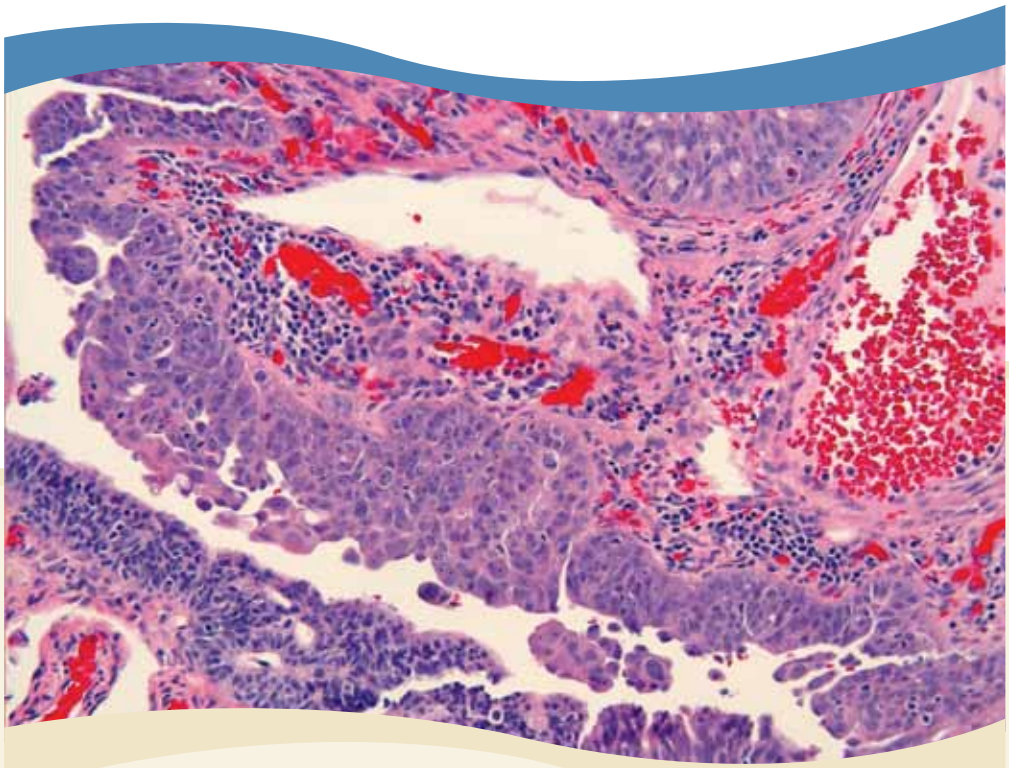
Legacy Cancer Institute Annual Report 2010

Women's Cancers



Legacy Cancer Institute

LEGACY
HEALTH

Cancer Annual Report 2010

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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 www.legacyhealth.org/giving.

The image on the cover is an example of a serous tubal intraepithelial carcinoma (STIC). Hematoxylin and eosin (H&E) stain shows a discrete papillary growth of STIC without evidence of stromal invasion.

A toast to 2010 — the year of the ladies

By Nathalie Johnson, M.D., FACS, medical director, Legacy Cancer Institute and Breast Health Centers

The year 2010 was a banner year at Legacy Cancer Services. So many major accomplishments occurred during the past year that it is really hard to know where to begin. This year we took the care for women with cancer to a new level. The physicians and staff have such a deep commitment to offering our patients the highest quality of care in a compassionate fashion and you will feel the passion borne out as you read this annual report. We chose to look at all our female cancers so that we could paint the beautiful Rembrandt that is Legacy cancer care — from diagnosis to survivorship.

Robotic surgery for gynecologic tumors has become standard. Of course not all tumors are amenable to this approach, but when feasible it offers speedy recovery and decreased incisional pain. We have been a leader in robotics and offer courses at our research facility where physicians can hone their skills in the lab.

Gynecologic Oncology Group (GOG) accrued 32 patients to clinical research trials.

Radiation oncology is one of our banner programs, particularly in the area of women's cancer. The Good Samaritan site was the first to offer high dose rate remote afterloader (HDR) brachytherapy for endometrial, cervical and ovarian cancers in 1991, was the only one in the state until 1998, and was the only one in Portland until approximately 2004. We were also the first to offer partial breast irradiation (PBI) in 2003, and are still the only site in Oregon offering several forms of PBI, from interstitial catheters and balloons to the 3D conformal option. Our radiation oncology group recently received American Society of Therapeutic Radiation Oncology (ASTRO) site approval for clinical trials.

National Accreditation Program for Breast Centers (NAPBC) reviewed all of our breast centers (Legacy Good Samaritan, Legacy Meridian Park, Legacy Salmon Creek) and screening sites (Legacy Emanuel, Legacy Mount Hood and Legacy Medical Group–St. Helens). We were the first approved system in Oregon and the second in the nation. To accomplish this honor requires meeting the highest standards of care in not only imaging, but in pathology and all the oncologic specialties, and having top-notch support services. We are also excited because in 2011 we plan to move Legacy Mount Hood screening into a new, dedicated space.

CoC Outstanding Program Award (Commission on Cancer, American College of Surgeons Accredited Cancer Programs) was received by Legacy Cancer Services. The ACS accredits about 1,500 cancer programs nationwide. We earned this award because during the survey we received commendations in seven standards representing six areas of program activity: cancer committee leadership, cancer data management, clinical management, research, community outreach and quality improvement. This places us in the top 17 percent of programs nationally and in the company of much larger cancer centers.

New metastatic program — We are working on a new and coordinated approach to metastatic disease. We are starting a multidisciplinary metastatic cancer conference to help us offer new and multifaceted approaches for patients who need more than chemotherapy.

In closing, I want to give kudos to our staff and physicians and recognize the care they provide every day. So, hear, hear, to our patients and the future!

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Comprehensive cancer services

Legacy Cancer Services is accredited as a Network Cancer Program by the American College of Surgeons Commission on Cancer and is the first program in the United States to receive this distinction. We are still the only accredited network cancer program in Oregon, and one of two in Washington.

Legacy Cancer Services and its affiliated physicians provide high-quality, compassionate and cost-effective care to both adult and pediatric patients. We offer a full range of treatment modalities as well as multidisciplinary services designed to help patients and their families through screening, diagnosis, treatment of and recovery from their cancer.

Advanced cancer care is provided throughout Legacy Health, with additional cancer care and support services at Legacy Good Samaritan Medical Center. From prevention, screenings and early detection through treatment, support services and survivorship to palliative care and hospice — Legacy covers the entire spectrum of cancer care.

The following services comprise the cancer program.

American Cancer Society Gift Closet

In collaboration with the American Cancer Society, Legacy offers wigs, hats, scarves and prostheses at no charge to patients. The Gift Closet is located at Legacy Good Samaritan Medical Center.

Autologous Blood Stem Cell Transplant

Autologous (meaning from one's own) blood stem cell transplantation is performed at Legacy Good Samaritan Medical Center; this program is nationally accredited by the Foundation for the Accreditation of Cellular Therapy (FACT). Physicians, nurses and other health care team members are specially trained to provide high-quality, personalized care to patients and families undergoing this intensive form of cancer treatment. Patients with specific malignancies, including non-Hodgkin's lymphoma, Hodgkin's disease, acute leukemia, multiple myeloma, germ cell tumors and primary amyloidosis, may benefit from autologous transplantation.

- Northwest Marrow Transplant Program (NWMTP) — Legacy Health and Oregon Health & Science University joined their clinical and research activities related to blood and bone marrow transplant to form the Northwest Marrow Transplant Program, which is dedicated to enhancing patient care and conducting research in marrow and stem cell transplantation.
- Marrow and blood stem cell donation — Legacy Good Samaritan Medical Center has served as a collection center for the National Marrow Donor Program (NMDP) since 1995. Healthy individuals who have volunteered to donate bone marrow or blood stem cells to a designated recipient undergo collection of these cells as an outpatient. Bone marrow donation is performed in the operating room under general anesthesia. Blood cell donation is performed after four days of stem cell "priming" medication, whereupon these cells are collected from the bloodstream by an apheresis machine. Life-saving marrow or stem cells are then transported to the recipient, who may be undergoing treatment either in the U.S. or in another country.

Brain and Spinal Cord Tumor Services

Legacy's Brain and Spinal Cord Tumor Services offers state-of-the-art technology and comprehensive resources for adults and children, delivered in a compassionate manner. Our network of specialized physicians, coupled with our support services, provides a full spectrum of care. Legacy offers the most sophisticated cancer treatment available for surgery, chemotherapy and radiation, including Novalis shaped beam surgery, intensity modulated radiation therapy (IMRT) and image-guided radiation therapy (IGRT). The program includes components of the Legacy Rehabilitation Institute of Oregon (RIO), Legacy Research Institute, the Oregon Comprehensive Epilepsy Program and the Children's Cancer Program, and holds a monthly multidisciplinary CNS Cancer Conference. The brain tumor support group is also a vital resource to many patients.

Breast Cancer Program

Legacy's breast cancer program has been recognized as a Network Breast Health Program by the National Accreditation Program for Breast Centers (NAPBC), administered by the American College of Surgeons. The program provides the full range of services for breast health and breast cancer, including screening and diagnostic technologies at our Breast Health Centers, oncology nurse navigation, multidisciplinary breast care conferences, surgical oncology, reconstructive services, chemotherapy, radiation therapy, clinical trials and research, genetic counseling and testing, and lymphedema management. Our breast cancer support groups and movement classes and the survivorship program are important components of this program.

Cancer Care Conferences/Tumor Boards

Cancer care conferences offer the multidisciplinary team an opportunity to discuss an individual's diagnosis, pre-treatment evaluation, staging, treatment strategy and rehabilitation goals for a broad spectrum of cancer cases, utilizing national standards. Physicians present current cases for discussion. These conferences also provide education for medical staff, residents and allied health care providers. In addition to general cancer conferences, Legacy offers a regular schedule of specialty conferences for the following tumors: breast, central nervous system, gastrointestinal, gynecologic, head and neck, hematologic, hepatocellular carcinoma, metastatic breast, pediatric, prostate/urologic and thoracic malignancies. Monthly oncology grand rounds are also offered.

Cancer Care Unit

The Cancer Care Unit on the Legacy Good Samaritan Medical Center campus is the focused medical/surgical cancer inpatient unit for Legacy Health. The specially trained staff on the Cancer Care Unit provides state-of-the-art clinical treatments, thorough patient education and family support, while delivering compassionate care. The unit has 20 beds; most rooms are private with a shower. This includes six rooms for autologous blood stem cell transplant, the John Stanwood Family Room and two Comfort Care Suites designed to care for inpatients with a terminal illness.

Cancer Data Management/Cancer Registry

Cancer Data Management employs a team of registrars to collect data on every patient diagnosed with cancer and/or initially treated in the Legacy system. Their responsibilities include case identification; data collection systems; lifetime follow-up of cancer patients; submission of data to the National Cancer Data Base (NCDB), the Oregon State Cancer Registry (OSCaR)

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and the Washington State Cancer Registry (WSCR); quality monitoring of registry data, and responding to data requests. Data collected by the registrars are vital to Legacy's ACS-accredited Network Cancer Program.

Cancer Prevention and Early Detection

Legacy Cancer Services staff plays an active role in community education by providing information on cancer prevention and early detection at community events, health fairs and upon request. Periodically, free or low-cost cancer screenings are offered, often in conjunction with other community organizations.

Cancer Rehabilitation Services

Cancer rehabilitation team members help individuals and their families adjust to the impact of cancer through:

- Lymphedema management — treats swelling of the arm, leg or other body part caused by an abnormal build-up of protein and excess water in the tissue space. The goals of this therapy are to reduce swelling, minimize recurrence, decrease pain and discomfort, provide education and minimize psychological distress. The services are provided by nationally certified and trained physical and occupational therapists.
- Occupational therapy — educates and assists in the adjustment to possible limitations of endurance, self-care skills or other activities of daily living.
- Physical therapy — maximizes the level of independence within the limits of an individual's disability and illness through exercise, ambulation, assessment of equipment needs, family training and assistance with pain management.
- Speech therapy — provides instruction, training and therapy for those with speech, swallowing and communication difficulties.

Children's Cancer and Blood Disorders Program

The experts who staff the Children's Cancer and Blood Disorders Program at Randall Children's Hospital at Legacy Emanuel (formerly known as The Children's Hospital) have been specially trained in caring for children and adolescents with cancer. Focusing on family-centered treatment and the cure of childhood cancers, our inpatient and outpatient oncology teams provide medical management, family education, help with reintegration into the community and long-term follow-up care. Patients have access to the most up-to-date and progressive treatments through participation in the Children's Oncology Group, a national consortium of children's hospitals that treat cancer. Services include chemotherapy, radiation therapy, comprehensive nursing services, home infusion/nursing services, pediatric surgery, pediatric neurosurgery, an intensive care unit, pediatric subspecialty support and hospice.

Colorectal Cancer Program

The Center for Colorectal Cancer at Legacy Good Samaritan and colorectal cancer services at Legacy Meridian Park bring together a full range of specialists to offer a comprehensive team approach to the prevention and treatment of colon and rectal cancers. With the latest in screening, diagnosis, treatment, recovery and support services, we provide individualized, up-to-date and compassionate care. Oncology nurse navigators guide, support and educate patients as they move through their cancer experience. Complex cases are presented twice a month at the Cancer Care conferences. Participation in clinical trials and genetic counseling services are also important elements of the program.

Day Treatment/Infusion Clinics

The Day Treatment/Infusion Clinics are located at all five Legacy medical centers. They provide chemotherapy, blood products, antibiotics and other infusions, allowing patients to maintain independent lifestyles and avoid unnecessary hospitalization. Line placement and education, including PICC (peripherally inserted central catheter), are also offered. A physician referral is required. The clinic locations at the medical centers allow convenient access to pharmacy, laboratory, X-ray and other support services.

End-of-life care/Legacy Hospice Services/Legacy Hopewell House Hospice

Hospice is a program that focuses on quality of life for adults and children with a terminal illness. Care is provided in the patient's place of residence at their home, assisted living or care facility. Legacy Hopewell House Hospice is licensed as a specialty hospital. Hospice patients needing acute pain and other symptom management have found Legacy Hopewell House Hospice to be the next best thing to home. Regardless of where the care is provided, hospice focuses on providing a full range of physical, emotional, social and spiritual comfort to both the patient and family. The interdisciplinary care team consists of the medical director, registered nurses, medical social workers, home health aides, physical therapy, occupational therapy, spiritual care services, pharmacist, dietitian, music thanatologist and volunteers. Bereavement support is provided to family/significant others of the deceased for 13 months following the death of the patient.

Green Gables Guest House

Green Gables Guest House, on the Legacy Good Samaritan Medical Center campus, provides affordable lodging for out-of-town Legacy patients and their families. The house accommodates up to 10 people; guests may stay as long as they are receiving treatment. Hospitable and caring volunteers help make the house seem like home-away-from-home for its guests.

Hepatic, Biliary and Pancreatic Program

Legacy Good Samaritan Medical Center offers a full range of treatment options for liver, bile duct and pancreas tumors, including tumor resection, radiofrequency ablation, catheter-directed therapies for liver tumors (such as drug-eluting beads and yttrium-90) and advanced radiation therapies. The primary goal is to improve the survival and quality of life for patients. The hepatic, biliary and pancreatic program is a collaboration between cancer services, medical and surgical oncology, gastroenterology, radiation oncology and interventional radiology. Components include active clinical research, oncology nurse navigation and support services, education programs for physicians and a monthly patient care conference for hepatocellular carcinoma.

Legacy Breast Health Centers

The American College of Radiology (ACR) accredits Legacy's Breast Health Centers at Good Samaritan, Meridian Park and Salmon Creek as Breast Imaging Centers of Excellence. Legacy Breast Health Centers offer women comprehensive, compassionate and personalized care — all in one convenient location. They provide expertise in screening and diagnostic mammograms, breast ultrasound and breast biopsies. Convenient mammography services are also available at Legacy Emanuel, Legacy Mount Hood and the Legacy Medical Group–St. Helens, and digital mammography is available at all Legacy sites. The R2 ImageChecker provides a computerized double-check of breast X-ray images to assist radiologists in reviewing mammograms. If changes in the breast are seen on a screening

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mammogram, it is important that further diagnostic tests occur promptly. Breast-specific gamma imaging (BSGI), a molecular breast imaging technique, is available at Legacy Good Samaritan Medical Center. It is a complementary diagnostic procedure to mammography and ultrasound for difficult-to-diagnose patients, such as those with dense breast tissue, previous surgical scarring or palpable lumps without positive mammography. Legacy's Breast Health Centers each have a multidisciplinary team available, including radiologists, surgeons, nurses, technologists and counselors. Legacy Breast Health Center nurses help guide women through the diagnostic process by providing necessary support, education and answers to questions or concerns.

Legacy Cancer Healing Center

Legacy Cancer Healing Center incorporates integrative cancer care and support services to provide holistic care that helps individuals and their families adjust to the impact of cancer through evidence-based complementary therapies. The program offers:

- Adult nurse practitioner (ANP) — provides individual assessment and follow-up to achieve optimum wellness during cancer treatment and through survivorship. For those interested in integrative care, our nurse practitioner can provide some services directly and can refer to providers at Legacy Health and the larger community for a full personalized integrative care plan.
- Dietitian — provides guidance in achieving a healthy lifestyle through individualized nutritional counseling and community presentations.
- Expressive art therapist — uses various artistic media to assist patients in expressing themselves through creative as well as verbal avenues. Art therapy assists adults and offers individual and group counseling to children of ill parents, specializing in addressing anticipatory grief issues for school-age children and adolescents.
- Legacy's Healing Gardens — therapeutic gardens accessible to patients and families for renewal and reflection.
- Massage therapist — applies a range of therapeutic treatments, including manual massage therapy, to positively affect the individual's health and well-being.
- Medical social worker — addresses emotional, social and financial needs and coordinates community services and resources.
- Movement classes (Nia, t'ai chi and yoga) — increase mobility, flexibility and endurance, while providing support and enhancing quality of life.
- Music for healing — music for relaxation, distraction and comfort for patients and families in the Legacy Good Samaritan Cancer Care Unit, provided by volunteers.
- Music thanatology — a palliative music practice for end-of-life care. Harp and voice address discomfort and suffering with the therapeutic qualities of music at the bedside.
- Psychosocial counselor — identifies emotional needs and adjustment issues, and assists in the development of coping skills.
- Stress management therapist — assists in an individual's adjustment to illness, disability and treatment through life planning, relaxation training and guided imagery.

Legacy Genetics Services

Cancer genetic counseling and risk assessment provide information on the genetic component of cancer and an analysis of family history. Individuals with a diagnosis or a strong family history of colon, breast, ovarian and other cancers may wish to pursue a genetic consultation. A cancer genetic consultation provides an evaluation of personal and family cancer history, education about the inherited components of cancer, identification of cancer syndromes and, if appropriate, genetic testing. Also offered are pre-symptomatic detection, development of personalized screening recommendations and discussion of prevention strategies.

Oncology Clinical Research

Legacy is proud to be able to offer our patients the latest in technology, innovation and treatment through our clinical research. Legacy Oncology Research participates in a variety of oncology clinical trials, including those sponsored by industry, investigator-initiated trials supported by Legacy Health Foundations, and national cancer research organizations. National research group affiliations are established with the following organizations:

- American College of Radiology Imaging Network (ACRIN)
- American College of Surgeons Oncology Group (ACoSOG)
- Cancer and Leukemia Group B (CALGB)
- Children's Oncology Group (COG)
- Eastern Cooperative Oncology Group (ECOG)
- Gynecologic Oncology Group (GOG)
- M.D. Anderson Cancer Center (MDACC)
- National Cancer Institute of Canada Clinical Trials Group (NCIC)
- National Surgical Adjuvant Breast and Bowel Project (NSABP)
- North Central Cancer Treatment Group (NCCTG)
- Northwest Marrow Transplant Program (NWMTP)
- Radiation Therapy Oncology Group (RTOG)
- Southwest Oncology Group (SWOG)

Oncology Nurse Navigator/American Cancer Society Patient Navigator

Legacy Good Samaritan and Legacy Meridian Park medical centers offer the services of oncology nurse navigators, who are registered nurses trained in cancer care, to help patients navigate through their cancer diagnosis and treatment. The oncology nurse navigator guides, supports and educates patients and their families and helps coordinate the efforts of the medical team. In addition, a patient navigator from the American Cancer Society works closely with our oncology nurse navigators, addressing other needs such as transportation, financial and physical issues, as well as linking patients with local, state and national resources.

Palliative Care Program

Palliative care is any form of medical care or treatment that concentrates on symptom management, pain relief and quality of life. Our specially trained, compassionate palliative care team may become involved at any stage of an illness. In addition to physical comfort, they help patients and families address emotional, spiritual and care planning issues. Hospice is often an important part of palliative care. Consultation with palliative care team members is available at all of Legacy's hospitals.

Prostate Cancer Program

The prostate cancer program at Legacy Good Samaritan Medical Center offers the latest in treatment and support services for men with prostate cancer. The field of robotic-assisted surgery has come to the forefront of urological surgery. Legacy Good Samaritan, with the highest volume of robotically

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performed prostate surgeries in Oregon, is proud to offer this treatment option in addition to standard surgical methods. Legacy Health also has a full range of radiation treatments for prostate cancer, including IMRT (intensity-modulated radiation therapy). And our prostate brachytherapy program, using radioactive seed implants, is the largest and most experienced in the region. To guide patients and their families through prostate cancer diagnosis and treatment, oncology nurse navigators provide a single point of contact, offering a full array of support and educational resources. A preoperative class is led by one of the nurse navigators in conjunction with a physical therapist. In addition, our physical therapists provide continence training as needed after surgery.

Radiation Oncology

Radiation oncology consists of the application of high energy X-rays or particles to the body for the purpose of treating disease, including cancer. Legacy Cancer Services provides radiation therapy at Legacy Good Samaritan, Legacy Mount Hood and Legacy Salmon Creek medical centers. The treatment process consists of consultation, treatment planning, ongoing clinical evaluation, education and support services. Several types of radiation therapy are available, depending on the needs of a specific patient:

- Brachytherapy — a form of radiation therapy in which radioactive materials are placed within the body in direct contact with the affected area. This allows more radiation to be given safely in conjunction with external radiation treatments, and in certain situations it can be used by itself in a much shorter and more convenient course of treatment. Cancer types in which brachytherapy is particularly useful are prostate, breast, gynecologic and soft tissue sarcomas. Legacy offers a full range of the most technologically advanced brachytherapy services and is the largest and most experienced program in the region.
- Conformal external beam therapy — uses computerized technology to map the tumor's location and optimize the radiation dose delivered to the tumor while minimizing side effects to the surrounding tissues.
- Image guided radiation therapy (IGRT) — an advancement in precision for targeting and treating tumors. The technology works by combining and integrating X-ray scanning with the use of precise radiation therapy during the actual time of treatment. This allows the radiation team to deliver the treatment with a high degree of accuracy while minimizing damage to the surrounding healthy tissue. IGRT may be used on many types of cancers and is especially suited for cancers of the prostate, head, neck and lung.
- Intensity modulated radiation therapy (IMRT) — a powerful tool that delivers radiation more accurately and effectively to tumors in the head, neck, prostate, chest and other locations. IMRT conforms the radiation beams to match the irregular shapes of tumors but also can change the shape of each beam and modulate the dose intensity during treatment.
- Novalis shaped beam surgery — an advanced form of radiosurgery treatment. The Novalis technology is "surgery without a scalpel" — shaping beams of radiation to mirror the exact size and shape of a tumor, treating only the tumor and sparing healthy tissue. The accuracy and reliability of Novalis allows its use on medically inoperable tumors in the spine, head and neck, lung, liver, breast, prostate and other areas in the body.

Ronald McDonald House

Ronald McDonald House on the Randall Children's Hospital at Legacy Emanuel campus provides lodging for families whose children are being treated in our facility.

Support and Education Groups

Support and education groups provide emotional support and ongoing education to individuals whose lives are touched by cancer. Some groups are open to family and friends, and are offered at a variety of times and locations. See the Legacy Cancer Institute website at www.legacyhealth.org/cancer for a current listing.

Surgical Expertise

Legacy Surgical Services offers comprehensive state-of-the-art surgical services at Legacy's five medical centers. Legacy Health's surgical capabilities comprise virtually every medical specialty and feature many of the region's preeminent surgeons. Programs in robotics (including prostate, gynecologic, gastrointestinal, and head and neck), bloodless surgery, minimally invasive surgery, reconstruction and pain management contribute to Legacy Health's reputation as a center of excellence.

Survivorship

Through the Legacy Cancer Healing Center, our nurse practitioner offers a personalized plan for essential follow-up care to promote long-term survival and quality of life. These services are available to individuals with all types and stages of cancer, providing a continuity of care and support throughout the course of treatment.

Tumor Bank

Legacy's oncology laboratory opened its Tumor Bank in April 2006. The bank collects and preserves tumor samples removed during surgery. Consent from patients is required before banking the tumor specimens. Researchers are studying the relationships between tumor characteristics, treatment alternatives and patient outcomes. Samples from the Tumor Bank have already led to several new, exciting discoveries in our research laboratories.

Volunteer Program

Legacy Cancer Services appreciates the support of an active and energetic volunteer staff. Volunteers assist with numerous rewarding activities such as helping with Survivors' Day, preparing mailings, making phone calls and performing receptionist tasks. Volunteers help keep Green Gables Guest House in ready condition for guests and provide them with support.

Wound and Ostomy Care

Legacy Wound and Ostomy Clinics have specially-trained R.N.s who address the physical, emotional and social issues of patients with wound or ostomy needs. These may include acute, chronic and draining wounds, fistulas, ostomies, stomas or urinary/fecal incontinence. They also assist with preoperative counseling and site marking, individualized treatment plans, ostomy appliance issues and prescriptions, patient education and coordination of home care services.

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Legacy Cancer Services' overview: Highlights from 2010

By R. Bryan Bell, M.D., DDS, FACS, chair, Legacy Network Cancer Committee

The goal of this report is to recognize the exceptional work in cancer care and research being conducted within Legacy Health and to pay tribute to the courage of cancer patients in general and to women who are afflicted with cancer in particular. It is my privilege to report another year has passed that witnessed the further maturation of Legacy Cancer Services, with accreditation of the Network Cancer Program and commendation by the American College of Surgeons (ACS) Commission of Cancer (CoC), the National Accreditation Program for Breast Centers (NAPBC) and the American College of Radiology (ACR). As if that wasn't enough, the year was highlighted by receipt of the ACS CoC Outstanding Achievement Award (OAA), the only health system in Oregon to achieve this honor.

The ACS Achievement Award came with commendations in the areas of outcomes analysis, abstracting timeframe, National Cancer Data Base (NCDB) quality criteria, College of American Pathologists (CAP) guidelines, clinical trial accrual, prevention and early detection, cancer education, and cancer-related quality improvements. Particularly notable was that 93 percent of cancer cases were fully abstracted within six months of presentation and 100 percent of pathology reports had synoptic reporting adherent to CAP guidelines.

The clinical programs continue to thrive, particularly the Children's Cancer and Blood Disorders Program, and our breast, colorectal, prostate and hepatobiliary programs. The newly formed survivorship program has increased referrals and has added a new dimension to cancer care beyond primary therapy.

Augmenting the clinical programs were various community and professional outreach events, including the 3rd Annual Issues Surrounding Prostate Event, the Komen Race for the Cure and Pink Sunday events, the 6th Annual Pacific Northwest Excellence in Breast Care Conference, and the John E. Stanwood Cancer Rehabilitation Lectureship.

Clinical trials are the major avenue for evaluating the benefits of new therapies. However, while Legacy Health does very well at recruiting children into clinical trails, a relatively small percentage of all adult cancer patients (aged 20 years and older) participate in clinical trials. It is important to increase physician and patient awareness of, and participation in, clinical trials if we are to examine new treatments, find more effective treatments more rapidly, and broaden the options available to patients.

For treatments already in use, trends in patterns of care have been examined for major cancers, including breast, colorectal, prostate, ovarian and head and neck cancers. Patterns of care at specific points in time, generally in relationship to the release of new guidance on care, have been documented for additional cancers, including cervical, endometrial, head and neck, non-Hodgkin's lymphoma and melanoma. These studies have been supported through the National Cancer Institute (NCI) Patterns of Care/Quality of Care and are endorsed by all Legacy site-specific tumor boards.

According to the NCI, research results, particularly on breast cancer treatment, have shown that the use of breast-conserving surgery increased markedly from 1992 to 2002. From 1998 to 2002 the proportion of women receiving breast-conserving surgery who also received radiation treatment declined modestly. The use of recommended adjuvant chemotherapy increased substantially from 1987 to 1995. However, the increase has slowed between 1995 and 2005. Women with node-positive breast cancer are less often given chemotherapy if they are aged 65 years or older.

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Legacy Health 2010 Primary Sites

	Emanuel		Good Samaritan		Meridian Park		Mount Hood		Salmon Creek		Legacy Health	
Primary Site	Patient count	Percentage of total	Patient count	Percentage of total	Patient count	Percentage of total	Patient count	Percentage of total	Patient count	Percentage of total	Patient count	Percentage of total
Ampula of vater			1	0.09%	1	0.2%					2	0.1%
Anal canal			4	0.3%	3	0.7%		0.0%			7	0.3%
Bladder	21	6.8%	29	2.5%	32	7.5%	17	8.9%	39	10.5%	138	5.6%
Bone/conn. tissue	3	1.0%	7	0.6%	5	1.2%	2	1.1%		0.0%	17	0.7%
Brain/CNS	37	12.1%	19	1.6%	9	2.1%	7	3.7%	9	2.4%	81	3.3%
Breast	5	1.6%	362	30.9%	76	17.8%	38	20.0%	67	18.1%	548	22.2%
Cervix uteri		0.0%	11	0.9%	2	0.5%		0.0%	2	0.5%	15	0.6%
Colon	9	2.9%	31	2.7%	49	11.5%	16	8.4%	30	8.1%	135	5.5%
Corpus uteri	5	1.6%	81	6.9%	9	2.1%	5	2.6%	3	0.8%	103	4.2%
Endocrine	7	2.3%		0.0%		0.0%		0.0%	1	0.3%	8	0.3%
Esophagus	2	0.7%	11	0.9%	3	0.7%	1	0.5%	4	1.1%	21	0.9%
Fallopian tube		0.0%	5	0.4%	1	0.2%		0.0%	1	0.8%	7	0.4%
Gallbladder		0.0%	1	0.1%	2	0.5%		0.0%		0.0%	3	0.1%
Hodgkin's disease	2	0.7%	1	0.1%		0.0%		0.0%		0.0%	3	0.1%
Kidney	11	3.6%	47	4.1%	15	3.5%	4	2.1%	16	4.3%	93	3.8%
Larynx	4	1.3%		0.0%	2	0.5%	4	2.1%	3	0.8%	13	0.5%
Leukemia	14	4.6%	8	0.7%	6	1.4%	1	0.5%	2	0.5%	31	1.3%
Lip/oral cavity	25	8.1%		0.0%	6	1.4%	5	2.6%	10	2.7%	46	1.9%
Liver/bile ducts	5	1.6%	21	1.8%	5	1.2%	1	0.5%	1	0.3%	33	1.3%
Lung	20	6.5%	107	9.2%	57	13.4%	21	11.1%	38	10.2%	243	9.9%
Lymphoma-NH	15	4.9%	31	2.7%	16	3.8%	4	2.1%	6	1.6%	72	2.9%
Melanoma	7	2.3%	29	2.5%	12	2.8%	3	1.6%	5	1.3%	56	2.3%
Mesothelioma		0.0%	1	0.1%	3	0.7%		0.0%	1	0.3%	5	0.2%
Multiple myeloma	2	0.7%	11	0.9%	2	0.5%	2	1.1%	2	0.5%	19	0.8%
Other site	2	0.7%	5	0.4%	2	0.5%	1	0.5%	6	1.6%	16	0.7%
Ovary	1	0.3%	19	1.6%	5	1.2%	1	0.5%	4	1.1%	30	1.2%
Pancreas	4	1.3%	16	1.4%	12	2.8%	13	6.8%	5	1.3%	50	2.0%
Penis		0.0%		0.0%		0.0%	1	0.5%	1	0.3%	2	0.0%
Pharynx	3	1.0%	3	0.3%	3	0.7%	2	1.1%	2	0.5%	13	0.5%
Prostate	63	20.5%	208	17.9%	40	9.4%	17	8.9%	47	12.7%	375	15.3%
Rectum/rectosigmoid	4	1.3%	28	2.4%	17	4.0%	8	4.2%	9	2.4%	66	2.7%
Renal pelvis/ureter	1	0.3%	6	0.5%	5	1.2%	1	0.5%	5	1.3%	18	0.7%
Salivary gland	2	0.7%	1	0.1%		0.0%		0.0%	2	0.5%	5	0.2%
Small intestine	3	1.0%	2	0.2%	2	0.5%		0.0%	2	0.5%	9	0.4%
Stomach	5	1.6%	11	0.9%	4	0.9%	4	2.1%	6	1.6%	30	1.2%
Testis	3	1.0%	6	0.5%	5	1.2%	2	1.1%	7	1.9%	23	0.9%
Thyroid	17	5.5%	18	1.6%	4	0.9%	7	3.7%	24	6.5%	70	2.9%
Unknown primary	4	1.3%	8	0.7%	7	1.6%	1	0.5%	8	2.2%	28	1.1%
Urethra		0.0%	1	0.1%	1	0.2%		0.0%		0.0%	2	0.08%
Vagina		0.0%	2	0.2%		0.0%		0.0%		0.0%	2	0.1%
Vulva	1	0.3%	12	1.0%	3	0.7%	1	0.5%	1	0.3%	18	0.7%
Grand total	**307**	**100%**	**1,164**	**100%**	**426**	**100%**	**190**	**100%**	**369**	**100%**	**2,456**	**100%**

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However, past clinical trials have included few older women, and there are no clear guidelines for women aged 70 years or older. System-wide support of multidisciplinary tumor boards, providing the most contemporary therapeutic recommendations, based on ever-shifting paradigms, has been critical to the success of Legacy's breast program.

Similarly, the receipt of adjuvant chemotherapy for stage III colon cancer increased markedly following the publication in 1989 of clinical recommendations for this treatment with a moderate increase from 1990 to 2005. Paclitaxel was unavailable in 1991, but following its introduction and approval by the Food and Drug Administration (FDA), its use among patients with stage III or IV ovarian cancer rose steadily until peaking in 1996 at 67 percent. The use of paclitaxel and chemotherapy of any type decreased in 2002. Coordinated multidisciplinary care occurring at Legacy's site-specific tumor boards assist in facilitating these positive changes in cancer care at a local level.

We live in the age of "personalized medicine." As prevention, early detection, diagnosis, treatment, survivorship and end-of-life care continue to evolve and improve with new scientific discoveries, cancer systems and other systems of health care delivery must be prepared to implement the most relevant and current advances. Through program development, a commitment to research, education and patient care, Legacy Cancer Services is well prepared to continue its goal as one of the system's cornerstones, serving cancer patients in the Portland area and beyond.

Cancer data management overview

By Leah Kiesow, MBA/HCA, CTR, manager, Cancer Data Management

The American College of Surgeons Commission on Cancer outlines five components that are fundamental to the operations of a successful approved cancer program. They are clinical services, the cancer committee, cancer conferences, a quality improvement program, and the cancer registry and database. The cancer registry's main function is to monitor the quality of patient care, which is demonstrated through the collection and coding of standardized data for all patients diagnosed and/or treated within Legacy Health. In turn, the cancer database functions as a centralized repository for over 200 data fields, supporting text documentation, and diagnoses and treatment facts for each oncology patient.

Legacy Health Cancer Data Management staff: front row from left, LeighAnne Leonard, CTR, Legacy Emanuel; Janel McNally, CTR, Legacy Salmon Creek; Mindy Ansteth, CTR, Legacy Good Samaritan; back row from left, Kathy Mayer, CTR, Legacy Meridian Park; Leah Kiesow, CTR, MBA/HCA, manager; Lorraine Colwell, Legacy Mount Hood; Dawn Cox, CTR, Legacy Good Samaritan. Not pictured: Anindita Bagchi, Legacy Emanuel; Catherine Telford, CTR, Legacy Emanuel; and Ileana Craig and Sandi Potrue, support staff.

As for the remaining key elements, cancer data is recognized as a useful tool for evaluating and planning clinical services, and educating cancer committee members about patient

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outcomes, survival and compliance with treatment guidelines. Likewise, coordination and support of cancer conferences by registrars provide physician forums for presenting complex cases among a multidisciplinary treatment and supportive care team. Lastly, statistical data reports can be used to support quality improvement projects, such as patient surveys and outcome studies.

2010, a year of change

During 2010, the cancer data management team experienced an array of changes due to the revision of the AJCC Cancer Staging Manual (7th edition), the release of the Collaborative Stage (CS) Data Collection System (Version 2), implementation of the Hematopoietic and Lymphoid Neoplasm Case Reportability Manual, and an updated publication of the Facility Oncology Registry Data Standards (revised for 2010). More specifically, AJCC added 57 new chapters for primary anatomic staging, incorporated non-anatomic predictive and prognostic factors into staging algorithms, and expanded the purposes and principles of cancer staging. CSv2 added 1,453 new codes and converted 340 codes to incorporate the updated version of the AJCC staging system, and to include additional site-specific factors and clinical details for disease sites.

Major changes and revisions to data collection have come about as the understanding of cancer biology has increased, treatment modalities have improved as patient care has become more individualized. The year 2010 presented unique challenges for the cancer registrar but also proved to be a year filled with educational opportunities, learning, personal and professional growth, and continued contribution to the evolving field of cancer registry. Cancer registrars are valuable members of the comprehensive cancer program team and were integral to the success of the 2010 ACS CoC cancer program survey and attainment of the Outstanding Achievement Award.

Legacy women's services and cancer screening

By Duncan Neilson, M.D., clinical vice president, Surgical Specialties, Legacy Medical Group

Legacy's women's services provide a system-wide coordination of a variety of services related to women's health. From the cancer screening perspective, the primary services involved are anatomic and cyto-pathology and women's imaging, along with medical and surgical oncologists, as appropriate.

Breast screening

The most visible of these services, and the most collaborative between disciplines, is Legacy's breast health program, which is under the guidance of Nathalie Johnson, M.D., FACS. This program received its accreditation from the American College of Surgeons National Accreditation Program for Breast Centers (NAPBC) in 2010, making it one of the first programs in this region to achieve such recognition. On page 11, Dr. Johnson discusses some of the programmatic statistics and addresses screening controversies. Most notable is the recommendation from the U.S. Preventative Services Task Force that women under the age of 50 consider not having mammogram screening, on the basis of the national reports of high rates of false positive screens leading to needless cost and anxiety in this age group.

Interestingly, the Legacy statistics do not reveal concerningly high rates of false positive studies, and indeed establish many early diagnoses of invasive cancer in this age group, allowing relatively conservative breast-sparing therapy with maintained high survival rates. The high quality of Legacy's program relative to screening accuracy

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resulted in a resounding affirmation of continued screening in the younger age groups by a large number of clinicians from throughout the region who attended the annual breast health conference this past autumn. This affirmation vote occurred immediately after a presentation by a member of the U.S. Preventative Services Task Force addressing this subject.

Cervical cancer screening

Cervical cancer screening continues to mature under the watchful eye of our pathologists, particularly Anne E. Rader, M.D., who has made this one of her specialties, and who has participated in the development of improved screening guidelines. Cervical cancer screening remains one of the great success stories in medicine since the development of the cytologic techniques for recognizing pre-cancerous changes in the cervix. This once highly prevalent and very devastating disease has been virtually eliminated in well-screened populations in our era. The initial relatively crude techniques resulted in significant false negative and some troubling false positive results, which in turn required frequent screening, which could only be applied where the availability of highly skilled cyto-technicians and pathologists was adequate.

In recent years, two major developments have allowed refinements, which bring this screening modality to more of the world's populations and rationalize its use in our area. These are:

1. The development of liquid-based specimen processing, allowing reduction or elimination of background "noise" on the slide and enabling automated screening.
2. The recognition of the role of certain human papillomaviruses in the pathogenesis of cervical cancer coupled with the ability to recognize the presence of those viruses in the samples from the liquid medium.

Modern research, in which Dr. Rader has participated, has helped elucidate the natural history of this viral carcinogenesis, which in turn has allowed many low-risk women to be safely screened at longer intervals than in the past. The improved precision of these modern techniques also results in much less therapy for false positive screens and therefore in fewer cases of cervical injury, which could result in pre-term birth in patients becoming pregnant following treatment.

Endometrial cancer

Screening for endometrial cancer has been problematic for many years. The common form of endometrial cancer has a recognizable precursor in atypical endometrial hyperplasia, and Legacy clinicians and pathologists in the past have participated in efforts to develop cytologic or "mini biopsy" techniques to identify such precursor lesions in asymptomatic patients. While there have been some notable individual successes, the issues of patient discomfort and inability to establish standard diagnostic criteria have led to the abandonment of such efforts. Recognition that the endometrium is thickened in many precursor lesions, both polypoid and diffuse, has led to the increasing role of ultrasound in identifying patients at risk and in evaluating symptoms. While not yet routinely applicable to asymptomatic or low-risk patients, ultrasound assessment, especially sonohysterography, has allowed better patient selection for more specific directed biopsy evaluation of the endometrium, including biopsies via hysteroscopy, and Legacy Imaging Services has continued to optimize its techniques for this purpose.

Primary prevention of endometrial cancer through understanding and control of the hormonal environment remains a cornerstone of prevention for this cancer. The more rare and more aggressive clear-cell and serous carcinomas remain resistant to screening efforts directed at either precursor lesions or early diagnosis of malignancy.

Ovarian cancer

The most exciting development in GYN cancer biology, with the potential to significantly influence screening, is the improved understanding of the origins of ovarian cancer, as addressed on page 18 by Ann Smith-Sehdev, M.D., a Legacy pathologist with a sub-specialty in GYN pathology. This understanding, to which Dr. Sehdev has contributed, began with the study of people genetically at risk, has now progressed through

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study of the general population and has revealed that the most common and lethal form of this disease (high-grade serous cancer) arises not from the ovary itself but from the fallopian tube. This new knowledge accounts for the failure of the large-scale screening efforts directed at the ovary itself, using ultrasound and CA-125.

Such efforts, while identifying some early tumors, have not resulted in improved mortality from the disease. In this new scenario for the origin of high-grade serous cancer, the ovary is essentially a metastatic site, so that by the time it is recognizably altered, the disease is at an advanced stage. The lesions that do arise in the ovary and are picked up by the ultrasound screening strategy are usually the less aggressive cell types and do not contribute much to the mortality rate. While this understanding has not yet contributed to better screening methods, it does allow a re-focus of efforts and presents opportunities for primary prevention — potentially with conservation of ovarian function — that were not even considered before.

In summary, Legacy clinicians, pathologists and imaging specialists have worked together for years to stay at the forefront of knowledge and practice in bringing the best screening and diagnostic methodologies to women in our communities in order to minimize the impact of reproductive and breast cancers, and they remain committed to continuing that effort.

Legacy Health site analysis: Breast and gynecological cancers

By Nathalie Johnson, M.D., FACS, medical director, Legacy Cancer Institute and Legacy Breast Health Centers

It is a monumental task to present in a succinct manner an overview of the data and outcomes of treatment of women's cancers at Legacy Cancer Services. To be brief, *we do an outstanding job*. But you can see for yourself as you review the tables that accompany this text. The tumor sites that make up the majority of women's cancers diagnosed in our system are in line with that seen nationally. Breast is the No. 1 site, followed by endometrial (uterine), ovarian, vulvar and cervical cancer.

Screening has played a large role in improved outcome for two of our major sites, breast and cervical cancer. I remember 20 years ago when cervical cancer was a major cause of morbidity and death. As you can see by our numbers there is currently very little cervical cancer. Screening with pap smears has virtually eliminated this disease as the very early changes are picked up and treated, thereby preventing progression. The discovery of the link between the human papilloma virus and cervical cancer has now led to the development of a vaccine that can protect our young women from the threat of this tumor as well.

Similar progress has been made with screening for mammography and breast cancer. Even though the rates of breast cancer have increased, the numbers of deaths from breast cancer have decreased due to early detection and improved therapies. This year there was a major upheaval in the message we have been delivering on screening and early detection. This came in the form of the U.S. Preventative Task Force (USPTF) recommendation to change the screening schedule to start at age 50 and then to be performed every other year. This recommendation has been challenged by every major society, including the American Cancer Society, American Society of Radiology, The American Society of Breast Surgeons and the Society of Surgical Oncology. The data are clear but the perception of the data is different. The USPTF looks at the 6 percent call-back rate for screening as anxiety provoking and a societal burden. The remaining societies see the call-back rate as acceptably low

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in order to diagnose cancer at earlier stages. In reviewing Legacy data it is clear that 21 to 23 percent of our newly diagnosed cancers are under 50 years old. We have not changed our recommendations for breast cancer screening, which remains to start screening at age 40 and screen annually thereafter to age 75. We agree with USPTF that screening should be discussed with each patient as to the risk and benefits.

Legacy Health 2010 Total Women's Analytic Cases — Class of Cases (CoC)				
Class of Case (CoC)	**Breast cases**	**Percentage of total**	**Gynecologic cases**	**Percentage of total**
CoC 00 — Diagnosed at Legacy; all of first course treatment or the decision not to treat was done elsewhere.	53	9.7%	6	3.4%
CoC 10–14 — Diagnosed at Legacy or in a staff physician's office; all or part of first course treatment or the decision not to treat was done at Legacy.	354	64.6%	94	53.7%
CoC 20–22 — Diagnosed elsewhere; all or part of first course treatment was done at Legacy.	141	25.7%	75	42.9%
Total	**548**	**100%**	**175**	**100%**

Another method by which we can improve outcomes is by genetic evaluation. Interestingly there are multiple inherited genetic defects that are associated with women's cancer. The commonly known are BRCA1 and BRCA2. Both of these genetic mutations are associated with an increased risk of breast and ovarian cancer. Not as well known is the fact that BRCA2 is also associated with an increased risk of pancreatic cancer, and we refer these patients to our high-risk pancreatic screening program for endoscopic ultrasound every other year, which has been shown to decrease mortality from that disease. In addition, there are other mutations that increase the risk of breast cancer, including Cowden's, Li-Fraumeni and PTEN.

Endometrial cancer is also linked to hereditary non-polyposis colon cancer (HNPCC) and may be the first tumor to develop in women with inherited mutation. This is associated with a mutation referred to as microsatellite instability. If this is recognized, we are able to heighten screening for colon cancer as well and impact outcomes again through early detection.

And lastly, the technology in treatment has greatly improved outcomes. In the realm of uterine and ovarian cancer, robotic surgery has decreased the morbidity of the therapeutic surgical procedures. In addition, newer targeted therapies are helping to improve outcomes.

When reviewing Legacy data, we see that 60 percent of women's cancers are diagnosed in Stage 0 or Stage I, and 21 percent of women are-diagnosed under the age of 50.

Ninety-six percent of Legacy breast cancer patients are treated with surgery, either alone or in combination with other therapies: 30 percent of women received chemotherapy, 44 percent received radiation therapy and 54 percent were treated with hormones as part of their treatment plan. In gynecologic malignancies treated at Legacy, 82 percent of women were treated with surgery, either alone or with other therapies, with 34 percent receiving radiation therapy and 41 percent receiving chemotherapy.

Legacy Health's five-year observed survival for all stages of breast cancer combined is 89.4 percent compared to 87.2 percent for women treated in Oregon and Washington, and 84.5 percent for the more than 1,450 hospitals that report to the database of the American College of Surgeon's (ACS) Commission on Cancer (CoC). In Stage IV breast cancer, Legacy's observed five-year survival rate of 39.5 percent is significantly higher compared to the others.

For gynecologic malignancies, Legacy has an overall five-year observed survival rate of 64.5 percent, matching that of the ACS CoC and slightly under that for Oregon and Washington combined. But in later stage disease, Legacy's observed five-year survival rate of 22 percent exceeds that of Oregon, Washington and the CoC.

As you can see borne out in the data, Legacy Cancer Services' patients have outstanding outcomes when compared with the national data derived from accredited cancer programs around the nation.

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Top Six Sites 2010 — Total Volume Analytic Cases							
Primary site	**LEMC**	**LGSMC**	**LMPMC**	**LMHMC**	**LSCMC**	**LH**	**ACS***
Breast	5	362	76	38	67	548	209,060
Prostate	63	206	40	17	47	373	217,730
Lung	20	106	57	21	38	242	222,520
Colon/rectum	13	58	66	24	39	200	142,570
Bladder	21	26	32	17	39	135	70,530
Kidney	11	46	15	4	16	92	58,240
Total top six sites	**133**	**804**	**286**	**121**	**246**	**1,590**	**920,650**
Percentage of total analytic cases	**5.4%**	**32.7%**	**11.6%**	**4.9%**	**10.0%**	**64.7%**	**60.2%**

**American Cancer Society 2010 estimated U.S. cancer cases*

AJCC Major Stage Groups							
	Stage 0	**Stage I**	**Stage II**	**Stage III**	**Stage IV**	**N/A or unknown**	**Totals**
Breast	127	216	143	41	17	4	548
Vulva	5	4	3	3	3		18
Vagina		1		1			2
Cervix uteri		3	2	6	2	2	15
Corpus uteri and uterus		74	6	15	4	4	103
Ovary and primary peritoneal		6	2	12	9	1	30
Fallopian tube/other	1		1	4		1	7
Total women's cancers by stage	**133**	**304**	**157**	**82**	**35**	**12**	**723**
Percentage of total women's cancers	**18%**	**42%**	**22%**	**11%**	**5%**	**2%**	**100%**

Legacy Health Gynecologic Malignancies 2010 First Course Treatment by Stage (175 cases)							
Treatment combination	**Stage 0**	**Stage I**	**Stage II**	**Stage III**	**Stage IV**	**N/A or unknown**	**Total**
Surgery	6	51	3	4	1	3	68
Radiation		4		1	1	3	9
Chemotherapy				2	2		4
Surgery + radiation		14	3	1			18
Surgery + chemotherapy		13	3	17	4		37
Radiation + chemotherapy			2	4	4		10
Radiation + hormone		1					1
Surgery + radiation + chemotherapy		3	4	12	1	1	21
Other combo				2	1	1	4
Treated	**6**	**86**	**15**	**43**	**14**	**8**	**172**
Not treated		**1**			**2**		**3**

Observed Five-Year Survival — NCDB Data All Gynecologic Malignancies (1998–2002 diagnoses)						
	Stage 0	**Stage 1**	**Stage 2**	**Stage 3**	**Stage IV**	**Overall**
Legacy	*	84.3%	66.9%	45.7%	22.0%	64.5%
Oregon/Washington	93.3%	90.3%	69.3%	40.7%	18.8%	68.4%
CoC†	91.3%	88.1%	65.5%	39.3%	15.9%	64.5%

**Insufficient cases to display survival information*
†Commission on Cancer, National Cancer Database

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2010 Age at Diagnosis								
Age	**Breast**	**Cervix uteri**	**Corpus uteri and uterus**	**Ovary and primary peritoneal**	**Fallopian tube/other**	**Vulva and vagina**	**All women's cancers**	**Percentage**
20–29				1		1	2	0.3%
30–39	25	3	6	2			36	5.0%
40–49	89	6	14	6			115	15.8%
50–59	140	2	21	3	2	2	170	23.5%
60–69	159	2	42	9	3	6	221	31.1%
70–79	91	1	12	4	1	6	115	15.8%
80–89	35	1	8	5	1	5	55	7.3%
90–99	9						9	1.2%
Total	**548**	**15**	**103**	**30**	**7**	**20**	**723**	**100.0%**

Legacy Health Breast Malignancies 2010 First Course Treatment by Stage (548 cases)							
Treatment combination	**Stage 0**	**Stage I**	**Stage II**	**Stage III**	**Stage IV**	**N/A or unknown**	**Total**
Surgery	48	32	18	2		2	102
Radiation					1		1
Chemotherapy			3		2		5
Hormone		1			1	1	3
Surgery + radiation	36	19	3				58
Surgery + chemotherapy	1	18	18	13	2		52
Surgery + hormone	17	55	26	3			101
Radiation + chemotherapy				1	1		2
Radiation + hormone					1		1
Chemotherapy + hormone					2		2
Surgery + radiation + chemotherapy		8	12	4	2		26
Surgery + radiation + hormone	23	61	19	3	2		108
Surgery + chemotherapy + hormone		12	23	1			36
Radiation + chemotherapy + hormone					1		1
Surgery + radiation + chemotherapy + hormone		7	20	14		1	42
Other combination		2			2		4
Treated	**125**	**215**	**142**	**41**	**17**	**4**	**544**
Not treated	**2**	**1**	**1**				**4**

Observed Five-Year Survival — NCDB Data All Breast Malignancies (1998–2002 diagnoses)						
	Stage 0	**Stage 1**	**Stage 2**	**Stage 3**	**Stage IV**	**Overall**
Legacy	97.7%	93.3%	87.4%	65.9%	39.5%	89.4%
Oregon/Washington	95.8%	92.6%	84.8%	63.8%	25.9%	87.2%
CoC*	95.2%	91.2%	82.8%	57.8%	19.6%	84.5%

**Commission on Cancer, National Cancer Database*

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The role of surgical treatment in breast malignancies

By Amanda Wheeler, M.D., surgical oncologist

The surgical management of breast cancer has changed dramatically over the past several decades. The Halsted radical mastectomy, which

was first introduced in the late 1880s, left disfigurement and lymphedema that is mostly a historical footnote today. From Halsted to Fisher, surgery continues to maintain its position in the specialty known as breast oncology. Essential in the management of breast cancer, surgery has evolved through the development of less invasive procedures and more innovative reconstructive techniques.

Needle biopsy techniques have replaced open surgical biopsy for diagnosis of most breast cancers, and at Legacy over 96 percent of patients get needle biopsy. Progress continues toward more precise and less invasive treatments for breast cancer. Imaging modalities have further advanced surgical technique. Breast MRI has played an increasing role in assessing the extent of disease and can detect unsuspected ipsilateral or contralateral lesions in patients with known breast cancer. Also available at Legacy is breast-specific gamma imaging, which is more specific than mammography for diagnosis of malignancy, and has the advantage of being equally accurate in dense and fatty breasts. These cutting-edge imaging modalities have allowed surgeons to offer breast conserving surgery with more accurate planning and assessment of margin status.

The use of the sentinel lymph node biopsy approach has dramatically decreased morbidity compared with axillary dissection. Sentinel node biopsy has been well proven to provide reliable axillary staging and has led to the omission of axillary dissections in early stage breast cancer patients. The risk of lymphedema, numbness and chronic pain has been dramatically reduced as a result. At Legacy, a review of recent clinical trials is integrated into our multidisciplinary tumor boards and has resulted in the recommendation of an omission of a completion of axillary dissection for select cases.

Future innovations in breast surgery have continued to improve cosmetic results of lumpectomy and mastectomy procedures. Oncoplastic approaches for breast conserving surgery are now being incorporated to achieve a more pleasing cosmetic result as a secondary goal to effective local control. These advanced flap techniques allow extensive resections that may extend eligibility for breast conservation and improve overall cosmetic outcome. Systemic therapy can also offer women, who on initial presentation had locally advanced tumors, a chance at breast conserving surgery. This neo-adjuvant approach also offers the benefit of assessing the clinical response to chemotherapy.

Immediate reconstruction following a mastectomy has now become the norm, and nipple-sparing mastectomies are performed in a select population. In nipple-sparing mastectomy all skin, including the nipple and areola, is left in place, with the mastectomy performed through an incision that is closed primarily. Early follow-up of nipple-sparing mastectomy in selected patients has shown low rates of nipple recurrence and acceptable rates of nipple necrosis. Immediate reconstruction is now preferentially offered, dampening some of the emotional effects of undergoing a mastectomy. Women are able to have a tissue expander, implant or autologous tissue placed at their initial operation rather than in a delayed approach. These options allow a more cosmetically appealing result with skin sparing techniques and a shorter long-term recovery.

For many patients with a new diagnosis of breast cancer, the surgeon is the specialist who will serve as their guide through the initial staging and treatment of their breast cancer. The role of the surgeon continues to evolve in the

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multidisciplinary treatment of breast cancer, and with the help of the patient navigator, guides them through their cancer diagnosis and treatment options individualized to the patient and their diagnosis. Although breast cancer treatment was initially managed by a single specialty, its complexities have mandated a multidisciplinary approach that has led to an undeniable decrease in mortality and morbidity since the 1970s.

The role of medical oncology in the breast patient

By Magdolna Solti, M.D., medical oncologist

Breast cancer is no longer considered one disease. The role of the oncologist is becoming increasingly complex in this rapidly changing, very exciting field.

Gene expression profiling redefined the molecular subtypes of many tumors. Perou and Sorlie used gene expression patterns and demonstrated that breast cancers can be subdivided into four subtypes: luminal A, luminal B, basal-like and HER 2-positive/estrogen receptor-negative (*Nature* 2000; 406: 747–752). The two luminal types are estrogen receptor positive; luminal A shows less proliferative gene expression and is HER2 negative, while luminal B is more proliferative and has a higher expression of HER2. The basal-like tumors are estrogen receptor α (ERα)-negative, do not over express HER2, but are EGFR and cytokeratin 5/6 positive. Subsequent studies confirmed that these subtypes all differ in treatment responses and outcome (luminal A has the best, basal-like the poorest survival), (*Proc Natl Acad Sci USA* 2003; 100: 8418–23). One of the most exciting features was the identification of at least two types of ER-positive breast carcinoma with differing outcomes.

The first use of molecular techniques for treatment decisions occurred in early stage (T1-2N0), ER-positive, node negative cancers. The Oncotype DX assay integrates 21 gene assays from paraffin-embedded tissue samples. This assay provides an individualized risk estimate for patients who have ER-positive breast cancer who will receive five years of hormone therapy. It also predicts the magnitude of hormone and chemotherapy benefit. A 70-gene signature MammaPrint assay utilizes fresh frozen tissue and provides a prognostic signature that correlates significantly with patient outcome. These molecular profiling assays aid in selecting a subset of patients with better prognosis who could be spared from chemotherapy. Data are accumulating to support the use of the 21-gene assay in ER(+) node-positive patients as well.

HER2-positive breast cancer has traditionally been associated with poor prognosis. However, treatment with HER2-targeted therapies has changed the natural history of this disease. Several randomized adjuvant trials (NCCTG N9831, NSABP B-31, BCIRG 006 and HERA) have shown that the addition of trastuzumab to standard chemotherapy reduces disease recurrence and the risk of death compared with chemotherapy alone in patients with surgically resected tumors. On the basis of these data, the addition of trastuzumab to adjuvant chemotherapy has become standard of care in women with HER2+ early breast cancer. The dual epidermal growth factor receptor (EGFR)/HER2 TKI lapatinib is active as first-line monotherapy in patients with HER2+ metastatic breast cancer and, in combination with capecitabine, improves progression-free survival compared with capecitabine alone. Several new agents are in development that appear very promising: antibody-chemotherapy conjugates (T-DM-1) and HER2/HER3 dimer inhibitor (pertuzumab).

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Tumors without either ER/PR or HER2 expression are referred to as triple-negative breast cancers (TNBC) that comprise about 15 percent of breast cancers. They carry a poor prognosis in terms of disease-free and overall survival. TNBC has molecular features that overlap with breast cancer in BRCA1 germline mutation carriers and with those of the basal-like molecular class of tumors. These tumors have impaired DNA repair mechanisms and are dependent on alternate DNA repair processes. Targeting one of these excision repair enzymes, the Poly (ADP-ribose) polymerase 1 (PARP-1) enzyme, became a novel "synthetic lethal" approach to TNBC therapy. Recent clinical trials have shown an enhancement of the cytotoxic effect of chemotherapy by adding a PARP inhibitor iniparib to the standard treatment in metastatic TNBC (O'Shaughnessy *N Engl J Med*. 2011;364:205-14).

Locally advanced or inflammatory breast cancers have a high metastatic potential and require neoadjuvant therapies for resectability. This provides a unique opportunity to test novel anticancer agents. The NSABP B-18 and B-27 protocols have confirmed the prognostic significance of pathologic complete response rate in neoadjuvant therapy. Neoadjuvant aromatase inhibitor therapy is an emerging, low-toxicity approach that improves breast conservation rates for postmenopausal women (Ellis M, *J Clin Oncol*. 2011 May 9). Several biomarkers and gene signatures are being investigated to select the best candidates for the neoadjuvant approach.

In metastatic disease, estrogen and HER2 receptor expression allows targeted therapies, but a fraction of tumors do not exhibit these biomarkers. Up to 20 percent discordance rate in estrogen receptor and HER2 status between the primary tumor and recurrence is reported in the literature (Pusztai, *Oncologist*. 2010;15:1164-8). Such discordances may lead to suboptimal treatment or require change in therapy. When feasible, biopsy of metastases for reassessment of biological features should be considered in all patients, since it will impact treatment.

What are the future directions? Tumor resistance remains a major clinical challenge. In the metastatic setting, targeted agents and chemo or endocrine therapy combinations are explored. Agents in development include inhibitors of the poly (adenosine diphosphate [ADP]-ribose) polymerase (PARP) pathway, such as iniparib, olaparib, and veliparib; the PI3K/Akt/mTOR pathway inhibitor everolimus; and the Src family tyrosine kinase inhibitor dasatinib. Besides response and toxicity analysis, incorporation of quality of life data has become a new standard in clinical trials.

Today, it is imperative for clinicians to understand basic research and integrate and use new technologies. Translational research and biomarker use has markedly changed our understanding of breast cancer. Breast cancer is now considered a heterogeneous disease that requires individualized care and tailored treatments. Our medical oncology community is strongly committed to multidisciplinary approach and applying translational research for making treatment decisions in daily practice.

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Tu-be or not tu-be: Is the fallopian tube the source of ovarian cancer?

Ann E. Smith-Sehdev, M.D., director, anatomic pathology, Legacy Laboratory Services

Epithelial ovarian cancer is the leading cause of death from gynecologic cancer in the United States and the fifth most common cause of cancer mortality in women. Fewer than 40 percent of women with ovarian cancer are cured. This is due to the fact that most patients present with advanced stage disease. Accordingly, research has focused on the detection of early stage tumors — those confined to the ovary. However, despite our efforts at early detection and treatment, the overall survival for women with ovarian cancer has not changed in more than 50 years, suggesting that our concepts of the pathogenesis of ovarian cancer may be flawed.

Recently, a dualistic model for the development of ovarian cancer has been proposed. This dualistic model describes a Type I and Type II pathway of ovarian carcinogenesis. The Type I tumors include the low grade serous, endometrioid and mucinous carcinomas of the ovary. These tumors develop in a stepwise fashion from well-defined precursor lesions and have genetic alterations, including mutations in KRAS and BRAF. The Type II carcinomas include the high-grade serous carcinomas. It has traditionally been assumed that Type II tumors arise from ovarian surface epithelium (a modified mesothelium), which was thought to invaginate into the ovarian stroma, form an inclusion cyst and undergo metaplasia followed by neoplasia. However, careful analysis of ovaries removed from women at high risk for development of ovarian carcinoma has failed to reveal any precursor lesion.

Only in the past few years has it been suggested that high-grade serous cancers originate in the fallopian tube and secondarily involve the ovary. In 1998, there were sporadic reports of tubal carcinomas and "dysplasia." Then, in 2001, a group of Dutch investigators described tubal lesions, which closely resemble high-grade ovarian serous carcinoma in women with a genetic predisposition to cancer. The lesions were not necessarily associated with an invasive process and were therefore called serous tubal intraepithelial carcinomas or STIC. Subsequently, it was postulated that high-grade serous carcinomas might develop as a result of implantation of malignant cells from the STIC onto the ovary. More recently, STICs were linked with sporadic development of high-grade serous carcinoma.

Part of the reason fallopian tube cancers and STICs have until now been under-recognized is that there has historically been a wide variation in the pathologic sampling of fallopian tubes. Traditionally, if the fallopian tube was grossly normal, one to three sections of the mid-portion of the fallopian tube would be submitted for histologic exam. We now know that the majority of STICs arise in the distal fallopian tube. Only since the utilization of the SEE-FIM protocol (SEctioning and Extensively sampling the FIMbriated end) have pathologists been able to identify the early serous tubal lesions or STICs and associated small invasive tubal carcinomas.

Do all high-grade serous carcinomas begin in the fallopian tube? We know that over 70 percent of women (non-mutation carriers) who have sporadic high-grade pelvic serous carcinoma also have high-grade serous carcinomas involving the mucosa of the fallopian tube, including STIC. If women with a genetic predisposition were included, the percentage of cases with tubal involvement would be even higher. In the remaining cases, it is likely that a small STIC was missed due to sampling error or in some cases a STIC that implanted on the ovary was overgrown by invasive tumor precluding identification of the early tubal lesion.

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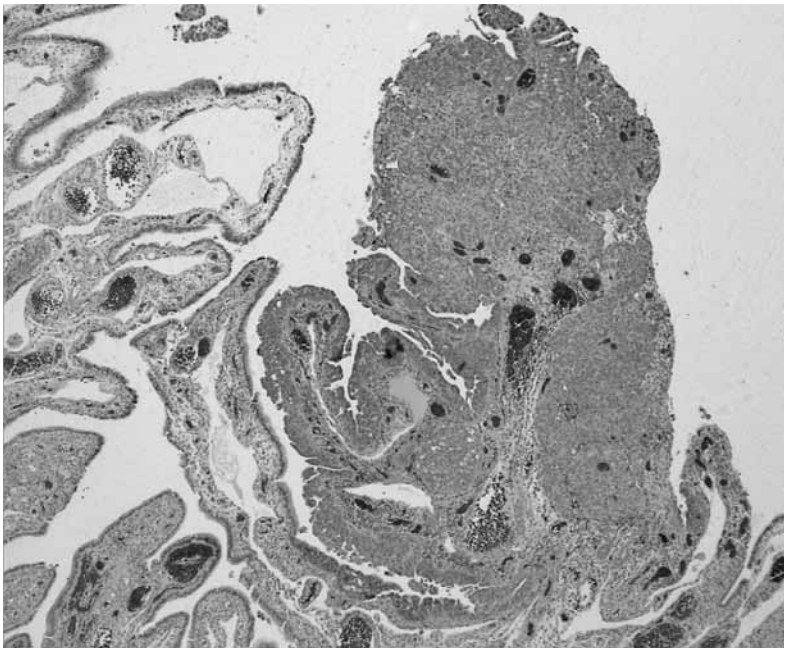
Better understanding of the pathogenesis of ovarian cancers has important clinical implications. We know that the majority of Type I tumors grow to a large size while confined to the ovary and, therefore, can be detected by pelvic exam and transvaginal ultrasound. However, the Type I tumors represent only 25 percent of ovarian cancers and only 10 percent of cancer deaths. The Type II tumors, which represent 75 percent of "ovarian" cancers and account for 90 percent of deaths, are rarely if ever confined to the ovary. It is in this latter group, that we need to better understand the pathogenesis in order to develop better screening methods using biomarkers or improved fallopian tube sampling.



An example of a serous tubal intraepithelial carcinoma (STIC). Hematoxylin and eosin (H&E) stain shows a discrete papillary growth of STIC without evidence of stromal invasion.

One of the most exciting topics of discussion, however, is the role of primary prevention of high-grade serous carcinomas. The Society of Gynecologic Oncologists Clinical Practice Committee has stated: "Women who are at high risk for ovarian cancer should undergo a risk-reducing bilateral salpingo-oophorectomy (BSO) after completing childbearing." In addition, it was recommended that for premenopausal and perimenopausal women at average risk of ovarian cancer who are undergoing a hysterectomy for benign conditions, the decision to also perform a BSO should be considered. However, studies from Europe and the United States, have shown that women younger than 50 years of age who have had a hysterectomy and oophorectomy and are not on hormone replacement therapy have a greater than 40 percent increase in coronary hospitalizations, stroke and all-cause mortality. If the fallopian tube is the source of high-grade serous carcinomas, perhaps women at high risk could undergo salpingectomy with ovarian conservation. Certainly, women undergoing hysterectomy for benign conditions should consider prophylactic salpingectomy. What about young women with unknown risk — is fimbriectomy a possible alternative to tubal ligation that might significantly reduce the risk of high-grade serous cancers?

In summary, the concept that ovarian carcinomas originate outside of the ovary has emerged only recently. The dualistic model of ovarian carcinogenesis highlights the heterogeneity of "ovarian" cancer and helps us better understand its pathogenesis. Moreover, the role of the fallopian tube in the pathogenesis of pelvic serous carcinomas has important clinical implications particularly in regard to early detection and primary prevention.

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The role of surgery and chemotherapy in gynecologic malignancies

By William E. Winter, III, M.D., gynecologic oncologist

The last few years have seen tremendous advances in the treatment of gynecologic malignancies — uterine, ovarian, cervical, vulvar/vaginal and gestational trophoblastic neoplasms. The objective of this brief update focuses on changes made in the realm of gynecologic oncology, a sub-specialty often misunderstood by the general medical community. We play a unique role in the care of women afflicted with the aforementioned cancers. Gynecologic oncologist play the role of both surgical and medical oncologist, in addition to working very closely with their radiation oncology colleagues, in a comprehensive approach to the care of their patients. It allows the patient a continuity of care not seen in other specialties. My goal in this brief update is to highlight the recent significant changes over the last several years that have impacted the care we deliver.

Robotic surgery for gynecologic cancers

As this encompasses the care of patients with endometrial, cervical and even ovarian cancers, robotic surgery deserves its own separate update. Robotic surgery is perhaps the most significant recent advance in the care of our patients. When conventional laparoscopy really started catching on for gynecologic cancer patients in the late 1990s, there were many questions. Is the exposure adequate? Is the yield of lymph nodes comparable to laparotomy? Are clinical outcomes similar to laparotomy? Are there more complications with laparoscopy? Who is a candidate for these techniques? In response, the Gynecologic Oncology Group (GOG) performed a phase III randomized-controlled trial (RCT), GOG LAP2, comparing laparoscopic to open surgical staging for early endometrial cancer patients (Walker et al, *J Clin Oncol* 2009). While the laparoscopic group showed less blood loss and fewer serious postoperative complications, about 26 percent of laparoscopic patients required conversion to laparotomy to complete the surgery. The vast majority of conversions were due to obesity/exposure. Since it is the obese patient who benefits the most from avoiding surgical wound morbidity offered by minimally invasive techniques, it was clear that we could improve on those numbers.

Since the FDA approved the da Vinci platform for use in robot-assisted laparoscopic hysterectomy and lymphadenectomy in 2005, robotic staging has all but replaced conventional laparoscopy in the management of early stage endometrial cancer. While no RCT has been performed comparing robotic and open or laparoscopic techniques, a number of strong retrospective studies have demonstrated not only feasibility, but much lower conversion rates (0 to 16 percent) even in the obese population (Bell et al, *Gynecol Oncol* 2008; Gehrig et al, *Gynecol Oncol* 2008; Seamon et al, *Obstet Gynecol* 2009). A recent meta-analysis of over 1,500 patients who underwent either robotic, laparoscopic or open staging demonstrated comparable lymph node yields and intraoperative complications (Gaia et al, *Obstet Gynecol* 2010). Both robotic and laparoscopic groups had fewer wound and other postoperative complications than the open group. The robotic group had the lowest blood loss. When including the significantly shorter hospital stay in the robotic group, it is more cost-effective than laparotomy (Bell et al, *Gynecol Oncol* 2008). The socioeconomic impact of robotic surgery is hard to quantify, but it is clear that women are recovering and returning to their preoperative productivity much sooner. There are also ongoing studies regarding improved surgeon ergonomics and improved

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career longevity. As with conventional laparoscopy, long-term survival outcomes are still pending, but by all measures robotic surgery is safe, feasible and quickly becoming the standard of care for patients with endometrial cancer. Almost identical findings have been reported for robotic radical hysterectomies for patients with early stage cervical cancer (Magrina et al, *Gynecol Oncol* 2008; Lowe et al, *Gynecol Oncol* 2009).

Endometrial cancer

Though almost three quarters of patients with endometrial cancer present with early stage disease, those patients with more advanced disease present quite a challenge. Since the publication of GOG 122 demonstrated improved survival with systemic chemotherapy compared to patients treated with radiation alone (Randall et al, *J Clin Oncol* 2006), we have been evaluating the best regimen for these patients. Different combinations of agents have shown little in the way of significant survival improvement while adding significant toxicities (Homesley et al, *Gynecol Oncol* 2009). We are awaiting results from a recently closed trial, GOG 209, which compared paclitaxel, adriamycin and cisplatin with the more tolerable paclitaxel and carboplatin combination. The role of radiation therapy in endometrial cancer — both early and advanced disease — is hotly debated. Though germane to this update, I will leave this to my radiation oncology colleagues to address.

Ovarian/tubal/peritoneal cancer

As the gynecologic cancer with the highest mortality rate, a great deal of focus still remains with these patients. Intraperitoneal chemotherapy continues to gain favor throughout the gynecologic and medical oncology field. After publication of the landmark study, GOG 172 (Armstrong et al, *N Engl J Med* 2006), we have been searching for a better-tolerated regimen as not even two-thirds of patients completed all six cycles on this trial. Many modifications have been made, but none of these modifications have been studied in a prospective fashion. In response to this, GOG opened a trial (GOG 152) comparing two alternative regimens to the GOG 172 regimen. The trial is currently accruing and is available to our Legacy patients.

There has been a lot of discussion regarding two recent large studies — GOG 218 and ICON 7 — that evaluated the addition of bevacizumab to primary therapy and as a consolidation therapy. Presented at ASCO, both demonstrated a two to three month progression-free survival advantage in the arm with consolidation only. No difference was seen with the addition of bevacizumab to primary therapy. Overall survival data are still immature. Whether bevacizumab will establish a role in the primary treatment of ovarian cancer remains to be determined.

Another recent major study, the EORTC trial (Vergote et al, *N Engl J Med* 2010), demonstrated equivalent survival in stage III/IV patients who underwent three cycles of neoadjuvant taxane/platinum-based chemotherapy followed by optimal interval cytoreductive surgery and three more cycles of chemotherapy when compared to those who underwent optimal primary cytoreductive surgery followed by taxane/platinum-based chemotherapy. Surgical morbidity was significantly lower in the neoadjuvant group. This remains an option for those patients who are at high risk of suboptimal debulking if surgery is done before chemotherapy or those who may not tolerate the more aggressive surgeries.

Finally, GOG 162 is looking at effectiveness of dose dense chemotherapy. Prospective studies (Katsumata et al, *Lancet* 2009) have shown a possible survival advantage to weekly paclitaxel in combination with carboplatin every three weeks compared to standard paclitaxel every three weeks.

There is a lot happening in gynecologic oncology. Legacy continues to be on the forefront of these advances. Stay tuned.

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The role of radiation oncology for women's cancers

By Misa Lee, M.D., radiation oncologist, Legacy Cancer Institute

The role of radiation therapy in managing women's cancer is long standing. In fact, the potential role of X-ray in treating a cancer patient was first recognized when a medical student in Chicago named Emil Grubbe treated a woman who was suffering from locally advanced breast cancer and noted significant benefit from the treatment. Since then, high energy X-rays have been used to treat tumors deep inside the body without excessive damage to the overlying skin and other normal tissues, such as with breast cancer. In addition, the gamma rays produced by the radioactive source have also allowed us to treat cancers in close proximity or even within the tumor, as with gynecological cancer.

In the United States, breast cancer is the most common malignancy in women. The American Cancer Society has estimated that more than 200,000 new cases of invasive breast cancer will be diagnosed, and 40,000 women will die of their disease in 2011. However, in many cases, it is highly curable with timely application of appropriate treatments, including surgery, radiation therapy and systemic therapy.

Traditionally, breast cancer was managed with surgery alone, leaving many women without the choice of keeping their breast. However, as patients' desires for breast conservation and clinicians' questioning of the need for radical surgery grew, many physicians began to challenge the traditional, surgical paradigm. Starting in the early 1970s, researchers began randomized clinical trials to compare breast conservation therapy to mastectomy in managing early stage breast cancer. Instead of having the entire breast removed, patients who were randomized to breast conservation therapy underwent a lumpectomy to remove their primary disease and then received five to six weeks of daily radiation therapy to eradicate any microscopic disease within the breast tissue. We now have results from six, modern randomized trials conducted in Europe and the U.S. with more than 20 years of follow-up, all demonstrating equivalent survival outcome. For women who wish to preserve their breasts without compromising their life expectancy, radiation therapy has become a crucial part of their battle against breast cancer.

A decade into the 21st century, cancer specialists are again challenging earlier dogma, questioning whether current management of early breast cancer is most effective. Because most early breast cancers usually recur within the original tumor cavity, some clinicians have proposed the treatment of early stage breast cancer patients with partial breast irradiation (PBI) — a procedure that places an intra-lumen/interstitial device within the tumor cavity to deliver radiation. This has allowed us to minimize potential treatment-related side effects, as well as to accelerate treatment time. Patients are able to complete their local, adjuvant breast treatments in 10 sessions total, receiving two treatments per day. Although we do not have 20-year follow-up on these treatments, five-year follow-up results show that PBI is just as effective for patients with early stage, favorable disease. At Legacy Good Samaritan Medical Center, we are fortunate to provide such treatments to our favorable early stage breast cancer patients who desire to preserve their breast with effective, convenient therapy. Since March of 2003, as the first institution in Oregon, we have treated more than 300 patients successfully.

In locally advanced disease, which requires mastectomy, radiation is sometimes used adjunctively when there is an inflammatory breast cancer, skin or extensive lymph node involvement, and positive margin. The purpose of radiation therapy is to eradicate any microscopic disease within the chest wall and/or regional lymphatics.

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Research has shown that radiation therapy not only improves locoregional control in such cases, but also improves overall survival.

In addition to breast cancer, radiation therapy has played a significant role in managing gynecological cancer. Although surgery again plays a key role, radiation therapy is crucial in providing treatment options for those who are medically inoperable and/or with more advanced disease for which surgery would be inadequate to control the disease.

In management of cervical cancer, surgery is usually recommended for early stage disease and smaller lesions (stage IA, IB1 and selected IIA-1). However, for bulky lesions and more advanced disease (stage IB-2-IVA), a concurrent chemoradiation is the primary treatment of choice. There have been five trials demonstrating approximately 30–50 percent decreased risk of death in patients receiving concurrent chemoradiation therapy when compared to those who had radiation therapy alone.

A similar role is played in managing both medically inoperable and locally advanced endometrial cancer. Often in these situations, the whole pelvis receives 40–45Gy external beam radiation therapy to address regional lymphatics at risk, as well as to allow optimal tumor shrinkage to permit ideal placement of intracavitary devices for brachytherapy. Brachytherapy, which utilizes gamma ray, delivers additional doses of radiation optimally to the uterus without increasing toxic exposure to other normal structures such as the bowels.

Radiation therapy also plays an important adjuvant role post-operatively. For cervical cancer, it is often indicated in patients with stage IA2, IB1, or IIA1 disease who have negative lymph node pathologically, but have large primary tumor size, deep stromal invasion and/or lymphatic vascular space invasion. Furthermore, those with positive pelvic nodes, positive surgical margin and/or positive parametrium should also receive postoperative pelvic radiation with concurrent cisplatin-based chemotherapy to improve overall survival, per Intergroup Trial 0107.

In addition to these definitive roles, radiation therapy plays a valuable palliative role for patients who are suffering from cancer-related pain, bleeding or disfigurement. Although one always aims for a cure in all cases, it is equally important that we provide minimally invasive, palliative treatments when such prospect is no longer possible.

It is exciting to be practicing in an era in which cancer care has made so much advancement. Still, we must not let our enthusiasm in medical and technical advances blind us from seeing our patients' humanity during a difficult period in their lives and those of their loved ones. With our patients' needs at the center of our efforts, we continue to seek the best treatment and care.

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Cancer Liaison Physician Report: Cancer Program Practice Reports

By R. Bryan Bell, M.D., DDS, FACS, head and neck/oral and maxillofacial surgeon

A Cancer Liaison Physician (CLP) serves in a leadership role within the cancer program and is responsible for evaluating, interpreting and reporting the cancer program's performance to the cancer committee quarterly, using the National Cancer Data Base data. As an American College of Surgeons accredited Network Cancer Program, we participate in program-specific quality improvement initiatives, the Surgical Care and Outcomes Assessment Program (SCOAP) and the Surgical Care Improvement Project (SCIP) to ensure that we continue to provide the highest level of care.

Among the CLP's primary functions, I consider evaluation of the Cancer Program Practice Reports (CP3R) the most important. By assessing Legacy Health's CP3R reports, we are able to compare the quality of aggregated practice measures from similar types of cancer programs at the state and national level, and develop educational interventions to improve cancer care outcomes.

I am pleased to report that Legacy has excelled at virtually all of the quality and outcomes measures among virtually all sites, particularly in the area of women's cancer. Our efforts over the past decade to improve deficiencies have borne fruit, and today Legacy Cancer Services ranks among the nation's best in delivering high quality cancer care. Congratulations to all Legacy affiliated physicians, nurses, health care providers and staff whose hard work and dedication to the care of patients with cancer resulted in the 2010 ACS Commission on Cancer Outstanding Achievement Award!

Cancer Program Practice Profile Reports for Breast Cancer, 2008–10 Diagnoses — Select Breast Measures

	EMC			GSMC			MHMC			MPMC			SCMC			LH		
	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010
Radiation therapy is administered within 1 year (365 days) of diagnosis for women under age 70 receiving breast conserving surgery for breast cancer. [BCS/RT]	100%	N/A	N/A	100%	95%	100%	100%	100%	100%	100%	92%	100%	100%	100%	100%	100%	97%	100%
Combination chemotherapy is considered or administered within 4 months (120 days) of diagnosis for women under 70 with AJCC T1c N0 M0, or Stage II or III ERA and PRA negative breast cancer. [MAC]	100%	N/A	N/A	100%	100%	100%	100%	100%	100%	100%	100%	N/A	100%	100%	100%	100%	100%	100%
Tamoxifen or third generation aromatase inhibitor is considered or administered within 1 year (365 days) of diagnosis for women with AJCC T1c N0 M0, or Stage II or III ERA and/or PRA positive breast cancer. [HT]	100%	N/A	100%	96.5%	95%	100%	100%	92%	100%	100%	98%	100%	100%	92%	100%	99.3%	94.0%	100%

Figures from 2010 are preliminary, not yet published by CoC.

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Quality outcomes through continuous quality monitoring

By Amy Carl, CPHQ, quality improvement specialist, Legacy Cancer Institute and Legacy Hospice Services

W. Edwards Deming, the American statistician best known for promoting continuous quality improvement and the problem-solving cycle, believed in practicing continual improvement and thinking as a system. His quote, "Quality is everyone's responsibility," is the mantra of the Legacy Cancer Services team.

Legacy Cancer Services ranks in the top 17 percent of all cancer programs nationwide. In 2010, we received the Commission on Cancer's Outstanding Achievement Award. The award honors Legacy Cancer Services for compliance at the commendation level for each of the seven standards that represent the full scope of the cancer program and a compliance rating for the remaining standards. Continuously looking at systems and ways to improve clinical quality contributed to this prestigious award.

Continuous quality improvement at Legacy Cancer Services during 2010 is illustrated across tumor sites:

- The colorectal cancer surgeons at Legacy Good Samaritan continue to participate in Washington state's Surgical Clinical Assessment and Outcomes Program (SCOAP). Through participation, compliance with evidence-based practices designed to improve quality by reducing variation is monitored and shared with surgeons. In 2010, Legacy Good Samaritan ranked at the highest compliance in all but one of SCOAP's key metrics, making it a top-performing participant.
- A survivorship follow-up survey was sent to colorectal cancer patients to assess patient education and support. Forty-three percent of the surveys were returned; all patients had surgical resection. Results indicated that this patient population under-utilized the nurse navigator and support services. Legacy Cancer Services has been working to raise surgeon's awareness of and referral to support programs early in the process to improve the patient's experience and outcomes.
- The breast program implemented a dashboard to track several quality indicators recommended by the Oncology Roundtable's Advisory Board. Legacy Cancer Services meets the benchmark in call-back rates following screening mammography, pathology report completeness and breast biopsy turnaround times.
- A quality of life survey for prostate cancer patients was finalized in 2010. Before choosing their treatment modality, men are offered the opportunity to take part in the survey. The survey will determine how prostate cancer affects patients' quality of life. From the results, expected to be analyzed in 2011, Legacy Cancer Services will address the quality of life issues that affect this patient population.
- The inpatient cancer care unit participated in patient satisfaction surveys. The Legacy Cancer Care Unit had better results in many satisfaction dimensions than the comparative group of oncology units participating in the Health Stream patient satisfaction surveys.
- Legacy Cancer Services participated in the College of American Pathologists Q-Probes project, a retrospective review of 30 needle core breast biopsy cases. Q-Probes determines the rate of radiologic-pathologic correlation in needle core biopsy cases. Legacy Cancer Services scored in the 99th percentile in 2010. The project highlighted that cases discussed at a multidisciplinary breast conference have better correlation rates; participants in Legacy Cancer Services' monthly radiology/pathology cancer conference would agree.

Legacy Cancer Services is proud of its work to continuously improve its systems and processes to deliver the highest clinical quality to its patients.

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Genetics services: The complexities of hereditary cancer

By Paul Dorsey, M.S., cancer genetics counselor, Legacy Cancer Institute

Since the completion of the human genome project, the expanse of knowledge regarding the role of genetics in cancer has been growing at an astonishing rate. This rapid advance has illuminated the complexities of the interaction between and the role of specific genes.

Patients and family members navigating the confusing and complex information associated with hereditary cancer are advised to seek a provider with comprehensive capabilities to:

- Collect and analyze multi-generational family histories
- Assess pedigrees and recognize cancer syndromes
- Educate patients about genetics and cancer
- Assess individualized cancer risk factors and provide screening recommendations
- Determine appropriate genetic tests (if any) for an individual's situation
- Present the advantages and disadvantages of genetic testing
- Identify family members who may be candidates for testing
- Inform patients about genetic privacy issues
- Interpret and present results of genetic tests (if done)

Legacy Genetics Services provides a comprehensive service, offering genetic counseling, risk assessment and testing (when appropriate) for those with an increased risk for developing cancer or to help identify at-risk family members. Since a particular type of cancer may be the result of different genes, complete assessment is critical to ensure that the correct test is offered. Legacy offers coordination of referrals to other specialists for early detection and support.

The Legacy Genetics Services team, from left, Paul Dorsey, M.S., genetics counselor; Sandi Potrue, support staff; and George Anadiotis, D.O., medical genetics

Many syndromes, many clues

There is a host of cancer syndromes linked to specific gene mutations; the most common are the hereditary breast and ovarian cancer syndrome and the colon cancer syndromes. Examples of other cancer syndromes that involve breast cancer are Cowden, Li-Fraumeni and Peutz-Jeghers syndromes. In fact, we are currently aware of 28 different genes involved in hereditary breast cancer. Many cancer syndromes increase the risk for gynecologic cancers. Uterine cancer may be seen in hereditary non-polyposis colon cancer or Lynch syndrome, but is also seen with some breast cancer syndromes such as CHEK2 and Cowden syndrome. We also see an increased risk for ovarian cancer in Lynch syndrome, as well as in many of the polyposis syndromes.

Multiple clues help when evaluating a patient for a hereditary cancer syndrome. The first clue is family history. Generally, we look for three generations affected with cancer and, depending on the size of the family, multiple individuals in a generation affected. However, some hereditary cancer syndromes have a high *de novo* or new mutation rate, so these individuals will not display a family history of the disease.

Other clues include cancers that appear at a younger age than expected, multiple primary cancers in a single individual, e.g., colon and uterine, bilateral cancer in an individual, rare cancers appearing multiple times in a family, or the spectrum of cancer in the family fits a hereditary cancer syndrome. Ethnic background is also

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considered. For example, about 1 in 40 individuals of Ashkenazi Jewish ancestry will carry a mutation in either BRCA1 or BRCA2, increasing their risk for breast and other cancers.

Complex histories, socioeconomic factors

Studies have shown that the family history provided by the patient in an initial office visit is often highly inaccurate. It is important that the patient is given time to research the family history and locate records that clarify important pieces.

Furthermore, it is imperative that genetic counseling be provided for individuals considering testing because of the complexity, the socioeconomic issues and the ramifications for the whole family.

For more information on Legacy Genetics Services, please call 503-413-6534 or 800-220-4937.

Cancer clinical research

By Leslie Sorenson, supervisor, cancer clinical research

Oncology research at Legacy Health has been fortunate to offer many clinical trials centered on women's cancers. They include various cooperative group trials available through the National Cancer Institute (NCI), as well as studies developed by physicians and supported through Legacy Health Foundations. These trials are designed to find effective treatments, symptom-control management and improve quality of life for breast and gynecological cancer patients.

In late December 2010, the NCI announced major changes in the approval and execution of clinical trials. This change makes new studies available to patients faster and hopefully allow for greater participation in clinical trials. Adult participation in clinical trials is currently about 3 percent nationally. Legacy Health's participation in clinical trials during 2010 was 13.6 percent with 5.9 percent in NCI Cooperative Group organizations, 6 percent in pharmaceutical sponsored research and 1.7 percent in locally developed, peer review studies.

The use of complementary medicine was the focus of four studies developed by physicians affiliated with Legacy Health and sponsored by Legacy Health Foundations:

- Low-level laser for treatment of chemotherapy induced neuropathy
- Acupuncture for postoperative symptoms in breast cancer patients who have undergone axillary surgery

The cancer clinical research staff, front from left, Erin Davis, CRC-II; Cindy Werhane, R.N., BSN, OCN, clinical nurse coordinator, Autologous Stem Cell Transplant Program; Leslie Sorenson, supervisor, oncology research; back row from left, Crystal Turner, CRC-II; Aaron White, CRC-II. Not pictured: Lisa Hansen, R.N., M.S., CNS, AOCN, clinical program specialist, Autologous Stem Cell Transplant program; Amy Douglas, CRC-II; Samantha Hancock, R.N., BSN, oncology research nurse coordinator

- Blue citrus to reduce the symptoms of bone and/or joint pain in breast cancer patients taking an aromatase inhibitor
- Trental and vitamin E for use in prevention of capsular contracture in patients requiring radiation therapy of the breast

Through a partnership with Walter Reed Army Medical Center, Legacy Health has been able to access gynecologic oncology trials developed through the Gynecology Oncology Group. This collaboration has given patients, as well as their physicians, more treatment choices for those hard-to-treat gynecologic diseases, such as ovarian cancer.

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Legacy Health is proud to offer clinical trials in collaboration with physicians, cooperative research groups, the NCI, and pharmaceutical and medical device companies. These collaborations give Legacy Health the opportunity to provide the most advanced treatment options to you and to our community.

If you would like additional information about research trials or you would like to participate in one of our studies, please call our Oncology Research Department at 503-413-8199 or visit us at www.legacyhealth.org/cancer.

Oncology nurse navigator program

By Jutta Kress, R.N., OCN, Legacy Meridian Park Medical Center oncology nurse navigator, Dan Osborn, ACS patient navigator, and Amy Carl, CPHQ, quality improvement specialist, Legacy Cancer Institute and Legacy Hospice Services

Legacy Health complements its cancer services with our navigation program. Oncology nurse navigators are specially trained R.N.s who assist patients as they "navigate" through their diagnosis and treatment. The nurse navigators at Legacy Good Samaritan Medical Center and Legacy Meridian Park Medical Center are actively involved in supporting patients who have been diagnosed with and are receiving treatment for women's cancer. In addition, an American Cancer Society (ACS) patient navigator is available to listen and address the patient and caregiver practical needs (transportation, financial assistance, housing, etc.) and to identify and link them to available ACS resources, host-facility resources, and community resources. Providing a consistent contact for our patients, our navigators assist patients and their families in the following areas:

- Provide education in understanding diagnosis, treatment and recovery
- Facilitate communication with the multidisciplinary health care providers
- Guide patients to appropriate support services and resources
- Offer ongoing emotional support throughout the course of treatment
- Assist in the resolution of barriers to care

In 2010, the Legacy Good Samaritan Medical Center nurse navigators served more than 700 cancer patients — 75.9 percent were between ages 50 and 79, and 63.4 percent were female. Of the 707 total patients:

Oncology nurse navigator and American Cancer Society patient navigator staff, front row from left, Jutta Kress, R.N., OCN, Legacy Meridian Park; Kim Kaufman, R.N., Legacy Meridian Park; back row from left, Deb Walts, R.N., OCN, Legacy Good Samaritan; Dan Osborn, BSW, patient navigator; Ellie Beard, R.N., OCN, Legacy Good Samaritan; Annette Raab, R.N., OCN, Legacy Good Samaritan.

- 391 had breast cancer, representing 55.3 percent of the total
- 24 had gynecologic cancer, representing 3.4 percent of the total
- Women's cancer patients accounted for 58.7 percent of the nurse navigators' caseload
- 49.4 percent were referred to the navigator service by physicians
- Nurse navigators referred their patients to the following support services most often:

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— Support groups: 265 patients
— American Cancer Society navigator: 140 patients
— Stress management: 109 patients

In 2010, 97 patients replied to the nurse navigation service satisfaction survey. Sixty-four breast cancer patients replied, representing 66 percent of all respondents.

- 92.2 percent of the respondents strongly agreed or agreed that they were satisfied with the nurse navigation program
- 96.6 percent of respondents strongly agreed or agreed that they would recommend Legacy Cancer Services to family and friends

On the 2010 Legacy Good Samaritan Medical Center satisfaction survey, one patient notes, "Legacy's oncology navigation services are fantastic, much needed and greatly appreciated. My nurse navigator was an invaluable resource and support to me and my family."

The Legacy Meridian Park Medical Center nurse navigator program is actively growing and serving several women's cancer patients in the south Portland-metro cities. In 2010, Legacy Meridian Park Medical Center had 354 analytic breast cancer patients. Of those, 95.7 percent, 339 patients, received nurse navigation services. With two nurse navigators and a busy Breast Health Center, the Legacy Meridian Park Medical Center nurse navigator program looks forward to serving more patients each year.

A comment on the 2010 Legacy Meridian Park Medical Center satisfaction survey says, "What a wonderful service! I didn't have the support of a family member so having a nurse navigator by my side was wonderful. I hope the Breast Health Center nurse navigator service is here to stay. Keep up the good work!"

Legacy Cancer Services is proud of its nurse navigator service. The support the nurse navigators provide to all cancer patients, especially those being treated for women's cancer, is invaluable to patients, families and the multidisciplinary health care team. Helping patients navigate their cancer journey with seamless care and access to support services is part of the exceptional program that Legacy Cancer Services provides.

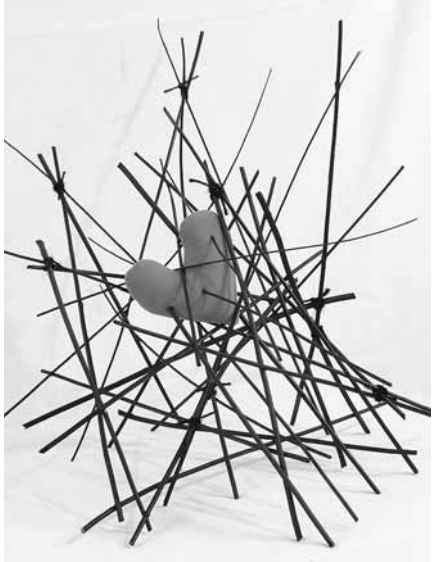
Legacy Cancer Healing Center: Services and survivorship

By Selma Annala R.T., CLC, supervisor, and Reza Antoszewska, ANP-C, Legacy Cancer Healing Center

Legacy Cancer Healing Center provides a myriad of integrative services to both individuals with a cancer diagnosis and their families.

Highlights of activities in 2010

"Healing Cancer through the Arts" — An exhibit featuring artworks by Legacy Good Samaritan cancer patients, their families and the Legacy staff who support them. The show opened in early March with a reception. The exhibit, which was located in the cancer center lobby, contained patient works created under the guidance of Wendy Tucker M.A., ATR, the Legacy Cancer Healing Center expressive arts therapist. Expressive arts therapy is a well-accepted



"Valentine 2009" by Judith Rizzio, a participant of the expressive arts therapy program at Legacy Cancer Healing Center, was part of the "Healing Cancer through the Arts" exhibit at the center.

discipline that involves all art forms — visual, performance, writing and music. The exhibit was extended a month to accommodate the additional interest generated from extensive coverage in *The Oregonian*.

Photography show — In October, Legacy Cancer Healing Center hosted the Pink Phoenix Dragon Boat photo exhibit in celebration of breast cancer survivors.

Cancer Survivors Day celebration — Legacy Cancer Services co-hosted the 23rd Celebration of Life with all of the major health care providers in the Portland area. More than 400 cancer survivors, families, friends and health care professionals attended the event held at Miller Hall of the World Forestry Center. Legacy Cancer Healing Center staff provided chair massage, mask making, horticultural activities, as well as nutritional and survivorship education, at this uplifting event.

The Legacy Cancer Healing Center team includes, front, from left: Barbara Meyer, Ph.D.; Kathleen Perkins, RYT; Wendy Tucker, M.A.; Sharilyn Cohn, CM-Th. Back, from left: Kate Leonard, Ph.D.; Reza Antoszewska, ANP-C; Wendy Talbot, MSW, LCSW, OSW-C; Barbara Cabot, CM-Th; Eileen Dolan, LMT; Selma Annala, R.T., CLC; Marci Reed, R.D., L.D.

Meals that Heal — Legacy dietitian Marci Reed, R.D., L.D., and chef Nicole Sandleben created healthy menus of cancer-protective foods and provided education about how to prepare and incorporate those foods into a healthy diet. "Farm to Fork" was offered at the Portland Farmers' Market where participants sampled healthy foods and toured the market. Subsequent classes held at Trinity Episcopal Cathedral incorporated additional education on cancer-protective foods and food preparation, concluding with participants and staff sharing in the delicious meal prepared by the chef. Legacy partnered with ODS to provide additional staff support and supplies. Attendees found the process very supportive of making positive changes in their diet and lifestyle.

Integrative patient rounds — Monthly patient rounds were instituted in 2010 to promote allied health care team interaction around patient care with a result of better coordination of integrative services for our patients. Team members include the inpatient and outpatient social workers, oncology nurse navigators, massage therapist, stress management therapist, dietitian, expressive arts therapist and survivorship/integrative nurse practitioner.

Legacy Cancer Healing Center classes and support groups are offered free of charge. Cancer classes and support groups are listed on page 34.

Integrative cancer care

Legacy Good Samaritan Medical Center offers specialty clinical services provided by our nurse practitioner in integrative cancer care and cancer survivorship. Referrals have steadily grown, with 90 percent being patients diagnosed with breast cancer. "I'm so glad you're here" is a remark heard frequently at the completion of a patient's visit to these programs.

This clinical service is available to cancer patients of all diagnoses and genders. Patients are referred at various points along the continuum of care. Referrals are made:

- At time of diagnosis and during active treatment for patient assistance in:
  - Finding appropriate integrative services
  - Decreasing symptoms through lifestyle and mind/body interventions
  - Evaluation of the patient's current integrative care modalities for compatibility with cancer treatments

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- Post treatment for services that may include:
  - Symptom management of the physical, emotional and existential issues that are present for many of our cancer patients
  - Lifestyle and risk management to improve the odds of staying cancer-free and diminishing the risk of other chronic illnesses

Patients are matched to the many integrative classes and services at Legacy, as well as the larger community. Our goal is to help foster health, well-being and disease prevention. Interventions and planning incorporate each patient's values, beliefs, resources and abilities into a comprehensive plan.

Cancer survivorship

Over the past year, a short treatment summary tool was developed, along with a patient-friendly follow-up care guide. These are provided to each of our survivorship patients to enhance their ability to track and understand their treatment and aftercare. Each patient is assessed carefully and provided with a unique treatment follow-up plan.

Particular clinical issues, including non-pharmacologic interventions for menopausal symptoms and evidence-informed risk reduction interventions for triple negative breast cancer patients, are being actively addressed, keeping pace with current research in these topics.

We are currently developing services for metastatic breast cancer patients as an expansion of survivorship, initiating a metastatic breast tumor board and survivorship clinic services specifically tailored for this patient population.

Referrals to the nurse practitioner are covered by most insurance plans and can be made by physicians, allied health care staff or through patient self-referral by calling 503-413-6550.

Cancer rehabilitation and women's physical therapy

By Laura Evans, P.T., CLT-LANA; Beth Hall, DPT, CAPP-pelvic; and Daria Gray, M.S., CCC-SLP, Legacy Rehabilitation Services

Cancer treatments can cause long-standing and sometimes life-long problems after cancer is in remission or cured. These treatment-related problems include pain, weakness, fatigue, limitations in mobility, lymphedema, increased risk of osteoporosis, and changes in body image, memory and difficulty with new learning. Gynecological cancers have the same post-treatment related sequelae, as well as additional issues with physical intimacy and continence. Legacy cancer rehabilitation occupational, physical and speech therapy programs offer treatment strategies to mitigate these difficulties.

After breast cancer surgery, whether lumpectomy, mastectomy or mastectomy with immediate reconstruction, some women have difficulty recovering their normal arm range of motion. Some may develop axillary web syndrome or cording. Axillary web syndrome/cording presents as thick fascial tension bands extending from the axilla into the arm or as inflamed lymphatic vessels or veins that extend down the arm and or into the trunk. Cording is visibly noticeable in slender women and can be palpated on fuller bodied women. Other women have no obvious cording, but have pain in the axilla, chest wall, shoulder or along the ribs. This pain causes limitations in their range of motion, difficulty using their arm, cramping of the intercostal muscles and a feeling of tightness in the chest.

Legacy cancer rehabilitation occupational and physical therapists utilize manual therapy and soft tissue mobilization techniques to help stretch tightened tissues, and help overactive muscles relax and return to a more normal tension. As pain decreases, patients are able to improve their flexibility and can begin to strengthen weakened muscles to return to

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normal function. These techniques can be very helpful during the breast expansion phase of reconstructive surgery.

Lymphedema is a relatively well-known risk for cancer patients who have undergone lymph node dissection. This presents as swelling in the quadrant of the body where lymph nodes have been removed. Swelling most often occurs in the arm of breast cancer survivors; however, breast lymphedema can also occur with and without arm lymphedema. With the gynecological cancer population, leg lymphedema is the most frequent occurrence, but the trunk and or genital edema can develop with or without visible leg lymphedema.

The cancer rehabilitation staff includes, from left: Cyd Dashkoff, M.S., P.T., CSLT; Sandra Kirchner, P.T., CLT-LANA; Karen Garrett, P.T., CLT-LANA; and Sarah LaVenture, OT/L, CTL-LANA. Not pictured: Laura Evans, P.T., CLT-LANA; Katie Lyttle, P.T., DPT; Claudia Richardson, P.T.; and Anna Weiss, P.T., DPT.

With the advent of sentinel node dissection, the risk of lymphedema has been reduced greatly but still occurs. Legacy Health has four physical therapists and one occupational therapist that are nationally certified by the Lymphology Association of North America (LANA), and one physical therapy assistant. They provide education regarding risk reduction strategies and early signs and symptoms of lymphedema. These therapists also provide treatment at any stage of lymphedema to reduce swelling to a more normal volume and teach clients how to manage this chronic condition. Unfortunately, lymphedema cannot be cured, but with good management, it can be well controlled.

Legacy Health also has specially trained pelvic floor physical therapists that help women deal with pelvic floor muscle dysfunction. Radiation treatments and a lack of estrogen hormone can result in pelvic pain, pain with intercourse, urinary incontinence, fecal incontinence, decreased control of flatulence and pelvic floor muscle weakness.

The pelvic floor muscle is important for maintaining bladder and bowel control. If the pelvic floor muscle sustains damage from radiation treatments or from a prolonged period of inactivity, pelvic floor muscle weakness may be a direct result.

Pelvic floor physical therapists work to instruct patients with appropriate exercises to strengthen the pelvic muscles and regain continence. Often these exercises include Kegels or isolated pelvic floor muscle contractions. Performing Kegels will decrease leakage associated with coughing, sneezing, laughing or exertional tasks. Leakage related to other triggers such as the sound of running water, arriving home or the sensation to void, are termed urge incontinence. This type of incontinence is treated with urge suppression techniques, strengthening exercises and behavioral modifications. It is also important to have strong accessory muscles of the pelvic floor. This means that keeping the trunk, legs and hip muscles strong will positively impact one's control of the bladder and bowel.

If the pelvic floor muscles have tightened due to radiation treatments, pelvic pain or pain with intercourse can be the direct result. Pain with intercourse is often caused by vaginal dryness related to a lack of estrogen hormone. The pain that occurs will then cause the muscles of the pelvic floor to tighten into a muscle spasm. If this pelvic floor muscle is in spasm, intercourse can become painful or even impossible for some

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women. Thankfully, the pelvic floor muscles respond well to manual stretching techniques. Patients are instructed with muscle relaxation, tissue desensitization and techniques to stretch the vaginal muscles. These methods, along with use of supplemental vaginal lubrication, allow for the patient to resume pain-free intercourse.

Due to decreased activity during cancer treatment and some cancer treatments, osteoporosis risk increases. In the past, patients were told to rest and never lift more than five pounds, thus becoming weaker and less active, without knowing when they could resume normal activity. However, research over the past five years has proven that patients can exercise safely, and that if they gradually increase their weight-lifting, they can lift safely without limitations. This has great implications for our osteoporosis clients as load-bearing and weight-lifting exercise has a positive effect on bone mass. Legacy physical and occupational therapists can develop individualized exercise programs for our clients who need to build strong bones and prevent fractures. A structured conditioning program also breaks the fatigue and inactivity cycle, improving the quality of life.

In addition to the physical changes associated with cancer treatment, many patients experience problems with cognition or thought processing. Health professionals use the informal term "chemobrain" to describe an acquired compromise in any of the following areas: memory, concentration, attention, word finding, new learning, self-management and time organization. These changes commonly occur during chemotherapy treatment and resolve to near normal within the first year after chemotherapy ends. However, for some people this change in brain function is quite distressing and impedes their ability to work. Legacy speech therapists teach patients how to simplify and organize their schedules to allow pacing of taxing activities throughout the week by breaking them down into small portions. They teach the use of visual cues and technology to track new information and spark memory. Word finding difficulties are addressed with cueing hierarchies, word associations and gestures, as well as teaching new methods of organization and time management skills.

Legacy cancer rehabilitation therapists are experienced and able to assist patients in returning to their normal functional abilities and to help them manage any long-term changes.

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Community involvement 2010

Participation in community events

March
- Breast Cancer Issues (Komen for the Cure)
- Men's Health Fair (Men's Health Project)

May
- Making Strides Walk (American Cancer Society)
- Latino Health Equity Conference (Familias en Accion)

June
- Cancer Survivors Day (city-wide event)

August
- Get Your Rear in Gear colorectal cancer run/walk (Steve Baker Colorectal Cancer Alliance)

September
- Heroes Gala, and Wall of Courage (Children's Cancer Association)
- Race for the Cure and Komen health expo (Komen Race for the Cure)

October
- Light the Night walk (Leukemia & Lymphoma Society)
- Roots of Strength cancer conference (Native People's Circle of Hope)
- Pink Sunday (Komen for the Cure)

Public education talks/activities

- Multiple survivorship presentations to various support groups
- As a component of Legacy Breast Health Centers, community outreach talks focusing on breast health, screening and cancer prevention presented in Salem, Lincoln City and Astoria

March
- Super Colon display (Legacy Meridian Park Medical Center)
- Colorectal Cancer: Preventable, Treatable, Beatable! (Legacy Good Samaritan Medical Center and Legacy Meridian Park Medical Center)

March–May
- Healing Cancer through the Arts exhibit (Legacy Good Samaritan Medical Center)

April
- Exercise, Nutrition and Cancer (Legacy Good Samaritan Medical Center)

May
- Managing Menopause, Mastering Midlife (Legacy Meridian Park Medical Center)

October
- Issues Surrounding Prostate Cancer (southwest Portland)
- Shop for a Cause: Breast Health (Bridgeport Village, Tualatin)

October–December
- Multiple prostate health screening and treatment talks by various physicians (Legacy Salmon Creek, Legacy Good Samaritan, Legacy Emanuel, Legacy Meridian Park medical centers and in the community)
- Meals that Heal (northwest Portland)

November
- Smoking Awareness Fair; Great American Smokeout (Legacy Meridian Park Medical Center)

Screening events

May/September — Free mammograms for uninsured, high-risk women (Legacy Meridian Park Medical Center)

May — Skin cancer screening (with Providence and OHSU)

September — Rosa Parks Community Health Fair, colorectal and heart health screenings

Ongoing — Low-cost screening mammograms, in conjunction with the Komen Foundation, at Legacy Good Samaritan, Legacy Emanuel, Legacy Mount Hood and Legacy Meridian Park medical centers and Legacy Medical Group–St. Helens

Ongoing support groups

Bereavement Groups
Brain Tumor Support Group
Breast Cancer Support Groups
Gynecological Cancer Support Group
Head & Neck Cancer Support Group
Lymphedema Support Group
Prostate Cancer Support Group
Surviving Cancer Together Support Groups

Ongoing classes

Art/expressive arts therapy for children of parents with cancer
Expressions of Healing
Gardening Workshop for Individuals with Cancer
Journal to the Self
KIDZ in the Discovery Zone art workshop
Meditation for Cancer Patients
Mind Over Menopause
Nia Mind/Body Exercise
T'ai chi for Healing
Yoga for Individuals with Cancer

Oregon Partnership for Cancer Control

The Oregon Partnership for Cancer Control is a statewide collaboration of individuals and organizations with a commitment to reducing the burden of cancer in our state. Legacy Cancer Services continues to be involved, represented by Selma Annala, co-chair of the OPCC Coordinating Committee, and Charlyn Wilson, chair of the Colorectal Health Task Force.

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Professional education activities 2010

Conferences and courses

January and November

- Chemotherapy and Biotherapy Courses for Adults (ONS)
- Chemotherapy and Biotherapy Courses for Pediatrics (APHON)

February

- 27th Annual Seminar for Radiation Oncology Professionals

March

- Strategies for Imaging Brains, Breasts and Bones
- Breast Cancer Issues: Physicians Best Practices

April

- 4th Annual GI Conference: Controversies in Gastrointestinal Oncology

October

- 6th Annual Pacific Northwest Excellence in Breast Care
- Our Grey Matters: Advances in Neurosurgery

November

- Stanwood Cancer Rehabilitation Conference: Health Care Changes and Their Impact on How We Provide Quality Cancer Care

Legacy Health Grand Rounds (CME)

Legacy Good Samaritan Medical Center Oncology

- Genetics of Colorectal Cancer
- Lung Cancer Screening
- Fertility Options in Cancer Patients
- Minor Salivary Gland Tumors
- The Use of 5-ALA Fluorescence Guided Surgery for the Treatment of Gliomas
- Updates in Sarcoma
- Identifying and Managing Hereditary Breast and Ovarian Cancer Syndromes
- Surgical Management of Differentiated Thyroid Carcinoma
- Surgical Innovations in Breast Cancer: Rollover Halsted
- Managing Metastatic Breast Cancer as a Chronic Disease
- Active Surveillance in Prostate Cancer
- New Insights into the Treatment of Multiple Myeloma

Legacy Good Samaritan Medical Center Integrative Oncology

- Peripheral Neuropathy: Integrative Management with Acupuncture
- The "Sunshine Vitamin": Vitamin D and Cancer
- The Impact of Supporting Health on the Tumor Microenvironment and Prognosis

Legacy Meridian Park Medical Center Oncology

- Esophageal Robotic Surgery
- Recurrent Prostate Cancer: When Treatment Fails

Legacy Meridian Park Medical Center PCP Forum

- Overview of Gynecologic Malignancies

Legacy Mount Hood Medical Center PCP Forum

- Current Evaluation and Treatment of Pancreatic Tumors

Lunch and Learn presentations

Educational talks given on site at primary care and specialty clinics in the Legacy system, Portland area and northwest Oregon, covered a variety of topics:

- Stereotactic radiosurgery
- Brachytherapy
- Survivorship/Legacy Cancer Healing Center
- Breast cancer diagnosis and treatment
- Pancreas cancer update for PCPs

Cancer patient care conferences (tumor boards)

- Breast care (Legacy Good Samaritan Medical Center, Legacy Meridian Park Medical Center)
- Radiology/pathology correlation for breast cancer cases (Legacy Good Samaritan Medical Center)
- Gastrointestinal tumors (Legacy Good Samaritan Medical Center)
- Gynecological cancers (Legacy Good Samaritan Medical Center)
- Thoracic tumors (Legacy Good Samaritan Medical Center, Legacy Meridian Park Medical Center)
- Urologic/prostate tumors (Legacy Good Samaritan Medical Center)
- Hematological malignancies (Legacy Good Samaritan Medical Center)
- Pediatric oncology (The Children's Hospital at Legacy Emanuel)
- Head and neck tumors (Legacy Emanuel Medical Center)
- Central nervous system tumors (Legacy Emanuel Medical Center)
- General cancer conference (Legacy Salmon Creek Medical Center, Legacy Meridian Park Medical Center, Legacy Mount Hood Medical Center)

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Publications 2010

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Legacy Health Network Cancer Committee Members 2010

Chris Alexander, R.N., manager, Medical Oncology Unit, Legacy Meridian Park

Selma Annala, R.T., CLC, supervisor, Legacy Cancer Healing Center

Reza Antoszewska, ANP-C, Cancer Healing Center/ Survivorship Program, Legacy Good Samaritan

Jason Bauer, M.D., RVT, interventional radiologist

R. Bryan Bell, M.D., DDS, FACS, head and neck surgeon, Cancer Committee Chair and Cancer Liaison Physician

Diane Buelt, director, Clinical and Support Services, Legacy Salmon Creek

Amy Carl, CPHQ, quality improvement specialist, Legacy Cancer Services and Legacy Hospice Services

Jefferson Chen, M.D., FACS, neurosurgeon

Andrew Cox, M.D., diagnostic radiologist

Kristy Dobrauc, outreach coordinator, Legacy Cancer Services

Kelly Doherty, manager, Radiation Oncology, Legacy Emanuel and Legacy Good Samaritan

Barbara Farmer, R.N., manager, Legacy Hospice Services

Joseph Frankhouse, M.D., FACS, colorectal surgeon

Julie Goodwin, director, Clinical and Support Services, Legacy Meridian Park

Leah Grotzinger, Pharm.D., pharmacist, Legacy Emanuel and Legacy Good Samaritan

Lisa Hansen, R.N., AOCN, coordinator, Autologous Stem Cell Transplant Program

Kate Jaramillo, chaplain

Kathleen Johnson, manager, Rehabilitation and Radiation Oncology, Legacy Mount Hood

Nathalie Johnson, M.D., FACS, breast surgeon, medical director, Legacy Cancer Services and Breast Health Centers

Michael Kaempf, M.D., FACS, urological surgeon

Kasra Karamlou, M.D., medical oncologist

Andrew Kee, M.D., radiation oncologist

Laurie Kennedy, manager, Rehabilitation and Radiation Oncology, Legacy Salmon Creek

Leah Kiesow, MBA, CTR, manager, Cancer Data Management

Pamela Kilmurray, director, Legacy Cancer Services, Rehabilitation, Stroke and Hospice Services

Misa Lee, M.D., radiation oncologist

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Legacy Health Network Cancer Committee Members 2010, *continued*

Katherine Leonard, Ph.D., psychologist
Richard Lex, R.N., manager, Legacy Cancer Services, Legacy Good Samaritan
Regan Look, M.D., medical oncologist
Bruce Lowe, M.D., urological surgeon
Janel McNally, CTR, Cancer Data Management, Legacy Salmon Creek
Anthony Melaragno, M.D., chief administrative officer, Legacy Good Samaritan
Katherine Morris, M.D., FACS, surgical oncologist, medical director, Cancer Research and Hepatic, Biliary and Pancreatic Program
Dane Moseson, M.D., FACS, general surgeon
Linda Nguyen, R.D., dietitian, Inpatient Services, Legacy Good Samaritan
Janice Olson, M.D., medical director, Children's Cancer and Hematology Program
Dan Osborn, BSW, patient care navigator, American Cancer Society
Kevin Oyama, M.D., pathologist
Alexandra Penney, R.N., manager, Medical/Oncology Unit, Legacy Salmon Creek
Marci Reed, R.D., dietitian, Legacy Cancer Services
Kelly Rice, Pharm.D., BCOP, oncology clinical pharmacist, Legacy Good Samaritan
Mark Schray, M.D., radiation oncologist, medical director, Legacy Radiation Oncology
Spencer Shao, M.D., medical oncologist
Deborah Shardy, M.D., Children's Cancer and Hematology Program
Anne Smith-Sehdev, M.D., pathologist
Leslie Sorenson, supervisor, Cancer Clinical Research
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Catherine Telford, CTR, Cancer Data Management, Legacy Emanuel
Paul Tseng, M.D., FACS, gynecologic oncologist and pelvic surgeon
Anthony Van Ho, M.D., medical oncologist
Terry Wagie, R.N., M.S., clinical nurse specialist, Legacy Cancer Services
Jianzhou Wang, M.D., pathologist
Craig Weintz, manager, Legacy Hopewell House Hospice
Gail Weisgerber, manager, Rehabilitation Services, Legacy Good Samaritan
Robin Weisshaar, manager, Social Services, Legacy Good Samaritan and Legacy Meridian Park
Amanda Wheeler, M.D., breast surgeon
Jocelyn White, M.D., FAAHPM, FACP, FAAPP, medical director, Legacy Palliative Care and Legacy Hospice Services
Mark Whiteford, M.D., FACS, colorectal surgeon
Charlyn Wilson, R.N., program coordinator, Legacy Cancer Services
William Winter, III, M.D., gynecologic oncologist and pelvic surgeon

Subcommittees of the Network Cancer Committee

Breast Health Center Meeting (Legacy Meridian Park Medical Center)
Breast Health Steering Committee (Legacy Health)
Breast Program Leadership Group (Legacy Good Samaritan Medical Center)
Breast Program Steering Committee (Legacy Salmon Creek Medical Center)
Cancer Data Management Quality Meeting
Cancer Healing Center — Integrative Cancer Quality Committee
Cancer Services Quality Advisory Council
Center for Colorectal Cancer at Legacy Good Samaritan Medical Center
Hepatobiliary/Pancreatic Program Committee
Hospice Quality (QAPI)
Integrative Cancer Care Advisory Committee
Oncology Clinical Research Meeting
Prostate Executive Program Planning Committee
Prostate Program Development
Public/Professional Education Council
Radiation Oncology Quality Council

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Legacy Cancer Institute

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