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Major global study reveals worldwide variations in the stage at which women are diagnosed with breast cancer: disparities found in stage at breast cancer diagnosis

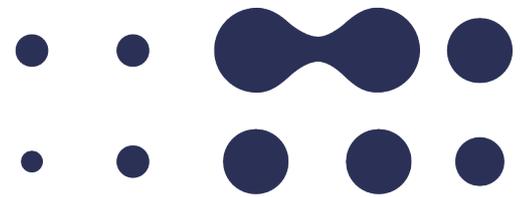
Lyon, France, 9 November 2023 – Researchers from the International Agency for Research on Cancer (IARC) have released a new study, published in *JAMA Oncology*¹, that quantifies for the first time the global partition of stage at diagnosis of breast cancer in women across 81 countries worldwide. The study, a collaborative international effort, investigates the stage at which more than 2 million women were diagnosed with breast cancer, over the past three decades and across different countries and world regions. It explores changes over time and differences by age group and socioeconomic status. Up to 30% of women with breast cancer in sub-Saharan Africa were diagnosed at a stage that was already metastatic.

Breast cancer is the most common cancer type worldwide and the leading cause of death from cancer in women. Early detection and timely diagnosis increase the chances for curative treatment and lead to better survival outcomes. Cancer staging describes the size of the tumour and how far it has spread from its original location. The World Health Organization (WHO) Global Breast Cancer Initiative aims to reduce deaths from breast cancer, and advises that countries strive to increase the proportion of breast cancers diagnosed at an early stage (I or II) to at least 60%. In this study, the researchers showed that 40% of the countries included in the study did not meet the target as set out by the WHO global initiative.

In this study, the scientists gathered and reviewed data from 133 population-based studies and reports on the stage at which breast cancer was diagnosed in more than 2 million women. By combining large sets of high-quality data, this comprehensive study captures the stage at diagnosis of breast cancer at a global level and reveals substantial variations between different world regions. A much higher proportion of women with breast cancer in sub-Saharan African countries – up to 30% – were diagnosed with late-stage distant metastatic tumours. In comparison, less than 10% of the women with breast cancer in most of the countries in North America, Europe, and Oceania were diagnosed with distant metastatic disease.

“Stage at diagnosis is crucial information for patients, clinicians, and also governments,” says Dr Isabelle Soerjomataram, Deputy Head of the Cancer Surveillance Branch at IARC and the senior investigator of the study. “For patients, stage has a high impact on their prognosis. For clinicians, stage determines the course of action for treatment. For governments, information on cancer stage diagnoses can support more effective and efficient decisions regarding cancer control actions and policies.” However, this study shows a lack of data on

¹ Benitez Fuentes JD, Morgan E, de Luna Aguilar A, Mafra A, Shah R, Giusti F, et al. Global stage distribution of breast cancer at diagnosis: a systematic review and meta-analysis. *JAMA Oncol*. Published online 9 November 2023. <https://doi.org/10.1001/jamaoncol.2023.4837>



staging globally, in particular for countries in low- and middle-income settings. IARC coordinates the Global Initiative for Cancer Registry Development programme (GICR; <https://gicr.iarc.who.int/>), which aims to increase the coverage and quality of cancer data collected around the world. In collaborations with the Union for International Cancer Control (UICC) and other partners, GICR has developed Essential TNM (tumour–node–metastasis staging), a tool to improve the recording of cancer stage data in settings where the collection of such data remains a challenge. Workshops and tools, such as CanStaging* (<https://www.canstaging.org/>), further enhance the programme to maximize the availability and quality of cancer staging data.

The researchers also highlight that socioeconomic status is a key factor in stage at diagnosis. The proportion of patients diagnosed with metastatic breast cancer was higher in women with low socioeconomic status. These data on socioeconomic status and stage in the study were derived mainly from high-income countries, demonstrating that even in settings where access to diagnosis or early detection services is readily available, some groups within these populations remain at a disadvantage. These findings emphasize the importance of early detection through increased awareness of symptoms, screening, and improvements in access to health care, especially in demographic groups in which higher proportions of late stage at diagnosis are observed.

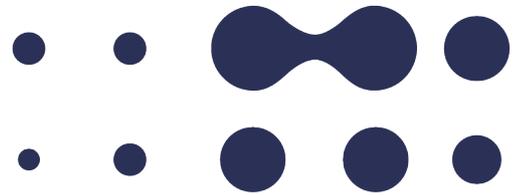
Additional disparities were identified regarding age at diagnosis. Up to 34% of older women with breast cancer were diagnosed with metastatic stage, compared with up to 16% of younger women. These findings may reflect delayed diagnosis linked to lower symptom awareness and comorbidities. Taking into account the ageing population and the fact that older women are often omitted from population screening programmes, strategies to increase awareness of breast cancer symptoms in both patients and physicians would be beneficial for this age group.

The researchers report promising findings that the proportion of patients diagnosed with metastatic disease has decreased in recent decades. The proportions of metastatic breast cancer ranged from 3% to 12% in women diagnosed after 2015, compared with 4% to 36% in women diagnosed in the early 2000s; this is an indication of the success of early detection and screening programmes in recent decades. “This study reinforces the importance of guidelines and support for the implementation of early detection of breast cancer that can be adapted to different resource settings,” says IARC Director Dr Elisabete Weiderpass.

The authors state that further efforts are needed to improve the availability of data and the quality of cancer staging at diagnosis. Furthermore, the WHO Global Breast Cancer Initiative, in collaboration with other national, regional, and global programmes, is key to drive global action for effective early detection programmes to ultimately improve breast cancer outcomes. This comprehensive assessment of global population-based distribution of stage at diagnosis of breast cancer provides evidence to support cancer control initiatives that will aid early diagnosis, particularly in low- and middle-income countries, which have a disproportionate share of deaths from breast cancer.

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