Contents

Comprehensive Cancer Services .............................................. 2
Medical Director’s Report ................................................... 5
Legacy Cancer Services Overview ........................................... 6
Screening for Gastrointestinal Malignancies .............................. 9
The T2-Lymph-Node Standard in Colon Cancer ......................... 11
Colon Cancer ...................................................................... 12
Epidermal Growth Factor Inhibitors in the Treatment of Advanced (Stage IV) Colon Cancer ........................................ 14
Hepatic, Biliary and Pancreatic Program ................................... 16
Interventional Radiology for Non-Operative Liver Cancer ............ 17
Esophageal Cancer .............................................................. 17
Radiation Therapy for Esophageal Cancers ............................... 19
Gastric Cancer .................................................................. 22
Rectal Cancer ................................................................... 23
Anal Cancer ...................................................................... 24
Oncology Clinical Research Activities ..................................... 26
Microsatellite Instability as an Independent Prognostic Factor in Colon Cancer ........................................ 26
Legacy Tumor Bank ............................................................. 28
Oncology Navigation: Oncology Nurse Navigators and ACS Patient Navigator .............................................. 29
Legacy Cancer Rehabilitation Services .................................... 29
Integrative Cancer Care and Support Services ............................ 30
Quality Improvement: Alphabet Soup .................................... 31
Community Involvement ....................................................... 33
Professional Education Activities .......................................... 34
Publications .................................................................... 34
Cancer Data Management Overview ...................................... 35
Legacy Health System
2007 Network Cancer Committee Members ............................ 37
Comprehensive Cancer Services

Legacy Cancer Services provides a comprehensive range of multidisciplinary 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-Hodgkin’s lymphoma, Hodgkin’s disease, acute leukemia, multiple myeloma, germ cell tumors and primary amyloidosis may benefit from autologous transplantation.

Legacy Northwest Marrow Transplant Program — Legacy Health System and Oregon Health & Science 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.

Legacy Northwest Marrow Transplant Program — 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.

Brain and Spinal Cord Tumor Services

Legacy’s Brain and Spinal Cord Tumor Services offer state-of-the-art technology and comprehensive resources for adults and children, delivered in a compassionate manner. Our network of specially trained physicians, coupled with our support services, provide a full spectrum of care. Legacy offers the most sophisticated cancer treatment available for surgery, chemotherapy and radiation, including Novalis® Shaped Beam Surgery, Intensity Modulated Radiation Therapy (IMRT) and Image-Guided Radiation Therapy (IGRT). The program includes components of the Rehabilitation Institute of Oregon (RIO), Legacy Research, the Oregon Comprehensive Epilepsy Program and the Children’s Cancer Program, and holds a monthly multidisciplinary CNS Tumor Conference. The Brain Tumor Support Group is also a vital resource to many patients.

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 Center, located at Legacy Good Samaritan Hospital, Legacy Meridian Park Hospital, and Legacy Salmon Creek Hospital, provide expertise in screening and diagnostic mammograms, breast ultrasound and breast biopsies. Digital mammography Is available at all sites. The R2 ImageChecker® provides a computerized double check of breast X-ray images to assist radiologists in reviewing mammograms. If changes in the breast are seen on a screening mammogram, it is important that further diagnostic tests can occur promptly. Breast Specific Gamma Imaging (BSGI), a molecular breast imaging technique, is available at Legacy Good Samaritan Hospital. It is a complementary diagnostic procedure to mammography and ultrasound for difficult-to-diagnose patients, such as those with dense breast tissue, previous surgical scars, and for women with palpable lumps without positive mammography. 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/Tumor Boards

Multidisciplinary cancer conferences offer the multidisciplinary team an opportunity to discuss an individual’s diagnosis, pre-treatment evaluation, staging, treatment strategy, and rehabilitation goals for a broad spectrum of cancer cases. Physicians present current cases for discussion. These conferences also provide education for medical staff, residents and allied healthcare providers. In addition to General Cancer Conferences, Legacy offers a regular schedule of specialty conferences for the following tumors: breast, central nervous system, gastrointestinal, gynecologic, head and neck, hematologic, pediatric, prostate/urologic and thoracic malignancies. Monthly Oncology Grand Rounds are also offered.

Cancer Care Unit

The Cancer Care Unit on the Legacy Good Samaritan Hospital campus is the focused medical/surgical cancer inpatient unit 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 20 beds, most are private with a shower. This includes six rooms for autologous blood stem cell transplantation and two Comfort Care Suites designed to care for inpatients with terminal illness. 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 (NCDR), the Oregon State Cancer Registry (OSCaR) and the Washington State Cancer Registry (WSCR); quality monitoring of registry data; and responding to data requests. Data collected by the registrars is vital to Legacy’s approved Network Cancer Program.

Cancer Genetics and Risk Assessment Program

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

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 Services

Cancer Rehabilitation Team members assist individuals and their families adjust to the impact of cancer through:

- Lymphedema Management — treats swelling of the arm, leg or other body part caused by an abnormal build-up of protein and excess water in the tissue space. The goals of this therapy are to reduce 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.
- Occupational therapy — educates and assists in the adjustment to possible limitations of endurance, self-care skills or other activities of daily living.
- Physical therapy — maximizes the level of independence within the limits of the individual’s disability and illness through use of exercise, ambulation, assessment of equipment needs, family training, and assistance with pain management.
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 family-centered treatment and the 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 (COG), a national consortium of children's hospitals that treat cancer. Services include chemotherapy, radiation therapy, comprehensive nursing services, home infusion/nursing services, pediatric surgery, pediatric neurosurgery, intensive care unit, pediatric subspecialty support and hospice.

Colorectal Cancer Center of Excellence

The Colorectal Cancer Center of Excellence at Legacy Good Samaritan Hospital brings together a full range of specialists to offer a comprehensive team approach to the prevention and treatment of colon and rectal cancers. With the latest in screening, diagnosis, treatment, recovery and support services, we provide individualized, up-to-date and compassionate care. Oncology Nurse Navigators guide, support and educate patients as they move through their cancer experience. Complex cases are presented at the Gastrointestinal Tumor Conference, meeting twice a month. Participation in clinical trials and genetic counseling services are also important elements of the program.

Consultation Service

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

Day Treatment/Infusion Clinics

The Day Treatment/Infusion Clinics are located at all five Legacy Hospitals. They provide chemotherapy, blood products, antibiotics and other infusions allowing patients to maintain independent lifestyles and avoid unnecessary hospitalization. IV line placement and education including PICC (Peripherally Inserted Central Catheter) is also offered. A physician referral is necessary. The clinic locations at the hospitals allow convenient access to pharmacy, laboratory, X-ray and other support services.

Autologous blood donation is a service provided at Legacy Mendian Park Hospital for those wishing to donate their own blood for possible use during their elective surgery.

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, Legacy Emanuel and Legacy Meridian Park 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 other symptom management 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 aids, 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.

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 Good Samaritan Hospital is a leading regional center for the treatment of liver, bile duct and pancreas tumors. Legacy offers a full range of treatment options, including tumor resection, radiofrequency ablation, chemo- and radio-embolization for liver tumors, and advanced radiation therapies. The primary goal is to improve the survival and quality of life for patients. The Hepatic, Biliary and Pancreatic Program is a collaboration between cancer services, medical and surgical oncology, gastroenterology, radiation oncology and interventional radiology. Components include a prospectively maintained database, active clinical research, and education programs for physicians and patients.

Integrative Cancer Care and Support Services

Integrative Cancer Care and Support Services provide holistic care to help individuals and their families adjust to the impact of cancer through evidence-based complementary therapies including:

- Adult Nurse Practitioner (ANP) — provides individual assessment and follow-up to achieve optimum wellness during cancer treatment through survivorship. The ANP coordinates integrative cancer care services with the patient/family and the care providers.
- Dietitian — provides guidance in achieving a healthy lifestyle through individualized nutritional counseling and/or community presentations.

Music for Healing — provides therapeutic gardens accessible to patients and families for renewal and reflection.

Massage — applies a range of therapeutic treatments including manual massage therapy to positively affect the individual’s health and well-being.

Medical Social Worker — addresses emotional, social and financial needs and coordinates community services and resources.

Movement classes (NIA, Tai Chi and yoga) — increases mobility, flexibility, and endurance, while providing support and enhancing life quality.

Music for Healing — volunteers provide music for relaxation, distraction and comfort for patients and families in the Legacy Good Samaritan Hospital Cancer Care Unit.

Music Thanatology — a palliative music practice for end-of-life care — brings harp and voice to the bedside, addressing discomfort and suffering with the therapeutic qualities of music.

Psychosocial counseling — identifies emotional needs and adjustment issues, and assists in the development of coping skills.

Stress management — assists in an individual’s adjustment to illness, disability and treatment through life planning, relaxation training and guided imagery. 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.

Oncology Clinical Research

Legacy Oncology Research participates in a variety of oncology clinical trials including those sponsored by industry, investigator-initiated trials supported by Legacy Foundation and community-based cancer research organizations, including Columbia River Oncology Program (CROP) and Walter Reed Army Medical Center.

National research base affiliations are established with the following organizations: University of Rochester Cancer Center (URCC) involved in symptom management studies, Southwest Oncology Group (SWOG) conducting cancer treatment and prevention trials; Cancer and Leukemia Group B (CALGB) conducting cancer treatment studies including leukemia and lymphoma trials; Eastern Cooperative Oncology Group (ECOG) with clinical trials for all types of adult malignancies; M.D. Anderson Cancer Center (MDACC) conducting cancer treatment, control and prevention studies in adults, adolescents and children; North Central Cancer Treatment Group (NCTG) conducting cancer treatment, prevention and symptom management trials; National Cancer Institute of Canada Clinical Trials Group (NCIC) offering cancer treatment and control.
needs of a specific patient:
types of radiation therapy are available, depending on the
Legacy Meridian Park Hospital. The treatment process
provides radiation therapy at all hospital locations except
treating disease including cancer. Legacy Cancer Services
Radiation Oncology consists of the application of high-
support and educational resources.
provide a single point of contact, offering a full array of
patients and their families through the prostate cancer
brachytherapy program, using radioactive seed implants,
(Intensity-modulated radiation therapy.) And our prostate
of radiation treatments for prostate cancer, including IMRT
to standard surgical methods. Legacy also has a full range
surgery. Legacy Good Samaritan Hospital, with the high
assisted surgery has come to the forefront of urological
services for men with prostate cancer. The field of robotic-
accuracy and reliability of Novalis
exact size and shape of a tumor, treating only the tumor
beams to match the irregular shapes of
tumors, but also can change the shape of each beam
and modulate the dose intensity during treatment.
— an advanced form
of radiosurgery treatment. The Novalis® technology
available at Legacy Emanuel Hospital), in use at only
a handful of centers nationwide, is “surgery without
scapel”— 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, lung, liver, breast, prostate
and other areas in the body.
— an advance
of radiosurgery treatment. The Novalis® technology
available at Legacy Emanuel Hospital), in use at only
a handful of centers nationwide, is “surgery without
scapel”— 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, lung, liver, breast, prostate
and other areas in the body.
— an advanced form
of radiosurgery treatment. The Novalis® technology
available at Legacy Emanuel Hospital), in use at only
a handful of centers nationwide, is “surgery without
scapel”— 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, lung, liver, breast, prostate
and other areas in the body.

Oncology Nurse Navigator
Legacy Good Samaritan Hospital offers the services of
Oncology Nurse Navigators, who are Registered Nurses
trained in cancer care, to help patients navigate through
their cancer diagnosis and treatment. The Oncology
Navigator guides, supports and educates patients
and their families and helps coordinate the efforts of the
medical team. In addition, a Patient Navigator from the
American Cancer Society works closely with our Oncology
Nurse Navigators, addressing other needs such as trans-
portation, financial and physical issues, as well as linking
patients with local, state and national resources.

Prostate Cancer Program
The Prostate Cancer Program at Legacy Good Samaritan
Hospital offers the latest in treatment and support
services for men with prostate cancer. The field of robotic-
assisted surgery has come to the forefront of urological
surgery. Legacy Good Samaritan Hospital, with the high-
est volume of robotically-performed prostate surgeries in
Oregon, is proud to offer this treatment option, in addition
to standard surgical methods. Legacy also has a full range
of radiation treatments for prostate cancer, including IMRT
(intensity-modulated radiation therapy.) And our prostate
brachytherapy program, using radioactive seed implants,
is the largest and most experienced in the region. To guide
patients and their families through the prostate cancer
diagnosis and treatment, Oncology Nurse Navigators
provide a single point of contact, offering a full array of
support and educational resources.

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
Legacy Meridian Park Hospital. The treatment process
includes consultation, treatment planning, on-going clini-
cal evaluation, education and support services. Several
types of radiation therapy are available, depending on the
needs of a specific patient:
— a form of radiation therapy in
which radioactive materials are placed within the body
in direct contact with the affected area. This allows
more radiation to be given safely in conjunction with
external radiation treatments, and in certain situations
it can be used by itself in a much shorter and more
convenient course of treatment. Cancer types in which
brachytherapy is particularly useful include prostate,
breast, gynecologic and soft tissue sarcomas. Legacy
offers a full range of the most technologically advanced
brachytherapy services and is the largest and most
experienced program in the region.
— uses computer-
ized technology to map the tumor's location and op-
timize the radiation dose delivered to the tumor while
minimizing side effects to the surrounding tissues.
— an advance-
ment 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.
— a powerful 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.
— an advanced form
of radiosurgery treatment. The Novalis® technology
available at Legacy Emanuel Hospital), in use at only
a handful of centers nationwide, is “surgery without
scapel”— 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, lung, liver, breast, prostate
and other areas in the body.

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 loca-
tions. See the Legacy Cancer Services website at www.
legacyhealth.org/cancer for a current listing.

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.

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 study-
ing the relationships between tumor characteristics, treat-
ament 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, preparing mailings, making phone calls
and performing receptionist tasks. Volunteers help keep
Green Gables Guest House in ready condition for guests
and provide support for the guests while staying there.
GI! GI! Read all about it!

Gastrointestinal (GI) cancer is a huge subject to chose for an annual report. However, we are so excited about the important changes and the high echelon services that Legacy Cancer Services has developed in many of the GI tumor sites that it was an insurmountable feat to choose just one. This year’s annual report will cover the gamut of tumors from the foregut to the hindgut. As you peruse the report, I think you will begin to understand the challenge entailed in focusing on one area, when the offerings in each area are robust.

We will take you from the esophagus, where at Legacy Good Samaritan Hospital the first robotic esophagectomy in the Northwest was performed, to the pancreas. We will then detour to the liver and our outstanding hepatobiliary program with the dynamic duo of Dr. Kate Morris and Dr. Jason Bauer. We will update you on our minimally invasive approaches to primary and metastatic liver cancer.

From there, we will head on into the colon, where you will hear not only about advances in therapy, but also learn about exciting work occurring in the research lab sparked by collaboration with the Tumor Bank. You will see the link between our genetics program and clinical research with a synopsis of a study on microsatellite instability presented at a regional meeting culminating in a paper soon to be published in a peer review journal. We will then move on to the rectum and the anus.

During your tour through GI cancer services at Legacy, you will also have a glimpse of our multidisciplinary conference that brings all the specialties together to provide dialogue with the goal of improving the quality of patient care.

No tour of Legacy GI cancer services would be complete without perusal of the complement of additional therapies available. The patients treated at Legacy Good Samaritan Hospital are apt to be offered a sampling of these by the thoughtful guidance of their Oncology Nurse Navigator, whose goal is to assure that each patient is able to access the supportive and therapeutic services they need. Our cancer nutritionist provides on-site consultation at all of our radiation oncology clinics. Last, but not least, after participation in movement classes, there is the option to have a massage by our talented and experienced massage therapists located at Legacy Good Samaritan and Legacy Meridian Park hospitals.

I hope you will enjoy this year’s report. The GI cancer services at Legacy are great.

Read all about it!

Nathalie Johnson, M.D., FACS
Medical Director
Legacy Cancer Services and
Breast Health Centers
Legacy Cancer Services Overview

By Nathalie Johnson, M.D., FACS, Cancer Committee Chair, and Pam Kilmurray, Director, Legacy Cancer Services

In 2007, Legacy Cancer Services was surveyed by the American College of Surgeons (ACoS) Commission on Cancer (CoC) and received a full three-year accreditation with commendations in the following four areas:

- Outcomes analysis and/or studies utilizing national data for survival comparison.
- Clinical trial accrual to research studies.
- Prevention/Early Detection programs offered to our communities throughout the year.
- Cancer related quality improvements that were implemented by the Network Cancer Committee.

More importantly, through this process we learned about opportunities where we could make improvements and enhance the overall quality of our program. Our cancer data registrars, pathologists, quality committee and network cancer committee have focused on improving AJCC Staging for completeness of the required elements for 90 percent of our eligible cases and improving our performance on College of American Pathologists (CAP) guidelines, incorporating specifically the terms and language within the body of the pathology reports.

Focusing on improving the delivery of our care is important because Legacy Health System is committed to providing safe and high quality care to our patients that entrust their cancer treatment to our team. This commitment led to our being the first to receive Network Cancer Program Accreditation in 2001. We are one of two systems in the Pacific Northwest that has achieved accreditation as a Network, the only system in Oregon and one of 28 nationally. Additionally, in August of 2005, Legacy Health System opened Legacy Salmon Creek Hospital located in Vancouver, Washington, which will be surveyed in the upcoming year to bring Legacy Salmon Creek into the Network Cancer Program.

The comprehensiveness of a network program ensures our patients have access to many programs and services such as research, education, prevention, risk assessment and genetic counseling, early detection screenings, multidisciplinary treatment, rehabilitation, oncology nurse navigation, palliative and hospice care. In addition, the vast array of support services (e.g., stress management, art therapy, lymphedema, massage) are available.

Furthermore, our Autologous Blood Stem Cell Transplant Program underwent a site visit and clinical review by the National Blue Cross and Blue Shield System’s Blue Distinction Centers for Transplants (BDCT) in July 2007. The program received notification in September 2007 that we met the BDCT criteria and has been accepted as a BDCT center.

Program Highlights

The Oncology Nurse Navigation program at Legacy Good Samaritan Hospital was implemented originally to support all breast cancer patients with development of a plan to expand the Nurse Navigation support to other tumor sites. We also began developing a plan with the American Cancer Society (ACS) to integrate a Patient Care Navigator, who is a social worker, into our program in 2008. The goal is to provide Oncology Nurse Navigation with ACS support to all of our cancer patients.
## Legacy Health System 2007 Primary Sites (2,460 cases)

<table>
<thead>
<tr>
<th>Primary site</th>
<th>Emanuel Patient count</th>
<th>Percentage of total</th>
<th>Emanuel Percentage of total</th>
<th>Good Samaritan Patient count</th>
<th>Percentage of total</th>
<th>Good Samaritan Percentage of total</th>
<th>Mount Hood Patient count</th>
<th>Percentage of total</th>
<th>Mount Hood Percentage of total</th>
<th>Meridian Park Patient count</th>
<th>Percentage of total</th>
<th>Meridian Park Percentage of total</th>
<th>Salmon Creek Patient count</th>
<th>Percentage of total</th>
<th>Salmon Creek Percentage of total</th>
<th>LHS Patient count</th>
<th>Percentage of total</th>
<th>LHS Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ampulla of Vater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anal Canal</td>
<td>1</td>
<td>0.1%</td>
<td></td>
<td>2</td>
<td>0.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bladder</td>
<td>21</td>
<td>4.3%</td>
<td></td>
<td>18</td>
<td>1.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bone/Conn Tissue</td>
<td>2</td>
<td>0.4%</td>
<td></td>
<td>4</td>
<td>0.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brain/CNS</td>
<td>77</td>
<td>15.8%</td>
<td></td>
<td>3</td>
<td>0.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>10</td>
<td>2.1%</td>
<td></td>
<td>326</td>
<td>30.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cervix Uteri</td>
<td>1</td>
<td>0.2%</td>
<td></td>
<td>20</td>
<td>1.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colon</td>
<td>13</td>
<td>2.7%</td>
<td></td>
<td>41</td>
<td>3.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corpus Uteri</td>
<td>8</td>
<td>1.6%</td>
<td></td>
<td>72</td>
<td>6.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endocrine</td>
<td>11</td>
<td>2.3%</td>
<td></td>
<td>2</td>
<td>0.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esophagus</td>
<td>1</td>
<td>0.2%</td>
<td></td>
<td>13</td>
<td>1.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fallopian Tube</td>
<td>1</td>
<td>0.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gallbladder</td>
<td>2</td>
<td>0.2%</td>
<td></td>
<td>1</td>
<td>0.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hodgkin</td>
<td>11</td>
<td>2.3%</td>
<td></td>
<td>5</td>
<td>0.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney</td>
<td>21</td>
<td>4.3%</td>
<td></td>
<td>32</td>
<td>3.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Larynx</td>
<td>5</td>
<td>1.0%</td>
<td></td>
<td>2</td>
<td>0.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leukemia</td>
<td>20</td>
<td>4.1%</td>
<td></td>
<td>11</td>
<td>1.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lip/Oral Cavity</td>
<td>40</td>
<td>8.2%</td>
<td></td>
<td>4</td>
<td>0.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver/Bile Ducts</td>
<td>2</td>
<td>0.4%</td>
<td></td>
<td>16</td>
<td>1.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung</td>
<td>31</td>
<td>6.4%</td>
<td></td>
<td>69</td>
<td>6.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lymphoma-NH</td>
<td>21</td>
<td>4.3%</td>
<td></td>
<td>26</td>
<td>2.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melanoma</td>
<td>10</td>
<td>2.1%</td>
<td></td>
<td>13</td>
<td>1.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mesothelioma</td>
<td>1</td>
<td>0.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple Myeloma</td>
<td>4</td>
<td>0.8%</td>
<td></td>
<td>4</td>
<td>0.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharynx</td>
<td>7</td>
<td>1.4%</td>
<td></td>
<td>3</td>
<td>0.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Site</td>
<td>3</td>
<td>0.6%</td>
<td></td>
<td>2</td>
<td>0.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ovary</td>
<td>3</td>
<td>0.6%</td>
<td></td>
<td>29</td>
<td>2.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pancreas</td>
<td>2</td>
<td>0.4%</td>
<td></td>
<td>18</td>
<td>1.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prostate</td>
<td>117</td>
<td>24.0%</td>
<td></td>
<td>244</td>
<td>22.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectum/Rectosig</td>
<td>8</td>
<td>1.6%</td>
<td></td>
<td>27</td>
<td>2.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Pelvis/Ureter</td>
<td>5</td>
<td>0.5%</td>
<td></td>
<td>2</td>
<td>1.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salivary Gland</td>
<td>1</td>
<td>0.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Intestine</td>
<td>3</td>
<td>0.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stomach</td>
<td>4</td>
<td>0.8%</td>
<td></td>
<td>11</td>
<td>1.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testis</td>
<td>9</td>
<td>1.8%</td>
<td></td>
<td>4</td>
<td>0.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thyroid</td>
<td>5</td>
<td>1.0%</td>
<td></td>
<td>18</td>
<td>1.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown Primary</td>
<td>10</td>
<td>2.1%</td>
<td></td>
<td>12</td>
<td>1.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urethra</td>
<td>1</td>
<td>0.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vagina</td>
<td>1</td>
<td>0.2%</td>
<td></td>
<td>1</td>
<td>0.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vulva</td>
<td>5</td>
<td>1.0%</td>
<td></td>
<td>8</td>
<td>0.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>488</strong></td>
<td><strong>100%</strong></td>
<td></td>
<td><strong>1,066</strong></td>
<td><strong>100%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>2,460</strong></td>
<td><strong>100%</strong></td>
<td></td>
</tr>
</tbody>
</table>
Massage services expanded to Radiation Oncology patients and Breast Health Center patients receiving stereotactic biopsies at Legacy Good Samaritan Hospital and at Legacy Meridian Park Hospital. Massage was added to complement the full array of Rehabilitation Supportive services available at our facilities.

Legacy Meridian Park and Legacy Salmon Creek Hospitals have focused further program development within their Breast Health Centers, to ensure an overall positive experience and provide a full complement of services.

Physicians from Legacy Mount Hood Medical Center provided Healthy Habits educational talks for the Hispanic community; topics included cervical cancer and HPV vaccine, smoking, cancer prevention, and diabetes and nutrition.

A team of specialty physicians worked together to develop a Colorectal Center of Excellence at Legacy Good Samaritan Hospital. The primary focus was on patient quality measures endorsed by the National Quality Forum (NQF) and CoC. The program also focused on patient care pathways, and professional and patient education.

The Robotic Surgical Program for Prostatectomy was fully implemented at Legacy Good Samaritan Hospital with our urologists leading the way with the most experience in number of robotic prostatectomies performed in Oregon. This has improved quality outcomes, including potency and urinary continence while decreasing hospital length of stay and risk of infection.

Breast Specific Gamma Imaging (BSGI), a highly accurate diagnostic tool that complements mammography to determine whether abnormal breast tissue is cancerous or not, was fully implemented in 2007 at Legacy Good Samaritan’s Breast Health Center. A research study was conducted, an abstract written and subsequently presented by Dr. Nathalie Johnson at Cornell University. This abstract was presented in February 2008 at the Pacific Coast Surgical Association meeting.

The Tumor Bank has continued to collect specimens and has enlarged its number to over 250 total. Along with that is very exciting bench research on both breast and colon cancer. Progress is being made that may soon translate into bedside therapies to improve outcome in these two cancers.

This has been an exciting year for our Network Cancer program, with a continuing focus on tumor specific program development that will enhance the overall quality of our Cancer Program.

<table>
<thead>
<tr>
<th>Primary Site</th>
<th>ACS</th>
<th>LHS</th>
<th>EH</th>
<th>GS</th>
<th>MH</th>
<th>MP</th>
<th>SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>12.5%</td>
<td>21.2%</td>
<td>2.0%</td>
<td>30.6%</td>
<td>19.1%</td>
<td>21.1%</td>
<td>20.4%</td>
</tr>
<tr>
<td>Prostate</td>
<td>15.1%</td>
<td>18.8%</td>
<td>24.0%</td>
<td>22.9%</td>
<td>3.8%</td>
<td>10.5%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Lung</td>
<td>14.8%</td>
<td>8.7%</td>
<td>6.4%</td>
<td>6.5%</td>
<td>14.8%</td>
<td>13.1%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Colon/Rectum</td>
<td>10.6%</td>
<td>8.5%</td>
<td>4.3%</td>
<td>6.4%</td>
<td>16.7%</td>
<td>11.2%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Brain/CNS</td>
<td>1.4%</td>
<td>4.4%</td>
<td>15.8%</td>
<td>6.3%</td>
<td>1.9%</td>
<td>3.0%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Corpus Uteri</td>
<td>2.7%</td>
<td>4.3%</td>
<td>1.6%</td>
<td>6.8%</td>
<td>1.9%</td>
<td>3.5%</td>
<td>2.6%</td>
</tr>
</tbody>
</table>

*American Cancer Society (ACS) — newly diagnosed in U.S. 2007*
Cancer detection and prevention is a major focus of a gastroenterologist’s daily practice. Methods for cancer screening evolve year to year and finding the best and most efficient way is always a challenge. Daily, we are asked to determine who is at risk, search for subtle signs of malignant growth, and recommend to our patients the best method amongst a myriad of choices. The options, at times, can be confusing not only for the patient but also for the health care provider. This past year is no exception with regards to differing opinions and new options available to help us.

Colon and Rectum
Computed tomographic (CT) colonography and fecal DNA markers are two new investigative tools that may be added to our options for colorectal cancer screening. CT colonography has received a great deal of press and investigation. Data published in the Sept. 18, 2008, issue of the New England Journal of Medicine suggests that CT colonography may be another acceptable technology for colorectal cancer screening. In this study CT colonography found 90 percent of lesions 10mm and greater in size but in lesions less than 9mm the sensitivity dropped to 65 percent. In optical colonoscopy all lesions, regardless of size, are removed. The biological behavior of these smaller lesions is not known. A negative CT colonography is not equivalent to a negative optical colonoscopy and recommendations for interval follow up will need to be refined as we learn more about the biological behavior of these smaller lesions. Furthermore, CT colonography does not screen the rectum—an important aspect yet to be addressed by current literature. The U.S. Preventive Services Task Force concludes that insufficient evidence exists to support CT colonography as a screening modality.

Stool DNA testing was recently assessed in a prospective study of asymptomatic persons who received colonoscopy, three-card FOBT (Hemoccult II), and stool DNA testing based on a panel of markers assessing 21 mutations. The study found that among 4,404 patients, the DNA panel had a sensitivity for CRC of 51.6 percent (for all stages of CRC) versus 12.9 percent for Hemoccult II, while the false-positive rates were 5.6 percent and 4.8 percent, respectively. Sensitivity may be improved by a greater number of mutations screened for in the panel; however, our goal remains prevention and stool DNA testing remains a diagnostic test only.

When to stop colorectal cancer screening is a question often asked but seldom answered. There is increasing evidence that continuing colorectal cancer screening beyond age 75 is of little benefit in individuals that have had negative screening examinations since the age of 50. Screening should be offered to patients between the age of 76 and 85 if no prior screening performed. Individuals older than age 85 may not benefit from colorectal cancer screening, and it is currently not endorsed by the U.S. Preventive Services Task Force. The other major societies have yet to set an age limit on screening.
Esophageal Adenocarcinoma
Adenocarcinoma has surpassed squamous carcinoma as the most prevalent cancer of the esophagus over the past 40 years. Although controversial, the American College of Gastroenterology and the American Society of Gastrointestinal Endoscopy recommend:

- A screening upper endoscopy in individuals with chronic gastroesophageal reflux disease (GERD)—the highest yield in Caucasian males and individuals older than age 50.
- Barrett esophagus without dysplasia should be followed by upper endoscopy every three years.
- Patients with low grade dysplasia should have a follow-up endoscopy within six months. If none is found, then yearly endoscopy is warranted until no dysplasia is present on two consecutive annual endoscopies.
- The finding of high grade dysplasia in flat mucosa should lead to confirmation by an expert GI pathologist and a subsequent endoscopy within three months. Patients with high grade dysplasia with mucosal irregularity should undergo endoscopic mucosal resection. Patients with confirmed high grade dysplasia, even if uni-focal, should be counseled regarding therapeutic options including intensive surveillance, esophagectomy or ablative therapies.

- Patients who appear to have lost their dysplasia on surveillance should be treated according to the highest degree of dysplasia previously found.

Hepatocellular Carcinoma
Screening for hepatocellular carcinoma is recommended in all cirrhotic patients despite a lack of data confirming a reduction in mortality. A guideline issued by the American Association for the Study of Liver Diseases suggests that surveillance should be performed using ultrasonography at an interval of every six to 12 months. Combining alpha-fetoprotein with ultrasonography increases detection rates but is complicated by false positive results. Alternating computed tomographic scanning with ultrasonography every six months is widely practiced by many hepatologists but is lacking any conclusive supportive evidence.

Pancreatic adenocarcinoma, cholangiocarcinoma, and other less common gastrointestinal malignancies do not have sensitive or specific screening tests and the target populations for these cancers remain difficult to identify. Acquired genetic mutations associated with these cancers may serve as the basis for sensitive screening tests in the future; however, sampling and genetic analysis of stool, pancreatic juice, and/or bile as yet remain in the investigational stages.
The 12-Lymph-Node Standard in Colon Cancer

By Randall G. Lee, M.D., GI Pathologist

“At least 12 regional lymph nodes are removed and pathologically examined for resected colon cancer.”

This quality measure—endorsed by a host of national organizations—has provoked more consternation, more discussion and more misunderstanding than almost any issue in GI pathology. But it carries a laudable and uncontro- versial goal: ensuring that positive lymph nodes are properly and completely identified. This is critical for accurate tumor staging with its attendant prognostic and therapeutic implications.

Why then the angst? Because in surveys of pathology laboratories (including large renowned centers), the average node retrieval is typically 12–15, meaning that the standard is met in only about half of cases.

The main rationale for the 12-node requirement is the finding, repeatedly confirmed, that patient survival correlates with number of nodes retrieved—in general, the fewer the nodes, the worse the prognosis. For example, in one trial of Stage II patients, the five-year survival rate was 88 percent when more than 12 nodes were identified, as compared to 81 percent with lesser retrieval. The canonical explanation for such results is that cases with fewer retrieved nodes have been inadequately examined and positive nodes missed. In other words, some true Stage III cases have been understaged as Stage II.

The solution to the problem is therefore to require a certain level of node retrieval so that node-negative status can be guaranteed. (The number 12 was adopted for arbitrary and historical reasons; other proposed minimum node counts have ranged anywhere from 7 to 40.)

Recent studies, however, have cast doubt on this explanation. Several investigators have directly evaluated the rate of under-staging by taking colon cancer resection specimens after routine pathologic workup and then completely examining the entire remaining mesenteric tissue. In this way, the number of missed positive nodes can be precisely determined. The results: In various studies, only 0–3 percent of node-positive patients were misidentified as node-negative.

Other studies show that the prevalence of positive nodes does not significantly differ between groups with many nodes examined versus those with fewer nodes examined.

Understaging does not seem, therefore, to be a major problem and cannot account for the survival differences. In fact, when controlled for number of positive nodes, even Stage III cases have been found to exhibit the same correlation between (negative) node counts and survival seen with Stage II cases. In this circumstance, clearly a failure to identify positive nodes cannot be implicated.

The 12-node standard has also come under attack from a different direction, namely its utility as a quality indicator. One highly publicized study, for example, grouped hospitals by the number of lymph nodes retrieved in colon cancer resection specimens and then compared long-term
Colorectal cancer is the third most commonly diagnosed cancer in the United States. In 2007 it was estimated that there would be 153,760 new cases with 52,180 deaths occurring due to colorectal cancer. Oregon residents would be responsible for 1,830 of the new cases and 640 deaths, making colorectal cancer the second leading cause of death from cancer. Colorectal cancer incidence rates have been decreasing for the last two decades (from 66.3 cases per 100,000 population in 1985 to 48.2 in 2004). The largest decline has been in the most recent time period (2.3 percent per year from 1998 to 2004) which is felt to be mostly due to increased screening which results in the removal of colorectal polyps before they progress to cancer.

When colorectal cancers are detected at an early, localized stage the five-year survival is 90 percent; however, nationally only 39 percent of colorectal cancers are diagnosed at this stage, mostly due to low rate of screening. After the cancer has spread regionally to involve adjacent organs or lymph nodes, the five-year survival drops to 68 percent. Mortality rate from colorectal cancer has declined over the last two decades with a steeper decline in the most recent time period (1.8 percent per year from 1985-2002 compared to 4.7 percent from 2002-2004). This decrease reflects the increased use of appropriate colorectal cancer screening, which results in the declining incidence rate and detection of early localized cancers. Within LHS dur-
In the year 2007, 50 percent of colorectal cancer cases were diagnosed at a localized stage (I and II). The five-year survival for colorectal cancer treated within the Legacy system for all stages is 52 percent, comparable to the national average. Furthermore, patients treated within LHS have the same or increased five-year survival compared to national averages. This trend is particularly noticeable in Stage III patients where the NCDB five-year survival is 50 percent vs. the LHS rate of 56 percent. The higher five-year survival rate is a testimony to the physicians who encourage early screening, diagnose the cancer at an early stage, surgically treat the

### Colon Cancer Five-Year Survival by Stage: LHS (529 cases) vs. NCDB (207,161 cases), diagnosed 1998–2001

<table>
<thead>
<tr>
<th>Years from Diagnosis</th>
<th>LHS</th>
<th>NCDB</th>
<th>LHS</th>
<th>NCDB</th>
<th>LHS</th>
<th>NCDB</th>
<th>LHS</th>
<th>NCDB</th>
<th>LHS</th>
<th>NCDB</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100%</td>
<td>93.6%</td>
<td>93.6%</td>
<td>92.2%</td>
<td>87.6%</td>
<td>88.6%</td>
<td>90.1%</td>
<td>83.7%</td>
<td>36.2%</td>
<td>42.7%</td>
</tr>
<tr>
<td>1</td>
<td>100%</td>
<td>89.8%</td>
<td>87.5%</td>
<td>88.0%</td>
<td>81.9%</td>
<td>81.8%</td>
<td>77.6%</td>
<td>71.4%</td>
<td>15.3%</td>
<td>22.0%</td>
</tr>
<tr>
<td>2</td>
<td>100%</td>
<td>86.2%</td>
<td>84.3%</td>
<td>83.7%</td>
<td>77.1%</td>
<td>75.4%</td>
<td>64.7%</td>
<td>61.8%</td>
<td>8.9%</td>
<td>12.8%</td>
</tr>
<tr>
<td>3</td>
<td>100%</td>
<td>82.5%</td>
<td>79.4%</td>
<td>79.3%</td>
<td>68.3%</td>
<td>69.4%</td>
<td>60.4%</td>
<td>55.2%</td>
<td>7.6%</td>
<td>8.8%</td>
</tr>
<tr>
<td>4</td>
<td>100%</td>
<td>78.4%</td>
<td>74.3%</td>
<td>74.8%</td>
<td>62.0%</td>
<td>64.0%</td>
<td>56.1%</td>
<td>49.9%</td>
<td>7.6%</td>
<td>6.6%</td>
</tr>
</tbody>
</table>

NCDB = National Cancer Database

### Comprehensive First Course Treatment Summary by Stage

<table>
<thead>
<tr>
<th>Legacy Health System 2007 Rectum/Rectosigmoid (140 cases)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage Grouping</strong></td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Surgery</td>
</tr>
<tr>
<td>Radiation</td>
</tr>
<tr>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Surgery + Chemotherapy</td>
</tr>
<tr>
<td>Surgery + Other</td>
</tr>
<tr>
<td>Radiation + Chemotherapy</td>
</tr>
<tr>
<td>Surgery + Radiation + Chemotherapy</td>
</tr>
<tr>
<td>Radiation + Chemotherapy + Hormone</td>
</tr>
<tr>
<td>Other Combo</td>
</tr>
<tr>
<td>Not Treated</td>
</tr>
<tr>
<td>Treated</td>
</tr>
</tbody>
</table>

*NCDB = National Cancer Database*
cancer and provide the pre- and post-operative oncologic care.

While we continue to make impressive progress there is still considerable work to be done. Currently screening with removal of polyps is the best treatment we have, and with appropriate follow-up the risk of a patient developing colorectal cancer after removal of polyps is less than one percent. Despite all evidence showing the benefit of screening, only 44 percent of the population undergo screening; even in those individuals without economic barriers, the rate of screening is only 48 percent. While important for everyone, the need for increased screening is clearly seen in the African-American population where the incidence and mortality from colorectal cancer is significantly higher than the rest of the population.

Although our treatment of colorectal cancer continues to improve at an impressive rate, currently prevention is still the best treatment. Colorectal cancer screening saves lives!

Epidermal Growth Factor Inhibitors in the Treatment of Advanced (Stage IV) Colon Cancer

By Samir Desai, M.D., Oncologist

Treatment of patients with advanced colon cancer depends on the location of the disease. For patients with locally recurrent and/or liver-only and/or lung-only metastatic disease, surgical resection, if feasible, is potentially curative treatment. For patients with hepatic metastasis considered to be resectable (i.e., based on limited number of lesions, lack of major vascular involvement, absent or limited extrahepatic disease, and sufficient functional hepatic reserve), a negative margin resection has been associated with 5-year survival rates of 25 percent to 40 percent in multiple recent studies. Improved surgical techniques and preoperative imaging allow improved patient selection for resection. In addition, studies with multiagent chemotherapy demonstrate that patients with metastatic disease isolated to the liver, which historically would be considered unresectable, can occasionally be made resectable after chemotherapy.

Currently, multiagent chemotherapy is the standard of care for patients that have unresectable metastatic disease but remain candidates for chemotherapy.

The chemotherapy regimens are a combination of infusional 5FU and either irinotecan or oxaliplatin along with bevacizumab. These regimens (FOLFOX plus Avastin® or FOLFIRI plus Avastin) have become the gold standard for first and/or second line chemotherapy for metastatic colon cancer. The majority of patients with metastatic colorectal cancer ultimately progress despite excellent initial responses to multiagent chemotherapy. This fact led to the development of monoclonal antibodies against epidermal growth factor receptor (EGFR), a novel target in...
colorectal cancers. EGFR triggers intricate downstream signaling pathways that, when deregulated, can lead to malignant transformation. The EGFR has become a target for anticancer therapies with both tyrosine kinase inhibitors and monoclonal antibodies.

A randomized trial published by National Cancer Institute of Canada Clinical Trials Group showed that patients that had not responded to advanced chemotherapy, did respond to monotherapy with cetuximab (a monoclonal antibody directed against EGFR). This response improved overall survival and progression free survival and preserved quality of life compared to best supportive care alone. However the development of resistance was common and disease progression was noted in 50 percent of treated patients. Subsequently, cetuximab has been used increasingly in the treatment of multiagent chemotherapy refractory metastatic colorectal cancer, typically in a third line setting, either alone or with irinotecan.

Recently many studies have focused on mechanisms of resistance to EGFR inhibitors and how this may lead to more effective and strategic use of the EGFR inhibitors in clinical practice. K-ras is a small G protein that is downstream of EGFR and an essential component of the EGFR signaling cascade. K-ras can acquire spontaneous mutations in exon 2, thus isolating the pathway from the effect of EGFR and rendering EFGR inhibitors ineffective.

A recent study published in the NEJM by Karapetis et al. postulated that mutational status of the K-ras gene in the tumor may affect the response to cetuximab and have prognostic value. Three hundred and ninety-four tumor samples from the original NCIC CTG study were obtained to look for activating mutations in exon 2 of the K-ras gene and assess if the mutation status of the gene was associated with survival in the cetuximab and supportive care groups. Results from the study showed that 42.5 percent of tumors evaluated had at least one mutation on the gene. The effectiveness of cetuximab was associated with K-ras mutation status in a statistically significant fashion. The findings showed that the mutation status of the K-ras gene is associated with overall survival among patients with advanced colorectal cancer who are being treated with cetuximab after previous chemotherapy has failed. Treatment with cetuximab as compared with supportive care alone was associated with doubling of median overall and progression free survival among patients with wild-type K-ras tumors.

The benefit of this study and data in regards to EGFR inhibitors such as cetuximab and panitumomab is that treatment with these expensive drugs will be much more cost effective if given to patients with the highest likelihood to benefit from it. To this end, oncologists in our area have begun testing K-ras mutational status by PCR on newly diagnosed patients with metastatic colorectal cancers prior to initiating therapy. New data regarding strategies for patient selection and improved biomarkers of response in patients with metastatic colorectal cancer will be forthcoming in the next few years from this very active field of research in oncology.
Hepatic, Biliary and Pancreatic Program

By Katherine Morris, M.D., FACS, Surgical Oncologist and Medical Director, Hepatic, Biliary and Pancreatic Program

Legacy Cancer Services’ Hepatic, Biliary and Pancreatic (HBP) program, based at Legacy Good Samaritan Hospital, provides multidisciplinary care for those with cancer and other tumors of the liver, pancreas and bile ducts. The program includes both clinical and research elements. Begun in 2001, our program has become a community leader for patients with these challenging problems. In 2007, I assumed responsibility for directing the program. Key goals for the year included expanding the program’s reach and capabilities.

The program’s reach was expanded, by broadening the scope of the HBP program’s database, and engaging physicians in neighboring regions with outreach events. The scope of the HBP database was broadened in 2007 to include all patients with HBP diagnoses who are seen at Legacy Good Samaritan for any aspect of their diagnosis or treatment. By reviewing all HBP patients who are diagnosed and/or treated at Legacy Good Samaritan, we can better learn from and improve our outcomes. Our multidisciplinary team of physicians agreed upon a set of ICD-9 diagnoses to track and analyze, and patient lists are now obtained from the discharge codes used in billing. Prior to 2007, approximately 60 patients per year were added to the HBP program database, whereas in 2007 the number of new patients tracked in the expanded database totaled 137.

Outreach and community education was also a priority for 2007. Our multidisciplinary team traveled to Mosier, OR., and Legacy Mount Hood Medical Center to present CME lectures. It was a pleasure to share the excitement of and collaboration between our physician team members. At each of these talks, surgery, medical oncology, and interventional radiology (IR) were represented. High marks on evaluations of these CME activities revealed their effectiveness, and referrals to the Legacy program resulted.

Twice a month members of the HBP program team meet for prospective discussion of current patients, as part of the GI Tumor Patient Care Conference. In 2007, the program benefited from significant contributions by specialty groups including gastroenterology, pathology, and radiology. During these conferences, it was common for the cases of 2–5 patients to be discussed by upwards of 20 clinicians.

The HBP program’s capabilities expanded due to the introduction of new technologies through interventional radiology as well as to the participation of more clinicians. This year our multidisciplinary team began developing a series of disease-specific treatment algorithms. When completed, the algorithms will improve our ability to measure the effectiveness of various possible treatment modalities. Looking further into the future, analysis of available data will assume a larger role as we strive for continuous improvement of the program’s effectiveness.
Interventional Radiology had a great year in 2007.

We established a long-awaited clinical practice by opening an outpatient clinic to evaluate and follow up our patients. The clinic was facilitated by Dr. Katherine Morris generously helping the Legacy Good Samaritan Hospital interventional radiologists by providing office space in which to practice. This has evolved into a cooperative approach to cancer care and has resulted in many local and regional direct referrals for cancer care to our clinic.

Our service line continues to evolve by adding the latest catheter-directed cancer therapies. Specifically, internal radiation therapy — radioembolization — using Y-90 microspheres has shown great promise for non-operative primary and metastatic liver cancer. We were able to secure SIR-Spheres® early in the year, targeted at metastatic disease, and TheraSpheres® in late 2007 targeted at hepatocellular carcinoma. We have now treated approximately 15 patients with good results.

Chemoembolization is also evolving. We have developed treatment protocols for irinotecan and doxorubicin drug-eluting spheres. Unlike traditional transarterial chemoembolization, patients treated in this manner are far less symptomatic post-procedure, and to date our patients have been treated as same-day outpatients.

Legacy Good Samaritan Hospital is one of the few hospitals in town to offer essentially every minimally invasive cancer therapy for non-operative liver cancer.

Esophageal Cancer

By Christy Dunst, M.D., Esophageal Surgeon

Esophageal cancer is the fastest rising cancer in the United States, with approximately 15,000 patients diagnosed each year. Historically, esophageal cancer has had an extremely poor prognosis, with five-year survival rates of less than 25 percent. Fortunately, advances in early detection, improved multidisciplinary treatments and a shift in tumor biology have led to a dramatic improvement in survival.

There are many important factors affecting our ability to fight esophageal cancer. First, the biology of esophageal cancer has changed over the past three decades. Squamous cell carcinoma is associated with risk factors such as cigarette smoking and alcohol consumption. Public awareness of the multitude of health problems related to these substances has led to decreased personal use, resulting in a decrease in esophageal squamous cell cancers.

Esophageal adenocarcinoma is directly related to gastroesophageal reflux disease
(GERD), a disease affecting millions of Americans. Importantly, GERD can cause the lining of the esophagus to change from squamous cell to columnar cells in some patients. Once this change has occurred, endoscopic biopsies of the esophagus can detect the cellular change known as goblet cell metaplasia, or Barrett’s esophagus (BE), which is the strongest risk factor for esophageal adenocarcinoma. It is at this point that we can implement treatments that will save lives. Aggressive, frequent endoscopic surveillance of patients with BE is leading to earlier detection of esophageal adenocarcinoma.

Advancements in diagnostic abilities, such as CT and PET scanning, endoscopic mucosal resection (EMR) and endoscopic ultrasound (EUS) are giving us the ability to stratify patients by tumor stage. Accurate staging has important implications for treatment and outcomes as modern surgical cure rates for early stage cancer approach 90 percent in many published reports.

Although surgical resection remains the gold standard for definitive treatment of esophageal cancer, we have learned that not all patients need to have radical surgery. Many minimally invasive and esophageal-preserving techniques are evolving as potential definitive treatment options. Innovations such as endoscopic resection and radiofrequency ablation are emerging as treatments of early esophageal cancers such as high grade dysplasia and intramucosal carcinoma. Aggressive chemo-radiation protocols are also showing promise as a definitive non-surgical treatment for certain patients.

**LHS Data**

The table on page 18 shows the type of tumors seen at Legacy Health System in 2007. Consistent with national trends, the pathology of these tumors has changed from primarily squamous cell cancer to adenocarcinoma. The American Joint Committee on Cancer (AJCC) staging criteria are used to evaluate the extent of disease as a method of stratifying patients based on severity of disease. The table above shows the various AJCC stages for the patients with esophageal cancer in LHS and their treatment modalities for 2007. Overall, a majority of these patients presented to us with advanced disease. In addition, LHS five-year survival data is consistently higher than the NCDB comparables.

**Conclusion**

Although the incidence of esophageal adenocarcinoma is on the rise, a multitude of options now exist, and more are showing promise for the future. Legacy Health System is committed to improving the identification and treatment of esophageal malignancies.
of early esophageal cancers through surveillance programs, aggressive biopsy protocols and outreach programs to enhance awareness of potential at risk groups.

Further, LHS is determined to provide effective treatment by implementing all available technological advancements using a team approach of surgeons, gastroenterologists, medical and radiation oncologists, radiologists and pathologists.

Working together, we strive to provide effective, individualized treatment options to our patients with esophageal cancer giving new hope for a diagnosis once considered universally fatal.

Radiation Therapy for Esophageal Cancers

By Won Lee, M.D., Radiation Oncologist

Esophageal cancer is the third most common cancer of the digestive tract and the sixth leading cause of cancer related deaths worldwide.

Over the past few decades, the natural history of esophageal cancer, as well as the therapeutic approaches, have evolved. The diagnostic techniques with respect to staging, the delineation of targets for radiation treatment planning and assessment of treatment response also continue to evolve.

There are two principal types of esophageal cancers in Western countries. Squamous cell carcinomas (SCC) and adenocarcinomas of the esophagus (ACE) are the two primary histologies seen. According to the National Cancer Institutes’s Surveillance, Epidemiology and End Research (SEER), the incidence of adenocarcinomas have increased 4-fold over the past 30 years and now compromise the most common type of esophageal cancer in the U.S. Although this increase is seen in all race and gender groups, it is most pronounced among white men.

Patients are typically staged before initiating treatment. Positron emission tomography (PET) along with endoscopic ultrasound (EUS) are useful modalities to assess the local, regional and distant disease status before initiating treatment. The role of PET can be expanded to predict pathologic tumor response from treatment and to further predict disease free survival (DFS) and overall survival (OS) after treatment.

Several institutions have reported that patients not showing a favorable PET response to pre-operative chemoradiation
have poor results with respect to overall survival. A negative PET scan after pre-operative treatment should not be used as the sole criterion for avoiding surgical resection.

Other studies have shown that microscopic residual disease might not be detectable with PET after pre-operative chemoradiation. It has also been reported by several institutions that after a negative PET from pre-operative chemoradiation, that 30–40 percent of patients that were subsequently followed developed a local-regional relapse.

Historically, single modality treatments for esophageal cancer such as surgery or radiation alone have yielded poor results (five-year survival rates between 5–15 percent).

From a radiation standpoint, multi-modality treatment became the standard of care with the 1992 publication of the trial RTOG 85-01 which compared in randomized fashion radiation alone vs. concurrent chemoradiation in patients with advanced SCC of the esophagus. This trial showed a five-year overall survival benefit in favor of the chemoradiation arm (0 vs. 26 percent). The median survival benefit was 8.9 vs. 12.5 months.

Not only was the local-regional failure rate improved with concurrent chemotherapy (40 vs. 27 percent), but the distant metastatic rate was also improved (38 vs. 22 percent). This established concurrent chemoradiation as the standard of care in non-surgical patients.

For younger and healthier patients who are deemed surgical candidates, is there a role for pre-operative chemoradiation? There have been six randomized trials evaluating pre-operative chemoradiation for locally advanced esophageal cancers, with mixed results.

In 1996, Dr. Walsh reported in the NEJM the results of a randomized trial of 123 patients comparing pre-operative chemoradiation vs. surgery alone in patients with locally advanced ACE of the esophagus. This trial showed an overall survival benefit at three-year follow-up in favor of the pre-operative chemoradiation arm (32 vs. 6 percent). The pathologic complete response rate was 25 percent.

Another trial by Dr. Urba from University of Michigan randomly compared pre-operative chemoradiation vs. surgery alone in 100 patients with SCC and ACE of esophagus. Although there was an improvement in three-year survival from 16 vs. 30 percent, this did not reach statistical significance, although one could argue it did establish a trend towards improved survival.

Given the mixed results, in 1997 the CALGB opened a trial comparing pre-operative chemoradiation vs. surgery alone with a target of accruing 500 patients, but this trial was closed due to poor accrual. Although this trial only accrued 50 patients, at five-year follow-up there was a clear trend towards improved survival in the patients that received pre-operative chemoradiation (five-year overall survival 16 vs. 39 percent).

So in patients young and healthy enough to tolerate surgical resection, pre-operative chemoradiation is a reasonable option in patients with locally advanced but non-metastatic esophageal cancer.

Lastly, a controversial topic is whether patients who have undergone concurrent chemoradiation for locally advanced esophageal cancer benefit from surgical resection.

Two randomized trials from Europe have tried to address this important question. Bedenne and colleagues randomized 455
patients with ACE and SCC of the esophagus between concurrent chemoradiation alone vs. chemoradiation followed by surgery (trimodality). Two-year overall survival was 40 percent for concurrent chemoradiation and 34 percent for the trimodality arm which was not statistically different. But treatment related mortality was statistically higher in the trimodality arm (9 vs. 1 percent). The authors concluded that chemoradiation alone was a viable option for locally advanced esophageal cancers.

More recently, Stahl and colleagues published the results of a German trial in which 177 patients were randomized to chemoradiation alone vs. chemoradiation followed by surgery. The three-year overall survival rate was 20 vs. 28 percent in favor of the trimodality arm but this was not statistically significant. However, there was a statistically significant improvement in both local control and progression free survival in favor of the trimodality arm. Once again there appeared to be a higher risk of treatment-related mortality in the trimodality arm which offset the improvement in local control and progression free survival.

Both trials highlight the observation that potential gains in patients undergoing trimodality therapy could come with significant risk; hence, it is clear we need to better address the causes of treatment-related risks.

In conclusion, locally advanced esophageal cancer is a difficult cancer to treat and control. While multi-modality therapy is clearly superior to single modality therapy, elucidating the optimal multi-modality therapy remains a challenge.

Currently, there are many trials comparing new biologic targeted therapies in conjunction with standard treatments for advanced esophageal cancers. Over the next several years, we should see published data evaluating both epidermal growth factor and vascular endothelial growth factor receptor blockers, as this class of drug has been shown to produce favorable results in breast, lung and head/neck cancers.

In the end, there is probably not an absolute best therapy for all patients. There are many reasonable and viable options and it is up to the patient and his/her medical team to determine together which mode of therapy is right for that individual. Having a multi-modality team consisting of medical/radiation oncology and an experienced surgical team would offer patients the most comprehensive and complete review of their therapeutic choices in this challenging disease.
In 2007, it was estimated that there would be 21,260 new gastric cancers diagnosed in the United States. Comparatively, there would be an estimated 112,340 colon cancers diagnosed in the same time period. Approximately 11,210 people would die from gastric cancer during 2007.

While these statistics remain sobering, there have been significant advances in the treatment of gastric cancer. Multimodality therapy has trumped single-modality therapy for locally advanced disease with significant improvements in recurrence-free and overall survival. However, surgery remains the mainstay in affording patients the opportunity for cure.

Along with many other gastrointestinal malignancies, the ability to detect cancers at an early curable stage is the single most critical factor in improving survival. Complete resection can provide more than a 90 percent five-year survival for tumors that are detected early. Whereas, advanced gastric cancers spread outside the confines of the stomach yield 20–40 percent five-year survival rates.

The role of surgical resection in the treatment of gastric cancer is highly dependent on several factors especially location of the primary tumor and stage of disease. For cancers that are located on the pre-pyloric region or antrum of the stomach, distal gastrectomy may be sufficient. Some mid-body gastric cancers are amenable to subtotal gastrectomy, while proximal and lesser-curve cancers are traditionally treated with total gastrectomy.

Establishment of gastrointestinal continuity is typically performed by a loop or roux-en-y-gastrojejunmal limb.

The value of extended lymph node dissection as part of the gastric resection remains a highly controversial subject of debate. Some authors throughout the world, in particular the Asian countries—Japan, Taiwan, and China—have noticed improvements in survival in patients with locally advanced gastric cancer when additional lymph node dissection was performed in the peripancreatic and perigastric regions. Similar data has yet to be replicated in the United States or Europe, and therefore, remains a somewhat controversial topic.
In 2007, we had the opportunity to care for approximately 24 cases of gastric cancer in the Legacy Health System. Of those, 13 underwent multimodality therapy including a combination of surgery, radiation therapy, and chemotherapy. Historical data between 1998–2001 demonstrated an overall five-year survival of 23.5 percent in 67 patients, well above that reported by NCDB.

While these data are sobering, there is a tremendous amount of optimism in recent advances in multimodality therapy in combination with surgery for advanced gastric cancer. If identified early, patients with non-invasive gastric cancer can be cured with surgery alone. Therefore, we must continue to be vigilant in early recognition of this disease.

### Rectal Cancer

*By Joseph H. Frankhouse M.D., FACS, Colon and Rectal Surgeon*

In 2007 Legacy Health System treated a total of 65 patients with rectal cancer, of which 57 had surgery at Legacy and eight had surgery elsewhere and were referred here for chemotherapy and/or radiation. As is the case nationally, the majority of rectal cancer cases were either Stage II (T3N0) or III (any T stage with positive nodes).

NCCN guidelines recommend that neoadjuvant chemoradiotherapy be offered to those patients staged preoperatively as Stage II, III or IV, with some exceptions for those tumors felt to be in the upper rectum or “rectosigmoid.” Most importantly, it is proven that local control of rectal cancer is enhanced by chemoradiotherapy preoperatively. Additionally functional outcomes are improved and overall patient tolerance and side effects of this important part of their treatment are minimized. Legacy surgeons, gastroenterologists, radiologists, pathologists, medical and radiation oncologists are continuing efforts to work together in a multidisciplinary approach to treating this particular malignancy where collaboration is key to best outcomes.

Eighty-three percent of the cases that were Stage II or III were treated with neoadjuvant or adjuvant therapy, thus adhering to these national guidelines, which are evidence-based. Endorectal ultrasound, which is performed by gastroenterologists or colorectal surgeons, is the key first step in determining the local tumor stage and directing the course of treatment. Fortunately, 26 percent of cases treated were Stage I, where surgery
is largely curative. In fact T1 cancers can usually be cured by transanal excision, and a newer technique called Transanal Endoscopic Micro-surgery (TEM) enhances our ability to remove benign lesions and early cancers with minimal morbidity, that may otherwise require transabdominal rectal resection. Only 17 percent of the total cases were metastatic, but our modern team approach still offers hope, better quality of life and much improved survival. Some patients can even enjoy survivals well in excess of five years with our current aggressive approach to metastatic disease in the liver involving chemotherapy, hepatic resection and transcatheter based treatments.

We plan to continue working together and hopefully expand our services to attract more patients in the coming years. Our rather close-knit group of physicians offer state of the art (and beyond) treatments in a very unique environment for the doctors who work here and the patients who choose to be treated by us.

### Comprehensive First Course Treatment Summary by Stage

<table>
<thead>
<tr>
<th>Stage Grouping</th>
<th>0</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery</td>
<td>2</td>
<td>15</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>—</td>
<td>23</td>
</tr>
<tr>
<td>Chemotherapy</td>
<td>—</td>
<td>—</td>
<td>1</td>
<td>3</td>
<td>—</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Surgery + Radiation</td>
<td>—</td>
<td>—</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>—</td>
<td>4</td>
</tr>
<tr>
<td>Surgery + Chemotherapy</td>
<td>—</td>
<td>—</td>
<td>4</td>
<td>3</td>
<td>—</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Radiation + Chemotherapy</td>
<td>—</td>
<td>—</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>—</td>
<td>3</td>
</tr>
<tr>
<td>Surgery + Radiation + Chemotherapy</td>
<td>—</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>—</td>
<td>9</td>
</tr>
<tr>
<td>Not Treated</td>
<td>—</td>
<td>—</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Treated</td>
<td>2</td>
<td>19</td>
<td>11</td>
<td>22</td>
<td>11</td>
<td>—</td>
<td>65</td>
</tr>
</tbody>
</table>

### 2007 LHS Rectum/Rectosigmoid Histology (70 cases)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenocarcinoma in adenomatous polyp</td>
<td>5</td>
</tr>
<tr>
<td>Adenocarcinoma in situ in adenomatous polyp</td>
<td>1</td>
</tr>
<tr>
<td>Adenocarcinoma in situ in villous adenoma</td>
<td>1</td>
</tr>
<tr>
<td>Adenocarcinoma in tubulovillous adenoma</td>
<td>7</td>
</tr>
<tr>
<td>Adenocarcinoma in villous adenoma</td>
<td>2</td>
</tr>
<tr>
<td>Adenocarcinoma with mixed subtypes</td>
<td>1</td>
</tr>
<tr>
<td>Adenocarcinoma, NOS</td>
<td>43</td>
</tr>
<tr>
<td>Carcinoid tumor, NOS (except of appendix)</td>
<td>4</td>
</tr>
<tr>
<td>Mucinous adenocarcinoma</td>
<td>1</td>
</tr>
<tr>
<td>Signet ring cell carcinoma</td>
<td>2</td>
</tr>
<tr>
<td>Squamous cell carcinoma, NOS</td>
<td>2</td>
</tr>
<tr>
<td>Villous adenocarcinoma</td>
<td>1</td>
</tr>
</tbody>
</table>

### Anal Cancer

*By Mark Whiteford, M.D., FACS, Colon and Rectal Surgeon*

Carcinoma of the anal canal is a rare tumor accounting for only 1–6 percent of all anorectal neoplasms. Approximately 5,000 cases will be diagnosed in the United States this year. Due to the obvious proximity to the rectum, it is imperative that biopsies are performed to differentiate between of the low rectum and the anal canal, as the treatment options are different.

Rectal cancer is nearly always an adenocarcinoma cell type and the treatment of low...
Rectal cancers usually involve major surgery, often with a colostomy. Anal cancer comprises a family of cell types (squamous, basaloid, cloacogenic, and transitional cell) collectively termed epidermoid cancer. This family of tumors are biologically similar and therefore may be treated in a similar fashion. Most cases of anal cancer will not require extensive surgery and a colostomy to treat.

Over the past 5 to 10 years, new research has increased our understanding of the precancerous phases and risk factors of anal cancer. As such, we can identify more patients with increased risk for anal cancer and offer them new screening modalities such as anal pap tests and high resolution anal microscopy.

More precise staging of anal cancer is also a reality with the availability of endorectal ultrasound, high resolution CT scanning, and PET.

The treatment for anal cancer has remained largely unchanged over the past decade. The mainstay of treatment for anal cancer is a six-week course of combined modality chemoradiotherapy which results in very optimistic 80 percent local control rate. Radical surgery with a colostomy, is therefore reserved only for those patients who do not respond to or recur following chemoradiation.

In 2007, the physicians at Legacy Health System treated six new cases of anal cancer, a number similar to previous years. Our five-year survival rate for anal cancer is 67 percent, a number which is favorable compared with the national average of 63 percent.

This past year, the Colorectal Center of Excellence was established at Legacy Good Samaritan Hospital. One of its focuses will be increasing awareness of anal cancer screening and prevention as well as streamlining the care of patients diagnosed with anal cancer.
Oncology Clinical Research Activities

By Alayne Lehman, Manager, Clinical Research, and Leslie Dhone, Supervisor, Clinical Research

Patient participation in clinical trials helps researchers learn new ways to treat, diagnose, prevent, and manage cancer. By participating in clinical trials, patients may have access to the newest cancer treatments available as well as helping others by improving future cancer treatment. During 2007, LHS participated in a variety of oncology clinical trials through the community-based cancer research organization Columbia River Oncology Program (CROP), which provides access to these national research base organizations:

- Cancer and Leukemia Group B (CALGB)
- Children’s Oncology Group (COG)
- Eastern Cooperative Oncology Group (ECOG)
- National Cancer Institute of Canada Clinical Trials Group (NCIC)
- National Surgical Adjuvant Breast and Bowel Group (NSABP)
- North Central Cancer Treatment Group (NCCTG)
- Radiation Therapy Oncology Group (RTOG)
- Southwest Oncology Group (SWOG)
- University of Texas M.D. Anderson Cancer Center (MDACC)

Through CROP, 14 separate clinical trials were available for patients with GI malignancies for the following tumor sites: colon (7), rectal (3), pancreas (1), stomach (1) and esophagus (2). Also available in 2007 were studies sponsored by pharmaceutical companies for a wide variety of cancers, including 3 for GI malignancies for colorectal and pancreas cancers. In addition, clinical trials were available through the American College of Surgeons Oncology Group (ACoSOG).

Beginning in 2008, Gynecology Oncology Group (GOG) clinical trials will be available through Walter Reed Army Medical Center. Legacy Oncology Clinical Research also writes and coordinates a variety of investigator initiated research studies, sponsored by the Legacy Foundation, including one opened in 2007 for colon cancer.

Microsatellite Instability as an Independent Prognostic Factor in Colon Cancer

By Paul Dorsey, M.S., Cancer Genetics Counselor

Over the course of two years, May 2001 to May 2003, individuals diagnosed with colon cancer treated at Legacy Good Samaritan were eligible to enroll in the “Microsatellite Instability (MSI) as an Independent Prognostic Factor in Colon Cancer” study. Our target was to accrue 220 patients.

At the time this research study was designed, there was some evidence that tumors exhibiting MSI would respond differently than other tumors to certain treatment regimens. In addition, MSI expression is thought to be associated with less aggressive tumor biology. We hoped to evaluate MSI
incidence and prognostic significance in our colon cancer population.

Human cells have areas that contain repetitive sequences of genetic material called microsatellites. These microsatellites are considered to exhibit instability when they have an inconsistent number of repeats due to a replication error. These instabilities may make the cancer either highly sensitive to or resistant to chemotherapy. We wished to examine this and gather data for long-term outcomes for individuals with MSI positive tumors compared to individuals with MSI negative tumors.

Given the fact that MSI-positive tumors have been associated with hereditary non-polyposis colon cancer syndrome (HNPCC), we felt the study needed to include a second phase consisting of genetic counseling and testing for those who wished to pursue it, in order to examine their mismatch repair gene status.

For patients that enrolled, tumor collected in surgery was tested for MSI by an outside lab. The genetic counselor contacted patients whose cancer tested MSI-positive and answered any questions the patient or family had. Genetic testing was then offered to these patients, and those that proceeded with genetic testing enrolled in phase II of the study.

The genetic counselor followed patients annually regardless of MSI status for a five-year period. Data was entered into a computer database, including any changes in the patient’s health status.

After we initiated the study, research suggested that a significant proportion of tumors with MSI also have lymphocytic infiltrate (LI), which suggests a heightened immune response against the tumor. We sought to evaluate the combined prognostic significance of MSI and LI in our colon cancer population. Tumors were classified as LI+ if at least five lymphocytes were observed per ten high-power fields. Overall survival and disease-free survival were compared according to combined MSI and LI status.

The Microsatellite Instability study is currently in its seventh year. Annual follow-up is ongoing. Fifty-nine patients have five years of follow-up, 32 have four years of follow-up, 27 have three years of follow-up, 16 have two years and 24 have one year. Fifty of the 170 enrolled are now deceased, four have withdrawn from the study and 15 have been lost to follow-up.

The preliminary data so far has shown that colon cancer patients with MSI–/LI– tumors have a worse disease-free survival regardless of stage at diagnosis. Patients exhibiting both MSI + and LI+ tumors have superior disease-free survival. 5-flurouracil with/without leucovorin does not appear to improve disease-free survival in patients with MSI–/LI– Stage II colon cancer. Addition of more aggressive treatment in this group (such as with irinotecan or oxaliplatin) may be warranted. Alternatively, foregoing adjuvant chemotherapy in this group should be considered.

MSI and LI show promise as a combined prognostic marker and with further study may prove particularly useful in selecting patients for adjunctive therapy.

Our research has been presented as an abstract at North Pacific Surgical Congress Annual Meeting in 2005 and will be presented at the Pacific Coast Surgical Association 2008 meeting. In addition, the findings were published in the May 2006 American Journal of Surgery, and another article will be published in Archives of Surgery in 2008.
Legacy Tumor Bank

By Katherine Morris, M.D., FACS, Surgical Oncologist and Medical Director, Cancer Research

The Legacy Tumor Bank was created to increase the quantity and quality of specimens available to Legacy Health System’s many researchers, thereby increasing the effectiveness of their work. The Tumor Bank has received over 250 specimens since it first opened in 2006 and its rate of growth increased during 2007. The hard work of Legacy’s surgeons, the diligence and commitment of the Pathology Department, and the endless generosity of donor patients have been the driving forces behind the success of the tumor bank.

Tissue from the tumor bank has already provided valuable data for research grant submissions to local and national funding agencies such as the NIH and the Komen Foundation.

Currently there are two Legacy research laboratories using the tissue.

Dr. Juhua Chen, head of the Legacy Cancer Research Laboratory, is investigating the role of dendritic cells (DC) in malignant angiogenesis (new blood vessel formation) and their potential regulation by Akt, a key cell cycle regulating protein. Interestingly, previously unsuspected tumor-specific relationships between DCs and the amount of vascularity in tumors has been observed by Dr. Chen’s group.

Other groups have reported conflicting findings with regards to DC and vascularity, with some saying there is a positive correlation and some a negative correlation. Dr. Chen’s finding may explain this disparity. The other groups were only looking at one tumor type whereas Dr. Chen has been looking at different tumors which were available through the generosity of Legacy’s patients.

Dr. Robert Meller, an associate scientist at the R.S. Dow Neurobiology Laboratories with Legacy, has used tissue from the tumor bank to research the role of apoptosis, also known as programmed cell death, in breast tumors. Analysis of breast tumor samples from the tumor bank revealed an inverse relationship between the pro-apoptosis protein, Bim, and an enzyme that may slow, speed, accelerate, prevent and/or mediate its degradation. Dr. Meller’s research suggests that more of this enzyme is expressed in patients with Her2 positive tumors. Currently his lab is testing whether blocking this enzyme will render the tumor cells more sensitive to cell death.

Tumor banks are essential for developing new, more easily tolerated, and more effective cancer treatments.

Lack of dedicated external grant funding for tumor banks, despite the growing need for this type of resource, makes the Legacy Foundation’s support invaluable. The Legacy Tumor Bank would not exist without the philanthropic patients and the support that the Legacy Foundation provides.

If you have any questions about the Legacy Tumor Bank please call the project’s principal investigator, Dr. Katherine Morris, at 503-413-5409.
Oncology Navigation: Oncology Nurse Navigators and ACS Patient Navigator

Nurse Navigation in the care of cancer patients provides individualized assistance to patients, families, and caregivers to help them “navigate” their way through the cancer experience. The Legacy Good Samaritan Oncology Nurse Navigators are registered nurses specially trained in cancer care who work with patients beginning at diagnosis and continuing through all phases of their treatment and recovery. Providing a consistent contact for our patients, our Oncology Nurse Navigators assist in the following areas:

- Provide education in understanding diagnosis and treatment.
- Facilitate communication with the multidisciplinary healthcare providers.
- Guide patients to appropriate support services and resources.
- Assist with work-related and employment issues.
- Offer ongoing emotional support throughout the course of treatment.

Collaborating with the American Cancer Society (ACS), Legacy also provides an ACS Patient Navigator to work alongside our Oncology Nurse Navigators. This partnership links our patients and their families to both Legacy resources and resources of the American Cancer Society. The ACS Patient Navigator helps patients in the following ways:

- Assist with insurance and financial concerns.
- Arrange for physical needs including housing, child/elder care, and food/clothing.
- Coordinate transportation to and from treatment.
- Connect with community, state and national resources.

Understanding cancer diagnosis and treatment can be complicated. With the help of the Oncology Nurse Navigators and the ACS Patient Navigator, patients, families and caregivers find that their cancer experience proceeds more smoothly at Legacy.

Legacy Cancer Rehabilitation Services

Legacy Cancer Rehabilitation Services offers therapy to individuals with all types and stages of cancer, providing a continuity of care and support throughout the course of one’s illness and treatment. Evidence supports exercise as not only safe and possible during cancer treatment, but that it can improve physical functioning and quality of life. Research supports moderate levels of aerobic exercise as an effective method to reduce cancer-related fatigue due to treatment and disease.

Individuals being treated or recovering from cancer treatment in either the inpatient or outpatient setting are candidates for cancer rehabilitation. One of Legacy’s specialty-trained physical therapists, occupational therapists and/or speech language pathologists will perform a comprehensive assessment to identify a treatment plan that
Integrative Cancer Care and Support Services

By Selma Annala, R.T., CLC, Supervisor, Legacy Integrative Cancer Care

Integrative Cancer Care and Support Services provides evidence-based complementary therapies focused on the whole person. Working hand-in-hand with cutting-edge conventional medicine, integrative cancer care promotes healing of the body, mind and spirit throughout the continuum of cancer care, from diagnosis, during treatment, and through survivorship. At the center of integrative cancer care is the cancer patient and family.

Services offered meet evidence-based criteria of the National Cancer Institute Office of Cancer Complementary and Alternative Medicine. We help to manage the symptoms of cancer and cancer treatment by promoting health and well being, alleviating stress, and reducing anxiety and pain. This is achieved through nutritional counseling and education; movement classes such as yoga and Nia; massage; psychosocial, family and stress management counseling; guided imagery and relaxation. Expressive arts therapy, a new modality in 2007 offers a wide variety of options for addressing the needs of families coping with the myriad issues confronted due to cancer diagnosis. Services are supported in part by the Legacy Foundation.

Also new in 2007, complimentary chair
massages were offered to post-breast biopsy patients at the Legacy Good Samaritan Breast Health Center. Eighty-six percent of patients received massage. Patients expressed gratitude for the service and commented that it was “very helpful and gave them something to look forward to” and that it helped them “get through it.”

Music thanatology, a palliative music practice for end-of-life care, provides music in several patient settings throughout the Legacy Cancer and Hospice Programs. Services are provided by SacredFlight, a nonprofit provider trained in a prescriptive music practice. In addition, live music at the bedside by a resident musician provides comfort for families and patients on the oncology inpatient unit.

Healing gardens at Legacy Emanuel, Legacy Good Samaritan and Legacy Salmon Creek Hospitals, and a labyrinth at Legacy Meridian Park Hospital, offer patients and families respite and renewal and are incorporated into support activities. The Brain Tumor Support Group family picnic occurs each summer in the Stenzel Garden at Legacy Good Samaritan Hospital.

In addition, a wide range of support and education groups and classes offer a variety of venues for information sharing and opportunities for networking and support.

Continued expansion and development of Integrative Cancer and Support Services is ongoing.

Quality Improvement — Alphabet Soup!

By Katherine Morris, M.D., FACS, Chair, Cancer Quality Council, and Bethany Carey, M.S., Quality Consultant

Legacy Cancer Services includes many different disciplines including surgeons, radiation oncologists, medical oncologists and other allied healthcare providers. Legacy Cancer Services also participates in quality initiatives under the broader umbrella of Legacy Quality Services (LQS), which coordinates participation in 13 individual quality measurement, benchmarking, and improvement programs.

In 2007 Cancer Services participated in numerous quality programs, including SCOAP, SCIP, e-QuIP, CP3R and Patient Voice. All initiatives share the goal of improving patient care.

Breast and colon cancer are in the top four tumor sites treated at Legacy, which means assessing our performance in treatment is critical to improving patient outcomes.

Electronic Quality Improvement Packets (e-QuIP) for breast and colon cancer provides programs with a preliminary examination of program-specific care practices, promotes quality improvement activities and supports National Quality Forum (NQF) measures. Cancer Program Practice Profile Reports (CP3R) for colon cancer is another quality measure we participate in to ensure we are using best practices for our patients.

Together, these quality indicators help us to continually improve in our data collection, charting, coding, and coordination of patient care.

A specific e-QuIP measure for colorectal cancer states: Radiation therapy is administered or considered for surgically
resected stage IIb or III rectal cancer. From 2003 to 2006 we have remained at 100 percent.

Surgical Services has been concentrating on best practices to reduce surgical site infections (SSI) and post operative venous thromboembolic events via our Surgical Care Improvement Project (SCIP)/SCD programs. Through participation in SCIP, we have found ways to improve our documentation of preoperative antibiotic administration route, which has led to new emphasis on documentation for anesthesiologists and inclusion of the antibiotic administration plan in the preoperative time outs. The Surgical Care and Outcomes Assessment Program (SCOAP) assists us to look at colon surgical cases in term of DVT prophylaxis, antibiotic usage, pain control and lymph node removal among other data points. It is hoped that improving our rates of timely antibiotic administration will reduce our rates of SSI and Cancer Services plans to track this carefully as we go forward. Our quality team plans to visit other hospitals with lower reported rates of SSI to see what they are doing differently so we can continue to improve.

Improvement of our hand-washing habits remains a key initiative for Cancer Services, especially important due to the number of immunosuppressed patients we care for. In 2007, a specific plan, “Partners in Your Care,” was implemented to measure our improvements in hand hygiene on our main cancer care unit, at Legacy Good Samaritan Hospital. Our physicians and nursing staff have done a remarkable job, but we continue to strive for 100 percent compliance in hand-washing before and after every patient contact.

In summary, the alphabet soup of quality programs (LQS, SCOAP, SCIP, e-QuIP, CP3R, Patient Voice, etc.) can be bewildering at first, but taken together, these programs have the possibility to guide us towards making our excellent care more safe and more effective. It is Legacy’s ongoing commitment to ensuring the actual outcomes are tracked in a meaningful way that will allow us to make continuous improvement.
Community Involvement

Participation in Community Events

**February** — Vietnamese Tet Festival

**March** — Issues after Breast Cancer

**April** — Together Facing Lung Cancer

**June—August** — Relay for Life (American Cancer Society)

**September**
  — Celebration of Courage (Children’s Cancer Association)
  — Race for the Cure and Komen Expo
  — “Light the Night” Walk (Leukemia & Lymphoma Society)

**October** — Saks Fifth Avenue Key to the Cure

Public Education Talks/Activities

**January** — Prostate Cancer Treatment Options (GS)

**March** — Mouth and Throat Cancers: Diagnosis, Treatment and Prevention (LEH)

**May**
  — Lymphedema Management (LSC)
  — “Super Colon” on display (LGS)
  — Skin Cancer Prevention and Treatment (LMP)

**June** — Cancer Survivors’ Day (LGS)

**September**
  — Robotic Uses for Cancer Surgery (LGS)
  — Prostate Cancer Treatment Option (LGS)

**October** — Healthy Habits/Habitos Sanos (East County)

Screening Events

**February** — Men’s Wellness & Screening Event: Prostate, heart health and stroke risk (LEH)

**May** — Skin cancer screening (with Providence and OHSU)

**Ongoing** — Low-cost screening mammograms, in conjunction with the Komen Foundation, at Good Samaritan, Emanuel, Mount Hood and Meridian Park hospitals and Legacy Clinic St. Helens

Support, Education, Movement Groups and Classes

- Art Therapy for Children of Parents with Cancer
- Bereavement Groups
- Brain Tumor Support Group
- Breast Cancer Support Group
- Gynecological Cancer Support Group
- Head & Neck Cancer Support Group
- Healthy Eating after Cancer Treatment
- Lymphedema Support Group
- Modified Exercise Class for Individuals with Cancer
- Yoga for Individuals with Cancer
- Nutrition and Cancer
- Prostate Cancer Support Group
- Strategies for Living with Cancer
- Surviving Cancer Together Support Group

Oregon Partnership for Cancer Control

The Oregon Partnership for Cancer Control is a statewide collaboration of individuals and organizations with a commitment to reducing the burden of cancer in our state. Legacy Cancer Services has been involved with the Partnership since 2004 when it began to develop an Oregon Cancer Plan.

In 2007, Legacy was represented by Selma Annala, member of the Coordinating Committee and co-chair of the Treatment and Quality of Life Workgroup; Terry Wagie, member of the Treatment and Quality Workgroup; and Charlyn Wilson, member of the Prevention and Early Detection Workgroup and co-chair of the Colorectal Health Task Force.
Professional Education Activities

Conferences/Courses
ONS Chemotherapy & Biotherapy Course (LHS)
24th Annual Seminar for Radiation Oncology Professionals (LHS)
Gastrointestinal Malignancies: Current Treatments and New Trends (LHS)
3rd Annual Pacific Northwest Excellence in Breast Care Conference (LHS)

Oncology Grand Rounds
New Approaches to Lung Cancer Staging: Endobronchial Ultrasound (MPH)
Assessment & Management of Colorectal Cancer (SCH)
New Directions in Lung Cancer (GSH)
Nodal Irradiation of Breast Cancer (GSH)
Is the Head and Neck Cancer Surgeon Obsolete in Era of Organ Preservation? (GSH)
Diagnosis and Management of Optic Nerve Sheath Meningioma (GSH)
Overview of Hereditary Cancer Syndromes (MPH)
Molecular Targeted Cancer Therapies (GSH)
Molecular Targets in Solid Tumors: Lessons from GI Stromal Tumors (GISTs) (GSH)
Diet, Nutrition and Cancer (GSH)
Uterine Sarcomas (GSH)
Hormone Treatment for ER Negative/PR Negative Breast Cancer (GSH)
Hereditary Colorectal Cancer and Differential Diagnosis: An Update of the Lynch Syndrome (MPH)
The Differential Diagnosis, Genetic Counseling and Gene Testing for BRCA 1–2 Mutations (GSH)
Robotic Surgery in 2007 (GSH)
Multiple Myeloma: Did Anything Change Yesterday at ASH? (GSH)

“Lunch & Learn” Presentations
Current Management of Colorectal Cancer (LLC–St. Helens)
Primary Care Forum: New Treatment Options for Hepatobiliary Malignancies (MHMC)
New Treatment Options for Hepatobiliary Malignancies (Mosier, OR.)

Publications


Cancer Data Management Overview

Legacy Health System’s Cancer Data Management Department is a key component of the Cancer Program, and continues with excellent performance. Data on all Legacy cancer patients, either initially diagnosed in a Legacy facility and/or receiving initial treatment for that diagnosis, is entered into the registry. The information that the cancer registrars collect captures a complete summary of the patient’s disease from initial diagnosis throughout their lifetime, with over 200 data fields for each entrant. The cancer registrars attend educational conferences and webinars to keep current on the strict guidelines for data entry prescribed by the Commission on Cancer (CoC) and the North American Association of Central Cancer Registries (NAACCR).

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 and Washington State Cancer Registry
- Supporting Legacy tumor conferences
- Quality monitoring of registry data
- Responding to data requests
- Representation on Network Cancer Committee and Cancer Quality Council
- Providing data for the Cancer Services annual report
- Preparations and ongoing discussion with the American College of Surgeons (ACoS) regarding survey expectations

The Registry data is collected from several Legacy information systems as well as from information provided by physician practices. There are over 27,811 cases in the database since its reference (start) date of 1997.

The data from 2007 demonstrated 14 percent of the new cases were patients who had a previous cancer diagnosis. Over one-half (63 percent) 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.

The Cancer Registry responded to 79 data requests in 2007, which include requests from Cancer Administration for program planning, physician requests and requests needing data for research.

2007 Accomplishments

- Continued to develop oncology applications to provide capture of pediatric research protocols.
- Verified registry data for the Cancer Program Practice Profile Reports (CP3R) and the Electronic Quality Improvement Packets (e-QuIP).
- Prepared for changes in the Commission on Cancer (CoC) collaborative staging requirements.
- Implemented new multiple primaries and histology coding rules.
- Provided data capture for the Hepatobiliary/Pancreas Program and the Tumor Bank.
- Provided externship hours for Portland Community College student.
- Continued with a home-based workstation 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 Minneapolis, Minnesota.
- Supported attendance at state conferences and workshops and the Oregon 2nd Annual Cancer Summit.
- Continued to use an online registrar-trainee program to prepare new staff for the Certified Tumor Registrar exam and certification.
- Coordinated and supported 209 cancer conferences, where 964 patients were presented system-wide in 2007:
  - 38 Breast care conferences
  - 22 Central nervous system conferences
  - 21 Gastrointestinal conferences
  - 58 General cancer conferences
  - 11 Head & Neck conferences
  - 3 Leukemia and lymphoma conferences
  - 23 Pediatric conferences
  - 33 Thoracic conferences
- Entered 2,460 new cases into the database.
- Followed more than 17,450 patients during the year and maintained a 90 percent follow-up rate.
- Reviewed 252 abstracts for quality and accuracy through physician review.

Hollis Brown, RHIT, Manager
Leah Kiesow CTR, Legacy Good Samaritan
Laura Wallace CTR, RHIT, Lead Registrar, Legacy Good Samaritan
Diana Mahin, CTR, RHIT, Lead Registrar, Legacy Good Samaritan
Karen Mazzuca, CTR, RHIT, Legacy Good Samaritan
Gail Coleman, CTR, RHIT, Lead Registrar, Legacy Meridian Park
Donna Gilbo, CTR, RHIT, Legacy Emanuel
Catherine Telford, Legacy Emanuel
Elly Hayes, CTR, Legacy Mount Hood
Janel McNally, CTR, Legacy Salmon Creek
Support staff: Ileana Craig, Susan Myers and Sandi Potrue
Legacy Health System 2007 Network Cancer Committee Members

Selma Annala, R.T., CLC, Supervisor, Integrative Cancer Care
R. Bryan Bell, M.D., DDS, FACS, Head & Neck Surgery
Jason Bauer, M.D., RVT, Diagnostic Radiology
Tim Bock, Manager, LSC Medical/Oncology Unit
Hollis Brown, Manager, Cancer Data Management
Diane Buelt, Director, LSC Clinical & Support Services
Kelly Doherty, Manager, LEH & LGS Radiation Oncology
Barbara Farmer, Manager, Hospice Services
Julie Goodwin, Director, LMP Clinical & Support Services
Leah Grotzinger, PharmD, Pharmacy
Keith Hansen, M.D., FACP, Medical Director, Autologous Stem Cell Transplant Program
Lisa Hansen, R.N., AOCN, Coordinator, Autologous Stem Cell Transplant Program
Kathleen Johnson, Manager, LMH Radiation Oncology & Rehabilitation Services
Nathalie Johnson, M.D., FACS, General Surgeon and Medical Director, Legacy Cancer Services and Breast Health Centers
Michael Kaempf, M.D., FACS, Urology
Laurie Kennedy, Manager, LSC Radiation Oncology & Rehabilitation Services
Pamela Kilmurray, Director, Legacy Cancer, Rehabilitation, Imaging, Stroke and Hospice Services
Keith Lanier, M.D., Hematology/Oncology
Alayne Lehman, Manager, Clinical Research
Katherine Leonard, Ph.D., Psychology
Richard Lex, R.N., Manager, LGS Cancer Services
Diana Mahin, RHIT, CTR, Lead Registrar
Anthony Melaragno, M.D., LGS Chief Administrative Officer
Katherine Morris, M.D., FACS, Medical Director, Cancer Research and Hepatic, Biliary and Pancreatic Program
Dane Moseson, M.D., FACS, General Surgeon
Joanne Nelson, M.D., FACS, General Surgeon, Cancer Liaison Physician
Janice Olson, M.D., Medical Director, Children’s Cancer and Hematology Program
June Olson, M.D., Pathology, Legacy Network Committee Chairman
Russ Omizo, M.D., Radiation Oncology
Marci Reed, Dietitian, Cancer Services
Mark Schray, M.D., Medical Director, Legacy Radiation Oncology
Reba Sharp, Director, LEH Clinical & Support Services
Anne Smith-Sehdev, M.D., Pathologist
Susan Swanson, LCSW, LGS Social Services
Marie Valleroy, M.D., Physical Medicine and Rehabilitation
Terry Wagie, R.N., M.S., Clinical Nurse Specialist, Legacy Cancer Services
Laura Wallace, RHIT, CTR Lead Registrar
Deb Walts, R.N., QI Specialist, Legacy Cancer Services
Gail Weisgerber, Manager, LGS Acute & Outpatient Rehabilitation Services
Robin Weisshaar, Manager, LGS & LMP Social Services
Jocelyn White, M.D., FACP, Medical Director, Legacy Palliative Care and Hospice Program
Mark Whiteford, M.D., FACS, Colorectal Surgeon
Charlyn Wilson, R.N., Clinical Coordinator, Legacy Cancer Services
Vina Winters, R.N., Supervisor, LGS Day Treatment Infusion Clinic

Subcommittees of the Network Cancer Committee
- Cancer Data Management Quality Council
- Cancer Services Quality Advisory Council
- Colorectal Cancer Center of Excellence Committee
- Hepatobiliary/Pancreatic Program
- Integrative Cancer Care Advisory Committee
- MPH New Breast Center Model
- Prostate Program Development
- Public/Professional Education Council
- Radiation Oncology Quality Council
For more information about Legacy Cancer Services, please call 503-413-8050.

www.legacyhealth.org/cancer