



Breast cancer management in middle-resource countries (MRCs): Consensus statement from the Breast Health Global Initiative

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A B S T R A C T

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In middle resource countries (MRCs), cancer control programs are becoming a priority as the pattern of disease shifts from infectious diseases to non-communicable diseases such as breast cancer, the most common cancer among women in MRCs. The Middle Resource Scenarios Working Group of the BHGI 2010 Global Summit met to identify common issues and obstacles to breast cancer detection, diagnosis and treatment in MRCs. They concluded that breast cancer early detection programs continue to be important, should include clinical breast examination (CBE) with or without mammography, and should be coupled with active awareness programs. Mammographic screening is usually opportunistic and early detection programs are often hampered by logistical and financial problems, as well as socio-cultural barriers, despite improved public educational efforts. Although multidisciplinary services for treatment are available, geographical and economic limitations to these services can lead to an inequity in health care access. Without adequate health insurance coverage, limited personal finances can be a significant barrier to care for many patients. Despite the improved availability of services (surgery, pathology, radiology and radiotherapy), quality assurance programs remain a challenge. Better access to anticancer drugs is needed to improve outcomes, as are rehabilitation programs for survivors. Focused and sustained government health care financing in MRCs is needed to improve early detection and treatment of breast cancer.

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Introduction

What is a middle resource country?

Middle resource countries (MRCs) are grouped into lower-MRCs and upper-MRCs by the World Bank. Lower-MRCs have a gross national income (GNI) of \$996–\$3945, whereas upper-MRCs have a GNI of \$3946–\$12,195 (2009 data).¹ These two subdivisions of MRCs highlight the diversity in economic development. In many MRCs rapid economic and social development has led to a pattern of disease commonly seen in high resource countries, where infectious diseases have largely been surpassed by non-communicable diseases, such as cardiovascular disease and cancer, as leading causes of death. Compared to low resource countries, infrastructure and human resources needed to develop cancer prevention, early detection, diagnosis, treatment and palliative care services may be available but with significant limitations in quantity, quality and accessibility.²

What do we know about breast cancer in MRCs?

Over one million new cases of breast cancer are diagnosed every year, of which 45% occur in the low and middle income countries (LMCs).² An increasing trend in the incidence rates has been seen in these countries, especially in the rapidly developing economies of China and Southeast Asia. Although the incidence in LMCs are lower than in high income countries, 55% of breast cancer deaths occur in LMCs, due to two major determinants of breast cancer survival, i.e., late stage at presentation/diagnosis and inadequate treatment.^{3,4} The 5-year survival rates in MRCs range from 47% in the Philippines, 63% in Thailand, and a surprising high survival rate of 82% for China, all classified as lower-MRCs. The differences in survival rates among MRCs illustrate the variability in access to cancer diagnostic and treatment facilities which are typically located around urban centers.⁵ As a country developed from a lower-MRC to an upper-MRC or even a high income country, improvements in breast cancer survival are expected. For example, the 25-year trend in cancer survival in Singapore as it developed from an MRC to a high resource country, showed a marked improvement in breast cancer survival (46% in 1968–1972 versus 71% in 1988–1992) as a result of a combination of successful early detection programs and effective treatment services.⁶

Late-stage presentation of breast cancer is still common in MRCs.³ In Malaysia, an upper-MRC, 30–40% of women with breast cancer present with stage III–IV disease⁷ while in Egypt, a lower-MRCs, 70% of women present with late-stage disease.⁸ Barriers to early detection include socio-cultural barriers as well as health system barriers such as inadequate health system infrastructures and inadequate health care financing.

Health care financing is a key component of breast cancer control programs that includes not only revenue collection but resource pooling and purchasing of service.⁹ Clinical services needed for breast cancer control programs include prevention, early detection/screening, diagnosis (including pathology services), treatment (including surgery, radiotherapy, and systemic therapy) and palliative care (symptom management and end-of-life care). Although some generalized data on health financing are available, there is little oncology-specific or breast-cancer-specific information available for health system administrators and program managers. Generalized data on health care expenditure per capital for lower-MRCs is US\$76 compared to US\$458 for upper-MRCs; high income countries average US\$4266. The percentage of private financing that is out-of-pocket (i.e., user fees derived from the patient or the patient's family) is a significant obstacle to patient access to health

care services. In lower-MRCs, 90.3% of private funding is out-of-pocket compared to 69.7% for upper-MRCs, and only 36.3% for high income countries.¹⁰ Out-of-pocket payments for cancer care can cause middle-income households to incur catastrophic expenditures, which in turn can push them into poverty.¹¹

Where health care facilities are limited, population-based cancer registration data may be of low quality. Low quality data not only signal lack of collaboration among reporting sources but point to specific weaknesses of the cancer care system, making it difficult to determine the burden of disease in the region or to make future projections.⁴

The purpose of this consensus statement is to identify common issues and obstacles to breast cancer detection, diagnosis and treatment in MRCs. This 2010 Consensus Statement was developed by the BHGI Middle Resource Scenario Consensus Panel, and is based on the presentations on Day 2 of the 4th BHGI Summit meeting in Chicago, Illinois, USA, June 9–11, 2010, held in association with the SLACOM-Sociedad Latinoamericana y del Caribe de Oncología Médica. The Working Group addressed middle-resource breast health care delivery.¹² Methods for guideline and consensus development have been previously described.^{13,14}

Consensus findings

Early detection

What are the obstacles to down-staging?

The Working Group confirmed that obstacles to down-staging of breast cancer continue to include both health system barriers and patient barriers. Patient barriers, such as beliefs in alternative medicine, persist despite improvements in literacy and education in middle resource settings.¹⁵ Cancer control activities, such as early detection programs for breast cancer, when available, are often inadequate and poorly organized. Many newer treatment modalities may not be available outside of private practice, which cater largely to persons of wealth.

What role does health financing play in down-staging breast cancer?

Analysis of costs and health effects for breast cancer interventions in MRCs are often based on assumptions made for high resource countries, and are based on optimal performance of interventions. Estimates for the cost of down-staging breast cancer in MRCs need to consider real-world, economically feasible, and medically appropriate solutions.¹⁶ For example, clinical breast examination (CBE) for early detection in lower-MRCs may be an economically feasible early detection intervention, considering competing priorities and economic realities such as the costs of providing reproductive health care, treating infectious diseases or managing other chronic non-communicable diseases like cardiovascular disease or diabetes.¹⁷ Creative approaches to health care financing are needed in MRCs. See [Table 1](#) for a case example from the BHGI Global 2010 Summit addressing health policy and early detection in Brazil.^{18,19}

What screening methodology is available?

Breast self-examination (BSE) and CBE are the two least expensive early detection screening methods as neither of these methods requires advanced technology. There is increasing literature available on CBE and BSE in MRCs. Randomized trials of BSE have not shown improved breast cancer mortality, suggesting BSE should be encouraged only as part of breast cancer awareness programs and not be depended upon alone to decrease breast cancer mortality.²⁰ CBE used as a screening tool has been shown to reduce breast

Table 1

Case example from BHGI 2010 Global Summit: health policy and early detection, Brazil.

Health policy and early detection, Brazil
<p>Background¹⁸: A national survey found that 75% of Brazilian women age 40 years or older had undergone CBE at least once in their lives, and 40% within one year prior to the survey (2008 National Household Sample Survey). There were notable regional differences, as well as differences related to household income: 52% of women from low-income households compared to 96% of women from high-income households reported having undergone a CBE. In addition, 71% of women age 50–69 years reported having undergone mammography at least once in their lives, and 54% within 2 years. Mammography coverage was greater in the South and lower in the North. While there were no significant regional differences in mammography coverage overall, there were important regional differences within the low-income population, with a mammography coverage 28% in the North, 56% in the South, and 67%, in the Southeast.</p> <p>Study¹⁹: Although Brazil's National Program for Early Detection of Breast Cancer recommends annual clinical breast examination (CBE) for all women starting at age 40 years old and mammography every 2 years for women age 50–69 years old. To date, only one municipality, Curitiba, in late 2009, has established organized breast cancer screening. A new program to track publicly-financed mammograms and breast biopsies, 'SISMAMA', was launched in December 2008 that requires a government facility, a contracted private imaging center or a pathology laboratory to provide certain standardized information that is recorded in SISMAMA prior to reimbursement.</p> <p>Outcomes: Over 1.5 million mammograms have been conducted nationally and entered into SISMAMA to be analyzed.</p>

cancer mortality.²¹ A subset analysis of the Swedish Two-County Screening Mammography Trial predicted that screening with CBE alone would reduce median tumor size at presentation/diagnosis and could lead to an 11% reduction in node-positive tumors, and an 11% reduction in breast cancer deaths (approximately 42 deaths prevented per 1000 cases).²² These findings suggest that CBE has the potential to down-stage breast cancer, leading to improved clinical outcomes, when adequate treatment is available. However, mass screening by CBE in women aged 35–64 years in a study conducted in the Philippines in 1996–1997 found that 42.2% of women with a lump detected by screening refused further investigations. This study highlights the need to identify and address cultural and logistic barriers to diagnosis and treatment before initiating early detection programs.²³ A prospective randomized CBE trial in India, a lower-MRC, suggests that the cost-effectiveness and clinical outcomes of CBE compare favorably with mammographic screening results in developed countries. Annual CBE for women between ages 40 and 60 years is predicted to be nearly as efficacious as biennial mammography in reducing breast cancer mortality, while incurring only half the cost.²⁴ The efficacy of CBE continues to be studied and debated, particularly for countries where women commonly present with large (>3 cm) palpable masses. Developing and implementing early detection programs in MRCs remains a challenge. See Table 2 for a case example from the BHGI 2010 Global Summit addressing breast cancer screening program in a large population in China.^{20,25,26}

What role do societal and cultural barriers play in down-staging breast cancer?

The Working Group concluded that despite cultural, political, and historical differences among MRCs, most countries face similar challenges associated with late presentation/diagnosis of breast cancer, including an increase in the number of women with breast cancer due to an aging population; and social and cultural barriers that may limit a woman's participation in early detection programs.

Psychosocial factors have been studied in MRCs and correlated with a tendency for patients to delay seeking medical attention once a breast cancer symptom or sign is identified.^{27,28} In

Table 2

Case example presented at BHGI 2010 Global Summit: breast cancer screening in a large population, China.

Breast cancer screening in a large population, China
<p>Background: The most significant challenge for breast cancer early detection in China is the large size of the population. Screening methods in China include mammography, CBE and BSE. There are no published results on the role of CBE in large populations in China, although smaller studies on the efficacy of population-based CBE and diagnostic breast ultrasound are being considered in Shanghai. The Shanghai BSE study found that "intensive instruction in BSE did not reduce mortality from breast cancer."</p> <p>Study²⁵: A national breast cancer screening program, initiated in 2005, with a goal to screen one million Chinese women, using mammography and breast ultrasound, was canceled due to funding and implementation obstacles. Obstacles included concerns about over-diagnosis potentially resulting from large mammography screening programs.</p> <p>Outcomes²⁶: Despite these concerns, Chinese scientists continue to support the use of mammography as one of the choices for mass screening in order to solve the problem of 'diagnosis deficiency.' BSE programs continue to be funded by both government and non-government organizations. BSE programs can increase awareness about breast health and result in more opportunistic screening.</p>

behavioral research on late presentation/diagnosis in multi-ethnic settings, there has been a tendency to focus on women's individual beliefs, such as "fatalism" or "denial". For example, researchers have attributed delayed presentation and "absconding" from treatment among black African breast cancer patients in South Africa to be influenced by local beliefs in magic.²⁹ However, women interviewed in a study ten years later did not report beliefs in sorcery related to their breast cancer.³⁰

Overcoming social and cultural obstacles can be difficult and require widespread education programs, promoted by government health care systems. Studies looking at a woman's willingness to perform BSE suggest an association with down-staging of disease. For example, a cross-sectional study of all newly diagnosed and pathologically confirmed breast cancer patients was conducted in nine general hospitals in Alexandria, Egypt over a one-year period. Among 565 women studied, BSE had been practiced in 10.4% of cases. BSE was more commonly performed by women from higher socio-economic levels, and those with a positive family history of breast cancer or a benign breast mass. There was significant association between failure to practice BSE and diagnostic delay.³¹ Barriers to down-staging also include health system barriers. See Table 3 for a case example presented at the BHGI 2010 Global Summit addressing health system barriers in Mexico.³²

Diagnosis

What diagnostic imaging equipment is available?

In limited-resource settings, such as lower-MRCs, diagnostic breast ultrasound is often used to make a diagnosis of breast cancer, whereas diagnostic mammography services are available in enhanced settings such as upper-MRCs.³³ MRI may be available in some settings, for some patients, to inform diagnosis and treatment, but is generally cost-prohibitive.³³

Staging is important for optimal treatment of breast cancer as well as for comparison of outcomes between different groups of patients. Diagnostic staging modalities such as chest and skeletal radiography and liver ultrasound are usually available in most lower-MRCs. CT scans and bone scans are available in upper-MRCs, although PET scans are available to only a limited number of patients

What pathology services and quality control are available?

Breast cancer pathology laboratories are an essential part of breast cancer control programs in any resource setting and include

Table 3

Case example presented at BHGI 2010 Global Summit: health system barriers to down-staging, Mexico.

Health system barriers to down-staging, Mexico
<p>Background: In behavioral research on stage of presentation of breast cancer in multi-ethnic settings, there has been a tendency to focus on individual beliefs such as “fatalism” or “denial” with little inquiry into the political economic forces that enable individual intentions or decisions to seek care.</p> <p>Study³²: Breast cancer patients in Mexico reported barriers to seeking care, including perceptions that breast symptoms like lumps are benign or not serious, competing pressures at home and work, a desire to keep one’s body intact, and ambivalence about undergoing breast surgery and the fear of possible mastectomy.</p> <p>Outcomes: In most cases, individual interpretations lined up with economic gaps. Lack of pain is frequently provided as an explanation for not getting a lump checked sooner. As one woman in Mexico explained, only acute conditions would be worth a “diversion” from the flow of everyday life and its seemingly “endless” tasks.</p>

the ability to perform or refer out for accurate diagnostic and prognostic/predictive information.^{34–37}

The financial burden of establishing and maintaining breast pathology services can be counter-balanced by the cost savings from a decrease in adverse effects for poor diagnosis as well as excessive use of treatment resources that are based on incomplete pathologic diagnosis, and/or inaccurate information about prognostic and predictive factors.

The Working Group agreed that proper training in breast pathology for pathologist and laboratory personnel is of critical importance. Equally important is adherence to the established guidelines and quality measures in cytologic/histopathologic diagnosis and in the interpretation of test results, such as assessment of estrogen receptor (ER) status, and when feasible, progesterone (PR) status and HER/2 neu overexpression.^{38–44} Although scattered efforts are in place to validate the performance of the existing pathology laboratories across the world, the accreditation process is not yet fully realized. Accreditation of laboratories is necessary to ensure quality laboratory procedures, and aid in treatment planning for individual patients, as well as produce comparable data about breast cancer tumor types for epidemiological studies.

Treatment strategies

There is a wide variation in MRCs with regard to available treatment options. Lower-MRCs generally practice at the limited-resource level, while a few of the upper-MRCs are able to provide treatment at the enhanced level. Previously published BHGI treatment guidelines for LMCs stratify recommended treatments by available resources.¹³

What breast surgery is available?

Breast surgery is often the initial treatment in MRCs where patients commonly present with larger operable tumors. Mastectomy is the most common surgical procedure in limited-resource settings, whereas breast conserving surgery may be an option if adjuvant radiation therapy is available and women present with sufficiently small primary cancers.⁴⁵ More advanced techniques of sentinel node biopsy are available in tertiary hospitals. While breast surgery is performed by breast cancer specialists, such as breast cancer surgeons or oncology surgeons, it may also be performed by general surgeons and gynecologists in some MRCs. A survey of Latin American breast specialists found that 75% of breast cancer patients were treated by breast cancer or oncology surgeons at breast clinics or specialized centers.⁴⁶

What radiotherapy equipment is available?

Radiotherapy equipment is needed at all resource levels to treat operable breast cancer and to provide palliative care for surgically uncontrolled or metastatic disease.⁴⁷ Radiotherapy equipment includes linear accelerators (Linacs), Co⁶⁰ radiotherapy machines and brachytherapy machines. Linac machines require a reliable source of electricity and water, a well-ventilated area, and a thicker shielding bunker to protect workers and patients from the emitted radiation. Co⁶⁰ radiotherapy machines are simpler to operate and much less expensive than Linac machines, although the newer generation of Co⁶⁰ machines are more complex and expensive. One drawback to Co⁶⁰ is that the radioactive components can be difficult to procure because of international concerns regarding radioactive materials. Nevertheless, the reliability of Co⁶⁰ and the minimal infrastructure needed for its operation make it the resource of choice, particularly in lower-MRCs that lack consistent electrical grids.

Regardless of the type of radiotherapy equipment, correct administration of radiotherapy requires quality assurance programs that should include protocol and operating procedure manuals, audits of parameters of treatment, and dose verification.⁴⁷ In addition, training programs are needed for radiotherapy technicians that include incentives to keep trainees in-country.

What cancer drug therapies are available?

Optimal management of breast cancer requires some combination of surgery with or without radiotherapy (based on need for local control of disease), and systemic therapy (to prevention or management of metastatic disease). In most MRCs, the well-established cytotoxic chemotherapy drugs such as anthracyclines are usually available, and endocrine therapy such as tamoxifen is becoming more commonly available. Newer drugs like the taxanes, aromatase inhibitors and molecular targeted agents are often not available or of limited supply. Many of the newer treatment modalities that target specific tumor types require more advanced pathology services, such as immunohistochemistry, than may be routinely available.⁴⁵ A number of efforts are underway to increase access to cancer therapies in resource-limited settings. For example, WHO analyzes cancer drugs for inclusion in its essential medicines list, which countries can use to prioritize drug procurement and distribution.⁴⁸ Recent results published from Latin American countries are encouraging as they show that medical treatment in this region is closely following international standards.⁴⁹

Health care system

Where are cancer centers located?

Breast cancer centers or other dedicated health care systems play a critical role in supporting multidisciplinary health care teams and are needed to deliver timely, high-quality preventive, diagnostic, and therapeutic services for breast cancer. In a comparative study of 12 countries in Africa, Asia and Central America, disparities in cancer outcomes correlated with the level of development of health services.⁵ In MRCs, cancer patients are often diagnosed and treated in specialized cancer facilities, (“centers of excellence”) where most of the oncology expertise and equipment are located.⁵⁰ Cancer care facilities can be found in both the public and private sectors, and the services they provide tend to be financed by multiple sources.⁵¹ A disadvantage of cancer treatment centers is that they are usually located in major urban areas, making access to care difficult for patients living in rural areas. At the same time, cancer centers provide an opportunity for health professionals to share resources, expertise and training. See Table 4 for a case example presented at the BHGI 2010 Global Summit addressing

Table 4

Case example presented at BHGI 2010 Global Summit: early detection program and health care professional training, Uruguay.

Early detection program and health care professional training, Uruguay ⁵²
<p>Background: In an effort to support coordinate cancer control activities in both public and private sectors, a National Health System was implemented that covers 100% of the population, in both public and private institutions, and mammography units were distributed across the country.</p> <p>Study: Health care workers were trained in CBE and how to use a national data collection form. A public education effort was also launched to increase women's awareness of easy and rapid access to mammography units, as well as to increase their awareness of BSE and CBE. A 6-month pilot study found that 74% of women presented at early disease stages (stage 0–II), both in the public and private sectors.</p> <p>Outcomes: Expansion of the pilot program will include quality control of mammographic units, targeted population screening, and redistribution of mammography units to improve accessibility. In addition, the need for standardized team assessments, reliable pathology reporting, and referral and follow-up procedures are being considered for further study.</p>

early detection program that included training of health care professions in Uruguay.⁵²

What level of access to care (geographical/economic) is available to patients?

Access to health care includes both geographic and economic accessibility. In countries that have national or universal health insurance, the entire population has access to care by law.⁵³ Almost all high resource countries provide universal health care (the USA is an exception). The level of access to cancer care depends strongly on the health care system characteristics in each country. Some MRCs provide universal coverage or partial coverage. However, health care provision can be challenging due to cost as well as social, cultural, political and economic variables. Many MRCs struggle to provide coverage, due to insufficient resources or inappropriate use of existing funds. Health care inequality, therefore, is quite common.⁵³

What is the role of multidisciplinary care?

It is widely accepted that breast cancer diagnosis and treatment should be performed with a multidisciplinary approach,⁵⁴ and European and American guidelines consider a coordinated team approach to be the standard of care.⁵⁵ While the necessity of multidisciplinary coordination of breast health care is recognized in high resource countries, its adoption in a practical sense has been fragmented and incomplete.⁵⁵ A survey of 100 breast cancer experts from 12 Latin American countries showed that multidisciplinary decisions are infrequent in many regions (less than 5%), though close to 30% in specialized centers.⁴⁶ Part of effective multidisciplinary approach includes creation of tumor boards. A survey of 338 oncology specialists from various Arab countries reported that over 70% of oncologists attended tumor board meetings, though less than half reported meeting on a weekly basis.⁵⁶

What quality assurance programs exist?

International efforts to develop quality assurance programs and set quality indicators for surgical oncology for rectal cancer⁵⁷ and cervical cancer⁵⁸ can serve as models for breast cancer quality assurance programs. Although the European Organization for Research and Treatment of Cancer (EORTC) emphasizes the need for strict quality control procedures in surgical oncology,⁵⁸ the vast majority of these recommendations were developed for surgical centers in high resource countries. The Working Group confirmed that in many MRCs, surgical procedures are performed in general hospitals and private clinics, in which quality control of surgical procedures is highly variable and difficult to standardize.

International quality assurance efforts for radiation equipment by the International Atomic Energy Agency (IAEA), in collaboration with WHO, include equipment audit services. IAEA/WHO have checked the calibration of more than 4300 radiotherapy beams in about 1200 hospitals worldwide.⁵⁹ See Table 5 for case example presented at the BHGI 2010 Summit addressing training and quality control effort in Columbia.^{60,61}

Breast cancer survivors

What role do breast cancer survivors play?

In MRCs, as treatment options improve, and women are diagnosed with earlier stage disease, the number of breast cancer survivors increases, as does the corresponding need for rehabilitation and quality of life services. Cancer survivors report poorer health, lower quality of life, lost productivity, and many health limitations.⁶² A recent study reported improvements in physical and mental health following a rehabilitation program developed for breast cancer patients.⁶³ Survivorship care plans should be considered a necessary component of comprehensive cancer care.⁶⁴

In MRCs, physical therapy and psychological support are not available in most hospitals that treat breast cancer patients—who can suffer from complications of surgery, such as lymphedema, and related health issues (such as menopausal symptoms, obesity, poor diet, fatigue and pain). Protocols or specialized health care providers to manage survivors is lacking in most institutions in MRCs. As a result, it is common for local non-governmental organizations (NGOs) to provide lymphedema physiotherapy, emotional support, and nutritional and educational services for breast cancer patients, if it is available.⁶⁵

What informational resources are available to patients?

Cancer patients often have significant unmet health information needs, including how to manage health problems and side effects from cancer treatments, how to deal with disruptions in personal and professional lives during and after cancer treatment, and how to cope with death and dying issues.⁶³ For patients undergoing initial therapy, planning for post-treatment recovery is necessary. Patients with recurrent, uncontrolled or metastatic disease need to consider quality of life issues, pain relief, emotional suffering and coping with end-of-life.⁶³ Professional medical organizations, such as the National Comprehensive Cancer Network and Femama, have added evidence-based patient information to their clinical websites (www.nccn.org, www.femama.org.br). The American Cancer

Table 5

Case example presented at BHGI 2010 Global Summit: training and quality control efforts, Columbia.

Training and quality control efforts, Columbia
<p>Background⁶⁰: Once recommendations have been established, it is important to know if they are being followed. In 2006, the National Cancer Institute of Colombia established recommendations for breast cancer early detection (mammography and CBE).</p> <p>Study⁶¹: A randomized trial conducted at primary care centers looked at screening rates for women age 50–69 attending health services on their own (opportunistic screening), comparing rates for women seen at centers who received additional training for staff (general practitioners, radiologists, technicians, and nurses) specific to breast cancer and initiated a quality control program for mammography and CBE.</p> <p>Outcomes: After the targeted intervention, 100% of women in the intervention group who were offered screening had a CBE and 94.6% had a mammogram, compared to 7% in the control group who had a CBE and 19.5% who had a mammogram. The observed breast cancer incidence rate was higher in the intervention group (218.3 versus 100.7 per 100,000). These preliminary results have justified continuation of the trial.</p>

Society website offers information in English, Spanish, Chinese and other Asian languages (www.cancer.org).

What role do breast cancer survivors play in advocacy efforts?

Breast cancer advocacy activities are often initiated by breast cancer survivors, including health care professionals who are also breast cancer survivors. Raising the awareness in a community of existing breast cancer survivors can be an important part of education and awareness campaigns. Survivors give hope to those newly diagnosed with breast cancer and can reduce the fear and stigma that may be associated with the disease in a community. Survivor participation in multidisciplinary teams can improve community participation in screening programs and contribute to a decrease in late-stage presentation.⁶⁶

Consensus recommendations

Obstacles to down-staging, patient behavior

Social-cultural barriers that contribute to delay in seeking medical care for suspected breast cancer, should be identified and addressed. The majority of MRCs are in Asia and Latin America where belief in folk medicine is widespread, and each culture has its own unique beliefs about the origin of breast cancer. Coupled with a fatalistic attitude that prevails in some countries, it is not surprising that “Western” medicine is often the last resort for some women with breast complaints. Designing culturally sensitive breast health education programs that target beliefs and fears related to breast cancer are needed.

Health care financing

Although the majority of MRCs have some form of universal health coverage provided by the government, the coverage may be incomplete. A lack of health coverage or financial support can prevent women from seeking early diagnosis or obtaining timely or optimal treatment. Focused and sustained government health care financing in MRCs is needed to improve early detection and treatment of breast cancer.

Obstacles to down-staging, health care systems

Centralized breast cancer centers (with multidisciplinary expertise, advanced pathology laboratories, radiotherapy and surgical support) are needed to help avoid fragmentation of care. While available in many MRCs, these centralized services and specialists are less available in the public sector. Existing centers of excellence need to develop methodologies for outreach into the public sector including surrounding rural areas. While most centers have quality assurance programs in place, implementation may be problematic. Training and quality assurance need to be incorporated into breast cancer control programs in MRCs.

Early detection programs

Health policymakers need to understand that early-stage breast cancer is more cost-effective to treat than late-stage breast cancer, and therefore down-staging disease by early detection strategies is economical.

CBE

While CBE is a basic and necessary resource for breast cancer diagnosis and surgical treatment, screening CBE programs need further evaluation both in terms of effectiveness and clinical

systems application (such as training nurses and/or midwives to perform CBE and the cost-effectiveness and best approach for extending these services to rural areas).

Screening programs

Simply establishing a public policy for mammography and/or CBE screening programs is unlikely to be adequate. Active recruitment through awareness programs needs to be linked to screening to garner participation. In upper-MRCs, screening mammography may be affordable for a target population of high-risk women, (e.g., women aged 50–69 years). Although a higher fraction of patients in MRCs than in high resource countries present with breast cancer in their 40s, this is considered a function of the younger age of the population, and not due to higher incidence rates of breast cancer in younger women in MRCs. Applying screening mammography to this younger age group may not be feasible due to cost issues. Alternative, less costly strategies for this age group may be needed that include public awareness programs, BSE and CBE.

Diagnosis

Surgeons, pathologists and radiologists play a critical role in the diagnosis of breast cancer; continued recognition of the important role of multidisciplinary teams is needed. Poorly executed diagnostic procedures waste valuable resources, and prevent optimal management of breast cancer. At the same time, advanced pathology services such as determining HR status of tumors can save money by identifying appropriate treatment strategies. Implementing local or regional quality standards for diagnostic procedures and equipment are needed. Accreditation of pathology laboratories requires international attention to the development of affordable and easy to implement procedures to fulfill this very important mission.

Treatment

Systemic treatment represents one of the great challenges in cancer control efforts in MRCs. Barriers to cancer drugs are especially striking in light of the many research advances of recent years, which have significantly expanded the role of chemotherapy, hormone therapy and targeted therapies in the management of breast cancer. Continued effort is needed to reduce the cost of these drugs. This is particularly crucial for metastatic patients for whom very few treatment options are available. Palliative care should be part of breast cancer care programs.

Access to radiotherapy may be restricted in subpopulations in MRCs. Continued efforts to increase the number of radiotherapy units is needed, as well as efforts for training radiation technicians.

Multidisciplinary care should be part of all breast cancer control programs in MRCs. It can improve survival from breast cancer, and while it is available in many MRC, it is not always well-coordinated or accessible to all women in the population.

Survivorship

There is scarce literature on survivorship for breast cancer patients, despite the growing population of survivors due to earlier diagnosis and better treatment. Studies are needed to better understand the impact of existing services and interventions, health care outcomes, and quality of life issues in medically underserved communities, who still comprise the majority of MRC populations. Support and advocacy groups are needed to help health authorities

recognize the need to provide survivor care for women with breast cancer. Rehabilitation programs, which are practically non-existent in most MRCs need to be developed to support breast cancer survivors. Programs that provide reconstructive services, free prosthesis, informational services, and lymphedema therapy centers are needed for this growing number of women.

Summary

While MRCs have diverse cultural, political, social and economic profiles, they share common breast cancer control program challenges and opportunities. Specific challenges and opportunities that the MRCs Working Group found of current importance include efforts to down-stage breast cancer through improved and equitable access to care. In MRCs, socio-cultural barriers to seeking early detection and treatment continue to exist despite improvements in economic status and lifestyle. Early detection programs need to continue to address socio-cultural barriers while at the same time address health system and health financing barriers. Health system barriers in MRCs identified include lack of availability of and limited access to breast care specialists, and timely diagnosis and treatment within the health care system (delay in diagnosis or treatment) all of which depend on the efficiency of the health services available. Although the majority of patients in MRCs are treated in the public sector, facilities such as radiotherapy machines are more common in the private sector, where waiting lists are shorter but patients have to pay more. The standard of care for management of breast cancer depends on the health care system and how much the government is willing to spend on breast care programs. Coordinated screening programs, cooperative drug acquisition strategies, quality assurance, and in-country accreditations and training programs should be developed cooperatively with universities, health ministries, and community advocates. Because MRCs share similar economic challenges in breast cancer control, sharing examples of successful efforts to improve care through research, consensus reviews, and building networks and collaborations will continue to help improve breast cancer care in MRCs.

Contributors statement

The manuscript draft was based on the BHGI 2010 Summit Working Group consensus meeting and outline review, and Day 2 panel discussion and presentations. Working Group members contributed sections according to their expertise. CHY incorporated sections into the main manuscript, KMH reviewed the manuscript as co-chair of the working group. All authors reviewed the draft and provided comments or substantive revisions that were incorporated into the final version as per consensus process previously described.

Conflict of interest statement

BOA received funding from Breast Health Global Initiative (BHGI), EC received consultancy funding from Bayer Sherling Pharma, grants from Breast Cancer Research Foundation (BCRF) and Poniard Pharmaceuticals, was on the speakers bureaus for Bayer and Bristol Meyers Squibb, and received travel expenses from ASCO, UICC, ESMO, and BCRF; CHY was on an expert panel and received research funding from GSK and was on the speakers bureaus for Sanofi-Aventis and Roche. DBT has received funding from BHGI for travel. KB received funding from U.S. Department of Defense Breast Cancer Research Program Center of Excellence (#W81XWH-04-1-0905). All other authors and working group members reported no conflict of interest.

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Appendix. List of members

The Middle-Resource Scenarios Working Group of the BHGI 2010 Global included Cheng-Har Yip, Eduardo Cazap, Benjamin O. Anderson, Kristin L. Bright, Maira Caleffi, Fatima Cardoso, Ahmed M. Elzawawy, Joe B. Harford, Hussein M. Khaled, Gabriel D. Krygier, Shahla Masood, Raul Murillo, Ignacio M. Muse, Leigh J. Passman, Cristina Perez Parsons, Luiz A. Santani, David B. Thomas, Soledad Torres, and Ying Zheng.

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