



## Original article

## Global analysis of advanced/metastatic breast cancer: Decade report (2005–2015)



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## ABSTRACT

Approximately 0.5 million people worldwide die from metastatic breast cancer (mBC) every year. This manuscript provides an overview on the status of mBC in several regions of the world, highlighting the gaps in care, resources, and support available for patients with mBC. Primary research was conducted in 2015 and 2016, comprising four global qualitative and quantitative surveys of approximately 15,000 individuals in 34 countries. Secondary research was conducted using literature reviews of peer-reviewed publications, patient survey reports, and media or online articles. There have been modest improvements in mBC outcomes over the past decade. Patients are not provided with adequate information about mBC. There is a need for open discussion with patients and caregivers about realistic goals; however, physicians are not trained in communicating with patients about their disease. Maintaining patients' quality of life is a crucial goal; however, this has not improved, and in some cases, may have declined in the past decade. Public awareness and understanding of mBC is limited, with damaging consequences for patients and caregivers. Issues affecting employment remain relevant to patients with mBC and their caregivers. Globally, mBC is associated with a substantial economic burden. Relationships with caregivers are crucial to patients with mBC, and caregiver support needs are often overlooked. A strong and united global effort among healthcare professionals, including clinicians, oncologists, pharmaceutical manufacturers, payers, and policy makers, and with advocates, families, and patients, is necessary to improve the outcome and quality of life for patients with mBC.

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## 1. Introduction

Breast cancer (BC) is the most common cancer in women, with approximately 1.7 million new cases diagnosed worldwide in 2012 [1,2]. There were an estimated 561,334 deaths from BC worldwide

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in 2015, and the majority were due to metastatic breast cancer (mBC) [1–3]. The projected death rate is predicted to rise to 805,116 deaths per year by 2030, representing a 43% increase in the absolute number of deaths from BC [4]. Advanced breast cancer comprises locally advanced BC and mBC. For the purpose of this report, mBC is used [5–10].

Clinical studies have shown that in developed countries approximately 20–30% of patients who have early breast cancer (eBC) will have a recurrence that is metastatic, depending on the stage at diagnosis and biological subtyping [11,12]. Globally, 5–10% of newly diagnosed patients with BC will present with metastatic disease, although there are notable regional variations [5]. For example, in high-income countries, fewer than 8% of patients with BC are initially diagnosed with metastatic disease. However, in the majority of low- and middle-income countries, approximately 20–30% of patients with BC are initially diagnosed with metastatic disease [13]. In the United States, approximately 3–6% of patients diagnosed with BC present with metastatic disease [14].

Data from between 1995 and 2013 indicate that median survival for mBC is approximately 2–3 years in developed countries [15,16]. Phase III studies in patients with mBC have shown significant improvement in survival in only a small proportion of patients. For example, an analysis of 11 phase III studies in patients who developed mBC after receiving adjuvant chemotherapy showed that despite the availability of novel cytotoxic and biologic therapies, only small improvements in survival have been observed [17].

However, median survival is highly influenced by subtype, patient characteristics, and access to optimal treatment. For patients with human epidermal growth factor receptor 2–positive (HER2+) mBC, which accounts for 13% of BC cases, an overall survival (OS) greater than 5 years is now common in developed countries [15,16,18]. Treatment outcomes in mBC also vary in terms of subtypes, time to occurrence, location of metastatic sites, and survival times (Fig. 1A) [15,19]. For example, hormone receptor–positive (HR+) and HER2+ mBC demonstrate similar outcomes, whereas individuals with triple-negative BC (TNBC) have the shortest median OS and shortest progression-free survival (Fig. 1B) [20].

Over the past decade, substantial resources directed toward BC education, research, and advocacy efforts have led to improvements in diagnosis, treatment, and outcomes. However, these efforts have primarily benefited patients with eBC. As a result of

advances in understanding of the disease and treatment and increased use of mammography screening, high 5-year relative survival rates occur in eBC patients. Yet despite some progress in the treatment of mBC over the past decade, only modest improvements in outcomes have been reported from real-world and clinical trial data, and the 5-year survival rate for mBC remains poor at approximately 25% [15].

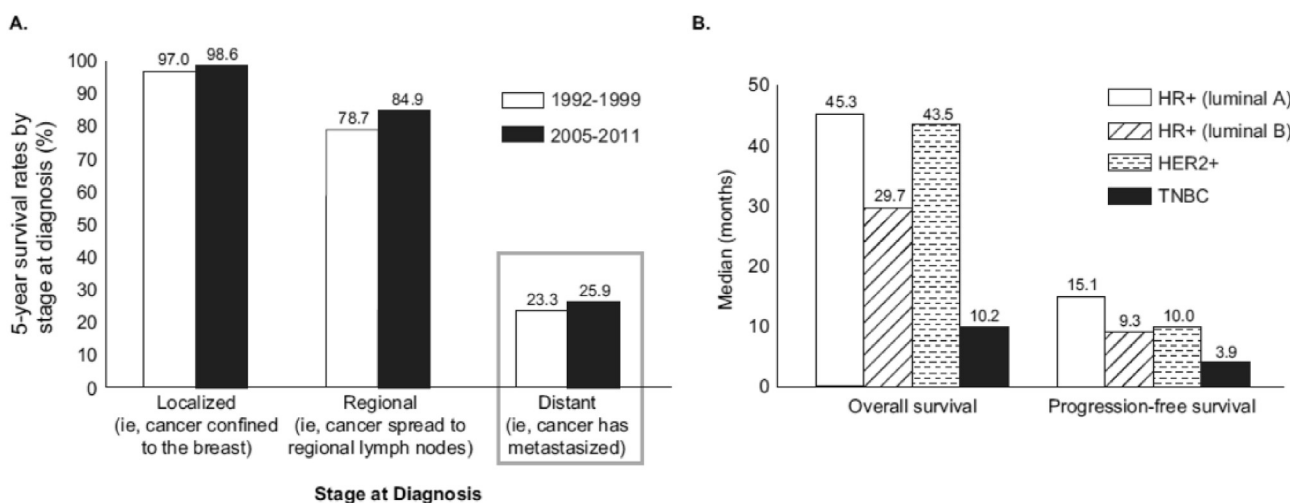
The goals of the Global Status of Advanced/Metastatic Breast Cancer 2005–2015 Decade Report were to highlight gaps in care, resources, and support in order to improve treatment outcomes for patients with mBC. This manuscript summarizes the findings from this report, which is the result of the first global assessment of mBC across the continuum of care, including the scientific, societal, and emotional landscapes.

## 2. Materials and methods

A multilayered approach was used to assess the global status of mBC. A comprehensive analysis was conducted using primary and secondary research to assess patient care perspectives and the impact of mBC on the scientific landscape, society, and community of mBC. Throughout this manuscript, mBC is referenced as the disease of interest. To ensure that all relevant data were collected, search terms included “advanced breast cancer,” “metastatic breast cancer,” “secondary breast cancer,” and “stage IV breast cancer.”

Primary research was conducted in 2015 and 2016 comprising four global qualitative and quantitative surveys of approximately 15,000 individuals in 34 countries. Respondents included the general public (General Population Survey) (Supplementary Table S1); patient-support organization leaders (Patient Support Organization Qualitative Survey; Supplementary Table S2); oncologists, oncology nurses, and breast cancer center administrators (Breast Cancer Center Survey; Supplementary Table S3); and patients with mBC and caregivers (Patient and Caregiver Qualitative Research; Supplementary Table S4). Responses were gathered online, by telephone, and through face-to-face interviews with respondents.

Secondary research was conducted using literature reviews of peer-reviewed publications, patient survey reports, and media or online articles. More than 3000 published articles and abstracts were retrieved from PubMed, Medline, Cochrane Library, and



**Fig. 1.** (A) Five-year survival rates by breast cancer stage at diagnosis (1992–1999 versus 2005–2011) [15,19]. (B) Overall survival and progression-free survival with first line of treatment by mBC subtypes (2004–2012) [20]. HR+ (luminal A): ER and PR positive and Ki-67 low; HR+ (luminal B): ER or PR positive or Ki-67 index >14% ER = estrogen receptors; HER2+ = human epidermal growth factor receptor 2–positive; HR+ = hormone receptor–positive; mBC = metastatic breast cancer; PR = progesterone receptors; TNBC = triple-negative breast cancer.

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