

Breast Cancer Survival Study

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Breast cancer is the most common cancer in women, accounting for 32% of all female cancers and 15% of female cancer deaths. In 2009, the American Cancer Society predicted a total of 192,370 new cases of invasive breast cancer nationwide with a total of 40,170 deaths from breast cancer.

Breast cancer affects women of all ages, but is most common after the age of 40. While there are many risk factors of breast cancer, three fourths of women have no risk factors. Regular self-exam and imaging studies are recommended for all women over the age of 40 and particularly over the age of 50. Patients with risk factors, particularly genetic risk factors, are generally recommended earlier and more stringent screening.

The evaluation of breast cancer generally starts with the detection of a palpable mass in the breast, or a discernable abnormality on imaging. Beyond mammography, ultrasound and MRI can be helpful in delineating the possible cause of an abnormality. Patients are then generally recommended biopsy. A fine needle aspiration can be used for

cytologic examination, a core biopsy has the further advantage of providing architecture, and an excisional biopsy is sometimes required for definitive diagnosis. Patients are often asked to help in the decision making process. This can be quite daunting during this difficult period. Recently, CMC has made available to patients a Breast Disease/Nurse Navigator. At this point, Trish Vaughn can greatly assist the patient and her physicians in deciding the most desirable course of action in making a diagnosis. In addition, stereotactic breast biopsy is now available, a diagnostic technology that significantly increases the chance of an accurate diagnosis from the onset.

The prognosis for breast cancer patients is primarily dependent on the stage of the cancer at presentation. Breast cancer is staged at Stage 0 through Stage IV, with the majority of cases presenting in either Stage I or II. In order to treat accurately, the physician must know the size of the primary tumor, the lymph node status, and sometimes the results of whole body imaging studies to rule out the possibility of metastatic disease.

At CMC, 52 patients were newly diagnosed and/or treated with breast cancer during 2007. This represents 15% of the total number of newly diagnosed cases. In 2008, 55 patients were diagnosed with breast cancer, 15% of the total number of newly diagnosed cases.

Nationwide, the incidence of breast cancer is highest between the ages of 50 and 59, with this demographic representing 26% of all cases. At CMC, most affected are between the age 60 and age 80, with this representing 62% of all cases, as compared to 41% nationwide. However, it is well understood that this difference between Cumberland County and the U.S. is clearly most reflective of our local demographics. Because Cumberland County is a retirement community, the percentage of patients over the age of 60 is about 60% higher than a typical U.S. community.

Comparing stage presentation between CMC patients and in U.S. patients as a whole, only one significant difference is seen. The number of Stage IV patients appears to be slightly higher at CMC. However, this total represents just 107 patients and represents only the years 2007 and 2008, so it may not be entirely accurate.

The following table identifies the stage of disease for analytic patients diagnosed at CMC during 2007 and 2008.

AJCC Stage of Disease	CMC Incidence # 2007	CMC Incidence % 2007	CMC Incidence # 2008	CMC Incidence % 2008
O	7	13%	9	16%
I	17	33%	19	35%
II	11	21%	15	27%
III	10	19%	5	9%
IV	3	6%	1	2%
Unknown	4	8%	6	11%
Total	52	100%	55	100%

The treatment of breast cancer can involve as many as four different modalities. The vast majority of cases undergo surgical resection of the primary tumor mass. Generally, this is done at the onset, though some patients may be given chemotherapy or hormonal treatment prior to surgery, in order to shrink the tumor and improve the surgical outcome. Surgery for the primary tumor can involve resection of the mass itself, or removal of the entire breast. In nearly all cases, it is recommended that the axillary lymph nodes be evaluated. In the past, this involved a dissection of all the axillary nodes. More recently, however, it has been determined that the first drainage node, or sentinel node, can be sampled and that this accurately reflects the status of the remaining nodes, thus sparing many women from the potential morbidity of a full axillary node dissection. If the patient undergoes mastectomy, she generally does not also require radiation therapy. However, if the patient undergoes a partial mastectomy, or lumpectomy, a course of postoperative radiation therapy is mandatory. Patients are generally recommended chemotherapy and/or hormonal treatment based on the risk factors reported by the pathologist. Generally, patients with larger tumors and lymph node involvement are recommended for chemotherapy.

Thus some patients are treated with surgery only, while others receive surgery plus radiation, others surgery and chemotherapy, and others all three. Some patients are treated with surgery and hormonal therapy alone or surgery followed by radiation therapy and hormonal therapy. The array of treatments administered nationwide with those administered by CMC are in fairly close consensus. Those patients with Stage 0, i.e. patients with a precancerous condition known as carcinoma in situ are generally treated with surgery alone.

Treatment	CMC Cases 2007	CMC Percentage of Total	CMC Cases 2008	CMC Percentage of Total
Surgery Only	14	27.00%	16	29.00%
Surgery and Radiation Therapy	03	06.00%	04	07.00%
Surgery and Chemotherapy	07	13.00%	13	24.00%
Surgery, Radiation, and Chemotherapy	09	17.00%	09	16.00%
Surgery, Radiation, and Hormonal Therapy	04	08.00%	02	04.00%
Surgery and Hormonal Therapy	03	06.00%	03	05.00%
Surgery, Rad, Chemo, Hormonal Therapy	06	12.00%	00	00.00%
Surgery, Chemotherapy, Hormonal Therapy	03	06.00%	00	00.00%
Radiation and Hormonal Therapy	01	02.00%	00	00.00%
Chemotherapy, Radiation, and Hormonal Therapy	00	00.00%	01	02.00%
Hormone Therapy Only	01	02.00%	00	00.00%
No 1 st Course Treatment	01	02.00 %	07	13.00%

At the time of diagnosis, the most common and sometimes the most difficult decision for patients is whether to undergo mastectomy or breast conserving therapy. Patients who undergo mastectomy generally are spared the need for radiation therapy, while patients who choose to conserve the breast and undergo removal of the cancerous mass only are generally recommended radiation therapy afterwards. From a survival standpoint, the two options are equal. There are certain absolute contraindications that include multicentric disease, diffuse malignant microcalcifications, persistently positive surgical margins, prior breast irradiation, and pregnancy. In addition, there are relative contraindications such as the size or location of the tumor and the possibility of pre-existing collagen vascular disease. Therefore, many patients are only given the option of mastectomy. For the majority of patients, however, the decision is a personal one. Patients concerned with breast conservation choose lumpectomy and radiation, but many older patients prefer the simplicity of mastectomy.

Nationwide, there has always been a distinctive difference depending on the region of the country that the patient lives in. Generally the southern states as a whole have opted for mastectomy in greater numbers, while the northern states have chosen breast conservation. The CMC numbers reflect this difference. At CMC in 2007, only 33% of the patients received a partial mastectomy while 42% underwent a modified radical mastectomy, and 17% total simple mastectomy. In 2008, 29% of the patients received a partial mastectomy while 36% underwent a modified radical mastectomy, and 20% total simple mastectomy. Besides the regional differences discussed above, the local demographics certainly are a part of this trend, because often times a majority of older patients prefer the mastectomy option, and as noted earlier, a much higher percentage of CMC patients are in the older demographic. Older patients are less likely to choose breast conservation than mastectomy.

Though the numbers are small, the survival analysis for patients diagnosed in 2004 was reviewed and displayed in comparison with the National Cancer Database. The comparison shows comparable outcomes though the numbers may be too small to be statistically significant.

AJCC Stage of Disease	CMC Cases 2004	CMC Survival 2004	NCDB Survival 1998-2001
O	6	100.00 %	95.1 %
I	26	96.15 %	90.9 %
II	12	66.67 %	82.2 %
III	4	75.00 %	56.4 %
IV	4	50.00 %	18.6 %

Source: National Cancer Database, Public Benchmark

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