SWEDISH CANCER INSTITUTE EXECUTIVE COUNCIL

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The year was 1932 and Swedish Medical Center in Seattle, Wash., was thinking of its patients and the communities it served, and considering how it could influence the future of medicine. It was in that year, in the midst of The Great Depression, that Swedish opened the first cancer-care center west of the Mississippi. Given this history, the Swedish Cancer Institute (SCI) has treated more people, for more types of cancer, than any other provider in the Pacific Northwest.

It is through the optics of that decades-long history that the men and women of SCI approach each day, and how they have made SCI the nexus for highly personalized cancer care, evidence-based population health and research into innovative new therapies and technology.

Harnessing the Potential of Personalized Medicine

During its 2013 strategic planning cycle, SCI committed to creating an integrated platform for genomic and biologic profiling that would produce actionable data. During the subsequent three years, the institute:

- Launched its first genomic sequencing panel with 68 highly actionable gene alterations, with plans to increase the panel to approximately 300 gene alterations
- Identified a cloud-based information technology platform that bolts onto its electronic medical record (Epic) to collect, organize and analyze pertinent clinical information and outcomes data

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• Established a molecular tumor board to assist physicians in applying genomic information to the care of their patients
• Initiated an IRB-approved registration protocol to track how physicians used the collected data to improve patient outcomes
• Opened The Robert and Jean Reid Family Innovative Therapeutics and Research Unit (Reid Family ITU) a state-of-the-art facility for early-phase clinical trials unit (For more information, see page 33.)

Integrating the Institute for Systems Biology into the Swedish-Providence Health Alliance in 2016 has also affected personalized medicine at SCI. A multidisciplinary approach to acknowledging the convergence of biology, behavior and environment is helping us better understand how tumor biology can be applied in a clinical setting.

At SCI, though, our commitment to personalized medicine goes beyond gene sequencing and targeted therapies. It drives our holistic approach to cancer care. With 18 well-defined Supportive Care programs, a robust social work/social services team, and a host of classes, therapies and support groups, we are able to complement our patients’ medical and scientific care, and help them cope with the social, psychological and economic challenges of a cancer diagnosis. (For more information, see page 26.)

It is evident that because of the progress we have made in the last three years, personalized medicine at SCI is positioned to influence cancer care for many more patients throughout Swedish and its partner healthcare organizations. In fact, we see personalized medicine as our portal to population health and improving the well-being of individuals and communities throughout the Pacific Northwest — and beyond.
Contributing to Population Health

At SCI, we believe we have a responsibility and an obligation to export expertise and to marshal resources that improve access and contribute to the health of individuals and populations alike.

As a respected thought leader within the Providence-Swedish Health Alliance, and an early adopter of an integrated personalized medicine IT infrastructure, SCI helped create the Oncology Precision Network (OPeN). This consortium (comprising SCI, Providence Cancer Institute in Oregon, Stanford Medicine’s Cancer Institute in California and Intermountain Healthcare in Utah) is the manifestation of a collective vision to share de-identified genomic and clinical data, promoting data mining research and stimulating clinical application.

Separate from our efforts to advance the science and benefits of personalized medicine, SCI also directs its resources on programs that focus on high-risk populations, enhancing survivorship and distributing knowledge and expertise throughout the SCI Network. We have created a nationally recognized model for early-detection screening for individuals at high risk for developing lung cancer, developed a multi-location survivorship program that supports long-term success and quality of life for patients who have completed treatment, and implemented a broader Cancer Control Program to assess and better meet the needs of the communities we serve.

Influencing the Future of Cancer Care

When Swedish first opened its cancer care facility in 1932, I am certain they did not realize that their efforts would launch what is now a premier clinical research center. The Swedish Cancer Institute’s research division works closely with other medical and research organizations, as well as pharmaceutical and biotechnology companies. It offers clinical trials through a wide variety of organizations, such as the National Cancer Institute Community Oncology Research Program (NCORP), the Southwest Oncology Group (SWOG), NCI’s Cancer Trials Support Unit (CTSU), the American College of Surgeons Oncology Group (ACOSOG), the Radiation Therapy Oncology Group (RTOG) and SCI’s own investigator-initiated research.

The last decade has seen exponential growth in the prevention, diagnosis and treatment of cancer, as well as — and arguably most importantly — in survivorship. SCI has a long-standing tradition of forward projection when it comes to integrating new technologies, improving patient outcomes and translating research advances into evidence-based standards of cancer care. Through this annual report, you will see that this tradition has become the foundation upon which we have created a vital nexus of personalized medicine, population health and research to benefit patients and their families far into the future.


Thomas D. Brown, M.D., MBA
Executive Director
Swedish Cancer Institute
Breast cancer care is not episodic at the Swedish Cancer Institute (SCI); rather, it is a care continuum that begins with diagnosis and continues through survivorship. The breast care team at SCI continually reassesses the management of patients with breast cancer to ensure their treatment is the most appropriate and effective.

Prevention and Early Detection

Breast cancer care begins with prevention and early detection, and a firm belief in the value and benefit of mammographic screening. The SCI Breast Program carefully reviewed the materials, commentaries, critiques and reviews of the guidelines issued by the United States Preventive Services Task Force (USPSTF) and decided to join the American College of Radiology, the Society of Breast Imaging, and other organizations in continuing to recommend that women ages 40 and older consider having annual screening mammograms (in contrast to the USPSTF guideline of ages 50 and older), as well as annual clinical breast exams. As part of early detection, they encourage women to maintain familiarity with their breasts by performing their own breast exams. Additionally, the SCI Breast Program recommends women with a 20 percent or greater lifetime risk for breast cancer also obtain an annual breast MRI.

The value of screening mammograms for older women (those age 75 and older) is also a topic of debate. In 2015, SCI’s Henry Kaplan, M.D., and Judith Malmgren, Ph.D., completed a study that clearly shows the benefit. They looked at records of 14,000 breast cancer patients, with 1,600 older than age 75. Results showed that the majority of older women whose cancers were detected by mammogram had early-stage breast cancer, which was frequently treated with lumpectomy and radiation. They also had fewer mastectomies and less chemotherapy than women whose cancer was self-detected or detected during a clinical breast exam. Another critical finding showed that with older women who had cancer detected

Enterprise-wide Collaboration

As part of the Swedish affiliation with Providence St. Joseph Health, the SCI Breast Program has engaged in clinical performance groups (CPGs) to better understand what is occurring throughout the system and to develop evidence-based standards of care. As co-chairperson of the Breast Clinical CPG, SCI’s Breast Program Leader Patricia L. Dawson, M.D., Ph.D., has shared SCI’s long history of its progressive approach to identifying, diagnosing and treating breast cancer, and has worked toward implementation of best practices across the enterprise.
by screening mammogram, there was a 97 percent five-year survival rate — 10 percent greater than the others.

**Advancing the Treatment of Breast Cancer**

Breast cancer can be extremely confusing for patients because of the number of different treatment options. It takes clinical expertise and experience to help patients determine how they want to proceed and what treatment would give them the best possible outcome. It also takes a commitment to individualized treatment plans and supportive care, and a responsible pioneering spirit in pursuit of advanced therapies.

For example, determining which treatment is appropriate for women with ductal carcinoma in situ (DCIS), which is considered the earliest form of breast cancer, requires context and consideration of various factors, including age, physiology and social implications. In 2016, Swedish became the first and only cancer center in the country to offer women with early-stage breast cancer permanent breast seed implants as a safe and effective radiation therapy. Breast Microseed Treatment™, which uses technology similar to that which has been used to treat prostate cancer for years, involves placement of radioactive seeds in the surgical cavity several weeks after surgery. The radioactive seeds treat the area over time, and lose all potency by the time treatment is over. Breast Microseed Treatment (commonly known as brachytherapy) joined other forms of accelerated partial breast irradiation (APBI) and shorter whole breast radiation therapy protocols as elements of SCI’s focus on shorter-course, individualized breast radiation therapy.

In addition to identifying the appropriate treatment plan for patients, SCI breast surgeons have expertise in “oncoplastic” surgical techniques. They have received “Hidden Scar” certification, which documents the commitment and skill to minimize the cosmetic impact of breast surgery using specialized techniques.

There have also been considerable advances in chemotherapy and how it is delivered. While chemotherapy has traditionally followed breast cancer surgery, today it is becoming more common to use neoadjuvant (i.e., preoperative) chemotherapy to reduce the size of the tumor and eradicate tumor from axillary lymph nodes. With a smaller tumor, surgeons may be able to perform a less-invasive surgery, avoid mastectomy and remove fewer axillary lymph nodes.

**Research and Innovation**

SCI remains the only site in the Pacific Northwest that is involved with the innovative I-SPY breast cancer trial. The purpose of this study is to learn which new agents are most effective with specific types of breast cancer and what early indicators of response are predictors of treatment success.

The METRIC study is an important trial designed for patients with triple-negative breast cancer, a group comprising about 15 percent of breast cancer diagnoses. For many of these women, available treatment options are not effective. This study provides an additional treatment option with an investigational drug that targets the gpNMB protein that is over-expressed in many cancers, including breast cancer.

The SCI is also developing important research collaborations with Lee Hood, M.D., and his colleagues at the Institute for Systems Biology (ISB), which will lead to a new clinical trial. The Evaluation of Scientific Wellness Approach in Breast Cancer Survivors study aims to identify biomarkers for common side effects that women experience when they receive systemic chemotherapy, such as fatigue, peripheral neuropathy and neurocognitive changes. Evaluating and bringing clarity to the underlying mechanisms of these side effects, will hopefully lead to the development of ways to prevent or ameliorate them.

Paula S. Hallam, M.D., and Claire L. Buchanan, M.D.
The multidisciplinary subspecialty of gastrointestinal oncology accounts for the third largest patient population at the Swedish Cancer Institute (SCI), with patients with colon cancer the largest group within the subspecialty. Many initiatives over the years have focused on improving outcomes and the patient experience through early detection, advanced technology, and redesigned processes and evidence-based practices.

According to statistics from the Centers for Disease Control and Prevention and the National Cancer Institute, the incidence and death rates for colorectal cancer for Washington place the state among those with the lowest rates in the country. This suggests that efforts at SCI to streamline colon cancer care with a “rush-to-schedule” approach to accommodate colonoscopy referrals, as well as partnering with King County to send out more than 1,300 fecal immunochemical testing kits to residents who have not yet had a colon cancer screening, may be paying off.

Surgical Advancements
SCI is a regional resource for some of the most highly advanced procedures, such as Hyperthermic Intraperitonial Chemotherapy (HIPEC) and Irreversible Electroporation (IRE) using NanoKnife™. HIPEC is particularly successful in treating intraperitoneal cancer that has metastasized from primary colorectal, ovarian, gastric or appendiceal cancer, or from mesothelioma and pseudomyxoma peritonei. After debulking the tumor, the surgeon “washes” the abdominal cavity with a heated sterile solution that contains a chemotherapeutic agent. The treatment allows the chemotherapy to be absorbed locally, thus killing the cancer cells at the microscopic level and reducing the side effects associated with standard chemotherapy.
NanoKnife is a minimally invasive procedure used to treat small, soft-tissue tumors that cannot be removed surgically due to location or the patient’s condition, or treated with standard chemotherapy or radiation. Precisely destroying the tumor’s membrane with high-voltage electrical bursts helps avoid damage to the surrounding tissue and structures. NanoKnife is effective for pancreatic ablations, with patients coming to SCI for the procedure from throughout Washington, Alaska, Montana, Idaho, Oregon and Northern California.

The Whipple procedure, also known as pancreaticoduodenectomy, represents the definitive surgical treatment for early stage pancreatic head cancers. The number of Whipple procedures at SCI has nearly tripled since bringing it on line in 2014. Although complex, patients with pancreatic cancer who have a successful Whipple procedure have, as a group, five-year survival rates of up to 20-30 percent. This procedure may be an optimal treatment option for patients whose tumors are confined to the head of the pancreas and haven’t spread to the nearby major blood vessels, liver, lungs or abdominal cavity.

SCI surgeons were pioneers in the use of robotic-assisted surgery and the first in Washington to use the robotic technology for colon surgery. SCI now has one of the largest groups of colorectal robotic surgeons in the country. This group serves as a national resource for training fellows in robotic techniques. Swedish was among the first to install the next generation of robotic technology, the da Vinci Xi® surgical system, which offers high-definition 3D visualization and multi-quadrant operability, with shortened operating times.

The colorectal team has also focused on implementing a “Surgical Home” concept for colorectal surgery, to optimize every aspect of comprehensive care before, during and after surgery — from scheduling through preoperative preparations, surgery and recovery. Using a communication platform developed by Twistle, the colorectal team has implemented two-way, interactive communication with its patients via smartphone, email and phone. This form of communication has been shown to decrease readmissions, surgical site infections and lengths of stay, while increasing patient satisfaction. Although the surgical home concept was first implemented at Swedish First Hill and Swedish Issaquah, the intent is to extend this approach to other Swedish campuses, and to all hospitals throughout the Providence St. Joseph Health enterprise.

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**Endoscopic Enhancements**

As an integral component of gastrointestinal cancer care, the Gastroenterology Department has implemented multiple enhancements to diagnose, stage, treat and palliate patients with colon, esophageal, bile, pancreas and neuroendocrine tumors. Among these initiatives are:

- Expanded access to endoscopic submucosal dissection for early gastric and esophageal cancers
- Reduced surgeries for large, advanced colon polyps by offering complex endoscopic polypectomies
- Using optical coherence tomography (NinePoint) to assess early recurrence of Barrett’s esophagus and dysplasia follow ablation
- Identifying and treating bile duct cancers using SpyGlass® digital cholangioscopy
- Offering radiofrequency ablation (RFA) for bile duct and neuroendocrine tumors

Additionally, gastroenterologists have refined their surveillance protocols for identifying and following potentially precancerous pancreatic cysts.

**Research**

As with other types of cancer, the effect of research on advancing the diagnosis and treatment of gastrointestinal cancers is growing exponentially. SCI’s physician researchers are actively involved in a number of clinical trials for patients with advanced gastrointestinal cancers, including:

- A front-line trial for patients with high microsatellite instability (MSI-H) colorectal cancer using immunotherapy
- Immunotherapy protocols for gastric cancer
- A trial using the investigational drug PEGPH20 to increase the number of cancer-fighting white blood cells accumulating in the tumor in patients with pancreatic cancer
- A maintenance clinical trial for patients with pancreatic cancer who have BRCA mutations
- An increased emphasis on early diagnosis of patients with hereditary cancers, such as Lynch syndrome, in order to personalize cancer treatment and to also screen relatives
- A recently published study of data from high-volume laparoscopic and robotic sites throughout Providence and Swedish that showed cost parity between the procedures and shorter lengths of stay with robotic surgery.

As surgical and endoscopic technologies and techniques continue to evolve, and drug therapies are introduced and made available through clinical trials, SCI will continue to influence the prevention, diagnosis, treatment and survivability of patients with gastrointestinal cancers.
Volume, experience and expertise are the building blocks of quality outcomes in the treatment of genitourinary cancers. Whether selecting the appropriate medical or surgical management, or radiation therapy, the genitourinary team at the Swedish Cancer Institute (SCI) has achieved documented long-term excellence.

Prostate Cancer

Treating prostate cancer is a complex decision matrix. Options may include medical management, radiation, alone or in combination with surgery, or traditional, laparoscopic or robot-assisted surgery.

Robot-Assisted Surgery: Since its approval by the U.S. Food and Drug Administration in 2000, robot-assisted surgery has had a dramatic impact on multiple specialties. As an early adopter, SCI has many years of experience with robot-assisted surgery and its surgeons were some of the first to apply these surgical techniques to genitourinary applications.

Results of several national surveys show that experience is a determining factor in the success of robot-assisted surgery. SCI implemented its robot-assisted surgery program for prostate cancer in 2005 when James R. Porter, M.D., already with four years of robot-assisted prostate surgery experience during those early years, joined the medical staff at Swedish. Dr. Porter has used robot-assisted surgery for approximately 85 percent of the more than 2,200 patients with prostate cancer he has treated at SCI during the last decade. One of the documented benefits of this type of precise surgery is that 90 percent of these patients regain urinary control.

Although originally used for patients with early-to-mid-stage disease, over the last five years there has been a gradual increase in the use of robot-assisted surgery in higher-risk patients with later-stage disease. Dr. Porter now leads a clinical practice group in developing system-wide best-practice guidelines for the use of robot-assisted surgery in genitourinary cancer.

Stereotactic Radiotherapy: The advent of stereotactic radiotherapy has also had a dramatic impact on the treatment of prostate cancer. Although prostate tumors respond well to radiation therapy, it is difficult to protect surrounding healthy tissue, and conventional radiotherapy can lead to long-term bowel or urinary problems, as well as erectile dysfunction. In 2016, SCI radiation oncologist and principle investigator Robert M. Meier, M.D., presented long-term results of the first large, multicenter study to determine the safety and efficacy of stereotactic radiotherapy in prostate cancer. This study confirmed that stereotactic radiotherapy is an ideal treatment for men with newly
Stereotactic radiosurgery as a front-line therapy for men with prostate cancer.

Medical Management of Locally Advanced or Metastatic Prostate Cancer:
The standard of care for this category of patients used to be androgen deprivation (hormonal) therapy. Today there are more therapeutic options that prolong survival due to decades of vigorous research.

In the last two years, results of multiple phase III clinical trials have provided compelling evidence that the use of either abiraterone or docetaxel in addition to hormonal therapy significantly prolongs survival and lowers the risk of cancer progression and death, compared to hormonal therapy alone.

Compounds that specifically inhibit poly (ADP-ribose) polymerase enzymes (PARP inhibitors) have demonstrated potent anti-cancer activities in cancer cells harboring mutations in DNA-repair genes, such as BRCA1, BRCA2 and ATM. In recent studies, germ line mutations in DNA repair genes were identified in about 12 percent of metastatic hormone refractory prostate cancers, and somatic mutations in DNA repair genes have been identified in more than 20 percent of metastatic prostate cancers. A phase II clinical trial showed promising results of olaparib, a PARP inhibitor, in patients with heavily treated metastatic hormone refractory prostate cancer. At SCI, Song Zhao, M.D., Ph.D., is leading a clinical trial that investigates the efficacy of talazoparib, a PARP inhibitor that is more potent than olaparib, in metastatic hormone refractory prostate cancer harboring DNA repair gene mutations.

Renal Cell Cancer

Renal cell cancer can be a silent disease, often discovered only after it is large or has metastasized. During the last 10 to 15 years, advanced imaging has made it possible to detect smaller masses in the kidneys. Identifying renal cell cancer at an earlier stage increases treatment options and potentially improves outcomes.

SCI is able to offer patients with renal cell cancer a full scope of surgical options, including traditional, laparoscopic and robot-assisted partial and radical nephrectomies. Because of the decades-long experience with robotic surgery, SCI’s surgeons now routinely offer patients with small,
early-stage renal cancer robot-assisted, kidney-sparing partial nephrectomy, rather than surgically removing the entire kidney. This precise surgical procedure has become the standard of care at SCI because it is better for the patient by improving long-term survival rates and avoiding the risk of renal insufficiency.

As a reflection of the considerable expertise of SCI genitourinary surgeons and radiation oncologists, Joel D. Lilly, M.D., medical director of genitourinary oncology at SCI, has been tasked to lead a clinical practice group with the goal of identifying best practices and establishing enterprise-wide guidelines for Swedish and all of Providence St. Joseph Health for the safe and effective treatment of genitourinary cancers.

Bladder Cancer

Systemic chemotherapy with platinum-based regimens has been the standard of care for advanced/metastatic bladder cancer. The five-year survival rate of 15 percent in patients with advanced bladder cancer has not changed in the past three decades.

In the past two years, immunotherapy has become the most notable breakthrough in treating advanced bladder cancer. In immunotherapy, immune checkpoint inhibitors, including PD-1 and PD-L1 antibodies, unleash the immune system to attack cancer cells. Since May 2016, five immune checkpoint inhibitors (atezolizumab, avelumab, durvalumab, nivolumab and pembrolizumab) have been approved for treatment of patients with bladder cancer who have progressed on a platinum-based regimen or are considered ineligible for platinum-based regimens due to comorbidities. SCI participated in clinical trials of durvalumab in treating advanced bladder cancer, which led to FDA-approval in May 2017.

The role of immunotherapy following surgery for patients with localized bladder cancer is yet to be determined. According to Dr. Zhao, preliminary efforts are under way to initiate a clinical trial at SCI to study the potential benefit of immunotherapy with pembrolizumab following radical cystectomy.
Gynecologic oncologists associated with the Swedish Cancer Institute (SCI) provide care for nearly one third of patients with gynecologic cancers in the state of Washington. In the last quarter of 2016, SCI Division of Gynecologic Oncology and Pacific Gynecology Specialists formalized and strengthened their alliance, bringing together two practice groups with an overall goal of providing women greater — and more convenient — access to gynecologic cancer care, ancillary and supportive services, palliative care and research studies.

At SCI, a majority of women with gynecologic cancers are treated with minimally invasive surgical procedures, including those with endometrial, ovarian, cervical and vulvar cancers. Surgeons at SCI are some of the country’s most experienced in the use of minimally invasive surgeries, including robotic hysterectomies of all types, cancer resection and staging procedures, sentinel lymph node mapping and biopsy, and, where appropriate, fertility sparing treatments. These surgeons have a combined total of more than 10,000 minimally invasive surgical procedures, primarily using the robot-assisted laparoscopic platform.

Ovarian cancer is a “hidden” disease that frequently is not discovered until it has progressed into late-stage cancer. SCI supports efforts to develop systematic approaches, so women at high risk can be offered the latest options for cancer prevention and early detection.
Research to Enhance Care

SCI has been a leader in gynecologic cancer treatment and early-detection clinical trials. Through the Pacific Cancer Research Consortium (PCRC), an SCI-based NCI Community Oncology Research Program (NCORP), physician researchers at SCI participate in gynecologic cancer clinical trials relevant to cancer prevention, screening and early detection, treatment, quality of life and post-treatment surveillance. Members of the Gynecologic Oncology Division work directly with pharmaceutical and biotechnology companies to bring investigator-initiated trials, including immunotherapy, directly to patients.

Over the years, a robust relationship has developed with other cancer research centers in Washington. In 1996, famed SCI oncologist Saul Rivkin, M.D., established the Rivkin Center for Ovarian Cancer Research in memory of his wife Marsha. The center’s mission is to save women’s lives and reduce their suffering through improved treatment, early detection and prevention of ovarian cancer. The connection between SCI and the Rivkin Center is as strong today as it was nearly two decades ago. That connection, along with close collaboration with Fred Hutchinson Cancer Research Center, has spurred the growth of the gynecologic cancer research program. Gynecologic Oncology Division investigators have received funding from the NCI, Department of Defense and the Ovarian Cancer Research Foundation to conduct independent research, and during the last three decades have authored more than 160 articles for peer-reviewed journals.

In collaboration with the Rivkin Center, SCI is activating a new registry protocol for women at high risk for ovarian and/or breast cancer. The Breast and Ovarian Cancer Risk Education, Assessment and Management (BEAM) protocol is a unique observational study intended to document the extent of patient risk education, referrals for genetic counseling and testing, and participation in evidence-based guideline screening and/or medical and surgical risk reduction interventions. This registry trial is key during an era of some controversy regarding cancer screening and management, even in women at high risk for these cancers.

Personalizing Care

In concert with SCI’s Personalized Medicine initiatives, tumor sequencing is more frequently being used to identify relevant tumor gene alterations that can inform selection of the most appropriate and beneficial treatments. As molecular diagnostics and genetic analyses continue to advance, gynecologic oncologists are better able to identify and stratify patients to consider:

- Who needs adjuvant therapy and what type of therapy is most likely to be beneficial
- Ways to avoid unnecessary treatment
- Methods to reduce treatment-related side effects
- Opportunities to improve outcomes

Because ovarian cancer is a “hidden” disease that frequently is not discovered until it has progressed into late-stage cancer, there have been significant efforts to develop systematic approaches for identifying women at high risk, so they can be offered the latest options for cancer prevention and early detection.

Gynecologic Cancer By the Numbers

More than 110,000 women in the United States will be diagnosed with gynecologic malignancies in 2018, and more than 32,000 women will die from some form of gynecologic cancer. Uterine cancer is the most common gynecologic malignancy with an estimated 63,230 cases in the United States in 2018.

Although the incidence of gynecologic cancer is 41 percent that of breast cancer, the annual death rate from gynecologic cancer is only 22 percent lower. Improvements in the early detection and treatment of gynecologic cancer are an urgent need. Less than 50 percent of women diagnosed with ovarian cancer survive five years. Among all of the gynecologic cancers, only cervical cancer currently has an effective screening test.

The Head & Neck Surgery multidisciplinary team at the Swedish Cancer Institute (SCI) — a regional quaternary referral center — has seen considerable growth in the number of patients presenting with head and neck cancers, thyroid cancers and parathyroid disorders. During the last several years, the service has fine-tuned its processes to effectively tailor each patient's treatment plan to his or her unique needs.

Cancers in the head and neck region require close coordination to ensure a comprehensive continuum of care. Among a broad range of subspecialties, a patient’s team may include medical oncology, head & neck surgery, radiation oncology, oral surgery, pathology, endocrinology, imaging, nursing and cancer rehabilitation medicine, as well as swallowing and wound care specialists, speech pathologists and social workers. SCI ensures patients have a personalized clinical care team that includes the most appropriate health-care professionals, right from the beginning. This is particularly important for patients with malignancies of the upper aerodigestive tract or with thyroid cancers.

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<td>Index tumors presented at Head &amp; Neck tumor boards</td>
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<td>Thyroid and parathyroid cases</td>
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Head & Neck Reconstructive Surgery

The 360 index tumors presented at SCI’s Head & Neck Tumor Board in 2017 represent a 65 percent increase since 2014. The approach with every patient presenting with cancer of the head or neck region is to balance the effectiveness of the treatment with an outcome that supports functional and cosmetic recovery, and avoids what could be life-altering side effects.

Microvascular free tissue transfer (free flap reconstruction) has become the gold standard for head and neck reconstruction for cancer patients. It is used primarily for functional and cosmetic restoration after ablative surgery for cancer. It is also used for restoration of compromised anatomy, secondary to radiation or trauma. Since 2010, the SCI’s Head & Neck team has performed 436 free flap reconstructive procedures.

A comprehensive candidate evaluation process for free flap reconstruction helps ensure success of this highly sophisticated procedure. Patients who are not good candidates for free flap reconstruction include those who are very sick or elderly, as well as those with compromised blood vessels.

Using the patient’s own tissue with its own blood supply is a versatile modality that eliminates the need for anti-rejection medications and reduces the risk of graft failure. Connecting the graft, along with its arteries and veins, is a delicate and time-consuming procedure that produces two surgical sites. SCI’s head and neck surgeons, along with an exceptional nursing and post-operative team, have the requisite experience and expertise to reduce the risk of infections and produce a 96-98 percent success rate for free flap reconstruction.

Surgeons now employ 3-D virtual surgical planning for mandibular or maxillofacial reconstruction. The use of virtual surgical planning has greatly enhanced the positive outcomes of such free flap reconstructions, and has reduced intra-operative time, which improves patient safety.

Thyroid and Parathyroid

Since opening in 2014, SCI’s Neck Mass and Thyroid Nodule Biopsy Clinic has seen a tremendous increase in its volumes, with 500 patients and 183 fine needle aspirations in 2017 alone. The clinic offers one-stop, one-day diagnostics — the ultimate convenience and anxiety reduction for patients with a palpable neck mass or thyroid nodule. The one-stop visit in a single location provides a surgical consultation, ultrasound examination, ultrasound-guided fine needle/core biopsy and cytopathology review.

This service delivery concept, along with SCI’s multidisciplinary Thyroid/Parathyroid Tumor Board, is the first of its kind in the Pacific Northwest. The fast-track process and collaboration among multiple disciplines facilitates the diagnosis and early treatment for patients with complex and advanced malignancies, such as anaplastic thyroid cancer, as well as undifferentiated and medullary carcinomas.

As demand continues to grow, this service has added two additional ultrasound units and additional dedicated personnel, and has developed an outreach program to both Swedish and non-Swedish medical practices.
Innovation is the driving force behind the growth of the hematologic malignancies program and the formation of the Center for Blood Disorders and Stem Cell Transplantation at the Swedish Cancer Institute (SCI). The program cares for patients with benign and malignant diseases, including acute and chronic leukemias, multiple myeloma, systemic amyloidosis, Hodgkin and non-Hodgkin lymphomas, myelodysplastic syndromes and other myeloproliferative disorders.

Since joining SCI in 2014, John M. Pagel, M.D., Ph.D., chief of hematologic malignancies and medical director of the center, has led the pursuit of novel approaches and drug therapies that could prove instrumental in improving survivability and disease control. For example, the center is the first outside a university-based medical center to use chimeric antigen receptor T-cell (CAR T-cell) therapy to manipulate the patient’s own T-cells to treat his or her lymphoid malignancy. Through a clinical trial, SCI’s physician-researchers:

- Collect the patient’s T-cells
- Engineer the chimeric gene into the T-cells
- Grow the engineered cells to increase the number of cells into the millions
- Reintroduce the engineered cells into the patient’s blood

This highly sophisticated process, which takes about two weeks, tricks the patient’s T-cells, so they attack only the cancer cells. CAR T-cell therapy is a viable option for patients whose cancer may have recurred despite lengthy chemotherapy and/or stem-cell transplantation. Early results of the trials are optimistic, but more studies are needed.

Stem Cell Transplant Program

In 2015, SCI hired William I. Bensinger, M.D., to lead SCI’s Stem Cell Transplant Program. Dr. Bensinger’s goal is to ensure a “patient friendly” approach to stem cell transplantation for patients with blood cancers that will lead to positive outcomes.
and returns patients to their personal oncologists as quickly as possible. Currently, the center offers autologous stem cell transplants, in which the patient’s own cells are collected and frozen while the patient receives high doses of radiation and/or chemotherapy therapy to kill the cancer cells in their system. Following treatment, the patients frozen stem cells are thawed and reintroduced to repopulate the blood with healthy cells. Dr. Bensinger’s team is also beginning to explore developing an allogenic stem-cell transplant program at SCI, which would use stem cells from a matching donor to suppress disease and repopulate the patient’s blood.

Dr. Bensinger, an internationally renowned expert in myeloma, is also responsible for investigating and initiating state-of-the-art treatments for myeloma that are not routinely available outside large research organizations prior to final approval from the U.S. Food and Drug Administration (FDA). He characterizes myeloma as the “poster child” for innovative therapies research because they are treatable, but difficult to cure. With treatments improving dramatically over the last 15 years, survival rates have more than doubled for patients with multiple myeloma. But more can be done.

SCI is involved in about a dozen new drug trials using immunotherapy to reinvigorate, educate and reset the patient’s own immune system to fight cancer, and to counter the immune system’s initial failure to identify and eliminate cancer at its earliest stage. These therapies generally fall into four strategies:

1. Monoclonal antibodies (mAb) to directly target cancer cells and stimulate the patient’s immune system.

2. Immune checkpoint blockade through programmed cell death for PD-L1 receptors that allow cancer cells to hide from the immune system’s T-cells, a novel therapy that has FDA approval for use with melanoma and lung cancer, and is under consideration for myeloma and other blood cancers

3. CAR T-cell reengineering, which is now being expanded beyond lymphoid malignancies to include myeloma

4. Immunoconjugates linking cancer-cell-directed antibodies with highly potent chemotherapies to directly target the cancer cell for elimination

Advancing Cancer Care through Clinical Trials

The Center for Blood Disorders and Stem Cell Transplantation sees clinical trials as important potential components of its patients’ treatment plans. The SCI has developed a thorough and effective candidate-selection process for most patients in every stage of blood cancer who have been recently diagnosed, as well as for those who have not achieved positive outcomes through other treatments.

With its existing state-of-the-art treatments and a commitment to finding new therapies to improve treatment outcomes and curability, the Center for Blood Disorders and Stem Cell Transplantation has staked its position as a pioneer in cancer care.

**Center for Blood Disorders and Stem Cell Transplantation By the Numbers**

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
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<tbody>
<tr>
<td>Total office visits</td>
<td>6537</td>
</tr>
<tr>
<td>Stem cell transplantations</td>
<td>63</td>
</tr>
<tr>
<td>Open hematology research trials</td>
<td>69</td>
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<tr>
<td>Patients enrolled in a clinical trial</td>
<td>75</td>
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**New Patients to SCI First Hill by Disease Group**

- Other hematologic disorder (533)
- Multiple Myeloma (122)
- Chronic Lymphocytic Leukemia (68)
- Diffuse Large B Cell Lymphoma (56)
- Follicular Lymphoma (45)
- Acute Myeloid Leukemia (24)
- Mantle Cell Lymphoma (17)
- Myelodysplastic Syndrome (14)

*Does not include patients who were hospitalized prior to their first clinic visit.*
The Swedish Cancer Institute (SCI) has a close collaborative relationship with the Swedish Neuroscience Institute (SNI) when it comes to diagnosing and treating patients with benign or malignant brain tumors. Neurosurgery, with or without systemic therapy and radiation, remains the gold standard for treating accessible brain tumors. Many surgical procedures are done endoscopically with a much smaller incision than a traditional craniotomy, promoting a faster recovery. For tumors that are not easily accessible, SCI is fortunate to have available two stereotactic radiosurgery platforms, CyberKnife® and GammaKnife®, which allows radiation oncologists to select the best possible radiosurgery treatment for each individual patient.

Neurosurgeons have state-of-the-art operating suites with interoperative MRI and computer-guided navigation equipment to provide the safest and highest quality surgical procedures. Additionally, a neurophysiologist is available during any requested brain or skull-base surgery to provide intraoperative neuromonitoring, which helps ensure surgeons are able to avoid neural elements that control key functions.

Most recently, SNI added diffusion tensor imaging (DTI) to its operating room technology. DTI is an advanced MRI-based neuroimaging technique to visualize the brain's white matter tracts. The resulting 3D model is called a “diffusion tensor” and provides a color-coded map that displays how the brain's neurons are wired. Neurosurgeons use this intraoperative tool as a direct roadmap when removing brain tumors and navigating around crucial nerve fibers. Damage to these fibers can lead to neurologic deficits, including pain, loss of sensation and even paralysis. DTI can significantly improve surgical accuracy during a brain tumor resection and enables providers to customize their surgical approach to minimize damage to healthy brain tissue.

The Ben & Catherine Ivy Center for Advanced Brain Tumor Treatment

Since its opening in 2009, The Ben & Catherine Ivy Center for Advanced Brain Tumor Treatment has taken its place among the premier brain tumor centers in the country. Having a multidisciplinary team, which includes neurosurgeons, neuro-oncologists, radiation oncologists, neuropathologists, neuroradiologists, neuro-oncology nurses and a social worker, is of immeasurable value to patients.

Of equal importance is the on-site comprehensive brain-tumor research laboratory that allows neuropathologists to rapidly
perform genetic analysis of brain tumors and provide critical information that helps The Ivy Center’s medical staff develop personalized treatment plans that will produce the best possible outcomes.

The Ivy Center’s medical staff includes Charles Cobbs, M.D., the Gregory Foltz, M.D., endowed director of The Ben & Catherine Ivy Center for Advanced Brain Tumor Treatment, and Tara Benkers, M.D., medical director of neuro-oncology.

There are many innovative research projects under way at The Ivy Center, including several for patients with newly diagnosed and recurrent glioblastoma multiforme (GBM), one of the most aggressive and deadliest forms of brain cancer. Since 2013, Dr. Benkers has brought on nearly a dozen clinical trial therapies to expand access to experimental therapies for patients in the Pacific Northwest who have been diagnosed with GBM. Access to therapies that are not yet publicly available, including immunotherapies, vaccine therapies, targeted therapies, gene-based biologics and novel modified chemotherapeutics, is one of the benefits of receiving care at a nationally recognized research institute.

The Susan J. McGregor Viral Glioblastoma Immunotherapy Program is one of many examples at Swedish of philanthropy advancing research. The program is based on research Dr. Cobbs began more than 15 years ago. Working with Institute for Systems Biology (ISB) in Seattle and Fred Hutchinson Cancer Research Center, researchers are leveraging new technologies to extract proteins from tumors and to build a tumor profile that would help identify proteins that all of the tumors share. The goal is to produce a potent immunotherapy vaccine that would target those specific proteins, thus killing the proteins and the tumor.

In 2015, The Ivy Center began a high-throughput cancer stem cell project — the first of its kind in the world to use a patient’s own cancer stem cells to drive therapy decisions. The project’s theory is based on the knowledge that cancer stem cells are a subset of tumor cells and that GBM recurs if the cancer stem cells are not killed by chemotherapy or radiation. Removing these cells, growing them in the lab and using robotics to subject them to thousands of existing compounds can help determine which drugs or combination of drugs are most effective without subjecting the patient to multiple courses of chemotherapy.

The Ivy Glioblastoma Atlas Project (Ivy GAP), which was conceived in 2006 and launched in 2009 as a partnership between The Ivy Center, Seattle’s Allen Institute for Brain Science and The Ben & Catherine Ivy Foundation, is a major research initiative focusing on mapping the gene activity in brain tumors. The Ivy GAP is a foundational resource for exploring the anatomic and genetic basis of glioblastoma at the cellular and molecular levels. The intent of this collaborative effort is to give researchers universal access to a massive amount of tumor genomic information and anonymized patient clinical information as a catalyst for innovative research that will lead not only to a better understanding of GBM, but also to novel new therapies that improve clinical outcomes and survival.

Another exciting research project is evaluating the safety of the ExAblate Transcranial system for brain tumors. The system uses magnetic resonance guided focused ultrasound (MRgFUS) technology that combines MRI to visualize body anatomy and monitor treatment in real time with high-intensity focused ultrasound to thermally ablate tissue inside the skull. This noninvasive procedure is performed through the patient’s intact skull.

The Neuro-Oncology program at Swedish is a prime example of two institutes — the Swedish Cancer Institute and the Swedish Neuroscience Institute — pooling their considerable clinical and research expertise and experience to advance the diagnosis and treatment of patients with brain cancer and to improve outcomes and survivability.

www.swedish.org/cancer
A multidisciplinary team of cancer specialists is intent on making the Swedish Cancer Institute (SCI) a regional referral center for patients with soft-tissue and bone sarcomas, which comprise three percent of all adult cancers and seven percent of cancers in children.

The family of sarcoma cancers, including cancers such as osteosarcoma, rhabdomyosarcoma and Ewing’s sarcoma, is often considered an orphan disease (those affecting fewer than 200,000 individuals nationally). This impression makes it difficult to secure research funding through government sources or philanthropy. However, based on 2007-2009 data from National Cancer Institute Surveillance Epidemiology End Result (SEER), one in 304 men and women will be diagnosed with soft tissue cancer and one in 1,270 with bone and joint cancers during their lifetime. Extrapolating those statistics to the U.S. population of 300 million, the Sarcoma Alliance suggests that about one million people have been or will be affected by sarcoma.

SCI is stepping up to address these challenging statistics by developing a comprehensive service for adults and children in the Greater Puget Sound Area and the Olympic Peninsula.

The core sarcoma team includes medical and surgical oncologists, orthopedic surgeons, radiation oncologists, pathologists, and diagnostic imaging and rehabilitation specialists. The team also includes plastic/reconstructive surgeons for free-flap and microvascular reconstruction. New patients receive a comprehensive, multidisciplinary, team-based evaluation and are triaged to a medical or surgical oncology pathway. The goal is to create personal teams and customized treatment plans that are appropriate for the individual patient.

Treatments for sarcomas are becoming much more sophisticated as gene sequencing helps further categorize the soft tissue and bone tumors and the most effective measures to treat them. Treating sarcomas at SCI may include newly approved therapies, such as:

- **Tribectedin:** For patients with advanced liposarcoma and leiomyosarcoma, whose cancer cannot be removed surgically and have already been treated with anthracycline-based chemotherapy
- **Eribulin:** For patients with advanced liposarcoma whose cancer cannot be removed surgically and who have already been treated with anthracycline-based chemotherapy
- **Olaratumab:** A novel platelet-derived growth factor (PDGF) receptor-α-blocking antibody that received accelerated approval by the U.S. Food and Drug Administration and can be used in combination with doxorubicin as an initial treatment for soft tissue tumors

Through SCI’s partnership with the National Cancer Institute Community Oncology Research Program (NCORP) and its participation in industry-sponsored clinical trials, physician-researchers at SCI have access to investigational therapies that might be incorporated into the treatment plan of a patient with a diagnosed sarcoma.
The American Cancer Society (ACS) estimates that in Washington State in 2018 there will be 4,810 new cases of lung and bronchus cancer diagnosed — slightly higher than the 4,390 estimated new cases in 2017 — and 390 new cases of esophageal cancer. The ACS also estimates that 3,080 Washingtonians will die from lung or bronchus cancer in 2018 — slightly lower than 2017 — and 380 will die of esophageal cancer.

The Swedish Cancer Institute (SCI) has long focused its research and expertise on addressing lung and esophageal cancers, with the goal of improving outcomes through early diagnosis, and new and innovative personalized therapies, including expanded expertise in traditional and minimally invasive surgical procedures.

**Lung Cancer**

SCI is a leader in the treatment and research for all stages of lung cancer, treating more patients with this type of cancer than any other program in the state. Unfortunately, most patients who are found to have lung cancer are diagnosed at a late stage. Often, there are no definitive symptoms until the cancer has spread, and patients frequently attribute one of the early warning signs, such as a long-lasting cough, to something other than cancer. That is why SCI developed its comprehensive, integrated Lung Cancer Screening and Tobacco Related Diseases Program for high-risk individuals.

In addition to research and screening for high-risk individuals, SCI also participates in research for individuals who don’t meet the approved, strict criteria for lung cancer screening. One of those protocols, funded by a grant from the Flight Attendant Medical Research Institute (FAMRI), studies the role of screening in non-smokers who have been subjected to secondhand smoke.

Participation in studies for patients with early stage lung cancer is integral to SCI’s thoracic research program. The phase III Stablemate’s Trial is evaluating the efficacy of stereotactic radiosurgery (three to five treatments over eight or fewer days) (Continued)
Marking five years of survival with a patient over a piece of cake has become a long-standing tradition at the Swedish Thoracic Surgery and Interventional Pulmonology Clinic. As thoracic surgeon Eric Vallières, M.D., FRCSC, referenced in a Swedish blog post, the thank-you cakes the survivors bring to the clinic not only recognize a significant milestone in their personal battles with cancer, they also represent the relationships patients develop with their care teams at Swedish. These cakes may be one of the best benchmarks for SCI's thoracic team.

Patients with stage IV lung cancer also benefit from the personalized care available at SCI. Recent advances include increasing the availability of detailed genetic testing of the specific mutations driving the cancer, which can now be done from blood samples or tumor tissue. There is a growing array of systemic therapies based on the specific biology of a patient’s cancer, which may include targeted therapies that are highly effective against specific driver mutations, immunotherapy to stimulate the immune system to recognize and attack cancer, chemotherapy, or a combination of approaches. Systemic treatments may also be combined with local therapies, such as surgery or focused radiation, to eradicate specific cancer sites. Additionally, SCI has successfully integrated palliative medicine into the care pathway for patients with stage IV lung cancer.
SCI currently has trials, or other targeted therapies, directed against driver mutations, including EGFR, ALK, ROS1, MET, RET, BRAF and HER2, with additional trials being added regularly. These trials and therapies may be available not only for patients with advanced/stage IV non-small cell lung cancer (NSCLC), but also for some patients with earlier stage disease, with targeted therapies administered as a post-operative therapy to reduce the risk of cancer recurrence.

Immunotherapy agents are regularly administered to patients with advanced NSCLC whose tumors have high levels of a biomarker called PD-L1, which is associated with a high probability of response to agents that stimulate the immune system. The most commonly used agents, known as checkpoint inhibitors of either PD-1 or PD-L1, remove an inhibitory effect on the immune system and can lead to dramatic and sustained responses that often last many years. Clinical trials at SCI are evaluating how to combine these agents with targeted therapy, chemotherapy or potentially other agents that modulate the immune system. As with targeted agents in patients with specific driver mutations, some trials are testing the potential benefits of giving immunotherapy as a post-operative therapy to patients with earlier stage NSCLC to improve long-term outcomes.

Radiation oncologists may use external beam or brachytherapy radiation to treat a single area where lung cancer has metastasized, such as a tumor in the brain or in an adrenal gland, and also to palliate symptoms of advanced NSCLC, such as reducing pain, bleeding, trouble swallowing or cough.

**Esophageal Cancer**

SCI’s Esophageal Cancer Program is a dynamic, multidisciplinary program involving gastroenterologists, oncologists, surgeons and radiation oncologists. Thoracic surgeons and gastroenterologists have expanded their treatment options for Barrett’s esophagus, and early esophageal and gastric cancers. Focusing on the natural anatomical pathway, they offer two procedures that studies have shown effective in treating early esophageal cancers: endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD). When combined, endoscopic ablation of Barrett’s tissue and antireflux surgery can cure early-stage esophageal cancer and preserve the esophagus, while reducing the symptoms of GERD, which have been implicated as a cause of esophageal cancer.

There is also continued research by SCI’s thoracic surgeons in preventing esophageal cancer by treating acid reflux, the underlying cause of many cancers, with surgical control of the patient’s symptoms. They are also participating in a multicenter study on the use of cryotherapy as an alternative to radiofrequency ablation (RFA) for treating Barrett’s esophagus and early esophageal cancer. When surgery is required to remove an esophageal cancer, the thoracic surgery team seeks to minimize the impact through minimally invasive approaches and novel methods of pain control, which allows the patient to mobilize and recover sooner.
Something as simple and common as breathing can dramatically impact the delivery of radiation therapy. Traditionally, radiation oncologists use lasers and tattoos to ensure patients who are scheduled for multiple radiation therapy sessions are properly aligned each day. That system, however, treats the patient as a one-dimensional entity, rather than a three-dimensional body.

The Swedish Cancer Institute (SCI) is one of five sites that are part of a research consortium with C-RAD, a manufacturer in Sweden, to optimize the implementation of surface mapping, a new technology to precisely track even the slightest movement of the patient or tumor. This new U.S. Food and Drug Administration-approved system offers three primary benefits:

- Improved positioning accuracy, speed and efficiency prior to treatment
- Real-time monitoring to detect movement and shut down the system if movements are outside of tolerance
- Gating to appropriately turn the beam on and off during the respiratory cycle, which allows the radiation oncologist to target smaller areas and reduce exposure to normal tissue

As part of the consortium, SCI radiation oncologists have found surface mapping particularly beneficial when used with certain tumor types and clinical scenarios, including patients with breast or lung cancer, and also those with sarcomas.

**Breast Cancer:** When treating left-sided breast cancer, it is important to minimize the radiation dose to the heart. Surface mapping is effective for patients who cannot tolerate Active Breathing Coordinator™ (ABC), which requires the patient to take a deep breath to increase the distance between the target and the heart before the beam of radiation is delivered.

**Lung Cancer:** Stereotactic body radiation therapy (SBRT) and stereotactic ablative radiation therapy (SABR) are emerging as alternatives to surgery for patients with lung cancer. In fact, early results suggest that in certain patients these types of radiation therapy might have a greater curative value than surgery. Working with SBRT and SABR radiation therapy technology, surface mapping increases confidence that the beam is accounting for changing breathing patterns and is precisely delivering radiation to the target.

**Sarcoma:** Surface mapping provides images that include rounded surfaces, which is particularly important with sarcomas. This is a significant breakthrough in treating sarcomas.

The Swedish Centers for Advanced Targeted Radiation Therapy features the most extensive selection of radiation technology available on the West Coast. The addition of surface mapping and SCI’s participation in the five-site research consortium further cements SCI’s reputation as a long-standing pioneer in the acquisition and use of leading-edge and novel radiation therapies.
A QUALITY ACTION PLAN

Quality is intrinsic to the delivery of cancer care at the Swedish Cancer Institute (SCI) every day and in every clinic and hospital throughout the SCI Network. It is a fundamental belief that regardless of where a patient with cancer enters the Swedish system, he or she can expect the highest quality and safest care. The membership of the Quality and Safety Committee supports that focus by including representatives from multiple campuses, disciplines and specialties who have a passion for quality.

During the last two years, the Quality and Safety Committee has collated and evaluated many national, regional and local sources, including the National Cancer Database (NCDB), the National Comprehensive Cancer Network (NCCN), the National Quality Forum (NQF), the Quality Oncology Practice Initiative (QOPI) and Hutchinson Institute for Cancer Outcomes Research (HICOR). Based on that evaluation, the committee formalized its Blueprint for Quality Improvement and set priorities.

The committee determined that end-of-life care would be SCI’s highest quality improvement (QI) priority. The QI focus includes:

• The use and value of chemotherapy and radiation therapy within 14-30 days of the end of a patient’s life
• Admission to an intensive care unit within 14-30 days of the end of a patient’s life
• Death in the hospital

• Timing of referrals to hospice and palliative care, with implementation of palliative care consult “triggers” for defined patient groups
• Documentation of the goals of care discussion

The committee also wants to see improvement throughout Swedish in more effectively using hospice services, encouraging decision making and palliative care goal setting by patients and their family members, fostering supportive patient/physician end-of-life conversations, soliciting physician feedback and the use of technology to measure and track improvements.

Because end-of-life care is part of the reality of cancer care, SCI’s Quality and Safety Committee is intent on improving the patient and family experience, and to supporting SCI’s care-delivery team as part of the institute’s culture of quality.
Supportive Care Services at the Swedish Cancer Institute (SCI) is a multi-dimensional program that integrates seamlessly into cancer care. Supportive care focuses on meeting the patient’s physical, emotional, social and spiritual needs, regardless of how complex or multi-faceted those needs might be. These services, which are typically not covered by insurance, are funded through a financial commitment by Swedish and philanthropy.

Patient Distress Screening

National Comprehensive Cancer Network (NCCN) guidelines state that distress in cancer patients should be recognized, monitored, documented and treated. The Commission on Cancer stipulates that cancer programs must incorporate screening of distress into the standard of care, focusing on identifying psychological, social, financial and behavioral issues that may interfere with the patient’s treatment and affect outcomes, and they must also provide patients appropriate resources.

SCI’s efforts to meet these guidelines began in 2009 as a pilot program in its breast clinics. Since then the program has grown to encompass all medical, surgical and radiation oncology clinics at all locations. A new technology (Tonic for Health) was implemented in the fall.
of 2015, making it possible for medical oncology patients to complete a distress screening using an iPad. With information imported to the electronic medical record, the patient’s healthcare team can make real-time assessments and intervene during the appointment if necessary.

With a significant investment from SCI and donations from the community, SCI has increased the number of social workers in the last five years from five to 17, so patients are better able to connect with a staff member who is trained to provide the support they need.

Personalized Medicine’s Holistic Approach

Supportive Care Services is an integral component of SCI’s Personalized Medicine program, which creates a truly holistic approach to cancer care. The commitment SCI has made to provide comprehensive support for cancer patients is demonstrated not only through the wide array of services, but also through program enhancements. For example, SCI hired psychiatrist Shamim H. Nejad, M.D., as medical director of the Division of Psychosocial Oncology, and increased the number of genetic counselors, so more patients and their families could have an opportunity to better understand the potential genetic consequences of their cancers, including psychosocial ramifications.

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Many studies have shown the value of expressive therapies when they are combined with counseling. Philanthropic support from individuals in the community has allowed SCI to expand these therapies and to fund programs like art and music therapies; the SCI Children’s Fund, which supports the children of adults with cancer; and CLIMB, an educational/play therapy program for children and their parents.

**Survivorship**

Through medical advancements, more patients are living with cancer as they would with a chronic disease, rather than an acute or episodic medical condition. Patients often fear the last day of treatment because it begins a new phase — survivorship — in which they no longer have the intimate guidance and structure they had during therapy.

At SCI, patients are encouraged to meet with the survivorship team to establish a relationship and care plan that is future-focused and supportive of the personal relationships patients have with their oncologists and nurses. Established in 2016, SCI’s Survivorship Program continues to grow through outreach to medical oncologists and nurses, re-enforcing this additional service of enhanced support for patients as they transition from direct treatment to their new normal.
The Swedish Cancer Institute (SCI) has had a long-standing tradition of providing care close to where patients live and work. Over the years, that commitment has seen perpetual growth in the number of locations where patients can receive screening, diagnostic testing and treatment.

In addition to Swedish First Hill, where most quaternary care is provided, patients are fortunate to have access to SCI’s robust cancer-care programs at Swedish’s Edmonds, Issaquah and Ballard campuses, and to neuro-oncology services at Swedish Cherry Hill, for which SCI and the Swedish Neurosciences Institute (SNI) share responsibility.

(Continued)
SCI Edmonds

As the campus that serves the northern part of the Greater Puget Sound Area, SCI Edmonds has a robust medical oncology and hematology program that was reaccredited by the Commission on Cancer in 2016 with four commendations. Key to cancer care at SCI Edmonds, is the goal of providing services that allow many patients to avoid traveling great distances for ongoing care. Each month, the Hematology/Oncology clinic averages 80 new patients more than 1,100 patients for one or more visits. Due to increasing demand for patient services, this practice has recently expanded to seven physicians and one advanced practice clinician. The radiation oncology program at SCI Edmonds averages 40 patients per week for daily treatments.

SCI Edmonds is a destination for patients in northwest Washington who need cancer care. It offers screening programs; surgical oncology services for colorectal, breast and urological cancers; a full inpatient service with diagnostic and interventional radiology, pathology, and other supporting disciplines; and provides access to clinical trials. Additionally, patients have full access to a wide range of supportive care services, including hospice/palliative care, genetic counseling, music therapy, nutrition counseling, social work services and financial counseling, local support groups and the services of a Survivorship Clinic.

SCI Issaquah

When Swedish developed its campus at Issaquah, SCI knew that it was an opportunity to create a cancer care program from the bottom up, one that was independent, yet fully integrated with SCI First Hill. The goal was to provide services locally as a means of overcoming the mental barrier many patients have about crossing Lake Washington for medical care.

Since opening, SCI at Issaquah has seen growth in all general cancer areas, but especially in breast cancer, with new diagnoses up 65 percent from 2014 to 2016. Christine A. Lee, M.D., and Amy Christian, MSN, R.N., OCN, Swedish Cancer Institute – Issaquah

“...The Swedish Cancer Institute has developed a network of distributed expertise throughout the Greater Puget Sound Area as a way of bringing vital services to our communities. The benefit to our patients and their families of offering quality cancer care closest to where they live and work is immeasurable.”  Thomas D. Brown, M.D., MBA, Executive Director

(Continued)
In support of that growing patient population, Issaquah was the first location in the system to use 3D mammography for all of its screening and diagnostic mammograms.

SCI Issaquah has a full panel of medical and surgical oncology subspecialists, and has added a third hematologist-oncologist. In addition to onsite radiation, chemotherapy and infusion therapy, patients have access to a broad scope of supportive care services, including: psycho-oncology, social work, naturopathy, support groups, educational seminars and classes, and a survivorship program. As SCI Issaquah looks to the future, it envisions developing a coordinated melanoma program to fill an identified need in the area.

Swedish Ballard

SCI Ballard offers full medical oncology and infusion therapy services (chemotherapy and biologics), as well as the supportive care services patients need as they progress from treatment to survivorship. The hematologist-oncologists at SCI Ballard have special expertise, including focus on hematology, lung cancer and geriatric oncology. They also have access to clinical research trials, including innovative molecularly targeted therapies. An expanding breast imaging service, with digital mammography, high-risk breast cancer screening and an onsite breast health clinic, is provided in close collaboration with the True Family Women’s Cancer Center on SCI First Hill. Social work and nutrition services, along with classes and seminars provide counseling, education and support.

Neuro-Oncology at Swedish Cherry Hill

The Swedish Cherry Hill campus is home to the shared neuro-oncology program, which is a collaboration between SNI and SCI. This program is centered at The Ben & Catherine Ivy Center for Advanced Brain Tumor Treatment, which is among the premiere brain tumor centers in the country and the largest in the Pacific Northwest. The multidisciplinary team of neurosurgeons, neuro-oncologists, radiation oncologists, neuropathologists, neuro-radiologists, neuro-oncology nurses and a social worker is of immeasurable value to patients. (For more information about this program, please see page 18.)

Outreach

SCI is committed to providing greater access to tertiary and quaternary cancer care for communities in western Washington. Many communities outside the Seattle urban area are unable to offer many of the services available at SCI, such as personalized medicine studies/gene sequencing, clinical research trials, stereotactic radiotherapy, multidisciplinary breast cancer therapeutics and plastic reconstruction, head and neck surgery, sarcoma services, thoracic surgery and interventional gastroenterology. The goal of SCI’s outreach program is to provide those highly specialized services at their clinics and hospitals, and then return patients to their communities and their personal cancer-care team for long-term follow-up care. The outreach program has developed an understanding of the ongoing subspecialty needs in communities throughout western Washington, including the Olympic Peninsula, and has built relationships with local oncologists to support their needs — and the needs of their patients.
Over the years, the Swedish Cancer Institute (SCI) has fortified its role as a premier research institute, through physician-initiated research protocols, participation in large, multi-center studies, and phase I and II protocols using investigational agents.

In 2017, more than 55 clinicians were involved in more than 400 studies, and about 1,015 patients were either newly enrolled in a study or engaged in follow-up protocols. SCI’s Commercial Trials Program currently has 58 sponsors and 88 research agreements.

The SCI Personalized Medicine Research Program (PRMP) is a nationally and internationally recognized initiative comprising:

- Inhouse next-generation sequencing (NGS) of tumor DNA
- An Institutional Review Board-approved registry trial
- A cloud-based integrated informatics platform to facilitate evidence-based analysis and clinical trials matching
- A molecular tumor board
- The Robert and Jean Reid Family Innovative Therapeutics Unit, a state-of-the-art early phase clinical trials unit focused on investigation of agents that are informed by genomic and broader biologic profiling (see next page)

The SCI PMRP registry trial has now accrued more than 1,000 patients, with impactful findings beginning to emerge from data mining of the emerging big-data set. The SCI PMRP platform has also led to SCI participation in ASCO’s Targeted Agency and Profiling Utilization Registry Study (TAPUR). This study gives access to “off-label” use of molecularly targeted agents based on specific gene alterations found within a patient’s tumor.

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The American Association of Cancer Research (AACR) has invited SCI, along with leading academic cancer centers, to participate in its GENIE project along with leading academic cancer centers. This international project will provide the critical mass of genomic and clinical data necessary to improve clinical decision making, and to catalyze new clinical and translational research. Through its PMPR, the SCI, in partnership with other Providence cancer centers and institutes, is contributing to the development of a Providence St. Joseph Health enterprise-wide personalized medicine program.

In March 2016, thanks to a multi-million-dollar lead gift by the Robert and Jean Reid family and more than 1,200 other donors, as well as a significant financial commitment from Swedish, SCI opened The Robert and Jean Reid Family Innovative Therapeutics and Research Unit. The Reid Family ITU is an early-phase clinical trials unit focused on investigational therapies that are driven by SCI’s Personalized Medicine Program, specifically biologically targeted therapies directed by genomics, transcriptomics, proteomics, metabolomics, micro-biomics and immunological profiling.

The Reid Family ITU was designed to be exceptionally patient and family centered, and to provide the space and technology to support the administration of novel therapies and the associated high-level monitoring. It offers dedicated space for early-phase clinical trials, a translational laboratory, a specialty pharmacy, a dedicated family lounge and specially trained nurses to administer infusions according to study specifications. The Reid Family ITU currently has open 29 early-phase trials. In its first year, more than 150 patients were treated on investigational therapies, accounting for more than 1,266 visits.

Through research and innovation, SCI strives to provide cancer patients the best chance of survival and the highest quality of life, and to support initiatives to prevent and ultimately eliminate cancer.

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**SWEDISH CANCER INSTITUTE OPEN RESEARCH STUDIES**

**Breast**

400000 BEAD XNON 17115 IIT: The utility of intraoperative evaluation and microstaging of sentinel lymph nodes in breast cancer

470001 JOHE CGEN 13029 A Phase II, randomized study of Paclitaxel with GDC-0941 versus Paclitaxel with Placebo in patients with Locally Recurrent or Metastatic Breast Cancer

470008 TOLS CGSK 13036 A randomized, Phase III, open-label study of Lapatinib plus Trastuzumab versus Trastuzumab as continued HER2 suppression therapy after completion of first- or second-line Trastuzumab plus chemotherapy in subjects with HER2-positive Metastatic Breast Cancer

470009 TOLS CJOH 13037 Randomized, open-label study of Aribaterone Acetate (JNJ 210282) plus Prednisone with or without Exemestane in postmenopausal women with ER+ Metastatic Breast Cancer progressing after Letrozole or Anastrozole therapy

470011 TOLS CMCK 13039 A randomized, Phase 2 trial of preoperative MM-121 with Paclitaxel in HER2-negative Breast Cancer

470013 TOLS CAMG 13041 A Randomized, Double-Blind, Placebo-Controlled, Multi-Center Phase III Study of Denosumab as Adjuvant Treatment for Women With Early-Stage Breast Cancer at High Risk of Recurrence (D-CARE)

470014 DODA CGSK 13042 A Randomized, Double-Blind, Placebo-Controlled, Multicenter, Phase III Study Comparing GWS72016 and Letrozole versus Letrozole in Subjects with Estrogen/Progestosterone Receptor- Positive Advanced or Metastatic Breast Cancer

470015 DODA CGSK 13043 Phase II Randomized Trial of Neoadjuvant Trastuzumab and/or Lapatinib plus Chemotherapy (Sequential FEC75 and Paclitaxel) in Women with ErbB2- (HER2/neu-) Overexpressing Invasive Breast Cancer

470018 TOLS CGSK 13046 ALTTO (Adjuvant Lapatinib and/or Trastuzumab Treatment Optimization) study. A Randomised, Multi-Centre, Open-Label, Phase III Study of Adjuvant Lapatinib, Trastuzumab, Their Sequence and Their Combination in Patients with HER2/ErbB2 Positive Primary Breast Cancer

470020 TOLS FABP 13060 A Phase III Clinical Trial Comparing the Combination of TC Plus Bevacizumab to TC Alone and to TAC for Women with Node-Positive or High-Risk Node-Negative, HER2-Negative Breast Cancer

470021 TOLS FABP 13061 A Phase III clinical trial comparing the combination of Docetaxel plus Cyclophosphamide to Anthracycline-based chemotherapy regimens for women with node-negative or high-risk node-negative, HER2-Negative Breast Cancer

470023 MGR CSAN 13073 Multicenter Phase III Randomized Trial Comparing Docorubicin and Cyclophosphamide Followed By Docetaxel (AC-T) with Doxorubicin and Cyclophosphamide Followed By Docetaxel and Trastuzumab (AC-TH) and With Docetaxel, Carboplatin and Trastuzumab (TCH) in the Adjuvant Treatment of Node Positive and High Risk Node Negative Patients with Operable Breast Cancer Containing the HER2 Alteration

470025 TOLS CSAN 13115 A Phase III Phase Trial of Adjuvant TC versus TAC in Early Stage HER2-Negative Breast Cancer

492190 KAPH CMER 10096 A Randomized Trial of MK8669 in Combination with MK-0646 Compared to Exemestane in Estrogen Receptive Positive Breast Cancer Patients

492195 KAPH CNOV 11014 A randomized Phase III, double-blind, placebo-controlled multicenter trial of daily everolimus in combination with trastuzumab and vinorelbine, in pretreated women with HER2/neu over-expressing locally advanced or metastatic breast cancer

492204 KAPH CGAL 11105 PRESENT: Prevention of Recurrence in Early-Stage, Node-Positive Breast Cancer with Low to Intermediate HER2 Expression with NeuVax Treatment

492220 BEAD CAGN 12113 Prospective neo-adjuvant REGISTRY trial linking MammaPrint, Subtyping and treatment response: NeoAdjuvant Breast Registry-Symphony Trial (NBRST)

492221 BEAD CAGN 12114 Prospective Registry Of MammaPrint in breast cancer patient with an Intermediate recurrence Score (PROMIS)

492224 WAHL CGEN 12131 A Phase II, Randomized, Study of Paclitaxel with GCD-0941 Versus Paclitaxel with Placebo in Patients with Locally Recurrent or Metastatic Breast Cancer

492235 ELLE CAVB 13105 A Randomized, Phase 2 Study of the Efficacy and Tolerability of Veliparib in Combination with Temozolomide or Veliparib in Combination with Carboplatin and Paclitaxel Versus Placebo Plus Carboplatin and Paclitaxel in Subjects with BRCA1 or BRCA2 Mutation and Metastatic Breast Cancer

492238 ELLE CPFI 13159 Multicenter, Randomized, Double-Blind, Placebo-Controlled, Phase 3 Trial of Fulvestrant (Faslodex) with or without PD-0332991 (Palbociclib) Goserelin in Women with Hormone Receptor-Positive, HER2-Negative Metastatic Breast Cancer whose Disease Progressed after Prior Endocrine Therapy
A Phase II, single arm study of the use of steroid-based mouthwash to prevent stomatitis in postmenopausal women with advanced or metastatic hormone receptor positive breast cancer being treated with everolimus plus exemestane

A Phase III, Placebo-Controlled Trial of Carboplatin and Paclitaxel with or without the PARP Inhibitor Veliparib (ABT-888) in HER2-Negative Metastatic or Locally Advanced Unresectable BRCA-Associated Breast Cancer

A Randomized Multicenter Pivotal Study of CDX-011 (CR011-vcMMAE) in Patients with Metastatic, GPNMB Over-Expressing, Triple-Negative Breast Cancer

An expanded access study of Paclitaxel in combination with Letrozole as treatment of post-menopausal women with hormone receptor positive, HER2 negative advanced breast cancer for whom Letrozole therapy is deemed appropriate

Combination immunotherapy with Herceptin and the HER2 vaccine E75 in low and intermediate HER2 negative expressing breast cancer patients to prevent recurrence

A Randomized, Multicenter, Open Label Study of MM-302 Plus Trastuzumab vs. Chemotherapy of Physician's Choice Plus Trastuzumab in Anthracycline Naive Locally Advanced/Metastatic HER2-Positive Breast Cancer

Evaluating Palbociclib (PD-0332991), a Cyclin-Dependent Kinase (CDK) 4/6 Inhibitor in Patients With Hormone-receptor-positive, HER2-normal Primary Breast Cancer With High Relapse Risk after Neoadjuvant Chemotherapy; PENELOPEB

A Randomized, Phase I/II Study of Margetuximab Plus Chemotherapy in Subjects With Recurrent or Progressive KRAS Wild-Type Metastatic Colorectal Cancer

A Dose Finding Registry: Ablation of Barrett's Esophagus

A Phase III Trial of Intraperitoneal nab-Paclitaxel (Abraxane) in the Treatment of Advanced Malignancies Primarily Confined to the Peritoneal Cavity

A Double-blind, Placebo-Controlled, Phase I/II Study of ARQ197 in combination with Irinotecan in 2nd Line Patients with K-ras or B-raf Mutation of Positive Advanced Metastatic Colorectal Cancer

A Phase II Study of AZD 6244 (Hyd-Sulfate) in combination with Irinotecan in 2nd Line Patients with KRAS Wild-Type Metastatic Colorectal Cancer

A Randomized, Placebo-Controlled, Phase I/II Study of ARQ197 in combination with Irinotecan and Cetuximab in Subjects with metastatic colorectal cancer with Wild-Type KRAS who have received Front-Line Therapy

A Phase III Randomized Double-Blind Study to Assess the Efficiency and Safety of Pertuzumab Plus More Anti-HER2 Therapy in Patients With HER2-Positive Breast Cancer Who Have Residual Tumor Present Pathologically in the Breast or Axillary Lymph Nodes Following Neoadjuvant Therapy

Evaluate the Efficacy and Safety of Trastuzumab Emtansine Versus Trastuzumab as Adjuvant Therapy for Patients With HER2-Positive Primary Breast Cancer Who Have Residual Tumor Present Pathologically in the Breast or Axillary Lymph Nodes Following Neoadjuvant Therapy

A Randomized, Open-label, Phase III Study to Evaluate the Efficacy and Safety of Trastuzumab Emtansine Versus Trastuzumab as Adjuvant Therapy for Patients With HER2-Positive Primary Breast Cancer Who Have Residual Tumor Present Pathologically in the Breast or Axillary Lymph Nodes Following Neoadjuvant Therapy

The CALIBER Study: A Randomized Controlled Trial of LINX versus Double-Dose Proton Pump Inhibitor Therapy for Reflux Disease
492284 SUBS CASZ 15146 A Phase III, Randomized, Double-Blind, Placebo Controlled, Multicentre Study of Maintenance Olaparib Monotherapy in Patients with gBRCA Mutated Metastatic Pancreatic Cancer whose Disease Has Not Progressed on First Line Platinum Based Chemotherapy

492292 SUBS CUNC 15085 Phase Ib/II Study of Necaduavum Chemoorticadiotherapy With CRLX-101 and Capecitabine for Locally Advanced Rectal Cancer

492293 GOLP CMAC 15213 A Phase 1b/2, Open Label, Dose Escalation Study of Margetuximab in Combination with Pembrolizumab in Patients with Relapsed/Refractory Advanced HER2+ Gastroesophageal Junction or Gastric Cancer

492301 GOLP CBBI 15200 A Phase III Randomized, Double-Blind, Placebo-Controlled Clinical Trial of BIBF608 plus Weekly Paclitaxel vs Placebo plus Weekly Paclitaxel in Adult Patients with Advanced, Previously Treated Gastric and Gastro-Esophageal Junction Adenocarcinoma

492302 GOLP CHAL 15114 A Phase 1b Open-Label Study of Pegylated Recombinant Human Hyaluronidase (PEGPH20) Combined With Pembrolizumab in Subjects With Selected Hyaluronan High Solid Tumors

492309 LOUB CC2T 15255 Multi-center Clinical Study to Evaluate the Coldplay Focal Ablation System for the Treatment of Patients With Previously Untreated Dysplastic Barrett’s epithelium

492310 GOLP CHAL 15260 A Phase 3, Randomized, Double-Blind, Placebo-Controlled, Multicenter Study of Pegylated Recombinant Human Hyaluronidase (PEGPH20) in Combination With Nab-Paclitaxel Plus Gemcitabine Compared With Placebo Plus Nab-Paclitaxel and Gemcitabine in Participants With Hyaluronan-High Stage IV Previously Untreated Pancreatic Ductal Adenocarcinoma

492326 GOLP CMER 15288 A Phase III Study of Pembrolizumab (MK-3475) vs. Chemotherapy in Microsatellite Instability-High (MSI-H) orMismatch Repair Deficient (dMMR) Stage IV Colorectal Cancer (KEYNOTE-177)

492335 GOLP CAGI 16099 A Phase II, Multi-center, Single-Arm Study of Oral Certinib in Adult Patients With ALK-Activated Gastrointestinal Malignancies

492343 BASA CTV 16181 A Multi-Center Retrospective Comparison of Intracorporeal and Extracorporeal Anastomoses for Minimally Invasive Right Colectomy

492357 LOUB CSUR 16892 Registry of Outcomes From AntiReflex Surgery (ROARS)

492366 GOLP CAGI 16252 A Phase 2, Open-Label, Single-Arm, Multicenter Study to Evaluate the Efficacy and Safety of INCBO5482B in Subjects With Advanced/Metastatic or Surgically Unresectable Cholangiocarcinoma Including FGFR2 Translocations Who Failed Previous Therapy

Gynecologic

492273 ZHAS CELI 15052 A Double-Blinded, Placebo-Controlled, Randomized Phase II Study of Enzalutamide With or Without the PI3 Kinase/mTOR Inhibitor LY9023414 in Men With Metastatic Castration Resistant Prostate Cancer

492300 SONZ CASZ 15198 A Phase III, Randomized, Open-label, Controlled, Multi-Center, Global Study of First-Line MEDI4736 Monotherapy and MEDI4736 in Combination With Tremelimumab Versus Standard of Care Chemotherapy in Patients With Unresectable Stage IV Urothelial Bladder Cancer

492366 ZHAS CPEL 16192 A Phase 1, Multiple-Dose, Dose-Escalation Trial of PT2385 Tablets, a HIF-2α Inhibitor, in Patients With Advanced Clear Cell Renal Cell Carcinoma

492367 ZHAS CMDV 16226 A Phase 2, Open-Label, 2-Arm, Response Rate Study of Talazoparib in Men With DNA Repair Defects and Metastatic Castration-Resistant Prostate Cancer Who Previously Received Taxane-Based Chemotherapy and Progressed on at Least One Novel Hormonal Agent (Enzalutamide and/or Abiraterone Acetate/Prednisone)

40XX ZHAS CAFT 17176 A Phase 3 Study of Androgen Ablation in High-Risk Biochemically Relapsed Prostate Cancer

492359 PARM CASZ 16169 (CONCERTO) A Single Arm, Open-label, Phase Ib Study to Assess the Efficacy and Safety of the Combination of Cederinab and Olaparib Tablets in Women With Recurrent Platinum Resistant Epithelial Ovarian Cancer, Including Fallopian Tube and/or Primary Peritoneal Cancer Who Do Not Carry a Deleterious or Suspected Deleterious Germline BRCA Mutation

492369 Tapur Targeted Agent and Profiling Utilization Registry (TAPUR) Study

492384 Cytomx 2009 A Phase 1-2, Open-Label, Dose-Finding, Proof of Concept, First-in-Human Study to Evaluate the Safety, Tolerability, Pharmacokinetics, and Pharmacodynamics of CX-2009 in Adults With Metastatic Or Locally Advanced Unresectable Solid Tumors (PRO-CLAIM-CX-2009)

492385 DRECAPAPA 17124 PISARRO APRA047 p53 Suppression Abrogates Recurrence in High Grade Serous Ovarian Cancer, a Phase Ib/II Study of Systemic Carboplatin Combination Chemotherapy With or Without APR-246

492386 PREJ CTES 17125 (GARNET) A Phase 1 Dose Escalation and Cohort Expansion Study of TSR-042, an Anti-PD-1 Monoclonal Antibody, in Patients With Advanced Solid Tumors

492389 PREJ CTES 17106 (PRIMA) A Phase 3, Randomized, Double-Blind, Placebo-Controlled, Multicenter Study of Niraparib Maintenance Treatment in Patients With Advanced Ovarian Cancer Following Response on Front-Line Platinum-Based Chemotherapy

492400 PREJ CNBM 17108 NuCana PRO A Phase II Open-Label Study of NUC-1031 in Patients With Platinum-Resistant Ovarian Cancer

Hematologic

400000 PAGU XNON 17127 IIT: Clinical outcomes following ibrutinib and venetoclax based therapy in chronic lymphocytic leukemia: A multi-center retrospective analysis

470003 JOHE CMLN 13031 An open-label, randomized, Phase 2 study to assess the effectiveness of R-CHOP with or without VELCADE in previously untreated patients with Non-Germinat Center B-Cell-like Diffuse Large B-Cell Lymphoma

470005 JOHE CSEG 13033 A Phase 2, open-label, study of Brentuximab Vedotin in patients with CD30-positive nonlymphomatous malignancies

470007 MCGR CSEG 13035 A Phase 2 study of Brentuximab Vedotin in relapsed or refractory CD30-positive non-Hodgkin lymphoma (NHL)

470012 TOLS CCLG 13040 The Chronic Lymphocytic Leukemia Disease Registry, CONNECT CLL

470016 TOLS CNOV 13044 A Prospective, Non-Interventional Multicenter Registry in Iron Overloaded Lower-Risk Myelodysplastic Patients

470017 TOLS CNOV 13045 A multi-center, randomized, double-blind, placebo-controlled clinical trial of deferasirox in patients with myelodysplastic syndromes (low/int-1 risk) and transfusional iron overload (TELESTO)

470019 TOLS CGSK 13047 A phase III, open label, randomized, multicenter trial of Ofatumumab added to Chlorambucil vs. Chlorambucil Monotherapy in previously untreated patients with Chronic Lymphocytic Leukemia

470027 TOLS CAXN 13125 Paroxysmal Nocturnal Hemoglobinuria (PNH) Registry

492085 MILM CGEN 0444 The National Lymphocare Study: An Observational Study of Treatment, Outcomes and Prognosis in Patients with Follicular Non-Hodgkin’s Lymphoma

492111 MILM CNOV 0598 A Phase IA/II Multicenter, Dose-Escalation Study Of Oral AMN107 On A Continuous Daily Dosing Schedule In Adult Patients With Gleevec-Resistant CML In Accelerated Phase Or Blast Crisis, Relapsed/ Refractory Ph+ All, Systemic Mastocytosis, Or Hypereosinophilic Syndrome

492150 MILM CNOV 07146 Bone Marker Directed Dosing of ZOMETA (zolendronic acid) for the Prevention of Skeletal Complications in Patients with Advanced Multiple Myeloma

492159 KAPH CCLG 07163 A Phase III, Randomized, Open-Label, 3-Arm Study To Determine The Efficacy And Safety Of Lenalidomide Plus Low-Dose Dexamethasone When Given Until Progressive Disease Or For 18 Four-Week Cycles Versus The Combination Of Melphalan, Prednisone, And Thalidomide Given For 12 Six-Week Cycles In Patients With Previously Untreated Multiple Myeloma Who Are Either 65 Years Of Age Or Older Or Not Candidates For Stem Cell Transplantation (Protocol I1m 07-01)

492166 MILM CCEP 08114 An Open Label, Randomized Multicenter Study of Benda- minusine Hydrochloride and Rituximab (BR) Compared with Rituximab, Cyclophosphamide, Vincristine, and Prednisone (R-CVP) or Rituximab, Cyclophosphamide, Doxorubicin, Vincristine and Prednisone (R-CHOP) in the First Line Treatment of Patients with Advanced
Indolent Non-Hodgkin’s Lymphoma (NHL) and Mantle Cell Lymphoma (MCL)

492267  PAGJ CARI 15177 A Postmarketing Observational Cohort Study to Evaluate the Incidence of and Risk Factors for Vascular Occlusive Events Associated with Iclusig (Ponatinib) in routine Clinical Practice in the US Protocol#: AP24534-13-401

492287  PAGJ CNIA 15183 Open Label 1b/2a Trial of a Combination of IPI-22901 and Ibrutinib in Patients With Relapsed or Refractory Chronic Lymphocytic Leukemia

492290  PAGJ CCLG 15199 Phase 3 Randomized, Double-Blind, Placebo Controlled, Multicenter Study to Compare the Efficacy and Safety of Lenalidomide and Dexamethasone for the Treatment of Relapsed/refractory Multiple Myeloma

492303  PAGJ CTGT 15251 A Phase 3, Randomized Study to Assess the Efficacy and Safety of Obinutuzumab in Combination With TGR-1202 Compared to Obinutuzumab in Combination With Chlorambucil in Patients With Chronic Lymphocytic Leukemia (CLL)

492305  PAGJ CKPT 15161 A Phase 2b, Open-Label, Single-Arm Study of Selinexor (KPT-330) Plus Dexamethasone in Patients With Multiple Myeloma Exposed to Bortezomib, Carfilzomib, Lenalidomide and Pomalidomide and Refractory to an IMiD and a Proteasome Inhibitor

492308  PAGJ CGEN 15248 A Phase Ib/II Study Evaluating the Safety and Efficacy of Obinutuzumab in Combination With Iclusig in Patients With Relapsed or Refractory Follicular Lymphoma or Diffuse Large B-Cell Lymphoma

492311  PAGJ CADC 15261 A Phase 1, Open-label, Dose-escalation, Multicenter Study to Evaluate the Tolerability, Safety, Pharmacokinetics, and Activity of ADCT-301 in Patients With Relapsed or Refractory CD225-positive Acute Myeloid Leukemia (AML) or CD25-positive Acute Lymphoblastic Leukemia

492312  PAGJ CACT 15262 A Phase II Study Using ACP-196 in Patients With Relapsed/Refractory and Treatment Naive Deletion 17p CLL/PLL

492313  MAWR CSEG 15270 A Phase 1/2 Study of Vadastuximab Telirine (SGN-CD33A) in Combination With Azacitidine in Patients With Previously Untreated International Prognostic Scoring System (IPSS) Intermediate-2 or High Risk Myelodysplastic Syndromes (MDS)

492314  PAGJ CTGT 16028 A Phase 2 Study to Assess the Safety and Efficacy of TGR-1202 in Patients with Chronic Lymphocytic Leukemia (CLL) who are Intolerant to Prior BTK or PI3K-Delta Inhibitor Therapy
Lung/Pulmonary
400000 AYER XNON 17162 IIT: Surgical Management of Patients with Esophageal Outflow Obstruction and Reflux
400000 FARA XNON 17123 IIT: Retrospective Comparison of Surgical Therapy for Primary Spontaneous Pneumothorax
400000 FARA XNON 17157 IIT: Use of Intra-Operative Steroids During Pneumonectomy
400000 GORU XNON 17082 IIT: Pre-hospital planning, Intensive Care Unit and Palliative Care Resource Utilization in Cancer Patients
400000 GORU XNON 17083 IIT: Evaluation of individuals referred to/participating in Lung Cancer Screening Programs: the network experience
400000 GORU XNON 17154 IIT: Management of Pleural Space Infections
400000 LOUB XNON 17156 IIT: Validation of Carcinoid Staging System: Outcomes in Patients with Neuroendocrine Tumors of the Lung and Bronchi Undergoing Resection
400000 LOUB XNON 17156 IIT: Clinical Outcomes After Magnetic Sphincter Augmentation in Patients with Atypical Reflux Symptoms and Dysmotility.
400000 LOUB XNON 17160 IIT: The long term safety and efficacy of peroral endoscopic myotomy (POEM) for the treatment of achalasia: A single institution experience
470010 TOLS XNON 13089 An open-label, multicenter, randomized, Phase 2 study of a Recombinant Human Anti-VEGFR-2 Monoclonal Antibody, IMC-1121B in combination with Platinum-based chemotherapy versus Platinum-based chemotherapy alone as first-line treatment of patients with recurrent or advanced Non-small Cell Lung Cancer (NSCLC)
470020 TOLS CBOH 13123 LUX-Lung 8: A Randomized, open-label phase III trial of afatinib versus erlotinib in patients with advanced squamous cell carcinoma of the lung as second-line therapy following first-line platinum-based chemotherapy
492139 VALE CGSK 06129 GSK1572932A Antigen-Specific Cancer Immunotherapeutic as Adjutant Therapy in Patients With Resectable MAGE-A3 Positive Non-Small Cell Lung Cancer
492171 WESH CBOH 10125 randomized Phase 3 Randomized, Open-Label Study of the Efficacy and Safety of PF-02341066 Versus Standard Of Care Chemotherapy (Pemetrexed or Docetaxel) in Patients with Advanced Non-Small Cell Lung Cancer Harboring a Translocation or Inversion Event Involving the Anaplastic Lymphoma Kinase (ALK) Gene Locus
492172 WESH CBOH 09080 Phase 2, Open-Label Single Arm Study of the Efficacy and Safety of PF-02341066 in Patients with Advanced Non-Small Cell Lung Cancer Harboring a Translocation or Inversion Involving the Anaplastic Lymphoma Kinase (ALK) Gene Locus
492176 WESH CSYT 09106 A Non-Randomized, Open-label, Multi-Center, Multi-Cohort Phase 2 Study Evaluating the Efficacy and Safety of STA-9000 in Subjects with Stage IIIIB or IV Non-Small Cell Lung Cancer
492179 WESH CGER 10029 A Randomized Phase II Study of Immune Maintenance Therapy After Initial Induction Chemotherapy for Advanced Non-Small Cell Lung Cancer (NSCLC)
S1418 A Randomized, Phase III Trial to Evaluate the Efficacy and Safety of MK-3475 (Pembrolizumab) as Adjuvant Therapy for Triple Receptor-Negative Breast Cancer with ≥1 CM Residual Invasive Cancer or Positive Lymph Nodes (ypN+) after Neoadjuvant Chemotherapy

A011108 ALTernate approaches for clinical stage II or III Estrogen Receptor positive breast cancer NeoAdjuvant TrEatment (ALTERNATE) in postmenopausal women: A Phase III Study - Fulvestrant and/or Anastrozole in Treating Post-menopausal Patients With Stage II/III Breast Cancer Undergoing Surgery

S1207 Phase III Randomized, Placebo-Controlled Clinical Trial Evaluating the Use of Adjuvant Endocrine Therapy +/- One Year of Everolimus in Patients with High-Risk, Hormone Receptor-Positive and HER2/neu Negative Breast Cancer. e5 Breast Cancer Study evaluating everolimus with endocrine therapy (CCDR)

A011202 A Randomized Phase III Trial Evaluating the Role of Auxillary Lymph Node Dissection in Breast Cancer Patients (cT1-3 N1) Who Have Positive Sentinel Lymph Node Disease After Neoadjuvant Chemotherapy

Gastroenterological
S1417CD Implementation of a Prospective, Interventional, Randomized, Multicenter, Descriptive Registry for Oral, Head and Neck Cancer Patients to Screen for Molecular Alterations Related to Treatment Selection

S1505 A Randomized Phase II Study of Perioperative mFOLIRINOX versus Gemcitabine/nab-Paclitaxel as Therapy for Resectable Pancreatic Adenocarcinoma

Genitourinary
S1602 A Phase III Randomized Trial to Evaluate the Influence of BCG Strain Differences and T Cell Priming with Intradermal BCG Before Intravesical Therapy for BCG-Naive-Grade Non-Muscle Invasive Bladder Cancer

S1500 A Randomized, Phase II Efficacy Assessment of Multiple MET Kinase Inhibitors (Cabozantinib [NSC #761968], Crizotinib [NSC #749005], Savolitinib [NSC #783548], and Sunitinib [NSC #738511]) in Metastatic Papillary Renal Carcinoma (PAPMET)

Gynecologic
907005 RTOG-0724 Phase III Randomized Study of Concurrent Chemotherapy and Pelvic Radiotherapy With or Without Adjuvant Chemotherapy in High-Risk Patients With Early-Stage Cervical Carcinoma Following Radical Hysterectomy

907005 AGCT1551 A Phase 3 Study of Active Surveillance for Low Risk and a Randomized Trial of Carboplatin vs. Cisplatin for Standard Risk Pediatric and Adult Patients With Germ Cell Tumors

907005 GOG 0279 A Phase II Trial Evaluating Cisplatin (NSC #119875) and Gemcitabine (NSC #613327) Concurrent With Intensity-Modulated Radiation Therapy (IMRT) in the Treatment of Locally Advanced Squamous Cell Carcinoma of the Vulva

907005 GOG 263 Randomized Phase III Clinical Trial of Adjuvant Radiation versus Chemoradiation in Intermediate Risk, Stage II/III Cervical Cancer Treated with Initial Radical Hysterectomy and Pelvic Lymphadenectomy.

907005 GY 006 A Randomized Phase II Trial of Radiation Therapy and Cisplatin Alone or in Combination with Intravenous Triapine in Women with Newly Diagnosed Bulky Stage IB2, Stage II, IIIb, or IVA Cancer of the Uterine Cervix or Stage II-IVA Vaginal Cancer

907005 S 1609 DART Dual Anti-CTLA-4 and Anti-PD-1 Blockade in Rare Tumors

Lung
A151216 Adjuvant Lung Cancer Enrichment Marker Identification and Sequencing Trial (ALCHEMIST) (non-squamous NSCLC only)

A091105 Randomized Double Blind Placebo Controlled Study of Erlotinib or Placebo in Patients with Completely Resected Epidermal Growth Factor Receptor (EGFR) Mutant Non-small Cell Lung Cancer (NSCLC)

CALGB-30610 Phase III Comparison of Thoracic Radiotherapy Regimens in Patients with Limited Small Cell Lung Cancer Also Receiving Cisplatin or Carboplatin and Etoposide

E4512 A Phase III Double-Blind Trial for Surgically Resected Early Stage Non-Small Cell Lung Cancer: Crizotinib versus Placebo for Patients with Tumors Harboring the Anaplastic Lymphoma Kinase (ALK) Fusion Protein

S1400 Biomarker-Driven Master Protocol for Previously Treated Squamous Cell Lung Cancer (Pre-Screening Step) Lung-MAP Study (open substudy: S1400G and S1400L)

S1400G A Phase II Study of Talazoparib (BMN 673) in Patients with Homologous Recombination Repair Deficiency Positive Stage IV Squamous Cell Lung Cancer (Lung-MAP Subprotocol)

S1400L A Phase III Randomized Study of Nivolumab Plus Ipilimumab Versus Nivolumab for Previously Treated Patients with Stage IV Squamous Cell Lung Cancer and No Matching Biomarker (Lung-MAP Subprotocol)

Melanoma
S1320 A Randomized Phase II Trial of Intermittent Versus Continuous Dosing of Dabrafenib (NSC-763760) and Trametinib (NSC-763093) in Patients With Tumors Harboring the Anaplastic Lymphoma Kinase (ALK) Fusion Protein

Multiple Sites
DCP001 Use of a Clinical Screening Tool to Address Cancer Health Disparities in the NCI Community Oncology Research Program (NCORP)(CC)

EAY131 Molecular Analysis of Therapy Choice (MATCH)

S1415CD A Pragmatic Trial to Evaluate a Guideline-Based Colony Stimulating Factor Standing Order Intervention and to Determine the Effectiveness of Colony Stimulating Factor Use as Prophylaxis for Patients Receiving Chemotherapy with Intermediate Risk for Febrile Neutropenia-Trial Assessing CSF Prescribing Effectiveness and Risk (TRACER) (CCDR)
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<th>NON-ANALYTIC</th>
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<td><strong>DISEASE SITE</strong></td>
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<td><strong>ANALYTIC</strong></td>
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<tr>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
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<tr>
<td>Vulva</td>
<td>36</td>
<td>3</td>
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<tr>
<td>Other Female Site</td>
<td>20</td>
<td>2</td>
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<tr>
<td><strong>Total Gynecological</strong></td>
<td>609</td>
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<td><strong>HEAD AND NECK</strong></td>
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<tr>
<td>Gum and Other Parts of the Mouth</td>
<td>42</td>
<td>14</td>
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<tr>
<td>Larynx</td>
<td>46</td>
<td>8</td>
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<tr>
<td>Lip and Tongue</td>
<td>95</td>
<td>15</td>
<td>110</td>
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<td>Nasal Cavity and Middle Ear</td>
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<tr>
<td>Pharynx</td>
<td>20</td>
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<td>28</td>
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<tr>
<td>Salivary Gland</td>
<td>19</td>
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<tr>
<td>Sinus</td>
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<td>Thyroid</td>
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<td><strong>Total Head &amp; Neck</strong></td>
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<td>Hematopoietic and Reticuloendothelial</td>
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<td>Hodgkins</td>
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<td><strong>THORACIC</strong></td>
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<td>Bronchus and Lung</td>
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<td>Esophagus</td>
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<td>Heart, Mediastinum, Pleura</td>
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<td><strong>TOTAL 2016</strong></td>
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<td>1791</td>
<td>7873</td>
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</table>
BIBLIOGRAPHY

This bibliography features selected recent publications by Swedish Cancer Institute members and affiliated physicians (noted in bold) from 2016-2017.

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Gastroenterological Cancer


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Hematologic Malignancies


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Practice Management


Supportive Care


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