Treatment options of breast cancer

Date report to Cancer Committee: February 5, 2009

By Shelly Smits, RHIT, CCS, CTR
Conclusions by Ian Thompson, MD & James Miller, MD

Data Source: Cancer registry information on invasive breast cancers diagnosed 2000-2007.

Reason for Report: There was a recent article in the Annals of Surgery Vol 248 by Gutierrez, et. Al. entitled “are Many Community Hospitals Undertreating Breast Cancer”, which compared findings in the state of Florida of women treated with breast cancer (infiltrating ductal carcinoma). The conclusion of this article was that patients treated at the Academic Centers in Florida received better care than Community Hospitals or independent Breast Centers. The conclusion of the study was that care at Academic Centers adhered more closely to established guidelines for care and subsequently had better outcomes. For this reason, we analyzed our data in Whatcom County to measure it against the benchmark data to evaluate if there is room for improvement in our care of patient with breast cancer.

Findings: As seen in the tables below, the patients in the St. Joseph Hospital (SJH) Registry were slightly older, but had smaller and lower grade tumors then those in the study. Many more patients in the SJH Registry received breast-conserving treatment than the Florida patients. This resulted in a higher number of SJH Registry patients receiving radiation than the Florida patients since breast conserving treatments include a course of radiation. However, only 75% of SJH Registry patients treated with breast conserving surgery received radiation, which is below the standard benchmarks set by several national bodies.

SJH Registry patients received far less chemotherapy and more hormonal intervention than the Florida patients. During the time of this study, there was a national surge in interest in treating N0 disease with chemotherapy, which may not have penetrated this community. Also the Florida patients were a bit younger and had higher-grade tumors. Sixty percent (60%) of estrogen receptor (ER) positive tumors received hormonal intervention.

Overall the SJH Registry patients had a lower stage of disease at diagnosis and fewer lymph nodes sampled. This likely illustrates excellence in screening. However, 12% of the patients with carcinoma did not have their lymph nodes sampled, which is below established benchmarks. Our data does not show the numbers of nodes retrieved during axillary dissection making our total nodal numbers somewhat difficult to interpret.
When broken down by stage (local, regional, or distant), there was no significant variation from the above observations.

**Breast cancer in SJH registry from 2000-2007**

<table>
<thead>
<tr>
<th></th>
<th>All Patients</th>
<th>Teaching Hosp in study</th>
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</thead>
<tbody>
<tr>
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<td>(n=1030)</td>
<td>(n=2816)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
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</tr>
<tr>
<td>&lt;45</td>
<td>9.01%</td>
<td>16.80%</td>
</tr>
<tr>
<td>45+</td>
<td>90.97%</td>
<td>83.20%</td>
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<tr>
<td>Median Age</td>
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<td>59</td>
</tr>
<tr>
<td><strong>Tumor Grade</strong></td>
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<td></td>
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<tr>
<td>High grade tumors</td>
<td>29.42%</td>
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</tr>
<tr>
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<tr>
<td><strong>Tumor size (cm)</strong></td>
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<td></td>
</tr>
<tr>
<td>&lt;=2</td>
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<td>59.30%</td>
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<tr>
<td>2.01-5</td>
<td>23.40%</td>
<td>30.60%</td>
</tr>
<tr>
<td>&gt;5</td>
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<td>10.10%</td>
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<tr>
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<td>29.00</td>
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<td></td>
</tr>
<tr>
<td>Breast-conserving</td>
<td>74.08%</td>
<td>41.50%</td>
</tr>
<tr>
<td>Mastectomy</td>
<td>25.92%</td>
<td>58.50%</td>
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<tr>
<td><strong>LN evaluation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LNs examined</td>
<td>88.06%</td>
<td>92.00%</td>
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<td>11.94%</td>
<td>8.00%</td>
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<td>64.95%</td>
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<td>55.60%</td>
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<td><strong>HORMONE THERAPY TOTAL</strong></td>
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<td>44.79%</td>
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<td></td>
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<td>Mean</td>
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<td>Stage</td>
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<td>Distant</td>
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<td>Lymph nodes</td>
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<td>Type of Facility with Tumor Stage by percentage</td>
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<th>Reg</th>
<th>Dist</th>
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<th>Loc</th>
<th>Reg</th>
<th>Dist</th>
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<td></td>
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<td>LN examined</td>
<td>86.09%</td>
<td>83.33%</td>
<td>96.49%</td>
<td>55.56%</td>
<td>92%</td>
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<td>3.51%</td>
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<td>8%</td>
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<td>1.8%</td>
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<td>Radiation therapy~all pts</td>
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<td>69.3%</td>
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<td>7.82%</td>
<td>5.41%</td>
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<td>80.75%</td>
<td>82.98%</td>
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<td>10.64%</td>
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<td>11.79%</td>
<td>11.27%</td>
<td>10.64%</td>
<td>66.67%</td>
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<tr>
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<td>7.6%</td>
<td>7.98%</td>
<td>6.38%</td>
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### Chemotherapy

<table>
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<th>WA State</th>
<th>National</th>
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<td>25.18</td>
<td>44.4</td>
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<td>73.5</td>
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### Hormone

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<tr>
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<td>48.56</td>
<td>30.1</td>
<td>31.7</td>
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<tr>
<td>No</td>
<td>35.09</td>
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</tr>
<tr>
<td>Refused</td>
<td>16.35</td>
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### Hormone if ER+

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<tr>
<td>Yes</td>
<td>55.58</td>
<td>26</td>
<td>44.1</td>
</tr>
<tr>
<td>No</td>
<td>25.50</td>
<td>74</td>
<td>55.9</td>
</tr>
<tr>
<td>Refused</td>
<td>18.91</td>
<td>8.9</td>
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### Comparison of 5-year survival rates

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<th>WA State</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Patients</td>
<td>80%</td>
<td>84%</td>
<td>81%</td>
</tr>
<tr>
<td>Local</td>
<td>88%</td>
<td>90%</td>
<td>86%</td>
</tr>
<tr>
<td>Regional</td>
<td>76%</td>
<td>76%</td>
<td>75%</td>
</tr>
<tr>
<td>Distant</td>
<td>15%</td>
<td>47%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Numbers above exclude DCIS

### CP3R Data

The Commission on Cancer’s (CoC) National Cancer Data Base (NCDB) has created cancer program practice profile reports (CP3R). St. Joseph Hospital’s data is shown below compared to Washington State and the National statistics for 3 areas measured.

### Cancer Program Practice Profile Reports***

**Breast Cancer diagnosed 2006**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Performance percentage rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiation therapy is administered within 1 year of diagnosis for women under age 70 receiving breast conserving surgery for breast cancer.</td>
<td>88.5%*</td>
</tr>
<tr>
<td>Combination chemotherapy is considered or administered within 4 months of diagnosis for women under 70 with AJCC T1c N0 M0 or Stage II or III ERA and PRA negative breast cancer.</td>
<td>100%</td>
</tr>
<tr>
<td>Tamoxifen or third generation aromatase inhibitor is considered for administered within 1 year of diagnosis for women with AJCC T1c N0 M0, or Stage II or III ERA and/or PRA positive breast cancer.</td>
<td>91.5%*</td>
</tr>
</tbody>
</table>

*Down from 97.9% on cases diagnosed in 2005.*
These numbers may be low due to the fact that this treatment is typically ordered in a physician office. Most hospital cancer registries do not have access to information from the physician office. SJH has developed a good relationship with physician offices to obtain this information.

These numbers are different than the above mentioned study numbers based on the years studied. The CPR3 data is for a one year time period (2006). The Gutierrez study we compared our data to ran from 2000-2007. Our improving percentages show that our care is improving.

Conclusions:
St. Joseph Hospital is far better at following the recommended guidelines for breast cancer treatment than Washington State at large, as well as general national reported statistics. However, there are definable areas we can improve.

Although SJH Registry Breast Cancer Survival rates for all stages are exactly on par with a national wide cancer registry (see 2008 Annual Report), SJH Registry overall survival compared to the Academic Centers is slightly lower. This is due to a noticeable lower survival for “Distant” stage in SJH Registry patients. There were small numbers of patients in that category but this find may require further investigation.

There have been several distinct aspects of the care of patients with breast cancer we have identified which may be areas of potential improvement:

1) Ensure that all patients with an invasive carcinoma diagnosis have their lymph nodes evaluated pathologically. This study showed 86.1% of patients had lymph nodes evaluated pathologically.
2) Ensure patients who undergo breast-conserving therapy are evaluated for radiation therapy. Some elderly patients will fall out of this according to very recent data, but this should be clearly documented.
3) Patients who are ER+ are offered hormonal therapy (Tamoxifen, etc…).
4) If decision to do formal dissection, track lymph node yields for patient who have axillary dissections to ensure at least 10 lymph nodes are harvested.

References:

Appendix A.

Letter in response to Invasive Breast Cancer Report of February 2009:

Hello Jim and Ian,

This is the 15th year anniversary of the Bellingham Breast Center. During that time, we have seen the quality of breast care in this community consistently improve. In 1993, the year prior to our opening 60% of patients were treated with mastectomy. We were advocates for breast conservation and four years later, 60% were treated with breast conservation. In 1997, we initiated sentinel node sampling, providing patients a staging procedure with less morbidity. Since then, our sentinel node data has been reviewed by the surgery department on two separate occasions, demonstrating excellent sentinel node sampling data.

As the surgeon of the Bellingham Breast Center, I’ve published extensively in peer reviewed journals regarding quality assessment in breast care (ref 1-5). Earlier this month, I gave an oral presentation on breast care quality to the Society of Surgical Oncology (ref 6). Measuring quality of breast care is a special interest of mine.

I was disappointed with the mass email that was sent out by Dr. Thompson and you regarding the quality of breast cancer care in our community. There were apparent errors in data comparisons and data calculations that should have been corrected by local peer review before sending it out to the entire medical staff. It would have been prudent to discuss these data with the group of breast cancer care providers including the medical oncologists and breast surgeons. A vetted report should have been submitted to the Cancer Committee as well.

A. Data Comparison and Calculation Issues:

1. Data from these two centers were from two different time periods and were not appropriate for comparison. The “academic” center in Florida looked at patients from years 1994 – 2000. Our “local” data was between years 2000 – 2007. The use of sentinel node sampling was completely different in the two time periods. The “academic” center never used sentinel node sampling in the old time period, removing over 10 nodes on every patient, even when patients had negative nodes. Our “local” data used sentinel node sampling extensively over the recent time period. The goal of sentinel node sampling is to avoid unnecessary removal of normal nodes when the sentinel node is negative. National SEER data demonstrate the use of sentinel node sampling changed dramatically during years 1998-2004 from 11% to 59% (ref 7). Our hospital is part of the Seattle-Puget Sound section of the SEER database which was noted to have the most frequent use of sentinel node sampling in the country, with 72% of patients receiving sentinel node sampling during that time.

Since we used sentinel node sampling extensively, any review of our data would require identification of those patients who underwent a sentinel node procedure. But, our “local” data did not distinguish between sentinel node sampling and axillary dissection in
our 2000 – 2007 database according to our tumor registrar. It would be incorrect to use the median (4) or mean (6) total number of nodes removed as the number of nodes removed at axillary dissection without separating those patients who had axillary dissection and those who had only sentinel node sampling (i.e. if the sentinel node was negative there was no attempt to remove more nodes). There is no known benefit for patients with negative sentinel nodes to have excess lymph nodes removed.

It would have been possible to assess the quality of axillary dissection in our database even without knowing who had sentinel node sampling, and we have done this calculation. If one reviews our “local” database and looks only at those patients who had at least one positive node, we will see that the average total number of axillary lymph nodes removed was 10, consistent with the national quality metric suggested. This demonstrates satisfactory axillary surgery for those who need it, not inadequate surgery as was suggested in the emailed report. The suggestion that we had an average of 4 or 6 nodes removed for axillary dissection reflects a misunderstanding of the data. The recommendation of to “track lymph node yields to ensure at least 10 lymph nodes are harvested” appears satisfied.

2. Another area reported as a concern was the lack of radiation therapy recommendation. Several years ago, a similar concern was raised by the Cancer Committee looking at existing data from the tumor registry. Until accurate data was collected, it was thought that patients were undertreated. Once accurate data was collected from physician offices, it was found that our use of radiation therapy was ideal. Please see the Cancer Committee’s website reviewing the annual report of 2003-4 (http://www.peacehealth.org/whatcom/cancerservices/QualityStudies/2007/eQuIPforBrestCancer.pdf) (ref 8). In this prior report, the initial claim was that use of radiation therapy was too low at 68.3%. Upon review, many patients had either received radiation therapy at another location, or had appropriate explanations in the office chart. There had been no visits to private offices or attempts to obtain the correct data until the preliminary results were reported. Once these visits occurred, the final concordance of 94% was well within national standards.

A review of my own patients demonstrates that we continue to be within the highest compliance range from 2000 - 2007, and this current report should be validated prior to sending a mass email to the entire medical staff. Further office visits to collect this data will be required to correct the current data. The recommendation to “Ensure patients who undergo breast-conserving therapy are evaluated for radiation therapy” appears satisfied.

B. Are breast-focused surgeons more competent? (ref 9)
Reviewing the data from 2000-2007 provided by the tumor registrar regarding patients treated in Bellingham, about 68% of patients (n=552) were cared for by me and about 15% of patients (n=123) were cared for by Dr. Bachman. That leaves a relatively small number of patients (n=141) over the 8 years cared for by the other 6 surgeons in town during that time. The average number of patients cared for by other surgeons was only 24 patients, perhaps only 3-5 patients treated per year per surgeon (exact figures not
provided to me). The remainders of patients were cared for by retired surgeons or in Seattle (n=214).

It has been documented that patients with breast cancer have higher survival and better outcomes when cared for by breast surgeons (ref 9-14). If there are quality concerns in your report, perhaps we should be concerned with the surgeon who occasionally cares for a breast cancer patient. Comprehensive breast care is so complex that over 20 breast fellowships are offered nationally, demonstrating the extra training and knowledge needed to care for these multifaceted patients. Most people would agree that experience counts.

There are several other issues that should be looked at in more detail, but these would best be reviewed and presented to the Cancer Committee rather than via mass email. I will ask for an opportunity to present information to the Cancer Committee regarding this report soon. I hope in the future that data sent to the medical staff will be reviewed by those most knowledgeable in the field prior to mass mailing.

Thanks for reviewing this,

Cary Kaufman MD, FACS

References:
Appendix B

Reply to Dr Kaufman

We would like to thank Dr. Kaufman for his careful review of our report, “Treatment Options of Breast Cancer” dated Feb 5, 2009. We congratulate him for 15 years in practice in this community. We are appreciative of the care he has provided over the years. We congratulate him on the articles he has published, and presented, and the excellent promotion he does of his Breast Center. However, we are puzzled by his disappointment in the report. We have been requested by members of the Medical Staff to reply to his comments.

First, we are, on the whole, delighted in the care our Breast Cancer Patients receive. Our conclusions point out “that SJH is far better at following recommended guidelines than WA State as a whole”. We did point out places in which we might be able to be even more exemplary.

Second, this is a “vetted report” which was made on behalf of the St. Joseph Cancer Committee, and was reviewed and discussed by the Committee at least 3 times before it was distributed on behalf of the Committee as required by the ACOS (our accrediting agency). The committee includes among its members, a General Surgeon who does breast surgery, a Medical Oncologist, a Radiation Oncologist, a Family Practitioner, a Pathologist, and a Radiologist, all of which are necessary for the multidisciplinary approach to the care of Breast Cancer patients, and it is the combination of those services that constitute a virtual or a real Breast Center. No longer is Breast Cancer a disease solely managed and directed by a surgeon.

Third, (relating to item A,1) we recognize that the comparison group we used in our report was from a different time period. We were looking for a benchmark study, and this very recently published article was touting the proven benefit of Academic Center as being the better site for management of Breast Cancer. They established a benchmark from those Academic Centers which we used to compare our data. As Medical Providers well know, it takes years for a study to make it into a peer reviewed published journal, so this was as close as possible to the most recent data with benchmarks. The conclusion that we are far superior may well reflect the change in Breast Cancer Care in the different time periods as well as the excellent care provided locally.

Clearly, the differences in the SJH report with the Florida academic institutions reflect the greater use of sentinel node procedures along with lumpectomies. This was well acknowledged in our report. We would agree that using median and average node evaluation is fairly useless, but it was a data item from the article so we felt we would include it. We also acknowledge that our statement in our conclusion #4 might have been made clearer by referring to those who have had a positive Sentinel node procedure. However, what is most relevant in the SJH study, is that only 88% of our patients with invasive Breast Cancer had any axillary lymph nodes sampled, and this number ought to approach 100%.
Fourth, (relating to A,2) the registry does record whether a recommended treatment was given, offered and refused, or not delivered with no evidence of it being offered. The Registry staff at SJH is exemplary and does its upmost, given limited resources, to clarify which event actually occurred. This requires cooperation by physician offices which is not always easily provided. Also, the Registry is able to track if patients leave the community for any aspect of their care, so the data presented in the report does reflects patients who would have received radiation out of the area. Suffice it to say, only 75% of patients in this time period who were treated with breast conserving surgery for invasive breast cancer received the recommended radiation treatment. In 2005, 97% of cases received or were offered post lumpectomy radiation, and in 2006, the number had dropped to 88%. The ACOS and nearly all respected organizations state that the standard is “Radiation therapy is administered within one year of diagnosis for women under age 70 receiving breast conserving surgery for breast cancer.” Admittedly, reaching 100% compliance, is not feasible or even appropriate in a community setting, but, whether offered and refused, or not offered, the fact remains that only 75% of patients are receiving this recommended care. It is often the surgeon who makes the most profound influence on post surgical treatment decisions for breast cancer patients, so they may bear an increased responsibility to help fulfill these criteria.

Of note. An article by Lim of Dana-Farber and Harvard, reports that even in the very most favorable patients (unicentric T1, node neg., >1 cm margins, no extensive DCIS, no LVI, medial age 66, medial path 0.9 cm.) treated with lumpectomy alone, had a 23% recurrence rate and 5% have died of Breast Cancer at 7 years. This included favorable cancer histologies like tubular cancer where 3/6 recurred.(1)

Fifth, (relating to B) Dr. Kaufman argues that the literature suggests that Breast Cancer Surgeons will have better survival and outcomes than General Surgeons. In this community, 54% of Breast Cancer patients were treated by Dr. Kaufman. 40.5% were treated by other community General Surgeons, and the rest were treated out of area (too small to count). The Registry was able to look at the outcomes as reported in this study and including survival. Only minor differences were noted between the two groups, with the possible exception of a significant difference is the mastectomy rate, and the actual delivery of post lumpectomy radiation. It would appear that all surgeons who do Breast Cancer surgery currently contribute equally to the excellent care Breast Cancer Patients receive in this community.

(1) May Lim, Jennifer Bellon, Gelman, Barbara Silver, Abram Recht, Stuart Schnitt, Jay Harris
“A Prospective Study of Conservative Surgery Without Radiation Therapy in Select Patients with Stage I Breast Cancer”
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