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Can Guidelines Addressing Resource Allocation Improve Breast Health Outcome for Low and Middle Income Countries?

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Breast cancer is the most common cancer of women, comprising 23% of all female cancers around the globe, with an estimated 1.15 million cases diagnosed in 2002 (1). There is marked geographical variation in incidence rates, being highest in the developed world and lowest in the developing countries of Asia and Africa. The age-standardized incidence in North America is the highest, at 99.4 per 100,000, while the lowest is in central Africa where it is 16.5 per 100,000 (2). While incidence rates are lower in low and middle income countries (LMCs), the incidence rates are increasing more rapidly in most LMCs than in the developed world. As an example, while global breast cancer incidence rates have increased by about 0.5% annually since 1990, cancer registries in China are recording annual increases in incidence of 3% to 4% (1).

Globally, breast cancer ranks as the leading cause of cancer mortality among women, but the prognosis is better for those in high income countries. Favorable breast cancer survival rates in high income countries have been attributed to early detection by screening and to timely and effective treatment (3). For example, women diagnosed with breast cancer between 1990 and 1992 and reported in the population-based case series from the Surveillance, Epidemiology, and End Results (SEER) program (13,172 women) had an 89% 5-year survival rate (4). European women during the same period had a lower but still substantial 79% 5-year survival rate, as reported in the EUROCARE study of 4,478 breast cancer patients reported in 17 population-based registries from six European countries (5). By contrast, age-adjusted survival rates for breast cancer in less developed regions of Eastern Turkey average 60% and are as low as 46% in India and 32% in sub-Saharan Africa (1, 6).

Poorer survival rates in LMCs are largely due to late presentation of the disease, which, when coupled with limited resources for diagnosis and treatment, leads to a particularly poor

treatment of breast cancer (6, 7). Low-resource countries have not typically identified cancer as a priority healthcare issue, focusing instead on infectious diseases and malnutrition as predominant health problems. However, as control of communicable diseases improves and life expectancies rise, cancer care will become an important health issue (8).

The Breast Health Global Initiative (BHGI)

Evidence-based guidelines outlining optimal approaches to breast cancer detection, diagnosis, and treatment have been well-developed and disseminated in several high resource countries (9, 10, 11). Optimal practice guidelines may be inappropriate to apply in LMCs for numerous reasons, including inadequate numbers of trained health-care providers, inadequate diagnostic and treatment infrastructure, and cultural, societal, or religious barriers to women accessing the health care system. As a result, the levels of care recommended by guidelines applicable to high-resource settings may not be attainable in countries with more limited resources. Hence, there is a need to develop clinical practice guidelines oriented towards countries with limited financial resources (12). It was for this purpose that the Breast Health Global Initiative (BHGI) was established in 2002. Through a series of three Global Summits, the BHGI used an expert consensus, evidence-based approach to develop resource-sensitive guidelines that define comprehensive pathways for step-by-step quality improvement in health care delivery. Of note, varying levels of resource constraints may exist within the same country. Thus, these guidelines could just as easily be applied within countries that have economically divergent geographic areas.

The first Global Summit, held in Seattle in October 2002, outlined health care disparities for breast health in LMCs. At the January 2005 Global Summit in Bethesda, the BHGI developed a unique approach to evidence-based resource allocation based on existing resources. The third Global Summit, held in Budapest in October 2007, addressed resource allocation, specifically focusing on guideline implementation in LMCs. Working through these three Global Summit meetings, the BHGI created guidelines for breast health care in early detection, diagnosis, treatment, and health care systems employing a stepwise, systematic approach, which applied a tiered system of resource allotment using four levels—basic, limited, enhanced, and maximal—based on the contribution of each resource toward improving clinical outcomes. In this system, health care resources were stratified according to a 4-tiered system based on available resources relevant to program implementation:

Basic level – Core resources or fundamental services that are absolutely necessary for any breast health care system to function. Basic-level services are typically applied in a single clinical interaction. For example, the ability to provide a histological diagnosis of breast

Limited level – Second-tier resources or services that are intended to produce major improvements in outcome, such as increased survival, and are attainable with limited financial means and modest infrastructure. Limited-level services may involve single or multiple clinical interactions. Examples in treatment include the use of systemic therapies that may not be available at the most basic level, but that have been shown to improve breast cancer survival over older therapies in modern randomized trials.

Enhanced level – Third-tier resources or services that are optional but important. Enhanced-level resources should produce further improvements in outcome and increase the number and quality of therapeutic options and patient choice. Examples in breast cancer treatment include breast conservation therapy with lumpectomy and breast irradiation, where the option of breast conservation may improve patient acceptance for treatment, but in fact, overall survival is predictably the same as if the patient undergoes mastectomy.

Maximal level – High-level resources or services that may be used in some high resource countries and/or may be recommended by breast care guidelines that do not adapt to resource constraints. Maximal-level resources should be considered a lower priority than those resources or services listed in the basic, limited, or enhanced categories on the basis of extreme cost and/or impracticality for broad use in a resource-limited environment. In order to be useful, maximal-level resources typically depend on the existence and functionality of all lower-level resources. Examples of maximal-level imaging services include breast magnetic resonance imaging (MRI), where image resolution and extent of disease may be improved over standard imaging, but at highly significant cost and resource utilization with no anticipated improvement in patient survival or long term outcome.

Using this stratification scheme as a starting point, the four panels from the 2007 Global Summit each debated key issues related to guideline implementation for early detection (13), diagnosis (14), treatment (15) and health care systems (16). In addition to specifically addressing real world guideline application, BHGI developed process metrics to assist in the assessment of guideline penetrance and successful application. Process metrics should provide a method for measuring the performance of the unit in the defined situation. Practical metrics are essential for the evaluation of applied intervention and to guide the decision-making for program improvement of a unit based on meeting the predefined quality and/or volume requirements.

Through the development of guidelines addressing stratification based on resource levels, the BHGI hopes for the establishment of a "minimum standard of care" as a foundation on which to build an incremental model for improving treatment of breast cancer in all stages. Implementation outlined by the 2007 Summit is the critical step by which the value of the

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Potential Conflicts of Interest

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References

1. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. CA Cancer J Clin 2005;55(2):74-108.
2. Fidaner C, Eser SY, Parkin DM. Incidence in Izmir in 1993-1994: first results from Izmir Cancer Registry. Eur J Cancer 2001;37:83-92.
3. Weir HK, Thun MJ, Hankey BF, Ries LA, Howe HL, Wingo PA, et al. Annual report to the nation on the status of cancer, 1975-2000, featuring the uses of surveillance data for cancer prevention and control. J Natl Cancer Inst 2003;95(17):1276-99.
4. Sant M, Allemani C, Berrino F, Coleman MP, Aareleid T, Chaplain G, et al. Breast carcinoma survival in Europe and the United States. Cancer 2004;100(4):715-22.
5. Sant M, Allemani C, Berrino F, Coleman MP, Aareleid T, Chaplain G, et al. Breast carcinoma survival in Europe and the United States. Cancer 2004;100(4):715-22.
6. Karanlik H, Ozmen V, Asoglu O, al. e. Long term results of surgical treatment for breast cancer. The Journal of Breast Health 2006;2:89-95.
7. Greenlee RT, Murray T, Bolden S, Wingo PA. Cancer statistics, 2000. CA Cancer J Clin 2000;50(1):7-33.
8. Zotov V, Shyyan R. Introduction of breast cancer screening in Chernihiv Oblast in the Ukraine: report of a PATH Breast Cancer Assistance Program experience. Breast J

10. Goldhirsch A, Glick JH, Gelber RD, Coates AS, Thurlimann B, Senn HJ. Meeting highlights: international expert consensus on the primary therapy of early breast cancer 2005. Ann Oncol 2005;16(10):1569-83.
11. Carlson RW, Anderson BO, Burstein HJ, Cox CE, Edge SB, Farrar WB, et al. Breast cancer. J Natl Compr Canc Netw 2005;3(3):238-89.
12. Management of breast cancer. In: Clinical Practice Guidelines, Ministry of Health Malaysia: Academy of Medicine Malaysia; 2002.
13. Yip CH. Breast health guideline implementation in low- and middle-income countries (LMCs): Early detection resource allocation. Cancer 2008:in press.
14. Shyyan R. Breast health guideline implementation in low- and middle-income countries (LMCs): Diagnosis resource allocation. Cancer 2008:in press.
15. Eniu A. Breast health guideline implementation in low- and middle-income countries (LMCs): Treatment resource allocation. Cancer 2008:in press.
16. Harford J. Breast health guideline implementation in low- and middle-income countries (LMCs): Health care system resource allocation. Cancer 2008:in press.