

Legacy Cancer Institute Annual Report 2022 Gynecologic Cancers



Legacy Cancer Institute



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*Legacy Cancer Institute benefits from the generous participation of individuals and organizations that are also dedicated to finding cures for cancer, helping the less fortunate receive care, and improving treatment, equipment and facilities at each of our medical centers. To learn how you can support Legacy Cancer Institute, please contact the Office of Philanthropy at **503-415-4700** or visit **legacyhealth.org/giving**.*

Gynecologic Cancers: The More Upstream We Be, The Less We'll See, Prevention is Key

By Nathalie Johnson, MD, FACS; breast surgical oncologist; senior medical director, LMG Specialties & medical director of Legacy Cancer Institute & Breast Health Centers

Cervical, ovarian, uterine, vaginal and vulvar cancer. There can be a lot going on in the everyday lives of women, and keeping up with the latest in screening and treatment is a complex and constantly moving target. Our



team at the Legacy Cancer Institute (LCI) is up to the task.

In the United States, around 84,000 women are diagnosed with a gynecologic cancer each year, with about 28,000 resulting in death. What is so powerful about these statistics is a palpable story of hope with a strong message about prevention. Virtually all cervical cancer (around 11,500 cases a year and 4,000 deaths) is tied to the human papilloma virus or HPV. In addition, about 70% of vaginal and vulvar cancers are associated with HPV. So what does this mean in the story of hope for prevention? HPV vaccination starting at about age 10 for all genders would reduce the incidence of cervical, vaginal and vulvar cancers by 90%. This could eliminate morbidity and death for close to 15,000 people a year. Unfortunately, there is so much polarization around vaccination but the science and outcomes for HPV vaccination is compelling. We are proud of the work that the Legacy Cancer Institute has done with primary care and pediatricians around increasing HPV vaccination rates and making it accessible here in Oregon and Washington. We hope that in time this will translate to much lower rates of these gynecologic cancers. We know we have more work to do in our Latina community where rates are still higher than they should be.

Ovarian cancer is one of the most challenging of these tumors to screen for and treat. Although it is not the most common form of gynecologic cancer, it is often diagnosed at a later stage of disease and has the highest mortality rate. Still, there is a story of hope in the prevention of this tumor. We have discovered that most ovarian cancer actually comes from the fimbriae, or the ends of the fallopian tubes. Legacy Cancer Institute was one of the first nationally to begin removing the fimbriae during tubal ligations. For women who no longer desire fertility and plan tubal ligations, this simple addition decreases the risk of ovarian cancer by more than 80%.

The other opportunity to decrease risk is through risk identification with genetic testing. For women with a family history of breast, prostate, pancreatic or ovarian cancer, proactive genetic testing allows us to identify familial genetic mutations. Once identified, heightened screening or prophylactic

surgery can be performed to greatly reduce the risk of developing cancer. Patients harboring mutations in BRCA1, BRCA2, ATM or PALB2 also benefit from therapy with PARP inhibitors which have improved cancer treatment outcomes. We have a robust genetic and high-risk assessment team available at all our locations in the Portland area. The team is also available for virtual consultations anywhere in the state of Oregon and Southwest Washington.

Endometrial or uterine cancer is the most common of the gynecologic cancers with more than 60,000 cases a year nationally. The outcomes for most patients with endometrial cancer is good except for the more aggressive subtypes. These subtypes are more often seen in African American women who have higher mortality rates with endometrial cancer. There are opportunities for prevention through lifestyle modifications.

Obesity and metabolic syndrome are risk factors for uterine cancer, and we are empowering women vulnerable to this type of cancer through nutritional and exercise education. There is also a connection to genetic mutations as we frequently see a family history of breast and colon cancer. We continue to provide community and professional education to raise awareness and encourage referral to our high-risk and genetic risk assessment programs for patients and families with concerning histories.

When it comes to gynecologic cancer, the following adage holds true: "An ounce of prevention is worth a pound of cure." We have amazing treatments at the Legacy Cancer Institute and some of the highest enrollments in clinical trials for patients that is on par with the best in the nation. Our gynecologic oncologists are top notch and skilled in both surgical and medical management of these cancers. Our radiation oncology team conducts all facets of therapy, including brachytherapy options. Despite the tertiary care available, we always keep our hearts and eyes towards the "ounce of prevention."

Many of these are active links. Click to open the relevant page on the Legacy Health website or other sites.

Comprehensive Cancer Services

For more information about our services, please visit legacyhealth.org/cancer.

Cancer care and treatment

Cancer care conferences/tumor boards
 Cancer care inpatient unit
 Cancer data management/cancer registry
 Cancer rehabilitation services
 Cancer screening and prevention
 Interventional radiology
 Legacy Breast Health Centers
 Legacy Cancer Healing Center
 Legacy Genetics and High Risk Services
 Legacy Hospice
 Legacy Medical Group–Colon and Rectal Surgery
 Legacy Medical Group–Gynecologic Oncology
 Legacy Medical Group–Pulmonary
 Legacy Medical Group–Radiation Oncology
 Legacy Medical Group–Reconstructive Surgery
 Legacy Medical Group–Surgical Oncology
 Legacy Pain Management Centers
 Legacy Palliative Care Services
 OHSU Knight-Legacy Health Cancer Collaborative
 Pathology
 Wound and ostomy care

Cancer programs and specialty areas

Autologous stem cell transplant program
 Bladder cancer
 Blood cancers
 Brain and spinal tumors
 Breast cancer
 Children's cancer and blood disorders program
 Colorectal cancer
 Esophageal cancer
 Gynecologic cancers
 Oral, head and neck cancer
 Hepatobiliary and pancreatic cancer
 Kidney cancer
 Lung cancer
 Melanoma
 Prostate cancer
 Stomach cancer

Clinical trials and research

Oncology clinical research
 Tumor bank

Support services — adult

American Cancer Society Gift Closet
 Cancer support groups and classes
 Cancer survivorship
 Expressive arts therapy
 Green Gables Guest House
 Integrative care and symptom management
 Lymphedema management
 Nutrition
 Oncology nurse navigation
 Pharmacy navigator
 Oncology psychology services
 Oncology social work
 Stress management
 Volunteer program

Support services — pediatric

Child Life Therapy
 Family Lantern Lounge
 Family Wellness Center
 Music Rx® Program
 Pediatric development and rehabilitation
 Ronald McDonald House
 School program
 Survivorship services and KITE Clinic
 Volunteer program

Legacy Cancer Institute Overview: Highlights from 2022

By Alizah Rotramel, MD, MS, FACS; colorectal surgeon; chair, Integrated Network Cancer Committee, Legacy Cancer Institute

“Cancer care is complex, and every patient is different.” That statement greets patients visiting the Legacy Cancer Institute’s (LCI) landing



page on its website. As an American College of Surgeons Commission on Cancer (CoC) accredited Integrated Network Cancer Program (the first in the nation!), LCI and our Integrated Network Cancer Committee embrace this complexity and

the privilege of caring for and treating members of our community.

Throughout each year, our multidisciplinary team assesses and fulfills CoC-required standards involving nine separate categories. Each one has separate guidelines and measures that have been designated as optimal for patient care. CoC Accreditation supports us in evaluating the individual and collective impact of cancer and cancer treatment on the physical, emotional, and spiritual well-being of our patients. We then use this data to compare to national benchmarks and best practices.

In 2022, we continued to review outcomes, share successes and challenges, and develop and accomplish new projects to strengthen and grow our program. Here are a few highlights from the year:

- The team moved forward with our “Just Ask” Quality Improvement Initiative with its focus on smoking cessation assessment. The Lung Cancer Screening Program was expanded to Legacy Salmon Creek Medical Center. The program serves higher risk populations in Washington State, specifically in Clark County, where both the incidence and mortality rates from lung cancer exceed national averages. Legacy Salmon Creek is the only cancer screening site in the Vancouver area to have obtained GO2 Foundation Screening Center of Excellence (SCOE) status.

- Several rural Legacy primary care clinics participated in The RAVE (Rural Adolescent Vaccine Enterprise) Project, a collaboration with the Oregon Rural Practice-Based Research Network. The project’s goal is to improve HPV vaccination rates in rural Oregon. Some rural counties in Oregon have HPV vaccine completion rates as low as 33% while the national average is approximately 50%. Rates have improved at all participating Legacy clinics (57.5-76.6%) and work is still ongoing.
- We targeted and improved rates of referral of prostate cancer patients to genetic testing and counseling by increasing genetic counselor attendance at monthly cancer conferences, review of pathology reports to identify patients for testing according to NCCN Guidelines, and patient outreach.
- Our Survivorship Program completed a second phase of a patient survivor survey to assess life after cancer treatment. This phase focused on the impact of disease and treatment and the needs of our patients. Healing Center classes continued, and the first Sexual Health and Intimacy Workshop was held in November 2022.
- A three-part series, “Women’s Cancer Awareness,” was offered virtually to community members. The topics included updates on breast and cervical cancer screening, HPV, breast density, personal and family risk factors, the role of genetic testing and counseling, environmental risk factors, exercise, sleep, nutrition and other risk-reducing lifestyle factors.
- The NCCN Distress Thermometer — a screening tool given to patients during their first course of cancer treatment to identify patients in need of psychosocial support services — was updated and simplified. It continues to be used to trigger referrals to support services. An estimated 2,505 screenings were administered in 2022.

- Each year, the INCC works to identify and address patient barriers to care. This year's focus was on the impact of financial toxicity on the well-being of our patients. There was overall increased utilization of all support services in 2022, with a notable 38% increase in the number of patients who marked "yes" to financial or insurance concerns on distress screening, and a 139% increase in referrals to an Oncology Financial Navigator. Transportation was another particular barrier. Transportation

barriers result in missed or delayed care. Legacy Cancer Institute received a grant from the American Cancer Society to provide transportation assistance, which will be used in 2023 to help reduce this barrier for our patients.

Through these and other efforts, we work to meet the complex needs of our patients and communities. We hope you enjoy learning more about the Legacy Cancer Institute, and we appreciate the opportunity to share our work with you.

Legacy Cancer Institute Site Analysis: Gynecologic Cancers

By Gina Westhoff, MD, FACOG; gynecologic oncologist, Legacy Medical Group—Gynecologic Oncology; medical director, Legacy Cancer Institute

Gynecologic cancers, including ovarian, uterine, cervical, vulvar, and vaginal cancers, represent a significant health concern for women worldwide.



Over the past two decades, substantial advancements have been made in the diagnosis and treatment of these cancers, resulting in improved outcomes and enhanced quality of life for patients. Due to this progress, we have seen the incidence and

mortality decrease for a majority of gynecologic cancers, including ovarian cancer, which historically has been a leading cause of gynecologic cancer related death.

However, much work remains. Uterine cancer has seen both an increase in incidence and mortality with strong racial differences and disparities related to both biologic and care-related factors that are poorly understood. Legacy Cancer Institute (LCI) has played a vital role in this progress, ensuring that patients receive comprehensive, state-of-the-art care throughout their cancer journey.

The American Cancer Society predicts that around 1,240 women in Oregon and 2,180 women in Washington will be diagnosed with an invasive ovarian, uterine or cervical malignancy in 2023. Invasive uterine cancer remains the most common gynecologic cancer nationally and at LCI. Among

the most common cancers diagnosed at LCI in 2022 were breast, colon/rectum, lung/bronchus, urinary system, prostate and corpus uteri. (See Table 2, p. 9.)

A total of 3,562 patients were diagnosed with a new cancer diagnosis or treated with their first course of therapy at LCI. Of those patients, 232 (or 6.5%) were diagnosed with a gynecologic malignancy. (See Table 1, p. 8.)

Some interesting differences are noted when we look at the age at diagnosis at Legacy compared to other CoC sites. (See Table 3, page 9.) Specifically, Legacy sees more women diagnosed with cervical cancer before age 40 than other CoC sites (40% as opposed to 25%). Legacy also has a larger population of women diagnosed with ovarian cancer before age 50 compared to other sites (29% as opposed to 19%). Fertility sparing cancer treatment is a key priority for these young women who qualify, and our team of excellent gynecologic oncologists work closely with reproductive endocrinology to ensure these women have the best chance of future fertility at the end of treatment. This is a particularly important part of survivorship and well-being related to cancer care.

In addition, we have expanded our focus on sexual health during survivorship with multiple workshops. In 2023, a new sexual health clinic at LCI, led by Dr. Melissa Moffitt, a gynecologic oncologist, will open. We are also working to increase early

detection and prevention of cervical cancers through the promotion of cervical cancer screening and adoption of the HPV vaccine. For ovarian cancers, we are working to increase access of germline genetic testing to evaluate for hereditary cancer syndromes (e.g., BRCA1, BRCA2 and Lynch Syndrome).

The AJCC major stage groups for gynecologic cancers at LCI is also in line with the most recent data from the CoC database, but with one subtle difference. At LCI, we see fewer women with advanced stage (Stage III or IV) cervical cancer at the time of diagnosis (12% as opposed to 31%). (See Table 4, p. 9)

LCI has embraced a multidisciplinary approach to gynecologic cancer care, bringing together a team of experts from various specialties, including gynecologic oncology, radiology, pathology, radiation oncology, medical genetics, and robust support services available through the Legacy Cancer Healing Centers. LCI hosts a multidisciplinary gynecologic cancer conference at least twice per month to discuss the appropriate guideline adherent treatment and management for our patients. We endorse and follow the most current National Comprehensive Cancer Network's (NCCN) evidence-based treatment guidelines during these discussions and for treatment planning. Our robust list of clinical trials is also reviewed to consider patients for enrollment. Individual patient needs for genetics, psychosocial support, integrative medicine and other support services are also discussed.

LCI is at the forefront of leading advances in treatment and actively participates in clinical trials and research endeavors. LCI is a regional leader for access to clinical trials for patients with gynecologic cancers. This commitment to advancing scientific knowledge and innovative treatments allows patients access to innovative therapies and contributes to the broader understanding of gynecologic oncology, as well as improving patient outcomes.

The skilled surgeons at Legacy Medical Group—Gynecologic Oncology have experience in

performing laparoscopic and robotic-assisted surgeries, which leads to reduced hospital stays, faster recovery and improved patient outcomes.

We have also incorporated sentinel lymph node mapping and biopsy techniques for uterine, cervical and vulvar cancer patients. This approach more accurately determines the extent of lymph node involvement, reducing the need for extensive lymph node dissections and minimizing associated complications.

LCI has integrated precision medicine principles into the management of gynecologic cancers. Germline (including BRCA1/2 and Lynch syndrome) and somatic genetic testing is routinely offered to patients. This allows for personalized treatment strategies based on individual genetic profiles.

In addition to playing an active role in advancing treatment for gynecologic cancers, LCI recognizes the importance of providing comprehensive supportive care services to gynecologic cancer patients. Alongside traditional medical treatments, LCI offers integrative therapies such as acupuncture, massage, yoga and psychological counseling to manage treatment-related symptoms and enhance overall well being. We are also dedicated to supporting gynecologic cancer survivors beyond the completion of treatment. Our Survivorship Program offers important resources to address the long-term physical, emotional and psychosocial needs of survivors.

Over the past two decades, remarkable progress has been achieved in the diagnosis and treatment of gynecologic cancers. Advances in screening, surgery, systemic therapy, radiation therapy and supportive care have significantly transformed patient care, leading to improved survival rates, enhanced quality of life and increased treatment options. As the field continues to evolve, Legacy Cancer Institute will continue to prioritize ongoing research and collaboration to further refine diagnostic techniques and therapeutic interventions, to improve the outcomes and quality of life for women affected by gynecologic cancers.

TABLE 1 Legacy Health 2022 primary cancer sites by body system, all ages

Primary Site	Emanuel		Good Samaritan		Meridian Park		Mount Hood		Salmon Creek		Silverton		Legacy Health	
	N =	%	N =	%	N =	%	N =	%	N =	%	N =	%	N =	%
Oral cavity & pharynx	8	2.5%	19	1.6%	5	0.9%	7	1.9%	17	1.7%	0	0.0%	56	1.6%
Lip	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tongue	3	0.9%	5	0.4%	4	0.7%	3	0.8%	6	0.6%	0	0.0%	21	0.6%
Salivary glands	2	0.6%	1	0.1%	0	0.0%	1	0.3%	0	0.0%	0	0.0%	4	0.1%
Floor of mouth	2	0.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	0.1%
Gum & other mouth	0	0.0%	7	0.6%	0	0.0%	0	0.0%	3	0.3%	0	0.0%	10	0.3%
Nasopharynx	0	0.0%	1	0.1%	0	0.0%	0	0.0%	1	0.1%	0	0.0%	2	0.1%
Tonsil	1	0.3%	4	0.3%	1	0.2%	1	0.3%	4	0.4%	0	0.0%	11	0.3%
Oropharynx	0	0.0%	0	0.0%	0	0.0%	2	0.5%	0	0.0%	0	0.0%	2	0.1%
Hypopharynx	0	0.0%	1	0.1%	0	0.0%	0	0.0%	3	0.3%	0	0.0%	4	0.1%
Digestive system	42	13.3%	149	12.7%	95	17.4%	88	23.3%	185	18.1%	34	25.6%	593	16.6%
Esophagus	1	0.3%	7	0.6%	3	0.6%	10	2.6%	9	0.9%	0	0.0%	30	0.8%
Stomach	1	0.3%	11	0.9%	8	1.5%	12	3.2%	14	1.4%	5	3.8%	51	1.4%
Small intestine	0	0.0%	3	0.3%	1	0.2%	0	0.0%	3	0.3%	1	0.8%	8	0.2%
Colon (excluding rectum)	13	4.1%	53	4.5%	31	5.7%	33	8.7%	50	4.9%	15	11.3%	195	5.5%
Cecum	1	0.3%	10	0.9%	4	0.7%	5	1.3%	8	0.8%	3	2.3%	31	0.9%
Appendix	1	0.3%	5	0.4%	4	0.7%	2	0.5%	5	0.5%	3	2.3%	20	0.6%
Ascending colon	5	1.6%	10	0.9%	7	1.3%	5	1.3%	8	0.8%	2	1.5%	37	1.0%
Hepatic flexure	2	0.6%	3	0.3%	0	0.0%	1	0.3%	2	0.2%	0	0.0%	8	0.2%
Transverse colon	0	0.0%	8	0.7%	1	0.2%	5	1.3%	5	0.5%	2	1.5%	21	0.6%
Splenic flexure	0	0.0%	2	0.2%	0	0.0%	1	0.3%	4	0.4%	1	0.8%	8	0.2%
Descending colon	2	0.6%	1	0.1%	3	0.6%	1	0.3%	6	0.6%	2	1.5%	15	0.4%
Sigmoid colon	2	0.6%	12	1.0%	9	1.7%	9	2.4%	11	1.1%	2	1.5%	45	1.3%
Large intestine	0	0.0%	2	0.2%	3	0.6%	4	1.1%	1	0.1%	0	0.0%	10	0.3%
Rectum & rectosigmoid	2	0.6%	33	2.8%	11	2.0%	11	2.9%	19	1.9%	8	6.0%	84	2.4%
Rectosigmoid junction	0	0.0%	8	0.7%	3	0.6%	5	1.3%	6	0.6%	1	0.8%	23	0.6%
Rectum	2	0.6%	25	2.1%	8	1.5%	6	1.6%	13	1.3%	7	5.3%	61	1.7%
Anus, anal canal & anorectum	1	0.3%	5	0.4%	1	0.2%	2	0.5%	6	0.6%	0	0.0%	15	0.4%
Liver & intrahepatic bile duct	11	3.5%	13	1.1%	15	2.8%	6	1.6%	20	2.0%	1	0.8%	66	1.9%
Liver	9	2.8%	11	0.9%	10	1.8%	5	1.3%	11	1.1%	1	0.8%	47	1.3%
Intrahepatic bile duct	2	0.6%	2	0.2%	5	0.9%	1	0.3%	9	0.9%	0	0.0%	19	0.5%
Gallbladder	3	0.9%	4	0.3%	2	0.4%	1	0.3%	2	0.2%	0	0.0%	12	0.3%
Other biliary	1	0.3%	2	0.2%	4	0.7%	4	1.1%	5	0.5%	0	0.0%	16	0.4%
Pancreas	8	2.5%	13	1.1%	15	2.8%	9	2.4%	53	5.2%	4	3.0%	102	2.9%
Retroperitoneum	1	0.3%	4	0.3%	1	0.2%	0	0.0%	1	0.1%	0	0.0%	7	0.2%
Peritoneum, omentum & mesentery	0	0.0%	1	0.1%	2	0.4%	0	0.0%	1	0.1%	0	0.0%	4	0.1%
Other digestive organs	0	0.0%	0	0.0%	1	0.2%	0	0.0%	2	0.2%	0	0.0%	3	0.1%
Respiratory system	55	17.4%	110	9.4%	60	11.0%	46	12.2%	129	12.6%	12	9.0%	412	11.6%
Nose, nasal cavity & middle ear	3	0.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	0.1%
Larynx	3	0.9%	3	0.3%	2	0.4%	3	0.8%	5	0.5%	0	0.0%	16	0.4%
Lung & bronchus	49	15.5%	107	9.1%	57	10.5%	43	11.4%	124	12.1%	12	9.0%	392	11.0%
Trachea, mediastinum & other respiratory	0	0.0%	0	0.0%	1	0.2%	0	0.0%	0	0.0%	0	0.0%	1	0.0%

table continues on page 8

TABLE 1 Legacy Health 2022 primary cancer sites by body system, all ages (continued from p. 7)

Primary Site	Emanuel		Good Samaritan		Meridian Park		Mount Hood		Salmon Creek		Silverton		Legacy Health	
	N =	%	N =	%	N =	%	N =	%	N =	%	N =	%	N =	%
Bones & joints	4	1.3%	1	0.1%	0	0.0%	1	0.3%	1	0.1%	0	0.0%	7	0.2%
Soft tissue (including heart)	3	0.9%	2	0.2%	0	0.0%	1	0.3%	2	0.2%	0	0.0%	8	0.2%
Skin (excluding basal & squamous)	2	0.6%	65	5.5%	14	2.6%	4	1.1%	20	2.0%	0	0.0%	105	2.9%
Melanoma	2	0.6%	64	5.5%	14	2.6%	4	1.1%	20	2.0%	0	0.0%	104	2.9%
Other non-epithelial skin	0	0.0%	1	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.0%
Breast	1	0.3%	419	35.7%	133	24.4%	78	20.6%	290	28.3%	53	39.8%	974	27.3%
Female genital system	8	2.5%	99	8.4%	58	10.6%	18	4.8%	39	3.8%	10	7.5%	232	6.5%
Cervix uteri	2	0.6%	12	1.0%	0	0.0%	1	0.3%	4	0.4%	1	0.8%	20	0.6%
Corpus & uterus	4	1.3%	53	4.5%	38	7.0%	13	3.4%	27	2.6%	7	5.3%	142	4.0%
Ovary	1	0.3%	23	2.0%	11	2.0%	1	0.3%	6	0.6%	2	1.5%	44	1.2%
Vagina	0	0.0%	0	0.0%	2	0.4%	1	0.3%	0	0.0%	0	0.0%	3	0.1%
Vulva	0	0.0%	4	0.3%	4	0.7%	0	0.0%	1	0.1%	0	0.0%	9	0.3%
Other female genital organs	1	0.3%	7	0.6%	3	0.6%	2	0.5%	1	0.1%	0	0.0%	14	0.4%
Male genital system	33	10.4%	129	11.0%	51	9.4%	36	9.5%	71	6.9%	3	2.3%	323	9.1%
Prostate	31	9.8%	127	10.8%	46	8.4%	33	8.7%	65	6.3%	2	1.5%	304	8.5%
Testis	2	0.6%	2	0.2%	5	0.9%	2	0.5%	5	0.5%	1	0.8%	17	0.5%
Penis	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%	0	0.0%	1	0.0%
Other male genital organs	0	0.0%	0	0.0%	0	0.0%	1	0.3%	0	0.0%	0	0.0%	1	0.0%
Urinary system	30	9.5%	91	7.8%	38	7.0%	42	11.1%	105	10.3%	6	4.5%	312	8.8%
Urinary bladder	12	3.8%	42	3.6%	22	4.0%	28	7.4%	52	5.1%	5	3.8%	161	4.5%
Kidney & renal pelvis	18	5.7%	45	3.8%	14	2.6%	13	3.4%	47	4.6%	1	0.8%	138	3.9%
Ureter	0	0.0%	2	0.2%	1	0.2%	0	0.0%	4	0.4%	0	0.0%	7	0.2%
Other urinary organs	0	0.0%	2	0.2%	1	0.2%	1	0.3%	2	0.2%	0	0.0%	6	0.2%
Eye & orbit	0	0.0%	4	0.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4	0.1%
Brain & other nervous system	33	10.4%	31	2.6%	24	4.4%	22	5.8%	24	2.3%	5	3.8%	139	3.9%
Brain	19	6.0%	6	0.5%	3	0.6%	4	1.1%	10	1.0%	1	0.8%	43	1.2%
Cranial nerves other nervous system	14	4.4%	25	2.1%	21	3.9%	18	4.8%	14	1.4%	4	3.0%	96	2.7%
Endocrine system	28	8.9%	6	0.5%	12	2.2%	3	0.8%	17	1.7%	2	1.5%	68	1.9%
Thyroid	20	6.3%	3	0.3%	8	1.5%	0	0.0%	12	1.2%	2	1.5%	45	1.3%
Other endocrine including thymus	0	0.0%	3	0.3%	4	0.7%	3	0.8%	5	0.5%	0	0.0%	15	0.4%
Lymphoma	22	7.0%	23	2.0%	25	4.6%	12	3.2%	43	4.2%	5	3.8%	130	3.6%
Hodgkin lymphoma	6	1.9%	4	0.3%	1	0.2%	0	0.0%	2	0.2%	0	0.0%	13	0.4%
Non-hodgkin lymphoma	16	5.1%	19	1.6%	24	4.4%	12	3.2%	41	4.0%	5	3.8%	117	3.3%
Myeloma	3	0.9%	5	0.4%	6	1.1%	4	1.1%	25	2.4%	0	0.0%	43	1.2%
Leukemia	30	9.5%	9	0.8%	14	2.6%	9	2.4%	26	2.5%	1	0.8%	89	2.5%
Lymphocytic leukemia	21	6.6%	5	0.4%	6	1.1%	6	1.6%	19	1.9%	0	0.0%	57	1.6%
Myeloid & monocytic leukemia	9	2.8%	4	0.3%	7	1.3%	3	0.8%	5	0.5%	1	0.8%	29	0.8%
Other leukemia	0	0.0%	0	0.0%	1	0.2%	0	0.0%	2	0.2%	0	0.0%	3	0.1%
Mesothelioma	1	0.3%	0	0.0%	0	0.0%	0	0.0%	3	0.3%	0	0.0%	4	0.1%
Kaposi sarcoma	1	0.3%	1	0.1%	0	0.0%	0	0.0%	1	0.1%	0	0.0%	3	0.1%
Miscellaneous	12	3.8%	10	0.9%	10	1.8%	7	1.9%	26	2.5%	2	1.5%	67	1.9%
Total	316	100%	1173	100%	545	100%	378	100%	1024	100%	133	100%	3562	100%

TABLE 2 Legacy top six cancer sites, 2022

Primary site	Emanuel	Good Samaritan	Meridian Park	Mount Hood	Salmon Creek	Silverton	Legacy	% of total top six sites
Breast	1	419	133	78	290	53	974	36%
Colon/rectum	30	172	84	88	138	46	558	21%
Lung/bronchus	49	107	57	43	124	12	392	15%
Urinary System	30	91	38	42	105	6	312	12%
Prostate	31	127	46	33	65	2	304	11%
Corpus uteri	4	53	38	13	27	7	142	5%
Total	145	969	396	297	749	126	2682	
% of total 2022 analytic cases*	4%	27%	11%	8%	21%	4%	75%	

* Diagnosed and/or treated at Legacy Health

TABLE 3 2022 Gynecologic cancer sites by age, Legacy vs Commission on Cancer (CoC) Accredited Programs

Age at diagnosis	Cervix uteri		Corpus uteri		Ovary	
	Legacy N = 20	CoC* N = 8,844	Legacy N = 142	CoC* N = 43,062	Legacy N = 44	CoC* N = 14,502
< 29	0%	3%	1%	0%	0%	4%
30–39	40%	22%	2%	3%	9%	5%
40–49	15%	24%	8%	7%	20%	10%
50–59	20%	21%	20%	22%	16%	21%
60–69	15%	17%	33%	36%	30%	28%
70–79	10%	10%	28%	24%	11%	22%
80–89	0%	3%	6%	7%	11%	9%
> 90	0%	1%	1%	1%	2%	2%

* Based on the CoC most recently published 2020 Commission on Cancer National Cancer Data Base

TABLE 4 2022* Gynecologic cancer sites by stage, Legacy vs Commission on Cancer (CoC) Accredited Programs

AJCC stage	Cervix uteri		Corpus uteri		Ovary	
	Legacy N = 20	CoC* N = 8,844	Legacy N = 178	CoC* N = 43,062	Legacy N = 44	CoC* N = 14,502
Stage I	64%	40%	72%	65%	30%	18%
Stage II	24%	21%	2%	4%	5%	4%
Stage III	8%	14%	14%	12%	23%	33%
Stage IV	4%	17%	3%	9%	20%	18%
NA or Unk	0%	7%	9%	10%	23%	26%

* Based on the CoC most recently published 2020 Commission on Cancer National Cancer Data Base

Gynecologic Cancer Screening and Prevention

By Kathy McGonigle, MD; surgeon, Legacy Medical Group-Gynecologic Oncology

Human papillomavirus (HPV) is the most common sexually transmitted infection in the United States. The majority of cervical cancers are caused by HPV



as well as most vulvar, vaginal and anal cancers. Most HPV infections are transient, with 10–20% persisting. When high-risk HPV infection persists, the risk of progression to cervical cancer increases.

For many years, starting in the 1950s, pap smear cytology alone had been used to screen for cervical cancer. This led to a dramatic reduction in cervical cancer incidence. Today, the detection of high-risk HPV is a key component of cervical cancer screening. Various professional organizations provide guidelines regarding cervical cancer screening with cytology, HPV testing or a combination. There is consensus that screening should not begin before age 21, with some groups suggesting it be delayed until age 25. The American Cancer Society recommends initiating screening at age 25 — but with HPV testing alone.

By contrast, the U.S. Preventive Services Task Force (USPSTF) and the American College of Obstetricians and Gynecologists (ACOG) recommend HPV testing or co-testing for patients age 30 and over. Patients with both normal cytology and negative HPV testing may be screened every five years. Surveillance is advised for 25 years after a high-grade abnormal result before returning to routine screening. Testing should continue even after a hysterectomy or if the patient with this history is older than age 65. Only women who are at low risk and age 65 or more may be advised to forego cervical cancer screening.

The 2019 American Society for Colposcopy and Cervical Pathology (ASCCP) guidelines for cervical cancer screening were developed with a recognition that a patient's risk of having severe precancer (CIN2–3) or cancer is not reflected based on a single test result. These guidelines represent a strategic shift from results-based screening to risk-based

screening, by incorporating a patient's clinical history. Admittedly, these guidelines are complex. Fortunately, a phone-based app (for purchase) or a free web version is also available to obtain precise risk estimates. Patients at the highest risk for cervical cancer are those who have never been screened or are under-screened. Approximately 60% of women in the U.S. who develop cervical cancer have not been screened in more than five years and 22% have not received adequate follow-up on an abnormal result.

The HPV vaccine prevents most HPV-associated cancers and has been shown to be cost-effective. Since 2016, the 9-valent HPV vaccine (Gardasil 9) has been the primary vaccine administered in the United States. Vaccination should begin as early as age nine and has now been approved through age 45 (for both females and males). The Centers for Disease Control and Prevention (CDC) and the Advisory Committee on Immunization Practices (ACIP) recommend two doses of the vaccine between age nine and 14 and three doses for those age 15 and older. Recent studies suggest a one-dose regimen is sufficient protection against high-risk HPV, so recommendations may change in time. Despite strong safety and efficacy data about the vaccine, the proportion of adolescents who have been fully vaccinated in the U.S. is woefully low, approximately 59% in 2020. There are various explanations for low vaccination rates, including lack of education or knowledge, parental concerns over promiscuity, distrust in the medical system, lack of health care provider recommendation and concern for safety and cost.

Twelve years after the introduction of the HPV vaccination in the U.S., the prevalence of HPV vaccine-type infection decreased by 88% among adolescents ages 14 to 19, and 81% among those ages 20 to 24. HPV vaccination will only prevent infections from HPV subtypes targeted by the 9-valent vaccine if the patient hasn't been previously infected with the specific HPV subtype. Thus, the vaccine is more effective in patients before the onset

of sexual relations. Regardless of vaccination status, cervical cancer screening guidelines are the same.

Endometrial cancer is the most common gynecologic malignancy in the U.S. and has been associated with an increasing incidence and mortality rate. Within the next year, endometrial cancer mortality rates in the U.S. are expected to be greater than that of ovarian cancer. Despite the increasing rates, routine screening of asymptomatic women at average risk of endometrial cancer is not advised as there is no data to support the efficacy in this group of women. It is important for patients and health care providers to recognize symptoms associated with endometrial cancer. The most common presenting symptom is uterine bleeding, postmenopausal bleeding or abnormal bleeding in a premenopausal woman. Evaluation, ideally with an endometrial biopsy, is advised for women with postmenopausal bleeding or for premenopausal women with abnormal bleeding meeting specific criteria. ACOG recommends a pelvic ultrasound (to evaluate the endometrial thickness) or an endometrial biopsy for woman presenting with postmenopausal bleeding. ACOG further suggests that an endometrial biopsy is not necessary when the endometrial lining is less than or equal to 4 mm. The safety of this recommendation has been questioned for several reasons. High-risk endometrial histologies are often not associated with a thickened endometrial lining. Furthermore, studies leading to this recommendation were performed in a predominantly white population. This is of particular concern in African American women who commonly have uterine fibroids where the endometrial lining is more difficult to measure and because these women are 2-4 times more likely to present with high-risk endometrial histologies compared with White women. Thus, caution is advised in using a thin endometrial lining on pelvic ultrasound to reassure a patient in such circumstances.

Lynch syndrome is a genetic syndrome associated with a marked increased risk of endometrial, colon and ovarian cancers. Women with Lynch Syndrome have up to a 70% lifetime risk of endometrial cancer. These patients should be

followed with serial endometrial biopsies followed by risk-reducing hysterectomy and bilateral salpingo-oophorectomy (BSO) once childbearing is complete. There is strong evidence oral contraceptive pills (OCPs) significantly reduce the incidence of both endometrial and ovarian cancer with more than a 50% reduction of ovarian cancer among women using OCPs for 10 years or more. In patients who are obese or have irregular menses, the progestin secreting IUD may prevent endometrial hyperplasia and cancer.

Numerous studies have evaluated screening methods for ovarian cancer, primarily using a combination of pelvic ultrasound and CA-125 levels. To date, none have demonstrated a benefit of screening average risk women for ovarian cancer — a reduction in ovarian cancer mortality to offset the risk of screening, for example. Some organizations state pelvic ultrasound and CA-125 may be offered to screen women with a very high risk of ovarian cancer due to an inherited genetic syndrome. However, there is no evidence that screening leads to improved outcomes in these women.

One of the best methods of preventing ovarian cancer is to offer risk-reducing surgery to patients with a high risk of developing ovarian cancer, particularly those with inherited cancer mutations. In addition to BRCA1 and BRCA2, there are numerous other genetic mutations associated with an increased risk of ovarian cancer. Women with BRCA1 and BRCA2 mutations have up to a 40% and 20% lifetime risk of ovarian cancer, respectively, compared to 1.5% for the general population. These patients also have a very high risk of breast cancer. By identifying patients affected by hereditary cancer syndromes, risk-reducing surgery to remove the ovaries and fallopian tubes may be offered to patients (generally after childbearing). Studies have demonstrated BSO reduces the risk of ovarian cancer to near the rate of the general population. Furthermore, ovarian removal in a woman with a BRCA mutation prior to menopause is associated with a 50% reduction in breast cancer. Health care providers should have a low threshold to recommend genetic counseling and testing to help identify these patients and their family members.

Legacy has a robust genetic counseling and high-risk service, which offers patients and their families virtual appointments.

In the last few decades pathologists have recognized precursor lesions along with “occult” fallopian tube cancers in patients with BRCA mutations undergoing risk-reducing surgery. There is increasing evidence the fallopian tube is the origin of most ovarian cancers. Based on this evidence, a 2019 ACOG committee opinion advised performing opportunistic salpingectomy as a strategy to prevent ovarian cancer. This procedure involves the removal of the fallopian tubes in a woman already undergoing pelvic surgery for another indication. Salpingectomy at the time of hysterectomy or as a means of tubal sterilization appears to be safe without an increase in the risk of complications or a reduction in ovarian function. Based on a physician survey of members by ACOG published in 2017, 77% perform bilateral salpingectomy at the time of hysterectomy for benign indications and 53% at the

time of interval sterilization.

There is currently a prospective NRG clinical trial (SOROCK) evaluating the role of bilateral salpingectomy for BRCA1 carriers who have completed childbearing (ages 35–50). Patients who are planning on risk-reducing surgery elect to undergo either risk-reducing BSO or bilateral salpingectomy. Because of the known risks of surgical menopause in young women, delaying oophorectomy is preferable if doing so is safe from the oncologic standpoint. This study is open to enrollment at Legacy. Patients who are not participating in clinical trial with a BRCA mutation are not advised to undergo bilateral salpingectomy without oophorectomy as a risk-reducing strategy, pending the results of clinical trials confirming the safety of this approach.

Because there is no reliable way to screen for most gynecologic cancers, it is important to educate both patients and providers on risk factors and presenting symptoms associated with these malignancies.

Pathology and Molecular Diagnostics — Gynecologic Cancers

By Benjamin Kukull, MD; pathologist; director of microbiology, molecular diagnostics and serology, Legacy Health

Groundbreaking advancements have been made in our comprehension of the genetic basis of cancer. This has led to improved classification systems that help determine the most effective treatment strategies for patients. Many of these



updates are due to developments in molecular diagnostics and genetic sequencing techniques, such as next generation sequencing (NGS). Pathologists, who function as “physician diagnosticians,” play a crucial role in

incorporating new developments in molecular oncology with established classification systems. At Legacy Cancer Institute (LCI), we use ancillary immunohistochemical and nucleic acid-based methods to interrogate cancer biomarkers, which inform an accurate diagnosis, prognosis and possible therapeutic strategies. The breadth of this

testing necessarily evolves with our developing understanding of the biology and natural history of cancer.

Molecular updates in classification systems

Endometrial carcinoma serves as prototypical example of a gynecologic cancer type that has recently undergone complete molecular genetic reclassification. A seminal study conducted by The Cancer Genome Atlas (TCGA) Research Network examined the molecular profiles of endometrioid carcinomas using sequencing and cytogenetic techniques. By correlating this information with progression-free survival, the study identified four molecular subtypes of endometrial cancer with distinct prognoses:

- 1) Polymerase epsilon (POLE) mutated (characterized by an “ultramutated” phenotype and the best prognosis);

- 2) Microsatellite unstable (associated with mismatch repair (MMR) protein expression and a “hypermethylated” phenotype);
- 3) Copy number low (referred to as tumors with “no specific genomic profile”); and
- 4) Copy number high tumors (closely related to TP53 mutation status and the worst prognosis). This new molecular classification holds significant prognostic and therapeutic value for high-risk endometrial cancers, irrespective of their histologic type.

Subsequently, the Proactive Molecular Risk Classifier for Endometrial Cancer (ProMisE) clinical trials demonstrated that routine immunohistochemical and targeted sequencing methods can be used to assign the appropriate molecular subtype and prognosis of endometrial carcinomas. This testing algorithm has been implemented at LCI, where all newly diagnosed endometrial carcinomas undergo immunohistochemical testing for MMR and P53 expression. Additionally, routine POLE mutation analysis is performed, which requires interrogating numerous possible pathogenic mutations over a large region of the POLE gene. For higher stage tumors, several reference laboratories are employed to conduct comprehensive genomic profiling via NGS, which also provides insights into the complete genetic subtype with a single test.

Immunohistochemistry (IHC) for detecting specific protein expression in cancer tissues

Legacy has also integrated new applications of IHC for several gynecologic cancer types, including testing for PDL1, HER2 and FOLR1, all of which inform oncologists of possible treatment strategies. PDL1 testing is used in various cancer types to guide checkpoint inhibitor therapy, such as Opdivo (nivolumab) or Keytruda (pembrolizumab). Importantly, when IHC testing is not informative, NGS testing can also provide additional information about the tumor mutation status, which might qualify a patient for use of this class of drugs. Recently, HER2 IHC testing algorithms (initially developed for breast cancer) are being adapted for several high-grade gynecologic carcinomas. Detection of pathogenic amplification of HER2

may be predictive of the efficacy of HER2-targeted therapies, which is a breakthrough discovery in these aggressive cancer types. The latest addition to IHC testing for folate receptor 1 protein (FOLR1) is indicated for patients with high-grade tubo-ovarian-type serous carcinomas resistant to platinum-based chemotherapy. IHC testing serves as a companion diagnostic for a novel antibody-conjugate drug that targets this receptor on these cancer cells.

Molecular genetic diagnostics for detecting informative genetic alterations in cancer

Undoubtedly, next-generation sequencing (NGS) and advanced molecular testing will increasingly play a vital role in cancer diagnostics, facilitating accurate tumor classification, prognosis determination and personalized treatments for patients. In partnership with reference laboratories, access to FDA-approved comprehensive genomic profiling by NGS at Legacy is now routine in certain cancer types and disease stages. An important advantage of NGS tumor testing is that the tests by-in-large already encompass essentially all well-described and emerging biomarkers (including the endometrial cancer markers, BRCA1/2, CTNNB1, NTRK and tumor mutational burden). While this higher-level testing may initially appear costly at the time of diagnosis, the expense can be offset by reducing the need for repeat tissue procurement procedures and effectively treating molecularly defined cancer subtypes before disease progression to more advanced stages. Overall, this is best for the patient. Currently, peripheral blood (liquid biopsy) can also be submitted for NGS testing, which is particularly useful in high stage disease when additional tumor sampling is not readily accessible. As an important update, National Comprehensive Cancer Network (NCCN) 2023 guidelines encourage the use of FDA-approved comprehensive genomic profiling testing in the “initial evaluation” of several gynecologic cancers. With time, this approach is expected to become only more routine for all cancer types.

Forward

While certain types of cancer may share common genetic drivers, the overall characteristics and

behavior of the disease can be as diverse as individuals are from one another. Understanding the molecular diversity of cancer is key to establishing the most specific diagnosis and appropriate treatment options. Soon, applications in digital pathology and artificial intelligence will further enhance

diagnostic accuracy and throughput. Because of the crucial advantages they provide, Legacy is committed to ensuring access to the most innovative diagnostics to best inform our clinicians and empower our patients when this is needed the very most.

Gynecologic Genetics: Cancer Prevention, Screening and Treatment

By Therese Tuohy, PhD, LCGC; certified genetics counselor, Legacy Cancer Institute

A diagnosis of a personal or a family history of gynecological cancer (or other cancer or disease) comes with a dizzying array of next generation



testing options. These options can guide currently available interventions and future screening recommendations. There are multiple choices: somatic and germline; single gene testing or panels; platforms that include deletion and duplication analysis; polygenic risk score; whole exome and whole genome platforms; and epigenetic analysis, though it is still in the research arena.

Approaches differ among specialists and a tissue-specific consensus has emerged that includes several of these platforms in succession or sometimes in parallel with the realization that high and moderate risk genes — like BRCA1, BRCA2, the Lynch syndrome genes, PTEN, STK11, ATM, PALB2 and more recently, BRIP1, FH, DICER, SMARCM1 and SMARCA4 — have become more common.

In the last couple of years, after several years of research, polygenic risk scores have been validated as a useful adjunct approach to refine risk estimate, either in conjunction with, or even in the absence of, high and moderate risk mutations. Even some cervical cancers, which are overwhelmingly associated with HPV (human papillomavirus) infection, have been shown to correlate with genetically determined immune response to HPV infection. To find predisposition to disease while there is still time to reduce the risk is the goal. To

retrospectively find such risks only after the diagnosis of disease is a failure of our approach. Current practice misses more than half of the detectable high-risk mutation carriers.

While genetics professionals have traditionally focused on integrating patients' risk analysis with family history analysis or adding germline testing for a subset of patients after traditional referrals, this model has outlasted its utility. It has become unsustainable and inequitable, and such testing is now often ordered by oncologists, surgeons and other specialists with post-test referrals to genetic professionals for selected cases. While this approach is more time-efficient, it also exacerbates patients' misunderstanding of their medical care. It often leaves them feeling like bystanders. It also neglects extended family members with risks for known mutations, whose engagement in the system is opportunistically dependent on an individual patient's willingness to advocate for cascade testing. A new perspective suggests that population genetics may finally provide answers for the familial cancers that do not appear to be due to moderate-risk mutations in more commonly mutated genes. Integration of multigene panels with SNP-based polygenic and genealogy panels is already delivering useful refinements of previously broad risk intervals.

The development of patient registries with integrated databases that facilitate genomic data sharing, while simultaneously protecting patient privacy, will provide the powerhouse to drive further methodic, deeper and powerful risk

refinement. This will promote cascade testing among relatives of high-risk patients and extend access to currently marginalized populations.

Opening our current stepwise referral-based system will require new clinical management protocols, protected data sharing and commitment to a dynamic facilitative infrastructure. Artificial

intelligence that will facilitate better, faster and more comprehensive integration of the results of multiple approaches, in real time, will change the provision of services in the coming years.

But, nevertheless, patients are people, not datapoints. And to paraphrase Sting and The Police, “We are still analogs in a digital world.”

Medical Oncology Treatment for Gynecologic Malignancies

Melissa Moffitt, MD; surgeon, Legacy Medical Group—Gynecologic Oncology

Endometrial cancer

Endometrial cancer is the fourth most common cancer for women in the U.S. Fortunately, it is often low grade, early stage and curable with surgery alone. However, advanced stage or recurrent metastatic endometrial cancer is more challenging to treat. In an age when we are experiencing decreasing cancer-related deaths, we are also seeing rapidly rising endometrial cancer rates domestically and worldwide. This rising rate has been accompanied by increasing mortality from endometrial cancer. In the U.S., African American women are experiencing the steepest rise in incidence and mortality from endometrial cancer.



The Cancer Genome Atlas (TCGA) caused a change in thinking about endometrial cancer in that we found genetic groupings of endometrial cancer that aligned with prognosis. This led to the addition of a molecular classification into the new FIGO 2023 endometrial cancer staging system. Genetic subsets of endometrial cancer patients have improved outcomes with immunotherapy, including those with mismatch repair-deficient (dMMR) tumors; those with POLE-mutated tumors; and those with PD-L1 positive tumors. We have recently found that all metastatic endometrial cancer patients have improved survival rates when immunotherapy is added to primary treatment standard chemotherapy. Legacy Cancer Institute was grateful to have opened the study

on checkpoint inhibitors to our patients with advanced stage endometrial cancer in which this benefit was proven. Immune checkpoint inhibitors are now used as monotherapy or in combination with other therapies, such as chemotherapy, targeted therapy or radiation therapy.

Ovarian cancer

Ovarian cancer, though not common, is one of the most lethal malignancies for women in the U.S. We have made great strides in understanding ovarian cancer in the last few years, which, in turn, has led to numerous new treatments. PARP inhibitors are one of the promising new therapies for ovarian cancer. These drugs block the poly (ADP-ribose) polymerase (PARP) enzyme, which helps repair DNA damage in cells. PARP inhibitors are especially effective in cancers that have defects in other DNA repair mechanisms, such as BRCA mutations or other homologous repair deficiencies (HRD). Approximately 50% of high grade serous ovarian cancers were shown to have some form of HRD in The Cancer Genome Atlas study (TCGA). PARP inhibitors have been shown to improve survival and delay disease progression in women with advanced ovarian cancer, both as maintenance therapy after chemotherapy and as monotherapy or as part of combination therapy for recurrent disease. PARP inhibitors are also being investigated in other gynecologic cancers, such as endometrial, cervical and vulvar cancers.

Another new therapy for gynecologic cancers is the use of anti-angiogenic agents, which are

drugs that inhibit the formation of new blood vessels that feed tumors. Anti-angiogenic agents can starve tumors of oxygen and nutrients and then prevent them from growing and spreading. Anti-angiogenic agents have been approved for the treatment of ovarian cancer, both as first-line therapy in combination with chemotherapy and as maintenance therapy for recurrent disease. Anti-angiogenic agents are also being explored in other gynecologic cancers, such as endometrial, cervical and rare cancers.

Immunotherapy also has application in ovarian cancer. Immune checkpoint inhibitors have been shown to be effective treatment for patients with platinum-resistant ovarian cancer, a subset of patients for whom effective treatments has been desperately sought. Checkpoint inhibitors, in combination with oral chemotherapy and PARP inhibitors, were shown to have a clinical benefit in 95% of patients.

Cervical Cancer

Immunotherapy and anti-angiogenic agents are both being used commonly in metastatic cervical cancer. Both drug types are being tested as radio-

sensitizers for locally advanced cervical cancer.

At Legacy Cancer Institute, patients with gynecologic malignancies have access to these new medical therapies through clinical trials or standard of care. Legacy Cancer Institute is part of the OHSU Knight-Legacy Health Cancer Collaborative, which provides comprehensive and coordinated cancer care for the Portland and Vancouver metro areas. Legacy Cancer Institute has a team of specialists who work together to develop personalized treatment plans for each patient. We also offer support services such as nurse navigators, oncology social workers, dietitians, rehabilitation therapists, a cancer survivorship program and more.

New medical therapies for gynecologic malignancies have emerged in the past decade. They offer new hope and options for women with these diseases. These therapies are based on a deeper understanding of the biology and molecular drivers of gynecologic cancers and aim to target specific pathways or mechanisms involved in tumor growth and survival. Legacy Cancer Institute is at the forefront of delivering these therapies to patients with gynecologic malignancies through clinical trials and standard of care.

The Role of Radiation Oncology in Gynecologic Oncology Treatment

By Brandon Dyer, MD; radiation oncologist, Legacy Medical Group—Radiation Oncology

Radiation therapy plays a central, critical role in the treatment of gynecologic malignancies. Significant technological progress has improved cancer outcomes and the patient experience. Three notable innovations in radiation oncology for gynecologic malignancies include external beam radiation therapy (EBRT), stereotactic body radiation therapy (SBRT) and high-dose rate (HDR) brachytherapy. Additionally, in conjunction with combination immune checkpoint and biologic therapies, burgeoning clinical trials



show that continued improvement in patient outcomes is possible.

External beam radiation therapy (EBRT) technology has shown remarkable improvements in its precision and accuracy. The development of intensity-modulated radiation therapy (IMRT) and volumetric-modulated arc therapy (VMAT) allow for better sparing of healthy tissues while precisely targeting tumors. These advancements have reduced radiation toxicity and improved local control rates in gynecologic malignancies.

Stereotactic body radiation therapy (SBRT) is a form of EBRT and delivers precise, ablative radiation doses to tumors in five or fewer fractions.

This enables dose escalation to tumors while minimizing radiation exposure to nearby organs. Combined with advanced imaging techniques — such as cone-beam computed tomography (CBCT) and magnetic resonance imaging (MRI) during SBRT planning and delivery — ensures accurate tumor targeting. Current and ongoing studies are evaluating the combination of SBRT and immune/biologic therapies for gynecologic malignancies.

These sophisticated EBRT and SBRT technologies are available at each of our radiation oncology treatment facilities at Legacy Good Samaritan, Legacy Salmon Creek and Legacy Mount Hood medical centers.

Beginning in the 1990s and a decade before any other regional facility, Legacy Cancer Institute (LCI) established its brachytherapy program. Brachytherapy involves the placement of a radiation source directly into or near the tumor. This allows for delivery of a highly localized dose of radiation for a variety of cervical, uterine and vaginal cancers. For more than three decades Legacy has remained the regional leader in brachytherapy and offered the highest-volume gynecologic brachytherapy practice in Oregon. This has provided unmatched patient-individualized care. The complexities of

brachytherapy treatment require highly coordinated patient care, including gynecologic oncology, radiology, anesthesiology and medical physics. Legacy has remained at the forefront of brachytherapy innovation by providing comprehensive trans-perineal and hybrid interstitial treatments, real-time ultrasound image guidance and computed tomography (CT) and magnetic resonance image-optimized treatment. Coordinated patient care also means that Legacy can provide brachytherapy treatment to patients admitted to the hospital, thus ensuring timely care for medically complex patients from the Pacific Northwest region.

Combined modality approaches, such as chemo-radiation therapy or novel immune/biologic therapies combined with radiation, will continue to dominate and rapidly change the treatment landscape, options, paradigms and outcomes for patients with gynecologic cancer. The integration of LCI's gynecologic oncology and radiation oncology patient service lines facilitates timely, leading-edge, patient-centric care. This integration enhances the efficacy, safety and treatment outcomes for patients with gynecologic malignancies and firmly establishes Legacy Cancer Institute as Oregon's premier provider of gynecologic cancer care.

Gynecological Cancers and Pelvic Floor Dysfunction

By Claudia Von Hammerstein, PT; physical therapist, Legacy Rehabilitation Services

Pelvic floor physical therapy is a specialty service provided at Legacy's Outpatient Rehabilitation Clinics. It is staffed by therapists with advanced training focused on the management of pelvic floor dysfunction (PFD). Common symptoms of PFD are pain, changes in bowel or bladder function and changes in sexual function. These dysfunctions can easily arise with treatment of gynecological cancers after surgeries, radiation and chemotherapy. While PFD can significantly impact quality of life, the good news is that, with



physical therapy, many of the symptoms can be reduced or resolved entirely.

Specifically, pelvic floor dysfunction may include hypertonus (vaginismus, levator ani syndrome), hypotonus (pelvic organ prolapse, incontinence issues), dyspareunia, dyssynergia, or pain and restricted mobility from residual scar tissue. Pelvic floor physical therapists (PFPT) complete a careful history, evaluation and physical examination to determine the cause of the impairment and the extent of the functional limitations. With this information, PFPTs develop a personalized treatment plan that may include instruction on physiological training — quieting down muscle tone if muscles

are too tight or strengthening if core musculature is weak. Treatment may also include education on bladder and bowel habits and instruction on how to return to patterns that are normal and pain free. If scar tissue and decreased organ mobility in the lower abdomen are present, releasing the restrictions with myofascial and visceral mobilization is a highly effective technique to decrease pain and improve function.

Our PFPTs are trained in the treatment of dyspareunia (pain with intercourse), which may include instruction in the use of dilators and lubricants. In the presence of a narrowing of the vaginal vault, this intervention is also useful for increasing comfort during gynecological exams.

Other modalities that may be included are body work, biofeedback, electrical stimulation and trigger point release. Since the treatment of any cancer impacts the entire body, augmenting most treatment plans with strengthening and endurance training helps improve feelings of physical fatigue and overall well-being.

The bottom line: diagnosis and treatment of gynecological cancer is a difficult journey and may leave some unwanted, uncomfortable impairments in its wake. Pelvic floor physical therapists are available to help create a plan and provide treatment that makes a real difference in restoring function, reducing pain and bringing bodies back into balance.

Legacy Integrative Care Services

By Megan Barckert, MSN, FNP-C; family nurse practitioner, Legacy Cancer Healing Center

At their core, primary care and integrative medicine have the same goal: to improve the overall health and well-being of patients. What's more, both



disciplines highlight the importance of preventative health and the management of acute and chronic disease

The two disciplines differ in other ways, however. There is a strong focus within integrative medicine on a comprehensive approach that uses both conventional and complementary medicine. Integrative medicine can easily be pigeonholed as a resource only for patients interested in "alternative" treatment methods. The reality is that it's so much more.

Integrative medicine looks at the physical, mental, emotional and spiritual health of patients using a patient-centered, evidence-based approach. Time is taken to get to know patients, their needs, their health goals and the treatment methods to which they are open. For instance, one patient may want to treat hot flashes with supplements and acupuncture, while another might be interested

in venlafaxine or gabapentin. Recommendations are shared based on current evidence and working with the patient to form a treatment plan. This approach can work for any patient and has the benefit of using effective treatment methods from Western medicine, as well as considering other safe and effective complementary methods that are often overlooked.

Within oncology, integrative medicine can play a crucial role as patients in treatment often do not see their primary care provider (PCP) regularly. Integrative medicine offers an opportunity during treatment and beyond, to identify gaps in care and to focus on preventative health, as well as acute and chronic disease management.

For example, patients who have completed treatment for breast cancer but have yet to re-establish care with their PCP are supported by integrative care services. The importance of returning to routine cancer screenings, lifestyle changes to reduce cancer risk and review of recommendations for bone health (aromatase inhibitor increasing their risk of osteoporosis) are all topics discussed with the patient.

From the moment of a cancer diagnosis, integrative medicine works with patients and their treatment team to improve their health and well-being. From preventing and reducing symptoms during chemotherapy, to improving pain management after surgery, to managing anxiety and depression

throughout and after treatment, we meet patients where they are and work with them on their health needs and goals. Providing optimal care to patients with cancer requires many disciplines and resources, and integrative medicine can play a key role within the patients' health care team.

Oncology Psychology Services

By Michelle Lee, PsyD; oncology psychologist, Legacy Cancer Healing Center

A diagnosis of gynecologic cancer brings about a range of physical, social and psychological coping demands. Cancer psychologists help patients and their treatment teams to understand the factors that impact patients' well-being, including those caused by cancer. They also provide tailored interventions that bolster patients' coping skills and improve their quality of life.



As the field of psycho-oncology continues to expand, cancer psychologists are increasingly well-equipped to support patients throughout their cancer journeys. Interventions are delivered with the understanding that psychological health in the context of cancer encompasses more than the presence or absence of distress, as negative and positive well-being factors are not mutually exclusive. In addition to alleviating distress, cancer psychologists help patients engage in processes that support positive adjustment and well-being.

Upon receiving a diagnosis of gynecologic cancer, patients are faced with numerous uncertainties about the future. Many must quickly make important treatment decisions and must actively consider the potential negative impacts of undergoing or forgoing various courses of treatment. Some face the potential loss of their fertility. This compounds the normal emotional turmoil that accompanies a cancer diagnosis. Cancer psychologists can support patients in processing difficult emotions that arise and help them to consider their treatment options and feel more confident in their treatment decisions.

Many cancer patients experience treatment-related anxiety while undergoing treatment for gynecologic cancer, which lasts months and can include several modalities. Cancer psychologists can help patients overcome and better manage their treatment-related fears and treatment-related effects.

Cancer psychologists can deliver interventions to reduce pre-surgical anxiety and support post-surgical recovery. Specific interventions such as cognitive-behavioral pain management may be appropriate. Patients can be provided with relaxation skills training to significantly reduce anxiety and overall discomfort when undergoing radiation treatment to help patients complete their recommended radiation treatment. With regard to chemotherapy, cancer psychologists can help patients overcome anticipatory nausea, which may develop in response to treatment and are less amenable to management by antiemetics. Cancer psychologists can also help patients manage fatigue and mood changes secondary to menopause.

Patients may have self-management tasks after treatment is complete, such as the use of dilators to prevent vaginal stenosis after radiation therapy or management of lymphedema. Cancer psychologists can provide motivational enhancement and relaxation interventions to help patients sustain self-management tasks and minimize the long-term negative side effects of cancer treatment.

In the post-treatment or survivorship stage, many gynecologic cancer survivors experience enduring changes to their identity. This can be pronounced in certain domains of life, such as in intimacy and sexuality or gender and femininity. Cancer

psychologists can support survivors to adjust to these changes.

For patients facing a life-limiting diagnosis or facing end-of-life, cancer psychologists can support healthy preparatory grief processes and enhance quality of life, particularly when medical symptoms increase over time.

Lastly, fear of recurrence is a common experience in survivorship and can persist for years after treatment ends. Cancer psychologists utilize various interventions that have been shown to

help patients overcome their persistent fear of cancer recurrence.

Due to the changing nature of coping demands facing gynecologic cancer patients, Cancer Psychology Services at Legacy Cancer Institute is housed within the Cancer Healing Center for optimal care coordination, collaboration and patient accessibility. This allows patients to engage in various support services depending on their needs and circumstances at any given time.

Legacy Palliative Care Services

By Ruth Medak, MD; director, Legacy Palliative Care Services

Gynecologic cancers account for approximately 7% of oncology patients at Legacy Health with many patients diagnosed with late-stage disease. Cancers



and treatment cause not merely physical symptoms, but also emotional distress for patients and their families. Research has shown that patients and families referred to palliative care early in their disease have improved quality of life and

longevity.

The Legacy palliative care team includes providers, social workers, nurses and chaplains working collaboratively to improve the lives of people with serious illness. The team provides support for patients and families in collaboration with the patient's care team. Together, they focus on optimizing quality of life through ongoing management of symptoms, helping people process information about the disease and treatment, supporting patients' and families' psychosocial and spiritual needs, and facilitating establishment of short- and long-term goals for care and for life. They also provide guidance for obtaining caregiving and financial support, appointment of a guardian, and for many transition to hospice for end-of-life care. In Oregon, patients can transition to Legacy Hospice, which serves

Multnomah, Washington, Clackamas, Columbia, Yamhill, Marion and Polk counties.

Legacy Palliative Care has a close relationship with the Legacy Cancer Institute, Legacy Women's Health and Legacy Obstetrics and Gynecology groups in Portland and Vancouver. We provide inpatient and outpatient consultations and ongoing symptom management and support for many of patients with advanced cancers.

The Palliative Care Program added a new physician, two nurse practitioners and two social workers to re-open inpatient and outpatient palliative care services at Legacy Mount Hood Medical Center with much fanfare after a several year hiatus. We have also increased outpatient clinic availability at Legacy Salmon Creek Medical Center.

Legacy Palliative Care now provides inpatient consultations and ongoing care management at Legacy Emanuel, Good Samaritan, Meridian Park, Mount Hood and Salmon Creek medical centers. Outpatient care is provided onsite at Legacy Good Samaritan, Meridian Park, Salmon Creek and Mount Hood medical centers, as well as through telehealth.

While the burden of the COVID-19 pandemic has substantially decreased, other challenges remain. Many physicians and other care providers still do not fully understand the role of palliative care in

the continuum of care, the role of palliative care providers and the services that our multidisciplinary teams provide. In 2023, we will hold in-person outreach sessions with hospitalists, primary care providers and specialists.

Other plans include launching a Palliative Care at Home Program as part of Legacy's commitment to fill gaps in care delivery. The launch of a pilot program led by nurse practitioners is planned for late 2023.

Legacy Oncology Clinical Research

By Julia Fehniger, MD; gynecologic oncologist, Legacy Medical Group Gynecologic Oncology; and Leslie Sorenson, CCRP; manager, Legacy Cancer Clinical Research and Genetics Services, Legacy Cancer Institute

Since the establishment of Legacy Medical Group's Gynecologic Oncology practice in 2015, clinical research has been a crucial component of what we



Julia Fehniger, MD

offer our gynecologic cancer patients. Legacy Cancer Institute is a member of NRG Oncology, a large cooperative group, which has allowed our patients access to a wide range of innovative investigative treatments. All new patients and those experiencing a recurrence of their cancer are screened for inclusion in clinical trials and the clinical research program staff are incredible resources for both patients and providers throughout this process.



Leslie Sorenson, CCRP

Legacy patients have participated in several practice-changing clinical

trials for both ovarian and endometrial cancer. For ovarian cancer patients, the addition of targeted oral medications called PARP inhibitors has led to improvements in progression-free survival for those with advanced stage disease after completing adjuvant chemotherapy. Legacy was a top enroller in the Tesaro PRIMA study (GOG 3012), which led to the FDA approval of the PARP inhibitor niraparib in 2019 as maintenance for all patients with advanced ovarian cancer. Our patients also participated in the ATHENA trial (GOG 3020), which found similar

results for a similar patient population who received maintenance treatment with the PARP inhibitor rucaparib. These medications can help ovarian cancer patients live longer from diagnosis to disease recurrence and have an improved quality of life with fewer symptoms related to their cancer.

More recently, Legacy patients participated in NRG GY018, which demonstrated improved progression-free survival for patients with advanced or recurrent endometrial cancer treated with standard chemotherapy and the immunotherapy drug pembrolizumab. This has been particularly impactful for the 25–30% of endometrial cancer patients whose tumors are microsatellite instability high, and who had the most benefit from the combination regimen.

For patients without a cancer diagnosis but are at a high risk of developing breast or ovarian cancer with a germline mutation in BRCA1, Legacy is also enrolling patients on SOROCK (NRG-CC008). This observational study will help determine the role of removal of solely the fallopian tubes versus the current standard of removal of both the fallopian tubes and the ovaries to prevent ovarian cancer.

In 2022, gynecologic cancers made up about 7% of all cancer cases diagnosed or treated at Legacy, and accounted for 3% of all patient enrollments in cancer clinical trials. For oncology patients, this is an exciting time to be involved in clinical research, and we are fortunate enough to help move our field forward for not only our patients but gynecologic cancer patients everywhere, too.

Legacy Oncology Nurse Navigation Program

By Kimberely McNair Scott, RN, OCN; oncology nurse navigator, Legacy Cancer Institute

The Legacy Oncology Nurse Navigation (ONN) Program has been growing steadily since its inception in 2007 and continues to play a prominent



role in oncology patient care today. The program has evolved into a cancer type-specific model which enables each ONN to use their expertise to guide patients throughout their journey — from diagnosis through treatment and into survivorship.

Legacy's ONNs are highly trained registered nurses; many have earned national Oncology Certified Nurse (OCN) certifications and extensive experience.

The Legacy ONNs in gynecologic cancer play an instrumental role in providing education and support to facilitate care coordination, improve outcomes and enhance the quality of life for women affected by gynecologic cancers. The program supports patients receiving cancer care in both Oregon and Washington at no additional cost to the patients or family. By advocating for women's health and providing comprehensive support, the ONNs are in a unique position to empower patients to make informed decisions, access resources and actively participate in their health and health care.

Upon a diagnosis of gynecologic cancer, patients

may experience feelings of confusion, fear and uncertainty. ONNs are there to guide them through the intricacies of treatment. They serve as liaisons between patients and their health care providers and support services to help ensure seamless communication and coordination of care. By providing evidence-based, patient-centered education, ONNs help patients understand their diagnosis and treatment, reinforce strategies to manage side effects and address any barriers or concerns that may affect their ability to access care. Offering crucial emotional support and helping patients cope with the physical and emotional challenges associated with gynecologic cancer treatment are also fundamental aspects of nurse navigation.

The role of ONNs extends beyond treatment. Continued support is offered to patients during the survivorship phase, connecting them to support groups, counseling services and rehabilitation programs to optimize their long-term physical and emotional well-being. ONNs serve as a steady advocate and consistent point of contact throughout the cancer journey. They address patients' unique needs, provide emotional support and guide them through the health care system. This personalized care and attention directly contributes to higher patient satisfaction and improved overall patient outcomes and experience.

Legacy Cancer Institute Survivorship Program

By Laurie Christensen, RN, OCN; oncology nurse navigator, INCC survivorship program coordinator, Legacy Cancer Institute

Legacy Cancer Institute defines “cancer survivor” as anyone with a cancer diagnosis and throughout the rest of their life. Hearing the words, “You have cancer” is life changing. Treatment can be hard; moving beyond active treatment also presents its own challenges. Most people are eager to get back to “normal,” yet life may look different as they adapt to a “new normal.” This is due to



many factors, including more follow-up medical care appointments, late and long-term side effects that may persist and the many different emotions that patients experience during their cancer journey — including fears that their cancer may return.

One area of recent focus for Legacy’s survivorship care for gynecological cancer survivors has been sexuality and intimacy. Given the anatomical location of gynecologic cancers, and that many treatments target the pelvic area, sexual dysfunction can and often happens. We are all sexual beings, no matter the age, and this important topic greatly impacts long-term quality of life; it needs to be discussed and consistently addressed during survivorship care. Legacy has been working hard to break the silence on this sensitive topic and to make this conversation more common.

Legacy is breaking the silence by updating patient education materials and providing additional staff education so providers feel more comfortable bringing up the topic, answering questions and making appropriate referrals.

Legacy has created and implemented female sexual health display kits within the radiation and gynecologic oncology clinics to augment conversations with survivors.

We are also establishing a sexual health clinic for both previvors and survivors. Recently, Legacy partnered with certified sex therapists to speak to survivors about common issues that impact a patient’s sexual health after cancer treatment. This partnership resulted in a three-part virtual education series.

Another Legacy survivorship offering was the “Taking Care of You in 2022” series that focused on survivors who had finished active cancer treatment within the past few years. This was a five-part series with each class focused on several aspects of wellness. We helped survivors set themselves up with attainable wellness goals including specific insight on staying physically active after treatment, managing ongoing stress or anxiety, the benefits of restorative sleep and optimizing foods to improve health and cancer prevention.

Legacy has made great strides in raising awareness and providing education on survivorship topics. We continue to evaluate, enhance and evolve the programs to meet the needs of our survivors. Legacy strives to provide excellent, holistic care to every survivor at each touchpoint. As always, we are here for our cancer survivors at every step and across the continuum of care, from diagnosis into post-treatment.

Legacy Cancer Healing Center

By Niani Dunner, MPH; coordinator, Legacy Cancer Healing Center

The Legacy Cancer Healing Center is the umbrella under which many support services reside for gynecological cancer patients and their families. In



addition to world-class medical care, patients have a range of services available to them to assist with the physical, emotional and practical issues of receiving a gynecological cancer diagnosis followed by subsequent treatment. Our

comprehensive services are offered both virtually and in-person; before, during and after treatment; and well into survivorship. In 2022, we were pleased to open a dedicated Cancer Healing Center clinic space at the Legacy Salmon Creek Medical Center campus. This move expanded our ability to reach patients in their home community.

The Healing Center provides a comprehensive menu of group-based offerings, as well as individualized services provided by experienced, cancer-trained practitioners.

Licensed clinical social workers help address practical and logistical barriers to cancer treatment, provide emotional support and help patients link to internal and external resources. They assess individual needs and connect patients and families to resources, including mental health counseling, financial assistance, transportation to-and-from treatment, home health or long-term care and more. Our social workers have extra training and certifications to address the multifaceted needs of oncology patients, including those going through gynecological cancer treatment and recovery.

Oncology certified dietitians offer individual consultations in nutritional counseling, as well as group nutrition classes. They help assess and address individuals' barriers to eating, drinking, digesting and absorbing nutrients, heading off treatment delay or disruption and ensuring that gynecological patients maintain a healthy weight throughout treatment. Post-treatment nutrition counseling and classes offer nutrition

recommendations with ongoing symptom management, education on dietary modifications and the latest research on anti-cancer foods and popular diets.

Oncology art therapists help patients integrate artistic expression in the healing process to promote emotional, mental and physical well-being. Art therapy focuses on the art making process as a form of therapy and a way to lower stress, decrease depression, anxiety and isolation, while also promoting coping skills, resilience and quality of life. They use art mediums to address a patient's and their loved ones' issues related to mortality, grief and loss. Legacy offers oncology patients art-based groups, individual sessions and family sessions.

Oncology pharmacy navigators assist patients by ensuring medication lists are accurate and up to date. Support is given to patients so they understand medication side effects and the strategies to manage them. They also provide coaching, medicine calendars and pillboxes to increase self-efficacy of medication adherence. Patients are also aided in dealing with navigating co-pays and costs associated with pharmaceuticals; researching cost savings through grants and other means.

Our **stress management coordinator** provides an extra layer of physical, emotional and informational support and comfort, particularly for gynecologic patients during brachytherapy radiation treatments. They help patients feel more relaxed and calm, with less need for medications, and help the patient feel empowered to communicate their needs with the medical team.

Our **integrative nurse practitioner** offers patients holistic assessment and symptom management throughout active treatment and into survivorship. (See p. 18.)

An **oncology psychologist** provides emotional support and strategies for coping with the cancer experience. (See p. 19.)

Green Gables Guest House, on the campus of Legacy Good Samaritan Medical Center, provides lodging for cancer patients and families from out

of the area receiving treatment at Legacy. Out-of-town patients and their families can utilize this convenient home away from home, located directly across the street from Legacy Cancer Institute.

Cancer support groups, classes and events help patients socially, emotionally and physically as they adapt to their cancer diagnosis, treatment and survivorship. In addition to oncology nutrition and art therapy classes, we offer weekly exercise groups, including yoga, t'ai chi/qigong and pilates. Two support groups specifically serve the gynecological cancer population: the Gynecological

Cancer Support Group and Women's Metastatic and Advanced Cancer Support Group. Both meet monthly.

Two events — "Taking Care of You in 2022: A Workshop Series for Cancer Survivors" and "Female Sexual Health and Intimacy Issues After Cancer" — were special events held for the first time in 2022 and were hugely popular with our patients.

2022 also marked the year we safely transitioned a few of our programs back to in-person participation after being entirely virtual during the COVID-19 pandemic. We now offer a mix of both.

Quality Care and Patient Outcomes

By Mindy Ansteth, BS, CTR, CPHQ; manager, cancer data management & quality improvement consultant, Legacy Cancer Institute

Quality care can be defined in many ways. At Legacy Cancer Institute (LCI), it is defined as safe, effective, people-centered, timely, equitable,



integrated and efficient care.

A cornerstone of the LCI quality structure is a long-standing quality accreditation with the American College of Surgeons (ACoS) Commission on Cancer (CoC). This accreditation recognizes cancer programs for their

commitment to providing comprehensive, high-quality and multidisciplinary patient-centered care. For more than 25 years, LCI has maintained CoC Accreditation to demonstrate to patients, communities and providers that LCI invests in systems and people to deliver high-quality, coordinated care — from prevention and screening to cancer diagnosis, treatment and survivorship. Patients and families can expect the same high-quality care across all LCI locations.

One of the many benefits of CoC accreditation is access to the CoC National Cancer Database (NCDB). The database is a national, clinical cancer registry system with more than 44 million de-identified cancer cases diagnosed since 1985. The NCDB is one of many tools used at LCI to explore trends in

cancer care, identify areas for quality improvement, and to compare our performance to state, regional and national benchmarks. Table 5 (*see p. 26*) provides just one example of how LCI consistently performs among the nation's best cancer programs for quality.

Quality improvement dashboards also drive our quality improvement efforts forward by monitoring key performance indicators reflecting the most current evidence-based treatment guidelines or national best practices. Indicators are retired and replaced when the performance benchmark becomes part of standard practice. A gynecology oncology quality dashboard benchmarks LCI's performance against national best practice and identifies variation in care across Legacy hospitals and physicians for continuous quality improvement.

Quality studies also identify quality improvement initiatives each year. LCI studies are often published in medical journals, presented at national conferences, or are part of larger national studies.

In 2022, LCI participated in the national Just Ask Quality Improvement Project & Clinical Study sponsored by the CoC to increase and improve the integration of patient smoking assessment as a standard of care. Nationally, assessment of current smoking is not universally performed for all newly

diagnosed cancer patients, and many patients do not receive assistance with quitting. The study provided insight into how smoking status and cessation support can be streamlined and improved.

LCI also participated in the Patient Reported Observations on Medical Procedures Timeliness (PROMPT) Quality Improvement Study, sponsored by the National Accreditation Program for Breast Centers (NAPBC). Participation in this national study provided valuable insight into:

- The patient perspective on timeliness of breast cancer diagnosis and first course treatment.
- How timeliness of breast cancer diagnosis and first treatment varies nationally and the impact of the pandemic on the timeliness of care.
- Quality improvement opportunities for Phase II of the study to implement in 2023.

LCI is committed to improving and advancing patient care, outcomes and quality of life through continuous quality and process improvement.

TABLE 5 2020 National Cancer Database Performance Measures vs Commission on Cancer (CoC) Accredited Programs

Primary Site	Measure	Definition	LCI Performance	All CoC Program Performance
Breast	BCSdx	First therapeutic breast surgery in a non-neoadjuvant setting is performed within 60 days of diagnosis for patients with AJCC clinical stage I–III breast cancer	83%*	83%
	BCSRT	Radiation therapy is administered within one year (365 days) of diagnosis for women under age 70 receiving breast conserving surgery for breast cancer	91%	91%
	MAC	Combination chemotherapy or chemo-immunotherapy (if HER2 positive) is recommended or administered within 4 months (120 days) of diagnosis for women under 70 with AJCC T1cN0M0, or stage IB - III hormone receptor negative breast cancer	98%	91%
Colon	ACT	Adjuvant chemotherapy is recommended or administered within 4 months (120 days) of diagnosis for patients under the age of 80 with AJCC Stage III (lymph node positive) colon cancer	95%	84%
	C12RLN	At least 12 regional lymph nodes are removed and pathologically examined for resected colon cancer	96%	94%
Lung	LCT	Systemic chemotherapy is administered within four months to day preoperatively or day of surgery to six months postoperatively or it is recommended for surgically resected cases with pathologic, lymph node-positive (pN1) and (pN2) NSCLC	100%	91%
Melanoma	MadjRx	Melanoma adjuvant systemic therapy was administered within six months of surgery or recommended for eligible patients with Stage IIIB–D resected melanoma	100%	83%
Rectum	RECRTC	Preoperative chemo and radiation are administered for clinical AJCC T3N0, T4N0, or Stage III, Or postoperative chemo and radiation are administered within 180 days of diagnosis for clinical AJCC T1-2N0 with pathologic AJCC T3N0, T4N0, or Stage III, Or treatment is recommended. For patients under the age of 80 receiving resection for rectal cancer	94%	87%

*Short course hormone therapy (not considered neoadjuvant treatment) extends time to first therapeutic breast surgery.

*Most current data published by the CoC National Cancer Database (NCDB).

Legacy Cancer Data Management

By Katie Fulcher, CTR; certified tumor registrar, Legacy Cancer Data Management

The Cancer Data Management (CDM) team is a cornerstone of Legacy Cancer Institute (LCI). This specialized team of oncology data specialists are



responsible for collecting, analyzing and reporting data for all newly diagnosed cancer patients diagnosed or treated at LCI. That includes survivors as well.

With cancer ranking as the second most common cause of death for both female and male populations in the United States, the data collected, analyzed and reported by CDM professionals across the country is used by researchers, health care providers, administrators, public health officials and accrediting bodies to improve patient care, outcomes and quality of life.

Ongoing education for the CDM team is required to remain current in the rapidly advancing field of oncology. For example, molecular and genetic advancements are playing increasingly larger roles in oncology prevention, diagnosis and treatment. Hundreds of data fields, both straightforward and complex, are collected, abstracted and reported for every new patient diagnosed or treated at LCI. Each data field collected is defined with very specific coding rules to ensure the consistency and accuracy of the same data collected across the country.

As part of Legacy's cancer program accreditation with the American College of Surgeons, Commission on Cancer (CoC), the CDM team submits data yearly to the CoC's National Call for Data. In 2022, the team submitted all cases on time and error-free, and maintained a 96% accuracy rate on all internally audited cases following the department's quality control and assurance plan. A 95% yearly patient follow-up rate for cancer survivors was also achieved, exceeding the required performance benchmark required to maintain CoC Accreditation..

The CDM team also participates in the CoC Rapid Cancer Reporting System (RCRS) by submitting all new cases for specific tumor sites monthly, as well as updates to previously submitted cases for diagnosis, staging, treatment and demographic data. RCRS supports expedited and concurrent data abstraction to identify quality issues sooner rather than later, and to identify patients who may be at risk of not receiving the recommended evidence-based treatment.

The field of cancer data management is one of rapid change and adaptability, which is required to keep pace with the advances in oncology treatment and technology. The LCI CDM team embraces the change and is proud to play an important role in the fight against cancer.

Community Involvement 2022

Prevention and screening education and activities

Just ASK Quality Improvement Project: Sponsored by the American College of Surgeons Commission on Cancer

RAVE Project — Rural Adolescent Vaccine Enterprise: Partnership with Oregon Rural Practice-Based Research Network (OPRN) and American Cancer Society for prevention of HPV-caused precancerous changes in the cervix, penis, anus and oral cavity

Women's Cancer Prevention Educational Series (three virtual workshops held for the public, each focused on breast and gynecologic cancers)

Ongoing

Lung cancer screening program for high-risk Individuals
Tobacco cessation counseling for those in lung screening program

High Risk and Genetics Clinic for cancer risk assessments, genetic counseling, preventative care and early cancer detection for high-risk individuals

Cancer patient care conferences (tumor boards)

Brain/CNS tumors (Legacy Good Samaritan Medical Center)

Breast care (Legacy Good Samaritan Medical Center, Legacy Meridian Park Medical Center, Legacy Mount Hood Medical Center and Legacy Salmon Creek Medical Center)

Breast cancer radiology/pathology correlation (Legacy Good Samaritan Medical Center)

Gastrointestinal tumors (Legacy Health)

General cancer conference (Legacy Meridian Park Medical Center, Legacy Mount Hood Medical Center, Legacy Salmon Creek Medical Center and Legacy Silverton Medical Center)

Gynecologic cancers (Legacy Good Samaritan Medical Center)

Head and neck tumors (Legacy Good Samaritan Medical Center)

Metastatic breast care (Legacy Good Samaritan Medical Center)

Pediatric oncology (Randall Children's Hospital)

Thoracic tumors (Legacy Health)

Urologic/prostate tumors (Legacy Good Samaritan Medical Center)

Groups, classes, and events for cancer patients offered in 2022

Support groups

Gynecological Cancer Support Group

Women's Metastatic and Advanced Cancer Support Group

Brain Tumor Support Group

Breast Cancer Support Groups

Head and Neck Cancer Support Group

Prostate Cancer Support Group

Movement classes

Yoga with Patti

Yoga with Addie

Pilates with Martha

T'ai Chi and Qi Gong with Wendy

Art therapy groups

Finding Center: Art for Mindfulness and Stress Reduction

Virtual Open Art Studio

Words for Healing: Monthly Writing Series

Returning to Self: Exploring Grief and Resilience Through the Creative Process

Summer Art Therapy Workshops

The Art of Grief

Special events

Taking Care of You in 2022: A Workshop Series for Cancer Survivors

Female Sexual Health and Intimacy Issues After Cancer

Yoga Nidra for Deep Relaxation

Cultivating Courage: An Empowering Series for Cancer Survivors

Cancer Superfoods: Eating with the Season

Cancer and Genetic Testing

Outreach via social media

Legacy's Community Relations and Marketing Department is an important partner with the cancer program. Together, we are reaching the community through social media messaging, website content and banners and targeted direct mail. Facebook posts — often related to cancer awareness months — aim to engage and motivate readers toward healthy behaviors.

Legacy Cancer Institute Integrated Network Cancer Committee Members 2022

Eric Anderson, MD, PhD; medical oncologist, OHSU Knight Cancer Institute, Northwest Portland

Mindy Ansteth, BS, CTR, CPHQ; manager, cancer data management and quality improvement consultant, Legacy Cancer Institute

Sally Bowman; pastoral care, Legacy Good Samaritan Medical Center

Sara Butler, MSW, LCSW, OSW-C; oncology social worker, Legacy Cancer Institute

Allen Cheng, MD, DDS; oral/head & neck surgeon, medical director Legacy Head & Neck Cancer Program

Laurie Christensen, RN, OCN; oncology nurse navigator, Legacy Cancer Institute

Alison Clarke, DO; palliative care physician, Legacy Medical Group–Palliative Care

Dawn Cox, CTR; supervisor, cancer data management, Legacy Cancer Institute

Maryam Farinola, MD; anatomic and clinical pathologist, medical director, anatomic pathology, Cascade Pathology

Sam Gruner, MD; interventional and diagnostic radiologist, Diagnostic Imaging NW, Legacy Good Samaritan Medical Center

Nathalie Johnson, MD, FACS; breast surgical oncologist, medical director, Legacy Cancer Institute and Legacy Breast Health Centers

Carly Jones, MSN, RN, OCN; oncology nursing & practice specialist, Legacy Cancer Institute

Pam Kilmurray; director, Legacy Cancer Service Line, Legacy Breast Health Centers and Legacy Hospice

Marci Reed, LD, CSO, RD; oncology dietician, Legacy Cancer Institute

Kelly Rice, PharmD; oncology pharmacy navigator, Legacy Cancer Institute

Rosa Rivera, MSN, RN, CPN, BMTN, nurse manager, Infusion & Medical Oncology Services, Legacy Cancer Institute

Alizah Rotramel, MD, FACS; colorectal surgeon, Legacy Medical Group–Colon and Rectal Surgery

Karen Savereide, DPT; manager outpatient rehab, acute rehab, and vestibular & audiology testing, Legacy Cancer Institute

Mark Schray, MD; radiation oncologist; medical director, Legacy Medical Group–Radiation Oncology

Leslie Sorenson, CCRP; manager, oncology research, genetics, autologous stem cell transplant, high risk, oncology psychology, and lung cancer screening program, Legacy Cancer Institute

Therese Tuohy, PhD, CGC; certified genetics counselor, Legacy Cancer Institute

Subcommittees of the Integrated Network Cancer Committee

Cancer Data Management Quality Committee

Cancer/Public Professional Education and Marketing Council

Cancer Program and Quality Committees

Brain and Spinal Tumor Program Committee

Breast Program Leadership Committees at Legacy Good Samaritan, Legacy Meridian Park, Legacy Mount Hood and Legacy Salmon Creek medical centers

Center for Colorectal Cancer at Legacy Good Samaritan Medical Center

Colorectal Cancer System-Wide Quality and Operations Meeting

Gynecologic Oncology Program Development

Oral, Head and Neck Program Planning

Hospice Quality (QAPI)

Lung Cancer Screening

Radiation Oncology Quality Committee

Thoracic Program Development

Honors and Accreditations 2022



Legacy Health ranked among the nation's best cancer programs, according to the American College of Surgeons' (ACoS) Commission on Cancer, a respected authority on cancer care. The commission also awarded Legacy's cancer program its Outstanding Achievement Award in the last four accreditation surveys.



Legacy Cancer Institute was the first in the United States to receive Network Cancer Program accreditation from the ACoS. Patients can receive the same award-winning care at any of our campuses, closer to home.

The Legacy Breast Health Centers at Legacy Good Samaritan, Legacy Meridian Park, Legacy Mount Hood and Legacy Salmon Creek medical centers earned the prestigious accreditation for excellence in the care of patients with breast cancer and benign breast disease from the American College of Surgeons' National Accreditation Program for Breast Centers (NAPBC).



In addition, the Legacy Breast Health Centers at Legacy Good Samaritan, Meridian Park, Mount Hood and Salmon Creek medical centers were designated Breast Imaging Centers of Excellence by the American College of Radiology. To achieve this distinction, a facility's imaging services had to be fully ACR-accredited in mammography, stereotactic breast biopsy, breast ultrasound and ultrasound-guided breast biopsy.



Legacy Cancer Institute was one of only three nationally accredited blood and bone marrow transplant providers in Oregon. Learn more about FACT, the Foundation for the Accreditation of Cellular Therapy, which evaluates programs nationwide.



Legacy Medical Group—Radiation Oncology at Legacy Good Samaritan, Legacy Mount Hood and Legacy Salmon Creek medical centers was accredited by the American College of Radiology (ACR) Radiation Oncology Practice Accreditation (ROPA) program. Legacy Health's radiation oncology staff, equipment, treatment planning and treatment records, as well as patient-safety policies and quality control/quality assessment activities were assessed to maintain ROPA accreditation. ACR accreditation provides Legacy's radiation oncologists with valuable third-party, impartial peer review and evaluation of patient care.



Legacy's lung cancer screening program at Legacy Good Samaritan Medical Center was accredited by the American College of Radiology (ACR) as an ACR Designated Lung Cancer Screening Center. To achieve this designation, Legacy's lung cancer screening program had to maintain active ACR CT Accreditation in the ACR Chest Module and meet very specific requirements related to the screening population, staff qualifications, the ACR Lung Reporting and Data System (Lung-RADS), patient smoking cessation, CT equipment, quality control and imaging protocol.



Legacy Laboratory Services and Legacy Tumor Bank achieved College of American Pathologists (CAP) accreditation, which ensures high standards for quality and consistency in collecting, processing and storing tumor specimens.



Legacy Oncology Clinical Research received approval for NRG Oncology research group main membership.



Legacy Oncology Clinical Research was recognized by National Cancer Institute leadership as a high-performing site based on accrual.

Legacy Cancer Institute

503-413-8050

legacyhealth.org/cancer

