


# Chapter 4


## Enhancing Cancer Prevention and Survivorship: A Comprehensive Approach to Diagnosis, Treatment, and Education

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### ABSTRACT

*This comprehensive overview delves into the multifaceted approach to breast cancer, encompassing prevention, diagnosis, treatment, and survivorship care. It highlights the importance of prevention towards breast cancer through lifestyle modifications and vaccination, as well as the significance of early interventions facilitated by screening programs and innovative treatments. Personalized genomic methods enhance treatment effectiveness while minimizing side effects. Patient-centred care models address survivorship challenges, empowering individuals throughout their journey. Continuous medical education is emphasized to keep professionals aware of evolving breakthroughs and advancements.*

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## **INTRODUCTION**

Breast cancer is one of the most prevalent forms of cancer across the globe and is one of the biggest menaces in healthcare. This has been affecting millions of people across the globe primarily women, although it can occur in men as well. With the advent of technology and innovations in the field of healthcare, diagnosis and care have improved significantly reducing mortality rates due to breast cancer, however, taking on preventive approaches is the most significant in battling breast cancer (Wilkinson and Gathani 2022). Awareness and early detection are two important aspects of improving the patient outcomes. Through this comprehensive review of breast cancer, anatomy, pathophysiology, risk factors, signs and symptoms, diagnosis, treatment, after care and prevention strategies have been discussed in details. Prevention strategies, comprising lifestyle modification and vaccination, are simply carried out to reduce the occurrence of cancer. Early interventions achieved through screening programs and emerging innovations allow the initial treatment procedures to be initiated at the encephalitis stage, leading to better outcomes (Loomans-Kropp and Umar 2019). Genomic methods of characterising breast cancer types and taking a personalised approach to treatment resulting in increased effectiveness with reduced side effects are the driving forces of this new therapy (Hamdan et al. 2019; Subhan et al. 2023). Patient-centred care models deal with comprehensive issues of the survivors, and as a result, the power up the latter's ability to address the challenges through their course of life. Often, new medical data and breakthroughs appear. This is why continuing education is mandatory for medical professionals to stay up-to-date and manage various medical conditions (Edgman-Levitan and Schoenbaum 2021). Breast cancer care of the future is adopting AI with genomics precision medicine as a higher priority and global collaboration (Bansal, Luthra, and Raghuram 2023; Hina Bansal n.d.). This holistic framework highlights prevention as the most likely preventive approach to help fight breast cancer.

## **BREAST CANCER**

Breast cancer is a type of cancer, which originates from the breast tissue, primarily from the lining of the milk ducts or lobules, which supply milk to the ducts. This refers to the uncontrolled growth of the breast cells, which is likely to spread to the other parts of the body if not detected and treated in the early stages itself (Mayo Clinic 2024). Some of the most popular types of breast cancer include ductal carcinoma in situ, invasive ductal carcinoma, and invasive lobular carcinoma (Cleveland Clinic 2023). In a report issued by the World Health Organisation (2020), breast cancer is most prevalent among women across the globe with 2.3 million cases of breast cancers diagnosed in the year 2020. In another data issued by the American Cancer Society, 281,550 cases of invasive breast cancer have been diagnosed in the year 2021 with 49,290 cases of non-invasive breast cancer (World Health Organization 2024). These alarming numbers indicate the need for awareness, and preventive measures along with early diagnosis and treatment.

### **Breast Cancer in Males**

Male breast cancer is a rare condition, accounting for less than 1% of all breast cancer cases (Siegel, Giaquinto, and Jemal 2024). It typically presents as a lump or swelling in the breast tissue, often in men aged 60 and above, though it can also affect younger men. The most significant risk factor is genetic

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