

Advocacy Slide Deck Series 1 The Basics of Metastatic Breast Cancer “Cheat Sheet”

This cheat sheet is intended to draw your attention to points within the presentation slides. Additional information and more detailed support for selected slides follows.

Please use these links and the information they supply to support you — consider using them as you are preparing your presentation since they will allow you to address issues that you consider most important to your audience and will make answering any questions easier.

All sources listed have information that is extensive and reputable. Please take some time to look at the documents as you plan your presentation.

You can also visit mbcalliance.org for additional support, if needed.

Slide 4 Source at breastcancer.org

- Breast cancer is a complex disease. It can simultaneously have both invasive and noninvasive cells. Invasive breast cancer more commonly originates in the breast ducts (~85-90%) versus in the breast lobules (~10-15%).
- Cancer occurs as a result of mutations, or abnormal changes, in the genes responsible for regulating the growth of cells and keeping them healthy. Over time, mutations can “turn on” certain genes and “turn off” others in a cell. That changed cell gains the ability to keep dividing without control or order, producing more cells just like it and forming a tumor.
- A tumor can be benign (not dangerous to health) or malignant (has the potential to be dangerous).
- Breast cancer is always caused by a genetic abnormality (a “mistake” in the genetic material). However, only 5-10% of cancers are due to an abnormality inherited from your mother or father. Instead, 85-90% of breast cancers are due to genetic abnormalities that happen as a result of the aging process and the “wear and tear” of life in general.

Slide 5 Source at cancer.org

- More than 3.8 million US women with a history of breast cancer were alive on January 1, 2019. Some of these women were cancer-free, while others still had evidence of cancer and may have been undergoing treatment.
- A study in 2017¹ estimated the number of women in the U.S. living with metastatic breast cancer in 2020 to be 168,000.
- Despite the far less common occurrence of breast cancer in males, as compared to females, it is important to assess genetic risk factors, such as BRCA1 and BRCA2, for anyone with familial history of cancer.

¹ <http://cebp.aacrjournals.org/content/26/6/809>

- Here is an interesting table from the same document

Table 2. Age-specific Ten-year Probability of Breast Cancer Diagnosis or Death for US Women

Current age	Diagnosed with invasive breast cancer	Dying from breast cancer
20	0.1% (1 in 1,479)	<0.1% (1 in 18,503)
30	0.5% (1 in 209)	<0.1% (1 in 2,016)
40	1.5% (1 in 65)	0.2% (1 in 645)
50	2.4% (1 in 42)	0.3% (1 in 310)
60	3.5% (1 in 28)	0.5% (1 in 193)
70	4.1% (1 in 25)	0.8% (1 in 132)
80	3.0% (1 in 33)	1.0% (1 in 101)
Lifetime risk	12.8% (1 in 8)	2.6% (1 in 39)

Note: Probability is among those who have not been previously diagnosed with cancer. Percentages and "1 in" numbers may not be numerically equivalent due to rounding.

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Slides 6 and 7 Source at [cancer.gov](https://www.cancer.gov)

- Metastatic breast cancer is also called Stage IV breast cancer worldwide. In Britain, it is known as secondary breast cancer, while in other parts of the world, including Europe and with researchers, it may be called advanced breast cancer.
- Of particular interest is this information: "Cancer cells spread through the body in a series of steps. These steps include:
 1. growing into, or invading, nearby normal tissue
 2. moving through the walls of nearby lymph nodes or blood vessels
 3. traveling through the lymphatic system and bloodstream to other parts of the body
 4. stopping in small blood vessels at a distant location, invading the blood vessel walls, and moving into the surrounding tissue
 5. growing in this tissue until a tiny tumor forms
 6. causing new blood vessels to grow, which creates a blood supply that allows the metastatic tumor to continue growing

Most of the time, spreading cancer cells die at some point in this process. But, as long as conditions are favorable for the cancer cells at every step, some of them are able to form new tumors in other parts of the body. Metastatic cancer cells can also remain inactive at a distant site for many years before they begin to grow again, if at all."

- Bone, brain, liver, or lungs are the most common sites of metastatic spread overall. However, lobular breast cancer also has a tendency to metastasize to the peritoneum, retroperitoneum, and the gastrointestinal tract.²
- The time from early-stage diagnosis to metastatic progression varies by breast cancer subtype, with ER+ breast cancer more likely than other subtypes to recur after 5 years.³

² <https://insightsimaging.springeropen.com/articles/10.1186/s13244-021-01120-4>

³ <https://academic.oup.com/jnci/article/114/3/391/6423212>

- Metastatic cancer does not always cause symptoms. The symptoms people experience with metastatic cancer vary by individual, size/location of tumor, and more. Some common signs of metastatic cancer include pain and fractures, when cancer has spread to the bone; headache, seizures, or dizziness, when cancer has spread to the brain; shortness of breath, when cancer has spread to the lung; jaundice or swelling in the belly, when cancer has spread to the liver.

Slide 8 Sources

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3711134/>

<https://www.cancer.net/cancer-types/breast-cancer-metastatic/statistics>

<https://cebp.aacrjournals.org/content/cebp/early/2017/05/05/1055-9965.EPI-16-0889.full.pdf>

- Based on available research and algorithms, the numbers presented in this slide are the best known.
- Risk of metastatic recurrence of early-stage breast cancer depends on many factors, including subtype, tumor stage, and tumor grade at initial diagnosis. People with an early-stage diagnosis can have a frank discussion with their care team about their specific risk factors.⁴
- SEER, an effort of the National Cancer Institute to track cancer incidence, does not “count” people whose cancers recur. This means that someone who was given an earlier stage diagnosis/treatment will not be counted as Stage IV until they die of cancer. There are currently efforts to improve this and better understand the rate/timing of recurrence. This knowledge is important because it is difficult to solve or fund a problem you can’t see in the data or understand.

Slide 9: Notes and Sources for Early Stage versus Metastatic Breast Cancer Facts

- This chart, adapted from one created by the Metastatic Breast Cancer Network, highlights important differences between early-stage breast cancer and metastatic breast cancer. Of particular interest: The 5-year survival rate and allocated research dollars.
 1. The first diagnosis (whether early or advanced stage) and death from breast cancer are counted in NCI SEER Database. A recurrence or progression to metastatic breast cancer is not counted
 2. Statistics from <https://www.cancer.org/cancer/breast-cancer/understanding-a-breast-cancer-diagnosis/breast-cancer-survival-rates.html> based on NCI SEER Database
 3. Local cancer is contained within the breast; regional cancer has spread to nearby lymph nodes
 4. Hurlbert M, Cohen E, Colen S, Reffey S, Wojtanik K, Mayer M, et al. *Changing the Landscape for People Living with Metastatic Breast Cancer*. New York, NY: Metastatic Breast Cancer Alliance; 2014: 44-48. <https://www.mbcalliance.org/wp-content/uploads/Chapter-2-1.pdf>

⁴ <https://link.springer.com/article/10.1007/s11845-022-02926-x>