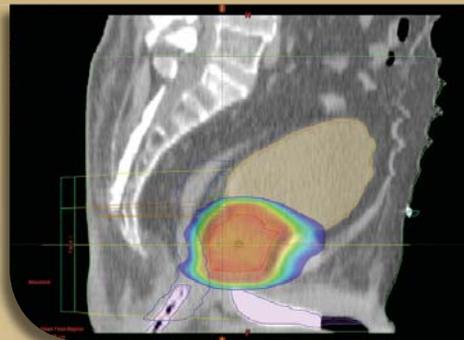




CANCER INSTITUTE

St. John's Hospital

2010 **CANCER** ANNUAL REPORT



Directory

For more information about cancer services and programs at St. John's Hospital, call (217) 544-6464. Extensions for the Cancer Institute are below.

You can also reach St. John's Cancer Institute by calling (217) 525-5666 or (800) 524-0575, or on the Internet at www.st-johns.org.

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2010 Cancer Committee

St. John's Cancer Committee monitors the cancer program and recommends changes on various aspects of the expanding program. Representatives from all medical specialties are involved in the treatment and care of St. John's cancer patients. The Cancer Institute's Cancer Conference meets regularly to review various cases. The Cancer Committee oversees the quality assurance studies performed at the Institute.

St. John's Hospital cancer program received full approval from the American College of Surgeons Commission on Cancer (ACoS/CoC) in 2008. The three-year approval by the ACoS/CoC, which is granted through 2010, ensures quality care, close to home, for cancer patients. Commendations were awarded for prevention and early detection programs, clinical trial enrollment, quality improvements, documentation of outcomes analysis in the annual report and compliance with patient guidelines.

2010 Cancer Committee Members

John Godwin, MD	Committee Chair
James Malone, MD	Otolaryngologist/Physician Liaison
Craig Backs, MD	Chief Medical Officer, St. John's Hospital
K. Thomas Robbins, MD	Otolaryngologist
Bruce Shevlin, MD	Radiation Oncologist
- Cate Clausen, MD	Designated Alternate, Radiation Oncologist
Edem Agamah, MD	Medical Oncologist
Onsi Kamel, MD	Pathologist
Donald Ross, MD	General Surgeon
Theodore Gleason, MD	Radiologist
- Lara Dennis, MD	Designated Alternate, Radiologist
Diana Weyhenmeyer, RN, MA, OCN	Clinical Research Nurse/Outreach Coordinator
Sherri Greenwood, RN, BSN, MHA	Associate Chief Nursing Officer
Dee Dee Golden, RN	Oncology Unit Nurse Manager
Carol Peterson, RN, CCRP	Pediatric Clinical Research Nurse
Debbie Woodford, RN, BS	Director, Outcomes Management/Quality Improvement Coordinator
Roxanne Harling, RN	Hospice
Denise Withrow, CTR	Cancer Registrar
Kim Pitchford, RN, BSN	Pediatrics Representative
Deb Durham	Social Worker
Mindy Young, CTR	Cancer Registrar/Cancer Conference Coordinator
Nancy Young, RN, BSN, OCN	Education
Sandra Potter, PA (ASCP)	Pathology/Quality of Cancer Registry Coordinator
Heidi Hochstetler, MA, CCC-SLP	Speech
Steven Wang, PhD	Medical Physics Manager/Chief Medical Physicist
Tamra Davidson, RPh	Pharmacy
Harriet Steahly	Community Representative
Katherine Howerter, LSW	American Cancer Society

Caring for cancer with knowledge and expertise



John Godwin, MD
Hematologist Oncologist
SIU School of Medicine

Bob Ritz
President/CEO
St. John's Hospital

This annual report comes on the success of our most recent survey by the American College of Surgeons Commission on Cancer (CoC). Last year we reported that our target for the next review in 2010 was to achieve a commendation status, which is the highest scoring possible by the CoC. Now we can report – we did it! We are accredited for three years with commendation.

Why all the excitement? The CoC has been setting standards and surveying cancer programs since 1922. Now every cancer advocacy group and national organization has become focused on the quality of cancer care. This achievement here at St. John's means we are getting it right in quality cancer care.

We offer our community the most modern, quality driven, multidisciplinary and comprehensive cancer care delivery. The Institute of Medicine promotes and recognizes these factors as the keys to effectiveness in the treatment of cancer. But of course this is not the end of our efforts – only one more step on our journey. We expect to continue to advance and develop our systems of cancer care at St. John's Hospital with our partners in care.

This report will give the reader insight into the wealth of knowledge and expertise that constitutes our vital cancer services at St. John's.

In this report, you will read our annual summary analysis of cancer cases presented by Dr. James Malone, the CoC liaison

physician for our Cancer Committee. We describe over 1,100 new cancer cases seen in 2009 at St. John's Hospital. The top five cancers sites diagnosed at our institution in descending order were lung, breast, prostate, kidney/renal pelvis and colorectal cancer. This year we are focusing on prostate cancer.

Dr. Bruce Shevlin reports the news that with prostate cancer screening patients are being detected with early stage prostate cancer (Stage II). This means that most patients have highly curable (>90 percent) disease. He explains the radiation treatment options for these early cancers.

Speaking of screening for prostate cancer, Dr. Tarter reports on advances in PSA (Prostate Specific Antigen) testing. He explains the complicated issues regarding the proper use of the PSA test. Please read all the way through his article if you want to understand whether to choose PSA screening or talk to your doctor about your test results.

In the piece titled "Pathology – It is All About the Reports," Dr. Paul Kay explains the critical role of the pathologist in the PSA test and the subsequent prostate biopsy.

If surgery becomes the option for treating prostate cancer, we report the use of robotic-assisted prostatec-

tomy at St John's, a procedure done by Dr. Lieber and Dr. Tarter. Robotic prostatectomy increases precision by allowing the surgeon a three-dimensional view of the prostate and improves magnification. This has become the standard of care – and the treatment of choice.

For the more advanced forms of prostate cancer, Dr. Edem Agamah explains the hormone therapy options for prostate cancer.

Regarding advanced disease and chemotherapy, Dr. Robert Mocharnuk of SIU reports that two new therapies were approved by FDA just this year. This is a first for treatment of prostate cancer. In rapid succession approved for metastatic disease, was Provenge and the other Cabazitaxel. Investigators are now exploring whether Provenge given early might produce even better results.

St. John's Hospital provides comprehensive state-of-the-art treatments and cutting edge research protocols for patients with cancer, through the aegis of the RTOG (Radiation Therapy Oncology Group) through the NCI (National Cancer Institute). Research with our cancer specialists and brave patients has assisted in bringing some of these developments forward for cancer patients in our community and beyond.

2009 Cancer Registry



James Malone, MD
Cancer Liaison
SIU School of Medicine

In 2009, a total of 1,112 cases composed of 1,016 analytic cases and 96 non-analytic cases were entered into the Cancer Registry at St. John's Hospital Cancer Institute. More than 90 percent of the patients entered into the Cancer Registry this year received their diagnosis and/or initial course of treatment at St. John's which is reflective of the comprehensive cancer care provided through our Cancer Institute in col-

laboration with our physician partners. The demographics of our patient population remain stable with our patient population comprising an almost equal percentage of males and females (51 percent and 49 percent respectively). In terms of the racial composition of the patient entered into the Cancer Registry for 2009, the majority (96 percent) were Caucasian with 4 percent African-American, and 1 percent from other racial backgrounds. Patients from all age ranges were entered into the Cancer Registry with the majority (69 percent) of patients ranging from age 50 years to 79 years. In 2009, 46 percent of patients presented to the Cancer Institute with disease confined to the initial tumor site. Regional lymph node or surrounding soft tissue involvement was noted in 24 percent of patients and 21 percent of patients entered into the Cancer Registry had spread of disease to distant sites or organs. A summary with ad-

ditional details of the patient demographics for new cancer cases at the Cancer Institute for 2009 is presented in Figure 1.

The top five primary cancer sites diagnosed and/or treated at St. John's for 2009 in descending order were lung, breast, prostate, kidney/renal pelvis and colorectal cancer. Cancer of the lung and breast combined account for one-fourth of all cancer cases entered into the Cancer Registry over the past year. Figure 2 depicts the incidence of the top 10 cancer sites seen at St. John's Cancer Institute in 2009.

Comparisons of the top five primary cancer sites based on patient gender are illustrated in Figures 3 and 4. For male patients entered into the Cancer Registry in 2009, the top five primary cancer sites were prostate, lung, kidney/renal pelvis, bladder, and colon in descending order (Figure 3). The percentage of cases observed at St. John's Cancer Institute for cancers of the lung, kidney,

Class	No.	%
Analytic cases	1,016	91
Non-analytic cases	96	9
Sex		
Female	540	49
Male	572	51
Race		
Caucasian	1,054	95
African-American	49	4
Asian & other	9	1
Age		
0-19	24	2
20-29	24	2
30-39	28	3
40-49	109	10
50-59	192	17
60-69	308	28
70-79	268	24
80-89	145	13
90+	14	1
Stage		
In Situ	85	8
Local	421	38
Regional	263	24
Distant	232	21
Unknown	88	8
NA	23	2

Figure 1:
2009 Patient Data Summary
1,112 cases

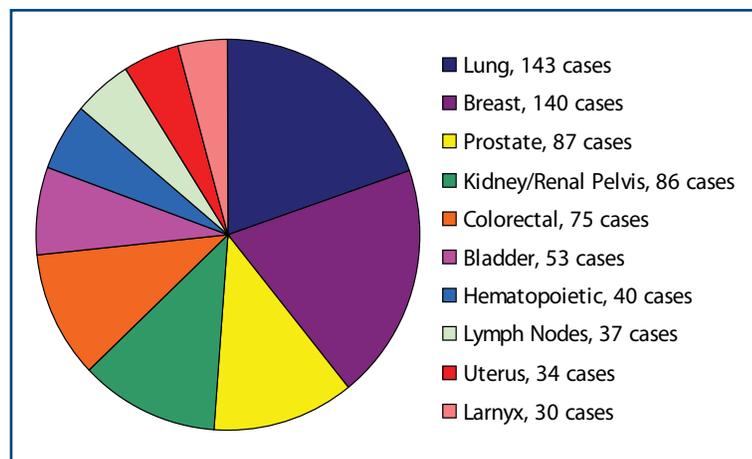


Figure 2:
2009 Incidence by Site
Top 10 most common

and colon are comparable to national averages. Cancer of the kidney/renal pelvis is seen at a higher frequency than that seen nationally (10 percent local vs. 4 percent national). Likewise, the frequency of prostate cancer observed at St. John's Cancer Institute is lower than the national average for these cancers in men (17 percent local vs. 28 percent national). This is not unusual as a single hospital referral pattern may not reflect the true population cancer incidence. These trends are consistent with our previous data.

In women, cancers of the breast, lung, colon, kidney/renal pelvis and uterus constitute the top five primary cancer sites for women at St. John's for 2009. Overall, the percentage these top five malignancies in female patients seen at the Cancer Institute is comparable to national averages. Cancers of the kidney/renal pelvis and uterus diagnosed and/or treated at St. John's are seen at slightly higher frequency than the national average while the frequency of colon and lung cancer is slightly lower. A comparison of the frequencies of our top five primary cancer sites at St. John's compared to national population based averages is illustrated in Figure 5.

At St. John's Cancer Institute, we are committed to providing our patients with the highest quality, comprehensive cancer treatments available. The Cancer Registry maintains ongoing follow-up of the patients entered into the registry. These data are essential for assessing patient outcomes to treatment, participating in national stud-

ies and cancer databases, and providing information on cancer surveillance and survival.

Our patients have access to a multitude of national clinical trials provided through our affiliation with the Radiation Therapy Oncology Group (RTOG), and the Children's Oncology Group (COG). In addition, we offer the latest, cutting-edge treatments to our cancer patients via our affiliation with SIU School of Medicine and the University of Chicago Phase II network. Industry-sponsored and investigator-initiated clinical trials conducted in collaboration with our cancer physician partners also allow us to provide our patients with the latest in cutting-edge cancer treatment.

This year's annual report includes a special focus on prostate cancer. Prostate cancer is the second most common cancer in men. With an estimated 217,730 new cases for 2010, prostate cancer is the second most common cause of cancer in men. It will result in an estimated 32,050 deaths annually. While the precise cause of prostate cancer remains unknown, certain factors such as older age, race (African-American) and family history increases the risk of developing this disease. Fortunately, screening studies for prostate cancer do exist and typically consist of blood testing for prostate-specific antigen (PSA) and digital rectal examination. In collaboration with our physician and allied-health care partners, St. John's Cancer Institute is committed to the prevention and early detection

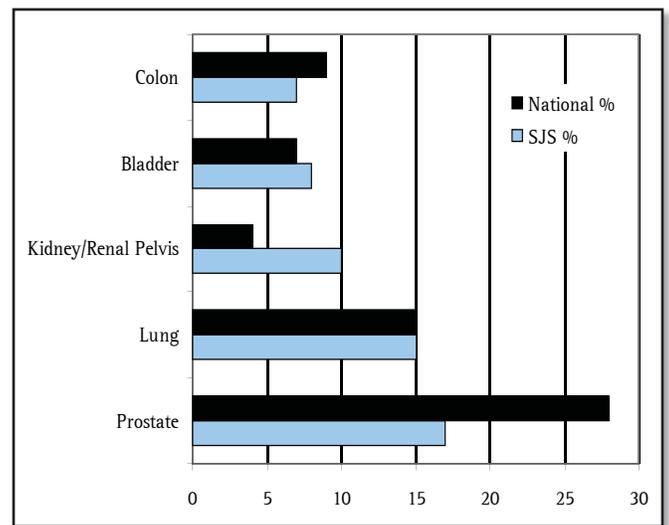


Figure 3: 2009 Analytic Male Cases

Comparison of top 5 primary sites

Source for national data: American Cancer Society, Cancer Facts & Figures 2008

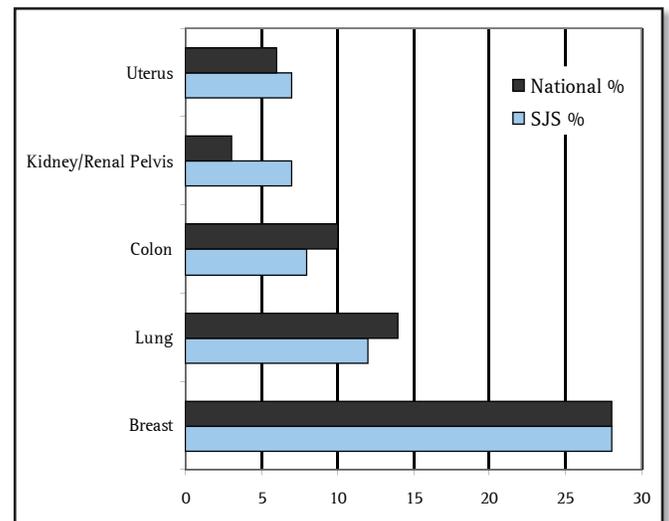


Figure 4: 2009 Analytic Female Cases

Comparison of top 5 primary sites

Source for national data: American Cancer Society, Cancer Facts & Figures 2010

of prostate cancer by raising awareness, providing public education and offering screening for prostate cancer to our community.

At St. John's Cancer Institute, a total of 87 new cases of prostate cancer were entered into the Cancer Registry in 2009. As noted above, the

Continued on page 8.

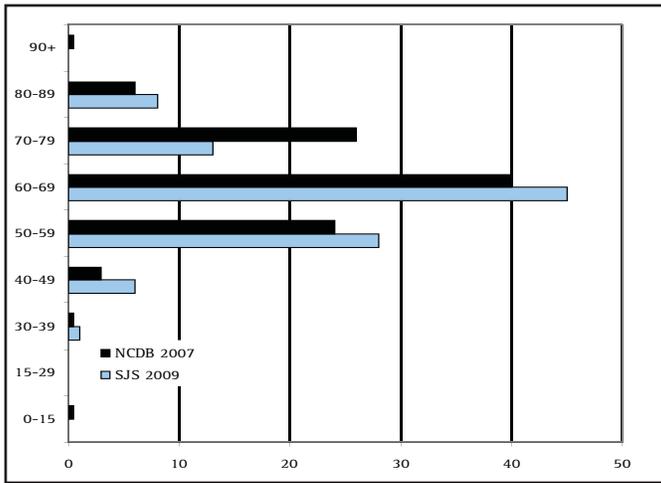


Figure 5: Age at Diagnosis
Prostate Cancer
SJS 2009 vs. NCDB 2007

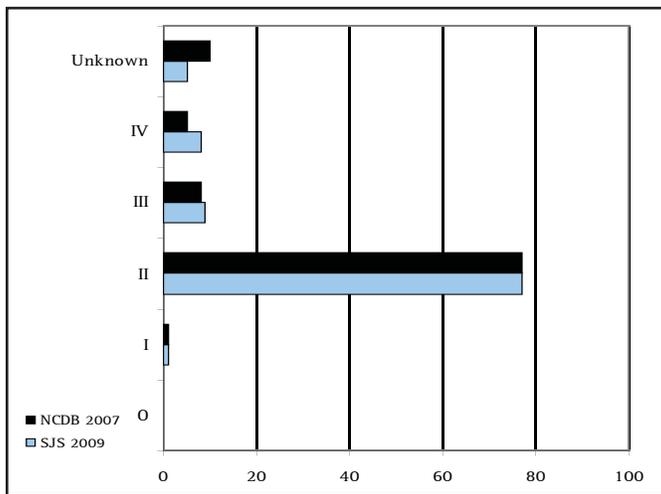


Figure 6: Stage at Diagnosis
Prostate Cancer
SJS 2009 vs. NCDB 2007

incidence of prostate cancer increases with age with 93 percent of men diagnosed with prostate cancer over the age of 50. The peak incidence for prostate cancer at our institution occurs between the ages of 60 – 69 years. Locally, patient age at diagnosis reflects those reported nationally. Figure 5 compares the age at diagnosis for men with prostate cancer entered into the Cancer Registry at St. John’s for the year 2009 compared to national data from the National Cancer Data Base (NCDB).

The majority of prostate cancer cases are diagnosed at an early stage in large part due to the availability of effective screening methods. Almost 80 percent of prostate cancer patients entered into the Cancer Registry had early stage (stage I – III disease with stage II and III disease slightly better than stage I. Patients with stage IV disease have a much poorer outcome with a five-year survival of only 40 percent. As with other types of cancers, these findings highlight the importance of programs designed to promote awareness and provide early detection and screening for men at risk for prostate cancer.

Patient survival data from St. John’s for prostate cancer patients are compared to national data derived from the NCDB according to tumor stage in Figure 7. These data reveal that for those patients with stage II and III disease (86 percent) treated at our Cancer Institute, survival over five years is similar to the national survival trends. Larger variations in survival rates are noted between St. John’s and the NCDB for those patients with stage I or stage IV disease and are likely due to the small sample sizes at our single institution compared to collective national data. Overall five-year survival data for prostate cancer both locally and nationally indicates that observed survival is highest in patients with stage I – III disease with stage II and III disease slightly better than stage I. Patients with stage IV disease have a much poorer outcome with a five-year survival of only 40 percent. As with other types of cancers, these findings highlight the importance of programs designed to promote awareness and provide early detection and screening for men at risk for prostate cancer.

Stage	Nat'l Cases	St. John's Cases	Nat'l 1 year	St. John's 1 year	Nat'l 2 year	St. John's 2 year	Nat'l 3 year	St. John's 3 year	Nat'l 4 year	St. John's 4 year	Nat'l 5 year	St. John's 5 year
0	131	0	96.9	0.0	93.8	0.0	87.4	0.0	84.2	92.2	78.0	90.9
I	13,028	6	96.8	100.0	93.1	66.7	89.3	66.7	85.0	66.7	80.7	66.7
II	387,488	207	98.7	97.1	96.8	94.2	94.5	90.7	91.9	86.6	89.1	84.6
III	44,911	17	98.9	100.0	97.2	100.00	94.9	88.2	92.4	88.2	89.8	70.6
IV	25,398	28	81.7	71.4	65.3	50.0	54.3	42.6	46.5	38.7	40.9	38.7
UNKN	0	53	0.0	98.1	0.0	88.7	0.0	84.9	0.0	76.9	0.0	70.6

Figure 7: Prostate Cancer
Observed five-year survival (by percentage). St. John’s Hospital vs. NCDB (1998 - 2000). Computed by actuarial method.

Hormone Therapy of Prostate Cancer

Prostate cancer is the most common cancer in males apart from non-melanoma skin cancer. Androgens, which are required for the development of male external genitalia and the prostate gland, are also involved in the development of prostate cancer. Testosterone is the primary androgen involved in the development of prostate cancer. Over 90 percent of testosterone is produced in the testes, while the rest is produced from the adrenal glands.

What is Hormone Therapy of Prostate Cancer (ADT)?

Hormone therapy of prostate cancer refers to the manipulation of the hormonal environment in the body to block or prevent the action of hormones related to prostate cancer. A more accurate description is Androgen Deprivation Therapy or ADT.

What are the different types of ADT?

There are two types of ADT: a) Surgical Castration and b) Medical Castration. Surgical castration results in the rapid removal of the major hormone, testosterone, involved in prostate cancer. It is used less frequently compared to medical castration. Surgical Castration is cheaper compared to Medical Castration but less preferred by most patients. Medical Castration involves the use of drugs to suppress androgen levels in the body. The drugs used are:

1. Gonadotrophin Releasing Hormone (GnRH) Agonist, namely – Coprolite, Sterling, Barreling. They are given as injections with different depot formulations. GnRH agonist injections results in a surge of testosterone, which worsen symptoms. Accordingly, patients are treated with antiandrogens temporarily before the GnRH injections.
2. Antiandrogens – These bind to androgen receptor and inhibit the interaction with testosterone and dihydrotestosterone, namely – Flutamide, Bicalutamide, Nilutamide, given orally. Apart from using this group pre-GnRH, the two drugs groups are combined in patients with rising PSA after being on only GnRH.
3. Estrogens, which lower testosterone, namely Diethylstilbesterol (DES). This group fell out of favor because of side effects of blood clots.

What are the indications of ADT?

These are:

1. Metastatic prostate cancer
2. Locally advanced prostate cancer in conjunction with radiotherapy
3. Relapsed prostate cancer after previous curative local treatment.

What are the side effects of ADT?

These include:

1. Sexual dysfunction
2. Osteoporosis and bone fracture
3. Hot flashes
4. Fatigue and anemia
5. Diabetes and cardiovascular disease
6. Depression
7. Emotional lability
8. Breast tenderness and gynecomastia

What is the long term outcome of ADT?

Most prostate cancer patients treated with ADT will eventually develop resistance. Cells that were not originally hormone sensitive now become the dominant cell line. These patients are described as having Castrate-resistant Prostate Cancer or hormone refractory prostate cancer. Some of these patients may be candidates for administration of systemic chemotherapy with Taxotere or Mitoxantrone and Prednisone.

Conclusion

Most prostate cancers are now being diagnosed at an early stage before metastasis. These patients require surgery or radiotherapy, unless they were already at high risk when ADT is added. Even though routine screening for prostate cancer with PSA is controversial, there are long term survivals benefits for those diagnosed early. With increased awareness and early detection, ADT use would continue to be reduced in clinical practice.



Edem S. Agamah, MD
Hematologist/Oncologist
Central Illinois
Hematology Oncology
Center (CIHOC)

Pathology – It’s all about the reports!



Paul Kay, MD, PhD
Pathologist
St. John's Hospital

A patient may never even think about a pathologist or a lab report. They may not realize how many times a pathologist is helping to make sure they receive the best possible treatments. The pathologist is a physician and their diagnostic reports give critical information to other physicians who treat patients for serious illnesses.

As an example let's follow a patient, Mr. John Doe, and his "specimens" through the lab. Mr. Doe has a history of prostate cancer in his family. Because of this and national screening standards his family doctor may order a test for prostate-specific antigen (or PSA), a substance that is found in the blood and is made in the prostate. If the PSA is elevated it may mean the patient has prostate cancer. A blood sample is taken and the specimen is sent to St. John's Hospital Lab. In the lab the sample is tested using the latest technology and with high standards of quality control. The pathologist oversees the testing and quality control measures to ensure you can trust the results.

Once the testing is complete a report will be sent to Mr. Doe's doctor. If the PSA is elevated an appointment with a urologist may be made. The urologist will further examine Mr. Doe and may decide to perform a biopsy of the prostate. The biopsy specimen is again sent the hospital lab. In the lab the biopsies will be processed and examined under a microscope by a pathologist. The pathologist will gather from the tissue sample all the scientifically validated information needed by the treating physicians and issue a "Pathology Report".

These reports are critical to what happens to every cancer patient. It will allow a patient to be treated with the latest and most proven therapies for specific sub-types of cancer. Currently the information needed by treating physicians may change frequently so ongoing education and communication with other specialties is essential in pathology. The pathology report can be viewed like a road map – giving those who read it the correct information to arrive at their destination in the best way possible.

At St. John's Hospital, the pathologists work closely with other physicians and surgeons to ensure that precise and up to date information is given in each patient's report. One service that the pathology department provides is a review of pathology specimens diagnosed at an outside institution from patients who are going to receive their treatment at St. John's. This "double-check" service is provided to give our patients the best care possible.

The value of an accurate lab or pathology report as produced by St. John's cannot be understated. Pathologists take care of you behind the scenes and work closely with other doctors to help ensure that their patients receive outstanding state-of-the-art care.

Robotic surgery to treat urinary problems

When David Lieber, MD, started robotic procedures in 2004, he was one of the first urologists in the region performing robotic-assisted prostatectomy. Now, the procedure has become the standard of care—and the treatment choice for most men.

Dr. Lieber, a fellowship trained laparoscopic and robotic surgeon at Springfield Clinic, helped build the robotic urology program. Six years later, he is one of Central Illinois most experienced urologists in the area of robotic-assisted prostatectomy.

The program has expanded with robotic-assisted procedures now being performed at St John's Hospital. And it's not just prostate surgery anymore. Dr. Lieber is using robotic-assisted procedures to treat renal cancer, bladder cancer, and UPJ obstructions.

Robotic prostatectomy increases precision by allowing the surgeon a three-dimen-

sional view of the prostate. The robot improves magnification of the prostate and the surrounding area, allowing the surgeon to see small vessels and close them with sutures. As a result, the advantages over traditional prostate surgery include:

- Quicker return to normal day activities
- Shorter hospital stay
- Faster Recovery
- Less blood loss/fewer transfusions
- Less pain
- Less scarring

Dr. Lieber performs anywhere from two to four robotic-assisted prostate procedures a week – and the surgery takes about two and one half hours. By comparison, surgeons less experienced in robotic procedures take more than four hours to perform a robotic-assisted prostatectomy.

“I have found that a strong commitment to robotic pro-

cedures leads to improved outcomes for men,” said Dr. Lieber.

In addition to prostatectomy, Dr. Lieber also performs robotic partial nephrectomy as a treatment for kidney cancer. “Although the robotic-assisted partial nephrectomy can be complicated, it is a good option for patients when their kidney tumors are amenable to a kidney sparing approach,” Dr. Lieber said. He performs these on a routine basis and has continued to see positive outcomes with no tumor remaining after surgery.

Along with robotic-assisted prostatectomy and partial nephrectomy, Dr. Lieber is also performing robotic-assisted cystectomy (removal of all or portion of the bladder) and urinary diversion. Only a few hospitals across the United States are performing cystectomies robotically.



David Lieber, MD
Springfield Clinic

New developments in prostate cancer



Robert S. Mocharnuk,
MD, MA
Oncologist
SIU School of Medicine

New treatments for prostate cancer have been in short supply over the past several years following FDA approval of docetaxel /prednisone for hormone-refractory disease in 2004. This year, two new therapies for treatment of prostate cancer have been approved in rapid succession. The first drug is also the first anti-cancer vaccine to be approved by the FDA in April for the treatment of an advanced human malignancy. Provenge, also known as sipuleucil-T, is an immune therapy created by extracting white blood cells from a patient, altering them in the laboratory, and then reinjecting them back into the patient to seek out and destroy prostate cancer cells. The decision to approve Provenge was made almost three years after an advisory panel recommended FDA approval, pending the results of clinical studies confirming its activity and safety. While the efficacy of Provenge may seem modest in extending median survival by only 4.1 months, 32 percent of patients were alive three years after receiving therapy compared with only 23 percent of placebo-treated.¹ Investigators are now exploring whether Provenge given earlier in the course of prostate cancer treatment, might produce even better results. In addition, clinical studies are currently being

conducted with drugs designed to block the body's natural defense mechanisms that tend to neutralize agents such as Provenge in an effort to create an even more powerful vaccine.

Cabazitaxel was also approved by the FDA in June as second-line chemotherapy in combination with prednisone for advanced hormone-refractory prostate cancer in men who have previously been treated with docetaxel chemotherapy. The benefits of cabazitaxel were demonstrated in the phase 3 TROPIC trial that enrolled 755 men.² Study participants were randomized to receive either cabazitaxel or mitoxantrone therapy plus prednisone. Median overall survival in the cabazitaxel arm was 15.1 months vs 12.7 months in the mitoxantrone arm, a modest yet meaningful improvement for men without significant treatment alternatives. However, the drug manufacturer, Sanofi-Aventis warns that this agent is not without side effects. The most common adverse events leading to discontinuation of drug included suppression of infection fighting white blood cells and impairment of kidney function.

Finally, in a presentation made at the American Society of Clinical Oncology's annual meeting in Chicago in June, Dr. Padraig Warde discussed the

results of a clinical trial conducted at the Princess Margaret Hospital in Toronto among men with either advanced prostate cancer or early prostate cancer with poor prognostic risk factors.³ The investigators randomized patients to receive androgen deprivation therapy with or without external beam radiation therapy. Those patients who receive both radiation and hormone therapy had better seven-year overall survival rates than those who received androgen deprivation therapy alone (77 percent vs. 66 percent). Additionally, patients in the combination therapy arm had a significantly higher seven-year disease-specific survival rate of 90 percent vs. 79 percent in patients receiving hormone therapy alone. A similar but smaller study presented by Moffet and associates reported similar results. Both these trials suggest that patients with locally advanced prostate cancer, who account for approximately 20 percent to 30 percent of all diagnosed prostate cancers, strongly benefit from the addition of radiotherapy to androgen deprivation therapy.

References:

1. AUA (American Urologic Association) Trial Presentation Summary. 2010.
2. Sartor, AO, et al. ASCO 2010 Genitourinary Cancers Symposium. Abstract 9.
3. Warde, PR, et al. ASCO 2010. Abstract 4504.

Radiation Oncology – prostate cancer treatment

The diagnosis of cancer is understandably overwhelming to most patients and their families. The good news is that with prostate cancer screening, more and more, patients are being detected with early stage prostate cancer (Stage II). This means that most patients have highly curable (less than 90 percent) disease. This cure rate extends across multiple treatment modalities. Patients can then be further stratified into low, intermediate and high risk categories. Treatment options may include surgery, hormones and/or radiation therapy.

Radiation therapy may include external beam treatment (usually IGRT – Image Guided Radiation Therapy), brachytherapy (“seeds”) or both. IGRT is typically an outpatient course of therapy,

utilizing daily image guidance (frequently CT) in order to assure precise daily localization of the treatment to the targeted tissue (prostate), and to avoid collateral injury to nearby at-risk structures, thereby minimizing potential toxicities of treatment. State-of-the-art computers and imaging equipment have allowed the development of such precision therapy. Our experienced treatment team is essential.

Brachytherapy has been utilized to treat prostate cancer, on-and-off, for nearly a century. Real-time ultrasound guidance allows intra-operative placement of transperineal needles and seeds into the prostate gland for true conformal treatment, assuring high dose treatment, while permitting avoidance of nearby structures.

In patients in higher risk categories, the external beam treatments and brachytherapy treatment may be combined together and/or utilized with hormonal treatments in appropriately selected patients.

Not only does St. John’s Hospital provide these comprehensive state-of-the-art treatments, but also provides cutting edge research protocols for patients, through the aegis of the RTOG (Radiation Therapy Oncology Group) through the NCI (National Cancer Institute). Dr. Clausen is our Principal Investigator.

The bottom line – St. John’s Hospital Radiation Oncology department has the skill, experience, dedication and equipment to help our patients and their families to achieve their goal – cure of prostate cancer.



Bruce Shevlin, MD, FACP
Radiation Oncologist
St. John’s Hospital

Prostate Specific Antigen (PSA): The debate continues



Thomas Tarter, MD, PhD
SIU School of Medicine

Prostate specific antigen (PSA) is an enzyme produced by the cells of the prostate gland. The prostate gland produces some of the fluid in semen, a bodily fluid that clots. The function of the PSA enzyme is to break up the semen clot. Like most enzymes, which are proteins that perform specific functions within the body, small quantities of PSA can be measured in the blood. PSA can be measured in the blood of every man. In addition to normal prostate cells, PSA is produced by prostate cancer cells. The PSA blood test was originally approved to monitor men who had been treated for prostate cancer. After surgical removal of the prostate gland, an operation known as radical prostatectomy, the PSA should be zero if all of the prostate cancer and normal prostate tissue have been removed. Men who are treated for prostate cancer are monitored for life with the PSA blood test. A detectable PSA that rises after a man has been treated for prostate cancer is a strong indication that the man is not cured of the prostate cancer, and will require further treatment.

In the mid-1980s the PSA blood test became popularized as a screening test for prostate cancer. In those days,

a PSA level higher than 4 ng/mL was considered elevated, and a prostate biopsy was recommended. Since that time, many millions of American men have been screened for prostate cancer, and several hundreds of thousand have been treated. Because prostate cancer is so prevalent, mostly owing to the PSA test, we have learned a great deal over the last 25 years. Few diagnostic tests in medicine have had the impact on the vital statistics of a cancer than the PSA test. The lessons of the widespread, uncontrolled PSA screening that has taken place in the United States since 1985 are: 1) one out of seven men will develop prostate cancer within their lifetime, 2) few men die of prostate cancer (about 12 percent who have a diagnosis), indicating that most men are over-treated, 3) the consequences of treatment such as urinary and sexual dysfunction can be significant, and 4) mortality from prostate cancer has declined every year since 1993 because of PSA screening. We know that there are benefits and risks associated with PSA screening for prostate cancer. So how does one make a recommendation for or against a test which has the potential to save life, or

ruin the quality of life?

Every diagnostic test in medicine has performance qualities known as sensitivity and specificity. The PSA test is a very sensitive test, which means that for all men who have prostate cancer, the PSA test will be elevated in most. However, the PSA test is not very specific, which means that for most men who have an elevated PSA discovered on routine health maintenance, most will not have prostate cancer. The challenges for doctors have been 1) when to recommend a PSA test, and 2) how to interpret the result and recommend a diagnostic prostate biopsy. Fortunately, because of the widespread PSA screening and high prevalence of prostate cancer, we have tools obtained through clinical research to advise men properly.

First, we have identified the men who are at the highest risk of developing prostate cancer; African American men, and men with a primary relative with prostate cancer. The average age at diagnosis in the US is about 65 years. Screening studies have shown that the risk of prostate cancer in a Caucasian man in his 40s is 0.17 percent; for this man with family history is 2.1 percent;

for an African American man is 2.0 percent, and for an African American man with a primary relative with prostate cancer is 9 percent. For men greater than age 50, in Caucasian men without a family history, the risk is 6.4 percent; for Caucasian men with a family history the risk is 10.5 percent; for African American men without a family history, the risk is 10.3 percent; for African American men with a family history the risk is up to 15 percent. As controversial as PSA screening may seem, there should be no controversy in recommending a potentially life saving screening test to those men who are at highest risk of developing the disease, that is, African American men, any men who have a primary relative with prostate cancer, and especially African American men who have a family history of prostate cancer. The PSA test should be recommended for men who are at risk of developing prostate cancer, and who will live at least 10 more years. For all other men, the doctor is obligated to discuss the risks and benefits to provide informed consent. Most primary care physicians do not have the time for a detailed discussion of PSA testing with each

man over age 50. For these men, my recommendation is to provide an introduction to the concept and information in pamphlet form from the Centers for Disease Control available online at www.cdc.gov/cancer/prostate/pdf/prosguide.pdf. In my opinion, this pamphlet provides the most balanced view of the risks and benefits of PSA screening.

The second challenge for doctors is interpretation of the PSA test. For a man over 55 year of age with a PSA in the range of 2.5 – 10 ng/mL, the risk of prostate cancer can be estimated by going to the NIH prostate cancer risk calculator online at <http://deb.uthscsa.edu/URORiskCalc/Pages/uroriskcalc.jsp>. On Google, type Prostate Cancer Risk Calculator. The risk of biopsy detectable prostate cancer and of high grade prostate cancer can be estimated with pull-down fields that include PSA level, age, race, family history, prostate exam (normal or abnormal), prior prostate biopsy (yes or no) and a medication (yes or no). If a man's risk of prostate cancer exceeds 20 percent, or if the risk of high grade prostate cancer exceeds 10 percent, I will recommend a biopsy. Of course, the decision is up to the man, and

the alternative to a biopsy for man whose risk exceeds these limits is to continue with annual prostate cancer screening with a PSA test and prostate exam.

The risk versus benefit disparity of PSA screening for prostate cancer has generated the Great PSA Debate within medicine, and has been reported in the popular media. However, the PSA test has fixed physical properties of sensitivity and specificity which are not debatable. The challenge for doctors is to apply the test appropriately, to provide an accurate assessment of the risks versus benefits of prostate cancer screening, and to interpret the meaning of the PSA test results. Lives can be saved, and over-treatment can be avoided.



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