



STUDIES OF QUALITY

# SSM DEPAUL HEALTH CENTER LUNG CANCER

Lung cancer continues to be the leading cause of cancer deaths in this country and continues to be a prevalent cancer treated and diagnosed at DePaul Health Center. Although the incidence appears to be stabilizing in men (incidence of new cases decreased by 1.8% and deaths by 2% nationally in 2009), the cancer incidence continues to increase in woman (increase of 0.4% new cases in 2009). The continued high incidence of cigarette use in Missouri, the leading cause of lung cancer, provides a dismal outlook for any improvement in these statistics.

Although early detection provides the best chance of cure, this is seldom the case. With symptoms such as cough and hemoptysis being late findings of advanced disease, the challenge continues to be to find early detections methods which are not only efficient, but also cost effective. Early data suggests that screening CT chest scans in high risk patients may provide this answer.

The treatment of Lung Cancer varies depending on the type of cancer, whether Small Cell or Nonsmall Cell. The use of surgery, radiation and chemotherapy all play an important role. The molecular genetics of the cancer in a particular patient is increasingly playing an important role in determining the optimum, individualized treatment.

Of the 129 cases of Lung Cancer initially seen at DePaul in 2009, 86% were Nonsmall Cell Lung Cancer. Caucasians represented 83.7% of the patients seen while 15.5% were African American. The majority of patients were greater than 60 years old (83.9%). Unfortunately 76% of the patients were Stage III or IV with known cure rates of 15% or less. Early detection is one of the main goals of the newly formed SSM Network Lung Steering Committee which will work toward improving these percentages.

## TNM Stage NonSmall Cell

Stage I = 19%  
 Stage II = 5%  
 Stage III = 36%  
 Stage IV = 40%

Treatment at DePaul follows national guidelines (NCCN) and most patients are offered access to national clinical trials if appropriate. Almost all patients are presented at a multidisciplinary conference every Tuesday. Treatment options include the latest chemotherapeutic agents as well as Radiation including stereotactic body radiotherapy (SBRT) and surgery. Surgical procedures performed during the year of 2009 at DePaul included

thoracotomy for lung resection, bronchoplastic procedures, ND-YAG Laser ablation of endobronchial tumors and an extensive use of thoracoscopy and minimally invasive procedures including lobectomies. Plans are to extend the surgical options with the use of the daVinci Robot in 2010.

DePaul's most recent five year survival data available is presented below. Survival is better than the Midwest and nation starting after the second year of diagnosis.

## Five year Survival 1998-2002

	DPHC	NCDB-Midwest	NCDB-National
1st year	45.6%	46.8%	48.4%
2nd year	31.4	28.0	29.6
3rd year	24.5	20.8	22.1
4th year	22.1	16.6	18.0
5th year	19.3	14.1	15.3

It is hoped that this data can be improved even further through earlier detection and a multidisciplinary approach.

*Peter Fonseca MD, PhD*

# SSM ST. JOSEPH HEALTH CENTER THYROID CANCER STUDY OF QUALITY

**Anna Fu, MD, MA, FACR**  
**Radiation Oncologist**

Differentiated thyroid cancers are becoming increasingly prevalent. In 2009, approximately 37,300 cases of new thyroid cancers were diagnosed in the United States. In a report based on the 1973 to 2002 SEER database, the incidence of papillary cancer increased from 2.7 to 7.7 per 100,000, a 2.9 fold increase. There are 3 main histologic types of thyroid carcinomas: differentiated (including papillary, follicular and Hurthle or oxyphilic), medullary and anaplastic. 80% of the differentiated cases are of papillary histology. In the years 2005 and 2009, no medullary or anaplastic histologies were diagnosed in the St. Joseph Network Oncology Program. Therefore, this discussion is limited to differentiated histologies. In fact, with the exception of one Hurthle cell case, all other cases were papillary carcinomas and its variants. (See Figure 1)

Thyroid carcinoma occurs 2 - 3 times more often in women than in men. With the incidence increasing by 6.2% per year, thyroid cancer is currently the 6th most common malignancy diagnosed in women. The peak age of diagnosis is around 45 - 49 in women, and 65 - 69 years in men for the period 2004 - 2006. (See Figure 2). However, thyroid cancer is more aggressive in men and increasingly so with every decade of life. St. Joseph Network Oncology Program has noted a significant increase in the number of cases in differentiated thyroid cancers in 2009 compared to 2005, although most cases were diagnosed outside of the SSM system and referred here for treatment. There are 10 cases in 2005 and 25 cases in 2009. (See Figure 2)

Figure 1

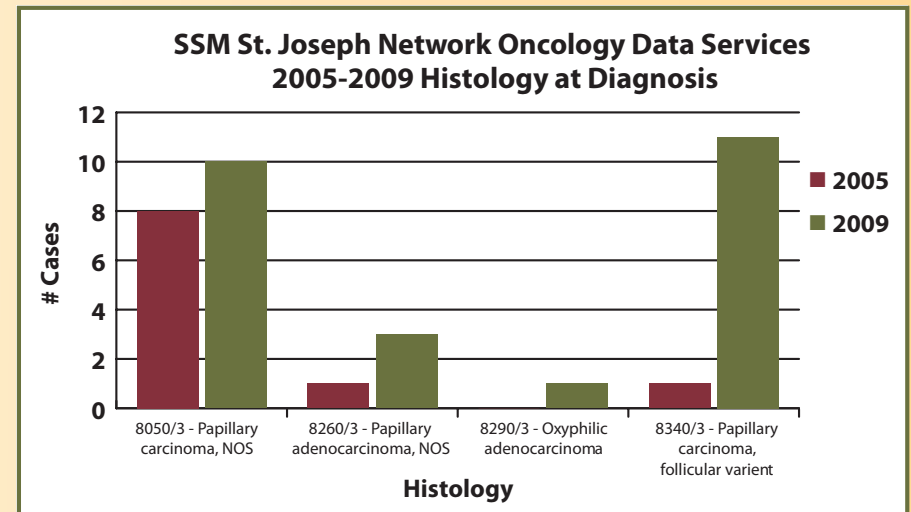
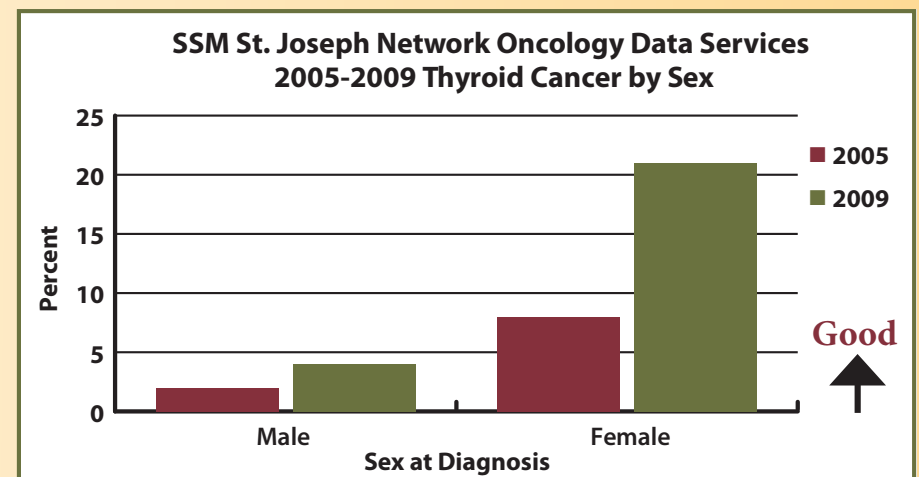


Figure 2



## Thyroid Cancer Study of Quality - *continued*

In 2005, 90% of cases were Stages I and II, which is essentially unchanged in the year 2009. (See Figure 3). According to National Cancer Data Base (NCDB) in 2003, 80% of the cases are stages I and II.

Most patients with papillary carcinomas do not die of their disease, however, older age at diagnosis, size of tumor and soft tissue invasion are associated with higher risks of recurrence and mortality. Follicular cancers typically occur in older patients and are commonly associated with a more aggressive clinical course than papillary cancers. Age is of prognostic significance. Under 45 years old, cancer related death is rare, even with lymph node involvement. However, nodal involvement for those ages 45 or older increases the risk of death by 46%, according to data from the 1998 and 2003 SEER database.

The age distribution of patients in the St. Joseph Network Oncology Program in 2005 and 2009 are shown in Figure 4.

Figure 3

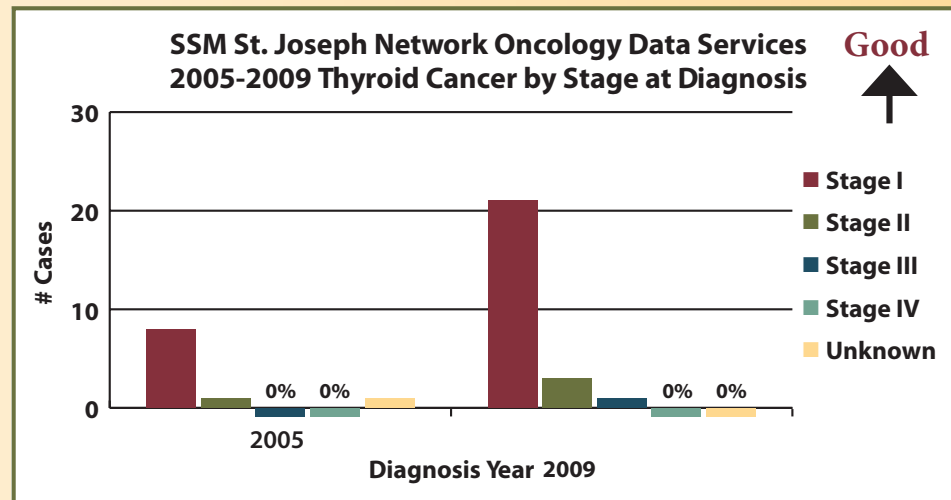
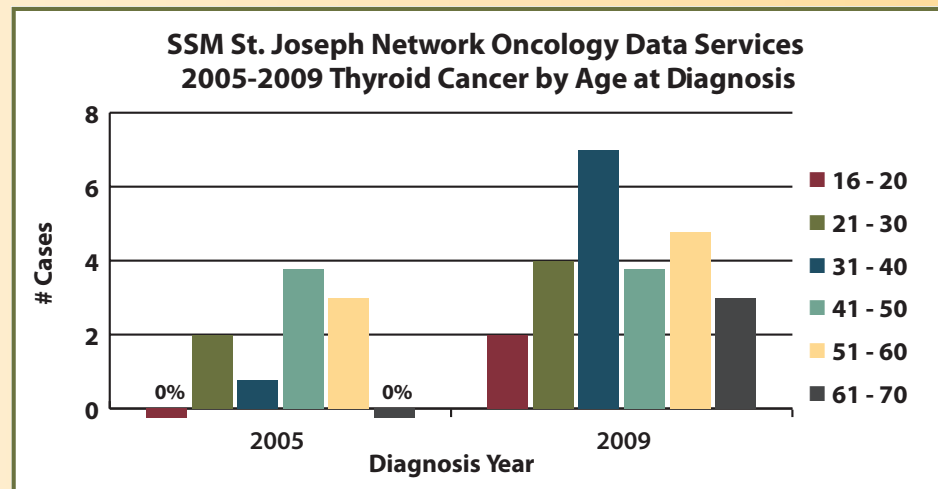


Figure 4



## Thyroid Cancer Study of Quality - *continued*

The AJCC Staging system (7th addition) incorporates age, such that patients under 45, stage II includes any T, any N, M1. Discussion on NCCN practice guidelines commented on the fact that although it predicts mortality reasonably well, TNM staging does not accurately predict recurrences that may occur in patients who develop thyroid cancer when they are young. NCCN do not use TNM Staging to guide therapy. American Thyroid Association (ATA) guidelines have strong influences in practice patterns at SSM St. Joseph Network Oncology Program. A new version was published in November 2009. Many ATA members do serve on the NCCN guideline panel on thyroid and there are strong institutional preferences even among NCCN member institutions. Some of the guidelines are somewhat conflicting as no large prospective randomized trials are available.

The mainstay of treatment is surgery. Many NCCN panel members advise total thyroidectomy for all patients, even for low risk papillary carcinoma, as it is associated with improved disease free survival according to some, but not all, retrospective studies. Some NCCN panel members advocate unilateral lobectomy on the basis of low mortality and higher complications rate of more complete thyroidectomy. However, the presence of large thyroid remnant may complicate long term follow-up with serum Thyroglobulin (Tg) and frustrate whole body I-131 imaging.

NCCN recommends, in many clinical settings, that the decision surrounding the extent of surgery should be individualized as the results of large retrospective studies are conflicting. Some NCCN panelists believe that total lobectomy alone, without radioiodine ablation, is adequate treatment for papillary microcarcinomas provided that the patient has had no prior radiation exposure, has a unifocal tumor <1 cm

without vascular invasion, and no cervical lymph node metastases. NCCN recommends therapeutic node dissection only with needle biopsy, physical exam or ultrasound evidence of nodal involvement unless there are high risk features. At St. Joseph there will probably be continued highly individualized decision making regarding node dissections.

At the SSM St. Joseph Network Oncology Program in 2005, 9 out of 10 cases underwent total thyroidectomy, with one patient undergoing lobectomy/isthmusectomy. In 2009, 24 out of 25 cases underwent total thyroidectomy, and one underwent unilateral lobectomy and subtotal removal of the other lobe. 100% of patients in both 2005 and 2009 were managed by thyroid replacement hormone suppression therapy. One out of 10 patients in 2005 did not receive radioactive iodine whereas all 25 patients in 2009 received I-131. (Figure 5).

Figure 5

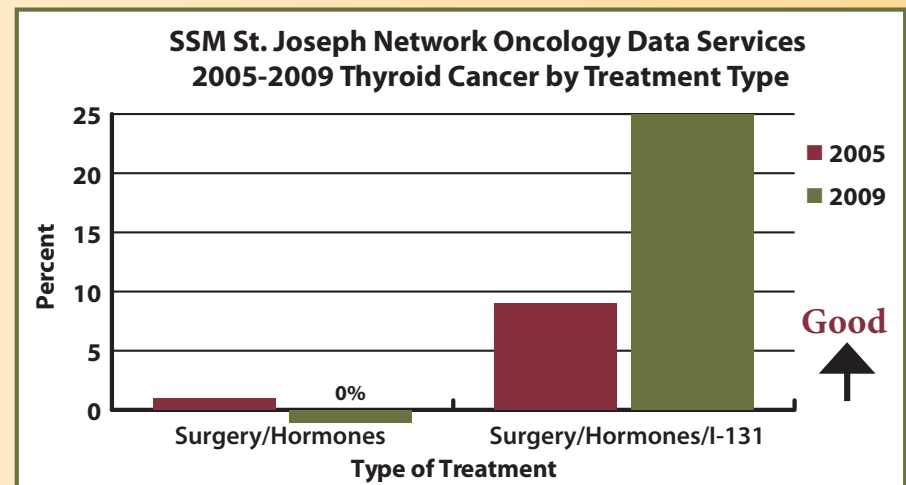
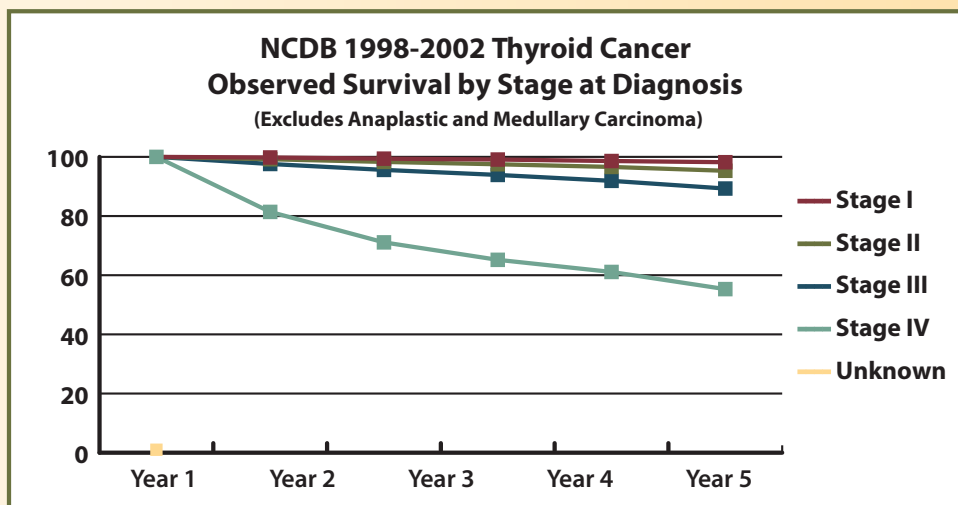


Figure 6



### Thyroid Cancer Study of Quality - *continued*

Patients are followed with periodic Tg with anti-thyroglobulin antibody studies, and diagnostic I-131 imaging with or without withdrawal of thyroid hormone. Thyroid bed ultrasound has received more attention in recent years as recommended by ATA and NCCN. At St. Joseph Network Oncology Program, this modality will increasingly be utilized. NCCN suggests recombinant human TSH (rhTSH) stimulation in place of thyroid hormone withdrawal preceding Tg and/or diagnostic I-131 imaging. This approach improves quality of life by avoiding fatigue induced by hypothyroid state. After total thyroidectomy and I-131 ablation, stimulated Tg, in the absence of antibody interference, has the highest degree of sensitivity and specificity for detecting recurrence. The St. Joseph Network Oncology Program anticipates increased use of rhTSH at our facilities for diagnostic studies. ATA guidelines suggest that routine diagnostic whole body imaging follow-up, one year after ablation, is not required in low risk patients as neck ultrasound and rhTSH stimulated Tg are sensitive and effective in detecting persistent disease. We anticipate a reduction in routine I-131 scans in the future to reduce unnecessary radiation exposures.

The November 2010 version of thyroid NCCN guidelines states “to consider the role of PET/CT in follow-up imaging for those patients with elevated thyroglobulin and negative I-131 whole body scan.” We expect increased utilization at the SSM St. Joseph Network Oncology Program when indicated.

As most patients with differentiated thyroid cancer achieve long term survival, our emphasis is on avoiding overtreatment by improving risk stratification per ATA guidelines and refining follow-up strategies. Close coordination between head and neck surgeons, endocrinologists, radiation oncologists and primary care continues to be critical. National areas of research include angiogenesis inhibitors, tyrosine kinase inhibitors, immunomodulators and gene therapy approaches. Medical oncologists may have a role in the near future as well. (Figures 6, 7 and 8).

Figure 7

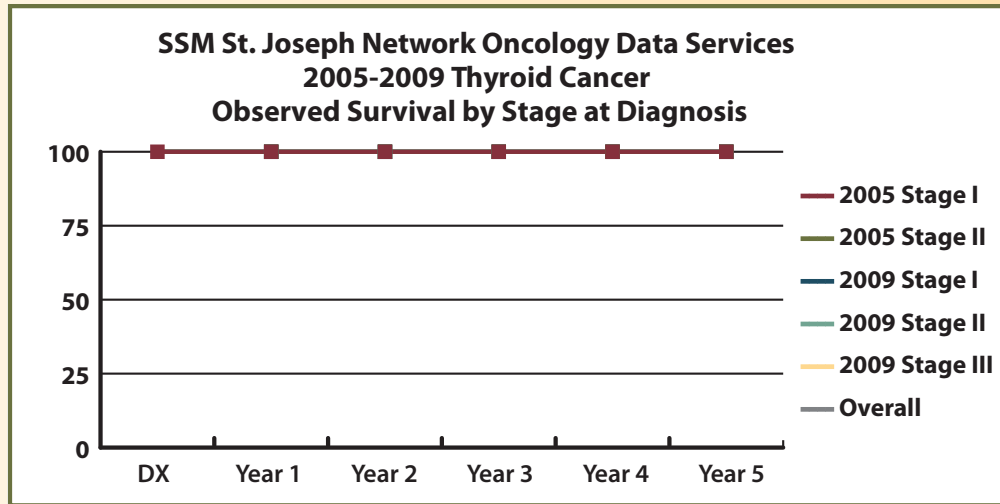
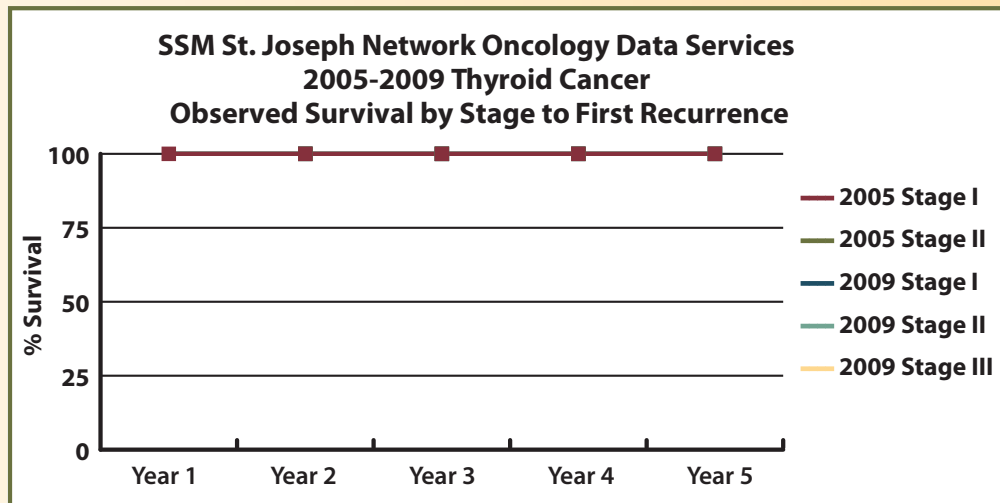


Figure 8



# SSM ST. MARY'S HEALTH CENTER BREAST CARE ANNUAL REPORT

**With data through 2009**  
**Stephanie Schnepf, MD, FACS**  
**Director, SSM St. Mary's Breast Center**  
**and ACOS Commission on Cancer**  
**Physician Liaison**

Over the last 30 years, survival from breast cancer has significantly increased due both to improved early detection and improved treatments.

It is clear that survival is best at earlier stages of diagnosis, and early detection depends upon appropriate screening to find cancers at their earliest stages whenever possible. St. Mary's Breast Center makes access to care as easy as possible to facilitate early diagnosis. Walk in patients can be taken for mammograms, and a physician order is not necessary for a screening mammogram. If a screening mammogram needs to be followed up with additional diagnostic views, the patient is usually notified and given the opportunity to schedule this within one day of the screening mammogram.

We work in conjunction with several organizations that fund diagnostic testing and treatment programs to help women who do not have insurance coverage gain access to appropriate care.

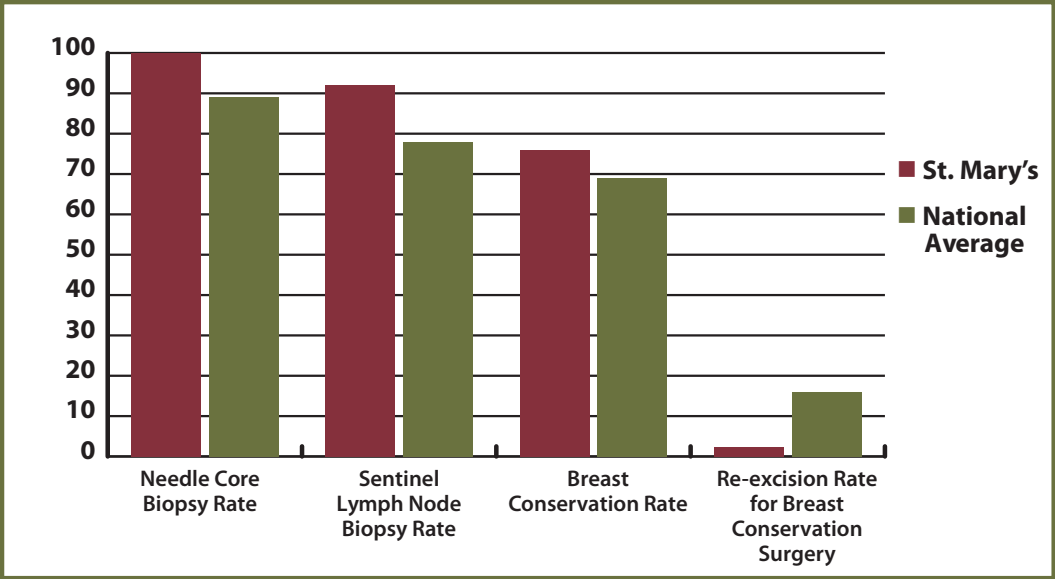
Our breast care nurse navigator helps coordinate the process between abnormal mammograms, additional diagnostic views and ultrasounds, biopsies, and surgical care.

Last year, we were able to schedule core needle biopsies within one day of an abnormal mammogram recommending biopsy in 100% of patients

who wanted a next-day biopsy. Some patients were able to be offered biopsies on the same day if desired. This is a significant advantage over many free-standing imaging centers, that do not offer biopsies at their facilities, thereby delaying diagnosis and treatment and potentially adding to patient anxiety in waiting for a biopsy.

Minimally invasive breast biopsies are a significant advancement in modern breast care. Traditionally patients have had to undergo surgical excisional biopsy for diagnosis of abnormalities found on mammogram or physical examination. We now can offer accurate biopsy results through large core vacuum-assisted needle biopsies, whereby a large biopsy needle is placed under local anesthetic to take samples of an area of concern. This can be done either under stereotactic, or mammographic guidance, or ultrasound-guidance. Pathology results are usually available within 24-48 hours of the procedure. Results are called to patients by the physician who performed the biopsy, and a prompt office visit with a breast surgeon is then scheduled to further discuss in person the treatment options.

**Figure 1: SSM St. Mary's Health Center 2009 Breast Cancer Clinical Measures**



## SSM St. Mary's Breast Care Annual Report - *continued*

At St. Mary's in 2009, our needle core biopsy rate was 100%, meaning that all breast cancers diagnosed at St. Mary's were done with a less invasive needle biopsy procedure rather than an open surgical procedure unless there were extenuating factors making a needle biopsy not possible as the first procedure. The national average for needle core biopsy diagnosis of cancer verses excisional biopsy was 89%. (see Figure 1)

Sentinel lymph node biopsy is the current standard of care for lymph node assessment. This is a less invasive technique where just one or a few lymph nodes are tested for the presence of cancer. Previously, all patients with breast cancer underwent a complete axillary lymph node dissection to remove all the axillary lymph nodes, which involves more risk for short and long-term complications. In 2009, our sentinel node biopsy rate was 92%, which is significantly higher than the national average of 78%. (see Figure 1)

Breast conservation rather than mastectomy can usually be done successfully in patients with smaller masses. At St. Mary's in 2009, our breast conservation rate was 76%, exceeding the national average of 69%. Some patients with larger tumors can now be offered breast conservation as well, as we can offer neoadjuvant chemotherapy, or chemotherapy done prior to surgery, to appropriate patients, which can decrease the tumor size significantly and provide a better oncologic and cosmetic result than removing a larger tumor before chemotherapy. (see Figure 1)

When breast conservation surgery is done, a certain amount of cases will require re-excision of the tissue, or a repeat surgery to ensure all the cancer is cleared microscopically, which is not always known at the time of the initial surgery. The national average re-excision rate is 16%, but at St. Mary's in 2009 it was only 2.4 %, meaning very few patients had to return to the operating room for additional surgery after the initial surgery. (see Figure 1)

In some parts of the U.S., mastectomy rates have actually been increasing slightly in the last few years, due in part to the increased use of breast reconstruction procedures following breast cancer surgery. At St. Mary's we do offer this option to all women who would prefer mastectomy with reconstruction as an alternative to breast conservation therapy. With early stage disease, immediate reconstruction at the time of mastectomy can often be planned if the patient desires. Skin sparing and even nipple sparing procedures can be offered in many cases with early stage disease. These procedures are done as a combined procedure with the breast cancer surgeon and the plastic surgeon working together in caring for the patient before, during, and after the surgery.

St. Mary's offers the full range of treatment options to patients, including surgery, radiation, and medical oncology services. All phases of treatment can be completed in our facilities with our physicians, providing patients convenient care as well as collaboration between specialists involved in their care.

Our cancer program consistently exceeds the state and national averages in offering appropriate patients radiation therapy, chemotherapy, and hormone therapy in addition to surgical treatment, as shown in Figure 2. These statistics were compiled using 2007 data from the American College of Surgeons Commission on Cancer National Cancer Data Base program, which is the most current year for which we have complete data. We have shown significant improvement over the preceding years of 2004-2006 with the radiation and chemotherapy variables ranging from 80-89% in those years (which was still at or above the national and state averages) up to the 96% and 100% in 2007. We continue to strive for improvement each year in offering patients the most complete and comprehensive care.



## SSM St. Mary's Breast Care Annual Report - continued

The overall goal of these multimodality treatments of course is to increase survival. The 5-year relative survival rates for newly diagnosed cases at St. Mary's in 1998-2002, as compared stage for stage, were comparable to the national averages as represented in Table 1 below:

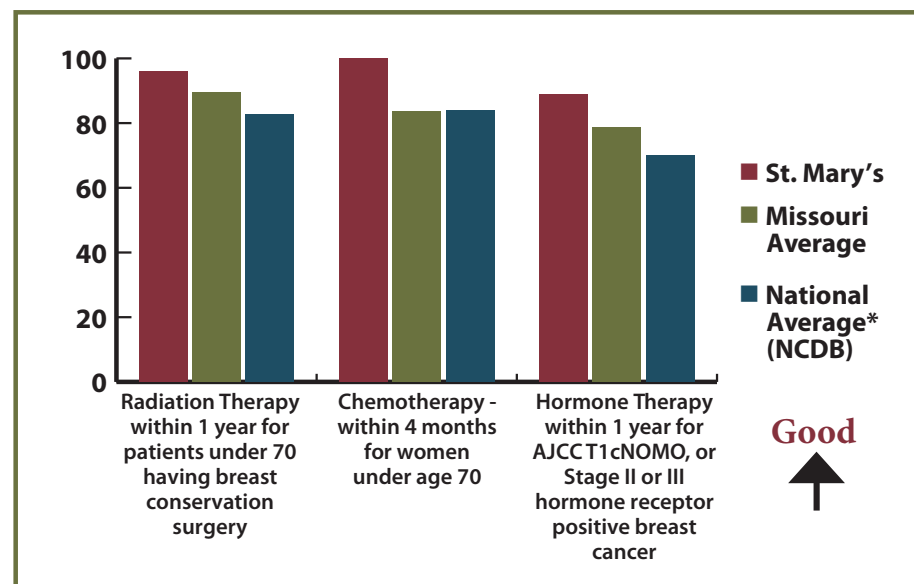
**Table 1:** Total Analytic Breast Cases 5-year observed survival, cases diagnosed 1998 – 2002

AJCC TNM STAGE	SMHC ONLY %	SSM NETWORK %	NCDB-NATIONAL %
0	93	91	95
1	89	89	91
2	77	78	83
3	53	53	58
4	17	14	21
Overall	80	79	85

Each week we have a multidisciplinary cancer conference, where specialists from radiation oncology, medical oncology, surgeons, pathologists, and radiologists, as well as nursing and support staff specialists are invited to discuss complex cases. In addition to this, all SSM physicians have access to our computerized medical records system, which allows quick access to all aspects of patients' medical records, and efficient communication between physicians.

Genetic counseling and BRCA testing is available as well. We are in the process of developing a screening tool which may be able to be distributed at the time

**Figure 2:** SSM St. Mary's Health Center Breast Cancer Profile Results (CP<sup>3</sup>R)



\* NCDB: Commission on Cancer National Cancer database

of screening mammogram to help identify the most high risk patients. High risk patients can then be screened more carefully in terms of additional imaging studies and frequently are followed by a breast surgeon with more frequent clinical exams.

St. Mary's Breast Center is a key component in the SSM Cancer Care program. We are committed to providing the highest quality, most up to date care available and will continue to make improvements to offer our patients the best care and best results available.