MANAGEMENT FOR NIGERIA:

RESOURCE-APPROPRIATE STRATEGIES FOR TREATMENT IMPLEMENTATION

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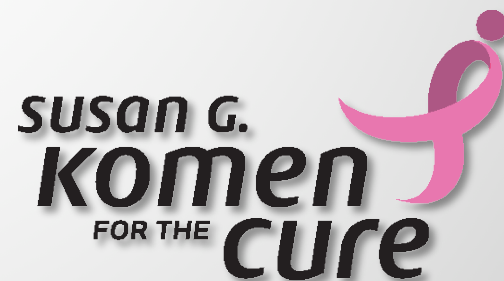**University of Washington**

Seattle, Washington

The Breast Health Global Initiative

www.bhgi.info

Cancer Management for Nigeria

- ➢ Multidisciplinary Treatment

- ➢ Care Network Assessment
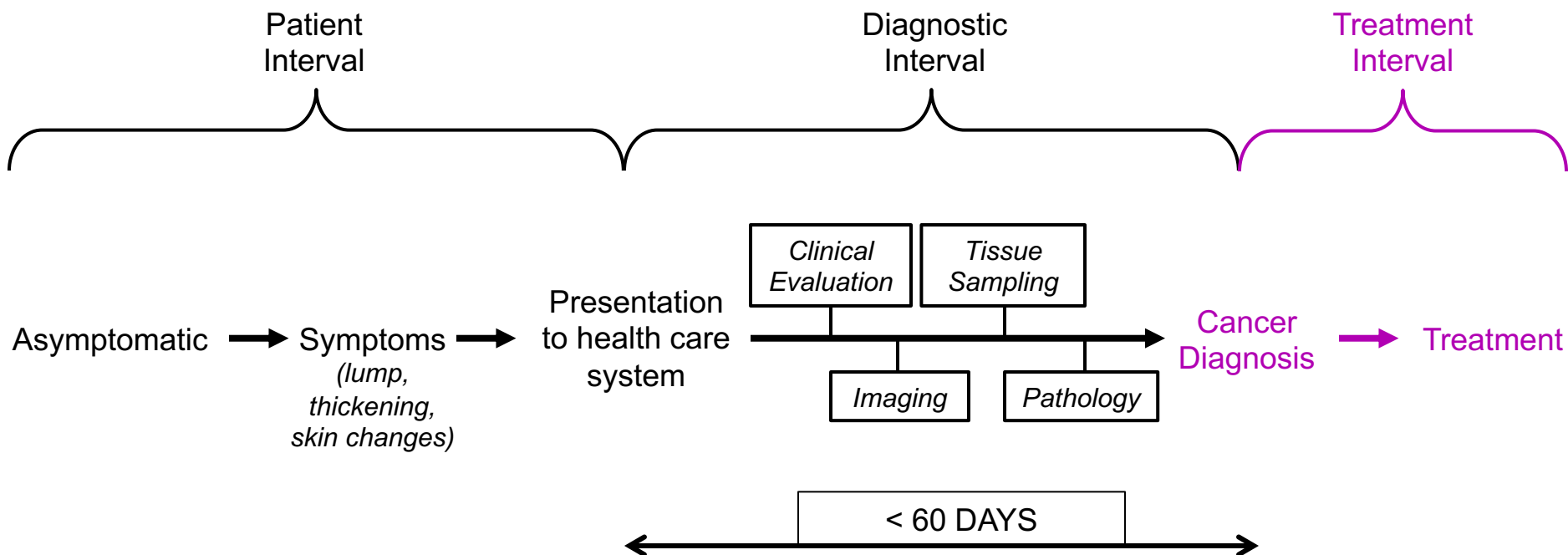
- ➢ Implementation Strategies

Cancer Management for Nigeria

➢ **Multidisciplinary Treatment**

➢ Care Network Assessment

➢ Implementation Strategies

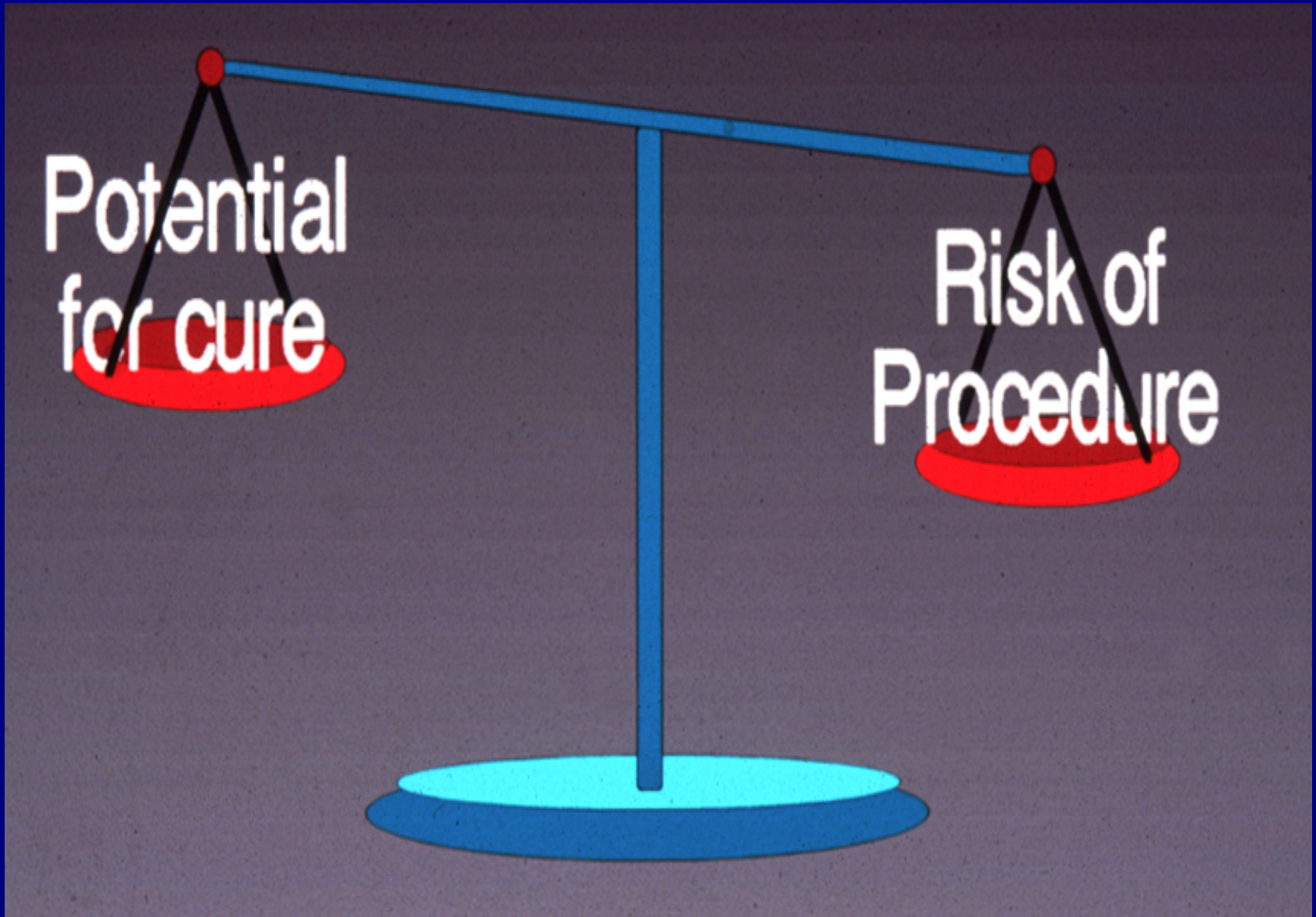# CANCER CONTROL STRATEGIES
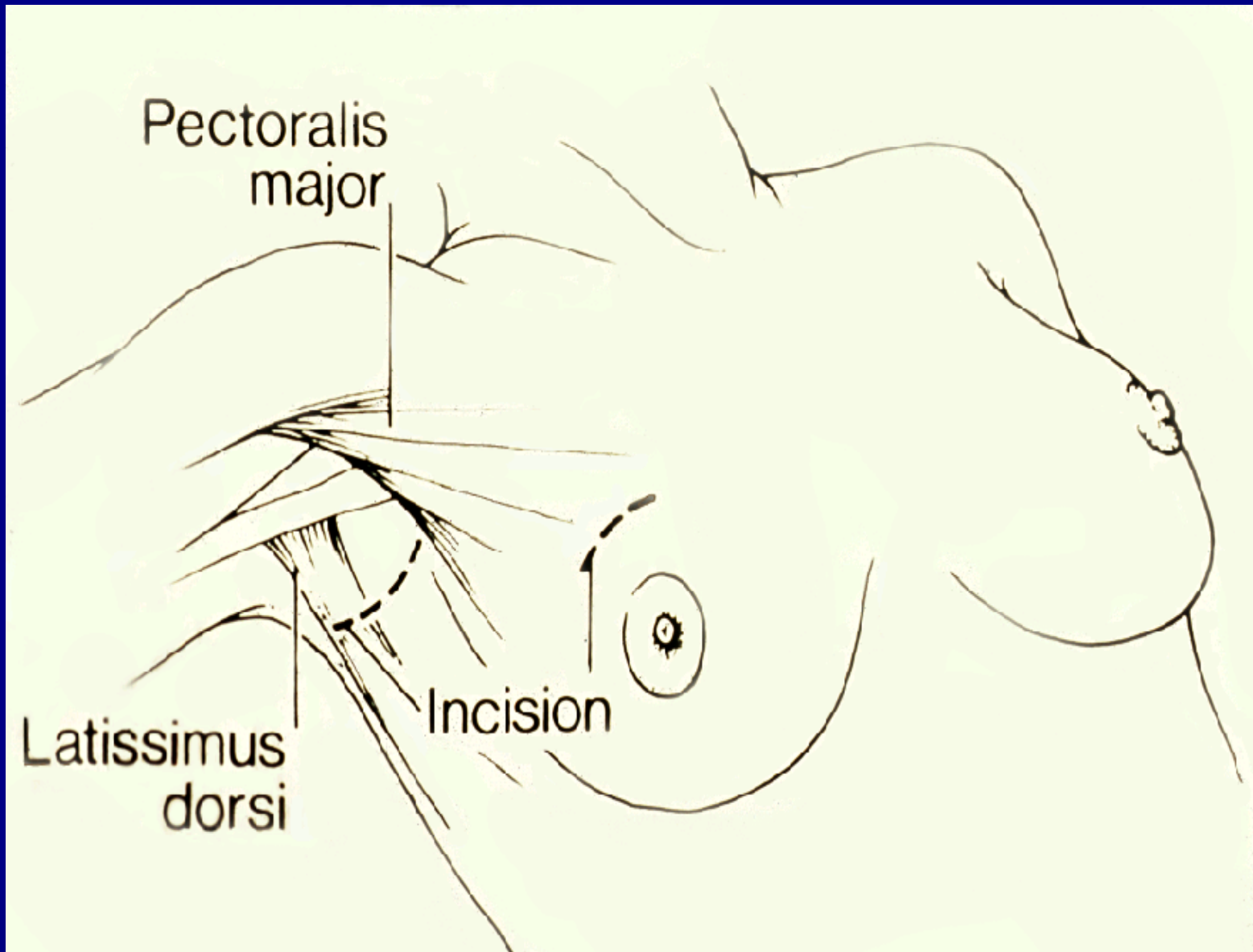## BREAST CANCER PATHWAY
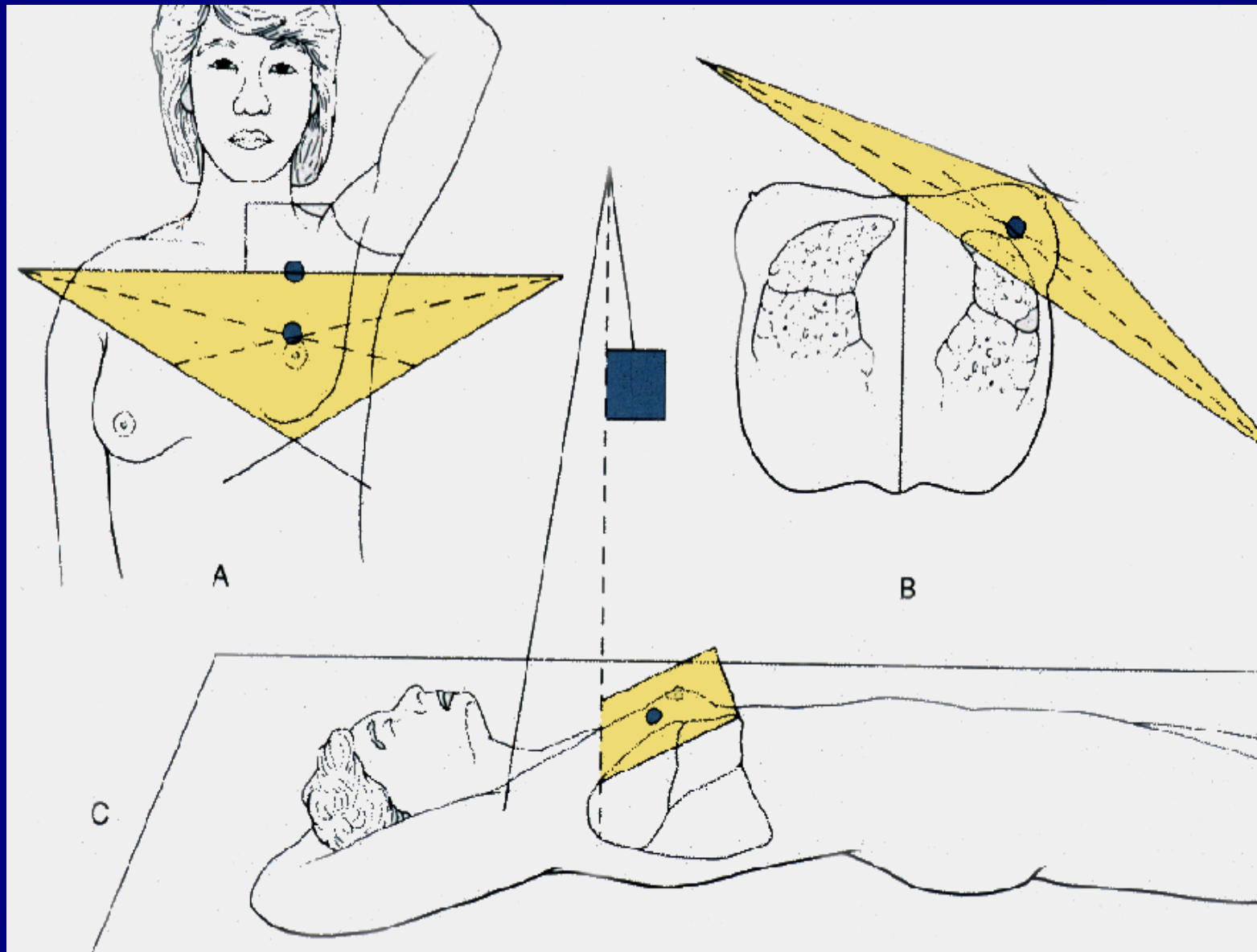
RADICAL MASTECTOMY

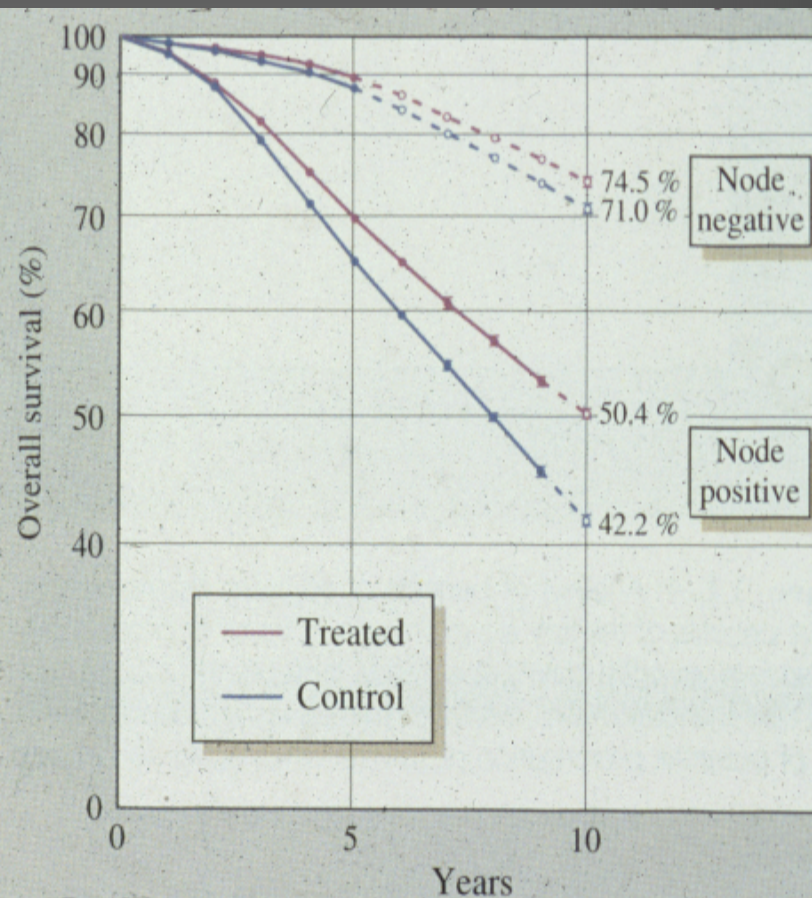# MODIFIED RADICAL MASTECTOMY

EVOLUTION IN CANCER TREATMENT

BREAST CONSERVING SURGERY

BREAST CANCER TREATMENT
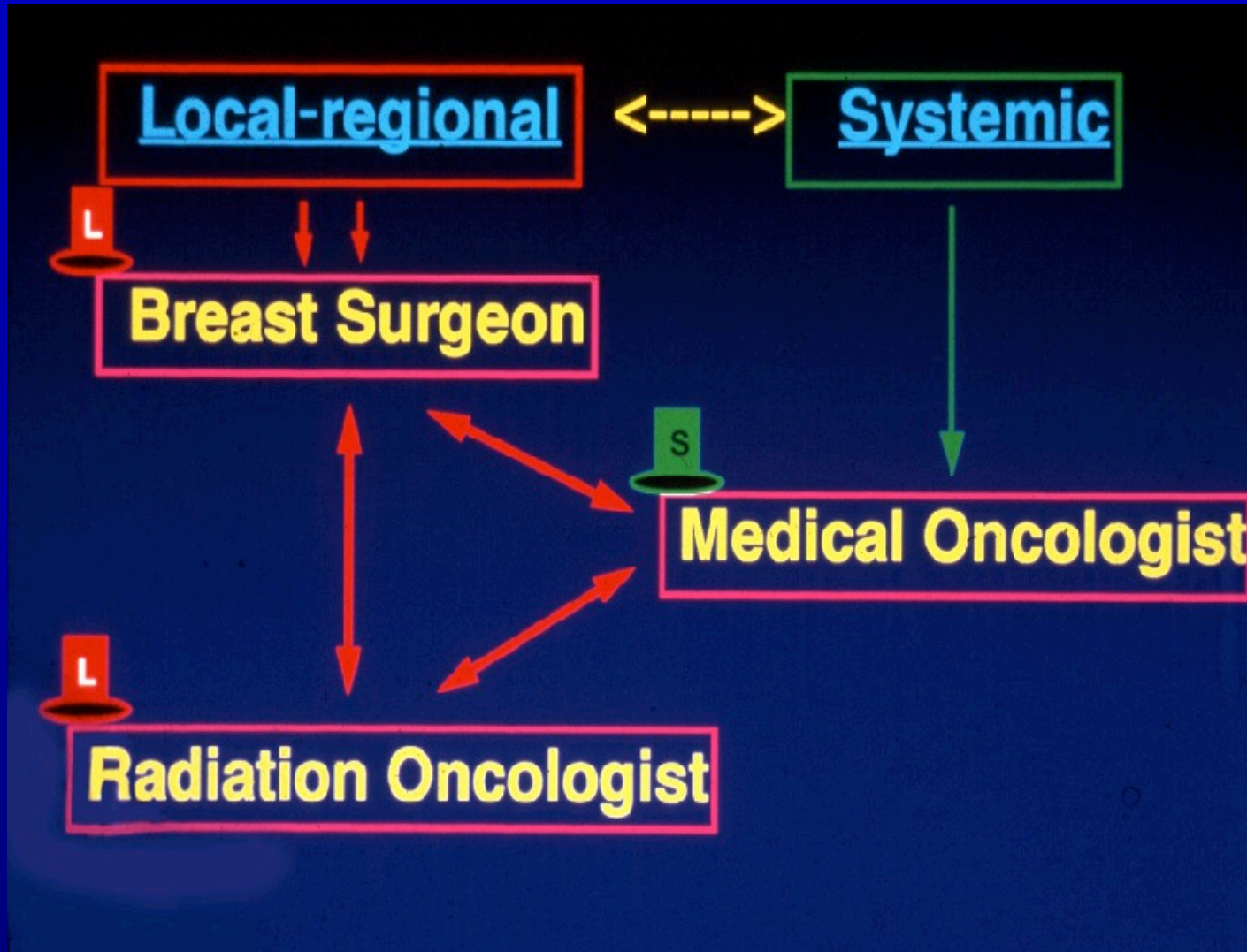
TREATMENT – LOCALLY ADVANCED

Level of resources	Local-Regional Treatment		Systemic Treatment (Adjuvant or Neoadjuvant)		
	Surgery	Radiation Therapy	Chemotherapy	Endocrine Therapy	Biological Therapy
Basic	Modified radical mastectomy	*	Preoperative chemotherapy with AC, EC, FAC or CMF[†]	Oophorectomy in premenopausal women Tamoxifen[‡]	
Limited		Postmastectomy irradiation of chest wall and regional nodes*			§
Enhanced	Breast-conserving surgery Breast reconstruction surgery	Breast-conserving whole-breast irradiation as part of breast-conserving therapy	Taxanes	Aromatase inhibitors LH-RH agonists	Trastuzumab for treating HER-2/neu positive disease[§]
Maximal			Growth factors Dose-dense chemotherapy		

Cancer: 113 (8 suppl), 2008

13

NCCN Harmonized Guidelines™ for Sub-Saharan Africa

Breast Cancer

Version 2.2017 — November 3, 2017

NCCN.org

NCCN Guidelines for Patients® available at www.nccn.org/patients

Continue

NCCN National Comprehensive Cancer Network®

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Invasive Breast Cancer

NCCN Guidelines Index
Table of Contents
Discussion

CLINICAL STAGE

WORKUP

- History and physical exam
- Diagnostic bilateral mammogram; ultrasound as necessary
- Pathology review[a]
- Determination of tumor estrogen/progesterone receptor (ER/PR) status and HER2 status[b,**]
- Genetic counseling if patient is high risk for hereditary breast cancer[c,*]
- Breast MRI[d] (optional), with special consideration for mammographically occult tumors
- Counseling for fertility concerns if premenopausal[e]
- Assess for distress[f]

For clinical stage I-IIB, consider additional studies only if directed by signs or symptoms:[g,]
- Complete blood count (CBC)
- Comprehensive metabolic panel, including liver function tests and alkaline phosphatase
- Bone scan indicated if localized bone pain or elevated alkaline phosphatase
- Abdominal ± pelvic diagnostic CT with contrast or MRI with contrast indicated if elevated alkaline phosphatase, abnormal liver function tests, abdominal symptoms, or abnormal physical examination of the abdomen or pelvis
- Chest diagnostic CT with contrast (if pulmonary symptoms present)
- **Chest x-ray and abdominal ultrasound (including asymptomatic patients)**

If clinical stage IIIA (T3, N1, M0) consider:
- CBC
- Comprehensive metabolic panel, including liver function tests and alkaline phosphatase
- **Chest x-ray and abdominal ultrasound (including asymptomatic patients)**
- Chest diagnostic CT with contrast
- Abdominal ± pelvic diagnostic CT with contrast or MRI with contrast
- Bone scan or sodium fluoride PET/CT[h] (category 2B)
- FDG PET/CT[i,j] (optional)

Stage I
T1, N0, M0
or
Stage IIA
T0, N1, M0
T1, N1, M0
T2, N0, M0
or
Stage IIB
T2, N1, M0
T3, N0, M0
or
Stage IIIA
T3, N1, M0

→ **See Locoregional Treatment (BINV-2)[k]**

If considering preoperative systemic therapy for Stage II and III

→ **See Preoperative Systemic Therapy for Operable Breast Cancer: Workup (BINV-10)**
or
See Preoperative Systemic Therapy for Inoperable or Locally Advanced Breast Cancer (Non-Inflammatory): Workup (BINV-14)

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[a] The panel endorses the College of American Pathologists Protocol for pathology reporting for all invasive and noninvasive carcinomas of the breast. http://www.cap.org.
[b] See Principles of HER2 Testing (BINV-A).
[c] See NCCN Guidelines for Genetic/Familial High-Risk Assessment: Breast and Ovarian.
[d] See Principles of Dedicated Breast MRI Testing (BINV-B).
[e] See Fertility and Birth Control (BINV-C).
[f] See NCCN Guidelines for Distress Management.
[g] Routine systemic staging is not indicated for early breast cancer in the absence of symptoms.
[h] If FDG PET/CT is performed and clearly indicates bone metastasis, on both the PET and CT component, bone scan or sodium fluoride PET/CT may not be needed.

*At a basic level, have a discussion with patient and family members.
**If HER2 testing is not available, follow HER-negative pathway.
[i] FDG PET/CT can be performed at the same time as diagnostic CT. The use of PET or PET/CT is not indicated in the staging of clinical stage I, II, or operable stage III breast cancer. FDG PET/CT is most helpful in situations where standard staging studies are equivocal or suspicious, especially in the setting of locally advanced or metastatic disease.
[j] FDG PET/CT may also be helpful in identifying unsuspected regional nodal disease and/or distant metastases in locally advanced breast cancer when used in addition to standard staging studies.
[k] See NCCN Guidelines for Older Adult Oncology for special treatment considerations.

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Invasive Breast Cancer

NCCN Guidelines Index
Table of Contents
Discussion

LOCOREGIONAL TREATMENT OF CLINICAL STAGE I, IIA, OR IIB DISEASE OR T3, N1, M0[k]

Excision to negative margins with surgical axillary staging (category 1)[l,m,n]
This pathway should only be followed if radiation therapy is available.

→ ≥4 positive[q*] axillary nodes → Radiation therapy to whole breast with or without boost[r] to tumor bed (category 1), infraclavicular region, supraclavicular area, internal mammary nodes, and any part of the axillary bed at risk (category 1). It is common for radiation therapy to follow chemotherapy when chemotherapy is indicated.

→ 1–3 positive axillary nodes → Radiation therapy to whole breast with or without boost[r] to tumor bed (category 1). Strongly consider radiation therapy to infraclavicular region, supraclavicular area, internal mammary nodes, and any part of the axillary bed at risk. It is common for radiation therapy to follow chemotherapy when chemotherapy is indicated.

→ Negative axillary nodes → Radiation therapy to whole breast with or without boost[r] to tumor bed, and consider regional nodal radiation in patients with central/medial tumors or tumors >2 cm with other high-risk features (young age or extensive lymphovascular invasion [LVSI]).
or
Consideration of accelerated partial breast irradiation (APBI) in selected low-risk patients.[r,s]
It is common for radiation therapy to follow chemotherapy when chemotherapy is indicated.[t]

→ See BINV-4

or

Total mastectomy** with surgical axillary staging[l,m,o] (category 1) ± reconstruction[p] → **See Locoregional Treatment (BINV-3)**
or
If T2 or T3 and fulfills criteria for breast-conserving therapy except for size[n] → **Consider Preoperative Systemic Therapy Guideline (BINV-10)**

If axillary staging is not adequate, then follow the ration pathway for >4 positive axillary nodes.
** If radiotherapy is not available then total mastectomy
[k]See NCCN Guidelines for Older Adult Oncology for special treatment considerations.
[l]Level I/II axillary dissection or See Surgical Axillary Staging (BINV-D).
[m]See Axillary Lymph Node Staging (BINV-E) and Margin Status in Infiltrating Carcinoma (BINV-F).
[n]See Special Considerations to Breast-Conserving Therapy Requiring Radiation Therapy (BINV-G).
[o]Except as outlined in the NCCN Guidelines for Genetic/Familial High-Risk Assessment: Breast and Ovarian and the NCCN Guidelines for Breast Cancer Risk Reduction, prophylactic mastectomy of a breast contralateral to a known unilateral breast cancer is discouraged. When considered, the small benefits from contralateral prophylactic mastectomy for women with unilateral breast cancer must be balanced with the risk of recurrent disease from the known ipsilateral breast cancer, psychological and social issues of bilateral mastectomy, and the risks of contralateral mastectomy. The use of a prophylactic mastectomy contralateral to a breast treated with breast-conserving therapy is very strongly discouraged.

[p]See Principles of Breast Reconstruction Following Surgery (BINV-H).
[q]Consider imaging for systemic staging, including chest/abdominal ± pelvic diagnostic CT with contrast, bone scan, and optional FDG PET/CT (See BINV-1).
[r]See Principles of Radiation Therapy (BINV-I).
[s]PBI may be administered prior to chemotherapy.
[t]Breast irradiation may be omitted in patients ≥70 y of age with estrogen-receptor positive, clinically node-negative, T1 tumors who receive adjuvant endocrine therapy (category 1).

Note: This is the NCCN Harmonized Guidelines™ for Sub-Saharan Africa. For definitions, see page DEF-1.
Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

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Version 2.2017
Invasive Breast Cancer

NCCN Guidelines Index
Table of Contents
Discussion

HISTOLOGY	HORMONE RECEPTOR STATUS	HER2 STATUS *	SYSTEMIC ADJUVANT TREATMENT

- Ductal[v]
- Lobular
- Mixed
- Metaplastic

ER positive and/or PR positive

HER2-positive[b] → See Systemic Adjuvant Treatment - Hormone Receptor Positive - HER2-Positive Disease (BINV-5)

HER2-negative[b] or unknown → **See Systemic Adjuvant Treatment - Hormone Receptor Positive - HER2-Negative or Unknown Disease (BINV-6)**

ER negative and PR negative

HER2-positive[b] → See Systemic Adjuvant Treatment - Hormone Receptor Negative - HER2-Positive Disease (BINV-7)

HER2-negative or unknown[b] → **See Systemic Adjuvant Treatment - Hormone Receptor Negative - HER2-Negative or Unknown Disease (BINV-8)**

- Tubular
- Mucinous

ER positive and/or PR positive

ER negative and PR negative

→ **See Systemic Adjuvant Treatment - Favorable Histologies (BINV-9)**

*If HER2 status unknown, follow the negative path.
[b]See Principles of HER2 Testing (BINV-A).

[v]This includes medullary and micropapillary subtypes.

Note: This is the NCCN Harmonized Guidelines™ for Sub-Saharan Africa. For definitions, see page DEF-1.
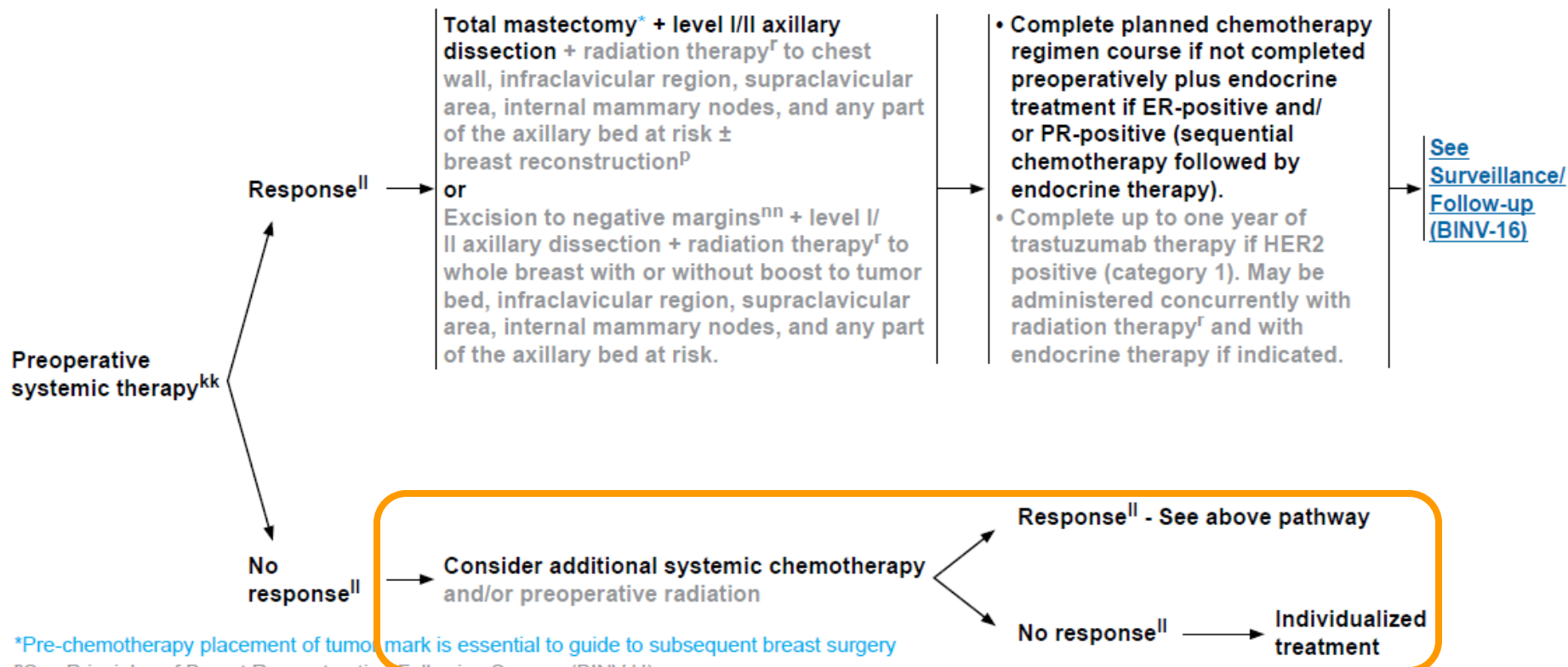Note: All recommendations are category 2A unless otherwise indicated.
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NCCN National Comprehensive Cancer Network®

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Version 2.2017
Invasive Breast Cancer

NCCN Guidelines Index
Table of Contents
Discussion

PREOPERATIVE SYSTEMIC THERAPY FOR INOPERABLE OR LOCALLY ADVANCED BREAST CANCER (NON-INFLAMMATORY)

LOCOREGIONAL TREATMENT

ADJUVANT TREATMENT

Preoperative systemic therapy[kk]

Response[ll] →

Total mastectomy[*] + level I/II axillary dissection + radiation therapy[r] to chest wall, infraclavicular region, supraclavicular area, internal mammary nodes, and any part of the axillary bed at risk ± breast reconstruction[p]

or

Excision to negative margins[nn] + level I/II axillary dissection + radiation therapy[r] to whole breast with or without boost to tumor bed, infraclavicular region, supraclavicular area, internal mammary nodes, and any part of the axillary bed at risk.

→

- Complete planned chemotherapy regimen course if not completed preoperatively plus endocrine treatment if ER-positive and/or PR-positive (sequential chemotherapy followed by endocrine therapy).
- Complete up to one year of trastuzumab therapy if HER2 positive (category 1). May be administered concurrently with radiation therapy[r] and with endocrine therapy if indicated.

→ See Surveillance/Follow-up (BINV-16)

No response[ll] →

Consider additional systemic chemotherapy and/or preoperative radiation

→ **Response[ll]** - See above pathway

→ **No response[ll]** → Individualized treatment

[*]Pre-chemotherapy placement of tumor mark is essential to guide to subsequent breast surgery
[p]See Principles of Breast Reconstruction Following Surgery (BINV-H).
[r]See Principles of Radiation Therapy (BINV-I).
[kk]See Principles of Preoperative Systemic Therapy (BINV-L).
[ll]The accurate assessment of in-breast tumor or regional lymph node response to preoperative systemic therapy is difficult, and should include physical examination and performance of imaging studies (mammogram and/or breast MRI) that were abnormal at the time of initial tumor staging. Selection of imaging methods prior to surgery should be determined by the multidisciplinary team.

[nn]For patients with skin and/or chest wall involvement (T4 non-inflammatory) prior to preoperative systemic therapy, breast conservation may be performed in carefully selected patients based on a multidisciplinary assessment of local recurrence risk. In addition to standard contraindications to breast conservation (see BINV-G), exclusion criteria for breast conservation include: inflammatory (T4d) disease before preoperative systemic therapy and incomplete resolution of skin involvement after preoperative systemic therapy.

Cancer Management for Nigeria

- ➢ Multidisciplinary Treatment

- ➢ Care Network Assessment

- ➢ Implementation Strategies

Cancer Management for Nigeria

➢ **Multidisciplinary Treatment**

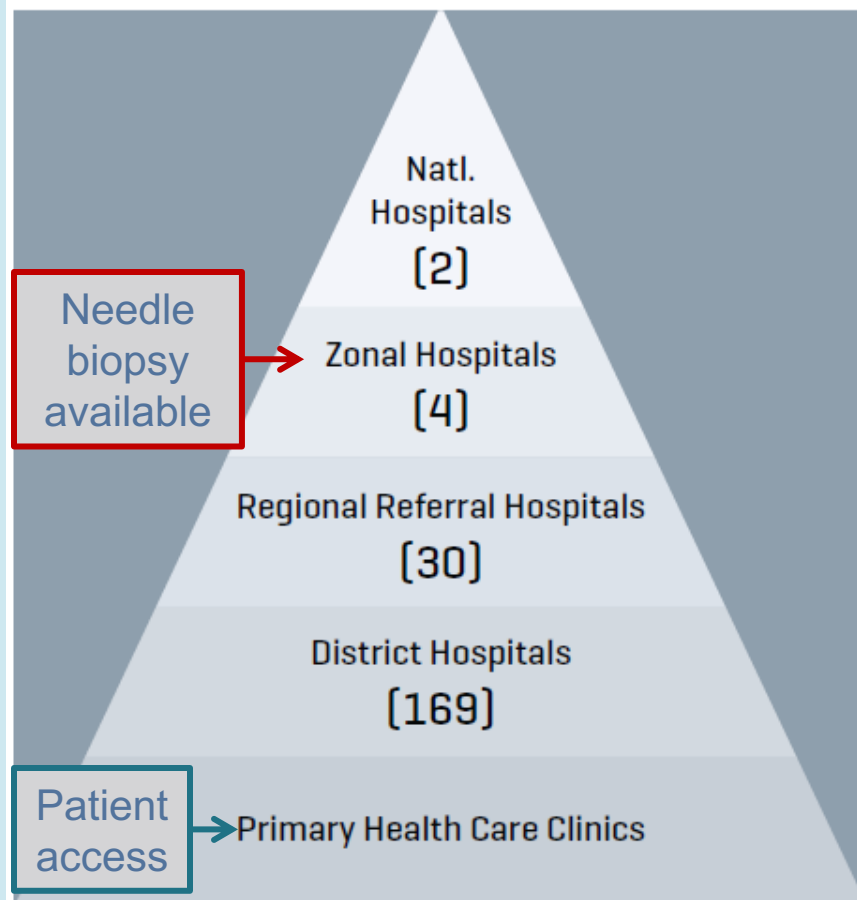➢ Care Network Assessment

➢ **Implementation Strategies**

Tanzania

Tanzania Situation Analysis

TANZANIA BREAST HEALTH CARE ASSESSMENT 2017

An Assessment of Breast Cancer Early Detection, Diagnosis and Treatment in Tanzania

Figure 2: Tanzanian health care structure

Natl. Hospitals [2]

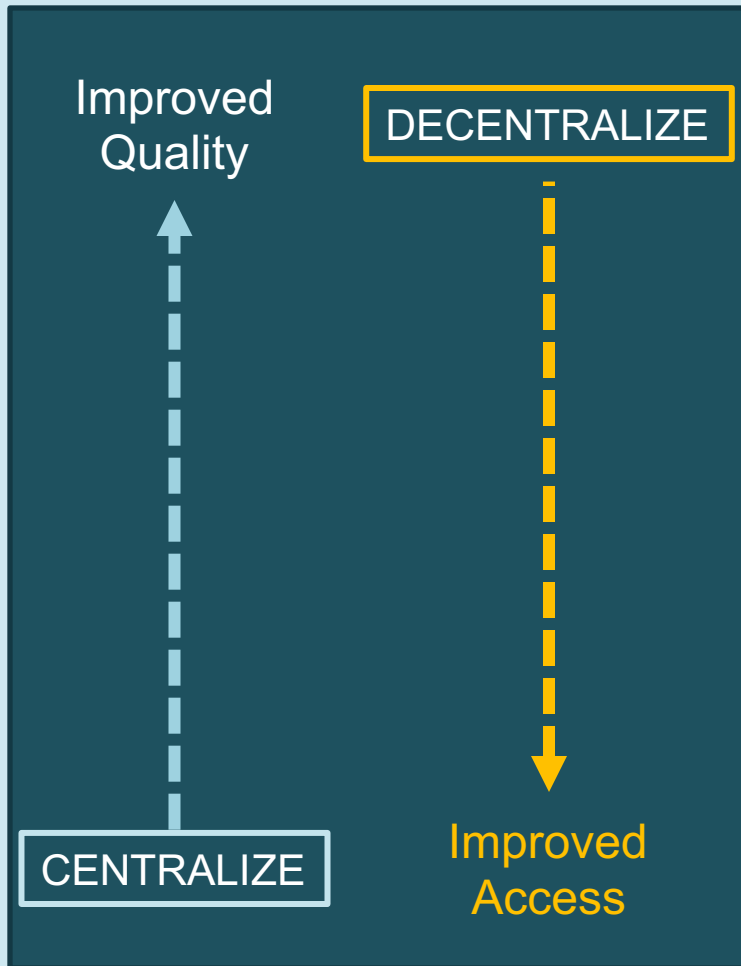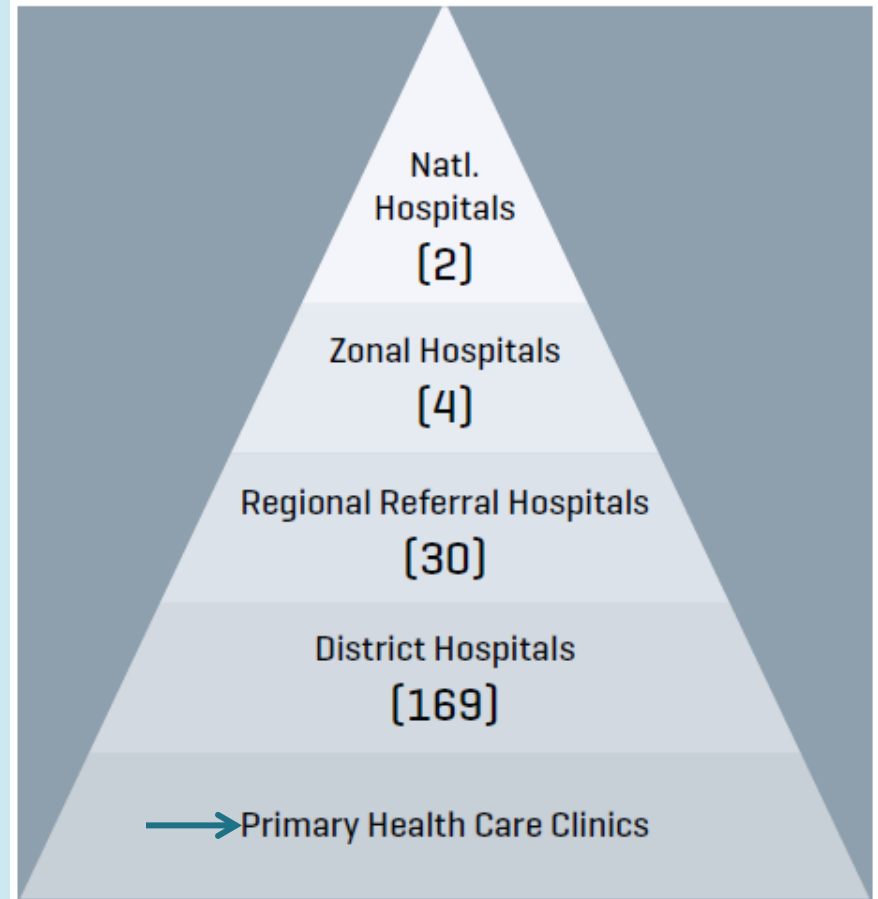Zonal Hospitals [4]

Regional Referral Hospitals [30]

District Hospitals [169]

Primary Health Care Clinics

Needle biopsy available

Patient access

Centralize or Decentralize?

Figure 2: Tanzanian health care structure

- Natl. Hospitals [2]
- Zonal Hospitals [4]
- Regional Referral Hospitals [30]
- District Hospitals [169]
- Primary Health Care Clinics

KEY STAKEHOLDERS

Government
Ministries/Policymakers

Clinical Healthcare workers

Civil Society
Patients/Advocates

1 Policy
Protocols
Health system

2 Guidelines
Education and training
Technology/equipment

3 Advocacy
Education
Implementation

Three Modeling Steps

Decouple effect of screening from effect of treatment

- *Effect of screening*
  - Reduce frequency of advanced disease
  - (Additionally) May improve survival of localized disease
- *Effect of treatment*
  - Improve stage-specific survival

Healthy Individual — Latent Disease — Disease Diagnosis → Death

DISEASE BIOLOGY

Three Modeling Steps
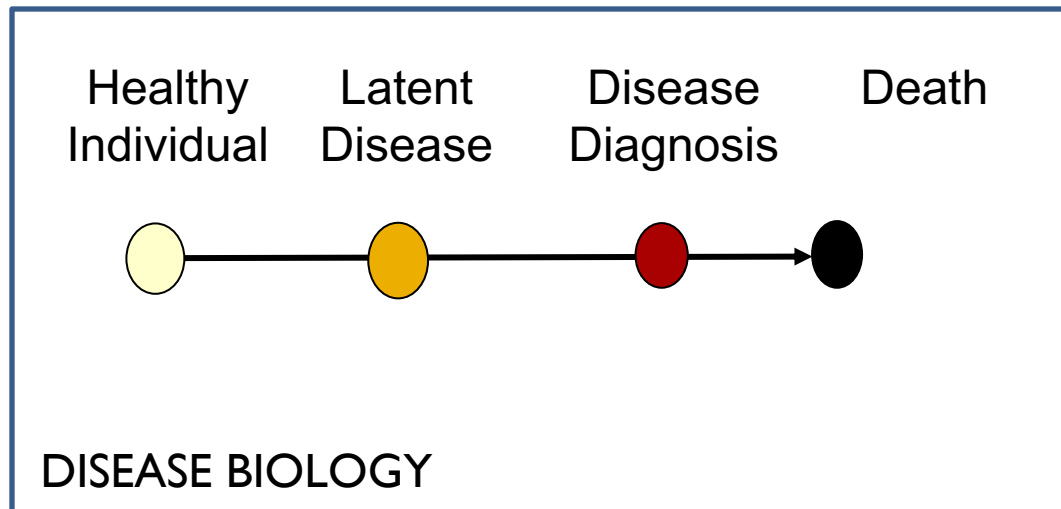
Decouple effect of screening from effect of treatment

- *Effect of screening*
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- *Effect of treatment*
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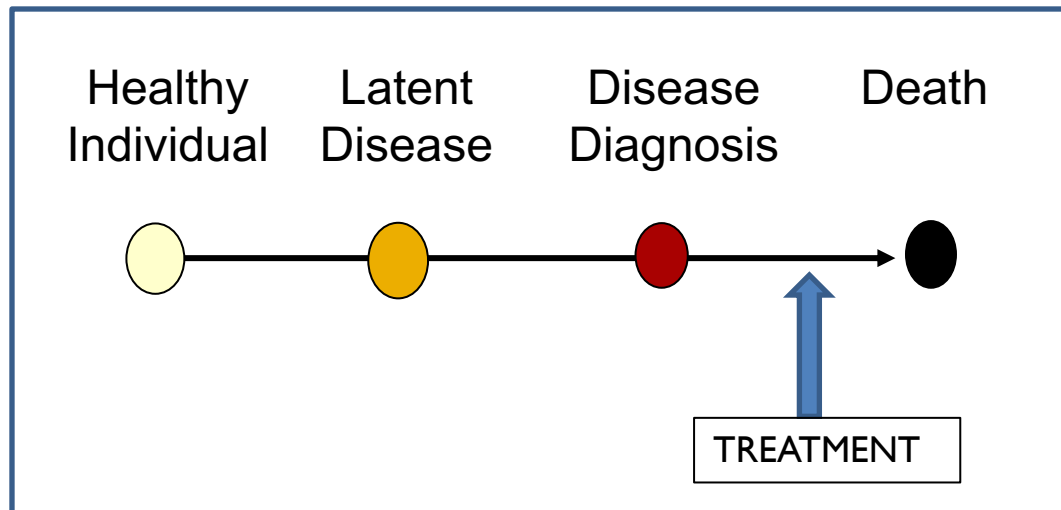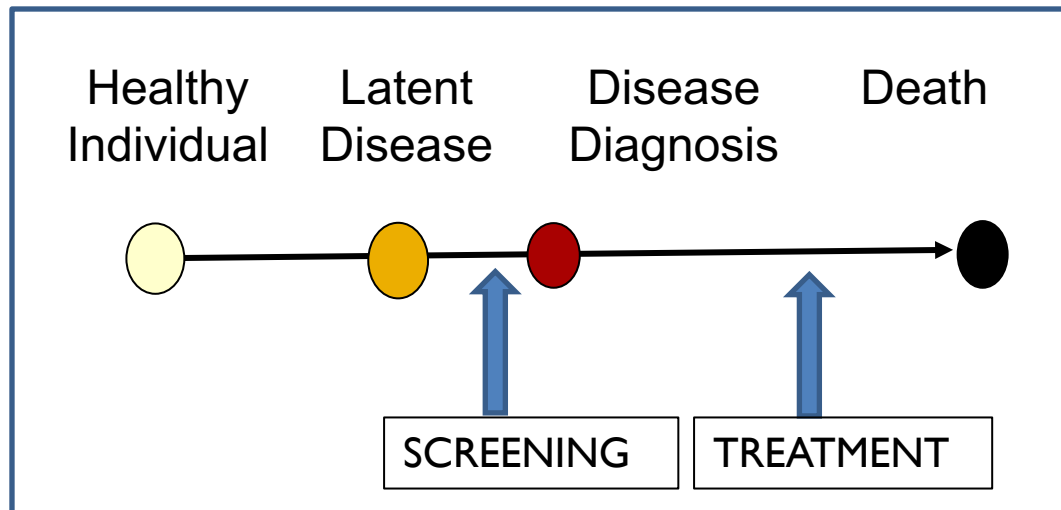| Healthy Individual	Latent Disease	Disease Diagnosis	Death

TREATMENT

Three Modeling Steps

Decouple effect of screening from effect of treatment

- ***Effect of screening***
  - Reduce frequency of advanced disease
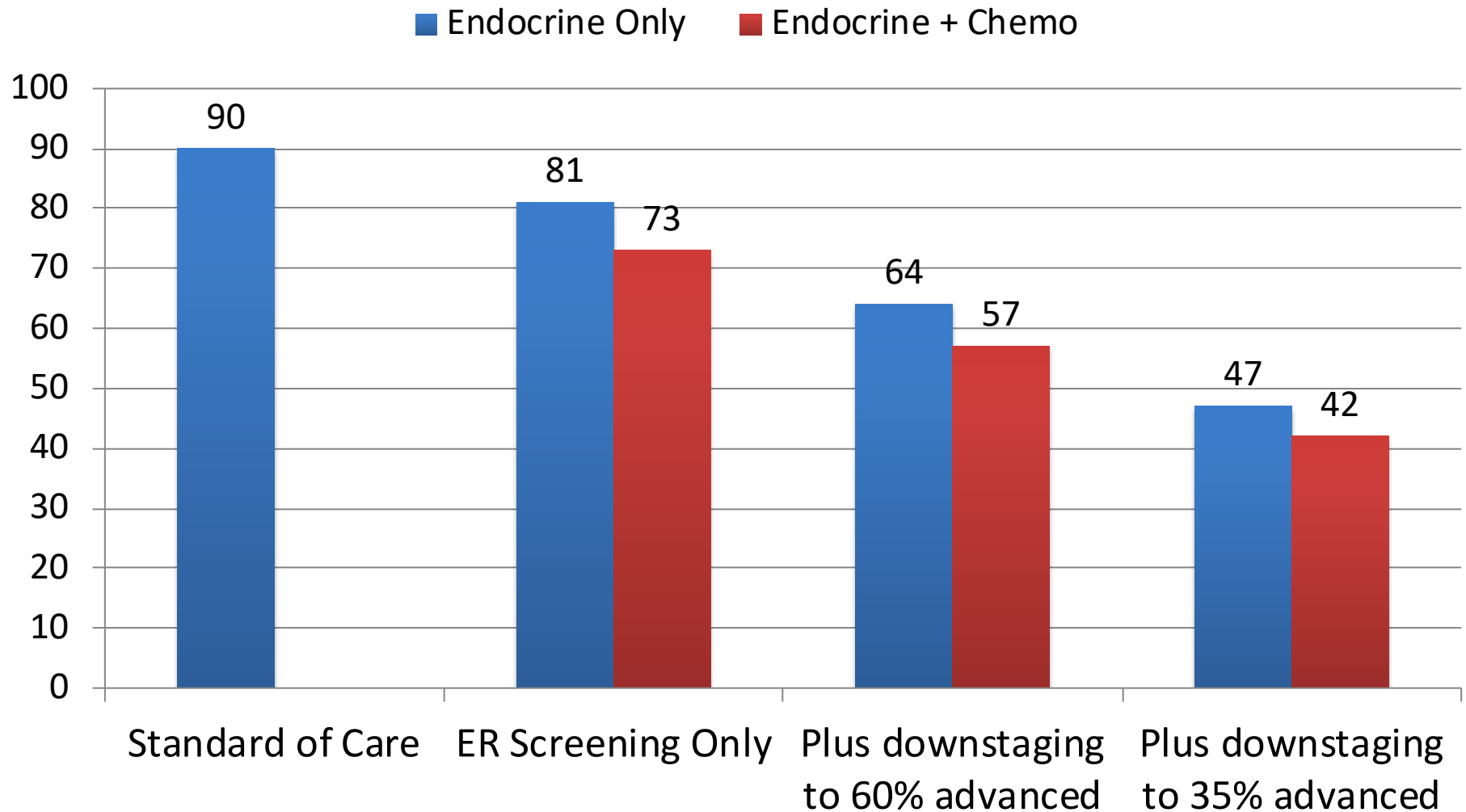 - (Additionally) May improve survival of localized disease
- ***Effect of treatment***
  - Improve stage-specific survival

Tanzania: Breast Ca Mortality after 5 years per 100,000 ages 30-49

Tanzania: Years of Life Saved after 5 years per 100,000 ages 30-49
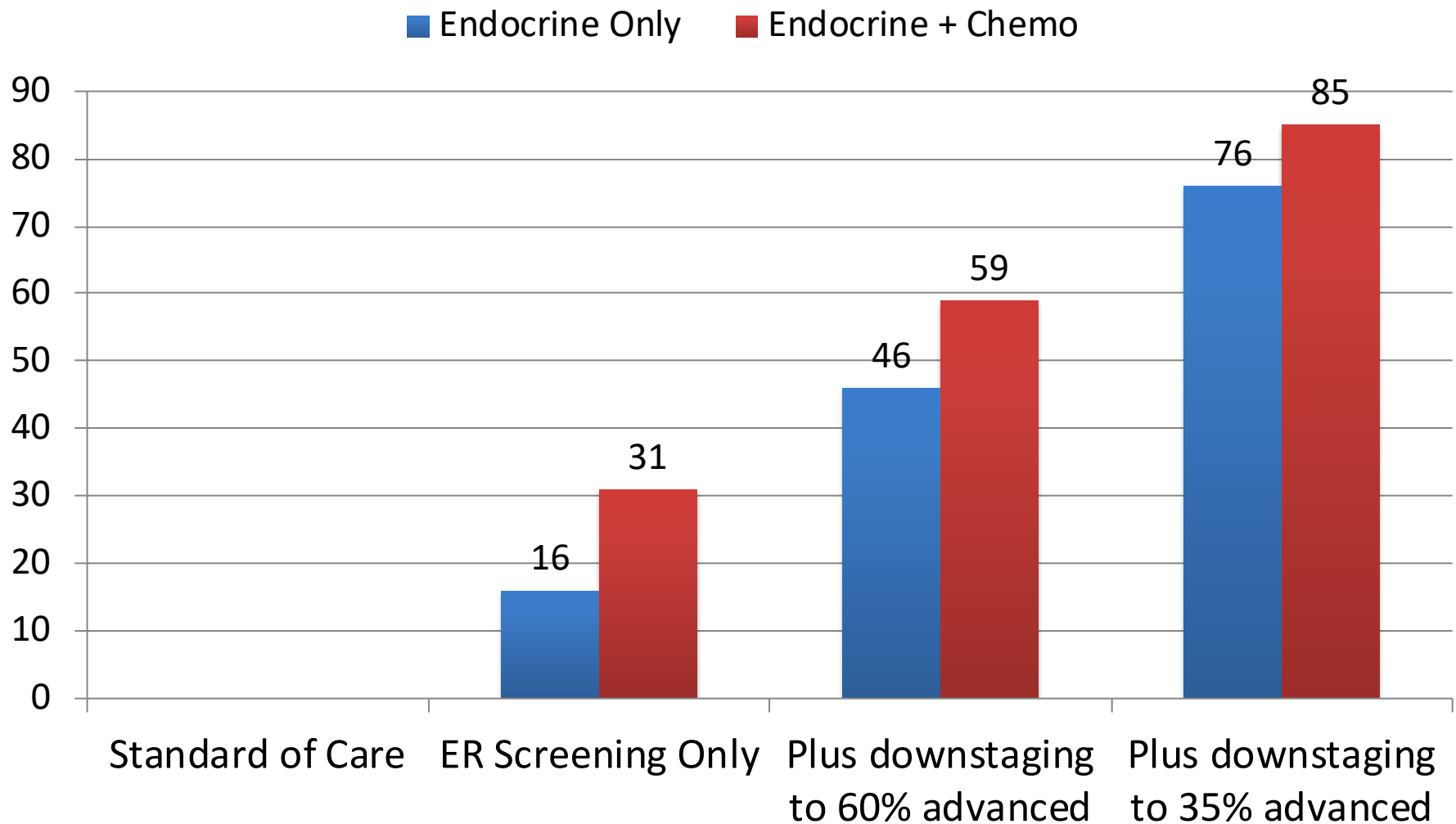
Cancer Management for Nigeria

➢ **Multidisciplinary Treatment**

➢ Care Network Assessment

➢ **Implementation Strategies**

Cancer Management for Nigeria

➤ Multidisciplinary Treatment

➤ Care Network Assessment

➤ Implementation Strategies

LMC IMPLEMENTATION RESEARCH
LOWER-MIDDLE INCOME COUNTRY

Peru

Early Detection and Patient Triage

PHASED IMPLEMENTATION

Prerequisites
- Standardized guidelines, protocols and trained health care workforce.

Phase 1
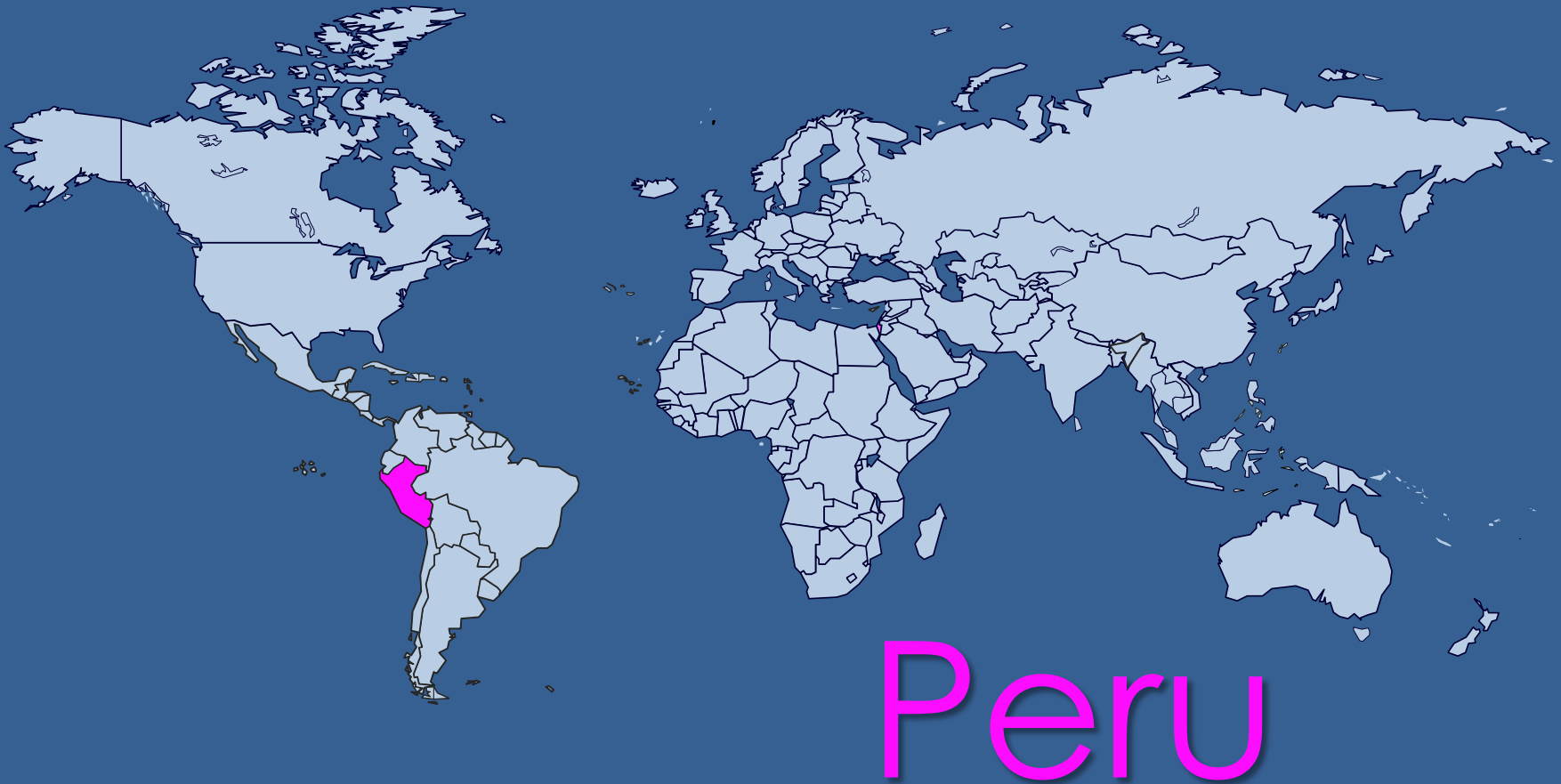- Systematic triage and diagnosis of palpable breast disease.

Phase 2
- Resource-adapted stage-appropriate treatment planning.

Phase 3
- Scaling up of targeted education interventions for public and health care staff & CBE to promote early detection of clinically detectable disease.

Phase 4
- Systematic upgrading of image-based diagnostic systems (technology & training) for management of non-palpable disease as a prerequisite to image-based (mammographic) screening.
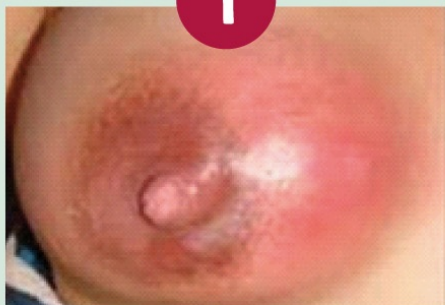
1 Hinchazón, calor, oscurecimiento o enrojecimiento de la mama.
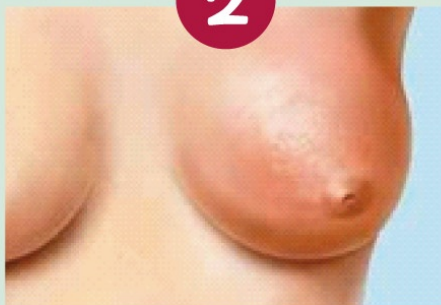
2 Cambio en el tamaño y/o forma de la mama.
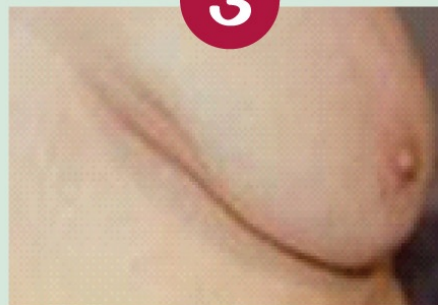
3 Hoyuelos o arrugas en la piel.

4 Picazón, úlceras o llaga escamosa en la piel o sarpullido en el pezón.

5 Hundimiento del pezón o de otras partes de la mama.
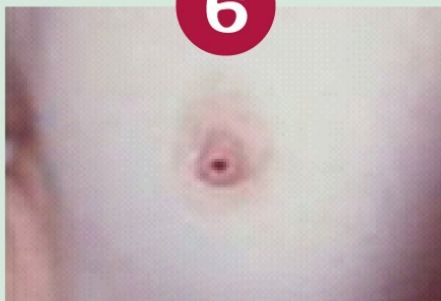
6 Secreción repentina del pezón.
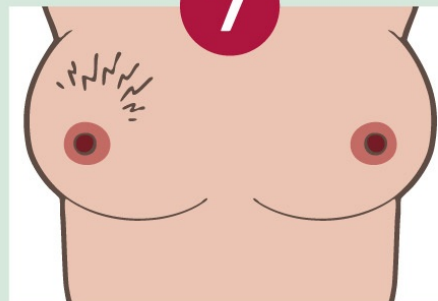
7 Dolor reciente y persistente en alguna parte de la mama.
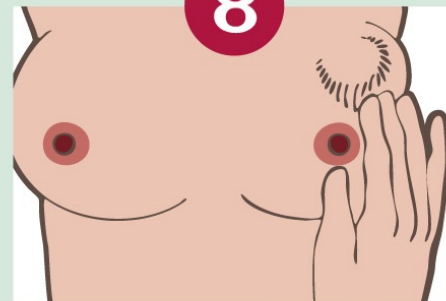
8 Aparición de alguna masa, bolita dura, o la piel más gruesa dentro de la mama.
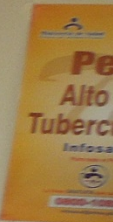
Peru Site Visit 2012

Public education about breast cancer and breast health

JUSTIFICACIÓN	OBJETIVOS	METODOLOGÍA	RESULTADOS	INFORME

• Capacitación de proveedores clínicos (obstetrices y médicos) en ECM.

• El 1 y 2 de julio de 2011, un grupo de médicos y enfermeras de INEN, IREN Norte y PATH, asistió a un curso conjunto en ECM y BAAF celebrado en IREN-Norte. Donde ocho obstetrices de la Red de Salud de Pacasmayo y tres médicos del Hospital La Fora recibieron la formación en teoría científica, aplicación práctica y orientación de pacientes con respecto al ECM.

Breast cancer care model

Photos courtesy of Ben Anderson

Regional Cancer Institute (Trujillo)

- Mammography
- Pathology
- Surgery
- Chemotherapy
- Radiotherapy

La Fora Reference Hospital

- FNA

Health Centers

- Community education
- CBE

Two phases

- **Phase 1:**

  – Pilot demonstration of the model of care.

- **Phase 2:**

  – National scale-up of the model.

  – Integration of post-treatment support for patients:

    - Clinical support at the local level for women who need follow-up care and monitoring.

    - Psychosocial support in the community.

PERU IMPLEMENTATION RESEARCH
SOURCES OF DELAYED DIAGNOSIS

- Cross-sectional study at regional cancer center (IREN Norte)

- All breast cancer patients who visited a surgeon (Feb - May 2015)

- Individual interviews: Breast Cancer Delays Questionnaire (Unger)

- Outcomes: Delay (<90 day vs. >90 days) and Stage (0/I/II vs.III/V)

Romanoff, et al, Jama Oncology, May 25 2017

Table 3. Multivariate Analysis of the Association Between Breast Cancer Stage at Diagnosis and Clinical Breast Examination

Factor	Early Stage at Diagnosis, OR (95% CI)[a]			
	Unadjusted	P Value	Adjusted[b]	P Value
CBE				
Ever	2.74 (1.18-6.36)	.02	2.44 (1.01-5.95)	.048
Never	1 [Reference]	NA	1 [Reference]	NA
Monthly household income, S/				
≤500	1 [Reference]	NA	1 [Reference]	NA
501-1000	1.90 (0.72-5.04)	.20	1.26 (0.44-3.59)	.67
>1000	3.33 (1.04-5.04)	.04	1.74 (0.48-6.25)	.40
Insurance				
Government or none	1 [Reference]	NA	1 [Reference]	NA
Employer or private	5.50 (1.66-18.20)	.005	4.30 (1.19-15.56)	.03

Romanoff, et al, Jama Oncology, May 25 2017

METRICS & QUALITY IMPROVEMENT

Guidelines	Quality Measures
■ **Comprehensive**	■ **Targeted**
■ **Prescriptive**	■ **Observational**
■ **Flexible**	■ **Operational**

Malin, et al., Cancer 88:701, 2000

FRAMEWORK FOR MEASUREMENT

Patient Factors

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

OUTCOME
- Survival
- QOL
- Satisfaction

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

The Breast Health Global Initiative

Table 1
Summary table of Quality Indicators in breast cancer care.

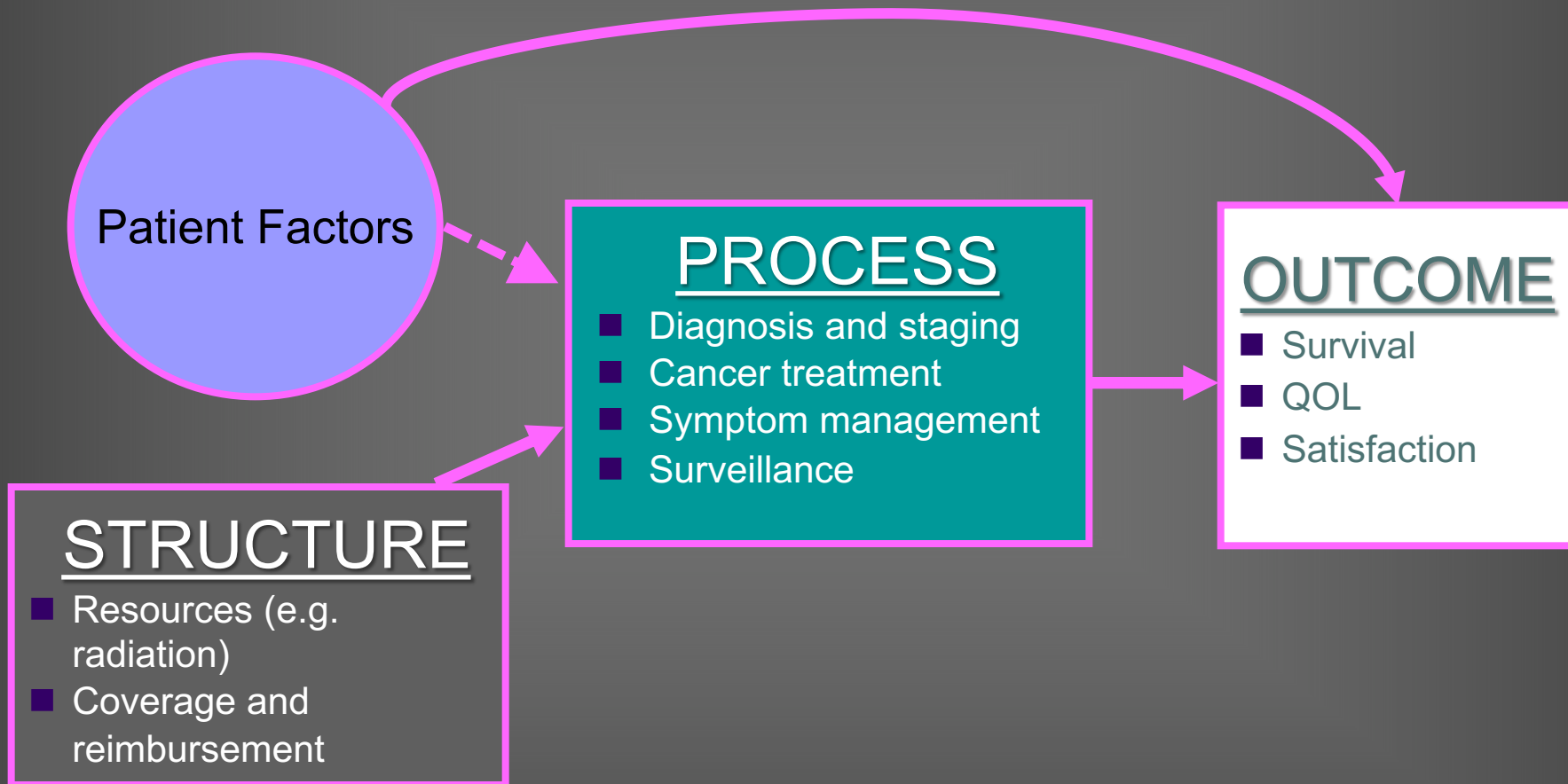| Indicator	Level of evidence	Mandatory Recommended	Minimum standard	Target
Diagnosis				
Completeness of clinical and imaging diagnostic work-up				
1. Proportion of women with breast cancer who preoperatively underwent mammography, physical examination and ultrasound of both breasts and axillae	III	M	>90%	>95%
Specificity of diagnostic procedures (B/M ratio)				
2. Ratio of benign to malignant diagnoses based on definitive pathology report (surgery only, non-operative biopsies excluded)	III	M	1:4	1:5
Preoperative diagnosis				
3a. Proportion of patients with invasive cancer who underwent image-guided axillary staging (by US ± FNA/CNB)	III	R	85%	95%
3b. Proportion of women with breast cancer (invasive or in situ) who had a preoperative histologically or cytologically confirmed malignant diagnosis (B5 or C5)	III	M	85%	90%
Completeness of prognostic/predictive characterisation				
4a. Proportion of invasive cancer cases for which the following prognostic/predictive parameters have been recorded: histological type (according to WHO Classification of Tumours of the Breast), grading (according to WHO and EU Guidelines: Elston and Ellis modified Bloom and Richardson-Grading system Elston, CWet al. 1991), ER, PgR*, HER-2/neu, Proliferation index (Ki67)* *This marker is recommended but not mandatory, and does not need to be included in the calculation for compliance with the QI	II	M	>95%	>98%

Key
Basic/Core Indicators (highest priority)
Enhanced/Maximal Indicators (lower priority)
Treatment-related Indicators

EUSOMA Quality Indicators, Eur J Cancer, 2017

The Breast Health Global Initiative

BREAST CANCER SCREENING:
SCREENING MAMMOGRAPHY AUDIT

- Breast Imaging Reporting and Data System® (BI-RADS) provides lexicon to standardize mammographic reporting.

- BI-RADS lexicon is an evidence based tool for quality assurance, communication, research, and improved patient care.

- Screening mammography audit provides performance feedback to the institution and individual radiologist for quality improvement.

Screening Mammography Audit

GE Healthcare IT
40 IDX Drive
P.O. Box 1070
Burlington, VT 05402-1070
(802) 862-1022
(802) 862-6848 FAX

Screening Mammography Audit Report
FDA Site: SCCA Mammography 224824
Aggregate Report
From: 01/01/2016 - To: 12/31/2016
Exam Type(s): All
Patient Type: All

RAW DATA

DATA ITEM		Category 0	Category 4	Category 5	RESULTS
1. Total screening cases					6406
1a. Screening					5891
1b. History of breast augmentation, asymptomatic					0
1c. Pre-reduction mammmoplasty					0
1d. Personal history of breast cancer with conservation therapy					3
1e. Personal history of breast cancer with mastectomy					512
2. Total screening cases given Category 0, 4, or 5					376
2a. Category 0					375
Imaging recall (Recommendation codes M,P,S,U,V,G,I,R)					325
Film recall (Recommendation codes O, O-O, O-O)					49
Clinical recall (Recommendation codes E and Q)					1
2b. Category 4					1
2c. Category 5					0
3. Total screening cases, final assessment Category 4					100
4. Total screening cases, final assessment Category 5					13
5. Total cases from final assessment Categories 4/5, and total Category 0 cases directly resolved by pathology, that underwent core biopsy/FNA		0	90	13	103
5a. Number of these that were malignant		0	32	13	45
5b. Number of these that were benign		0	48	0	48
5c. Number of these that were high risk		0	10	0	10
6. Total cases from final assessment Categories 4/5, and total Category 0 cases directly resolved by pathology, that underwent surgical biopsy		0	0	0	0
6a. Number of these that were malignant		0	0	0	0
6b. Number of these that were benign		0	0	0	0
6c. Number of these that were high risk		0	0	0	0
7. Total cases from final assessment Categories 4/5 and total Category 0 cases lost to follow-up or refused biopsy		6	4	0	10
8. Total cancers found that were DCIS					7
9. Total cancers found that were Invasive					36
10. Total Invasive cancers found for which axillary sampling was performed					0
11. Total Invasive cancers that were =< 1 cm in size					0
12. Total Invasive cancers showing negative axillary lymph nodes at surgery					0

Document1

Page 1 of 18

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Burnside et al, JACR 6:851, 2009

BREAST CANCER EPIDEMIOLOGY

Upper-Middle Income Country

Colombia

National Early Detection Program

Study design for early detection of breast cancer in women 50 to 69

Cluster randomized trial
(Early stages from 30 to 60 per 100,000)

23 health centers

Control arm Enrollment of 10,000 women	Intervention arm Enrollment of 10,000 women

Informed consent

No training	Training for GP, nurses, radiologists, technicians, BS

Technical skills & GCP

Screening activities on current bases	Screening program implementation in HC

Invitation, registry, follow-up, QC, etc.

Women screening on current bases	Systematic opportunistic screening (M & CBE)

One year follow-up	One year follow-up

Incidence

Comparison of outcomes

Clinical stage
Incidence
Participation rates
Costs
Side effects

Murillo R et al. Int. J. Cancer; 138:705, 2016

Final Cancer Diagnosis by Stage

Category	Stage	Intervention		Control		Total
		Year 1	Year 2	Year 1	Year 2	
Early	In situ	3 (14.3%)	1 (50.0%)	0	0	4
	I	9 (42.9%)	1 (50.0%)	1 (7.7%)	2 (40%)	13
	IIA	3 (14.3%)	0	5 (38.5%)	1 (20%)	9
	IIB	3 (14.3%)	0	5 (38.5%)	2 (40%)	10
Advanced	IIIA	1 (4.8%)	0	0	0	1
	IIIB	2 (9.5%)	0	2 (15.4%)	0	4
Total		21	2	13	5	41

Murillo R et al. Int. J. Cancer; 138:705, 2016   Pearson χ^2= 10.54   Pr = 0.05

Clinical Stage by Type of Surgery

Category	Stage	Type of surgery received			Total
		None	Breast Conservation Surgery (BCS)	Mastectomy	
Early	In situ	0	4 (16.7%)	0	4
	I	0	10 (41.7%)	3 (23.1%)	13
	IIA	0	4 (16.7%)	5 (38.5%)	9
Advanced	IIB	1 (33.3%)	6 (25.0%)	2 (15.4%)	10
	IIIA	0	0	1 (7.7%)	1
	IIIB	2 (66.7%)	0	2 (15.4%)	4
Total		3	24	13	41

Murillo R et al. Int. J. Cancer; 138:705, 2016   Pearson $\chi^2 = 22.13$ Pr = 0.02

CANCER CONTROL STRATEGIES
BREAST CANCER PATHWAY

Patient Interval

Diagnostic Interval

Treatment Interval

Asymptomatic → Symptoms *(lump, thickening, skin changes)* → Presentation to health care system →

Clinical Evaluation

Tissue Sampling

Imaging

Pathology

→ Cancer Diagnosis → Treatment

< 60 DAYS
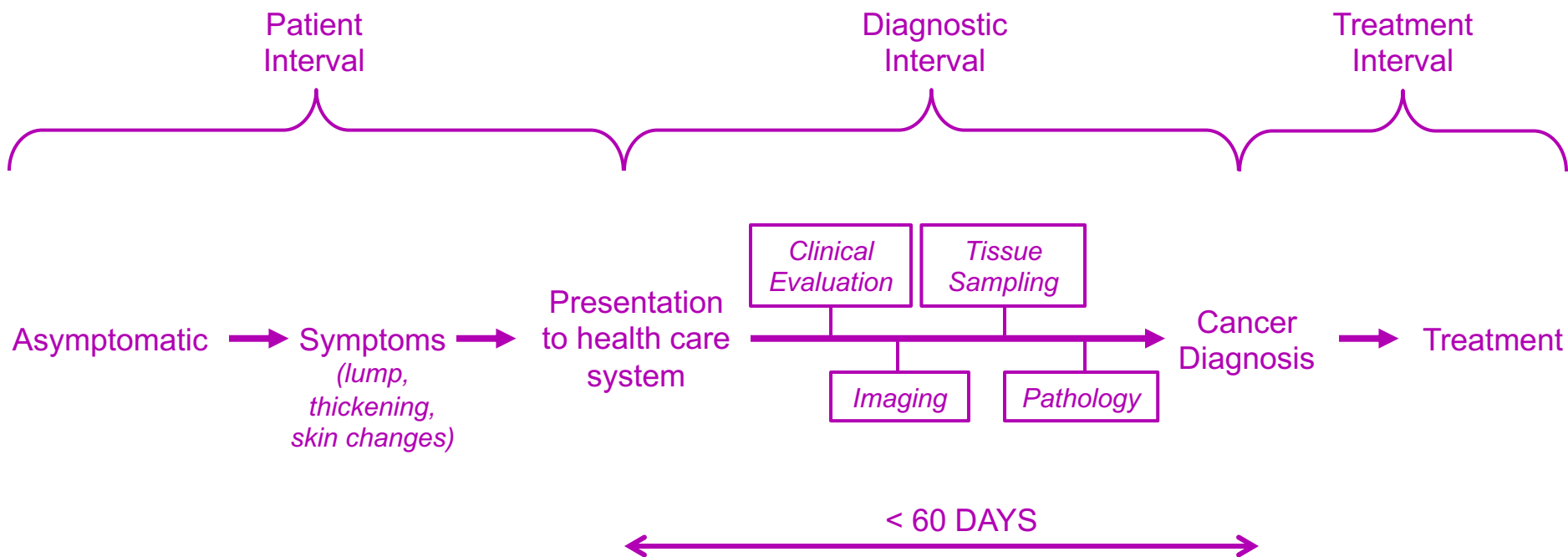
Cancer Management for Nigeria
summary

➤ Resource-stratified guidelines provide a framework for prioritizing sustainable health care strategies.

➤ Baseline assessments are necessary to determine next steps for sequential programmatic building.

➤ Phased implementation defines sustainable approaches that integrate into existing healthcare systems to improve outcome.

➤ Implementation research is the basis by which systematic improvements can best be measured.

➤ Improving breast cancer outcomes requires a systematic approach addressing the entire healthcare system.

The Breast Health Global Initiative

www.bhgi.info

BREAST CANCER
INITIATIVE 2.5

Making breast health a global priority

www.BCI25.org