania and United States.

Based on these findings, Lehigh Valley Cancer Institute, launched a project related to breast cancer screening. Lehigh Valley Cancer Institute initiated a mobile mammography program in 2018. The goal was to increase access to mammograms in Northampton County using Lehigh Valley Cancer Institute’s mobile mammography coach.

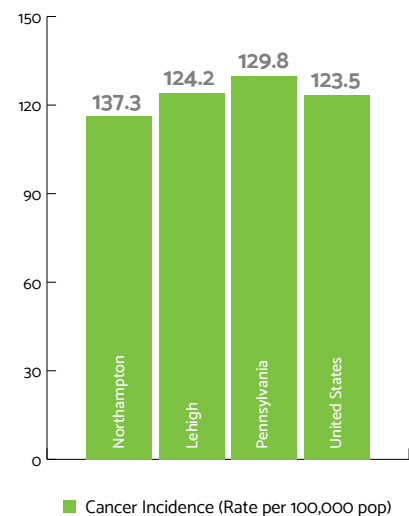
**MAMMOGRAPHY COACH PATIENTS IN NORTHAMPTON COUNTY**



**PRIMARY CARE PHYSICIANS**



**BREAST CANCER INCIDENCE**





## Epic Electronic Health Records System

In October 2019, Lehigh Valley Hospital (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, our 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 much more.

### TO TRANSITION TO EPIC, LVHN:

- Converted 23,315 scheduled appointments from prior systems to Epic over a weekend
- Installed 2,010 computer monitors
- Installed 2,293 new peripherals
- Installed 1,428 endpoint computing devices
- Trained 293 providers
- Trained 4,100 colleagues in Epic with around-the-clock training classes
- Held 3,049 training classes

# 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 our Lehigh Valley Hospital (LVH)-Cedar Crest and LVH-Muhlenberg facilities.

## LATEST PROTOCOLS AND TECHNOLOGIES

- Six 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)
- Gamma Knife® Icon™ radiosurgery
- Leksell Gamma Knife Icon
- Intensity-modulated radiation therapy (IMRT)
- Two large-bore 16-slice computed tomography (CT) simulators with latest technology including metal artifact reduction software
- Brachytherapy – high-dose and low-dose
- 3D treatment planning
- Image-guided radiation therapy (IGRT)
- Respiratory gating
- Optical surface monitoring system (OSMS)
- Prone breast radiation therapy
- Dose painting technique
- Pediatric radiation oncology

## 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 set-up 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.

## Total “New Start” External Beam and Special Procedures

LVH-Cedar Crest: 994

LVH-Muhlenberg: 415

**Total: 1,409**

PUBLISHED IN BETTER MEDICINE WINTER 2019

## RADIATION CAN BE A POWERFUL TOOL IN TREATMENT OF SKIN CANCERS

When patients present with what appears to be skin cancer, physicians typically refer to a dermatologist for biopsy. Surgery often follows, and if the lesion is in a cosmetically sensitive area, such as the face or scalp, surgery may even cause disfigurement and require follow-up plastic surgery. However, there is an effective alternative for non-melanoma skin cancers: radiation therapy.

Radiation oncologists with Lehigh Valley Cancer Institute can successfully treat non-melanoma skin cancers, such as basal cell or squamous cell carcinoma, with radiation therapy. Radiation treatment for skin cancer can be done in as few as six treatments, but some can require between 20-30 treatments. Each treatment takes about 15 minutes. Side effects are manageable and for the most part, patients can continue their normal daily routines. Results can be dramatic with little to no evidence that a lesion previously was on the skin.

# 3D Printer

Radiation oncology now has a 3D printer that will be used in conjunction with an FDA-approved software package from Adaptiv Medical Technologies Inc., to create custom devices for patients to improve the quality of their radiation treatment.

The 3D printer and Adaptiv software work in tandem to create completely customized bolus devices. Using a 3D printed bolus helps ensure curved or irregularly shaped areas, such as nose, ear or scalp, have uniform coverage provided by the custom-shaped device. It also helps increase patient comfort.

Additionally, these personalized devices will allow us to treat a new subset of our patients with high-dose radiation (HDR) brachytherapy by expanding the size and location of skin lesions that we are able to treat. Also, this will allow us to start treatments for these patients six weeks earlier.

This technology is used by just a few hospitals, universities and research institutions in the United States.

## LEIPZIG APPLICATORS

In addition to the new 3D printer, the Department of Radiation Oncology now has the ability to use Leipzig Applicators to treat small skin lesions with HDR.

PUBLISHED IN BETTER MEDICINE SUMMER 2019

## LEHIGH VALLEY CANCER INSTITUTE OFFERS ADVANCED RADIATION TREATMENT FOR PROSTATE CANCER

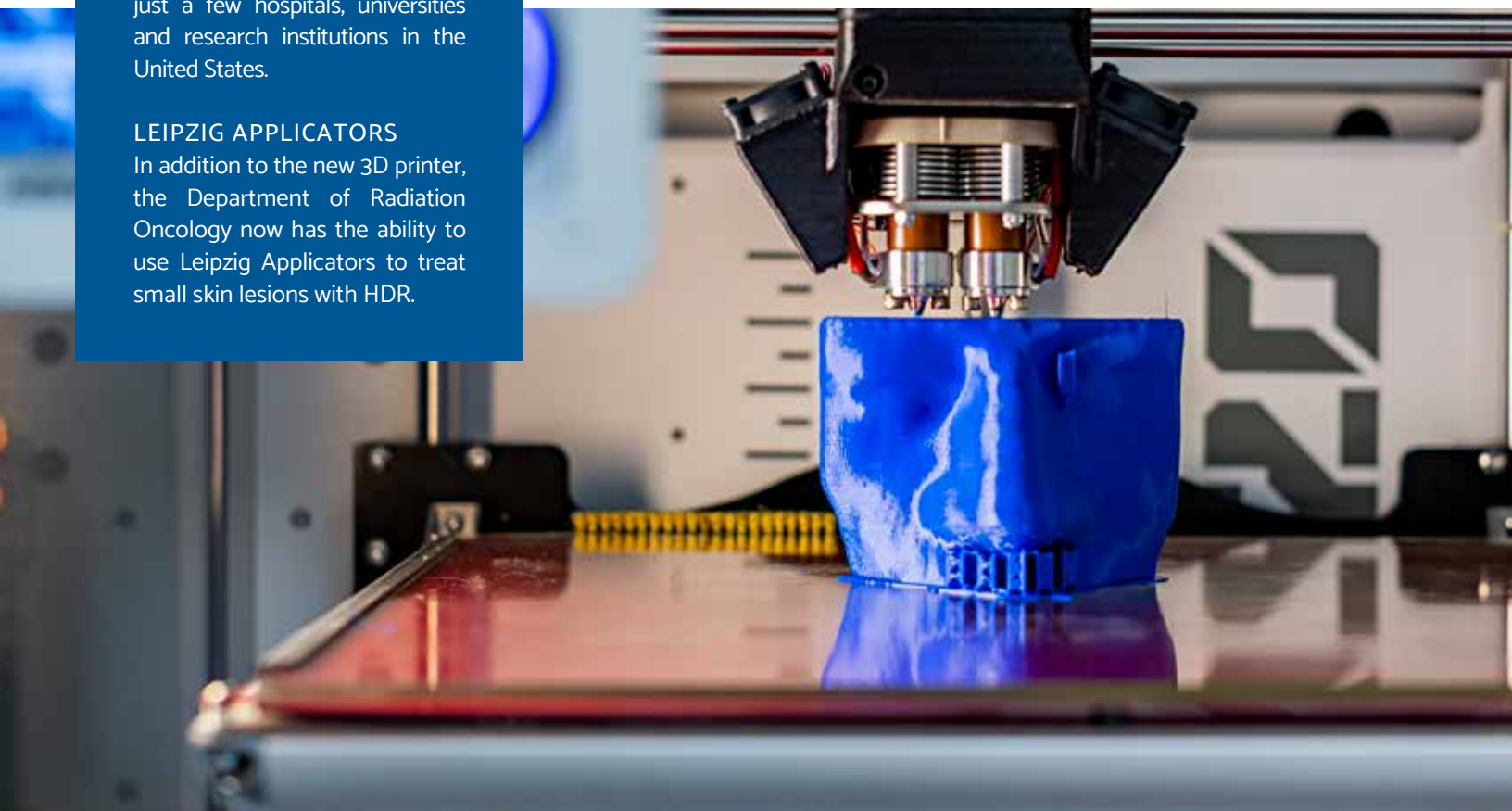
Varian Edge® radiosurgery system provides linear accelerator-based stereotactic body radiation therapy (SBRT), a treatment for prostate cancer that delivers extremely precise, intense doses of radiation to cancer cells while minimizing damage to healthy tissue.

With the Edge linear accelerator, patients with prostate cancer receive high-dose targeted radiation treatments for five to 10 minutes, every other day, over the course of two weeks, for a total of five treatments. (For comparison, CyberKnife treatments last 30 to 90 minutes.)

### INCREASED ACCURACY FOR RADIATION DELIVERY

Edge radiation dosing is potentially more accurate because the system offers sophisticated image-guided radiation therapy. The system is equipped with a cone-beam computed tomography (CT) scan; it's capable of performing a CT scan before each fraction of radiation is delivered to verify that the prostate is accurately localized. To further ensure treatment accuracy, Edge protocol includes inserting radiosensitive Calypso® beacons into the prostate to track the tumor in real time.

Cancer Institute radiation oncologists incorporate SpaceOAR® (Spacing Organs at Risk) hydrogel system into their pre-treatment protocol to reduce risk for rectal injury from radiation exposure. SpaceOAR involves injecting a biodegradable material between the rectum and the prostate, which physically displaces the rectum and moves it outside the treatment zone.





# Cancer Data Management

## CANCER REGISTRY

The cancer data management department of Lehigh Valley Cancer Institute captures a complete summary of patient demographics, history, diagnosis and treatment for every cancer patient seen. These important data are abstracted and stored in a secure cancer registry database, an information software system designed for collection, management and analysis of data on persons with diagnosis of malignant neoplastic disease including benign brain tumors. In turn, these data are used by medical providers, as well as local, state and national agencies, such as Pennsylvania Cancer Registry (PCR), Department of Health, and National Cancer Database (NCDB), to make important decisions.

## WHAT INFORMATION IS CONTAINED IN A CASE ABSTRACT?

- Patient demographics
- Medical history: Physical findings, screening information, occupation and any previous history of cancer
- Cancer staging: Clinical and pathologic staging, site specific data items
- Cancer treatment: Surgery, radiation therapy, chemotherapy, hormone or immunotherapy; clinical trials
- Diagnostic findings: Tests, dates and results of procedures used to diagnose cancer
- Cancer information: Primary site, cell type, extent of disease
- Follow-up: Annual information about treatment, recurrence, cancer status, patient status

## PATIENT LIFETIME FOLLOW-UP

Aside from case abstracting, conducting patient follow-up is also an important task of the Cancer Data Management team. Patients are followed throughout their lifetime – for residual disease, cancer recurrence, cancer status, annual information on treatment, additional cancers and patient status.

## PATIENT FOLLOW-UP PROVIDES IMPORTANT DATA



# Infusion Services

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

- Health Center at Bangor infusion services
- LVPG Hematology Oncology-Lehighton
- Multipurpose areas for infusion services at The John and Dorothy Morgan Cancer Center at Lehigh Valley Hospital-Cedar Crest
- Multipurpose satellite infusion services at Lehigh Valley Hospital-Muhlenberg



12

Infusion Bays  
Health Center  
at Bangor

24

Infusion Bays  
LVH-  
Muhlenberg

38

Infusion Bays  
LVH-Cedar  
Crest

44,438

FY 19 Infusion  
Encounters



# Breast Health Services

## OUT OF SIGHT, OUT OF MIND: HIDDEN SCAR BREAST SURGERY HELPS PATIENTS GET ON WITH THEIR LIVES

Women with breast cancer are being cured at higher rates. Average five-year survival rate for women with noninvasive breast cancer is now 99 percent, 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 every time they look in the mirror.

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. It 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.

**14**  
Mammography  
units

**1**  
Mobile 3D  
Mammography  
Coach

**6**  
Dedicated breast  
ultrasound/  
biopsy units

**2**  
Stereotactic  
biopsy units

**1**  
Breast MRI  
magnet

**46,705**  
Total 3D Mammograms

**58,327**  
Total Mammograms

LEHIGH VALLEY CANCER INSTITUTE  
IS THE FIRST IN THE LEHIGH VALLEY  
TO OFFER HIDDEN SCAR SURGERY.

PUBLISHED IN BETTER MEDICINE WINTER 2019

## HIGH-RISK BREAST CANCER SCREENING CLINIC

Lehigh Valley Cancer Institute offers a High-Risk Breast Cancer Screening Clinic for women who have an increased risk for cancer but do not possess a hereditary cancer syndrome or known genetic mutation.

The clinic is the first of its kind in the region and follows patients with any of the following risk factors:

- Family history of cancer
- Multiple breast biopsies
- Lobular carcinoma in situ (LCIS; lobular neoplasia), atypical ductal hyperplasia or atypical lobular hyperplasia in the breast found on breast biopsy

Women seen at the clinic receive imaging exams, including annual mammograms and breast MRIs. Clinical breast exams,

patient education and prevention advice are also provided. When needed, guidance is given for women who may require breast cancer treatment. The clinic's goal is to provide customized, comprehensive care and long-term surveillance to identify breast cancer at its earliest and most treatable stages.

The High-Risk Breast Cancer Screening Clinic works collaboratively with The Gregory and Lorraine Harper Cancer Risk and Genetic Assessment Program. Through that program, patients and families with inherited cancer susceptibility gene mutations can receive genetic counseling and recommendations for genetic testing and screening.

# Mammography

Lehigh Valley Cancer Institute's mobile mammography coach features the same imaging technology used in our facilities, and now our expertise can be extended to workplaces and the community.

## MOBILE MAMMOGRAPHY COACH STATISTICS: 8 CANCERS/1,000 SCREENED

4 DCIS • 4 Invasive lobular • 1 Invasive ductal  
2 Invasive mammary • 4 Atypical

## NON-MOBILE BHS STATISTICS: 5 CANCERS/1,000 SCREENED

Benchmark range is 2-10 cancers found through screenings

## MOBILE MAMMOGRAPY COACH STATISTICS

Oct. 18, 2018- Aug. 31, 2019

**52+**  
Different locations

**1,808**  
Patients screened

**277**  
Call backs additional imaging (15%)  
(non-mobile BHS stat 7%-8%)



## Nutritional Counseling

Three board-certified specialists in oncology nutrition are available to meet with patients and families before, during and after treatment to assess nutritional needs and determine appropriate goals and strategies to reach those goals. Our registered dietitians also offer their expertise to community outreach programs including presentations, cooking demonstrations and participation in health fairs. In FY19, our dietitians saw 858 new patients and 1,691 patients for follow-up appointments, resulting in an increase of 8.4% from FY18.



## Financial Coordination

Lehigh Valley Cancer Institute provides eight financial coordinators to assist patients in reducing financial barriers to care. They answer questions related to precertification requirements, health insurance, medical bills, and generally help patients navigate the complex waters of insurance and community resources.

- Financial coordination connects patients with support agencies to assist them in receiving free or reduced-cost services if they qualify.
- Financial coordinators assisted 299 patients in obtaining \$7.8 million in free or reduced-cost oral medications in fiscal year 2019.
- Assisted over 800 patients with other services, related to receiving or reducing financial barriers to care.

	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19
Oral medications assistance obtained	\$3,590,246	\$4,366,205	\$3,388,420	\$3,058,370	\$4,380,076	\$5,419,690	\$5,114,294	\$7,805,256
Patients helped oral medications	257	202	152	109	155	176	296	299
FAP patients helped charity	666	749	725	655	590	577	615	616
PATHS patients referred	294	294	247	221	223	220	214	130

# Palliative Care

Palliative care is specialized medical care for people living with a serious illness. This type of care is focused on providing relief from the symptoms and stress of a serious illness. The goal is to improve quality of life for both patient and the family.

Palliative care is provided by a specially educated team of doctors, nurses and other specialists who work together with a patient's other providers to offer an extra layer of support. Palliative care is based on the needs of the patient, not prognosis. This care is appropriate at any age and at any stage in a serious illness, and it can be provided along with curative treatment.

Lehigh Valley Health Network provides palliative care in the hospital, in the cancer center, and in the home. Optimizing Advanced Complex Illness Support, or OACIS, works with your oncologist to manage your symptoms. We aid in matching treatment options with patient goals and help facilitate conversations to clarify health care wishes with your family members or other health professionals involved in your care. If you require hospitalization, we can be there to make sure all your providers know what kind of care you want.

# Counseling Services

A cancer diagnosis can create strong feelings of grief, sadness, anger or fear. Our licensed counselors with expertise in cancer care are available to help patients, their families and caregivers cope with the diagnosis to help feel less distressed. Counselors can make visits to the doctor's office or treatment areas. Our bilingual (Spanish/English) Licensed Social Worker (LSW) increased her hours from per diem to part time, and as a hospital employee can offer counseling to patients without insurance at no cost. She continues to facilitate our support group sessions. More counseling appointments were added as both of our other licensed clinical social worker (LCSW) counselors transitioned their time to psychiatric practices, maintaining their availability for patients with cancer.

- 
- 1,117** Cancer patients counseling visits with licensed counselors
  - 232** Support group attendance
  - 19%** Increase in visits over previous year
  - 1,496** Encounter with patients in non-counseling cancer support activities

PUBLISHED IN BETTER MEDICINE MAY 2019

## AGGRESSIVE NEW APPROACHES IN THE BATTLE AGAINST PANCREATIC CANCER PROVIDING LEADING-EDGE TREATMENTS CLOSE TO HOME

Lehigh Valley Cancer Institute provides among the most aggressive pancreatic cancer treatments available anywhere. The Cancer Institute's standard approach for pancreatic cancer cases begins with a course of chemotherapy, followed by restaging the patient. Based on imaging results, patients either proceed directly to surgery or have a short course of stereotactic body radiation therapy (SBRT) first.

### NEOADJUVANT RADIATION THERAPY

In the past, surgery would have been performed before adjuvant therapy, but the paradigm is shifting toward neoadjuvant treatment – treatment before surgery. In many cases, neoadjuvant treatment helps shrink the tumor to a point that surgery is an option.

With the shorter fractionation of SBRT, radiation oncologists can achieve local control while still allowing for a full course of chemotherapy. They also can get patients to surgery in about half the time – five treatments over a week and a half, versus five to six weeks for traditional radiation therapy.

### SURGICAL APPROACH

Surgery remains the most effective treatment for pancreatic cancers, requiring either distal pancreatectomy with splenectomy or pancreaticoduodenectomy (also called Whipple procedure). Occasionally total pancreatectomy is indicated. These procedures can be quite challenging.

Surgical oncologists with Lehigh Valley Cancer Institute have performed more than 300 pancreatic procedures in the past six years, including many cases with complex vascular resection plus or minus reconstruction. LVPG Surgical Oncology treats many borderline-resectable cases that other institutes would decline.

# Cancer Rehabilitation

LVHN Rehabilitation Services provides care for patients in our community affected by cancer. With 45 convenient locations across the region, trained therapists can help address functional activities of daily living that are affected by cancer. Individualized treatment programs are designed to enable the patient to resume normal activities. Rehabilitation Services help patients suffering from fatigue, weakness, balance problems or other symptoms. Specialists who treat lymphedema are available at: LVHN Rehabilitation Center–Schuylkill, Rehabilitation Services–1243 Cedar Crest, Rehabilitation Services–Cetronia Road, Rehabilitation Services–Muhlenberg, Rehabilitation Services–Quakertown, and Rehabilitation Services–Tobyhanna. Cancer-related fatigue can be treated at all Rehabilitation Services locations.

## PHYSICAL THERAPY SERVICES

- Lymphedema
- Pain management
- Physical impairments and disabilities
- Cancer-related fatigue
- Cancer-related peripheral neuropathy
- Pelvic floor therapy

## OCCUPATIONAL THERAPY SERVICES

- Activity of daily living assessments
- Custom bracing and splinting of upper extremities
- Vision rehabilitation
- Custom wheelchair fitting and mobility clinic

## SPEECH THERAPY SERVICES

- Head and neck cancer
- Video swallowing studies
- Cognition
- Voice disorders

## LVHN FITNESS AND MASSAGE SERVICES

- Massage therapy
- Lifestyle and weight management
- Community-based fitness facilities



## Patient and Family Advisory Council

Lehigh Valley Cancer Institute Patient and Family Advisory Council (PFAC) was inaugurated in December 2017. This group is comprised of patients, family members of cancer patients (who have met LVHN Volunteer Services qualifications), as well as Cancer Institute physicians and staff. The group has received orientation regarding leadership and priorities for the Cancer Institute. PFAC meets monthly and provides valuable input based on the results of our community needs assessment, renovation of the radiation oncology department and issues faced by the adolescent and young adult population.

### FOR 2019, PFAC ACHIEVEMENTS

- Joined Patient Education Committee
- Participated in design planning for the new inpatient oncology unit, 5K South
- Attended the Institute for Patient and Family-Centered Care (IPFCC) Conference in Detroit in June 2019
- Designed pamphlet about deep breathing and relaxation, presented during May 2019 management meeting
- Participated in review of the scripting for radiation oncology patient education video
- Reviewed contents of new patient packet
- Reviewed a commentary, titled “An Emotional Slap in the Face,” to provide education to staff regarding: “The Language of Cancer”

## Oncology Therapeutics Committee

Lehigh Valley Cancer Institute’s Oncology Therapeutics Committee continues to strive to provide leading-edge and fiscally responsible therapy for our patients. The committee is multidisciplinary and includes physicians, pharmacy, nursing, informatics and financial personnel. This year we included our northern tier colleagues from Lehigh Valley Hospital (LVH)–Hazleton, LVH–Pocono and LVH–Schuylkill campuses. In addition, we added a physician from LVH–Muhlenberg campus. By having representatives from all campuses, the recommendations that come from the committee are implemented more consistently, resulting in better patient experiences.

The newest and biggest challenge to the committee this year was the launch of a new category of medications called biosimilar medications. This is a new category of medications that are highly similar to brand name products but with the same clinical and therapeutic results. The committee continues to evaluate all potential new medications for use in the outpatient infusion centers as well as reviewing current treatment therapies to ensure patients are receiving the best treatment.



# Genetic Counseling and Assessment

The Lehigh Valley Cancer Institute’s Gregory and Lorraine Harper Cancer Risk and Genetic Assessment Program is designed to provide cancer risk assessment and genetic testing for hereditary cancer syndromes. While the majority of cancer is sporadic, approximately 10 percent of cancer has a hereditary cause. Understanding if there is a hereditary contribution to cancer can significantly aid in the treatment, surveillance and risk-reducing options for individuals and their families.

The program meets with individuals who are interested in risk assessment and genetic testing for hereditary cancer syndromes. An appointment includes:

- In-depth counseling and education regarding personal and family history of cancer
- Cancer risk assessment
- 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 versus multi-gene panels)

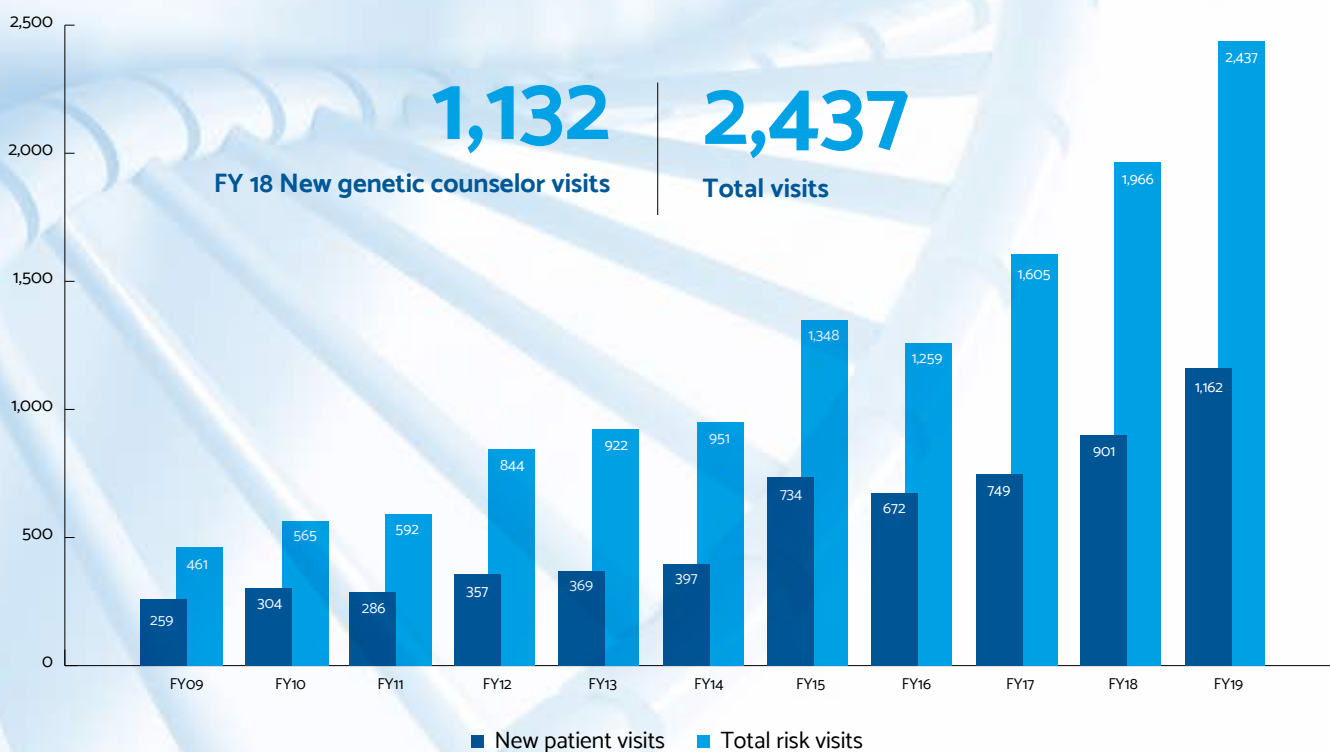
Genetic test results as well as personal and family risk factors help clinicians personalize a medical management and surveillance plan.

Patients who test positive are invited to attend the genetics multidisciplinary clinic. Annual appointments continue to offer recommendations for cancer risk reduction. The program also facilitates entry into clinical or research studies when appropriate.

The program continues to gain substantial growth with the new advances in treatment for cancer, patients who carry certain genomic alterations can now be treated with targeted therapies, thus genetic tests results are now being utilized more to determine treatment strategies. Additionally, we continue to work with our medical oncology colleagues to help understand the results of somatic (tumor) mutation, which helps determine treatment decisions but also helps identify families with hereditary cancer syndromes.

Nicholas Lamparella, DO, is medical director of the program, along with four full-time, board-certified licensed genetic counselors, a part-time genetics nurse navigator, two clinical assistants, office coordinator and extra support, provided by Cancer Support Services staff. As the program’s staffing increases, visits have grown by approximately 25 percent, and we are now able to meet genetic counseling needs at our Lehigh Valley Hospital (LVH)–Cedar Crest, LVH–Muhlenberg and LVH–Pocono locations.

## CANCER RISK ASSESSMENT PROGRAM GROWTH





## Hackerman-Patz House

**10,668**  
FY 19 Guests

**15%**  
Oncology Patients

Hackerman-Patz House is a convenient and affordable “home away from home” for families of patients receiving care at Lehigh Valley Hospital-Cedar Crest campus.

### AT HACKERMAN-PATZ HOUSE, YOU WILL FIND:

- 20 private, smoke-free rooms
- Private bath, safe, TV, mini-fridge, table and chairs
- Kitchenette including microwave, refrigerator and coffeemaker
- Laundry facilities (coin operated)
- Great room for relaxing, meeting other guests
- Children’s playroom
- Library with computer and printer
- Outdoor patio
- Free Wi-Fi services
- Use of LVHN fitness and wellness services

### ADDITIONAL GUEST INFORMATION

- Local restaurants, including Carrabba’s, Penn Pizza and Chick-Fil-A, donate meals weekly, along with other community groups and LVHN departments
- On-campus shuttle for guests is available Monday-Friday, 6 a.m.-10 p.m.
- Please inquire at the Hackerman-Patz front desk for financial assistance information.

Guests must be able to function independently and may not be discharged to Hackerman-Patz House from the hospital. Room rate at Hackerman-Patz House is \$45 per night. Major credit cards are preferred. Check-in and reservations are available 24/7, 365 days a year. For information or to make a reservation, please call 610-402-9500.

# Our locations

Lehigh Valley Cancer Institute offers a range of services in convenient, patient-focused locations. Our Lehigh Valley Physician Group (LVPG) practices provide services in Allentown, Bangor, Bethlehem, East Stroudsburg, Hazleton, Lehighton and Pottsville.

## LEHIGH VALLEY CANCER INSTITUTE

- John and Dorothy Morgan Cancer Center at Lehigh Valley Hospital–Cedar Crest
- LVHN Cancer Center at Lehigh Valley Hospital–Muhlenberg
- LVHN Cancer Center–Hazleton
- LVHN Cancer Center–Schuylkill
- Dale and Frances Hughes Cancer Center at Lehigh Valley Hospital–Pocono
- Health Center at Bangor
- LVPG Hematology Oncology–Lehighton

## BREAST HEALTH SERVICES

- Breast Health Services at Lehigh Valley Hospital–17th Street
- Breast Health Services at Lehigh Valley Hospital–Cedar Crest
- Breast Health Services at Lehigh Valley Hospital–Muhlenberg
- Health Center at Bangor
- Health Center at Bartonsville
- Health Center at Bath
- Health Center at Bethlehem Township
- Health Center at Moselem Springs
- Health Center at Trexlertown
- Lehigh Valley Hospital–Pocono
- Lehigh Valley Hospital–Schuylkill
- LVHN Imaging Center



# Publications, Presentations and Posters Authored by Lehigh Valley Cancer Institute Oncology Team

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“Cool Your Cranium: Implementation of a Scalp Cooling Program,” Poster Presentation; Korn, J., RN, BSN, OCN, Director, Infusion Services, Lehigh Valley Hospital–Cedar Crest; Kluska, K., RN, MSN, OCN

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“Nursing Developed Patient Specific Plans to Improve Motivation and Engagement in Their Own Care,” Podium Presentation; Berg, S., RN, BSN, CMSRN, OCN

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“Trials and Triumphs Implementation of a Phase I Clinical Trial Program in a Community Based Hospital,” Poster Presentation; Clark, D., RN, BSN, CCRC “Does Sexual Function Decline in Female Breast Cancer Patients Receiving Chemotherapy and Surgery as Demonstrated by the Female Sexual Function Index Breast Cancer Questionnaire?” Poster Presentation; Manchester, M., RN, DNP, OCN, Staff Nurse, Infusion Services, Lehigh Valley Hospital–Muhlenberg

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“A Case of Acute Pancreatitis Associated with Early-Stage Adenocarcinoma of the Gallbladder,” Appelbaum, R., MD; Alvarado, F., MD; Blackham, A., MD, Brodsky, J., MD

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“The Effect of Early Detection and Treatment of Early-Stage Lung Cancer on the Thoracic Navigator Role,” Poster Presentation, AONN Conference Nashville, Tenn.; Chicas, M., RN, BSN, OCN; Roman, R., RN, BSN, OCN; Sevedge, K., RN, MA, AOCN; Kenna, J., RN, OCN; Miller, A., RN, MEd, OCN; Beaupre, L., RN, BSN, OCN, CBPN-IC; Zubia, J., RN, OCN, CBN-IC; Smith, C., RN, BSN, MA; Pauls, A., RN, BSN, OCN; Walczar, T., RN, BSN, OCN

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Penney KL, Banbury BL, Bien S, Harrison TA, Hua X, Phipps AI, Sun W, Song M, Joshi AD, Alberts SR, Allegra CJ, Atkins J, Colangelo LH, George TJ, Goldberg RM, Lucas PC, Nair SG, Shi Q, Sinicrope FA, Wolmark N, Yothers G, Peters U, Newcomb PA, Chan AT. Genetic variant associated with survival of patients with stage II-III colon cancer. *Clin Gastroenterol Hepatol*. 2019 Dec 4. pii: S1542-3565(19)31386-2. doi: 10.1016/j.cgh.2019.11.046. [Epub ahead of print]

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Sarkisian S, Nair S, Sharma R. Current clinical trials in the treatment of advanced melanomas. *Surg Clin North Am*. 2020 Feb;100(1):201-208. doi: 10.1016/j.suc.2019.09.014. Epub 2019 Oct 24. Review.

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Lipitz-Snyderman A, Kennington J, Hogan B, Korenstein D, Kalman L, Nair S Yu P, Sabbatini P, Pfister D. Engaging Community-Based Cancer Physicians: Experience of the Memorial Sloan Kettering Cancer Center Cancer Alliance *J Natl Compr Canc Netw*. 2019 Sep 1;17(9):1083-1087. doi: 10.6004/jnccn.2019.7295

# Cancer Institute Quality Milestones

- Member, Memorial Sloan Kettering Cancer Alliance
- Member, Michigan Cancer Research Consortium National Community Oncology Research Program (NCORP)
- Commission on Cancer (CoC) Accredited – continuously accredited since 2005
- American College of Radiology (ACR) – Radiation Oncology Practice Accreditation since 2012
- American College of Radiology (ACR) – Breast Health Services Accreditation
- American College of Radiology (ACR) – Breast Imaging Center of Excellence Designation (BICOE)
- American College of Radiology (ACR) – Lung Cancer Screening Center
- National Accreditation Program for Breast Centers (NAPBC) – Breast Health Services Accreditation
- National Quality Measures for Breast Centers (NQMBC) Certified Quality Breast Center of Excellence™ – Breast Health Services
- Quality Oncology Practice Initiative (QOPI) Certified – LVPG Hematology Oncology – continuously certified since 2011
- U.S. News and World Report 2014-15 High Performer – Cancer
- NCI Community Cancer Center Program Selected (NCCCP) April 2010-June 2014 (one of 21)
- National Committee Quality Assurance (NCQA) Patient Centered Specialty Practice Level 2 Recognition – LVPG Hematology Oncology March 20, 2014–March 20, 2017

