Centers of Excellence in Cancer

A RESOURCE-STRATIFIED APPROACH TO IMPROVING BREAST CANCER OUTCOMES

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Fred Hutchinson Cancer Research Center
Professor of Surgery & Global Health Medicine
University of Washington

Seattle, Washington
RESOURCE-STRATIFICATION

- Adapting to Existing Resources
- Resource-Stratified Guidelines
- In-Country Situation Analyses
- Guideline Implementation
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U.N. HUMAN RIGHTS LAW (1966)
INTERNATIONAL COVENANT ON ECONOMIC, SOCIAL AND CULTURAL RIGHTS (ICESCR), ARTICLE 12(1)

“The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.”

SLIDE CREDIT: Beth Rivin, MD
## World Bank Country Groups

### World Bank Classification (Atlas Method)

<table>
<thead>
<tr>
<th>World Bank Country Groups (GNI per capita)</th>
<th>Low Income ($995 or less)</th>
<th>Lower Middle Income ($996 - $3,945)</th>
<th>Upper Middle Income ($3,946 - $12,195)</th>
<th>High Income ($12,196 or more)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average female life expectancy at birth</td>
<td>57.8 yrs</td>
<td>69.3 yrs</td>
<td>74.4 yrs</td>
<td>82.4 yrs</td>
</tr>
<tr>
<td>Average GNI per capita (2009 US dollars)</td>
<td>$403</td>
<td>$1,723</td>
<td>$6,314</td>
<td>$36,953</td>
</tr>
<tr>
<td>Total national health expenditure per capita</td>
<td>$22</td>
<td>$76</td>
<td>$458</td>
<td>$4,266</td>
</tr>
<tr>
<td>Fraction of GDP spent on health care</td>
<td>5.1%</td>
<td>4.3%</td>
<td>6.4%</td>
<td>11.2%</td>
</tr>
</tbody>
</table>

Health expenditure figures 2010 for calendar year 2007; GNI = gross national income
MISSION STATEMENT

The *Breast Health Global Initiative (BHGI)* strives to develop, implement and study evidence-based, economically feasible, and culturally appropriate guidelines for international breast health and cancer control for low and middle income countries to improve breast health outcomes.
CANCER CONTROL STRATEGIES
COMPREHENSIVE APPROACH

EARLY DETECTION

HEALTH SYSTEMS

DIAGNOSIS

TREATMENT
BHGI GUIDELINE DEVELOPMENT

- Comprehensive guidelines by selected expert panels
- Consensus opinions based on evidence review
- Publication of a) consensus and b) individual manuscripts

GUIDELINE DEVELOPMENT SUMMITS:
Global Summit 2002: Health Care Disparities
Global Summit 2005: Resource Stratification

GUIDELINE VALIDATION SUMMITS:
Global Summit 2007: Guideline Implementation
Global Summit 2010: Healthcare Delivery
Global Summit 2012: Supportive Care and QOL
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GLOBAL SUMMIT 2005 – BETHESDA
RESOURCE STRATIFICATION

- **Basic level:** Core resources or fundamental services necessary for any breast health care system to function.

- **Limited level:** Second-tier resources or services that produce major improvements in outcome such as survival.

- **Enhanced level:** Third-tier resources or services that are optional but important, because they increase the number and quality of therapeutic options and patient choice.

- **Maximal level:** Highest-level resources or services used in some high resource countries that have lower priority on the basis of extreme cost and/or impracticality.
## BHGI GUIDELINE TABLES

### HEALTH CARE SYSTEMS

<table>
<thead>
<tr>
<th>Level of Resource</th>
<th>Local Regional Treatment</th>
<th>Systemic Treatment (Her-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>Modified radical mastectomy</td>
<td>Osimertinib + trastuzumab in premenopausal woman; Taxotere in postmenopausal woman</td>
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<tr>
<td>Limited</td>
<td>Breast conserving surgery</td>
<td>Classical GEP (4 C, 2 B, or 10 C)</td>
</tr>
<tr>
<td>Enhanced</td>
<td>5% Sinorix using mastectomy or Bovie extraction surgery</td>
<td>Breast-conserving surgical approach or breast reconstruction surgery</td>
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<tr>
<td>Maximal</td>
<td>Breast-sparing mastectomy</td>
<td>Trastuzumab for HER2+ positive patients</td>
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### EARLY DETECTION

<table>
<thead>
<tr>
<th>Stage</th>
<th>Health Care System</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Local diagnostic imaging (US, mammography, or MRI)</td>
</tr>
<tr>
<td>II</td>
<td>Breast biopsy for suspicious lesions</td>
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### DIAGNOSIS

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### STAGE I

- Baseline diagnostic testing
- Imaging and Blood tests
- Pathology

### STAGE II

- Baseline diagnostic testing
- Imaging and Blood tests
- Pathology

### LOCALLY ADVANCED

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### METASTATIC

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GLOBAL SUMMIT 2007 – BUDAPEST
GUIDELINE IMPLEMENTATION

CONSENSUS STATEMENTS
Early Detection
Diagnosis
Treatment
Health Care Systems
8 Stratified Tables
10 Individual Manuscripts

Cancer: 113 (8 suppl), 2008
BASIC LEVEL CARE (BHGI)
EARLY DETECTION / DIAGNOSIS

- Clinical down-staging (education):
  - Breast health awareness education
  - Clinical breast examination (CBE) training

- Diagnosis (with quality control):
  - Tissue sampling (needle preferred)
  - Surgical pathology services (+/- cytology)
  - Hormone receptor assessment

Anderson, Cancer 113(8 suppl):2221, 2008
BASIC LEVEL CARE (BHGI) TREATMENT (ALL STAGES)

- **Surgical services:**
  - Modified radical mastectomy
  - Breast conservation (radiation required)

- **Systemic therapy (on WHO essential drug list 2011):**
  - Tamoxifen (vs oophorectomy)
  - Cytotoxic therapy (CMF, AC, EC, FAC)
  - Pain management

GLOBAL SUMMIT 2010 – CHICAGO

OPTIMIZING DELIVERY

- Cancer registries for prevalence, stage, and outcome
- National cancer plans define cancer care networks
- Multidisciplinary care to avoid fragmentation
- Training linked to equipment acquisition / quality care
- Public awareness programs linked to early detection
- Clinical breast examination (CBE) promotion
- Coordination of diagnosis and treatment
- Address pathology, drug acquisition, workforce issues

Methods

1. Core Documents: 15 BHGI guidelines

2. Search Strategy
   - Google Scholar (n = 1,132)
   - PubMed (n = 662)
   - Scopus (n = 46)
   - Web of Knowledge (n = 250)
   - Total (n = 2,090)

3. Inclusion and Exclusion Criteria
   - Published between 2003 - 2012
   - Complete documents available online
   - English – Spanish – Portuguese

Full-text articles assessed for eligibility → n = 776
Findings

1. Extent of citations over time

Internal vs. External Publications

- 71% External Publications
- 29% Internal Publications
3. Uptake of the BHGI guidelines by region

Articles referencing BHGI guidelines by region
external publications only (n= 552)

Findings
GLOBAL SUMMIT 2012 – VIENNA
SUPPORTIVE & PALLIATIVE CARE

- During Treatment
- After Treatment (survivorship)
- Metastatic Disease

Executive Summary: Lancet Oncology, 16(3):e137-e147, 2015
# GLOBAL SUMMIT 2012 – VIENNA

## DURING TREATMENT

<table>
<thead>
<tr>
<th>Musculoskeletal Toxicities</th>
<th>Basic</th>
<th>Limited</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic physical activity (e.g., aerobic, ROM)</td>
<td>PT focused on early lymphedema, shoulder mobility, and pain management</td>
<td>Other non-morphine opioids&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Pain management, including morphine&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Other drug therapy for pain&lt;sup&gt;a&lt;/sup&gt;</td>
<td>BMD assessment for at-risk patients</td>
</tr>
<tr>
<td></td>
<td>Oral/IV hydration and electrolyte replacement</td>
<td>Drug therapy: 5HT3 blockers, H2 antagonists, anti-acids, stimulant laxatives</td>
<td>Bone modifying agents</td>
</tr>
<tr>
<td></td>
<td>Drug therapy: antiemetics, antidiarrheal medications, stool softeners, laxatives</td>
<td>Mucositis support: topical agents</td>
<td>Drug therapy: NK-1 antagonists, PPIs</td>
</tr>
<tr>
<td></td>
<td>Mucositis support, e.g., ice chips</td>
<td>Antianxiety drugs</td>
<td>Mucositis support: opioid analgesics for severe mucositis</td>
</tr>
<tr>
<td></td>
<td>Anxiety symptom management</td>
<td>Consultation with certified dietitian</td>
<td>Individualized education by certified dietitian</td>
</tr>
<tr>
<td></td>
<td>Consideration of parasitic and/or bacterial infection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gastrointestinal Toxicities</th>
<th>Basic</th>
<th>Limited</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Patient and family education&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Topical agents (e.g., steroid- or zinc-containing skin creams)</td>
<td>Consultation with dermatology specialist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DMSO</td>
<td>Central line access/management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Debridement surgery</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Coordinated patient care</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Skin Toxicities, Chemotherapy Extravasation</th>
<th>Basic</th>
<th>Limited</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pain management, including morphine&lt;sup&gt;a&lt;/sup&gt;</td>
<td>PT: functional limitations</td>
<td>Anesthetics for nerve blockage</td>
</tr>
<tr>
<td></td>
<td>Topical agents</td>
<td>Drug therapy for pain&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Consultation with neurology specialist for pain management and cognitive problems</td>
</tr>
<tr>
<td></td>
<td>Patient and family education&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Consensus Supplement: The Breast, 22(5):593-605, 2013**
### GLOBAL SUMMIT 2012 – VIENNA
### AFTER TREATMENT (SURVIVORSHIP)

<table>
<thead>
<tr>
<th>Health professional education</th>
<th>Basic</th>
<th>Limited</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCr recurrence, second primary cancer</td>
<td>Psychosocial risk assessments</td>
<td>Psychosocial screening methods</td>
<td></td>
</tr>
<tr>
<td>Long-term TX complications</td>
<td>Psychosocial complications of survivorship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women’s health</td>
<td>Sexual health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychosocial (survivorship) consideration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifestyle modifications</td>
<td></td>
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<table>
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<tr>
<th>Patient and family education</th>
<th>Basic</th>
<th>Limited</th>
<th>Enhanced</th>
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</thead>
<tbody>
<tr>
<td>BCr recurrence or new cancers, symptoms to report</td>
<td>Follow-up schedules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term TX complications</td>
<td>Adherence to endocrine therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate use of CAM</td>
<td>Sexual health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women’s health issues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychosocial issues (survivorship)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Lifestyle modifications</td>
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</tbody>
</table>

| Community awareness | Community awareness of BCr survivorship issues |

# GLOBAL SUMMIT 2012 – VIENNA

## WITH METASTATIC DISEASE

<table>
<thead>
<tr>
<th></th>
<th>Basic</th>
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<th>Enhanced</th>
<th>Maximal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bone Metastases</strong></td>
<td>Drug therapy: steroids, NSAIDS, opioids (eg, oral and parenteral morphine), co-analgesics</td>
<td>Radiotherapy</td>
<td>Radioisotopes</td>
<td>Radiofrequency ablation/ cryoablation</td>
</tr>
<tr>
<td></td>
<td>Consider spinal cord compression and fractures</td>
<td>Surgery</td>
<td>Bone-modifying agents</td>
<td></td>
</tr>
<tr>
<td><strong>Bowel Obstruction</strong></td>
<td>Drug therapy: morphine (oral or parenteral), steroids, laxatives, antiemetics, anticholinergics NG-tube</td>
<td>Non-morphine opioids</td>
<td>Venting G-tube</td>
<td>Somatostatin analogues</td>
</tr>
<tr>
<td><strong>Brain Metastases</strong></td>
<td>Drug therapy: analgesics, steroids, anti-emetics, anticonvulsants</td>
<td>Whole brain radiotherapy</td>
<td>Stereotactic radiotherapy Surgery</td>
<td></td>
</tr>
<tr>
<td><strong>Liver Metastases</strong></td>
<td>Drug therapy: analgesics, steroids, anti-emetics, antihistamines</td>
<td></td>
<td>Biliary stents</td>
<td>Liver resection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Percutaneous drainage Embolization</td>
<td></td>
</tr>
<tr>
<td><strong>Lung Metastases</strong></td>
<td>Drug therapy for breathlessness: opioids, anxiolytics and antipsychotics, steroids Thoracentesis Oxygen therapy for hypoxemic patients</td>
<td>Pleurodesis: Thoracotomy, VATS Radiotherapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Skin Metastases/ Complications</strong></td>
<td>Wound and skin assessment Drug therapy: Analgesics; Broad spectrum antibiotics Simple dressings and skin barriers Activated charcoal; metronidazole Teaching wound dressing to patients and family</td>
<td>Silver nitrate Radiotherapy Debridement surgery</td>
<td>More sophisticated dressing material Calcium alginate for hemostasis Stoma/wound therapy Air mattress, egg crate mattress</td>
<td>Plastic surgery Vacuum (negative pressure) wound therapy Mechanical bed</td>
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Some countries are so poor that breast cancer is not a significant problem for them.

QUESTION: At what point are resources so limited, and competing demands so great, that breast care programs make no sense to create?
The Breast Health Global Initiative

Ghana Situation Analysis 2004
Main hospital entrance
Komfo Anokye Teaching Hospital (KATH)
Ghana Situation Analysis 2004
Breast Health Clinic
Komfo Anokye Teaching Hospital (KATH)
Patient with breast cancer
(Note visible tethering of patient’s left nipple)
METRICS & QUALITY IMPROVEMENT

PROCESS
- Diagnosis and staging
- Cancer treatment
- Symptom management
- Surveillance

OUTCOME
- Survival
- QOL
- Satisfaction

STRUCTURE
- Resources (e.g. radiation)
- Coverage and reimbursement

Patient Factors
Ghana Situation Analysis 2004
Komfo Anokye Teaching Hospital (KATH)
Multispecialty breast cancer team
OBSTACLES TO CARE

➢ Advanced cancer stage at diagnosis

➢ Mastectomy without adjuvant treatment
  – No post-surgical radiation therapy
  – Inadequate adjuvant systemic therapy

➢ One pathologist for a 1,000 bed hospital

➢ Pathology report takes 4 – 6 months
PATHOLOGY PARTNERSHIP:
KUMASI — NORWAY TRAINING PROGRAM


Prompt pathology services to facilitate proper care, and to provide accurate data for a cancer registry.
Street billboard advertising local herbal medicine clinic in Kumasi claiming breast cancer treatment is provided.

Photo credit: Anna Kirby
Ghana Situation Analysis 2004

Peace and Love Hospital (Kumasi Private Hospital)

Recurrent breast cancer in axillary lymph node bed
PUBLIC MISCONCEPTIONS

- Breast cancer invariably fatal
- Cancer caused by social misbehavior
  - Oral / nipple contact
  - Dirty clothing
  - Wearing money in bra
- Mastectomy leads to death within few years
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BCI 2.5 is a global campaign to reduce disparities in breast cancer outcomes for 2.5 million women by 2025.
Breast Cancer Initiative 2.5
Inviting Partners

American Cancer Society
Susan G. Komen for the Cure
Breast Health Global Initiative
Harvard Global Equity Initiative
National Cancer Institute Center for Global Health
Norwegian Cancer Society
Pan American Health Organization (PAHO)
Union for International Cancer Control (UICC)
1. Outreach to raise awareness and build relationships;
2. Collaboration with regional alliances;
3. Development of analysis and implementation tools;
4. Situation analysis of breast health care systems;
5. Country framework forums and pathway plans; and
6. Technical assistance and implementation science research to improve breast health care delivery at all points in the cancer care continuum.
DECISION-MAKING TOOLS

7 Core Volumes

- Planning
- Prevention
- Early Detection
- Diagnosis
- Treatment
- Palliative Care
- Policy & Advocacy

- Comprehensive Planning: Call to Action
- Improving Access
- Breast Physiology and CBE
- Breast Health Awareness
- Mammography
- Clinical Assessment, Imaging & Staging
- Biopsies and Pathology
- Surgery
- Radiation Therapy
- Chemotherapy
- Hormonal Therapy & Targeted Agent
- During Treatment
- After Treatment
- Metastatic
KNOWLEDGE SUMMARY

IDENTIFY OBJECTIVES AND PRIORITIES

- Identify gaps in knowledge and misconceptions about breast cancer screening among primary care providers regarding their eligibility for breast cancer. Consider conducting focus groups with primary care providers to identify and address gaps in knowledge.
- Increase access to screening opportunities. Consider implementing strategies to increase awareness of available breast cancer screening services, such as community outreach programs and public health campaigns.

HOW DO WE GET THERE?

- Ensure clinical competency in breast cancer. Health systems are responsible for providing clinical competency in breast cancer. Health systems should provide ongoing education and training to healthcare providers to ensure they have the necessary knowledge and skills to provide high-quality care. Health systems should also create mechanisms to ensure that providers are trained and certified to deliver breast cancer care.
- Implement quality assurance programs. Establishing clear and consistent standards for breast cancer care is crucial. Health systems should implement quality assurance programs that track outcomes and continuously improve care. These programs should include metrics for improving diagnostic accuracy, treatment effectiveness, and patient satisfaction.
- Establish and maintain an infrastructure for quality improvement. This includes having systems in place to monitor and report on the quality of breast cancer care, as well as mechanisms to address identified issues and continuously improve care delivery.
- Focus on patient and community engagement. Patient and community engagement is essential for improving breast cancer care. Health systems should engage patients and communities in the planning and implementation of breast cancer programs and ensure that feedback is incorporated into the process.
- Implement comprehensive care pathways. A comprehensive care pathway is a structured plan that outlines the steps involved in delivering high-quality breast cancer care. This includes diagnostic, treatment, and follow-up care. Health systems should implement care pathways that are evidence-based and tailored to local needs.
- Foster collaboration and integration of services. Collaboration among healthcare providers is crucial for delivering high-quality breast cancer care. Health systems should promote collaboration among healthcare providers, such as oncologists, radiologists, and surgeons, to ensure that patients receive the appropriate care at the right time and in the right place.
- Evaluate and improve outcomes. Evaluation of breast cancer care outcomes is essential to continuously improve care delivery. Health systems should track and report outcomes, such as survival rates and recurrence rates, to identify areas for improvement and ensure that patients receive the best possible care.

POINTS FOR POLICYMAKERS

- Establish comprehensive screening guidelines. Establishing comprehensive screening guidelines is crucial for ensuring that all women have access to appropriate breast cancer screening. These guidelines should be evidence-based and take into account the local context and resources.
- Increase access to care. Increasing access to care is essential for improving breast cancer outcomes. Health systems should implement strategies to ensure that all women have access to screening, diagnosis, and treatment services.
- Foster collaboration among healthcare providers. Collaboration among healthcare providers is crucial for delivering high-quality breast cancer care. Health systems should promote collaboration among healthcare providers to ensure that patients receive the appropriate care at the right time and in the right place.
- Establish quality assurance programs. Establishing clear and consistent standards for breast cancer care is crucial. Health systems should implement quality assurance programs that track outcomes and continuously improve care. These programs should include metrics for improving diagnostic accuracy, treatment effectiveness, and patient satisfaction.
- Focus on patient and community engagement. Patient and community engagement is essential for improving breast cancer care. Health systems should engage patients and communities in the planning and implementation of breast cancer programs and ensure that feedback is incorporated into the process.
- Implement comprehensive care pathways. A comprehensive care pathway is a structured plan that outlines the steps involved in delivering high-quality breast cancer care. This includes diagnostic, treatment, and follow-up care. Health systems should implement care pathways that are evidence-based and tailored to local needs.
- Foster collaboration and integration of services. Collaboration among healthcare providers is crucial for delivering high-quality breast cancer care. Health systems should promote collaboration among healthcare providers, such as oncologists, radiologists, and surgeons, to ensure that patients receive the appropriate care at the right time and in the right place.
- Evaluate and improve outcomes. Evaluation of breast cancer care outcomes is essential to continuously improve care delivery. Health systems should track and report outcomes, such as survival rates and recurrence rates, to identify areas for improvement and ensure that patients receive the best possible care.
UPCOMING SCHEDULE

- 2/4/16: BCI 2.5 website launch (www.BCI25.org)
- 3/8/16: GloBAM launch (http://globam.fredhutch.org)
- 3/16/16: 4-country breast cancer course (Ghana)
- 5/11/16: Caribbean assessment (Miami)
- Aug 2016: Central America assessment (Guatemala)
- Sept 2016: South America assessment (Peru)
- Nov 2016: UICC global report and update (Paris)
RESEARCH STRATIFICATION

SUMMARY

- Cancer management requires a comprehensive approach to early detection, diagnosis and treatment using existing resources.
- Resource-stratified guidelines provide a framework for evidence-based management and helps identify systematic gaps.
- Country-specific situation analysis is needed to prioritize programmatic improvement in cancer care delivery.
- Guideline implementation requires collaboration among the clinical, public health and political communities.
The Breast Health Global Initiative

www.bhgi.info

BCI2.5
Making breast cancer a global priority

www.BCI25.org
“In preparing for battle, I have always found that plans are useless, but planning is indispensable.”

U.S. President 1953-1961