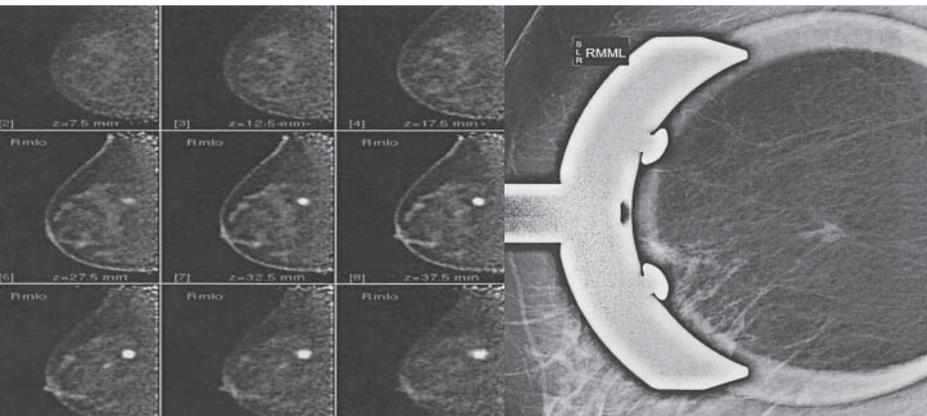


# Legacy Cancer Services

**2006 Annual Report**

*featuring Breast Cancer*





*Legacy Emanuel Hospital & Health Center*

*Legacy Good Samaritan Hospital & Medical Center*



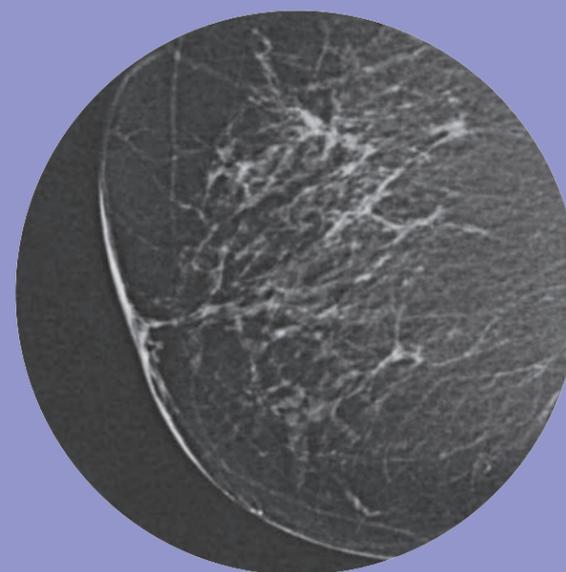
*Legacy Meridian Park Hospital*



*Legacy Mount Hood Medical Center*



*Legacy Salmon Creek Hospital*



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# Comprehensive Services

*Legacy Cancer Services provides a multidisciplinary, comprehensive range of services designed to help patients and their families through the diagnosis, treatment and recovery of their cancer. Legacy Cancer Services and its affiliated physicians provide high quality, compassionate, efficient, and cost-effective care to both adult and pediatric patients. This is accomplished by making the entire spectrum of cancer services available to all patients and their referring physicians. The following services comprise the cancer program.*

## Autologous Blood Stem Cell Transplant

Autologous (meaning from one's own) blood stem cell transplantation is performed at Legacy Good Samaritan Hospital as part of a nationally accredited program. Physicians, nurses, and other healthcare 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-Hodgkins lymphoma, Hodgkins disease, acute leukemia, multiple myeloma and primary amyloidosis may benefit from autologous transplantation.

## Northwest Marrow Transplant Program

Legacy Health System and Oregon Health & Sciences University have 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 Hospital 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.

## Autologous Blood Donation Program

Autologous blood donation allows a patient to donate his or her own blood for use during elective surgery at Legacy Good Samaritan Hospital. The units of blood are collected during the weeks prior to surgery. Receipt of a patient's own blood guarantees compatibility and freedom from risks of infection from another individual. A physician referral is necessary. Autologous Blood Donation is a service provided at Legacy Good Samaritan Hospital's Day Treatment/Infusion Unit.

## Brachytherapy

Brachytherapy is a form of radiation therapy in which radioactive material is 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 convenient treatment course. Legacy offers a full range of the most technologically advanced brachytherapy services and the largest and most experienced program in the region. Cancer types where brachytherapy is particularly useful include prostate cancer, breast cancer, gynecologic cancer and soft tissue sarcomas. This form of treatment can be accessed through physician referral to radiation oncology.

## Breast Health Centers

The goals of the Legacy Breast Health Centers are to offer women comprehensive, compassionate care - all in one convenient location - and to provide each and every patient with prompt personalized care. The Breast Health Centers, located at Good Samaritan Hospital, Meridian Park Hospital, and Salmon Creek Hospital, provide expertise in routine and diagnostic mammograms, breast ultrasound and breast biopsies. The latest technology, 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 following a screening mammogram, it is important that further diagnostic tests can occur promptly. The 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.

## Cancer Care Conferences

Multidisciplinary cancer care conferences offer opportunities to discuss diagnosis, pre-treatment evaluation, staging, treatment strategy, and rehabilitation of a broad spectrum of cancer cases. Phy-

sicians present current cases for discussion. These conferences also provide education for medical staff, students and other cancer-related personnel. Legacy offers a regular schedule of conferences for cancers of breast, thoracic, central nervous system, head and neck, gastrointestinal origins, leukemia/lymphoma, and for pediatric cancers. General cancer "grand rounds" are also presented.

## Cancer Care Unit

The Cancer Care Unit on the Legacy Good Samaritan Hospital campus is a focused medical/surgical center for Legacy Health System. The specially trained staff on the Cancer Care Unit provide state-of-the-art clinical treatments, thorough patient education, and family support, while delivering compassionate care. The unit has 22 beds and most are private. This includes six rooms for stem cell transplant. The unit has flexible visiting hours and houses the John Stanwood Family Room.

## 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 and the Oregon State Cancer Registry, quality monitoring of registry data, and responding to data requests. The data collected by the registrars is vital to Legacy's approved Cancer Program.

## Cancer Genetics and Risk Assessment Program

A unique community-oriented program at Legacy Good Samaritan Hospital combines genetic risk assessment and counseling for breast, ovarian, colon and other cancers with pre-symptomatic detection, development of personalized screening recommendations, and discussion of prevention strategies. Genetic consultative services include diagnosis of cancer syndromes, patient education about the inherited components of cancer, evaluation of personal and family cancer history and, if appropriate, genetic testing.

## Cancer Prevention and Early Detection

Legacy Cancer Services staff play 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, Support Services and Integrative Care

Cancer Rehabilitation, Support Services and Integrative Care work together to help individuals and their families adjust to the impact of cancer through:

- Psychosocial counseling – identifies emotional needs and adjustment issues, and assists in the development of coping skills.
- Physical therapy – maximizes the level of independence within the limits of the individual's disability and illness through use of exercise, ambulation, assessment of equipment needs, family training, and assistance with pain management.
- Occupational therapy – educates and helps in the adjustment to possible limitations of endurance, self-care skills or other activities of daily living.
- Speech therapy – provides instruction, training and therapy for those with speech, swallowing and communication difficulties.
- Dietitian – provides guidance in achieving a healthy lifestyle through individualized nutritional counseling.
- Stress management – assists in an individual's adjustment to illness, disability and treatment through life planning, relaxation training and guided imagery.
- Art therapy – 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.
- Medical Social Worker/RN – addresses emotional, social and financial needs and coordinates community services/resources.
- Musician in residence – provides music for relaxation, distraction and healing for patients and families in the Good Samaritan Cancer Care Unit.
- Music Thanatology – a palliative music practice for end of life care – brings harp and voice to the bedside, meeting fear, discomfort and suffering with the therapeutic qualities of music.
- Movement classes – NIA and yoga – increase mobility, flexibility, and endurance, while providing support and enhancing life quality.
- Lymphedema Management – treats swelling of the arm, leg or other body part to reduce the swelling, minimize recurrence, decrease pain and discomfort, provide education and minimize psychological distress.

• Healing Gardens – provide therapeutic gardens accessible to patients and families for renewal and reflection.

• Massage – applies a range of treatments including manual massage therapy to positively affect the individual's health & well being.

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.

## Children's Cancer Program

The Children's Cancer Program staff at Legacy Emanuel Children's Hospital have been specially trained in caring for children and adolescents with cancer. Focusing on the treatment and cure of childhood cancer, 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, intensive care unit, pediatric subspecialty support and hospice.

## Clinical Research Activities

Legacy Cancer Services participates in a variety of clinical trials through community-based cancer research organizations, including Columbia River Oncology Program and Northwest Marrow Transplant Program. National research base affiliations are established with the following organizations: University of Rochester Cancer Center (symptom management studies), Southwest Oncology Group (adult clinical trials for treatment and prevention of cancer), Radiation Therapy Oncology Group (trials with the latest radiation therapy techniques), National Surgical Adjuvant Breast and Bowel Project (breast, colon and rectal cancers), Gynecologic Oncology Group (research studies for women with pelvic cancer), Children's Oncology Group (research for children and adolescents with cancer), and Northwest Marrow Transplant Program (trials for adults and children undergoing blood and marrow transplantation). In addition, Cancer Services coordinates and runs a variety of its own research studies, in collaboration with Legacy Research.

## Consultation Service

Consultation Service provides information and referrals to patients and families seeking another opinion regarding their cancer diagnosis or cancer care. We offer individualized referrals to appropriate cancer care physicians.

## Day Treatment/Infusion Unit

The Day Treatment/Infusion Units at Legacy Good Samaritan Hospital, Salmon Creek Hospital, Meridian Park Hospital, and Mount Hood Medical Center provide chemotherapy, blood transfusions, and other infusions to outpatients, allowing them to maintain an independent lifestyle and reduce unnecessary hospitalizations. Nurses are also available to place PICC lines, provide central line care, draw labs and provide ongoing patient monitoring. The services are available Monday through Friday, and nurses are available on weekends and holidays by appointment. Pharmacy, laboratory, and diagnostic imaging facilities are available to provide convenient support services for Day Treatment patients. A physician referral is necessary.

## End of Life Care/Hospice/Hopewell House

Palliative care, often called "comfort care", is provided to any hospital patient nearing the end of life. Consultations are offered specifically at Legacy Good Samaritan and Legacy Emanuel Hospitals.

Hospice is a special program that focuses on quality of life for adults and children with terminal illness. Care is provided in the patient's place of residence whether it be their home, assisted living, or care facility. Legacy Hopewell House Hospice Center is licensed as a specialty hospital. Hospice patients needing acute pain and symptom management, or experiencing caregiving crisis have found Hopewell House 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 includes the medical director, registered nurses, medical social workers, home health aides, physical therapy, occupational therapy, pastoral services, 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.

## Gastrointestinal Tumor Services

Legacy's Gastrointestinal (GI) Tumor Program brings together a wide variety of treatment and support services related to the care of those with esophageal, stomach, colorectal and other GI malignancies. Elements of the program also include clinical research, genetics and educational offerings for physicians, patients and the community including our annual Controversies in GI Oncology Conference each Spring. The multidisciplinary GI Tumor Patient Care Conference (Tumor Board) meets twice monthly to discuss diagnosis, treatment plans and follow-up of current patients.

### Green Gables Guest House

Green Gables Guest House, on the Legacy Good Samaritan Hospital 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 Health System is a leading regional center for treatment of liver, bile duct and pancreatic tumors, offering a full range of treatment options. Legacy offers specialized techniques, treatments, and procedures, such as liver resection, radiofrequency ablation, hepatic artery pump chemotherapy, and chemo- and radio-embolization for liver tumors. 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 basic and clinical research, a prospectively maintained database to track outcomes and stimulate clinical research, and education programs for physicians and patients.

### Lymphedema Management

Lymphedema management is a service that 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 the 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.

### Oncology Nurse Navigator

Good Samaritan Hospital offers the services of an Oncology Nurse Navigator, a registered nurse trained in cancer care, to help patients "navigate" through their cancer diagnosis and treatment. Currently focused on patients with breast, colorectal or prostate cancer, the nurse navigator guides, supports and educates patients and their families and helps coordinate the efforts of the medical team.

### 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 all hospital locations except Meridian Park Hospital. The treatment process includes consultation,

treatment planning, on-going clinical evaluation, education and support services. Several types of radiation therapy are available, depending on the needs of a specific patient:

- 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 new tool that delivers radiation more accurately and effectively to tumors located 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 (available at Legacy Emanuel), in use at only a handful of centers nationwide, 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. With recent upgrades, the accuracy and reliability of Novalis® has been increased. This allows its use on medically inoperable tumors in the spine, head and neck, lungs, liver, breast, prostate and other areas in the body.
- Brachytherapy—a form of radiation therapy in which radioactive material is placed within the body in direct contact with the affected area, allowing more radiation to be given safely and resulting in a much shorter and more convenient course of treatment. Cancer types in which brachytherapy is particularly useful include prostate, breast, gynecologic and soft tissue sarcomas.
- 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.

### Surgery

Legacy Surgical Services offers comprehensive state-of-the-art surgical services at Legacy's five hospitals. Legacy's surgical capabilities comprise virtually every medical specialty and feature many of the region's preeminent surgeons. Programs in robotics, bloodless surgery, minimally invasive surgery, lithotripsy and pain management contribute to Legacy's reputation as a center of excellence.

### 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 Services website at [www.legacyhealth.org/cancer](http://www.legacyhealth.org/cancer) for a current listing.

### Tumor Bank

The Legacy Oncology Laboratory opened its Tumor Bank in April of 2006. The bank collects and preserves tumor samples removed during surgery. Researchers are studying the relationships between tumor characteristics, treatment alternatives, and patient outcomes. Consent from patients is required before banking the tumor specimens. 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. They assist with numerous rewarding activities such as helping with Survivors' Day, mailings, making phone calls, maintaining a patient library and receptionist work. Volunteers help keep Green Gables Guest House in ready condition for guests and provide support for the guests while staying there.

## Building on a Tradition of Excellence. Bringing Passion and Science Together Toward Discovery and Progress for the Future.

A tradition of excellence - coming together with science and a group of professionals who are passionate about improving cancer care. That I think perfectly describes the programs at Legacy



Cancer Services and is especially descriptive of our breast cancer programs. Unfortunately, the Northwest is home to some of the highest incidences of breast cancer in the nation

and breast is our highest tumor site, with 529 new cases treated in our system annually.

Legacy Cancer Services has been a leader in the realm of breast cancer therapy in Oregon, bringing new technology and service to improve the diagnosis and treatment of breast cancer for over 20 years. I'd like to share some of the history of our program with you.

- 1975** Dr. Stanwood established Cancer Rehabilitation Program - A national landmark
- 1992** First Stereotactic Breast biopsy unit in Portland established at Legacy Good Samaritan
- 1995** Comprehensive Genetic Risk Assessment Program established
- 1996** First Sentinel Node in Breast Cancer Research Trial and Training Courses
- 1998** Comprehensive Breast Health Center at Legacy Good Samaritan (First in Portland)
- 1999** Comprehensive Breast Health Center at Legacy Meridian Park.

- 1999** Complementary Therapy Research Projects in Breast Cancer begins
  - *Black Cohosh versus Effexor for Management of Hot Flashes in Breast Cancer Survivors*
  - *Horsechestnut versus Placebo as an Adjunctive Therapy in Lymphedema*
  - *RayGel versus Placebo for Skin Protection during Whole Breast Irradiation*
  - *Acupuncture*
  - *Blue Citrus*
- 1999** First Computer Assisted R2 mammography reading devices installed with the breast center opening
- 2003** Oregon's First Partial Breast Irradiation: both Interstitial catheters and Intracavitary therapy (Mammosite)
- 2005** Tumor Bank- Bench research in breast cancer
- 2006** First Breast Specific Gamma Imaging in Oregon

As you can see, we have been working diligently to keep pace with the changes and improvement in breast imaging and therapy. As we go forward, we are arming ourselves to be part of the solutions. New research occurring in our research labs and clinicians with a commitment to help their patients are key to the future. Look for new and exciting developments as we continue to work towards the common goal of improved outcomes.

As you read through this year's report, I think you will be as elated as I am about the work being done in surgery, radiation, medical oncology, rehabilitation, integrative therapies and research. You will feel the passion and energy for the future of care and discoveries in the world of Breast cancer.

### Nathalie Johnson, M.D., FACS

Medical Director –  
Legacy Cancer Services and Breast Health Centers  
*Legacy Health System*

## LHS Breast Cancer Site Analysis, 2006

### Background

Breast cancer is one of the most common malignancies affecting women in the Western countries. We are learning that breast cancer is clinically and pathologically heterogeneous. Clinical factors,



such as histology, tumor size, lymph node involvement, age at diagnosis, distant metastasis, etc., affect response to therapy and overall survival. Great strides have been made in

discovering the molecular markers in breast malignancies, and this knowledge has already led to development of targeted therapies that can alter patient prognosis (for example, Her2/neu protein over-expression in breast tumors and the use of trastuzumab, a Her2/neu targeting monoclonal antibody)<sup>1,2</sup>.

Since breast cancer is a significant public health issue, collecting data regarding its impact is important on the national and local level. Based on data from the National Cancer Institute (NCI) and the National Center for Health Statistics (NCHS), the American Cancer Society (ACS) has reported estimated data on cancer cases in the United States in 2006<sup>3</sup>. In females, breast cancer accounts for the most new cases of cancer and is the second leading cause of death. Among women, breast cancer was expected by ACS to account for over 30 percent of all new cancer cases in 2006.

### LHS Data

For 2006, in the Legacy Health System (LHS), Table 1 shows the age distribution of breast cancer cases. Breast cancer has

several histological types, and an important distinction is between noninvasive (in situ) and invasive breast cancer. Table 2 shows the breakdown in terms of histology of our LHS patients. Pathologic evaluation of breast tumors for expression of hormone receptors and the Her2/neu over-expression impact prognosis and therapy options. Table 3 shows the estrogen receptor (ER), progesterone receptor (PR) and Her2/neu expression in LHS breast cancers.

Breast cancer staging with the use of size of tumor (T), regional lymph node involvement (N) and distant metastasis (M) is classified based on American Joint Committee on Cancer (AJCC) criteria<sup>4</sup>. Figure 1 shows the proportions of the clinical stages for LHS patients in 2006. Treatment for breast malignancies continues to evolve rapidly. The approach depends on many factors, including clinical stage, the biology of the tumor, prognosis, patient health status, etc. It requires a multidisciplinary approach with diagnostic imaging, surgery, radiation therapy, hormonal therapy, chemotherapy and/or targeted biologic therapies. This is a complex process, and Table 4 summarizes the initial treatment approach for most LHS patients. We also now have 10-year survival data on our patients diagnosed between 1995 – 2001 (Figure 2).

### Conclusion

As novel diagnostic, prognostic and therapeutic technologies continue to emerge, our evaluation of the data may become more complex. It will be important to understand these changes, and use evidence-based medicine in our approach.

**Anupama Kurup, M.D.**

Medical Oncologist

Table 1

Age	Pts	%
20-29	3	0.6
30-39	20	3.8
40-49	92	17.6
50-59	148	28.2
60-69	127	24.2
70-79	86	16.4
80-89	41	7.8
90-99	7	1.3
	524	99.9

Table 2

Histology	Total	Percent (%)
DCIS (in situ/papillary)	33	(6.3%)
Intraductal	1	(0.2%)
Invasive ductal	291	(55.5%)
Comedo	17	(3.2%)
Inflammatory	8	(1.5%)
Medullary	3	(0.6%)
Mucinous	8	(1.5%)
Adenocarcinoma	5	(1.0%)
Tubular	2	(0.4%)
Lobular in situ	15	(2.9%)
Lobular invasive	64	(12.2%)
Paget's disease	1	(0.2%)
Other	76	(14.5%)

Table 3

PR Status	2001	2002	2003	2004	2005	2006	Total 01-06
Negative	64	59	68	66	73	78	408
Not Done	78	85	49	36	26	25	299
Ordered, Results Unk		1	2		1	9	13
Positive	295	302	255	287	335	402	1876
Unknown if Ordered	21	14	13	8	7	10	73
Grand Total	458	461	387	397	442	524	2669

Excludes Kaiser

Table 3

ER Status	2001	2002	2003	2004	2005	2006	Total 01-06
Negative	104	96	64	91	114	127	596
Not Done	80	86	51	38	27	26	308
Ordered, Results Unk		1	2		2	9	14
Positive	255	264	257	260	293	352	1681
Unknown if Ordered	19	14	13	8	6	10	70
	458	461	387	397	442	524	2669

Excludes Kaiser

Table 3

Her2Neu Status	2001	2002	2003	2004	2005	2006	Total 01-06
00 - Not Done	97	94	71	75	82	94	513
01 - Positive (1+)	17	14	9	11	23	36	110
02 - Positive (2+)	8	14	13	22	12	21	90
03 - Positive (3+)	24	38	20	46	41	47	216
04 - Negative	260	279	245	232	275	302	1593
05 - Ordered, results unk	6	1	6	1		13	27
06 - Unknown if ordered	46	21	23	10	9	11	120
Grand Total	458	461	387	397	442	524	2669

Excludes Kaiser

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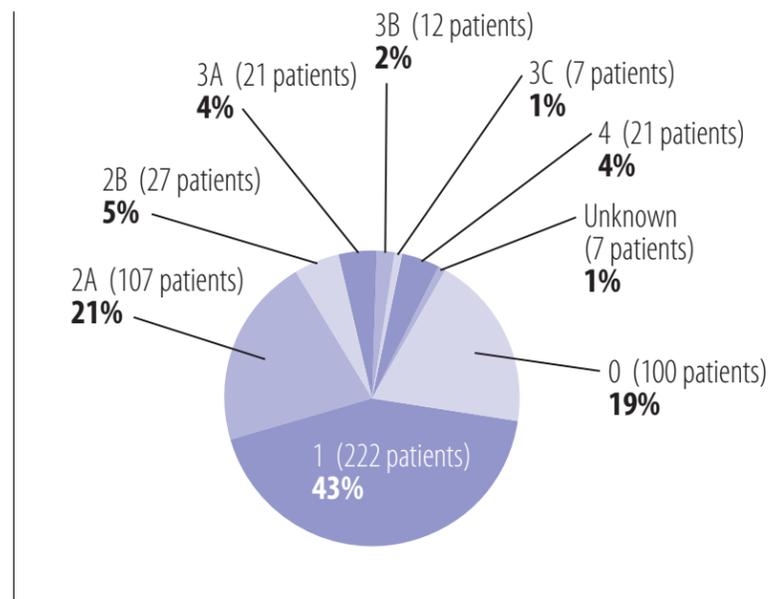
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Table 4

1st Course Treatment Summary	Total
Surgery(S)	21%
Hormone(H)	1%
S + R	11%
S + C	9%
S + H	11%
S + R + C	7%
S + R + H	21%
S + C + H	6%
S + R + C + H	8%
Other Combo	2%
Not Treated	3%
Treated	97%

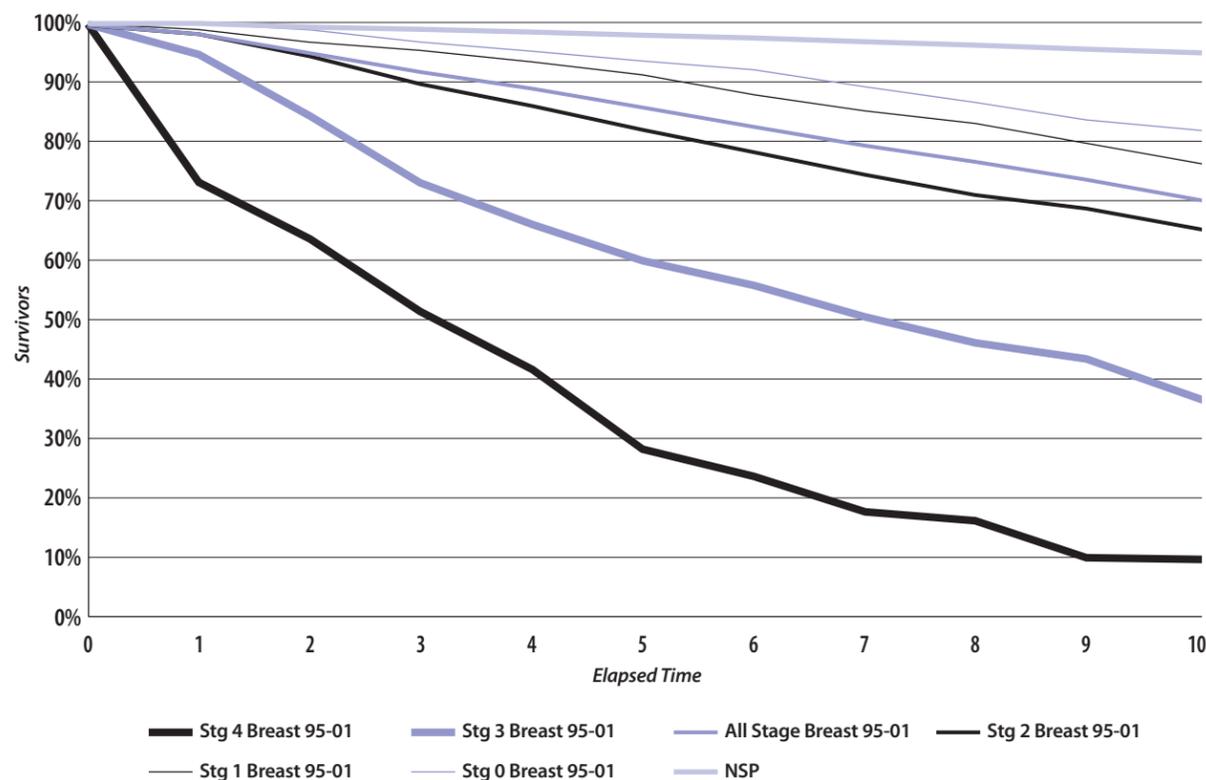
**Figure 1**

**Clinical Stage Distribution of LHS Breast Cancer Cases, 2006**



**Figure 2**

**Ten-year Survival Curve for LHS Breast Cancer Cases diagnosed between 1995 – 2001**



## Legacy Cancer Services Overview:

2006 brought many technological advances to Legacy Cancer Services. These have included a state-of-the-art upgrade to the Novalis Shaped Beam Surgery unit at Emanuel Radiation Oncology.



The sophisticated ExacTrac upgrade and software now allow the high precision and reproducibility, that previously benefited cranial stereotactic patients, to be extended to extracranial sites.

At the core of this system is a micro-multileaf collimator that provides continuous shaping of the treatment beam to match the size and shape of a patient's tumor from all angles. Novalis ensures that the tumor receives the full prescription dose of radiation while protecting adjacent healthy tissue.

Legacy has also added the da Vinci Robotic Surgical system, which is designed to mimic the dexterity of the human hand and wrist. This allows surgeons to perform minimally invasive prostate surgical procedures that result in considerably less pain and a shorter recovery period. The robotic "arms", which are capable of achieving seven degrees of motion, are programmed to respond to movements the surgeon makes and translates these into the micro-movement of an instrument, eliminating even the slightest tremor of a surgeon's hand.

Finally, Legacy Good Samaritan Breast Health Center was the first breast-imaging center in Oregon to add Breast-Specific Gamma Imaging (BSGI) to its breast cancer detection armamentarium. BSGI is an imaging modality that detects breast cancer in

women where traditional mammography does not provide adequate information. This includes patients who have a questionable finding on their mammogram, who have dense breast tissue, and women with scar tissue from previous surgery or with breast implants. Because BSGI detects metabolic differences between breast cancer cells and normal breast tissue, it can be a more sensitive method of detecting tumors than imaging that relies solely on the anatomical structure of the breast.

While technological advances are important in providing patients with the best care, Legacy Cancer Services is also committed to assisting patients to achieve the highest quality of life during and after treatment. With this in mind, Legacy formed the Integrative Medicine Advisory Committee to ensure we meet the emotional, psychological and physical needs of the patients and their families. The areas of focus for this committee include mind-body therapy, exercise/movement, music/thanatology, support groups, psychosocial counseling, art therapy, lymphedema management, and social work. The goal of these complementary therapies is to help alleviate stress, reduce pain and anxiety, manage symptoms, and promote a feeling of well-being for the patient.

Legacy has continued to strive for excellence in all of its cancer treatment programs, research, and support systems. Highlights of this year's accomplishments include:

### Clinical Research:

Legacy participated in many cooperative clinical and laboratory research programs including Columbia River Oncology Program (CROP) and the Northwest Marrow Transplant Program (NWMTP), as well as institu-

tion-specific physician-initiated research trials. Overall, 13% of Legacy’s analytic patients were accrued to clinical trials, far exceeding the 6% required by the ACoS for a Network Cancer Program.

Patient accrual to CROP studies exceeded anticipated goals for the year with a strong enrollment of pediatric patients.

The significant undertaking of creating a tumor bank passed Institutional Review Board (IRB) approval and began enrollment under the supervision of Kate Morris, MD., and 332 tumor samples were obtained in CY 2006.

A number of physician-initiated and pharmacological trials were initiated at Legacy hospitals and clinics during CY 2006, with 173 patients electing to participate in these research studies. Examples of these trials included:

- Testing osteoprotegerins in multiple myeloma
- Oral glutamine supplementation to decrease oral mucositis in transplant patients
- Ongoing trials of Raygel for reducing acute skin toxicity of radiation in breast cancer patients
- TNFerade trial utilizing biologic therapy in pancreatic cancer
- Testing Xerecept as an alternative treatment to reduce cerebral edema in patients with brain tumors
- Quality of Life studies in 3 subpopulations – breast brachytherapy, liver tumor and lymphedema patients

Legacy Foundation grants were instrumental in supporting the growth of many of these research projects.

**Community Outreach:**

Legacy worked to meet the needs of the community for medical education, cancer screening, and in the provision of support and exercise groups.

In February, Legacy held its annual Men’s Wellness and Screening Event which focused on prostate screening, heart health and stroke risk factors; fecal occult blood testing kits were also provided for colorectal screening. In May, Legacy participated in the city-wide skin cancer screening program.

Legacy has also partnered with a number of national and regional organizations, including the Oregon Partnership for Cancer Control. These organizations included:

- American Cancer Society (ACS)
- American College of Surgeons (ACoS)
- Centers for Disease Control & Prevention (CDC)
- Intercultural Cancer Council
- Lance Armstrong Foundation
- National Cancer Institute (NCI)
- National Dialogue on Cancer
- National Governors Association
- NA Association of Central Cancer Registries

The Oregon Partnership for Cancer Control and its Comprehensive Cancer Plan provide an integrated and coordinated approach to reducing the cancer incidence, morbidity and mortality among all Oregon citizens through prevention, early detection, treatment, rehabilitation, and palliation.

Legacy’s community support programs have included many educational talks focusing on certain types of cancers as well as healthy eating, issues after cancer treatment, and cancer genetics. In addition to Legacy’s other cancer support groups, Surviving Cancer Together groups were started in 2006 at both Salmon Creek and Good Samaritan.

**Legacy Health System  
2006 Primary Site Table (2321 Cases)**

Primary Site	EH	%	GS	%	MH	%	MP	%	SC	%	LHS	%
Amp Of Vater	0	0	3	0.3	1	0.5	1	0.2	0	0	5	0.2
Anal Canal	0	0	1	0.1	3	1.4	3	0.6	1	0.5	8	0.3
Bile Ducts	1	0.2	2	0.2	0	0	1	0.2	0	0	4	0.2
Bladder	28	5.7	27	2.8	11	5.2	24	5.0	12	6.4	102	4.4
Bone	1	0.2	0	0	0	0	0	0	0	0	1	0.0
Brain/CNS	85	17.3	7	0.7	4	1.9	7	1.4	7	3.7	110	4.7
Breast	10	2.0	313	33	46	21.8	129	26.7	31	16.6	529	22.8
Cervix Uteri	2	0.4	20	2.1	0	0	2	0.4	3	1.6	27	1.2
Colon/Rectum	22	4.5	86	9.1	25	11.8	53	11.0	13	7.0	199	8.6
Corpus Uteri	1	0.2	61	6.4	3	1.4	15	3.1	9	4.8	89	3.8
Esophagus	4	0.8	1	0.1	6	2.8	5	1.0	2	1.1	18	0.8
Fallopian Tube	0	0	3	0.3	0	0	4	0.8	0	0	7	0.3
Gallbladder	0	0	2	0.2	0	0	1	0.2	1	0.5	4	0.2
Glottis	3	0.6	1	0.1	1	0.5	1	0.2	1	0.5	7	0.3
Hodgkins Disease	4	0.8	3	0.3	1	0.5	2	0.4	1	0.5	11	0.5
Hypopharynx	4	0.8	1	0.1	0	0	0	0	1	0.5	6	0.3
Kidney	14	2.9	42	4.4	4	1.9	10	2.1	7	3.7	77	3.3
Leukemia	28	5.7	12	1.3	2	0.9	3	0.6	2	1.1	47	2.0
Lip/Oral Cavity	35	7.1	0	0	2	0.9	0	0	3	1.6	40	1.7
Liver/Biliary	1	0.2	15	1.6	0	0	2	0.4	1	0.5	19	0.8
Lung	34	6.9	60	6.3	30	14.2	76	15.7	23	12.3	223	9.6
Lymphoma-NH	17	3.5	24	2.5	8	3.8	21	4.3	6	3.2	76	3.3
Melanoma	6	1.2	27	2.8	2	0.9	14	2.9	1	0.5	50	2.2
Mesothelioma	0	0	3	0.3	0	0	1	0.2	0	0	4	0.2
Multiple Myeloma	6	1.2	10	1.1	2	0.9	4	0.8	1	0.5	23	1.0
Nasopharynx	1	0.2	0	0	0	0	0	0	0	0	1	0
Oropharynx	7	1.4	8	0.8	8	3.8	4	0.8	3	1.6	30	1.3
Other Site	20	4.1	20	2.1	2	0.9	6	1.2	3	1.6	51	2.2
Ovary	4	0.8	31	3.3	2	0.9	8	1.7	1	0.5	46	2.0
Pancreas	3	0.6	25	2.6	5	2.4	16	3.3	5	2.7	54	2.3
Penis	0	0	3	0.3	1	0.5	0	0	0	0	4	0.2
Prostate	112	22.9	70	7.4	29	13.7	37	7.6	33	17.6	281	12.1
Renal Pelvis/Ureter	2	0.4	6	0.6	1	0.5	7	1.4	0	0	16	0.7
Salivary Gland	5	1.0	0	0	0	0	0	0	1	0.5	6	0.3
Sarcoma/Adult	3	0.6	6	0.6	2	0.9	1	0.2	1	0.5	13	0.6
Small Intestine	0	0	4	0.4	2	0.9	6	1.2	1	0.5	13	0.6
Stomach	1	0.2	8	0.8	2	0.9	4	0.8	3	1.6	18	0.8
Supraglottis	5	1.0	3	0.3	0	0	0	0	1	0.5	9	0.4
Testis	5	1.0	2	0.2	1	0.5	4	0.8	3	1.6	15	0.6
Thyroid	9	1.8	14	1.5	2	0.9	4	0.8	2	1.1	31	1.3
Unknown Primary	7	1.4	12	1.3	3	1.4	4	0.8	2	1.1	28	1.2
Urethra	0	0	0	0	0	0	3	0.6	0	0	3	0.1
Vagina	0	0	5	0.5	0	0	0	0	0	0	5	0.2
Vulva	0	0	8	0.8	0	0	1	0.2	2	1.1	11	0.5
<b>Grand Total</b>	<b>490</b>	<b>100%</b>	<b>949</b>	<b>100%</b>	<b>211</b>	<b>100%</b>	<b>484</b>	<b>100%</b>	<b>187</b>	<b>100%</b>	<b>2321</b>	<b>100%</b>

**2006 Five Most Common Sites/National Comparison**

	ACS	LHS	EH	GS	MH	MP	SC
Breast	15%	23%	2%	33%	22%	27%	17%
Prostate	17%	12%	23%	7%	14%	8%	18%
Lung	13%	10%	7%	6%	14%	16%	12%
Colon/Rectum	11%	9%	5%	9%	12%	11%	7%
Brain/CNS	1%	5%	17%	1%	2%	1%	4%
Bladder	4%	4%	6%	3	5%	5%	6%

American Cancer Society (ACS) - newly diagnosed in US CY 2006

Legacy staff participated in the Angel Adventure walk to raise awareness and funding for brain tumor research and support. Legacy Cancer Services was also proud to continue participation and sponsorship of community events such as Race for the Cure, Relay for Life, National Cancer Survivors' Day, Celebration of Courage, and the Northwest Marrow Transplant Reunion.

**Professional Education:**

In addition to the monthly Oncology Grand Rounds and various site-specific tumor conferences, Legacy was proud to offer a variety of educational opportunities for physicians and allied healthcare staff. These events included:

- Lunch and Learn programs focused on colorectal cancer
- The 2nd Annual Pacific Northwest Excellence in Breast Cancer Conference
- The 23rd Annual Seminar for Radiation Oncology Professionals
- The 6th Annual Stem Cell Transplantation Conference
- Stanwood Rehabilitation Conference

**Quality Improvement/Data Management:**

The Hospital Consumer Assessment of Healthcare Providers and System (HCAHPS) survey was started in April, focusing on communication with doctors and nurses, responsiveness of hospital staff, cleanliness and quietness of hospital environment, pain management, communication about medicines, discharge information, overall rating of hospital, and patient recommendations of the hospital.

The Integrative Medicine Advisory Committee was established to help complement mainstream medical care and address the emotional, social, and spiritual needs of patients and families.

The Cancer Tumor Registrars had 2,321 analytic cases abstracted, which was down slightly from last year due to the internalization of the Kaiser Radiation Oncology patient treatment.

214 Cancer Conferences were held throughout the Legacy system including many tumor site-specific multidisciplinary prospective conferences.

Cancer Conferences 2006	Number of Meetings	Total Cases Presented	Prospective Cases
EH Head/Neck	10	33	33
EH Pediatric	24	270	206
GS Breast	20	78	78
GS CNS	23	109	109
GS General	5	8	8
GS Gastrointestinal	23	79	74
GS Leukemia/Lmphoma	1	2	2
GS Thoracic	20	133	124
MH Breast	8	23	23
MH General	21	88	86
MP Breast	9	24	24
MP General	18	76	75
MP Thoracic	12	65	65
SC General	20	59	54
LHS TOTAL	214	1,047	961

Through Good Samaritan Hospital & Medical Center, Emanuel Hospital & Health Center, Meridian Park Hospital, Mount Hood Medical Center, and Salmon Creek Hospital, the Legacy system has brought the highest level of comprehensive cancer care to the region. Our programs have strived to encompass all aspects of cancer care including screening and early detection, providing the latest technologies and advancement, and meeting the emotional and personal needs of our patients. As we look forward, our plan is to build on our successes, keeping in mind the ultimate goal of providing quality and compassionate care to those in need.

**Kathryn Panwala, M.D.**  
Radiation Oncologist

**Targeted Drug Therapy for Patients with Breast Cancer**

Treatment of breast cancer has long been a complicated and dynamic challenge, both for those patients who appear free of disease after surgery and for those who have recurrent or metastatic disease. Improvements in survival after breast cancer diagnosis are becoming more apparent in our population as we identify disease in a more timely fashion via broader use of mammography and newer techniques such as MRI and reduced use of post menopausal estrogen. However improved outcomes are also a result of more refined treatment decision making due to our improved ability to target breast cancer drug therapy more appropriately.



For years oncologists have recognized that breast cancer behavior varies from patient to patient even when comparing tumors with similar histologic appearance and stage. Without data to guide us, our systemic treatment strategies have been homogeneously applied to a group of patients with heterogeneous tumors, leading to over treatment in some patients and under treatment in others. Research into biologic differences that lead to heterogeneous behavior has resulted in more appropriately targeted drug therapy for patients with breast cancer.

The oldest form of targeted therapy has been interference with hormonal stimulation of breast cancer cells. While Tamoxifen has been long been the mainstay of treatment in this regard, newer forms of estrogen blockade have been in use for the last ten years, both in the management of recurrent/meta-

static disease and in the adjuvant therapy setting. Data emerging in the last two years has helped clarify the value of these newer agents as well as length of therapy. Improved survival after diagnosis is now clearly demonstrated as these drugs have become more widely utilized. Newer forms of therapy such as Faslodex have added to the treatment options for patients with metastatic disease who have failed other hormonal therapies.

Perhaps the biggest impact has come with the realization over the last two years of the value the drug Herceptin brings to patients whose cancer over-expresses the Her-2 oncoprotein. This mutation, found in roughly one out of every five breast cancers, renders the cancer cell susceptible to the drug Herceptin. Unlike chemotherapy, Herceptin is a targeted immune antibody that specifically recognizes cells and damages cells expressing the Her-2 protein, but without chemotherapy side effects. The use of Herceptin in combination with standard forms of chemotherapy has been in use for several years in patients with metastatic disease. However perhaps the biggest impact in the drug has been in the adjuvant setting, where inclusion of the drug in addition to standard chemotherapy has resulted in cure rates roughly 30-40% higher than those treated with chemotherapy alone. Refinements in the timing and length of Herceptin in this setting are the subject of several ongoing research trials open in the Legacy Health System.

A more intriguing approach to cancer therapy choices after surgery for breast cancer has emerged with the development of gene profiling technology such as the Onco-type Dx and Mammoprint tests. These tests, performed on breast cancer tumors, identify patterns of gene disruption in the individual

tumors for women with breast cancer. While it has long been recognized that different genetic disruptions in tumor cells result in different behavior in tumors from patient to patient, only recently has testing for those genetic variations become available. Retrospective studies have shown that the gene mutation patterns may predict which patients benefit from chemotherapy and which do not. This is another dynamic area of cancer treatment decision making that is chang-

ing rapidly. Prospective trials utilizing this technology are open at Legacy and will help refine exactly how this new technology will be best utilized in our patients. Undoubtedly this technology will help us advise patients more effectively in their treatment decisions with regard to systemic therapy.

**Kevin Olson, M.D.**

Medical Oncologist

## Legacy Breast Cancer Imaging Services Overview

The cornerstone of improved breast cancer treatment outcomes is early detection using state of the art mammographic screening for breast cancer. The Legacy Health System offers convenient,



comprehensive, MQSA accredited breast cancer screening interpreted by specialized radiologists at multiple sites throughout the greater Portland area. Screening is available at all

of the following sites:

- Legacy St. Helens Clinic in St. Helens
- Legacy Emanuel Hospital and Health Center in North Portland
- Legacy Good Samaritan Hospital and Medical Center in Northwest Portland
- Legacy Mt. Hood Medical Center in Gresham
- Legacy Salmon Creek Hospital in Vancouver
- Legacy Meridian Park Hospital in Tualatin

An integral part of any screening program is additional diagnostic evaluations. Legacy Health System recognizes that these are optimally provided only at a comprehensive multi-modality specialized breast-imaging centers staffed by specialized radiologists. Two of the first Comprehensive Breast Health Centers in Portland were established at Legacy Good Samaritan Hospital (1998) and at Legacy Meridian Park Hospital (1999). A third center was introduced in Vancouver with the opening of the new Legacy Salmon Creek Hospital. These centers allow specialized radiologists to use the full range of breast imaging modalities and percutaneous biopsy techniques to resolve abnormal screening mammograms, evaluate clinically identified breast abnormalities, help stage local extent of new breast cancers prior to treatment and assess response to treatment. At Mount Hood Medical Center, breast MR and stereotatic breast biopsies are not yet available but specialized radiologists provide the bulk of diagnostic evaluations and biopsies that require only mammography and sonography.

These comprehensive Breast Health Centers provide the full range of state of the art

breast diagnostic modalities including digital mammography, dedicated breast sonography, dedicated breast MRI and, at Legacy Good Samaritan, breast sestamibi scans using a new breast specific gamma camera.

A Complete range of percutaneous biopsy techniques is available and each center has a staff of specialized nurses to guide and support women through the complexities of the diagnostic process. Nurses dedicated to the process are a key element in minimizing the inconvenience and anxiety associated with an abnormal mammogram. In addition to providing emotional support and a readily available source of information, the nurses are able to streamline the process so that women can have an abnormal screening mammogram resolved with additional imaging and/or biopsy within three days in the vast majority of cases.

Probably the most significant new challenges in breast imaging arise from attempts to address the old perennial challenge of increasing sensitivity for detection of early breast cancers while avoiding decreased specificity that can lead to large numbers of false alarms. Breast MR has matured significantly and is now generally regarded to be clinically useful because of its ability to identify many cancers occult to mammography or non-targeted sonography. However, because of its cost and the need for extensive interpretative experience to avoid unacceptably low specificity, consensus regarding which particular indications are appropriate is still developing.

In the diagnostic, as distinct from screening, setting there is still consensus that complete evaluation with conventional modalities should precede further evaluation with MR. Indications for diagnostic MR

are most secure when evaluating the extent of known carcinoma in the ipsilateral or contralateral breast, particularly for lobular carcinoma. MR can be very helpful for assessing surgical margins, for distinguishing tumor recurrence from scar and is ideal for evaluating the breast in a woman with malignant axillary lymph nodes without a known carcinoma in the breast. However, using breast MR for additional evaluation of the problematic or dense mammogram may lead to additional fruitless expensive procedures with a low yield of cancers. This becomes similar to using MR for breast cancer screening.

Earlier this year the American Cancer Society Breast Cancer Advisory Group published its American Cancer Society Guidelines for Breast Screening with MRI as an Adjunct to Mammography (CA Cancer J Clin 2007; 57; 75-89). This is available at <http://caonline.amcancersoc.org/cgi/content/full/57/2/75> and the recommendations are summarized in Table 1, on page 76. This is well worth reviewing but is too lengthy to include here. The recommendations are 1) against using MR for breast screening in women with an estimated lifetime risk of <15%, 2) still equivocal for many sub-groups of women, and 3) strongly recommend screening MR only for a relatively small number of women with well defined markedly increased lifetime risk of breast cancer. It is clear that the relatively small number of women for whom MR screening is recommended is still quite large compared to the capacity of MR scanners and quite small relative to the amount of anxiety in our patients. This nascent evolving consensus struggles to accommodate these latter issues and will likely have to evolve over time.

Breast Specific Gamma Imaging (BSGI) using intravenously administered sestamibi and breast specific high spatial resolution gamma cameras resembling mammography machines is an even newer imaging modality which has also demonstrated the ability to identify some cancers not seen mammographically or on non-targeted breast sonograms. Early evaluations suggest that this increased sensitivity relative to traditional modalities may be achieved with a relatively

low false positive rate. Techniques to biopsy abnormalities identified only by BSGI are not yet available but as is the case with MR many lesions identified by BSGI can be identified and biopsied using sonography targeted with a high degree of suspicion to the area of the BSGI abnormality.

**Sam Gruner, M.D.**

Radiologist

## The Next Step in Breast Cancer Management • Accelerated Partial Breast Irradiation

Over the last 40 years, there has been a steady reduction in the extent of treatment for local-regional management of breast carcinoma. Coincident with this development, we have seen a trend to earlier



diagnosis and greater utilization of more aggressive adjuvant systemic therapy. The reduction in local-regional treatment has been marked by radical mastectomy replaced by modified radical mastectomy, which has been found to be no better than tumor removal (lumpectomy) followed by adjuvant whole breast irradiation. Recently, axillary node dissection has been replaced, for most patients, by sentinel lymph node removal. This reduction in the extent of surgery has been associated with decreased morbidity and improved cosmetic results, while retaining excellent disease control.

There have been a number of long-term studies in breast preservation looking at the

value of adjuvant irradiation and patterns of breast recurrence. The overall impression from this analysis is that adjuvant irradiation provides a meaningful reduction of breast recurrence for all patients. The absolute value of this reduction in elderly, node negative, < 1 cm tumors that are receptor-positive and treated with adjuvant hormone therapy is small enough to consider observation. All other breast preservation patients benefit significantly from irradiation. Also demonstrated in these studies is that the major reduction in breast recurrence occurs in the first five years and is a reduction in "true" recurrences that occur at or near the original primary tumor location. The subsequent development of new primary cancers that occur infrequently elsewhere in the treated or contralateral breast are not reduced nor increased by radiation therapy directed at the entire breast.

This information led to the concept that radiation treatment directed only at the lumpectomy region would provide the benefit of adjuvant radiation while reducing the scope and potential morbidity of treatment. Brachytherapy, the placement of radioactive

material within an applicator in direct proximity to the tumor or tumor bed, had been used for two decades as a boost to the tumor bed following whole breast irradiation and was ideally suited for such localized treatment. The technique involves the placement



*Figure 1*  
Interstitial Catheter Implant  
(courtesy of Nucletron)

of multiple planes of thin nylon tubes in and around the lumpectomy region (Figure 1).

In 1991, Dr Kuske at the Ochsner Clinic and, shortly thereafter, investigators at William Beaumont Hospital in Detroit began to treat patients in such a man-

ner. This brachytherapy treatment program, by virtue of treating a much smaller tissue volume, could be shortened to two treatments per day for 5 days compared with the standard 5-6 ½ week programs. Accelerated partial breast irradiation (APBI) was born. A few other institutions joined them in the mid to late 90's but the radiation oncology community was very skeptical. Multicatheter, multiplane interstitial brachytherapy requires considerable subspecialty training and technical expertise not widely available, which further limited its acceptance. A limited Radiation Therapy Oncology Group phase II protocol was accomplished in 1998-2000 and favorable but limited 5-year data began to be published.

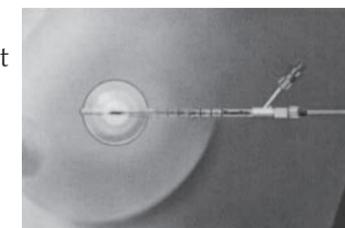
In 2003, the MammoSite® balloon radiation therapy system (Cytec Corporation) was introduced (figure 2). As a single catheter brachytherapy delivery system, placement and treatment planning were markedly simplified. With limited but very positive 5 year data and a user-friendly brachytherapy

system, accelerated partial breast irradiation has greatly increased in popularity.

In March of 2003, Legacy was the first in the region

to begin to treat patients with accelerated partial breast irradiation and our experience continues to be the largest. Initially, this was with the multicatheter interstitial approach but, shortly afterwards, added the MammoSite® system, and eventually an external beam 3D conformal approach. This treatment program is based at Legacy Good Samaritan Hospital, which is the system's brachytherapy referral center. Our experience over time is summarized in Table 1. The frequent use of the MammoSite® device reflects its convenience for physicians and patients alike but not all patients are suitable candidates, and the multicatheter approach is more adaptable to lumpectomy cavities that are irregular, near the periphery of the breast or close to the skin. We remain the only facility in the region to offer the multicatheter approach. Because there is no follow-up data for the external beam 3D approach and it treats a greater amount of tissue, we use it only rarely.

Treatment can utilize applicator placement at the time of lumpectomy and sentinel lymph node removal. This requires preoperative radiation oncology consultation and treatment must await final pathology results to confirm a patient's appropriateness for treatment. This typically requires 24-36 hours in our institution but can be longer elsewhere. This has the great advantages of completing treatment sooner and requiring



*Figure 2*  
MammoSite® Radiation Therapy System  
(courtesy of Hologic Inc. and Affiliates)

Table 1

Legacy Health System Accelerated Partial Breast Irradiation				
	MammoSite	Multicatheter Interstitial	3D Conformal	Total
2003	-	6	-	6
2004	19	4	-	23
2005	27	8	2	37
2006	38	7	2	47
2007*	48	4	1	53
<b>Total</b>	<b>132</b>	<b>29</b>	<b>5</b>	<b>166</b>

\*Thru 10/31/07

Table 2

Patient Selection Criteria	
ABS & ASBS* Recommendations	
Age	≥ 45
Diagnosis	Unifocal, invasive ductal carcinoma
Tumor size	≤ 3cm
Surgical margins	Negative microscopic surgical margins of excision
Nodal status	NO

\*American Brachytherapy Society, American Society of Breast Surgeons

only a single procedure. As a result, this is our preferred approach. Alternatively, applicator placement can be performed at a second procedure after final pathology results have been obtained and this is preferred by some investigators. For most patients there is little discomfort associated with the applicator or its removal. We routinely employ prophylactic antibiotics and the risk of infection is very low with meticulous nursing care. Long-term cosmetic result is good to excellent in >90% of patients which is comparable to that achieved with standard breast irradiation. These results are affected by breast size, lumpectomy size and location, proximity to skin and the skill and judgment of the physician.

The recommended characteristics for patients to receive APBI are shown in Table 2. Beyond these basic pathologic features, preferred candidates are patients who live in places remote from radiation treatment facilities where the desire to preserve the breast

and avoid mastectomy creates financial and logistical problems. Also, larger breasted women tend to have a better cosmetic result with APBI than with standard whole breast radiation therapy.

The published 5-year breast recurrence rates for APBI are 1.1 – 4.4%. We have experienced no breast recurrences to date in our 166 patients. The proof of the value of a new treatment approach requires validation in a randomized clinical trial. In 2005, a joint National Surgical Adjuvant Breast Project and Radiation Therapy Oncology Group randomized phase III protocol was launched comparing standard external beam whole breast irradiation to APBI. The technique of APBI used is left to the discretion of the investigator. Unfortunately, the vast majority of patients randomized to APBI have been treated using the 3D conformal technique for which outcome data does not exist and for which the poorest cosmetic result is anticipated. Nationally, accrual has been excellent and accrual goals for the most favorable subsets have been met. It is hoped that 3900 patients will be randomized. Legacy participates in this study, but for logistical reasons as well as patient bias, we have randomized few patients. A Hungarian study randomized much smaller numbers between whole breast irradiation and multicatheter brachytherapy and showed no difference. A larger ongoing multicatheter European study asking the same question has been ongoing since 2004.

Other techniques of APBI have been and are being developed including intraoperative electron beam irradiation and variations on the MammoSite® concept using brachytherapy or low voltage radiation sources. The suitability of these techniques remains to be proven but several are being used in European randomized trials.

In 2007, APBI is an additional alternative in the comprehensive management of women with early stage breast cancer. It is particularly useful for women who live at a distance from a radiation treatment facility and wish breast preservation, and for whom standard whole breast irradiation represents a hardship. Additionally, larger breasted women tend to have poorer cosmetic results with whole breast irradiation and better results with APBI. The major question of

long-term disease control will be determined in the next 5 to 10 years as the results of large clinical experiences and randomized phase III studies are published. At this time, Legacy continues to offer carefully selected, well-informed patients the widest array of APBI treatment options with the largest clinical experience in the region.

**Mark Schray, M.D.**  
Radiation Oncologist

## Surgical Therapy of Breast Cancer

A surgeon's involvement in the care of the patient with breast cancer has changed tremendously over the twenty-five years that I have been in practice in Portland. The biggest difference is the wider array of options that surgeons need to discuss with their patients before surgery! No longer do women go into an operating room prepared to lose a breast, if the surgical biopsy is positive on frozen section.



Most patients come to the surgeon's office with a needle biopsy diagnosis and much internet-derived data. The discussion centers on the two main operative interests: breast treatments and nodal evaluations; but first further testing such as MRI, BSGI or US needs to be addressed. The clinical estimate of stage leads to possible neoadjuvant chemotherapy for downstaging before surgery. Advanced cancers require preoperative staging studies, such as PET scans, which may change the

procedure to a palliative operation.

Simple mastectomy versus lumpectomy and radiation therapy is the major choice for most patients, with no difference in cure between them. Sentinel node (SN) biopsy is added for invasive cancers in patients who would accept further therapy. Lower level (levels 1 and 2) axillary node dissection is done for patients with clinically positive nodes or positive SN biopsy. Clear margins are vital for prevention of recurrence. Special techniques, such as oncoplastic procedures, may improve the appearance of the breast after lumpectomy, by decreasing deformity and using uplifting incisions.

Radiation therapy has changed over the years and offers partial breast irradiation either with interstitial catheters or a MammoSite device placed at surgery for shortened treatment. Many patients with lymph node involvement also receive axillary radiation and chest wall treatments, if mastectomy is done, which may interfere with reconstruction options, causing delay or change of procedure.

Plastic surgery information is frequently helpful for patients who may need ipsilateral reduction surgery, to complement lumpec-

tomy and simplify radiation, or to discuss types of reconstruction and timing - immediate (as with expanders) or delayed, to first find out if radiation will be needed.

Chemotherapy choices are commonly introduced by the surgeon, who also may be recruited to place a vascular access device. Usually the oncologist will need the surgical results to fully counsel the patient regarding medical choices.

As can be deduced from the list above, it becomes difficult for a patient to decide her best personal choice, with the frightening sense of urgency that surrounds the diagnosis of breast cancer. Furthermore, preoperative preparation takes more time to do extra tests and have office visits with pertinent clinicians.

Fortunately, the complex options described above have led to significant advantages in breast cancer care. Recovery time from many

surgeries is reduced to < 24-hour hospital stay, with much quicker returns to work or daily activities. Supportive hospital and outpatient programs and accessory staff, including the new "Oncology Nurse Navigators", help patients immensely. Certainly, too, acceptable appearance and other quality of life issues of their patients are extremely important goals for surgeons.

Throughout these many years of breast cancer care, what remains the same is forward thinking, leading in new technology, the commitment to personalized care, and ultimately improving the chances of cure for our patients.

#### **JoAnne Nelson, M.D., FACS**

Surgeon

LHS-Cancer Liaison Physician

## Legacy Cancer Risk Assessment Program

The expanse of knowledge regarding the role of genetics in cancer has been growing at an astonishing rate since the completion of the human genome project. This rapid advance in knowledge has demon-



strated the complexity of information regarding the interaction between these genes, the role of specific genes in tumorigenesis, and the role of specific genes in familial cancer syndromes.

There are a host of Cancer Syndromes that have been linked to specific gene mutations. The most common of the cancer syndromes are the

hereditary breast and ovarian cancer syndrome and the colon cancer syndromes that can be divided into two categories, colon cancer syndromes that exhibit polyposis and syndromes that do not, but these are just a few of the possible cancer syndromes. Examples of other cancer syndromes that involve breast cancer are Cowden's syndrome, Li-Fraumeni syndrome, and mutations in the CHEK2 gene. Then there are cancer syndromes that involve other organ systems such as melanoma, pancreas, bladder, and the endocrine system to name a few. It is estimated that hereditary cancer syndromes account for between 5-10% of cancers.

There are multiple clues that can help when evaluating a patient to determine if their cancer could be linked to a hereditary cancer syndrome. Obviously the first clue is going to

be a family history of cancer. Generally, we look for three generations affected with cancer and, depending on the size of the family, multiple individuals in a generation being affected. It is important to remember that 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. For example, it is estimated that 1/3 of all Familial Adenomatous Polyposis (FAP) patients are from de novo mutations.

Other clues include cancers that appear at a younger age than expected in the general population, multiple primary cancers in a single individual (ex. colon and uterine), bilateral cancer in an individual, rare cancers appearing multiple times in a family, or the spectrum of cancer in the family that fits a hereditary cancer syndrome. Ethnic background also needs to be considered when evaluating the family history due to the increased prevalence of specific mutations in certain populations. For example, it is estimated that 1 in 40 individuals of Ashkenazi Jewish ancestry will carry a mutation in either BRCA1 or BRCA2. Furthermore, 90% of these will be 1 of 3 founder mutations common in these individuals.

It is imperative that genetic counseling be provided for individuals that are considering testing for a hereditary cancer syndrome. This is due not only to the complexity of interpreting the results of the test but also because of the other socioeconomic issues that genetic testing can create and the ramifications not only for the patient but their entire family.

Cancer Genetic Services have been available at Legacy since 1995 but a dedicated Cancer Genetic Clinic was not formalized until the creation of Legacy's Cancer Risk Assessment Program in 1998 from a Legacy Foundation Grant. This grant provided for the employment

of a Medical Geneticist, a Genetic Counselor, a Nurse Practitioner, and support staff with the goal of providing Comprehensive Cancer Genetic Services to the Portland community.

The Legacy Cancer Prevention and Risk Assessment Program provides a comprehensive service to help patients navigate through the confusing and complex information associated with a hereditary cancer syndrome. This includes collecting and analyzing multi-generational family histories, assessing pedigrees and recognizing cancer syndromes, educating patients about genetics and cancer, individualized cancer risk information based on genetic and non-genetic risk factors, presenting the advantages and disadvantages of genetic testing, and identifying family members who may be candidates for testing. The program is essential in insuring informed consent for genetic testing in compliance with Oregon's Genetic Privacy Act, verifying the correct ordering and interpreting of appropriate DNA tests as well as interpretation of cancer genetic test results. The program provides a secure forum for discussing issues relating to confidentiality, potential insurance discrimination, the Oregon Genetic Privacy Act and Federal Legislation, and individualized cancer screening recommendations and risk management strategies for the patient.

When a patient is referred to our Program, the patient is contacted to discuss the reason for the referral, and the patient's concerns regarding cancer risk are determined. Detailed family, medical and screening history forms are sent to the patient for completion. Once received, an appointment is scheduled.

At the time of the first office visit, a gene mutation risk assessment is provided based on the pattern, age of onset of cancer, and other factors within a family. This is followed

by a review of the appropriateness of available testing, as well as the pros and cons of testing. Medical release of information forms are provided for confirmation of reported cancers and to examine pathology for indicators that will influence the assessment. The patient is provided with a letter containing the information covered during the appointment. This includes a suggested cancer screening and risk reduction plan. Should testing be desired, a second visit is arranged to review the possible results of testing and to discuss the issues of informed consent. If the patient decides to proceed with testing, an appropriate specimen is obtained and sent to the appropriate laboratory.

A third visit is scheduled to discuss results as they become available. The patient will be provided with a final letter, which either reinforces or adjusts the recommended risk reduction plan according to results. The patient always has the option to decline further involvement with our program, and to decide with whom to share results of evaluation and testing. To protect the patient's privacy, he or she will be asked to decide who may receive a

notification or summary of the visits, but it is our policy to encourage the patient to consider sharing the information with their physician.

Since the inception of the Cancer Risk Assessment Program, we have seen a steady increase in our patient referrals. When comparing our most recent numbers, 1998 to 2006, our patient caseload has increased by 266%. In addition, the staff at the Cancer Risk Assessment program now handles all Adult Hereditary Syndromes such as Huntington's Disease and Hereditary Hemochromatosis. Furthermore, the program has coordinated research studies including the Microsatellite Instability (MSI+) as an Independent Prognostic Factor in Colon Cancer Research Study which has shown the importance of MSI as a prognostic indicator as well as its role in determining the best course for treatment in colon cancer that exhibits this trait.

**Paul Dorsey M.S.**

Legacy Cancer Prevention  
& Risk Assessment Program

## Legacy Tumor Bank

In April of 2006 the Legacy Tumor Bank received its first donation! The bank was started as a collaborative project between Legacy Cancer Research and Legacy Cancer Surgeons and is funded by the Legacy Foundation. Tumor banks save specimens from cancer patients that are available after the pathology laboratory has performed all the necessary diagnostic tests on the cancer. This is done only when the patient has given



written consent for tumor banking. Currently, there is no NIH funding available to start up free-standing tumor banks despite a widespread call for their development. This makes the Legacy Foundation's forethought in supporting this project so important.

As of December of 2007, 116 patients have donated their tumors to the Legacy Tumor Bank. These specimens have been

used in several projects, and have provided preliminary data for 3 NIH grant submissions, and three grant submissions for breast cancer research to the Komen Foundation from two different Legacy Research Laboratories. Another 2 NIH grants are in preparation, one from each lab.

The Legacy Cancer Research Laboratory is led by Dr. Juhua Chen and is currently investigating the role of dendritic cells (DC) in malignant angiogenesis and their potential regulation by Akt, a key cell cycle regulating protein. DC is one type of stem or bone marrow cell-derived cells that are potential candidates for modulating angiogenesis in primary and metastatic cancer. Dr. Chen's group is working on defining the regulatory role of Akt on the activity of DC, to find out whether or not the Akt in DCs plays a critical role in the malignant angiogenesis. The human cancer samples from the Legacy Tumor Bank have been used to test the number and activity of DC in breast, colon, brain, and head and neck cancers. Interesting tumor specific correlations between DC and vascular density have emerged. Her laboratory is in the process of analyzing this data and correlating it with the patient's stage at diagnosis, tumor grade, response to therapy, and outcome.

Dr. Robert Meller's research group, within the R.S. Dow Neurobiology Laboratories at Legacy, has used tumor bank specimens to research the ways in which cancer escapes apoptosis. Specifically, his research has focused on the protein that initiates the endogenous degradation of a pro-apoptotic (anti tumor) protein, Bim. Bim is a pro-apoptotic member of the Bcl-2

family of proteins that regulate cell death and survival. Using proteomic methods, his group has identified the enzyme that regulates the degradation of the Bim anti-tumor signal in cells. Analysis of breast tumor samples from the tumor bank reveals inverse correlation of Bim and its degradation enzyme. Interestingly, Dr. Meller's lab has found that expression of the enzyme increases in patients with a high Her-2/neu expression, with a correspondingly low Bim level. His data suggest that counter-Bim mechanisms are a potential way in which tumor cells survive in breast cancer. In addition this data suggests another potential explanation behind the aggressive nature of Her2neu over-expressing cancers.

Both these laboratories' projects are aimed at developing new, more easily tolerated, and more effective anti-cancer treatments. This important work was possible, in part, because Legacy patients donated their specimens and the Legacy Foundation has supported this important endeavor. If you have any questions about the Legacy Tumor Bank, please call the project's Principal Investigator, Dr. Katherine Morris, at 503-413-5409.

**Katherine Morris, M.D., FACS**

Surgical Oncologist

## Legacy Health System Breast Cancer Rehabilitation Program

The LHS Breast Cancer Rehabilitation Program empowers patients to take an active role in their recovery through exercise, functional training and education through the guidance of physical and occupational therapists who specialize in oncology rehab. Currently Legacy has 4 oncology therapists. Three are lymphedema certified by the Lymphology Association of North American (LANA), which requires 135 hours of Complete Decongestive Therapy (CDT) education. These specialized therapists design individualized treatment programs based on each patient's unique needs including the stage of disease, prognosis, extent of treatment, previous health issues, and coping skills. In the outpatient setting, these therapists assist patients to reach optimal levels of function throughout the continuum of care, whether currently undergoing treatment, in survivorship or palliative care.

Specific screening questions to determine if patients would benefit from these services include:

- Is it difficult to: perform daily activities including personal care or household tasks? sleep without arm and/or chest wall pain? reach due to stiffness in one or both arms?
- For the arm on the operated side: does it appear more swollen? is it more difficult to use?
- Does it feel like: bands or cords in the underarm, down the arm, in the elbow and/or wrist that restrict arm movement? heaviness and/or discomfort in the arm, underarm or chest wall?

Treatment goals include:

- Restore associated loss of strength, range of motion, and function of the shoulder.
- Minimize cancer or treatment related weakness and fatigue.
- Educate in comprehensive management of arm lymphedema.
- Reduce pain and soft tissue tightness.

In CY 2006, there were 139 patients with a breast cancer diagnosis that were treated by Legacy Cancer Rehabilitation Therapists in the outpatient setting, with 105 patients receiving lymphedema services.

Therapists are available throughout the Legacy Health System. You can reach them at the following sites:

- Legacy Good Samaritan (503) 413-7753
- Legacy Meridian Park (503) 692-7416
- Legacy Mount Hood (503) 674 -1123
- Legacy Salmon Creek (360) 487-3750



L to R - Sandy Kirchner, P.T., CLT-LANA, Sarah LaVenture, O.T.R./L., CMLDT, Laura Evans, P.T., CLT-LANA, Karen Garrett, P.T., CLT-LANA

## Oncology Nurse Navigators

In 2007, Legacy Good Samaritan added nurse navigation to its comprehensive cancer services. It is often difficult to understand the specific care and treatment options when feeling overwhelmed with



a cancer diagnosis. Our Oncology Nurse Navigators are registered nurses specially trained in oncology and surgical outcomes, who

help patients 'navigate' through each aspect of cancer treatment. Legacy Good Samaritan Nurse Navigators work closely with physicians and Cancer Services staff to ensure cancer patients understand both diagnosis and treatment.

Our nurse navigators serve as a primary care partner by connecting patients with the right resources when coping with family sup-



port issues, financial concerns, work-related and employment issues, treatment referrals and appointment schedules. Understanding cancer diagnosis and treatment can be complicated. Legacy Good Samaritan Nurse Navigators provide education to patients, answering questions throughout the treatment journey. Helping our patients overcome hurdles along the way ensures each case has an easily accessible multidisciplinary, team-based approach to care.

## Home Grown Clinical Research Around Breast Cancer

At Legacy Cancer Services we have for several years been involved in exciting projects around breast cancer.

In fact, many of our clinical research projects have helped usher into the greater Portland community advances in clinical breast cancer therapies. For example, Legacy Cancer Services opened the first sentinel node clinical trial in 1997 with a gamma probe provided by the Good Samaritan Foundation and a grant from the Portland branch of the Komen Foundation. We went on to sponsor courses



for surgeons in the community to become familiar with the technique and provided data to regional and national meetings. In a similar fashion, through a generous grant from the

Legacy Foundation, we brought interstitial breast brachytherapy to Portland. We also sponsored a course to help lead the way, making Partial Breast Irradiation more widely available to women in Oregon.

Since that time there have been several interesting projects. Inquiries evaluating quality of life concerns have taken the form

of surveys. Using mailed questionnaires we have learned about our patients' outcomes and the impact of some of our cancer therapies on survivors' lives. For example, we did a survey of patients with lymphedema and found that for those affected, there was significant impact on their feeling of well-being. This led to the formation of a clinical trial using Horsechestnut (an herb that is touted to reduce swelling and inflammation). We were not able to accrue the number of patients we had hoped to but we still learned a great deal about the psychosocial impact of this sequela. Out of the study grew our lymphedema support group.

Along the same lines, we did a survey of our estrogen-positive breast cancer patients around symptoms experienced with Tamoxifen and the Aromatase inhibitors. We found that significant numbers of those on aromatase inhibitors were experiencing joint and muscular side effects. In some it was enough to cause them to switch therapy or stop it all together. We reported our findings and there have since been additional studies confirming these findings. We are now in the process of designing a clinical trial using an herbal formula, Blue Citrus, that has anecdotally shown benefit in reducing the symptoms experienced with the aromatase inhibitors. More to come on that!

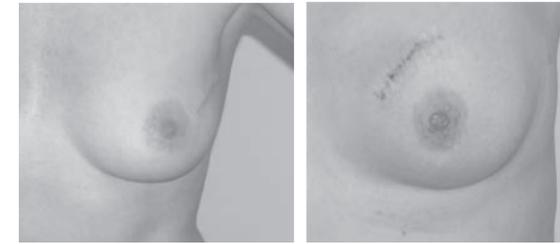
We have also done an active study to reduce side effects to the skin of those undergoing adjuvant whole breast radiation after lumpectomy. Raygel (reduced glutathione and anthocyanins) was anecdotally reported to reduce radiation dermatitis. In collaboration with a local naturopath, we designed a prospective study comparing Raygel to a placebo. The placebo was designed to look

and smell just like the Raygel but contained no active ingredients. On this study, all patients used traditional skin care but randomized to receive either placebo or Raygel. In a pilot study of 30 participants the Raygel outperformed the placebo by 24 percent. Since we had small numbers initially, this did not reach statistical significance. We have just completed a larger study of 130 participants which confirms our pilot with more convincing data. We are excited about sharing our findings. (See photos.)

We have had another exciting collaboration with the College of Oriental Medicine in the form of a clinical study on acupuncture after axillary node dissection. In the study, patients who undergo a formal axillary node dissection randomize to placebo (sham acupuncture) or acupuncture. The study is blinded and an independent observer records arm range of motion, pain indices, neurosensory changes and quality of life parameters. This study is currently ongoing and we look forward to what we hope will be exciting results.

And last but not least, we currently have opened a study on the Androgen Receptor and its role in Estrogen/Progesterone receptor negative breast cancer. This study grew out of work initiated by Dr. Pommier in their lab where they noted the demise of Estrogen/Progesterone negative breast cancer cell lines with the addition of DHEA-sulfate (a weak androgen). Further study showed this cell line to have an androgen receptor and that confirmed that this behavior was being mediated via the androgen receptor. Interestingly enough, Dr. Melaragno, our research chief, recalled a time when testosterone was used to treat metastatic breast cancer and

Placebo vs RayGel - Start



Placebo vs RayGel - Week #6



was successful in a small group of patients. In reviewing the literature, we found that the historical response rates would correspond with the expected numbers of Estrogen/Progesterone negative, androgen receptor positive patients by rough calculation. Based on this work we have designed a trial that places women with metastatic ER-/PR-/AR+

breast cancer on testosterone. We hope to show that we can manipulate this subgroup of breast cancer via the androgen receptor. If that proves to be the case then it opens the door to the possibility of adjuvant hormonal therapy for this group of patients with high risk breast cancer who currently only have chemotherapy as an option.

I could go on and on about the exciting programs that are homegrown at Legacy Cancer Services but I'll stop at this juncture. If you have questions or would like more detailed information about any of our studies, please call 503-413-8050.

#### Nathalie Johnson, M.D., FACS

Medical Director –  
Legacy Cancer Services and Breast Health Centers  
*Legacy Health System*

## Highlights of Legacy Cancer Services Studies 2006

### Title: Combined Glutathione And Anthocyanins An Improved Alternative For Skin Care During External Beam Radiation

Paez W, Johnson T, Johnson N, Walts D, Arnold K and Peterson N  
*Legacy Health System Portland Oregon*

**Introduction:** Reduction in radiodermatitis during whole breast irradiation was seen in a pilot trial of Raygel (a combination of reduced glutathione and anthocyanins) but small sample size and short RayGel half-life precluded a statistically significant outcome. Results were promising and this prompted



a larger scale study of Raygel reformulated to an anhydrous base to improve stability and ease of application.

**Methods:** Patients undergoing whole breast irradiation

were prospectively randomized to treatment with placebo or Raygel. Patients, physicians and staff were blinded. Skin reaction was documented by photographs and scored using the standard skin reaction severity scale. Patients were instructed to apply either topical Raygel or placebo cream 30-90 minutes prior to their radiation

treatment for a 5-week period. Both groups applied standard skin care of vitamin E oil and Aloe vera. Breast volumes were calculated using CT dosimetry. Comfort surveys were obtained at the end of treatment. Total breast scores and worst site breast scores were computed and compared. Statistical analysis was performed using student's t-test.

**Results:** One hundred thirty-one patients enrolled, 14 patients withdrew for a total of 117 evaluable. 60 assigned to the placebo group and 57 to the RayGel group. Scores were calculated by percent of skin involved and grade of skin reaction. The placebo group had a higher mean Total Breast Score of 126% versus RayGel of 111% (t =0.09). Worst site score was 49% for placebo versus 41% for Raygel. The placebo group had a higher mean discomfort score of 2.47 versus 2.22 for the RayGel group.

**Conclusion:** Raygel provides superior skin protection during radiation therapy than that observed with standard skin care and placebo. RayGel averaged better comfort scores than placebo. Application of combined glutathione/ anthocyanins results in lower severity radiodermatitis at completion of whole breast therapy.

**Title: Evaluating the utility of post-operative FDG-PET scans for patients who undergo radiofrequency ablation of colorectal metastases to the liver.**

Hansen PD, Taylor M, Zheng B, Wilson C, Cox A, Sheley R  
Legacy Health System, Portland OR

**Background:** Radiofrequency ablation (RFA) has been shown to be a safe and effective method of eradicating hepatic tumors. The optimal method of surveillance following RFA of colorectal liver metastases, with

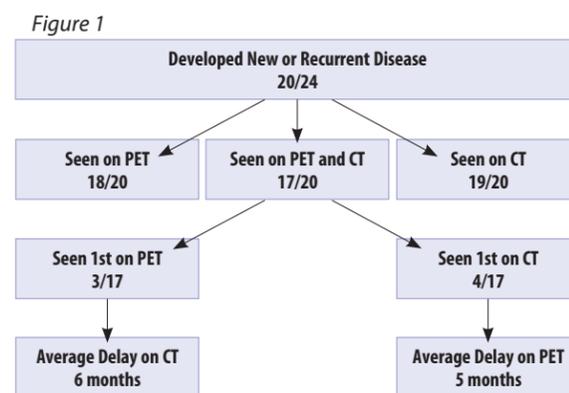
respect to identification of recurrence, has not been determined.

**Purpose:** The purpose was to examine whether routine postoperative PET scanning was as effective, or more effective than standard follow-up CT scans in identifying recurrent disease following RFA.

**Hypothesis:** We hypothesize that PET scanning will identify recurrent disease sooner than CT scanning, allowing for earlier re-evaluation of a patient's treatment plan.

**Methods:** The study is a prospective, self-control comparison between CT and PET scans after RFA of colorectal hepatic metastases. Following RFA, routine abdominal CT and PET scans were obtained at 3, 6, 9, and 12 months. All scans were reviewed by two independent radiologists. The primary endpoint was to determine if PET scan results identified lesions which led to an earlier alteration in the patient's clinical care.

**Results:** Twenty-six patients were enrolled into the study and 24 were considered to have completed the study. While no patient had persistent disease after RFA, 20 of 24 developed recurrent disease during follow up.



**Conclusion:** The agreement between CT and PET for identification of recurrent disease following RFA of liver colorectal metastases is high. (see Figure 1) Neither PET, nor CT gives an obvious advantage in either identification or timing of identification of new disease. The sensitivity of both tests is high enough to preclude justification for using

both tests. The choice of PET versus CT will likely be made by cost, availability, or expertise in a given community.

**Deb Walts, R.N., BSN**  
Quality Improvement  
Specialist  
Legacy Cancer Services

## Community Involvement

### Participation in Community Events

February	Vietnamese Tet Festival
March	Issues after Breast Cancer
June-August	Relay for Life (American Cancer Society)
September	Asian Health Screening Fair Celebration of Courage (Children's Cancer Association) Race for the Cure and Komen Health Expo "Light the Night" (Leukemia/Lymphoma Society)
October	Saks Fifth Avenue Key to the Cure

### Public Education Talks/Activities

March	Breast Health: After a Cancer Diagnosis (SC)
April	Colorectal Cancer Treatment Options (GS) Colorectal Cancer: Prevention, Risk Factors, Heredity (SC)
May	Skin Cancer (EH) Prostate Cancer Issues and Answers (SC) Healthy Eating after Cancer Treatment (MP)
June	Overview of Cancer Hereditary Syndromes (SC) Cancer Survivors' Day (EH)
September	Healthy Eating after Cancer Treatment (GS) Prostate Cancer Treatment: New Frontiers (GS)
October	Cancer Information on the Web (GS) Breast Cancer: What's New, Where are We Going? (SC)
November	Cancer and Nutrition (GS) Healing Conversations (EH)

### Screening Events

February	Men's Wellness Event: Prostate & Heart Health Screening (EH)
May	Skin Cancer Screening (EH)
Ongoing	Low-cost Screening Mammograms, in conjunction, with the Komen Foundation, at Good Samaritan Hospital, Emanuel Hospital, Mt. Hood Hospital, Meridian Park Hospital and Legacy Clinic St. Helens

## 2006 Publications

**Chang EY, Dorsey PB, Johnson N, Lee R, Walts D, Johnson W, Anadiotis G, Kiser K, Frankhouse J.**  
A prospective analysis of microsatellite instability as a molecular marker in colorectal cancer. *Am J Surg.* 2006 May;191(5):646-51.

**Chang EY, Johnson W, Karamlou K, Khaki A, Komanapalli C, Walts D, Mahin D, Johnson N.**  
The evaluation and treatment implications of isolated pulmonary nodules in patients with a recent history of breast cancer. *Am J Surg.* 2006 May;191(5):641-5.

**Chang EY, Glissmeyer M, Tonnes S, Hudson T, Johnson N.**  
Outcomes of breast cancer in patients who use alternative therapies as primary treatment. *Am J Surg.* 2006 Oct;192(4):471-3.

**Eldridge DH, Nail LM, Maziarz RT, Hansen LK, Ewing D, Archbold PG.**  
Explaining family caregiver role strain following Autologous blood and marrow transplantation. *Journal of Psychosocial Oncology.* 2006;24(3):53-74.

**Hansen LK, Smythe PA, Hansen KS, Gruenberg DR, Callaway D.**  
Glutamine supplementation to reduce oral mucositis in multiple myeloma patients receiving high-dose melphalan and autologous hematopoietic progenitor cell transplantation: a feasibility study. *Biology of Blood & Marrow Transplantation.* 2006;12(2) suppl. 1. Abst. 414.

**Maziarz RT, Dunn A, Hansen L, Hansen K, Leis- JF, Hayes-Lattin B, Kovascovics, Kovascovics T, Calandra G, Fowler C.**  
Rescue from failed growth factor and/or chemotherapy HSC mobilization with G-CSF and AMD3100: An institutional experience. *Blood:*108(11): 461b Abst. 5460.

Leis FJ, Hansen KS, Curtin PT, Hayes Lattin B, Lanier KS, Gruenberg D, Mauro MJ, Segal GM, Menashe JI, Kovascovics TJ, Simic A, Maziarz RT.

The failure of prognostic models (PM) to predict outcomes after autologous stem cell transplantation (ASCT). *Biology of Blood & Marrow Transplantation*. 2006. 12(2) suppl. 1. Abst. 269.

Morris KT, Song TJ, Fong Y.

"Recent advancements in diagnosis and treatment of metastatic colorectal cancer to liver." *Surgical Oncology*. November 2006; 15(3): 129-134.

Garreau JR, DeLaMelana T, Walts D, Karmalou K, Johnson N.

Side effects of aromatase inhibitors versus tamoxifen: the patients perspective. *The American Journal of Surgery*. October 2006; 192(4), 496-498.

Seidman JD, Kumar JA, Cosin, Winter III WE, Caghill C. Boice Cr.

Carcinomas of the female genital tract occurring after pelvic irradiation: a report of 15 cases. *International Journal of Gynecology and Pathology*. 2006; 25(3): 293-297.

Winter III We, Brown DN, Leath III CA.

Current controversies in the biology and management of ovarian tumors of low malignant potential. *The Women's Oncology Review*, 2006; 6(1-2); 15-25.

## Cancer Data Management Overview

The Legacy Health System's Cancer Data Management Department, is a key component of the cancer program, and continues with an excellent performance. The Commission on Cancer has approved our network cancer program for three years. Data on all Legacy patients, either initially diagnosed in a Legacy facility and/or receiving initial treatment for that diagnosis, is entered in the registry. Strict guidelines for data entry are prescribed by the Commission on Cancer (CoC) and the North American Association of Central Cancer Registries (NAACCR).

### Cancer Data Management 2006

Cancer Data Management (CDM) collects over 200 data fields on every cancer patient identified as an eligible case seen with Legacy. To maintain Legacy's approved Network Cancer Program status, Cancer Data Management is responsible for:

- Case identification
- Data collection systems
- Lifetime follow-up of cancer patients

- Submission of data to:
  - National Cancer Database
  - Oregon State Cancer Registry
  - Washington State Cancer Registry
- Supporting Legacy Cancer Conferences
- Quality monitoring of registry data
- Responding to data requests
- Representation on the Network Cancer Committee and Quality Assurance Committee
- Providing data for the Cancer Services Annual Report
- Preparations and ongoing discussion with the American College of Surgeons regarding survey expectations

### Data Report

The registry data is collected from several Legacy information systems as well as from information provided by physician practices. There are over 33,110 cases in the database since its reference (start) date of 1993.

The data from 2006 demonstrated 15% of the new cases were patients who had had a previous cancer diagnosis. Over one-half (59%) of the patients in the database are still alive and followed annually. Our patient

population covers the entire state of Oregon and some Washington residents.

### Data Requests

The Cancer Registry responded to 102 data requests in 2006, which include requests from Cancer Administration, for administrative planning, physician requests for planning, and requests needing data for research.

### Accomplishments

- Implemented Pediatric staging in cooperation with Pediatric Hematology Oncology
- Provided externship hours for Portland Community College student
- Created a home-based work opportunity for one registrar
- Provided representation on Oregon State Cancer Registry Advisory Committee
- Provided representation on the Oregon Cancer Registrars Association Executive Committee
- Supported attendance at the National Cancer Registrars Association conference in Washington, DC
- Supported attendance at state conferences and workshops
- Implemented an on-line registrar trainee program to prepare new staff for the Certified Tumor Registrar exam
- Coordination and support of 217 cancer conferences, where 1046 patients were presented system-wide in 2006:
  - 37 Breast Care Conferences
  - 23 Central Nervous System Conferences
  - 24 Gastrointestinal Cancer Conferences
  - 66 General Cancer Conferences
  - 10 Head and Neck Cancer Conferences
  - 1 Leukemia and Lymphoma Conference

- 24 Pediatric Cancer Conferences
- 32 Thoracic Cancer Conferences

- Entered 2321 new cancer cases into the database
- Followed over 18,640 patients during the year and maintained a 90% follow-up rate
- Completed review of 230 abstracts for quality and accuracy through physician review

### Legacy Cancer Data Management employees:

**Hollis Brown, RHIT, Manager**

**Diana Mahin, CTR, RHIT, Lead Registrar – Legacy Good Samaritan**

**Karen Mazzuca, CTR, RHIT – Legacy Good Samaritan**

**Syd Waskey, CTR – Legacy Good Samaritan**

**Gail Coleman, CTR, RHIT, Lead Registrar – Legacy Meridian Park**

**Donna Gilbo, CTR, RHIT - Legacy Emanuel**

**Leah Kiesow – Legacy Emanuel**

**Catherine Telford – Legacy Emanuel**

**Elly Hayes, CTR – Legacy Mt. Hood**

**Janel McNally, CTR - Legacy Salmon Creek**

### Support Staff:

**Susan Myers**

**Sandi Potrue**



Front L to R- Donna Gilbo, Janel McNally, Elly Hayes  
Back L to R - Catherine Telford, Hollis Brown, Leah Kiesow, Gail Coleman

## Legacy Health System 2006 Network Cancer Committee Members

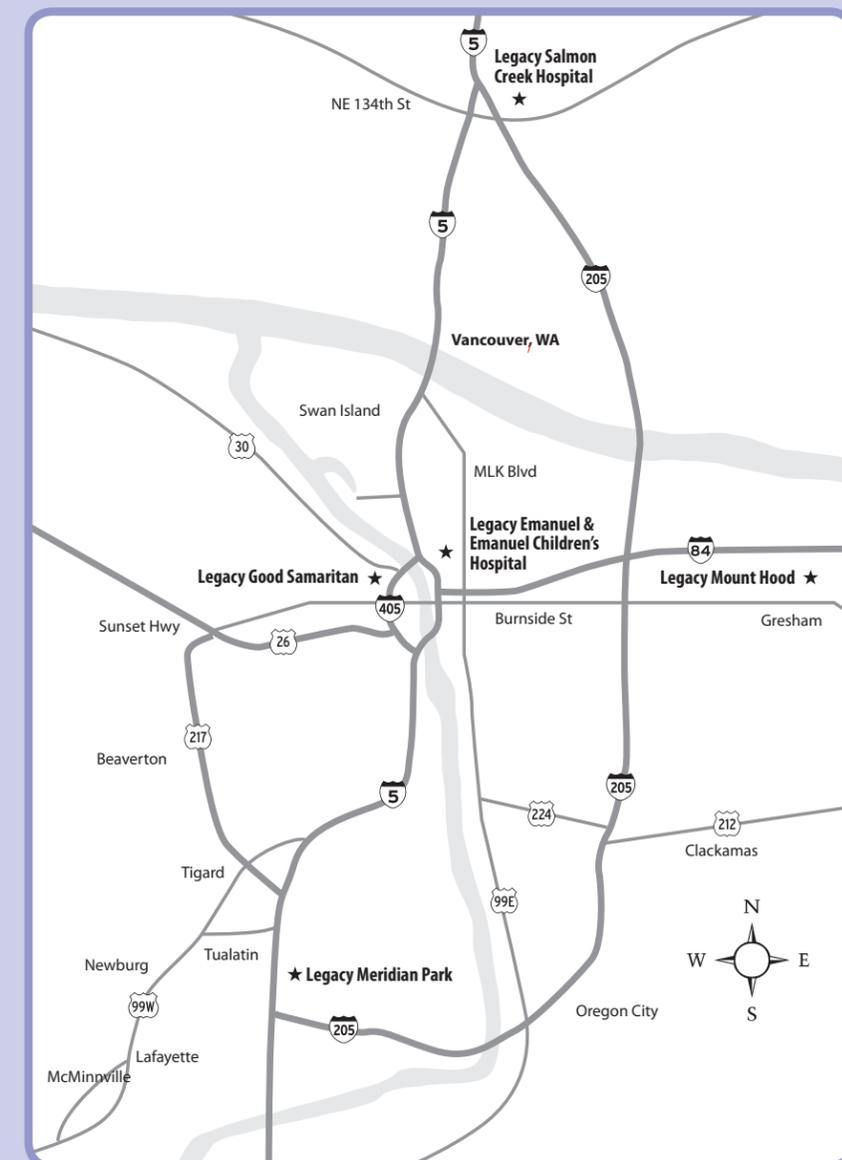
**Selma Annala**, Supervisor, Integrative Medicine  
**R. Bryan Bell, DDS, M.D., FACS** Head & Neck Surgery  
**Tim Bock**, Manager, Medical/Oncology LSC  
**Hollis Brown**, Manager, Cancer Data Management  
**Andrew Cox, M.D.**, Radiology  
**Kelly Doherty**, Manager, Radiation Oncology  
**Paul Dorsey, M.S.**, Genetics Program  
**Carol Drayton**, Manager, Medical/Oncology LSC  
**Barbara Farmer**, Manager, Hospice Services  
**Lauren Foote-Christensen**, Manager, Marketing  
**Leah Grotzinger, PharmD**, Pharmacy  
**Daniel Gruenberg, M.D.**, Hematology/Oncology  
**Keith Hansen, M.D., FACP**, Hematology/Oncology  
**Lisa Hansen, RN**, Coordinator, Bone Marrow Transplant  
**Paul Hansen, M.D., FACS**, General Surgeon  
**Bryce Helgerson**, Vice President, Administration  
**Virginia Hendrickson**, Manager, Social Services  
**Katherine Jaramillo**, Chaplain, Pastoral Services  
**Nathalie Johnson, M.D., FACS**, General Surgeon, Medical Director, Legacy Cancer Services  
**Michael Kaempf, M.D., FACS**, Urology  
**Pamela Kilmurray**, Director, Legacy Cancer Services  
**Lam Nguyen, PharmD**, Pharmacy  
**Keith Lanier, M.D.**, Hematology/Oncology  
**Alayne Lehman**, Manager, Research  
**Katherine Leonard, Ph.D.**, Psychology  
**Richard Lex, R.N.**, Manager, Legacy Cancer Services  
**Diana Mahin, R.H.I.T., C.T.R.**, Lead Registrar  
**Leslie McAllister, M.D.**, Neurology/Oncology  
**Anthony Melaragno, M.D.**, Vice President, Legacy Research  
**Katherine Morris, M.D., FACS**, Oncology Surgeon  
**Dane Moseson, M.D., FACS**, General Surgeon  
**JoAnne Nelson, M.D., FACS**, General Surgeon, Physician Liaison  
**Janice Olson, M.D.**, Pediatric Hematology/Oncology  
**June Olson, M.D.**, Pathology  
 Legacy Network Cancer Committee Chairman

**Russ Omizo, M.D.**, Radiation Oncology  
**Michael Owens, M.D.**, Gastroenterology  
**Carol Purdy, RN** Supervisor, Research  
**Sally Quimby, R.N.**, Manager, Legacy Cancer Services  
**Marci Reed**, Dietitian, Cancer Services  
**Mark Schray, M.D.**, Radiation Oncology  
**Michael Skehan**, Vice President, Administration  
**Susan Swanson, L.C.S.W.**, Social Services  
**Marie Valleroy, M.D.**, Physical Medicine and Rehabilitation  
**Terry Wagie, R.N.**, Clinical Nurse Specialist, Legacy Cancer Services  
**Deb Walts, R.N.**, QI Specialist, Legacy Cancer Services  
**Jocelyn White, M.D., FACP**, Hospice/Palliative Medicine  
**Mark Whiteford, M.D., FACS**, Colorectal Surgeon  
**Charlyn Wilson, R.N.**, Clinical Coordinator, Legacy Cancer Services  
**Vina Winters, R.N.**, Supervisor, Day Treatment Infusion Clinic

## Legacy Cancer Services 2007 Leadership Team

*Interim Chief Administrative Officer - Tony Melaragno, MD*  
*Medical Director, Cancer Services and Breast Health Centers - Nathalie Johnson, MD, FACS*  
*Medical Director, Cancer Research - Katherine Morris, MD, FACS*  
*Medical Director, ABMT/Stem Cell Program - Keith Hansen, MD, FACP*  
*Medical Director, Palliative and Hospice Care - Jocelyn White, MD, FACP, FAAPP*  
*Medical Director, Radiation Oncology - Mark Schray, MD*  
*Medical Director, Children's Cancer & Hematology Program - Janice Olson, MD*

*Director, Adult Cancer, Rehab and Hospice Services - Pamela Kilmurray*  
*Director, Children's Cancer and Hematology Program - Bronwyn Houston*  
*Manager, Cancer Data Management - Hollis Brown*  
*Manager, Cancer Research - Alayne Lehman*  
*Manager, Adult Cancer Inpatient Unit, Day Treatment - Richard Lex, RN*  
*Manager, Radiation Oncology - Kelly Doherty*  
*Clinical Nurse Specialist, Cancer Services - Terry Wagie, RN, CNS*



*For more information about  
Legacy Cancer Services,  
please call 503-413-8050.*

*[www.legacyhealth.org/cancer](http://www.legacyhealth.org/cancer)*



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