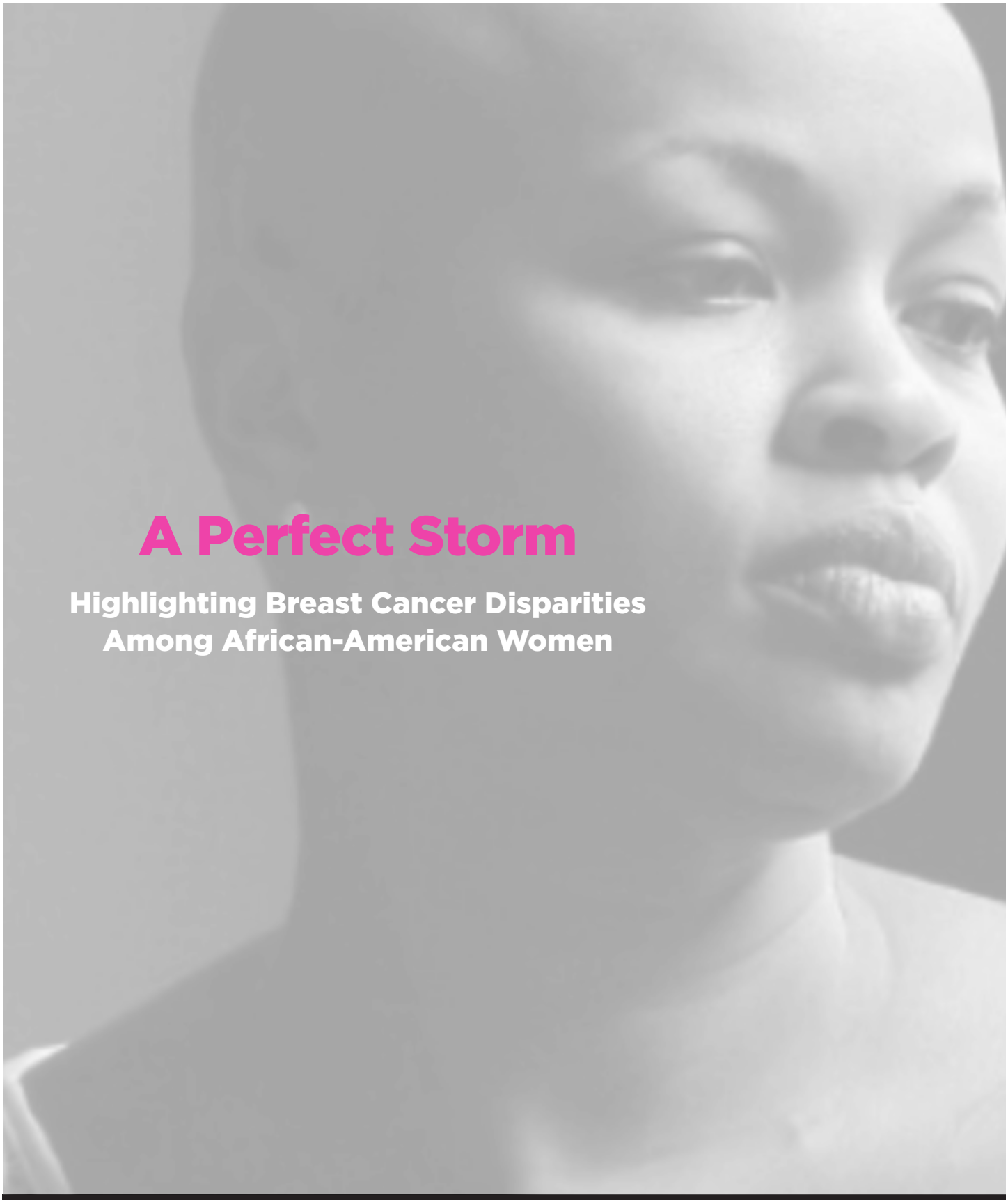

A Perfect Storm

Highlighting Breast Cancer Disparities Among African-American Women

susan g. komen®

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Overall, white women are slightly more likely to get breast cancer, but African-American women are more likely to die from it. In fact, breast cancer mortality (death) is roughly 40 percent higher in African-American women than in white women.

But why?

Even looking at mortality rates – which have decreased for all women in the U.S. since 1990 – the decreases began earlier and are greater for white women than they are for African-American women.

A recent review of many scientific studies, led by Komen researcher Dr. Funmi Olopade of the University of Chicago and her colleague Dr. Robert Daly, explores the reasons behind these disparities and some possible solutions. Here we have summarized their findings.

ISSUE #1: TUMOR BIOLOGY – What We Know About A Tumor and What It Means

Breast cancer is not a single disease, but a family of diseases. There are different tumor characteristics used to determine prognosis and help guide treatment. These tumor characteristics are based on tumor markers, or indicators, as to whether or not the tumor will respond to currently available treatments defined by one of three proteins: estrogen receptors (ER); progesterone receptors (PR); and HER2/neu.

African-American women often have aggressive forms of breast cancer (including triple negative breast cancer which is described below).

So what do we mean by an "aggressive" form of breast cancer?

But first a little background information...

Hormone Receptor Status

Hormone receptor status is a main factor in planning breast cancer treatment. Some breast cancer cells grow with the help of estrogen and/or progesterone (female hormones produced in the body). These cancer cells have special proteins, called hormone receptors. When hormones attach to hormone receptors, the cancer cells with these receptors grow.

- Hormone receptor-positive (estrogen receptor-positive (ER-positive)/progesterone receptor-positive (PR-positive)) breast cancers have many hormone receptors.
- Hormone receptor-negative (estrogen receptor-negative (ER-negative)/progesterone receptor-negative (PR- negative)) breast cancers have very few or no hormone receptors.

Hormone receptor-positive breast cancers can be treated with hormone therapies, such as tamoxifen and aromatase inhibitors like anastrozole (Arimidex), letrozole (Femara) or exemestane (Aromasin).

People with hormone receptor-positive tumors tend to have slower-growing tumors and better overall survival with treatment. They also have a slightly lower chance of breast cancer recurrence within the first five years of diagnosis than those with hormone receptor-negative tumors.

Overall, the majority of African-American women have hormone receptor positive tumors, but they are more likely to have hormone receptor-negative tumors than white women. Because hormone receptor-negative tumors do not have hormone receptors, they do not respond to hormone therapy.

Some cancer cells have a protein, HER2 (human epidermal growth factor receptor 2), that appears on the surface (it may also be called HER2/neu or ErbB2). This protein is an important part of cell growth and survival. HER2 status helps guide treatment.

HER2-positive breast cancers have a lot of HER2 protein, whereas HER2-negative breast cancers have little or no HER2 protein. About 10-15 percent of all breast cancers are HER2-positive (you also may hear the term "HER2 over-expression").

Did you know that HER2-positive breast cancer used to be the most aggressive type of breast cancer until drugs that target HER2 positive breast cancers were developed?

Those with HER2-positive breast cancers now benefit from targeted therapies, such as trastuzumab, tykerb and perjeta, but those with HER2-nagtaive breast cancers do not. Even though there might not be large differences between white and African-American women when it comes to the incidence of HER2-positive breast cancer, access to timely diagnosis and effective treatment may be limited in resource-poor settings, leading to worse outcomes for African-American women.

Triple Negative Breast Cancer (TNBC)

TNBC is actually named for the things it is missing. TNBC are:

- Estrogen receptor-negative,
- Progesterone receptor-negative, and
- HER2-negative

TNBC tumors are often aggressive and need to be treated aggressively with chemotherapy. Although they can be treated, these tumors often become resistant to chemotherapy and cannot be treated with hormone therapy or HER2 targeted therapies, because they are ER-negative, PR-negative, and HER2-negative.

African-American women are more likely than white women to get TNBC, which partly explains the disparity seen in mortality for African-American and white women.

It is important that women do not delay treatment of TNBC or forgo chemotherapy.

ISSUE #2: GENOMICS – The Role of DNA

Genomics is the study of genes and their functions. It can provide clues about inherited susceptibility and about how to treat tumors that can help guide breast cancer management.

About 5–10 percent of breast cancer cases in the U.S. are due to inherited gene mutations. BRCA1/2 are the most common genes linked to breast cancer risk. BRCA1/2 mutations are rare in the general population. Most people with breast cancer who have a BRCA1/2 mutation are diagnosed at a younger age and have more aggressive tumors.

African-Americans are more likely to be diagnosed with breast cancer at an earlier age. African-American breast cancer patients who have had genetic testing are more likely to have BRCA1/2 mutations compared to other populations.

ISSUE # 3: PATTERNS OF CARE – Obstacles Creating a Gap in Care

Although differences in tumor biology and genomics appear to contribute to disparities in breast cancer mortality, there are other factors that may contribute to health disparities. For example, differences in the quality of mammograms African-American women receive, issues with appropriate follow-up or delays in diagnosis, treatment delays and misuse (or underuse) of treatment are some of the obstacles African-American women face.

Knowing Your Risk

Knowing your family history and personal health history are important parts of understanding your risk of breast cancer. With this information, women (in partnership with their doctors) can make informed decisions about genetic counseling and whether genetic testing is right for them. But a study showed that African-American women with a family history of breast or ovarian cancer are less likely to get referred for genetic counseling for BRCA testing than white women. There are options available for women at higher risk of breast cancer to help lower their risk. While more studies in diverse populations are needed, there appears to be a need for more education in the community and for physicians serving the African-American community about the role and value of genomics and genetic counseling.

Screening

Screening tests are used to find breast cancer early before it causes signs or symptoms. Mammography can find cancers early, when they are small and the chances of survival are highest. Overall, mammograms are the most effective screening tool used today to find breast cancer. Magnetic Resonance Imaging (MRI) in combination with mammography is recommended for young women with an inherited susceptibility to breast cancer.

In the past, African-American women used mammography less than white women, but now screening rates are about the same. Still, there may be differences in the quality of the mammogram an African-American woman receives as well as delays in follow-up after an abnormal screening mammogram that may contribute to the problem.

One study found that the places that served mostly minority women were more likely to be public institutions, less likely to have digital mammography and less likely to have dedicated breast imaging specialists reading the films. All of these things can lead to poor quality care.

African-American women may also experience delayed follow-up after an abnormal mammogram. A study showed that African-American women had longer times to diagnostic follow-up (20 days) after an abnormal mammogram compared to white women (14 days). More importantly, among women with the most suspicious mammographic findings, the median number of days for follow-up for African-American women was 26 days versus 14 days for white women.

Remember, regular screening tests (along with follow-up tests and treatment, if diagnosed) reduce the chance of dying from breast cancer. The sooner the cancer is found (at an earlier stage), the sooner it can be treated.

Delays, Misuse and Underuse of Treatment

Aside from delays in follow-up tests and diagnosis after an abnormal screening mammogram, many studies also show the time from diagnosis to treatment for African-American women was longer than for white women. One study showed the average time from diagnosis to treatment was nearly 30 days for African-Americans versus about 22 days for whites.

Once treatment does start, studies have shown African-Americans often do not receive the recommended standard of care.

In comparison to white women, studies have found:

- lower rates of radiation therapy after lumpectomy;
- lower doses of chemotherapy; and
- lower adherence to tamoxifen.

These issues may have been due to physician beliefs, or cost may be a factor (as is sometimes the case with tamoxifen use).

In another study, African-American women were more likely to stop treatment early or have treatment delays than white women. This was not due to treatment side effects, but to possible barriers, such as:

- difficulty in arranging for child care;
- missing work; and
- inability to afford transportation to treatment.

Using standard of care for breast cancer treatment improves survival. The misuse and underuse of proven therapies contributes to lower survival rates among African-American women.

TACKLING THESE ISSUES

Insurance

Uninsured women often have more advanced disease and are more likely to undergo more invasive surgery and receive nonstandard care than insured women.

But while interventions aimed at expanding public insurance programs should reduce disparities, studies have shown that the lack of insurance is not the only barrier to quality care. Instead, interventions must also address issues beyond providing health insurance ***(see below)***, as coverage alone does not ensure patients will be able to navigate the health care system and will receive quality care.

Patient Education/Physician Communication

Lack of patient education and physician communication is often cited as a cause for delayed diagnosis and treatment. Both are crucial to quality care.

Women who delayed follow-up care have reported:

- dissatisfaction with the way results were communicated;
- disrespectful actions by physicians and staff;
- logistical barriers to accessing care (such as transportation issues or not being able to miss work or arrange for child care);
- anxiety and fear about a cancer diagnosis, and;
- lack of information about breast cancer symptoms as well as screening.

Studies have also revealed other areas of concern including the mistrust of the medical field and concerns about racism, and a desire for more culturally appropriate information about treatment and survivorship issues.

Patient Navigation

Patient navigation is another possible solution to improve care. Patient navigation empowers people with information and resources necessary to make informed decisions about their care.

This approach connects women with trained community health workers and/or health care professionals who help them navigate through the health care system, ensuring timely diagnosis and follow-up, while providing access to

local resources that support the patients' individual needs. Research has shown an improvement in 5-year survival rates of women with breast cancer who were supported by patient navigation.

But navigation alone will not remove all of the barriers to quality care.

System Change

Interventions are typically aimed at the patient rather than the system, but demanding changes in health systems is essential to changing these disparities.

For example, inner-city health facilities need well-maintained equipment and the mammography technologists at these facilities should have access to continuing education.

Interventions that address all stakeholders are needed to close the racial survival disparity in breast cancer.

Precision Medicine for All

Beyond quality interventions, programs should aspire to provide precision medicine. The goal of precision medicine is to give the most effective treatment at the right time for each person's breast cancer. Understanding the biologic and genomic characteristics of each person's tumor will help tailor treatments.

Precision medicine should focus on initiatives that will help reduce the mortality gap. We need more data on African-American women to create useful breast cancer risk assessment tools for early detection and prevention. Initiatives are needed to address the gap in referrals to genetic counseling and testing. In addition, interventions that provide high-quality cancer care coverage are needed, as well as access to and participation in innovative clinical trials.

LOOKING FORWARD

There is opportunity to address many of these issues leading to breast cancer disparities among African-American women.

Working to ensure every person has access to high-quality breast cancer care is one way in which Komen intends to fulfill our Bold Goal to reduce current breast cancer deaths in the U.S. by 50 percent in the next decade. Thanks to a generous gift from the Fund II Foundation which helped launch the African-American Health Equity Initiative, Susan G. Komen has taken aim at reducing disparities in roughly a dozen of the most affected metropolitan areas in the U.S., and our work will continue until we change these outcomes.

By focusing on several of the factors that contribute to the survival gap (tumor biology, genomics and differences in patterns of care), we have an opportunity to create programs that will close this gap, save lives and achieve health equity for all.

Acknowledgments

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Daly, Bobby, Olopade, Olufunmilayo. A perfect storm: How tumor biology, genomics, and health care delivery patterns collide to create a racial survival disparity in breast cancer and proposed interventions for change. CA Cancer J Clin 2015;65: 221–238. © 2015 American Cancer Society.

In addition, the original article was broken down into a five-part monthly series adapted for providers. You can access the articles here:

- A Perfect Storm: The current climate in breast cancer
- A Perfect Storm: Tumor biology and genomics
- A Perfect Storm: Patterns of care
- A Perfect Storm: Interventions – Closing the survival gap
- The Perfect Storm: Delivery system reform and precision medicine for all

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A PERFECT STORM

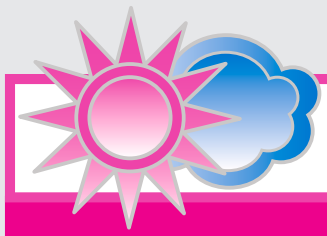
Highlighting Breast Cancer Disparities Among African-American Women

Tumor Biology:

- Increased incidence of hormone receptor negative tumors
- Increased incidence of triple negative tumors
- Increased incidence of higher grade tumors

Tumor Genomics:

- High frequency of mutations in BRCA1/2
- High rates of BRCA1/2 polymorphisms and variants of unknown significance
- Poor prognosis somatic mutations
- Unfavorable epigenetic alterations



Clinical Trial Redesign:

- Eliminate geographic and financial burdens to minority patient participation
- Facilitate community oncologists' involvement in clinical trials
- Redesign trials to integrate sociodemographic and comorbidity information with tumor and host biology data

Precision Medicine for All:

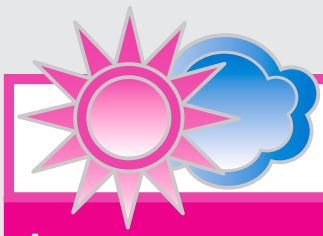
- Increase minority referrals to cancer risk clinics to improve risk assessment, early detection and prevention
- Large next generation sequencing studies to evaluate for multiple variants in many genes
- Development of novel therapeutics

Patterns of Care:

- Delays in Treatment:
  - Longer time to follow-up for abnormal screenings and clinically significant treatment delays
- Misuse of Treatment:
  - More likely to receive non-guideline concordant therapy

Patterns of Care:

- Underuse of Treatment:
  - Lower rate of definitive local therapy
  - Lower dose proportion and RDI chemotherapy
  - Lower compliance with endocrine therapy



Access:

- Increase insurance coverage and affordability of oral agents

Improve Patient Navigation:

- Careful assessment of barriers to care including intrapersonal, interpersonal, and institutional

Physician Communication:

- Culturally and linguistically tailored programs with an understanding of immigrant health needs

Patient and Community Education and Engagement

- Interventions "owned by community"
- Collaboration between community health centers and academic institutions

Courtesy: Frontline Medical News