Breast Cancer Initiative 2.5 (BCI2.5):
RESOURCE-STRATIFIED IMPLEMENTATION
AND POLICY OPPORTUNITIES

Benjamin O. Anderson, M.D.
Chair and Director
Breast Health Global Initiative
Fred Hutchinson Cancer Research Center
Professor of Surgery & Global Health Medicine
University of Washington
Seattle, Washington
IMPLEMENTATION & POLICIES

- Adapting to Existing Resources
- Phased Implementation
- Opportunities in Cancer Control
IMPLEMENTATION & POLICIES

- Adapting to Existing Resources
- Phased Implementation
- Opportunities in Cancer Control
## CANCER CONTROL STRATEGIES

### PRIMARY PREVENTION

Population-Attributable Fraction (PAF) reflects potential prevention impact

<table>
<thead>
<tr>
<th>Etiology</th>
<th>Carcinogenic risk factor (associated PAF)</th>
<th>Overall PAF (%)</th>
<th>Risk reduction programs</th>
<th>Key multisectoral partners</th>
<th>Estimated cost-effectiveness</th>
</tr>
</thead>
</table>
| **Infectious etiologies** | HPV (cervical cancer 90–100%)*  
Hepatitis B and C (HCC 77%)*  
*H. pylori (gastric cancer 75%)* | 18              | Vaccinations                       | Health care workers  
Pharmaceutical companies  
Legislative bodies | Very cost-effective |
| **Behavioral factors** | Tobacco (30%)*  
Obesity (20%)*  
Diet (5%)*  
Alcohol (4%)* | 66              | Tobacco cessation  
Exercise programs  
Public education and outreach | General population (health literacy)  
Legislative bodies  
Health care workers | Very cost-effective |
| **Environmental factors** | Air pollution  
Aflatoxins | 4                | Environmental regulations          | Legislative bodies  
Business sector | Potentially cost-effective |
| **Clinical interventions** | Chemoprevention (such as tamoxifen, aspirin, celecoxib, or finasteride)  
Surgical procedures (such as prophylactic mastectomy or prophylactic oophorectomy) | N/A             | Insurance coverage for correctly selected individuals at elevated risk | Health care workers  
Pharmaceutical companies  
General population | Cost-effective |
CANCER CONTROL STRATEGIES
DISEASE-BASED APPROACH

- EARLY DETECTION
- PRIMARY PREVENTION
- DIAGNOSIS
- TREATMENT
CANCER CONTROL STRATEGIES
DISEASE-BASED APPROACH

- EARLY DETECTION
- DIAGNOSIS
- TREATMENT
- HEALTH SYSTEMS
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.
IMPLEMENTATION & POLICIES

- Adapting to Existing Resources
- Phased Implementation
- Opportunities in Cancer Control
IMPLEMENTATION & POLICIES

- Adapting to Existing Resources
- Phased Implementation
- Opportunities in Cancer Control
IARC WORKING GROUP 2014
BREAST CANCER SCREENING

- Mammography screening reduces breast cancer mortality
  - Women aged 50 - 74 years (sufficient)
  - Women aged 45 – 49 years (limited / sufficient)
  - Women aged 40 – 44 years (limited)

- Mammographic screening can be cost effective for women aged 50 – 69 in countries with high breast cancer incidence (sufficient)
- Mammographic screening can be cost effective in low and middle income countries (limited)

Lauby-Secretan et al, NEJM, June 3, 2015
# Breast Cancer Epidemiology

## Stage at Diagnosis: United States vs. India

<table>
<thead>
<tr>
<th>Stage</th>
<th>Extent</th>
<th>5 Year Survival</th>
<th>Distribution USA</th>
<th>Distribution India</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Noninvasive</td>
<td>100%</td>
<td>16%</td>
<td>----</td>
</tr>
<tr>
<td>I</td>
<td>Early stage disease</td>
<td>100%</td>
<td>40%</td>
<td>1%</td>
</tr>
<tr>
<td>II</td>
<td>Early stage disease</td>
<td>86%</td>
<td>34%</td>
<td>23%</td>
</tr>
<tr>
<td>III</td>
<td>Locally advanced</td>
<td>57%</td>
<td>6%</td>
<td>52%</td>
</tr>
<tr>
<td>IV</td>
<td>Metastatic disease</td>
<td>20%</td>
<td>4%</td>
<td>24%</td>
</tr>
</tbody>
</table>

**USA:** 90% DCIS or early staged invasive disease at diagnosis

**India:** 76% locally advanced or metastatic at diagnosis

**Sources:** SEER Survival Monograph (NCI), 2007; Chopra, Cancer Institute Chennai, 2001
Indonesia

CBE training for nurse midwives
RESULTS

- 1,179 women underwent both mammography and CBE
- 289 women (24.5%) were found to have a suspicious finding on CBE, mammography or both
- 14 women (1.2%) were found to have a breast cancer
  - Of the 14 breast cancers, 13 (93%) appreciated on CBE
  - 167 (14.2%) CBE exams required additional work-up to diagnose 13 of the 14 cancers seen on mammography

RESULTS

- 1,179 women underwent both mammography and CBE
- 289 women (24.5%) were found to have a suspicious finding on CBE, mammography or both
- 14 women (1.2%) were found to have a breast cancer
  - 8 of 14 patients (57%) failed to undergo treatment
    - 2 of 14 breast cancer patients refused surgery
    - 6 of 14 breast cancer patients lost to follow-up

LMC IMPLEMENTATION RESEARCH
LOWER-MIDDLE INCOME COUNTRY

Early Detection and Patient Triage

Peru
Breast cancer care model

Regional Cancer Institute (Trujillo)
- Mammography
- Pathology
- Surgery
- Chemotherapy
- Radiotherapy

La Fora Reference Hospital
- FNA

Health Centers
- Community education
- CBE

Photos courtesy of Ben Anderson

Slide used with permission from PATH
Previous Clinical Breast Examination is Associated with Reduced Delays and Earlier Stage Breast Cancer Diagnoses Among Women in Trujillo, Peru.

**Presented by:**
Anya Romanoff, M.D.
University of Washington

Global Health Fellows Program Orientation
National Institutes of Health
July 4-10, 2016
Results: Delay

- **Study population**
  - 113/159 women participated (71% enrollment)
  - 93% of study participants were diagnosed with symptomatic disease.

- **Shorter patient delay (<90 days)**
  - Married status
  - Higher household income
  - Previous clinical breast exam (CBE)

- **Shorter health system delay (<90 days)**
  - Increased out of pocket expenses

Figure 1. Breast cancer method of detection (n=113).

Figure 2. Mean delay timeline.
Predictors of early stage at diagnosis (0, I, II):
- Married
- Employer-provided insurance*
- Education
- Living near cancer center
- Previous CBE*
- Previous mammography

Women with shorter patient delay were more likely to be diagnosed with early stage disease than those with longer patient delay (54.2% vs. 30.6%, p=0.04)

Women who underwent a previous CBE had 2.7 times greater odds of being diagnosed with early-stage breast cancer compared with women who never had a previous CBE
IMPLEMENTATION & POLICIES

- Adapting to Existing Resources
- Phased Implementation
- Opportunities in Cancer Control
IMPLEMENTATION & POLICIES

- Adapting to Existing Resources
- Phased Implementation
- Opportunities in Cancer Control
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

Susan G. Komen for the Cure
American Cancer Society
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. Development of analysis and implementation tools;
3. Global Breast Health Analytics Map (GloBAM);
4. Baseline assessments / situation analysis;
5. Breast cancer action plans (BCAP); and
6. BCI2.5 Master Courses;
7. Technical assistance and implementation research.
GloBAM

http://globam.fredhutch.org/
KNOWLEDGE SUMMARIES

POINTS FOR POLICYMAKERS

PLANNING STEP 2: WHERE DO WE WANT TO BE?

IDENTIFY OBJECTIVES AND PRIORITIES

- Identify barriers to providing access to cancer prevention services and to health care providers
- Identify barriers to providing access to cancer screening services
- Identify barriers to providing access to cancer treatment services
- Identify barriers to providing access to cancer educational and support services
- Identify barriers to providing access to cancer research and development services
- Identify barriers to providing access to cancer advocacy and policy services

Set achievable objectives

- Objectives should be specific, measurable, attainable, relevant, and time-bound (SMART)
- Objectives should be measurable and-trackable (MTR)
Public Participation

- Awareness
- Advocacy
- Survivorship

Health Care Delivery

- Early Detection
- Diagnosis
- Treatment
IMPLEMENTATION & POLICIES

SUMMARY

- Resource-stratified guidelines provide a framework for prioritizing early detection, diagnosis and treatment strategies.

- Successful health systems integrate survivors and advocates to promote cancer down-staging and timely treatment.

- BCI2.5 is creating educational and assessment tools to facilitate baseline assessments and determine next steps for program-building based on a resource-stratified framework.

- Policy makers require evidence that implementation can be improve outcomes with efficient, sustainable approaches that can be integrated into existing healthcare systems.
The Breast Health Global Initiative

www.bhgi.info

BREAST CANCER INITIATIVE 2.5
Making breast health a global priority

www.BCI25.org