



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

2021 STATISTICAL REPORT

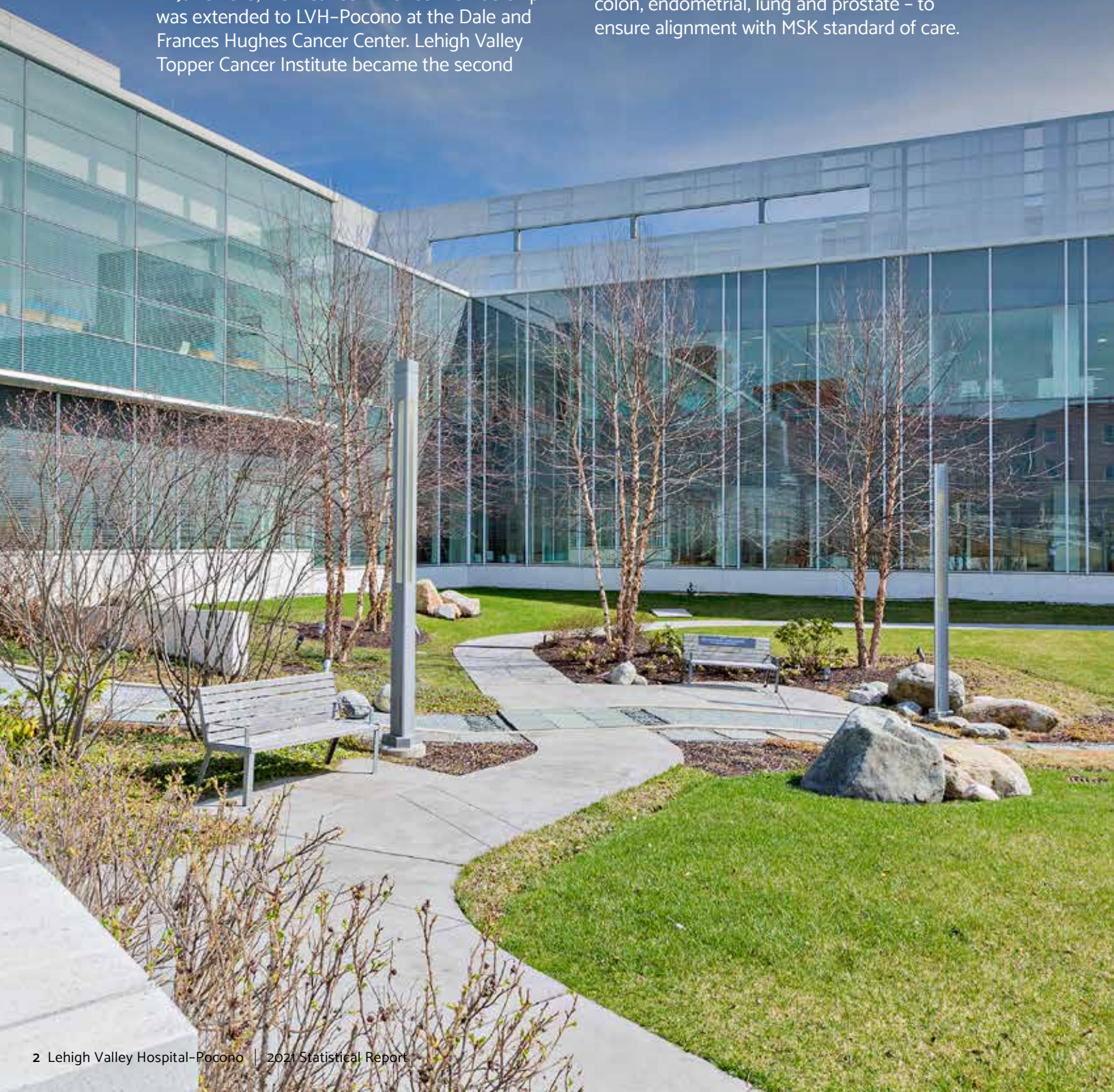


# Welcome

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

In June 2018, MSK Cancer Alliance membership was extended to LVH–Pocono at the Dale and Frances Hughes Cancer Center. Lehigh Valley Topper Cancer Institute became the second

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





# Specialized Oncology Care

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

Teams of oncology specialists from both MSK and Lehigh Valley Topper Cancer Institute reviewed processes and clinical standards from across six disease specialties and disciplines within the Cancer Institute – melanoma, breast, colon, endometrial, lung and prostate – to ensure alignment with MSK standard of care.

Lehigh Valley Topper 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 Topper Cancer Institute to offer patients a collective treatment plan.

## Highlights

**Disease management teams** – Lehigh Valley Topper Cancer Institute aligned with Memorial Sloan Kettering (MSK) Cancer Center to initiate site-specific disease management teams (DMTs). 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 Topper Cancer Institute offers access to many limited cancer clinical trials, including new kidney cancer clinical trials.

**Radiation immunotherapy** – This precise technique enhances immune system response by “dose painting” radiation at center of 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 LVPG Gynecologic Oncology with 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.

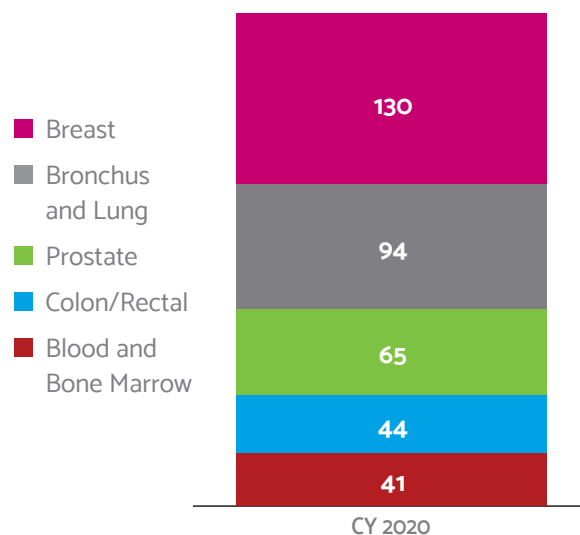
## Lehigh Valley Topper Cancer Institute Mission

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

# Dale and Frances Hughes Cancer Center Case Information

The faculty of the cancer program is composed of physicians who are cancer care specialists and board-certified in their fields. In calendar year 2020, the cancer program saw more than **590** new cancer patients. In fiscal year 2020, outpatient infusion volumes comprised **10,400** visits, and radiation oncology comprised **471** new treatments.

## 2020 TOP FIVE MOST PREVALENT SITES OF CANCERS TREATED AT LVH-POCONO, 2020



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

SITE DESCRIPTION	2016	2017	2018	2019	2020
BREAST	149	149	127	135	<b>130</b>
BRONCHUS AND LUNG	112	106	119	89	<b>94</b>
PROSTATE GLAND	47	47	46	71	<b>65</b>
COLORECTAL	58	55	36	50	<b>44</b>
BLOOD AND BONE MARROW	33	34	26	42	<b>41</b>
CORPUS UTERI	23	20	33	26	<b>20</b>
URINARY BLADDER	34	35	30	27	<b>17</b>
<b>TOTAL</b>	<b>456</b>	<b>446</b>	<b>417</b>	<b>440</b>	<b>411</b>



# Cancer Staging and Incidence Terminology

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

## AMERICAN JOINT COMMITTEE ON CANCER (AJCC) STAGING

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

## ANALYTIC CANCER CASE

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.

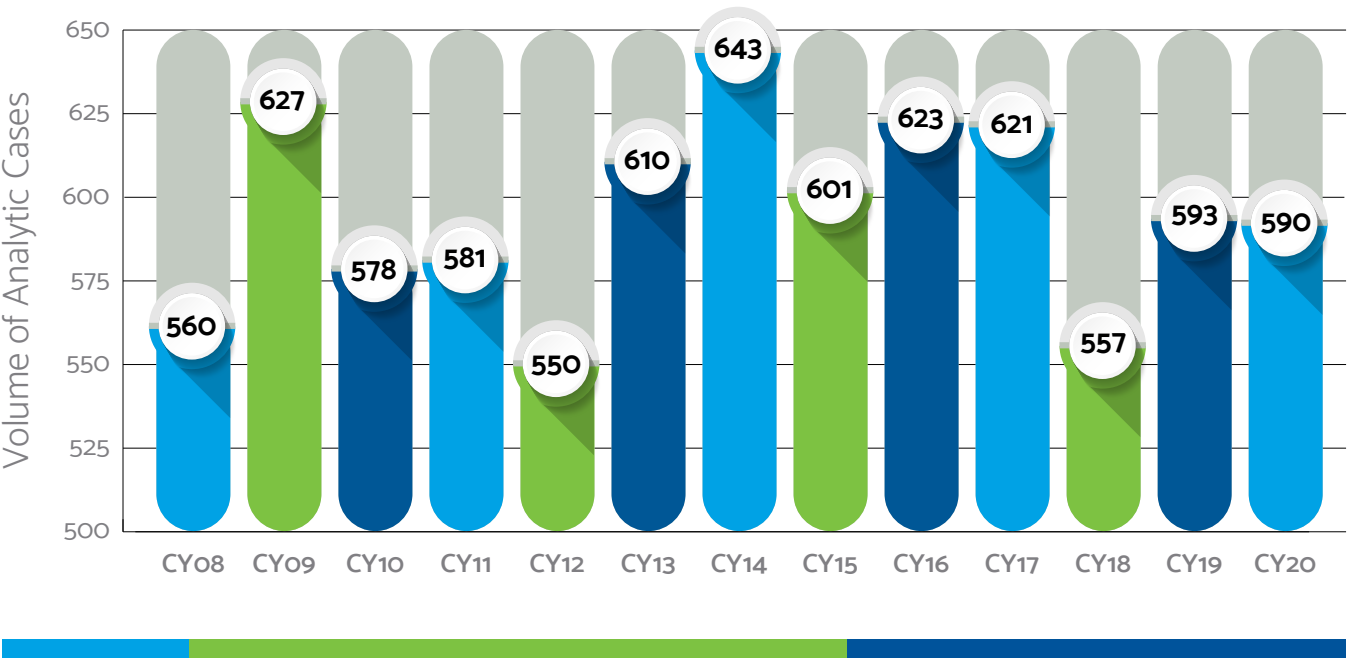
## RAPID CANCER REPORTING SYSTEM (RCRS)

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

## Total Annual Analytic Cases



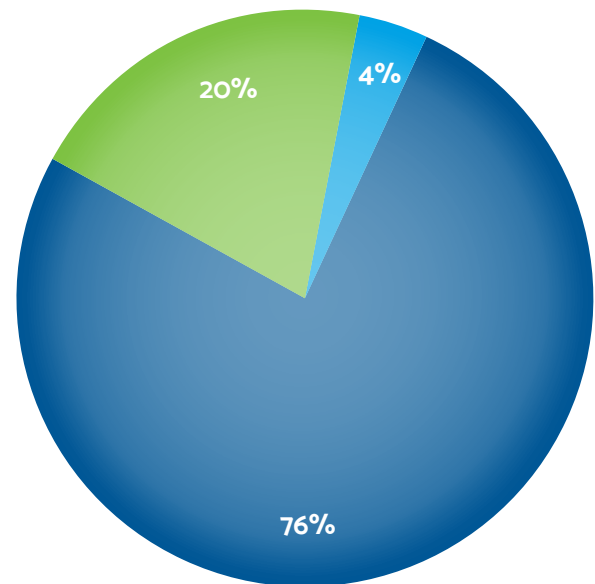
## Analytic Cases by County of Residence

In 2020, Lehigh Valley Hospital (LVH)–Pocono provided diagnostic care, second opinion recommendations and treatment to **590** patients from **15** Pennsylvania counties. In addition, **9** patients came to our cancer program from communities across the United States.

### INCIDENCE BY COUNTY OF RESIDENCE – ANALYTIC CASES

COUNTY OF RESIDENCE	2020	PERCENTAGE
ALLEGHENY	1	0.17%
CARBON	13	2.20%
COLUMBIA	1	0.17%
LACKAWANNA	7	1.19%
LEHIGH	1	0.17%
LUZERNE	3	0.51%
LYCOMING	1	0.17%
MONROE	442	74.92%
NORTHAMPTON	34	5.76%
PIKE	66	11.19%
SCHUYLKILL	1	0.17%
SUSQUEHANNA	1	0.17%
WARREN	1	0.17%
WAYNE	8	1.36%
WYOMING	1	0.17%
OUT OF STATE	9	1.53%
<b>TOTAL</b>	<b>590</b>	<b>100%</b>

### CASE CLASSIFICATION BASED ON PATIENT MIGRATION PATTERNS LVH-POCONO 2020



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



## LVH-Pocono Prevalence by Disease Sites

### 2020 ANALYTIC CASES BY PRIMARY BODY SITE

PRIMARY SITE	TOTAL
HEAD AND NECK	26
DIGESTIVE ORGANS	81
ESOPHAGUS	5
STOMACH	1
SMALL INTESTINE	1
COLON	35
RECTOSIGMOID JUNCTION	7
RECTUM	2
ANUS AND ANAL CANAL	0
LIVER AND BILE DUCTS	14
GALLBLADDER	1
OTHER BILIARY TRACT	2
PANCREAS	13
OTHER DIGESTIVE ORGANS	0
THORAX	95
BRONCHUS AND LUNG	94
THYMUS	1
MUSCULOSKELETAL/SOFT TISSUE SITES	2
BLOOD AND BONE MARROW	41
SKIN	20
BREAST	130
FEMALE GENITAL ORGANS	32
VULVA	5
CERVIX UTERI	2
CORPUS UTERI	20
UTERUS NOS	1
OVARY	3
OTHER FEMALE GENITAL ORGANS	1

PRIMARY SITE	TOTAL
MALE GENITAL ORGANS	66
PROSTATE GLAND	65
TESTIS	1
URINARY TRACT ORGANS	26
KIDNEY	6
KIDNEY, RENAL PELVIS	3
URINARY BLADDER	17
CENTRAL NERVOUS SYSTEM	16
MENINGES	9
BRAIN	7
ENDOCRINE GLANDS	16
THYROID GLAND	14
OTHER ENDOCRINE GLANDS	2
OTHER	1
RETROPERITONEUM AND PERITONEUM	1
LYMPH NODES	26
UNKNOWN PRIMARY	12

(Data source: LVHN Tumor Registry 02/16/2022)



## INCIDENCE OF BREAST CANCER BY AGE AT DIAGNOSIS: LVH-POCONO 2020

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	4	20	28	34	31	9	4	<b>130</b>

## INITIAL TREATMENT BY AJCC STAGE FOR BREAST CANCER: LVH-POCONO\* 2020 DATA

TREATMENT	STAGE 0	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
SURGERY + RADIATION + HORMONE THERAPY	3	22	0	0	0	7	<b>32</b>	41.3%
SURGERY + RADIATION	4	6	1	1	0	6	<b>18</b>	9.5%
SURGERY ALONE	3	5	0	0	0	2	<b>10</b>	8.7%
SURGERY + HORMONE THERAPY	2	5	1	1	0	0	<b>9</b>	8.7%
SURGERY + RADIATION + CHEMOTHERAPY + HORMONE	0	6	0	1	0	0	<b>7</b>	6.3%
RADIATION THERAPY ALONE	1	3	1	0	0	2	<b>7</b>	0.0%
SURGERY + RADIATION + CHEMOTHERAPY	0	1	2	1	0	0	<b>4</b>	6.3%
RADIATION + HORMONE THERAPY	0	2	0	0	0	2	<b>4</b>	0.0%
SURGERY + CHEMOTHERAPY + IMMUNOTHERAPY	0	1	1	0	0	0	<b>2</b>	0.0%
SURGERY + RADIATION + HORMONE + IMMUNOTHERAPY	0	2	0	0	0	0	<b>2</b>	2.4%
CHEMOTHERAPY + RADIATION + HORMONE	0	0	0	0	2	0	<b>2</b>	0.0%
CHEMOTHERAPY + HORMONE	0	0	1	0	0	0	<b>1</b>	0.0%
IMMUNOTHERAPY ALONE	0	0	0	0	1	0	<b>1</b>	1.6%
SURGERY + CHEMOTHERAPY + HORMONE + IMMUNOTHERAPY	0	1	0	0	0	0	<b>1</b>	1.6%
NO 1ST COURSE RX	1	10	1	0	4	0	<b>16</b>	4.8%
<b>TOTAL</b>	<b>14</b>	<b>64</b>	<b>8</b>	<b>4</b>	<b>7</b>	<b>19</b>	<b>116</b>	<b>100%</b>

\*11 cases excluded due to Stage Classification Performed After Initial Multimodality Therapy; and 3 cases excluded having no AJCC Stage system, i.e., Phyllodes tumor and LCIS.



## INCIDENCE OF LUNG CANCER BY AGE AT DIAGNOSIS: LVH-POCONO 2020

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	29	38	10	0	<b>87</b>

## INITIAL TREATMENT BY AJCC STAGE FOR NON-SMALL CELL LUNG CANCER: LVH-POCONO 2020 DATA

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
RADIATION ALONE	16	2	1	3	0	<b>22</b>	25.3%
SURGERY ALONE	15	1	1	0	0	<b>17</b>	19.5%
CHEMOTHERAPY + RADIATION	0	0	7	1	0	<b>8</b>	9.2%
CHEMOTHERAPY + IMMUNOTHERAPY	1	0	0	6	0	<b>7</b>	8.0%
CHEMOTHERAPY ALONE	2	2	0	0	0	<b>4</b>	4.6%
SURGERY + CHEMOTHERAPY	0	2	1	0	0	<b>3</b>	3.4%
CHEMOTHERAPY + RADIATION + IMMUNOTHERAPY	0	0	0	2	0	<b>2</b>	2.3%
IMMUNOTHERAPY ALONE	0	0	0	2	0	<b>2</b>	2.3%
RADIATION + IMMUNOTHERAPY	0	0	0	1	0	<b>1</b>	1.1%
SURGERY + RADIATION	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1.1%</b>
NO FIRST COURSE RX	2	3	4	11	0	20	23.0%
<b>TOTAL</b>	<b>36</b>	<b>10</b>	<b>14</b>	<b>26</b>	<b>1</b>	<b>87</b>	<b>100%</b>

## INCIDENCE OF LUNG CANCER BY AGE AT DIAGNOSIS: LVH-POCONO 2020

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	0	0	1	2	3	1	0	<b>7</b>

## INITIAL TREATMENT BY AJCC STAGE FOR SMALL CELL LUNG CANCER: LVH-POCONO 2020 DATA

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	TOTAL	%
HEMOTHERAPY + RADIATION	0	0	2	1	<b>3</b>	42.9%
CHEMOTHERAPY + RADIATION + IMMUNOTHERAPY	0	0	0	1	<b>1</b>	14.3%
CHEMOTHERAPY ALONE	0	0	0	1	<b>1</b>	14.3%
SURGERY + CHEMOTHERAPY	1	0	0	0	<b>1</b>	14.3%
NO FIRST COURSE OF RX	0	0	0	1	<b>1</b>	14.3%
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>7</b>	<b>100%</b>

## INCIDENCE OF PROSTATE CANCER BY AGE AT DIAGNOSIS: LVH-POCONO 2020

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	0	0	6	26	28	5	0	<b>65</b>

## INITIAL TREATMENT BY AJCC STAGE FOR PROSTATE CANCER: LVH-POCONO 2020 DATA

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	TOTAL	%
RADIATION ALONE	3	20	9	6	<b>38</b>	58.5%
RADIATION + HORMONE THERAPY	0	4	0	2	<b>6</b>	9.2%
SURGERY ALONE	0	1	3	2	<b>6</b>	9.2%
HORMONE THERAPY ALONE	0	0	0	2	<b>2</b>	3.1%
NO 1ST COURSE RX	2	3	2	6	<b>13</b>	20.0%
<b>TOTAL</b>	<b>5</b>	<b>28</b>	<b>14</b>	<b>18</b>	<b>65</b>	<b>100%</b>

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

## INCIDENCE OF COLON CANCER BY AGE AT DIAGNOSIS: LVH-POCONO 2020

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	0	5	5	9	12	6	0	<b>37</b>

## INITIAL TREATMENT BY AJCC STAGE FOR COLON CANCER: LVH-POCONO 2020 DATA

TREATMENT	STAGE 0	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
SURGERY ALONE	0	5	3	2	1	1	<b>12</b>	32.4%
SURGERY + CHEMOTHERAPY	0	0	0	8	0	0	<b>8</b>	21.6%
CHEMOTHERAPY ALONE	0	0	0	0	2	1	<b>3</b>	8.1%
CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	0	1	0	<b>1</b>	2.7%
SURGERY + CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	0	0	1	<b>1</b>	2.7%
RADIATION ALONE	0	0	1	0	0	0	<b>1</b>	2.7%
NO FIRST COURSE OF RX	1	0	1	2	7	0	<b>11</b>	29.7%
<b>TOTAL</b>	<b>1</b>	<b>5</b>	<b>5</b>	<b>12</b>	<b>11</b>	<b>3</b>	<b>37</b>	<b>100%</b>



## INCIDENCE OF RECTAL CANCER BY AGE AT DIAGNOSIS: LVH-POCONO 2020

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	0	1	1	1	4	0	0	7

## INITIAL TREATMENT BY AJCC STAGE FOR RECTUM CANCER: LVH-POCONO 2020 DATA

TREATMENT	STAGE 0	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE UNK	TOTAL	%
CHEMOTHERAPY ALONE	0	0	0	0	1	0	1	14.3%
CHEMOTHERAPY + RADIATION	0	0	0	0	0	1	1	14.3%
SURGERY + CHEMOTHERAPY	0	0	0	1	0	0	1	14.3%
SURGERY + CHEMOTHERAPY + RADIATION + IMMUNOTHERAPY	0	0	0	0	1	0	1	14.3%
RADIATION ALONE	0	0	0	0	1	0	1	14.3%
NO FIRST COURSE OF RX	1	0	0	0	1	0	2	28.6%
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>7</b>	<b>100%</b>

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## INCIDENCE OF BLOOD AND BONE MARROW CANCER BY AGE AT DIAGNOSIS: LVH-POCONO 2020

AGE AT DIAGNOSIS	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL
(N)	0	1	1	4	16	15	4	0	41

## INITIAL TREATMENT BY AJCC STAGE FOR BLOOD AND BONE MARROW CANCER: LVH-POCONO 2020

TREATMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE NA	TOTAL	%
CHEMOTHERAPY ALONE	1	0	0	0	12	13	31.7%
CHEMOTHERAPY + IMMUNOTHERAPY	0	0	0	0	2	2	4.9%
CHEMOTHERAPY + HORMONE + IMMUNOTHERAPY	0	0	0	0	1	1	2.4%
CHEMOTHERAPY + RADIATION + IMMUNOTHERAPY	0	0	0	0	1	1	2.4%
RADIATION ALONE	0	0	0	0	1	1	2.4%
NO FIRST COURSE OF RX	0	1	1	4	17	23	56.1%
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>34</b>	<b>41</b>	<b>100%</b>



## Clinical Goal

**Each calendar year**, the cancer committee establishes and implements one goal to meet the requirement of the American College of Surgeons Commission on Cancer standards. The 2020 goal set by our cancer committee was to evaluate and develop a plan for implementation of the Paxman Scalp Cooling System cold caps for patients at Lehigh Valley Hospital–Pocono. The first step was to evaluate and develop a plan for implementation of cold caps and create a pilot program. The goal was completed by evaluating the financials and resources it would take to implement this system successfully.

**A cold cap is a tight-fitting head cap** along with a device that circulates coolant through it for patients who are going through chemotherapy treatment. This coolant cools the scalp to reduce the blood flow to hair follicles, which then take up less of the chemotherapy drug and minimizes hair loss. Patients are to wear the cooling cap 30 minutes before starting chemotherapy, during the treatment and 90 minutes after the treatment is completed. Scalp cooling is only used for patients with solid tumors, not cancers such as leukemia, lymphoma or other contraindicated conditions.

### PREVENTION

**10/1/20 Pink Light Walk:** Due to COVID-19 this event turned into an online event with a speech of encouragement and survivorship from this year's honorary chair. The online page was open to allow individuals to post pictures, leave comments and report steps walked through Oct. 31, 2020. This walk is a movement to unite the survivors of breast cancer and those battling breast cancer to support breast cancer awareness and educate those to receive yearly mammogram screenings and to perform self-examinations. 71-page reviews, 12 page responses and 255 individuals reviewed.

**SCREENING:** No screening events were held due to COVID-19 pandemic.



# QUALITY IMPROVEMENT

**Each calendar year**, the cancer committee identifies one cancer-specific quality improvement problem under the guidance of the cancer liaison physician (CLP), the quality improvement coordinator and the cancer committee. The 2020 improvement identified is as follows:

## 2020 IMPROVEMENT

**In 2020, our quality improvement project focused on evaluating adherence to sentinel lymph node mapping and biopsy for endometrial cancers.** A perceived problem was seen by the physician of potential recurrences that was not expected – manual pull review of tumor registry cases abstracted in their CRStar software in comparison to NCDB national data.

The tumor registry was searched for all stage 1 endometrial cancers diagnosed and surgically staged 2013-2019 when SLN mapping resources were available at LVH-Pocono. These charts were reviewed and data, including histology, stage, date of surgery, procedure, adjuvant treatment, date of recurrence, location of recurrence, and date of last follow-up were abstracted. This was then summarized to see if there were increased recurrences in the retroperitoneum of patients thought to have stage 1 endometrial cancer after robotic staging with SLN mapping.

Of the 26 stage 1 endometrial cancers diagnosed 2013-2019, there were three recurrences during a median of 37.4 months (range 3.3-73.1 months) of follow-up. Two patients had distant recurrences (lung and brain, respectively), and one patient had a local recurrence in the vagina. No patient had isolated recurrences in the retroperitoneum. As this is a small sample size with a small number of recurrences, statistical analyses are difficult to perform on this data. All patients who recurred did not have SLNs performed at the same time of surgery but had negative pelvic and paraaortic lymph nodes. One patient was listed having a brain metastases secondary to her endometrial cancer, and a patient had a meningioma that was unrelated.

The planned intervention to be implemented will be to pull annual data for monitoring. Next data pull will be in December 2021 to enable increase of cases for review. LVH-Muhlenberg cases performed by Dr. Christine Kim also will be pulled. No interventions are needed at this time; will continue to monitor and continue collecting data.

# CANCER DATA MANAGEMENT

## TUMOR REGISTRY

**The cancer data management department** of Lehigh Valley Health Network (LVHN) captures a complete summary of patient demographics, history, diagnosis and treatment status for every cancer patient seen at LVHN. These important data are collected and stored in a cancer registry, an information system designed for collection, management and analysis of data on persons with a diagnosis of malignant neoplastic disease. In turn, these data are used by medical 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.



## Advanced Visualizing System Enhances Robotic Surgery

**Lehigh Valley Institute for Surgical Excellence** has further enhanced its advanced robotic surgical technologies by becoming one of only three sites worldwide to be equipped with the IRIS anatomical visualization system. IRIS provides vivid 3D imaging of a patient's anatomy and can interface with LVHN's suite of da Vinci surgical system technologies.

### COLOR-CODED IMAGES

The IRIS system is used at LVH-Cedar Crest for patients who need a partial nephrectomy (surgical removal of part of a kidney). Multidimensional, color-coded images from IRIS clearly define renal masses, blood vessels and structures of the kidney's collecting system – a stark difference from more typical black-and-white computed tomography (CT) scans.

IRIS also helps surgeons minimize warm ischemia time (WIT) as they temporarily “clamp” off blood supply to the kidney to reduce blood loss during the procedure. This is important, as minimizing WIT increases the chances that the remainder of the kidney will continue functioning.

### PROCEDURE PLANNING AND PATIENT EDUCATION

IRIS allows images taken before the procedure to be rotated 360 degrees, which helps surgeons both plan the procedure and explain it to patients.

During surgery, a feature called Tilepro allows the presurgical image to appear picture-in-picture within the da Vinci system's live console view. IRIS promises to enhance surgical precision and reduce complications by helping surgeons avoid unnecessary cuts to blood vessels and collecting-system structures.

# Radiation

## RADIATION ONCOLOGY

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

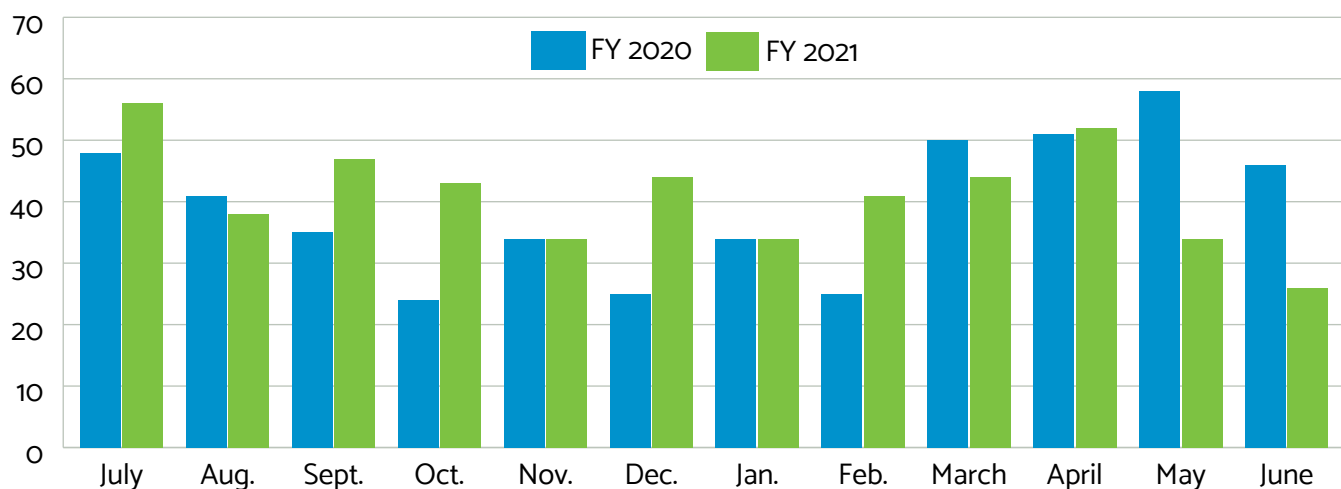
## LATEST PROTOCOLS AND TECHNOLOGIES

- 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
- Pediatric radiation oncology

## NEW IMPROVEMENTS

- **Real-time imaging:** An advanced imaging technique used for prostate SBRT cases. During treatment with RapidArc® IMRT, the machine will stop periodically and take images. This confirms positioning and allows for shifts 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.

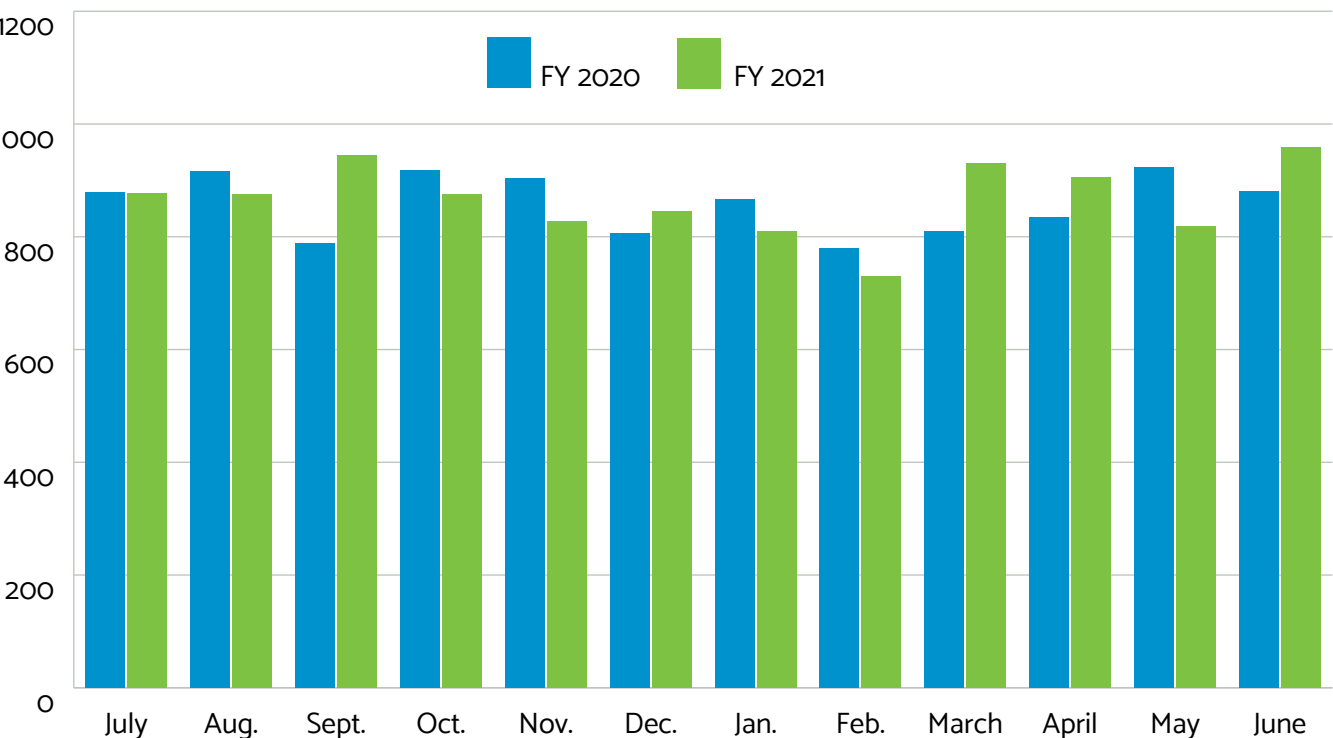
## RADIATION ONCOLOGY NEW STARTS





# Infusion

## INFUSION TREATMENT VISITS



## Breast Health

**14,776**

Total number of all annual mammograms in 2021

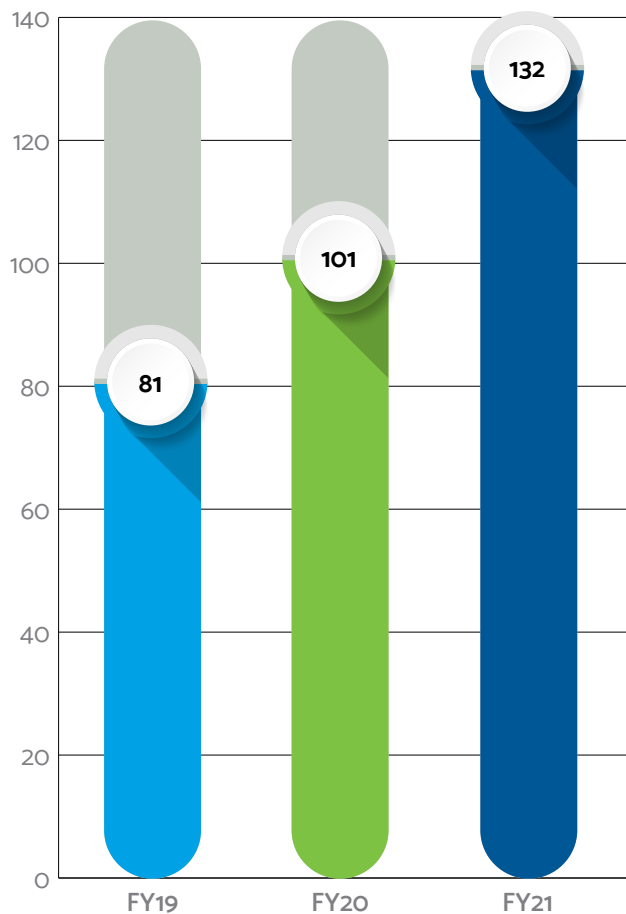
# Lehigh Valley Topper Cancer Institute

**Cancer genetics** through 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 Thursdays 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 for the on-site days. Two clinical assistants, an office coordinator and cancer support services staff provide extra support.



- 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 can also 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 at left). In FY 2021, we saw 129 new patients and three follow-ups for a total of 132 visits. This includes several months when we were unable to see patients for in-person visits due to COVID-19.

## TOTAL NUMBER OF GENETIC COUNSELING VISITS LVH-POCONO



# Cancer Committee

## SOCIAL WORK, SUPPORT, SURVIVORSHIP AND PSYCHOSOCIAL SERVICES, DALE AND FRANCES HUGHES CANCER CENTER REPORT: OCTOBER–DECEMBER 2020

### Psychosocial

A distress screening is completed and entered into the EMR for all new chemotherapy and radiation treatment patients during their first physician visit, with follow-up by the social worker as referrals are made or requested/needed. The social worker continues to strive to meet with all new oncology patients as they begin treatment.

A total of **112** distress screening assessments were completed per the LV Oncology Excess Distress Scores report in EPIC.



**26** patients noted distress 4 or above

A total of **118** new oncology patients began treatment (chemo/infusion, radiation, surgery)

**22** patients noted distress 4 or above

**54** on-site referrals

**96** on-site referrals

**14** patients who were screened noted transportation concerns

### Support/Survivorship Programs

#### US TOO PROSTATE SUPPORT GROUP

- Meets once per month for prostate cancer patients and family members/caregivers
- Co-facilitated by Miranda Zinn, LSW, and Richard Kerr, prostate cancer survivor
- Total attendees this quarter: 0 meetings were held this quarter

#### LEUKEMIA AND LYMPHOMA CANCER SUPPORT GROUP

- Meets quarterly for blood-related cancer patients and family members/caregivers.
- Co-facilitated by Miranda Zinn, LSW, and Michelle Zeruth, RN
- Total attendees this quarter: 0 meetings were held this quarter

### Financial Assistance

APPLICATIONS PROCESSED	OCTOBER–DECEMBER 2020
Hope for Strength Breast Fund	4
Howard Canfield Fund for Men	0
Suzanne Zale Buck Fund for gynecologic cancers	0
Woman to Woman Fund	2
Doreen Miram's Fund	7
Melanie Humphrey Breath of Life Fund	1
Linda Creed Foundation for Breast Cancer (not an LVH-Pocono Foundation fund)	2
<b>Total</b>	<b>16</b>

# Financial Counseling



Patients assisted with primary or secondary insurance information needs



Patients received prescription assistance or Pace/Pacenet applications



BCCPT application (Medicaid for breast cancer patients)

## ADDITIONAL SUPPORT SERVICES

Volunteer services ended indefinitely as of March 11, 2020, due to COVID-19.

**Creative Expressions Workshop** – 0 participants

**Reiki volunteer** – No return date as of this writing – 0 participants

**Moving Meditation volunteer** – No return date as of this writing – 0 participants

**Beading volunteer** – No return date as of this writing – 0 participants

Pet Therapy and three other Hughes Cancer Center volunteers are still not providing support services at this time due to COVID-19.

The ACS has currently suspended its Road to Recovery program as of March 15, 2020, due to COVID-19. Other transportation resources, including the Pocono Pony Shared Ride program, have continued to be available.

# 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 complete year 2020, our dietitians saw approximately 33 new patients, and completed 23 assessments and 20 reassessments.

# Cancer Rehabilitation

**Cancer rehabilitation services** helps patient's manage functional activities of daily living that are affected by the cancer experience. Individualized treatment programs are designed to enable patients 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. We are uniquely qualified to understand the effects of cancer and cancer treatments on daily life. LVHN rehabilitation services can help cancer patients overcome obstacles related to surgery, cancer or side effects from cancer treatment.

# Navigation

**Our certified patient and family support navigators** guide you through your screening, treatment or survivorship journey, all to make life just a little easier. They understand the system as 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, Lehigh Valley Topper Cancer Institute was invited to join the Memorial Sloan Kettering (MSK) Cancer Alliance. Lehigh Valley Topper Cancer Institute cancer patients work with their oncology 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, this collaboration will help advance cancer treatment knowledge to benefit all patients.

## Strata Oncology

### ELITE GENOMIC TRIALS

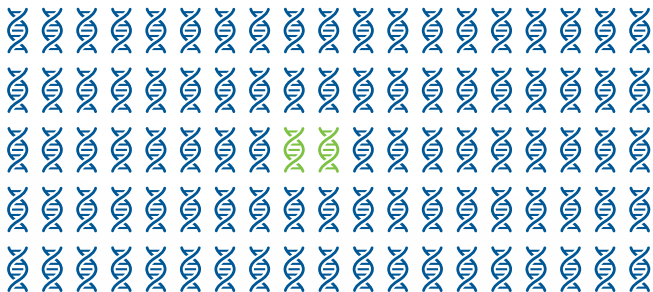
**In June 2019**, Lehigh Valley Topper Cancer Institute officially partnered with Strata Oncology, a precision oncology company, to bring tumor molecular profiling to patients at no cost. In addition to 400 cancer genes being analyzed for research, the molecular profiling analyzes about 100 actionable 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. Lehigh Valley Topper Cancer Institute 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, Lehigh Valley Topper Cancer Institute is the only site in Pennsylvania partnered with Strata Oncology and has enrolled 95 patients into the tumor molecular profiling clinical trial.

### CLINICAL RESEARCH ACCRUAL 2020 SUMMARY TO DATE

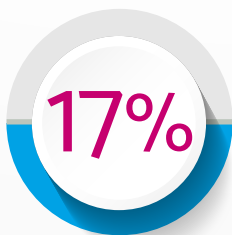
**93** Strata (Basic Science): An Observational Trial Assessing the Clinical Benefit of Molecular Profiling in Patients With Solid Tumors NCT03061305 enrollments

**2** Genetics Registries (Genetics) enrollments

**95 Total**



2020 Analytic Cases



Accrual for 2020



# Cancer Clinical Trials Advance Fields of Personalized Medicine and Immunotherapy

**Patients at Lehigh Valley Topper Cancer Institute** have access to one of the largest portfolios of clinical trials available through a community health system.

Under the auspices of the Network Office of Research and Innovation (NORI) at LVHN, the Cancer Institute offers trials in all aspects of cancer care.

## STRATA TRIAL

One such research study is the Strata trial, which involves performing advanced molecular profiling of tumor tissue, analyzing hundreds of gene mutations to determine a patient's eligibility for Food and Drug Administration (FDA)-approved therapies or biomarker-selected clinical trials.

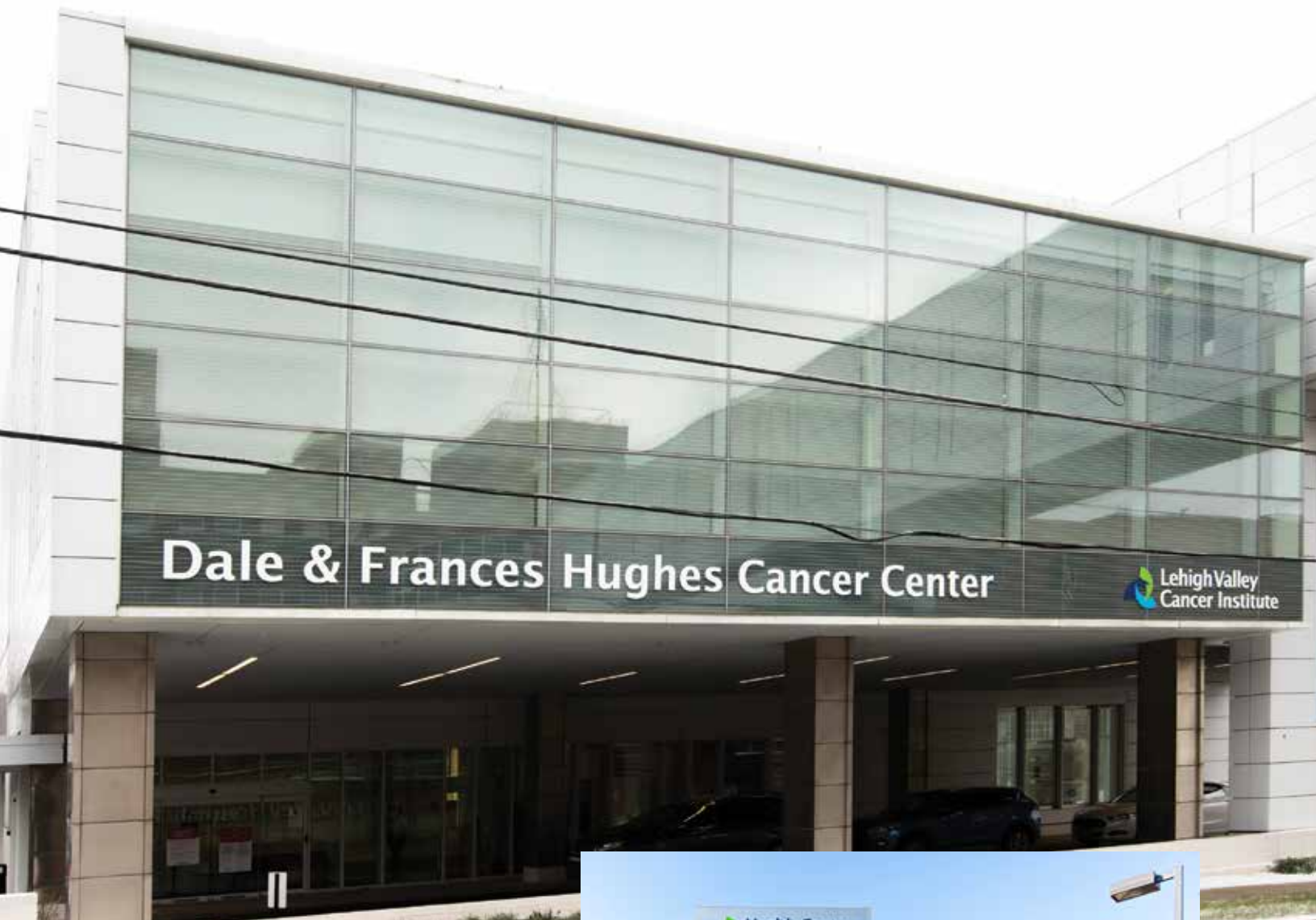
Creating a molecular profile of a tumor can help determine whether a particular treatment is working, and in the future, we may be able to use this tumor signature to develop customized treatments that are targeted to a patient's specific mutation.

The Strata trial is led by Strata Oncology Inc., a precision medicine company that created the Strata Precision Oncology Network (which consists of 18 leading health systems across the country).

## MEMORIAL SLOAN KETTERING CANCER ALLIANCE IMMUNOTHERAPY TRIALS

Lehigh Valley Topper Cancer Institute is the only cancer center in the region that is a member of the Memorial Sloan Kettering Cancer Alliance, which gives patients access to a wide range of clinical trials utilizing immunotherapy.





## Our Locations

**Lehigh Valley Topper 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, Easton, Hazleton and Lehighnton.

**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 also 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 (LVH) 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 AND WORLD REPORT

Each year, U.S. News and 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 and World Report recognizes Lehigh Valley Hospital as "high performing" in recognition of our qualified staff, patient access to advanced technologies and patient survival.

