Global Summit on International
Breast Health and Cancer Control:

Improving Breast Health Care through Resource-Stratified Phased Implementation

Breast Health
Global Initiative

Metrics for Assessing Early Breast Cancer Detection Success – Moving Beyond Incidence and Mortality

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BHGIatFredHutch   BreastHealthGlobalInitiative

FRED HUTCH CURES START HERE   susan G. komen   BREAST CANCER INITIATIVE 2.5   NCCN National Comprehensive Cancer Network

Outline

Metrics for Assessing Early Breast Cancer Detection Success in LMICs

- Background – global burden
- Current Recommendations
- The journey to diagnosis - examples
- How to measure early detection success

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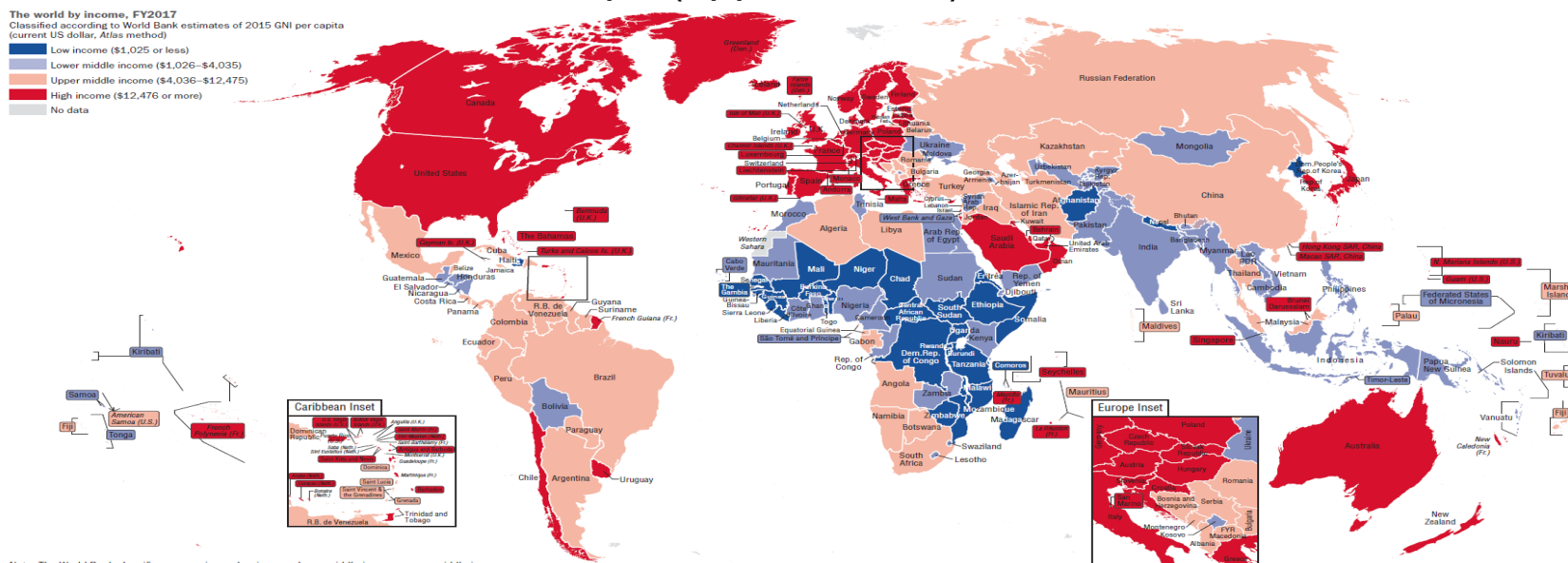
World Health Organization

Background

Where? Africa (low/lower-middle)

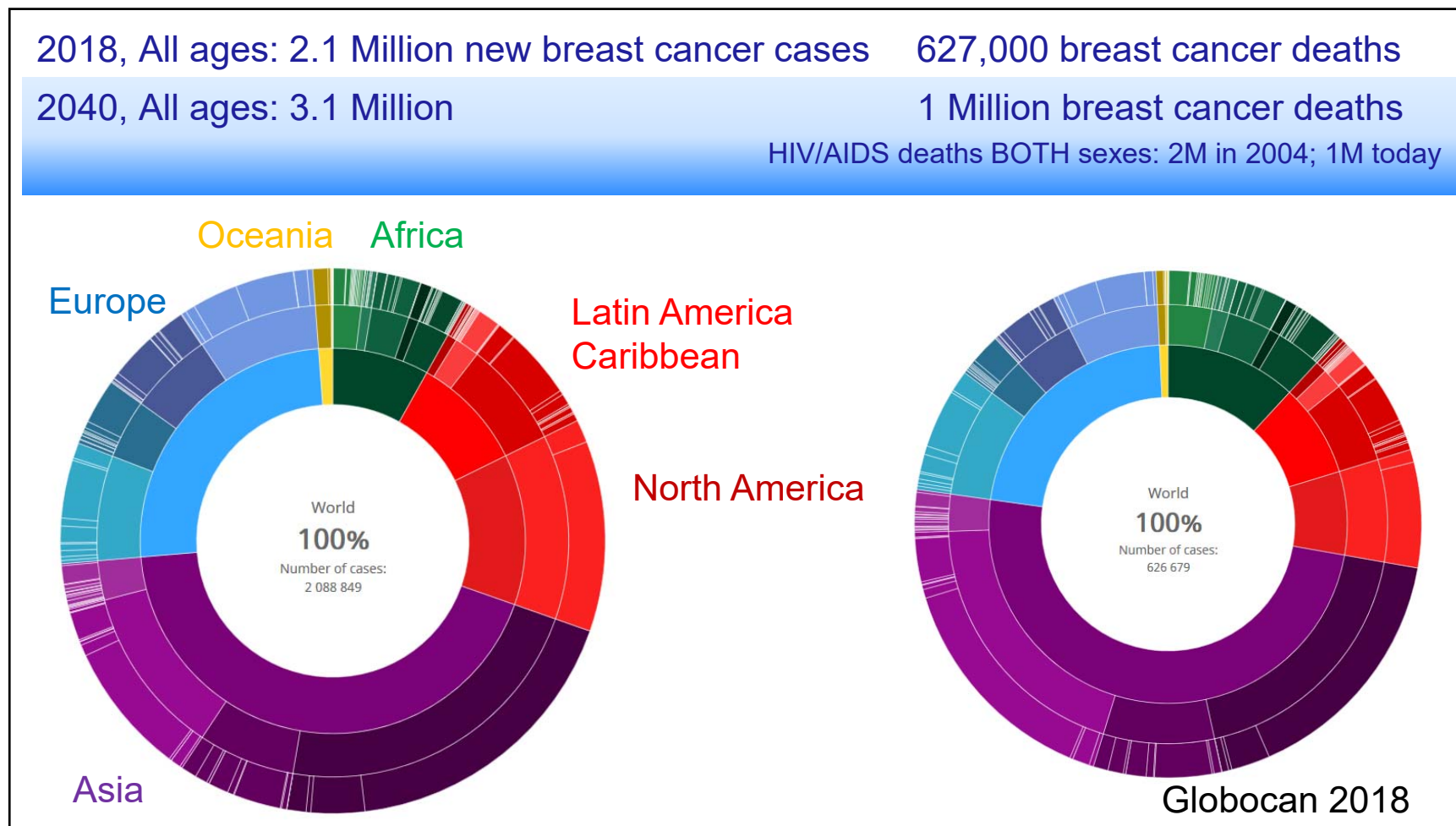Central America, Caribbean, most of South America (upper-middle)

Some of Eastern Europe (upper middle); Most of Asia, Melanasia

2018, All ages: 2.1 Million new breast cancer cases   627,000 breast cancer deaths

2040, All ages: 3.1 Million   1 Million breast cancer deaths

HIV/AIDS deaths BOTH sexes: 2M in 2004; 1M today

Oceania   Africa

Europe

Latin America
Caribbean

North America

World
100%
Number of cases:
2 088 849

Asia

World
100%
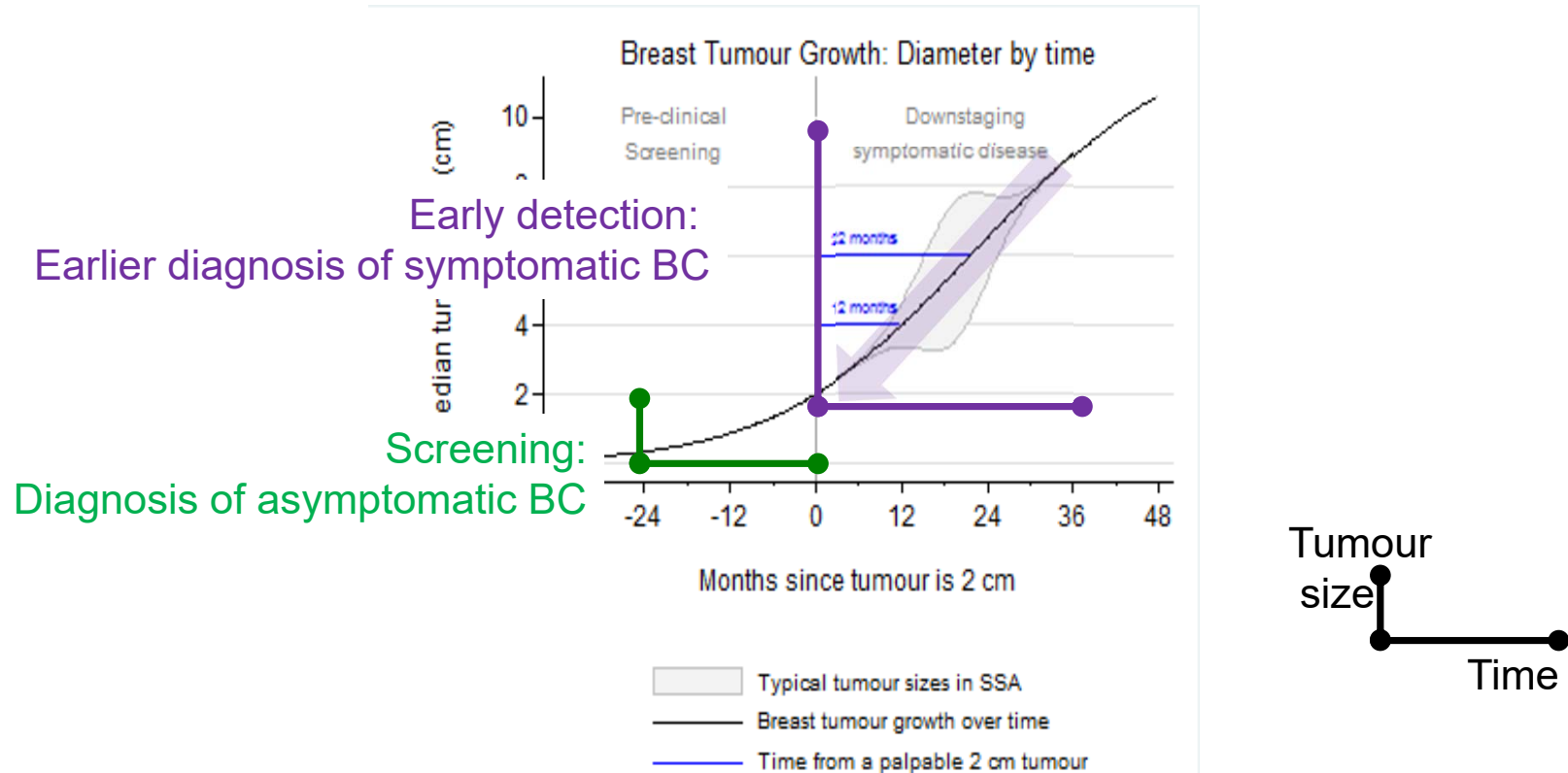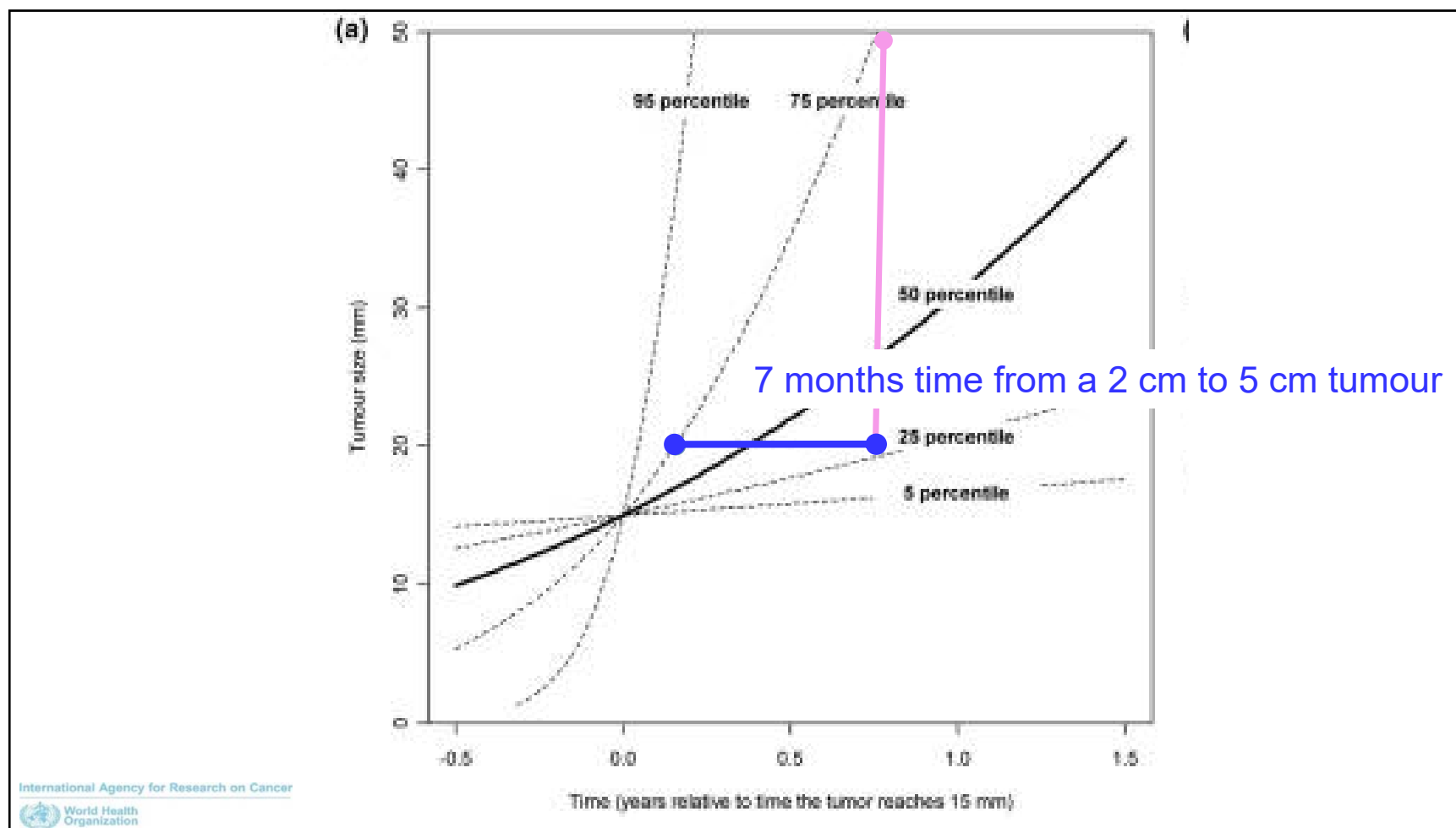Number of cases:
626 679

Globocan 2018

Preventing Breast Cancer Deaths

- ## Primary Prevention
  - ### Curtail an inevitable increase in incidence rates due to
    - Declining age at menarche
    - Less and later childbearing
    - Sedentary lives
  - ### Promote healthy lifestyles
    - Increase physical activity
    - Healthy body weight
    - Reduce alcohol intake
    - Promote breastfeeding

- ## Improving Survival: Early detection, screening and treatment

Breast Cancer Res Treat
DOI 10.1007/s10549-014-2868-z

REVIEW

Breast cancer in Sub-Saharan Africa: opportunities for prevention

Louise A. Brinton · Jonine D. Figueroa · Baffour Awuah · Joel Yarney · Seth Wiafe · Shannon N. Wood · Daniel Ansong · Kofi Nyarko · Beatrice Wiafe-Addai · Joe Nat Clegg-Lamptey

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Early diagnosis - How long is the time window of opportunity?

Breast Tumour Growth: Diameter by time

Early detection:
Earlier diagnosis of symptomatic BC

Pre-clinical
Screening

Downstaging
symptomatic disease

12 months

12 months

Screening:
Diagnosis of asymptomatic BC

Months since tumour is 2 cm

Tumour size

Time

Typical tumour sizes in SSA

Breast tumour growth over time

Time from a palpable 2 cm tumour

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Weedon-Fekjær H Br Ca Res 2008; 10(3):R41.

(a)

7 months time from a 2 cm to 5 cm tumour

95 percentile   75 percentile

50 percentile

25 percentile

5 percentile

Tumour size (mm)

Time (years relative to time the tumor reaches 15 mm)

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Current recommendations

Current methods and metrics

	Basic	Limited / Core	Enhanced	Maximal
Public education	Appropriate education program to teach value of early detection, BC risk factors, BH awareness, SBE	District-level appropriate outreach/education encouraging CBE in high risk age groups using field HCP	Regional awareness on breast health linked to general/woman's healthcare	National awareness campaigns on breast health
Detection methods	Clinical history CBE	If CBE+, diagnostic US +/- mgm. Mgm sx for target group	2-yr mgm sx 50-69 y; Consider mgm sx 12-18 mo at 40-49y	Annual sx mgm 40+; other imaging for high-risk
Process Metric	In an organized BH centre $$\dfrac{History + Phy\ exam}{Target\ Women}$$	$$\dfrac{Dx\ imaging\ CBE\ +}{CBE + women}$$	$$\dfrac{Screen\ within\ 24\ mo}{No.\,women\ 50 - 69\ y}$$	HIC
Evaluation Goal	Breast health awareness regarding value of early detection	Downsizing +/ of symptomatic BC	Downsizing +/ downstaging of asymptomatic BC in women in highest yield target groups	Downsizing +/ downstaging of asymptomatic disease in all groups

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Examples - Enhanced

Enhanced. Egypt

1. Mobile + fixed mammography for women over 45 years;
   - 6 units, 77,000 screenees
   - 16 of 27 governates
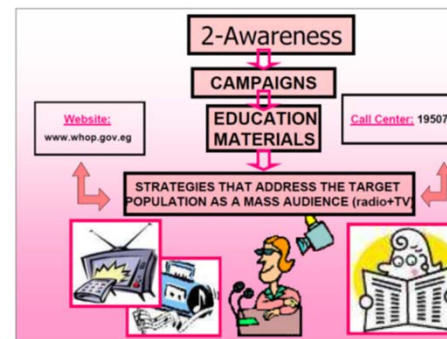   - covered with 4 vans

2. Awareness

3. Education and Training

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Gharbiah 1999-2008 Average Annual % Change in Breast Cancer Incidence, by Stage

Stage	Age group	AAPC[a]
Localized	30–39	−1.3%
	40–49	**5.8%**
	50–59	3.1%
	60–69	**9.4%**
	70+	18.2%
	Overall	**5.5%**
Regional	Overall	**2.6%**
Distant	30–39	**−11.3%**
	40–49	**−5.4%**
	50–59	−2.2%
	60–69	−4.9%
	70+	3.8%
	Overall	−4.0%

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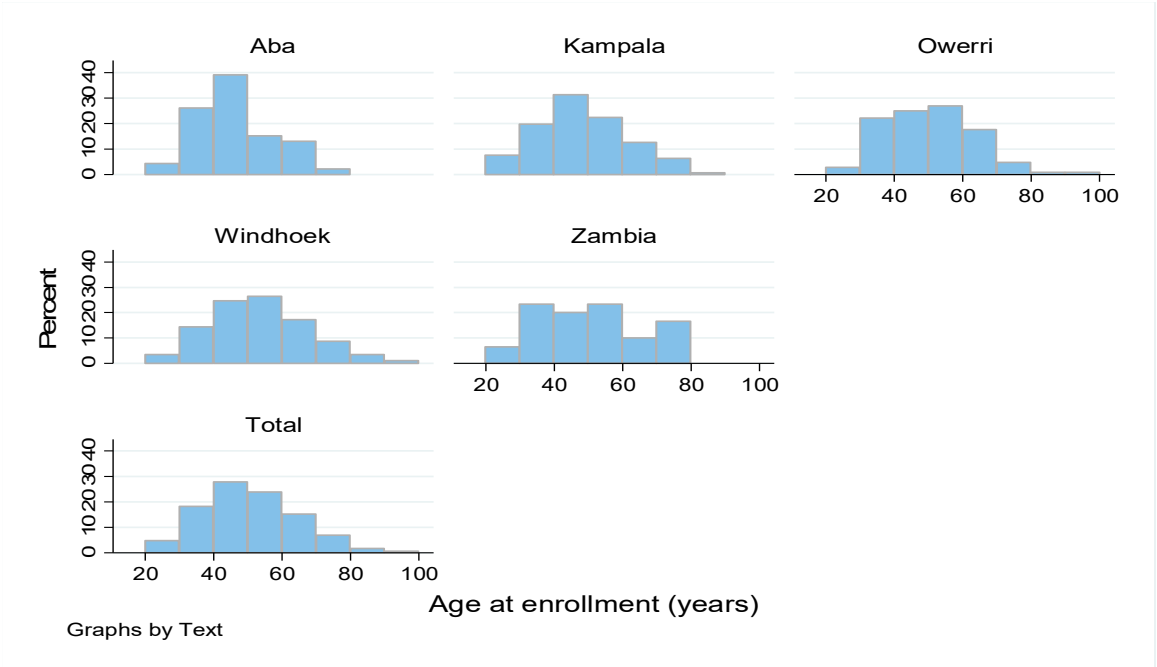World Health Organization

Hirko. J Cancer Epidemiol. 2013

Examples – Basic / Limited level

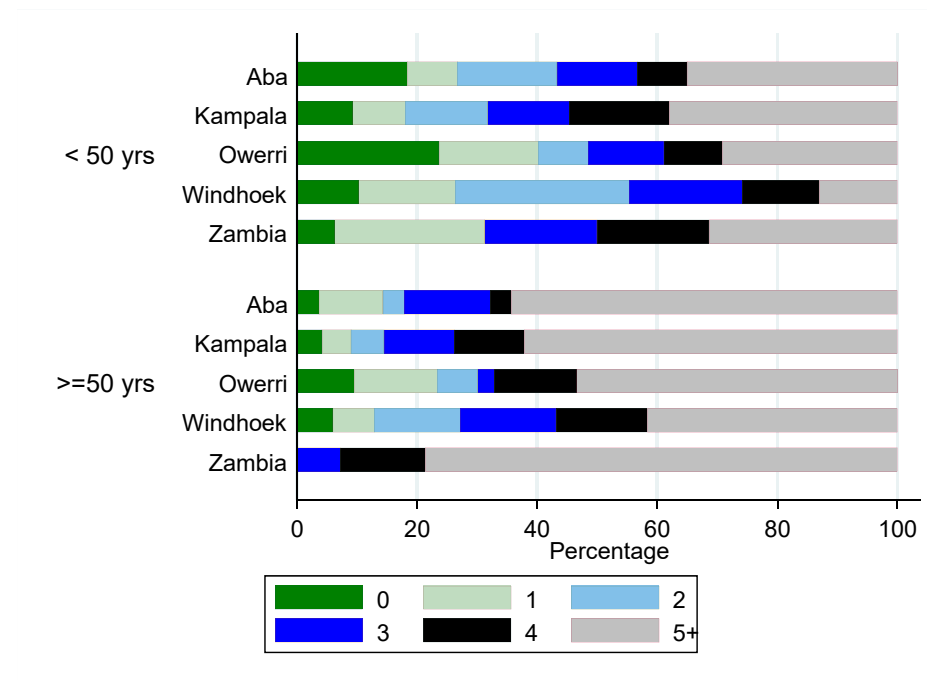# What does this mean in some African LMICs? Stage at diagnosis in Sub-Saharan African countries

Jedy Agba Lancet Global Health 2016

African Breast Cancer Disparities in Outcomes ABC-DO

Co-morbidities

Death
Lost to follow-up
Still alive

1st signs/
Symptoms
noticed

Contacts with health care
providers (incl. traditional ones)

BC
diagnosis

Treatment,
compliance,
Side-effects

Palliative care
Recovery

Time to diagnosis

Retrospective recall

Survival time

Propsective

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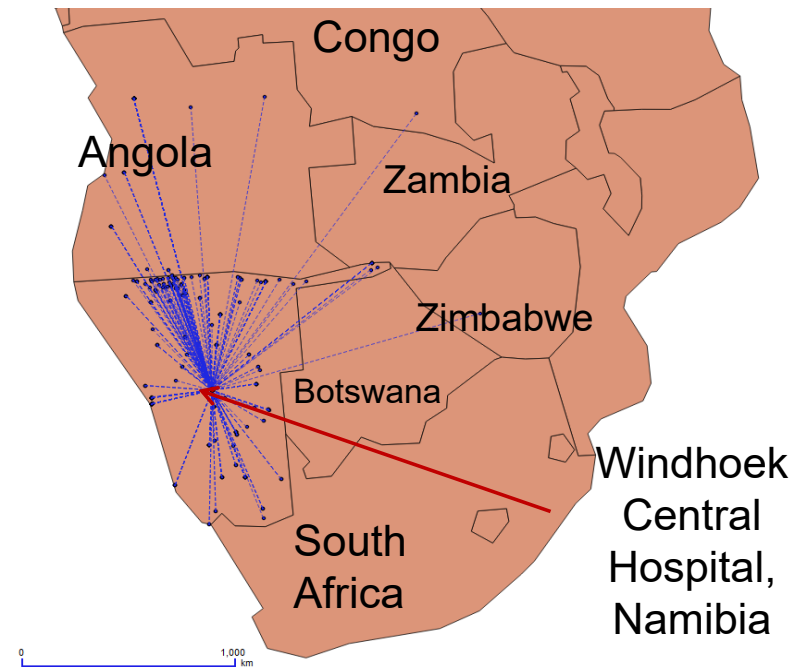# Age distribution at diagnosis
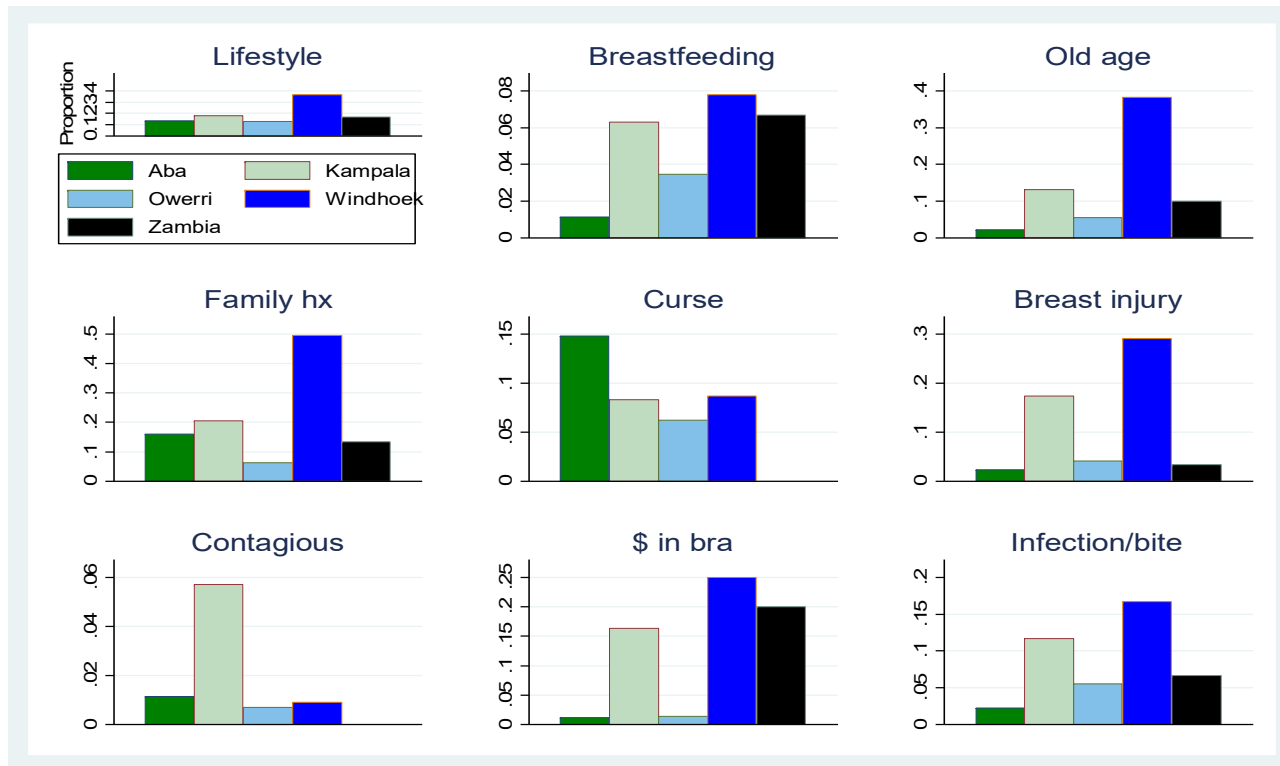
Education attended by woman
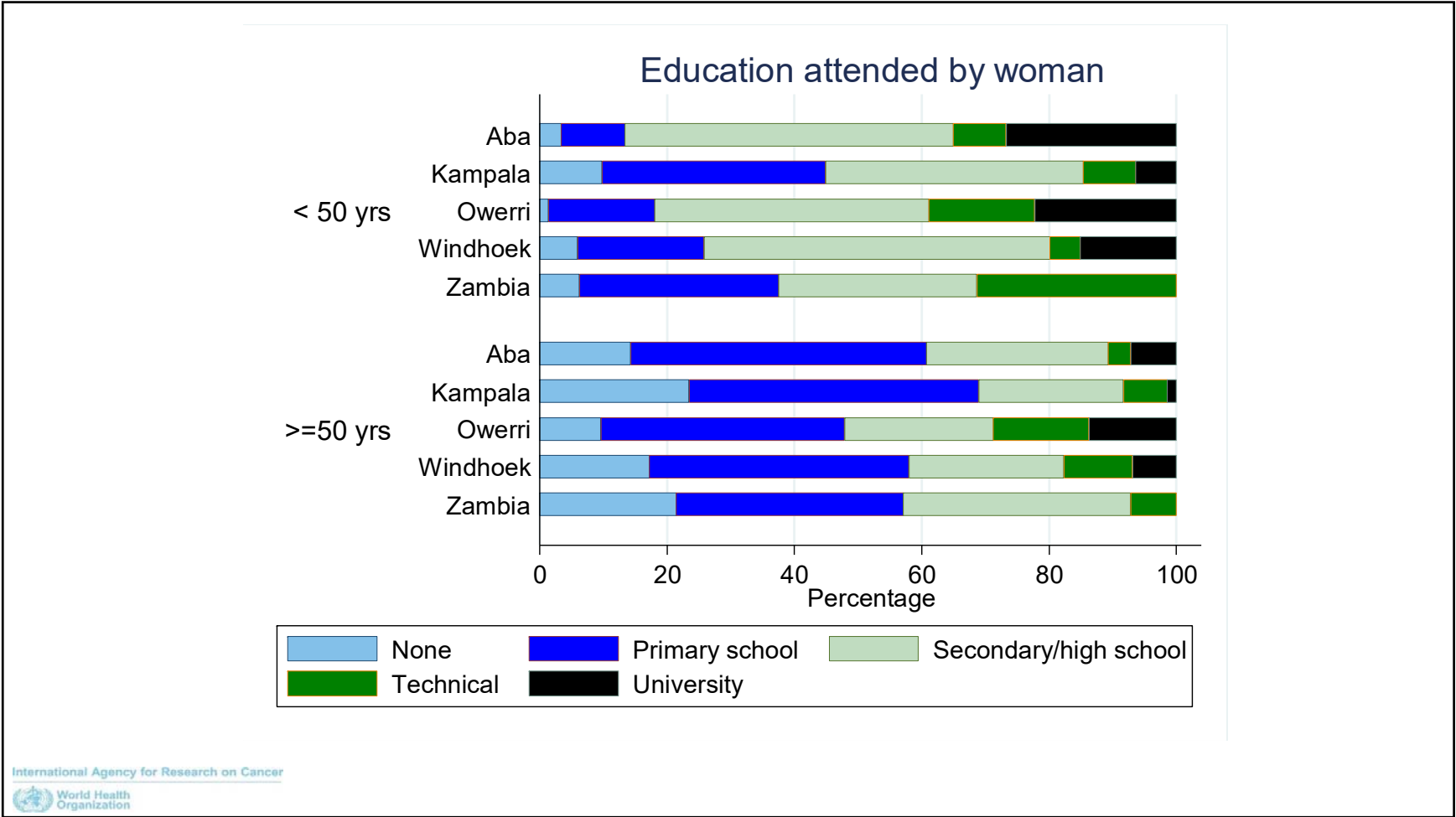
No. of pregnancies

Geographically disparate populations - Namibia

What causes breast cancer?

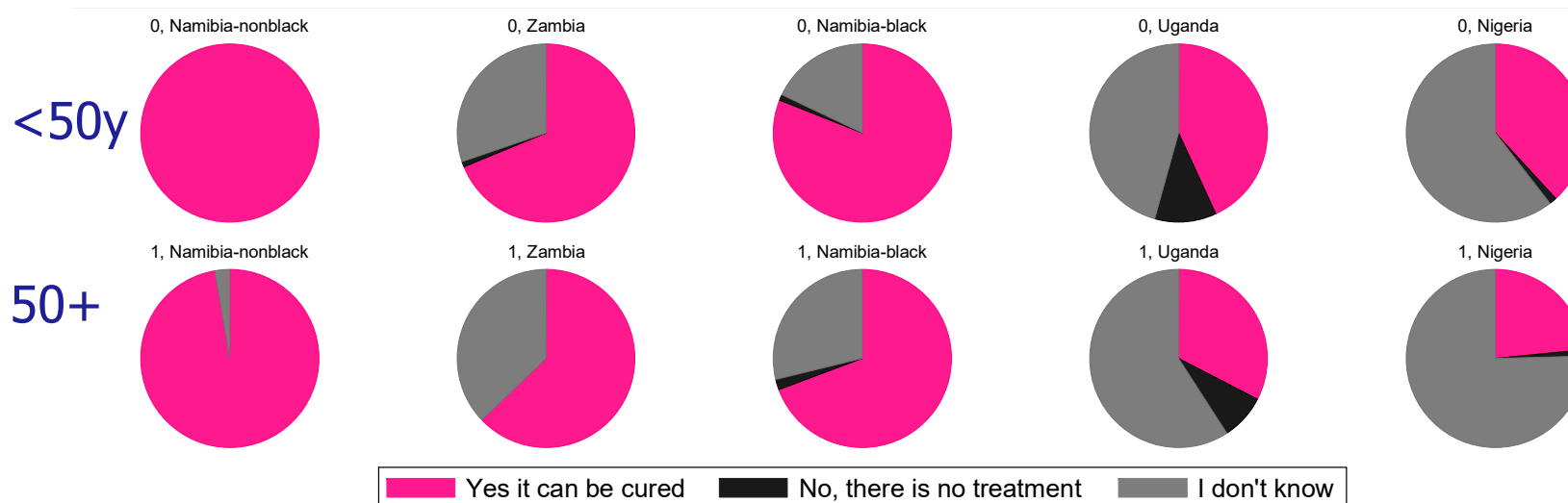# BC awareness – "Can BC be cured if diagnosed early?"

Namibia-nonblack	Zambia	Namibia-black	Uganda	Nigeria

Legend: ■ Yes it can be cured ■ No, there is no treatment ■ I don't know

Graphs by ordsite

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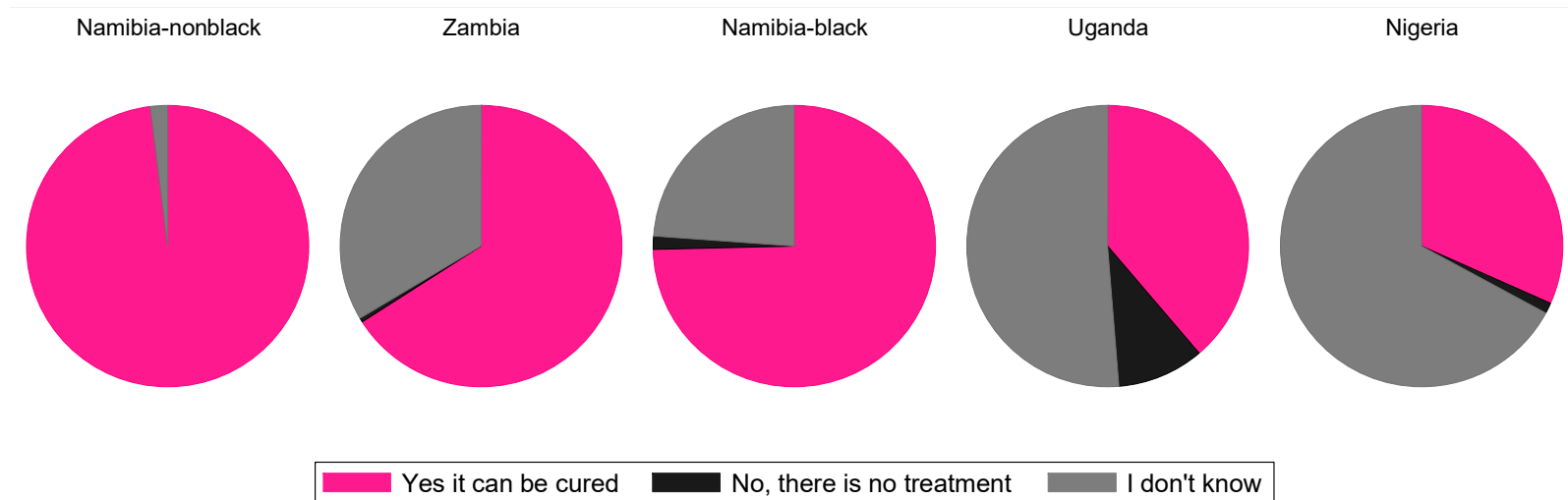
"Can BC be cured if diagnosed early?" Awareness greater < 50 y

Stage at diagnosis

Kaplan-Meier survival estimates

Overall survival by stage

Namibian non black

Namibian black

1.00

1.00

Percentage reduction in deaths at 3-years if all patients had stage II survival as realized at that site

	Zambia	Namibian black	Uganda	Nigeria	Nigeria private	Namibian non-black	All
	46.0	43.2	32.9	45.9	53.1	50.7	42.1

0.00

0.00

| 0 | 1 | 2 | 3 |
survival time (years)

| 0 | 1 | 2 | 3 |
survival time (years)

1-2   III   IV

1-2   III   IV

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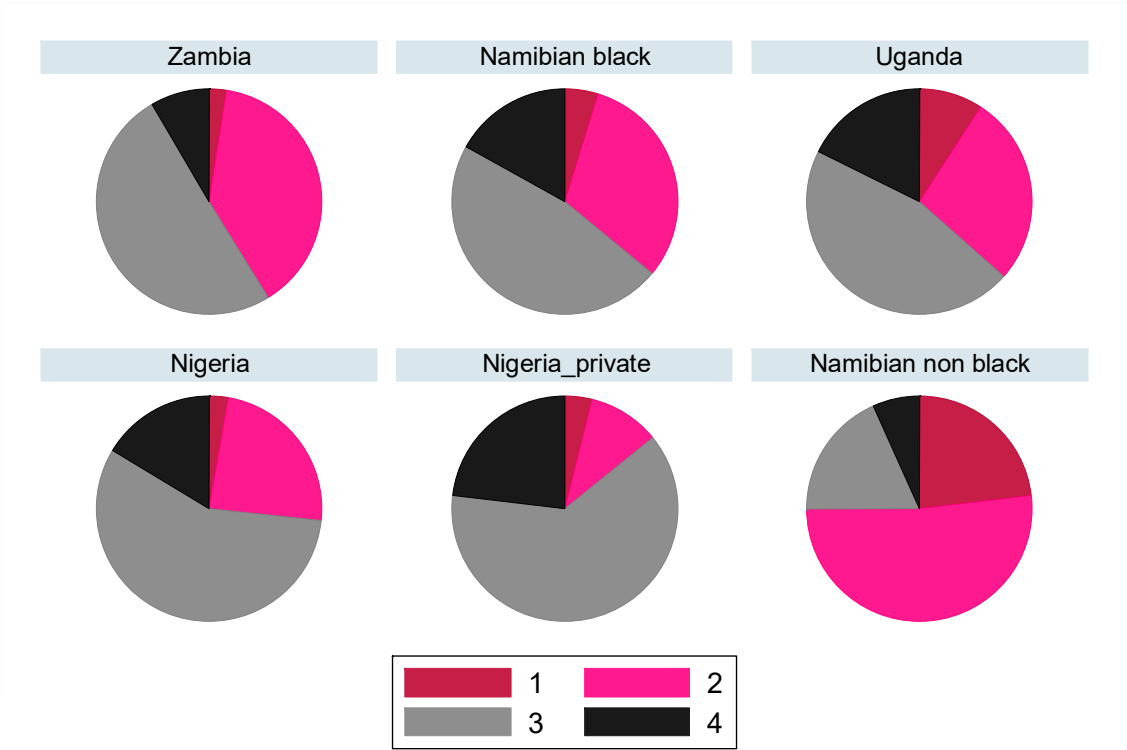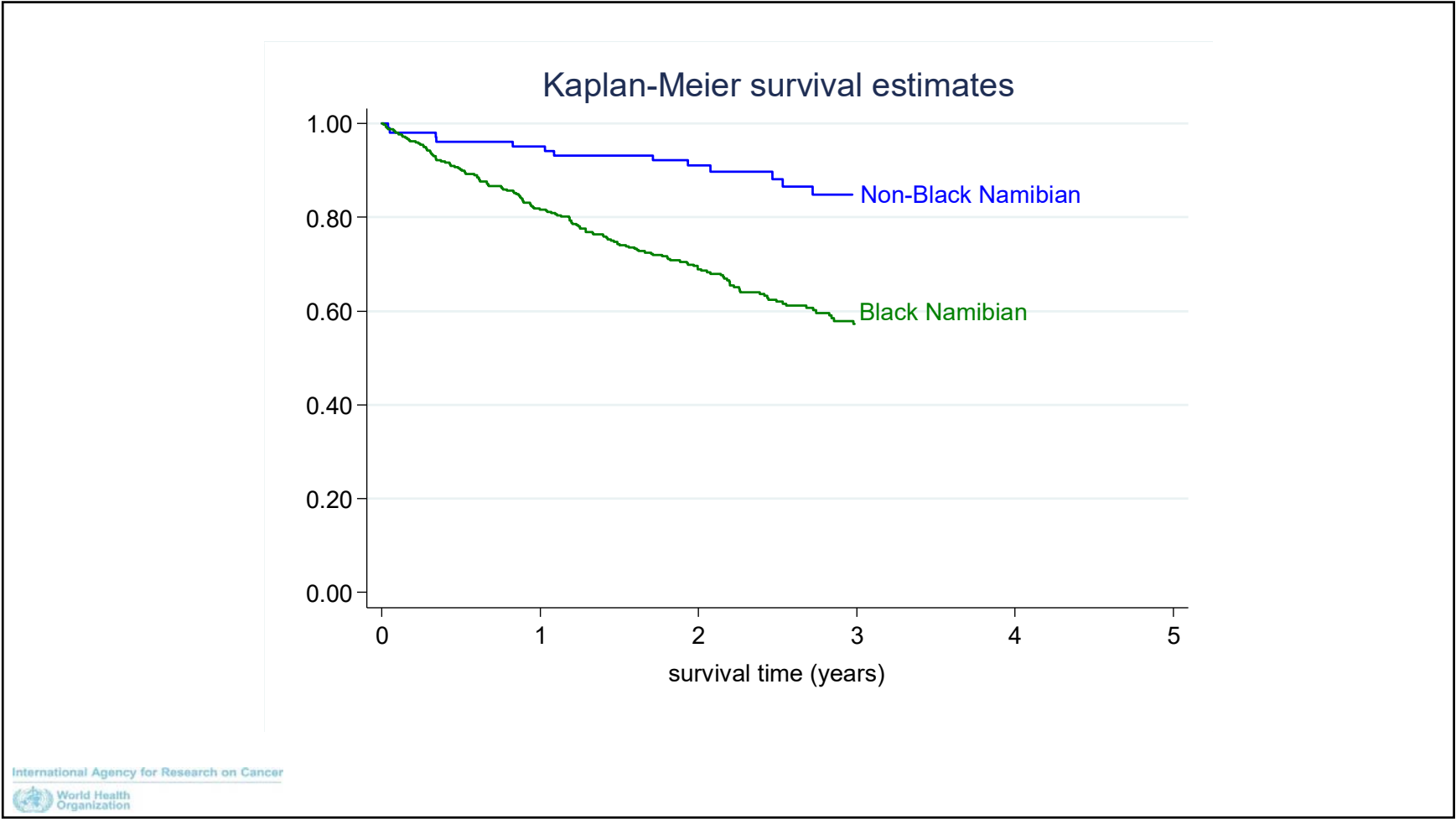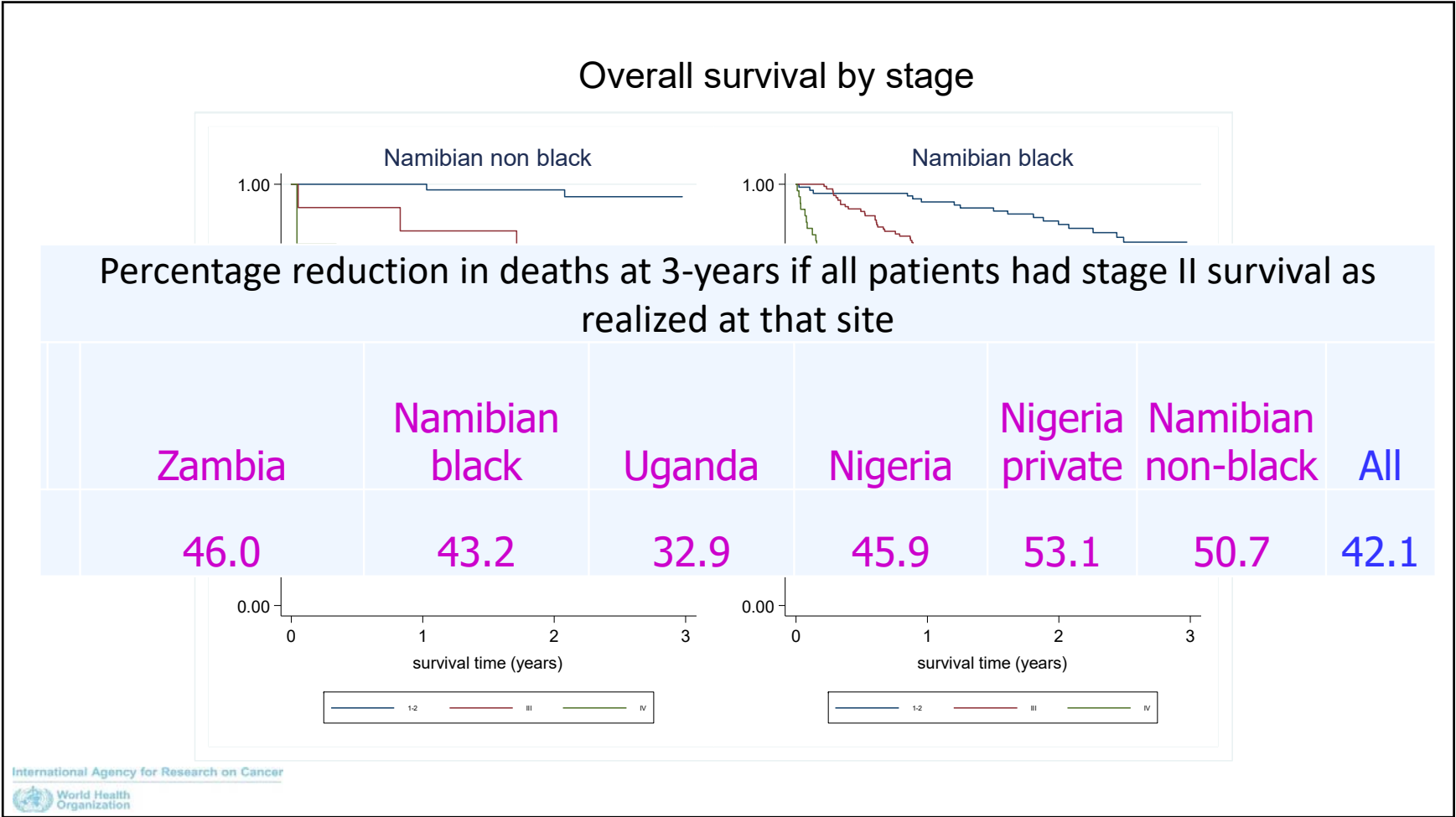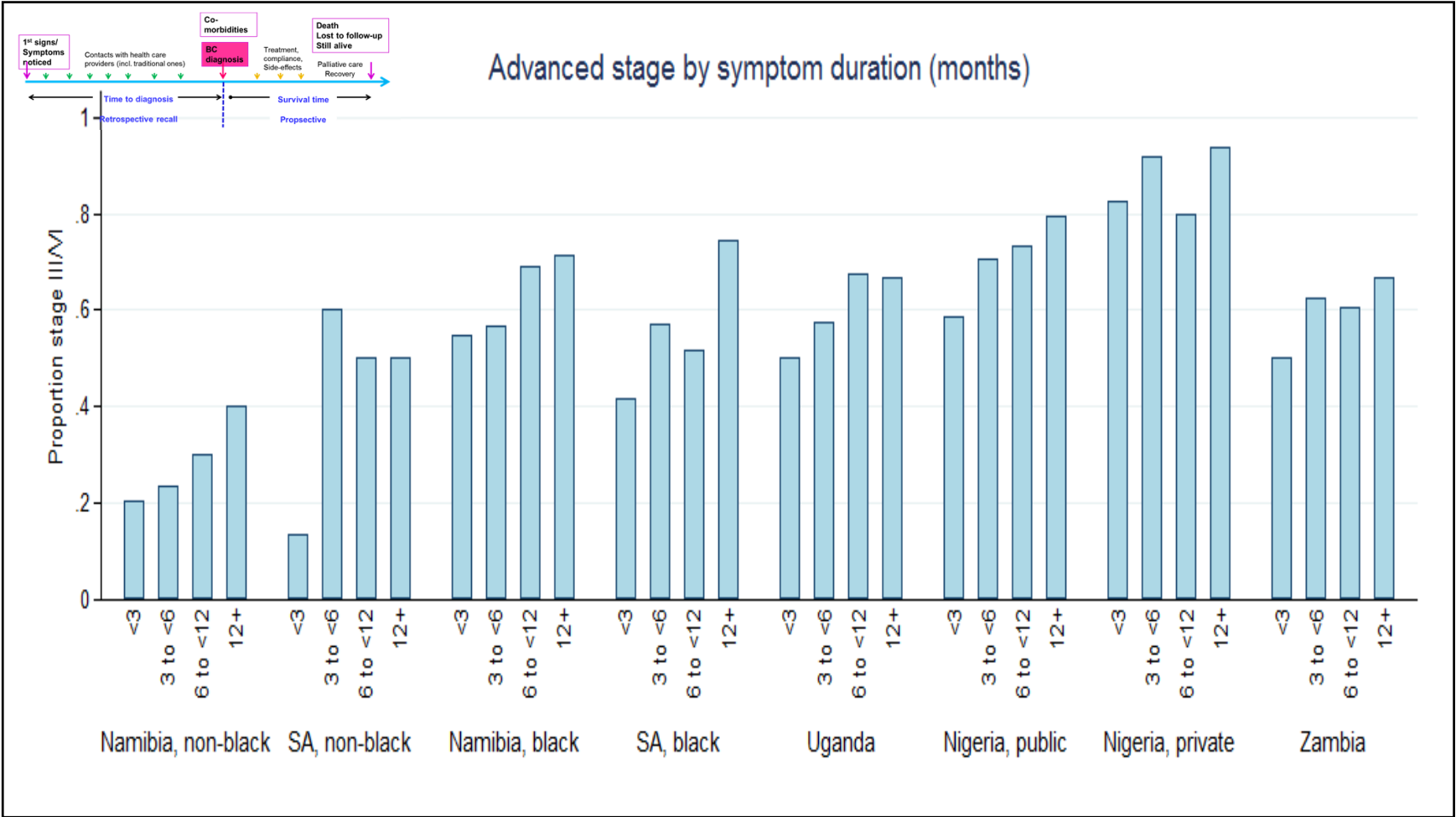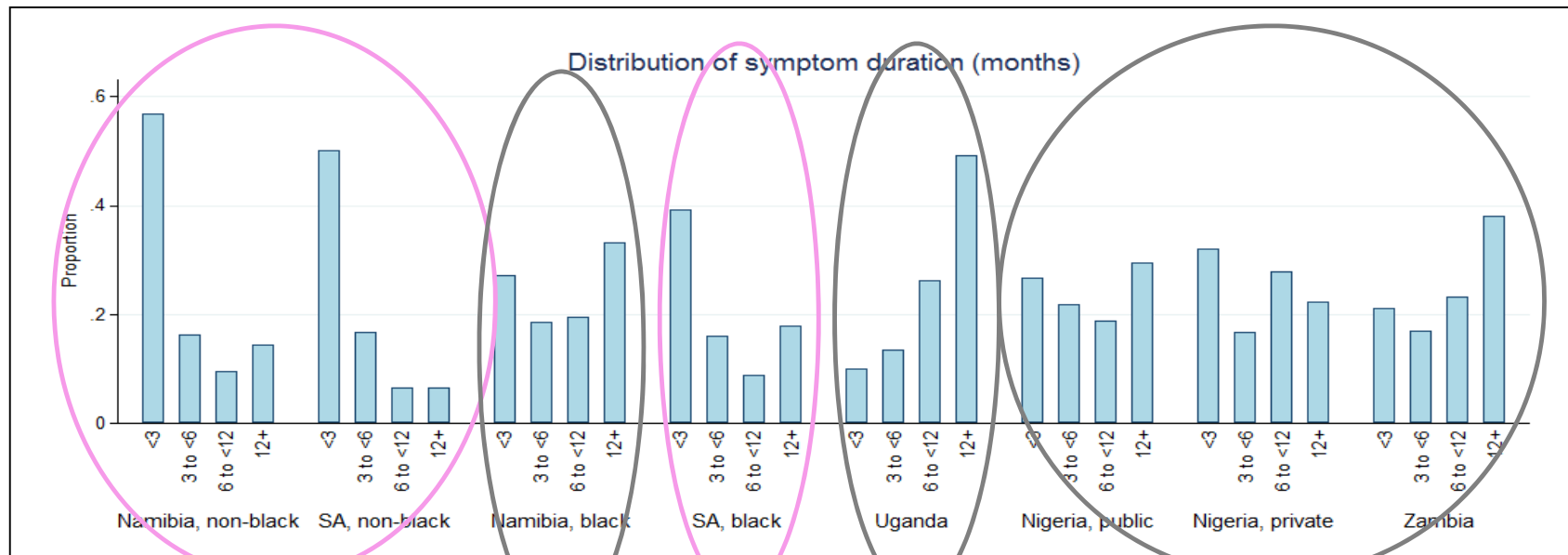
Odds Ratios for late stage

- Lower stage with greater BrCa awareness:0.8 (0.7, 0.9)
- Black v non-black: 4.0 (2.8, 5.7)
- No/primary education: 1.8 (1.4, 2.2)
- Not heard of BrCa: 1.6 (1.3, 2.1)
- Unskilled job :   1.8 (1.4, 2.2)
- Pregnancy in the past 3 y*:   1.6 (1.2, 2.3)
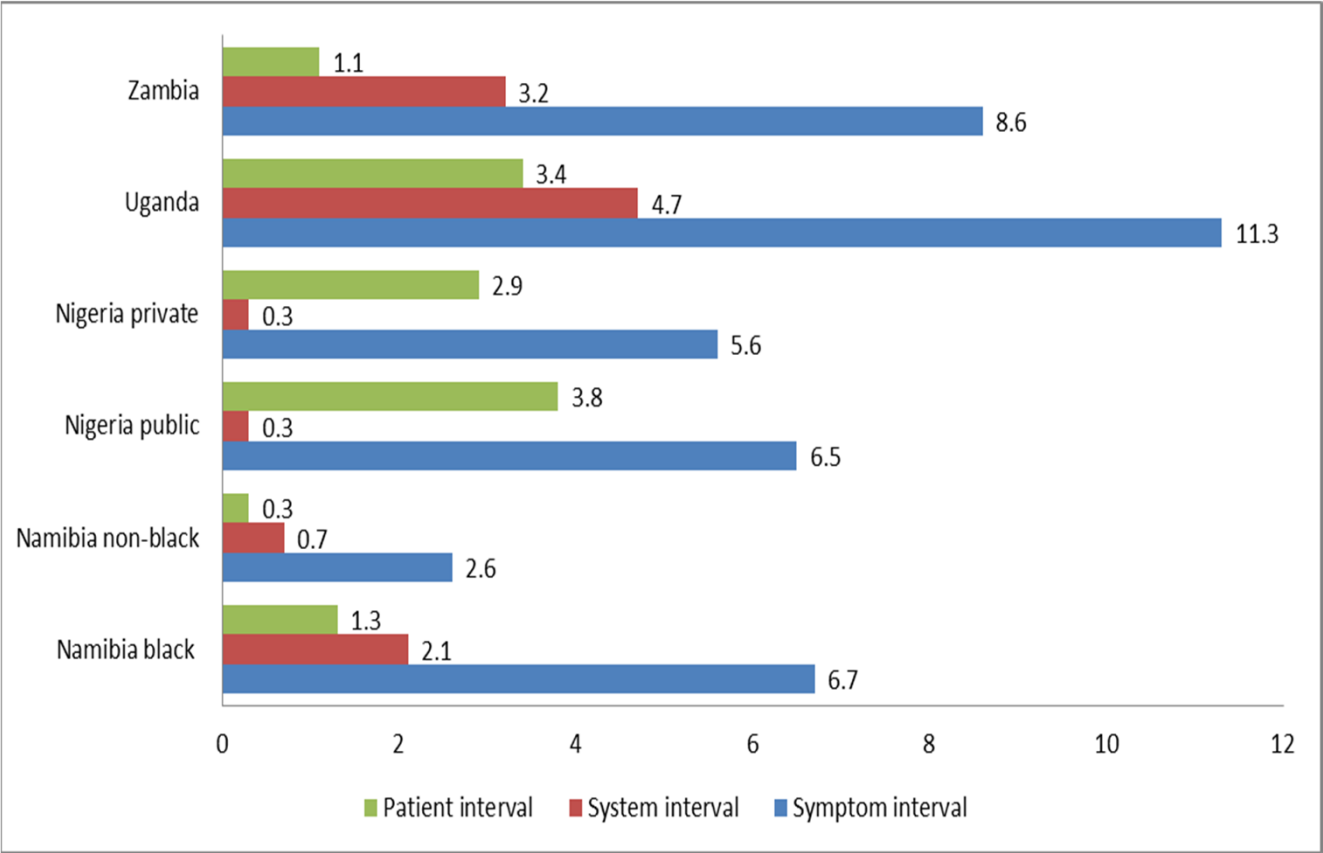- 1+ yr symptom: 2.5 (1.9, 3.2)

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*30% of ≤45 year olds

Symptom duration distribution (months)

McKenzie et al. Int J Cancer, 2017

Partition the pre-diagnostic journey

Pre-diagnostic journey: proportion pre and post-first health provider contact
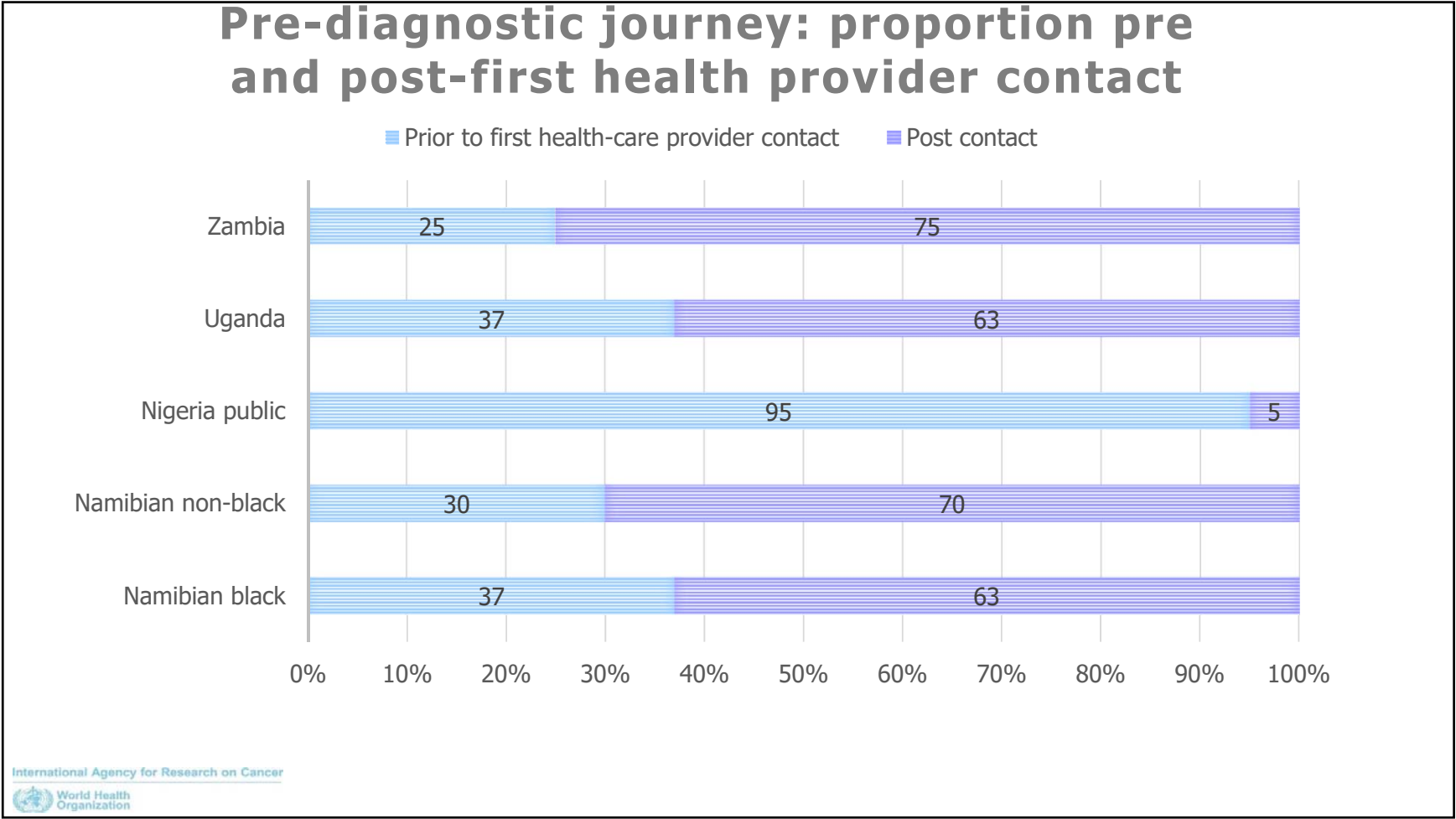
Summary

- Late stage at diagnosis causing EXTREMELY low survival.

- Between-country between-women differences show downstaging is possible.

- Women know – retrospectively – symptoms were present and many acted.

- TIME is a major problem – delays by women and post-health care contact. Low SEP, lack of awareness, transport, rurality, finances causing delays.

- TIME is on our side.

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Thanks

- F McKenzie, M Foerster, K Togawa, J Schuz, B Lauby-Secretan IARC

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- Annelle Zietsman, Johanna Pontact, Namibia

- Herbert Cubasch, Maureen Joffe, South Africa

- Moses Galukande, Uganda

- Anna Cabanes, Komen Foundation

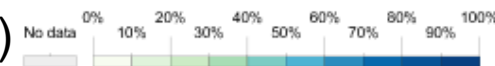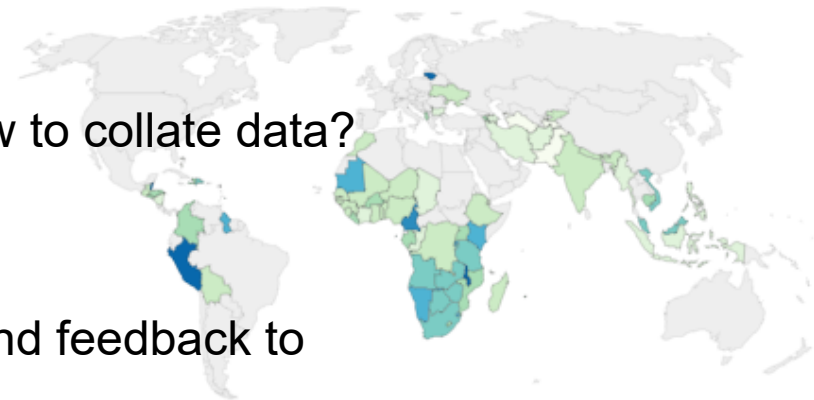- Ben Anderson, BHGI

- Dorria Salem, Egypt

susan G. komen.

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Goals and Metrics

Share of young people (aged 15-24) with knowledge on HIV prevention, 2016
Share of young people of both sexes, aged 15-24 years old, who could answer a full set of questions on HIV prevention correctly.

- Monitor stage at diagnosis
  - Measurement tools available. How to collate data?
- Improve breast cancer awareness
  - Repeated surveys; DHS
  - Identify most vulnerable groups and feedback to awareness campaigns
  - Provide standardized tools? BCAM (CRUK)
  - Is an international tool possible?
- Time? Symptom duration < x months? Seek help within x months? Referral times?

No data   0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%

Source: UNAIDS

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Thanks!   Asante! Merci!   Kea leboha hahoolo!

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Improving Breast Health Care through Resource-Stratified Phased Implementation