

# Swedish Edmonds

Swedish Cancer Institute Edmonds  
2014 Annual Report

2013 Data



**SWEDISH**  
CANCER INSTITUTE  
Extraordinary **care**. Extraordinary **caring**.<sup>SM</sup>

# Table of Contents

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▶ Cancer Committee Members 2014	3
▶ Chairman's Report 2014	4
▶ Update to Community Physicians	5
▶ Medical Oncology at Swedish Cancer Institute (SCI) Edmonds	6
▶ Radiation Oncology	7
▶ 2014 Cancer Conference	8
▶ Cancer Registry	9
▶ Spotlight on Ovarian Cancer	11
▶ Community Services	16



# Cancer Committee members 2014

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**Eileen Johnston, M.D.**  
Oncology/Hematology  
Cancer Committee Chair

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**Robert Takamiya, M.D.**  
Radiation Oncology  
Cancer Liaison Physician

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**Adam Balkany, D.O.**  
Pain Management

**Alan Boudousquie, M.D.**  
Pathology

**Sally Browning, M.D.**  
Radiology – Breast Center

**Carol Cornejo, M.D.**  
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Internal Medicine

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Urology

**Daniel Markowitz, M.D.**  
Oncology/Hematology

**Jeffery Ward, M.D.**  
Oncology/Hematology

**Judy Cody, BSN, CTR**  
Cancer Registry

**Nici Feldhammer**  
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American Cancer Society

**Leni Heller, OT/L**  
Director, Rehabilitation Services and  
Preventive Care

**Darlene Hetrick, RN**  
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**Tawnia Kemp, CTR**  
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**Susanne Kromberg**  
Spiritual Care Manager

**Heather Lingbloom, RHIA**  
Operations Manager, HIM

**Toni McKay, RHIT**  
Supervisor, Quality Management  
and Regulatory Compliance

**Julie Norman, RD, CD, CDE**  
Director, Nutrition and  
Food Services

**Julia Rouse, MN, RN, OCN**  
Clinical Educator, Educational  
Services

**Suzanne Peyster, RN**  
Case Manager, Case Management

**Nancy Wood, RN**  
Chief Nurse Executive

# Chairman's report 2014

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**Eileen Johnston, M.D.**  
Chair, Cancer Committee,  
Swedish Edmonds Hospital

As chairman of the Swedish Edmonds Cancer Committee, I have the pleasure of reporting the status of our cancer program. 2014 was another busy year at the Swedish Edmonds Hospital. If you drive by our campus you will see a flurry of construction activity as our new Emergency Room and Ambulatory Care Center are now under construction. This project will enhance patient and family experiences with a spacious and comfortable new hospital lobby as well.

While our physical space is improving, we also continue to enrich our cancer care. We have successfully launched our Personalized Medicine Program. We are now analyzing the DNA from the tumors of our patients. By sophisticated molecular testing, we can identify mutations in DNA which may be contributing to or “driving” the malignant behavior of tumors. This helps us better understand an individual’s cancer, better predict future behavior of the cancer and, most importantly, sometimes alter the treatments we recommend to the patient.

## Targeted cancer therapy

In recent years, an increasing number of cancer therapies have been developed which are “targeted” to specific mutations in cancer cells. If a patient’s cancer has one of these “targets,” we may have a

treatment specific to their cancer mutation that will allow us to treat the patient more successfully and often with less toxicity than standard “old fashioned” chemotherapy.

These advances may not apply to all patients with cancer at this time. We are also maintaining a database of genetic mutations with (anonymous) clinical information about patients. We hope this will help us identify patterns of abnormalities that may help guide the development of even more therapies. This is all very exciting and we hold great optimism for the future.

## Getting personal

Our Personalized Medicine Program is just one of many clinical trials available for the treatment of cancer at the Swedish Cancer Institute (SCI). In 2014, the National Cancer Institute Community Oncology Research Program (NCORP) awarded a \$6.9 million grant to the Pacific Cancer Research Consortium, a network of cancer research sites spanning five states with Swedish as one of three primary sites. This grant, along with many collaborative relationships with the pharmaceutical industry, will help fund the more than 100 clinical trials available at SCI. Many, but not all, of these trials are available in Edmonds.

Last year I told you about the installation of a new linear accelerator in our Radiation Oncology Department. This is a state of the art, multimillion dollar machine which allows our radiation oncologists to optimize the delivery of radiation therapy for maximal benefit and minimal toxicity. Our patient volumes continue to increase and we are planning the installation of a second such machine in the near future.

## Enriching supportive care

Also under development is a palliative care program. We will soon be able to offer palliative care consults for both in and outpatients. This program will assist patients with life limiting disease (not just cancer) in making treatment decisions, establishing goals of care and enhancing quality of life at a difficult time. Our naturopathy clinic is fully operational and we offer massage therapy on campus as well. Along these lines we continue to enrich our supportive care services on campus. We are soon to add a third social worker to assist patients and their families in the

navigation of personal, financial and spiritual stress as they battle through a cancer diagnosis. We have added on-site nutrition counseling in the medical oncology building. Many educational programs and support groups are flourishing.

I hope you can see the commitment we feel to the greater Edmonds community. We pledge to continue to develop our skills, our programs and our facilities to optimize cancer care in this area. We appreciate and cherish the trust you have placed in us over the years.

# Update to community physicians

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**Robert Takamiya, M.D.**  
Radiation Oncology  
Cancer liaison physician

Greetings and welcome to our annual report. Personally, I continue to learn in my fourth year as the CLP. During our committee meetings, we review our cancer team performance compared with that of our geographic neighbors and other centers around the country. We took a detailed look at our performance with regard to stomach, breast, esophagus,

and pancreatic malignancies. We had productive conversations around socioeconomic trends, stage at presentation, incidence within ethnic groups, and treatments received. We review benchmark statistics utilizing the National Cancer Database. I am delighted to report that we compare very favorably with our peers.

Services offered by the American Cancer Society continue to show year over year growth in utilization by our patients. This, in turn, has allowed us to significantly expand our services and programs.

I look forward to the challenges ahead. I am enthusiastic about enacting new programs through our cancer control program at Swedish Edmonds Hospital to improve the quality of care for our patients and community.

# Medical oncology at Swedish Cancer Institute (SCI) Edmonds

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## Eileen Johnston, M.D.

Chair, Cancer Committee,  
Swedish Edmonds Hospital

Medical oncology care at SCI Edmonds is provided by a team of providers that includes seven physicians, a nurse practitioner, many nurses, laboratory technicians, schedulers, social workers, a financial counsellor, a nutritionist, pharmacists and pharmacy technicians, administrative staff and a host of volunteers through the American Cancer Society. It may sound overwhelming, but it truly takes an army like this to provide the quality care on which we pride ourselves.

In 2014 we added two new medical providers to our group: Dr. Susan Montgomery and Ms. Reed Weiss, ARNP. These caregivers have brought outstanding clinical skills and gentle hearts to our community. Dr. Montgomery joined us after completing training at Seattle Cancer Care Alliance and is seeing patients with a variety of malignancies; she has special expertise in the treatment of breast cancer. Ms. Weiss manages our chemotherapy treatment center and often evaluates patients with urgent problems and leads efforts in our Cancer Survivorship Clinic. We are fortunate to be blessed with increasing numbers of cancer survivors and Ms. Weiss offers summaries of stage, treatment, supportive services and follow-up plans to these individuals.

On a bittersweet note, our valued colleague, Dr. Marc Rosenshein, will be retiring in the summer of 2015. Dr. Rosenshein has served the Edmonds community for 35 years with expert clinical care delivered with great compassion. The remaining six medical oncologists as well as the entire staff at SCI Edmonds and Swedish Edmonds will miss his wisdom and guidance, but

we wish him great joy as he begins his life as an adventuresome, healthy retiree. Dr. Martin Palmer is an experienced medical oncologist who will join our group in late summer of 2015.

Finally, I want to make you aware of the level of commitment our staff displays not only at work but also in their personal time. As has been the case for many years, our staff members donate their own personal resources to help raise funds for research and for the support of the cancer community. Many of our staff members participate in fundraising efforts sponsored by local and national agencies. Funds are raised through garage sales, wine tasting, paying to wear jeans to work etc. My heart is always warmed by these efforts, especially since many of our survivors join us in these efforts every year. It is apparent to all that being a member of the care team at SCI Edmonds is a privilege and a vocation.



# Radiation oncology

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## Robert Takamiya, M.D.

Medical director,  
SCI Edmonds Radiation Oncology

The Swedish Cancer Institute at Swedish Edmonds remains committed to delivering the highest quality treatment using state of the art equipment in a patient-centered care environment. We are a “full-service” center with many different treatment modalities available to our patients.

One-third of our patients receive treatment with intensity-modulated radiation therapy (IMRT), a technique which improves accuracy, minimizes toxicity, and improves cure rates. The benefit of IMRT is enhanced when paired with the precision of image guided radiation therapy (IGRT). Implanted fiducial markers allow visualization of the target area with each treatment, which in turn allows for smaller treatment fields and less side effects than “standard” IMRT.

In November of 2015, we will add a second new Elekta Versa HD linear accelerator to treat patients side by side with the existing unit. Having matching machines means more flexibility for our patients while delivering the highest quality care. It will allow more expeditious delivery of our most complex treatment plans through volume modulated radiation therapy, a more advanced form of IMRT.

Another technological advancement is Active Breathing Control, which accounts for normal physiologic motion during therapy in an effort to minimize irradiating adjacent normal tissues to reduce toxicity. This is particularly helpful in treating left sided breast cancers to avoid dose to the heart and lung.

An in-house CT-simulator helps us maintain our world class standard of care. This will provide more convenient patient service by allowing the treatment planning visit to take place all under one roof. The model is a “large bore” CT, which will enhance patient comfort and optimize patient positioning.

We have a robust prostate brachytherapy program. Utilizing the new urology operating suite, we have all new high-end equipment. Prostate brachytherapy is the implantation of radioactive seeds to cure prostate cancer with a high degree of precision utilizing ultrasound guidance. Long-term data confirms cure rates equivalent to surgery but without many of the surgery-related morbidities. Our association with the Seattle Prostate Institute was instrumental in building this program and offering it to our community.

We continue to offer samarium and strontium therapy, an intravenous targeted radionuclide used for palliation of painful bone metastases. We are leaders in offering an intravenous targeted alpha-emitter, Ra-223, a significant breakthrough in treatment of metastatic hormone refractory prostate cancer. We also offer radioactive monoclonal antibody therapy in patients with lymphoma.

Comprehensive services, including physics and dosimetry support, radiation oncology nursing, radiation therapists, social work services, and nutritional counseling, are available to provide individualized and compassionate care to patients and their families.

Through participation in the weekly Tumor Board and close cooperation with our medical oncology colleagues, surgeons and other specialists at Swedish-Edmonds, we continue to offer the most up-to-date multidisciplinary treatment approaches to our patients. Our alliance with the other Swedish Cancer Institute locations and the Tumor Institute Radiation Oncology Group allows us to offer all modern radiation oncology services. This includes Gamma Knife and Cyberknife radiosurgery, tomotherapy, high dose rate brachytherapy for gynecologic and urologic malignancies, systemic radiation therapy, external beam radiation therapy (IMRT-IGRT) and the premier radioactive seed implantation program in the United States.

# 2014 cancer conference

## Tawnia Kemp, CTR

Cancer conference coordinator

The Swedish Edmonds Cancer Conferences and Breast Cancer Conferences are each held weekly and bring together a multidisciplinary group of physicians and support staff who play a direct role in the patient's overall cancer management. This specialty group includes pathology, radiology, surgery, radiation oncology, medical oncology, genetic counseling, and clinical trial coordination. Cancer Conference also helps evaluate, identify and manage patients at risk for hereditary cancer by utilizing personalized medicine practices.

The main purpose of cancer conference is to educate and inform this multidisciplinary group on all aspects of cancer management. A case presentation at the cancer conference includes the patient's medical history, clinical findings, diagnostic studies, pathology results and studies related to the patient's immune system and chemical components within the tissue.

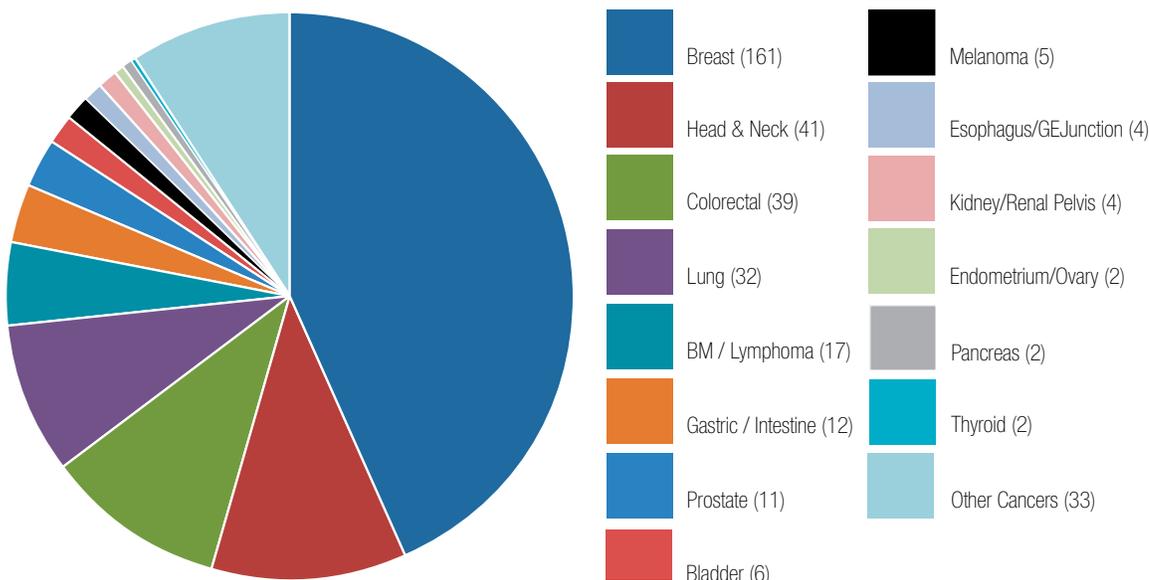
Discussions include staging workups, treatment methods, National Comprehensive Cancer Network Guidelines and research data.

Cases from the top five sites are presented regularly as well as other cancer sites that bring in physicians within specific specialties to share their expertise in treatment planning. See **Chart 1** for the number of cases and types of cancers presented at cancer conferences in 2013.

Swedish Edmonds is accredited by the American College of Surgeons, Commission on Cancer (CoC) and is required to present a minimum of 15 percent of the cancer registry's annual analytic caseload at the weekly conferences. Eighty percent of the presented cases must be prospective (planning first course treatment to achieve the best outcome for the patient.)

Each year Swedish Edmonds presents well over the fifteen percent required by the CoC and more than the required 80 percent are prospective.

**Cases presented at Swedish Edmonds cancer conferences in 2013 by primary site**



**CHART 1:** Based on 371 presentations in 2013. Some patients may be presented more than once in order to re-evaluate and adjust treatment plans as needed.

# Cancer registry based on 2013 data

**Judy Cody, BSN, CTR**  
Cancer registrar lead

The Cancer Registry is one of the major components of the Comprehensive Cancer Program at Swedish Edmonds Hospital. The registry staff, under the supervision of the Cancer Control Committee, is responsible for meeting state and national cancer reporting requirements, coordinating Cancer Conferences, and providing support for all Cancer Program activities required for accreditation by the American College of Surgeons, Commission on Cancer.

The registry has been collecting data on all cancer patients diagnosed or treated at Swedish Edmonds Hospital since January 1, 1974. Data collected includes patient demographics, cancer identification, and treatment and follow up documentation. These data contribute to treatment planning, staging and the continuity of care for patients. Accurate and complete registry data is the underpinnings that permit Swedish Edmonds Hospital to plan and optimize its cancer program. 17,177 analytic cases have been collected in the registry since 1974.

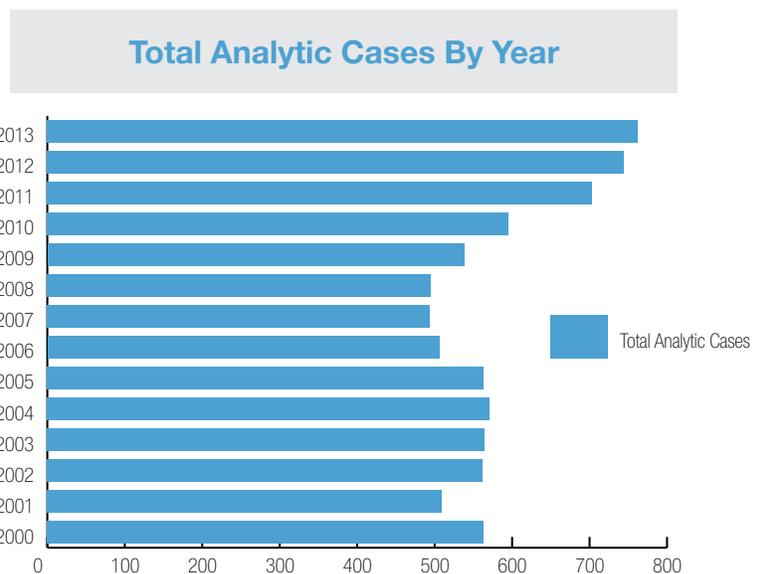
The cancer registry's annual case load was 762 new cancer cases in 2013. The cancer registry connects with the clinics closely associated with Swedish Edmonds in an effort to better represent the cancer incidence in the overall community.

The following chart shows the growth in the cancer registry's annual analytic case load from 2000 to 2013.

The cancer team at Swedish Edmonds provides expertise in diagnosing and treating a wide variety of cancers. **Table 1** gives a percentage breakdown of the various types of cancer diagnosed and/or treated at Swedish Edmonds in 2013 and a comparison of four

cancer types with a significant increase in occurrence from 2012 to 2013. Head and Neck cancers have nearly doubled in frequency. The 5 most frequently reported cancers at Swedish Edmonds in 2013 included breast, prostate, lung/bronchus, melanoma, and colon/rectum.

The Cancer Registry performs annual follow-up for patients in the registry since our re-assigned reference year of 2000. CoC requires that an 80% follow-up rate be maintained for all analytic cases from the cancer registry reference date, and a 90% follow-up rate for all analytic cases diagnosed in the last five years. Swedish Edmonds' current follow-up rate for all analytic patients in the registry since our reference year of 2000 is 95.8%.



## TOTAL ANALYTIC CASES BY YEAR:

The annual analytic case load dropped to a low of 494 in 2007. The annual analytic case load has grown by more than 50% over the last 6 years.

The Swedish Edmonds Cancer Registry shares data with the Washington State Registry which monitors the incidence of cancer in the entire state. As part of our responsibilities as an accredited cancer program the cancer registry also submits data to the National

Cancer Data Base (NCDB). The NCDB is a nationwide oncology outcomes database which monitors changes and variations in patterns of cancer care and outcomes. The Swedish Edmonds Cancer Registry continues to strive to provide accurate and quality data that will help improve the quality of cancer care.

## Swedish Edmonds Cancer Registry 2013 Analytic Cancer Site Listing\*

TABLE 1:

2013 Analytic Cases Total Cases: 762					
Analytic cancer cases are those having been diagnosed and/or having received all or part of their first course of treatment at Swedish Edmonds.					
2013 CANCER SITES	ANALYTIC CASES	PERCENT OF TOTAL CASES	2013 CANCER SITES	ANALYTIC CASES	PERCENT OF TOTAL CASES
Breast	152	19.95%	Head and Neck		
Endocrine			Larynx/Vocal Cord	4	0.52%
Thyroid	14	1.84%	Tongue	17	2.23%
Other Endocrine Glands	3	0.39%	Nasopharynx	2	0.26%
Gastrointestinal			Tonsil	5	0.66%
Anus, Anal Canal	5	0.66%	Other Oral Cavity	9	1.18%
Bile Ducts	4	0.52%	Hematology		
Colon	42	5.51%	Bone Marrow - Leukemia and Blood Disorders	30	3.94%
Esophagus	5	0.66%	Bone Marrow - Multiple Myeloma	9	1.18%
Gallbladder	2	0.26%	Hodgkin's Lymphoma	1	0.13%
Liver	7	0.92%	Non-Hodgkin's Lymphoma - Extranodal	22	2.89%
Pancreas	11	1.44%	Non-Hodgkin's Lymphoma - Nodal	9	1.18%
Rectum/Rectosigmoid	15	1.97%	Neuro/Central Nervous System (data includes state reportable benign tumors)		
Small Intestine	5	0.66%	Brain	10	1.31%
Stomach	12	1.57%	Other	12	1.57%
Other Digestive Organs	2	0.26%	Skin - Melanoma	59	7.74%
Genitourinary			Thoracic		
Bladder	33	4.33%	Bronchus and Lung	66	8.66%
Kidney/Renal Pelvis	22	2.89%	Pleura	1	0.13%
Prostate	128	16.80%	Thymus	1	0.13%
Testis	6	0.79%	Other		
Ureter	2	0.26%	Connective Tissue	1	0.13%
Gynecologic			Unknown and Other Ill-Defined Site	12	1.57%
Cervix	2	0.26%	<b>TOTAL</b>	<b>762</b>	<b>100%</b>
Ovary	6	0.79%	<b>Cancer Sites with Significant Increase in 2013</b>	<b>2012</b>	<b>2013</b>
Uterus/Endometrium	12	1.57%	Head & Neck	17	31
Other	2	0.26%	Colon/Rectum	46	57
			Multiple Myeloma	2	9
			Melanoma	42	59

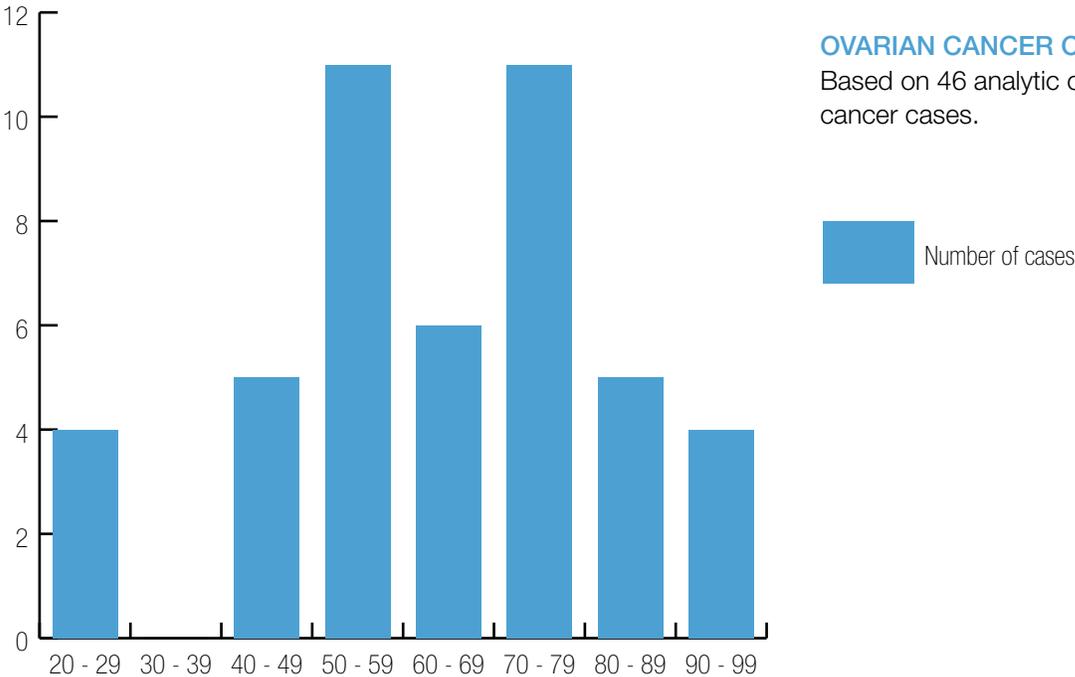
# Spotlight on ovarian cancer

Jeffery Ward M.D., Roger Shelton M.D., Robert Takamiya M.D., Ernest Kawamoto M.D. and Eileen Johnston M.D.

Each year, approximately 225,000 women around the globe are diagnosed with ovarian cancer and 140,000 women die from this disease. In the United States, the incidence is 22,000 per year with 14,000 deaths. The fact that the global and national ratios are so similar is not an indictment of oncology care in the U.S., but an acknowledgement that although chemotherapy and advanced surgical techniques are enabling women with ovarian cancer in the U.S. to live longer (nearly 50% of women with ovarian cancer will live longer than 5 years), a majority will eventually succumb to the disease.

The suboptimal survival rate can largely be attributed to late detection of ovarian cancers. About 70-75% of ovarian cancers have spread beyond the pelvic cavity (stages III and IV) by the time they are diagnosed. The symptoms of early ovarian cancer can be subtle and non-specific and are similar to symptoms of benign diseases, especially diseases of the gastrointestinal system. In addition, physical examination is not sensitive and early ovarian cancers can simulate benign ovarian conditions clinically and radiographically.

## Analytic ovarian cancers diagnosed and/or treated at Swedish Edmonds 2009 - 2013 by age



## Screening is key

With a disease such as this, it is important that prevention and early detection (screening) programs are prioritized. Oral contraceptives, tubal ligation, early menarche or late menopause, and multiple pregnancies are all known to reduce the incidence of ovarian cancer. In proven high-risk groups, such as those who carry a BRCA mutation, risk reducing surgery (removal of the ovaries and fallopian tubes) has been shown to be effective. On the other hand, infertility, obesity, and some forms of postmenopausal hormone therapy are proven risk factors for the disease. The potential risks of perineal talc use and infertility drugs are suspect, but not well-documented. Obviously, some of these risk factors are within a woman's control while others are not.

Intense efforts to develop an effective screening program for ovarian cancer have not yet proven successful. Blood testing alone (CA125) is ineffective as there are many more false positives (abnormal blood test results when there is no ovarian cancer present) than true positives (abnormal test when cancer is present) and early disease often tests negative anyway. Testing multiple markers in the blood may prove useful at a future date when improvements are made in the sensitivity and specificity of these tests. The current lack of screening is a source of great frustration for patients and providers alike.

Tumors of the ovary are not all the same. Some lesions are benign, others are noted to be "of low malignant potential (borderline tumors)", and still others are frank cancers. Neoplasms (growths, both malignant and benign) are defined by the "cell of origin," that is, the part of the ovary that gave rise to the lesion. Tumors can be germ cell tumors (e.g. teratoma), sex cord-stromal tumors (e.g. fibroma), steroid cell tumors (e.g. Leydig cell tumor) or surface epithelial-stromal tumors (adenomas, borderline tumors, carcinomas, and malignant mixed mullerian tumors).

## Types of ovarian cancer

Primary carcinoma of the ovary is the main focus of this discussion as it is what most people consider to be "ovarian cancer." The role of the pathologist in examination of the carcinoma is to evaluate the type of carcinoma, the grade (aggressiveness) of the carcinoma, and the tissue sites that are involved by the carcinoma so that appropriate treatment can be given. Surgery is done according to a recommended surgical protocol and the pathologist extensively examines specimens in order to arrive at an accurate type and stage of the carcinomas.

As noted above, there are several types of primary ovarian carcinoma: serous, mucinous, endometrioid, clear cell, transitional, undifferentiated, and malignant mixed mullerian tumors. The different types have different levels of aggressiveness. Unfortunately, the serous type is the most frequent type, comprising about 40-50% of the carcinomas and it behaves in an aggressive fashion. Mucinous carcinomas comprise about 5-10% of ovarian carcinomas and have a favorable prognosis since most are limited to the ovary or pelvis. Endometrioid carcinomas comprise about 10-20% of ovarian carcinomas, generally occur in postmenopausal women, commonly are associated with endometriosis, and may be associated with a separate uterine endometrioid carcinoma. Clear cell carcinomas comprise about 5-10% of ovarian carcinomas and typically occur in postmenopausal women, many of whom are nulliparous (have had no biologic children). Non-Brenner transitional carcinomas, undifferentiated carcinomas and malignant mixed mullerian tumors round out the field at 6%, 5% and 1% of all lesions.

Frequently, the pathologist may have difficulty determining the type of ovarian carcinoma with routine microscopic examination. In such cases, a variety of immunohistochemical stains can aid in determining the type of carcinoma. Immunohistochemical stains may also be useful in certain types of carcinomas to screen for germline (hereditary) mutations that may indicate an inherited predisposition to developing such carcinomas. Immunohistochemical stains are also useful to distinguish primary ovarian carcinomas from metastatic carcinomas (cancers from other organs

that have spread to the ovary) but microscopically resemble ovarian carcinomas. Distinguishing between primary ovarian carcinomas and metastatic carcinoma to the ovary is obviously of great importance in selecting the correct treatment and determining an accurate prognosis.

## Getting personal

Swedish Cancer Institute has a Personalized Medicine Program that involves a molecular analysis of the individual patient's cancer; it looks for a number of gene abnormalities that can dictate the malignant behavior of the cancer (next generation sequencing). The treatment can then be "personalized" with a drug(s) shown in prior studies to be effective on those specific abnormalities. Treating based on the molecular features of a cancer rather than based on where the cancer started is a major trend in cancer care with the promise of improving clinical outcomes. The pathologists working with the Swedish Cancer Institute are constantly updating our molecular panel so the latest targets are evaluated and results are promptly available to the treating clinician.

## Chemotherapy controversy

For most patients, ovarian cancer surgery is followed with postoperative (adjuvant) chemotherapy. This approach is based on mature clinical studies demonstrating an overall survival benefit with this approach. However this may not be the best course of action for all patients. Some patients benefit from receiving chemotherapy preoperatively (neoadjuvantly).

Just who these patients are, however, is controversial. At the 2011 Gynecologic Cancer InterGroup Consensus Conference, oncologists from around the world had to agree to disagree. Though a majority of attendees felt that neo-adjuvant treatment was a standard option for all patients with clinical stage III or IV cancer, a sizable minority, largely from the US, felt that it should be reserved for the subset of patients who are poor operative candidates, either because of other medical issues limiting general health or in patients for whom X-ray imaging or diagnostic laparoscopy (surgical evaluation of extent of disease using a lighted scope to examine the abdomen and

pelvis) suggest that optimal surgical resection is highly dubious.

In the former group of patients, those who are deemed to be poor surgical risk, chemotherapy may prove to be their only therapy. Some of these women will clinically improve after chemotherapy successfully reduces their tumor burden and they will become surgical candidates. In the latter group, those with very bulky disease, a 2010 European trial of patients with advanced cancer demonstrated lower surgical complication rates, higher rates of optimal debulking (removal of the bulk of the tumors, leaving no tumor nodule over 1 cm in size) and no change in survival with neoadjuvant therapy.

## Evidence-based approach

Critics note that those who received optimal debulking with primary surgery experienced a statistically insignificant trend towards improved overall survival compared to patients who achieved the same surgical result after neoadjuvant chemotherapy. These critics feel the trial is inconclusive forming the basis of the controversy. At the Swedish Cancer Institute, a team of providers evaluates each patient in order to recommend the approach we believe will offer the optimal outcome.

Approximately 25% of patient with ovarian cancer are diagnosed and treated with early stage, (I and II) cancers. In most patients with cancer confined to the ovary, surgery alone provides a greater than 90% long-term, disease-free survival. Patients with aggressive subtypes of disease and patients in whom the fluid around the abdominal organs (peritoneal fluid) contains cancer cells benefit from adjuvant chemotherapy. These women, along with those who have stage II disease, (spread of tumor outside the ovaries but still confined to the pelvis) enjoy long term disease free survival rates as high as 80% after adjuvant chemotherapy.

Women with Stage III and IV ovarian cancer do less well. Their five-year, disease-free survival is less than 40%. These patients do benefit, however, from aggressive adjuvant therapies that clearly prolong survival and improve quality of life.

## Combination therapy

Most patients will be treated with a combination of intravenous carboplatin and paclitaxel in the adjuvant and neoadjuvant setting. Other regimens may be chosen based on specific patient characteristics. Particularly healthy patients may be candidates for adjuvant intraperitoneal cisplatin (the drug is placed directly into the abdominal cavity instead of through an IV) and intravenous paclitaxel. This is a particularly toxic regimen with a high drop out rate due to side effects, but trials have suggested improved overall survival when tolerated.

A more recent improvement on the standard is called dose dense therapy. The chemotherapy is given weekly without breaks, achieving higher overall dosing. Unfortunately it also results in higher toxicity and drop out rates. When tolerated, this approach improved median overall survival by 18 months compared with standard therapy in one clinical trial. It remains controversial, however, as an intended confirmatory trial did not produce the same degree of benefit.

## Targeted therapies

Targeted therapies, alone and in combination with standard chemotherapy have recently become available. These are drugs that attack a specific component of the cancer cell, typically a pathway in the cell that encourages the growth and production of new cancer cells. These agents are usually more “specific” to the cancer cells and therefore confer less toxicity on healthy cells. Several targeted therapies have proven useful in ovarian cancer. Bevacizumab is an antiangiogenic drug meaning it inhibits the formation of new blood vessels that may feed the cancer. Pazopanib is a tyrosine kinase inhibitor that interferes with cell division and the creation of new cancer cells.

Both of these drugs have been added to either standard or dose dense adjuvant therapy. Results suggest that they may improve response rate and progression free survival, but no advantage to overall survival has been appreciated and targeted therapy in adjuvant treatment of advanced ovarian cancer is still considered experimental.

When ovarian cancer relapses, it is classified as platinum-sensitive or platinum-resistant based on the time that elapses between initial therapy and relapse. Greater than 6 months is considered platinum sensitive and treatment with single agent carboplatin or carboplatin combinations are the rule of thumb. If the patient is amenable to further surgery, a second cytoreduction or debulking procedure may be considered as well. Championed chemotherapy combinations with carboplatin include taxanes, pegylated liposomal doxorubicin, and gemcitabine. These treatments are not curative, and although initial response rates are high they are not particularly durable meaning growth of the disease despite therapy is inevitable as the cancer becomes resistant to the chemotherapy. Some investigators are conducting clinical trials with maintenance therapy in the hopes that some form of low dose therapy between rounds of more intense chemotherapy will offer benefit. While there are some early promising indicators this approach is not yet advanced enough to be considered a standard treatment option.

Physicians and patients have many treatment options in advanced ovarian cancer. There is a long list of agents with demonstrated efficacy and importantly, studies have shown no benefit to chemotherapy combinations over single agent therapy in the metastatic setting. The result is that even patients with platinum-resistant disease may receive multiple lines of accepted therapy to include the taxanes paclitaxel, docetaxel, and nanoparticle albumin bound paclitaxel; topotecan, gemcitabine; oral etoposide; pemetrexed and bevacizumab.

## Estrogen inhibiting therapy

Women with radiologic evidence of disease progression, but little or no symptoms may respond to endocrine (estrogen inhibiting) therapies: tamoxifen, letrozole, and fulvestrant. Therapies that are still considered investigational include the administration of heated intraperitoneal chemotherapy (HIPEC) after a second surgical cytoreduction of recurrent disease, rechallenge with platinum agents after a prolonged platinum free interval in hopes that the cancer is

“resensitized” and the use of individualized molecular tumor profiling in order to identify molecularly targeted treatment as outlined above.

The newest agent to receive FDA approval for ovarian cancer is the targeted, orally administered agent olaparib. The first poly-ADP ribose phosphorylase (PARP) inhibitor to gain approval, it is indicated as monotherapy for advanced ovarian cancer in patients with inherited BRCA mutations who have received three or more lines of prior chemotherapy. As with many targeted therapies it appears likely to be a niche drug that either alone or in combination with other therapies may prove to be part of an incredibly expensive godsend for a small, well defined subset of patients.

*How patients and society will pay for such personalized therapies that move beyond chemotherapy and may for the first time really impact cure rates in this disease is a challenge that must be surmounted in parallel with the science that is developing such treatments.*

### **Third pillar: radiation therapy**

Thus far, we have discussed the roles of surgery and chemotherapy in ovarian cancer. The third pillar of general cancer care is radiation therapy. However, radiation therapy is rarely used in the treatment of ovarian cancer. Historically, whole abdominal radiotherapy was used to treat early stage patients with minimal residual disease (<2cm) after debulking surgery. However, this approach has been supplanted

by the use of chemotherapy based on the results of clinical trials showing an advantage for the use of chemotherapy. The limited efficacy of radiation may be because its use is hampered by the low radiation tolerance of the liver and kidneys. In addition, the late complications of enteritis (inflammation of the bowel) and small bowel obstruction are significant. More technologically advanced radiation techniques including intensity modulated radiation therapy allows for the delivery higher doses to the targeted peritoneum while sparing the small bowel, kidneys, and liver. It remains to be seen whether this approach will translate into clinical benefit. At this time, whole abdominal radiotherapy is not considered a standard therapy in the primary treatment of ovarian cancer. On the other hand, radiotherapy is utilized in the palliative treatment of symptomatic metastatic disease. For instance, it can be very effective at reducing pain and fracture risk in a patient with bone metastasis.

### **Always looking forward**

We have many weapons in the treatment of ovarian cancer and patients with this disease are living longer than ever before. However, we are not satisfied as physicians, nor are our patients and their loved ones. Clinical research is ongoing and advances are being made. Much effort is going into developing an effective screening/early detection program.

We remain optimistic that although progress is slow, it is occurring, and we hope to be able to offer long-term control of this disease in the next few decades. At Swedish, we encourage our patients to participate in the clinical trials that advance our understanding of this disease and its treatment.

We pledge that we will remain on the forefront of prevention, diagnosis and treatment of this lethal cancer.

# Community services

## Diagnostic services

- Radiology
  - MRI/CT Scanner
  - Mammography
  - Ultrasound
  - PET CT
  - DEXA
  - Breast MRI
  - Additional standard radiology services
- Laboratory
- Comprehensive Pathology
- Sentinel Lymph Node Biopsy

## Care coordination

- Weekly Tumor Board
- Weekly Breast Cancer Conference
- Weekly Care Conference

## Treatment

- Oncologic Surgery
- Medical Oncology Swedish Cancer Institute
- Radiation Therapy Swedish Cancer Institute
- Medical Genetics
- Naturopathy
- Palliative Care
- Survivorship Clinic
- Pain Management
- Physical Therapy
- Occupational Therapy
- Speech Therapy and Nutrition Therapy for Head and Neck Cancer
- Lymphedema Management

## Supportive and continuing care services

- Oncology Nutrition
- Spiritual Care
- Massage therapy
- Social Services
- Support Groups, multiple
- Educational programs
- Speech Therapy

- Respiratory Therapy
- Coordination with Home Health & Hospice
- Bereavement Program
- American Cancer Society Resource Center
- Patient Lodging Program
- Pain and Beyond Class
- Swedish Edmonds Nutrition and Healthy Eating Classes
- Verdant Health Commission Nutrition and Healthy Eating Classes
- Lifestyle Management Exercise Program

## Survivorship programs

- Look Good Feel Better Classes, Reach to Recovery
- ABC – After Breast Cancer: What's Next?
- Breast cancer support groups
- Cancer support group referral
- I Can Cope (free online classes)
- Free wigs/fittings

## Free community programs

### Cervical, colon and breast screenings

Citrine Health provides cervical and colon health screening information for the general population between the ages of 18-64. Citrine is also known as the Breast, Cervical & Colon Health Program of Washington (BCCHP) and is accessible from all counties, not just Snohomish. Call at 425 259-9899 or 888 651-8931, or visit the following website:

<http://www.citrinehealth.org/screenings.asp>

### Free mammograms at Swedish Edmonds Breast Center

If you are a woman age 40 to 64 with no health insurance, you may qualify for a free mammogram. For more information or to enroll in the Breast, Cervical & Colon Health Program of Washington, please call Citrine Health, a nonprofit organization partnered with the Washington Department of Health and Swedish/Edmonds Breast Center at 425-259-9899. Citrine helps women access screening mammograms, subsequent biopsies, if indicated, and enroll in DSHS if cancer is detected.



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