CANCER GRAND CHALLENGES | Team: SAMBAI

Understanding the role of neighborhood deprivation in racial disparities in triple-negative breast cancer

PATIENT-FRIENDLY TRANSLATION

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This research study looks at how the neighborhoods where we live might influence the type of breast cancer a person develops. Specifically, researchers focused on **Triple-Negative Breast Cancer (TNBC)**, which is a more aggressive form of the disease that is harder to treat and more common in Black women.

Here is a patient-friendly summary of the findings and what they mean for the community.

1. The Core Question: Does your ZIP code matter?

The researchers wanted to know if living in a "deprived" neighborhood—one with higher poverty, fewer jobs, and less education—increases the risk of being diagnosed with TNBC compared to more favorable breast cancer types (like Luminal A).

2. What the Study Found

After looking at over **40,000 women** in Georgia, the study found a clear link between neighborhood conditions and cancer type:

- **Increased Risk:** Women living in the most deprived neighborhoods had a **33% higher chance** of having TNBC instead of the more common Luminal A subtype.
- **Affects Everyone:** This link was found in both Black and White women, and in both city (urban) and country (rural) areas.
- **Rural Areas:** The link was actually strongest in rural counties, where women in deprived areas had a **52% higher chance** of having TNBC.

3. Why This Matters for Black Women

While the neighborhood effect was seen in all women, it is a major factor in **health disparities** because:

- Black women are **twice as likely** to be diagnosed with TNBC as White women.
- Due to historical and social factors, Black women are more likely to live in neighborhoods with higher deprivation.
- This suggests that the "where you live" factor is a big reason why TNBC hits the Black community harder.

4. What causes this "Neighborhood Effect"?

Scientists believe that living in a deprived area affects health through several paths:

- **Chronic Stress:** Living in a high-poverty area can cause long-term stress, which changes how the body functions and may lead to aggressive tumors.
- **Environment:** These neighborhoods may have more pollution or less access to healthy food and safe places to exercise.
- **Access to Care:** It may be harder to find high-quality doctors or get regular screenings in these areas.

5. Other Findings from Related Research

The study also mentioned that:

- **HER2-Enriched Cancer:** Neighborhood deprivation also slightly increased the risk of another subtype called "HER2-enriched" cancer, particularly for White women in cities.
- **Aggressive Disease:** Women in the most deprived areas were more likely to be diagnosed at **Stage III or IV** (later stages), making treatment more difficult.

The Bottom Line

Your health is not just about your genes or your personal choices; it is also about the environment around you. This study proves that **neighborhood deprivation** is a key player in the development of aggressive breast cancer. To close the gap in cancer deaths, we must work on improving the living conditions, resources, and stress levels in the neighborhoods that need it most.

By understanding these links, doctors and community leaders can better advocate for resources like mobile screening units and better nutrition programs in high-risk ZIP codes.