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Cancer in low- and middle-income countries: MSK's Global Cancer Disparities Initiatives

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Conflicts of Interest

- Medical advisory board for the Prevent Cancer Foundation

- President, Surgeons OverSeas (SOS)

Cancer is a growing problem in Low- and Middle-Income Countries (LMIC)

- By 2050, 70% of the predicted 24 million people with cancer will reside in LMIC

- Lancet Oncology Commission on Global Cancer Surgery: majority of cancer patients require surgical intervention
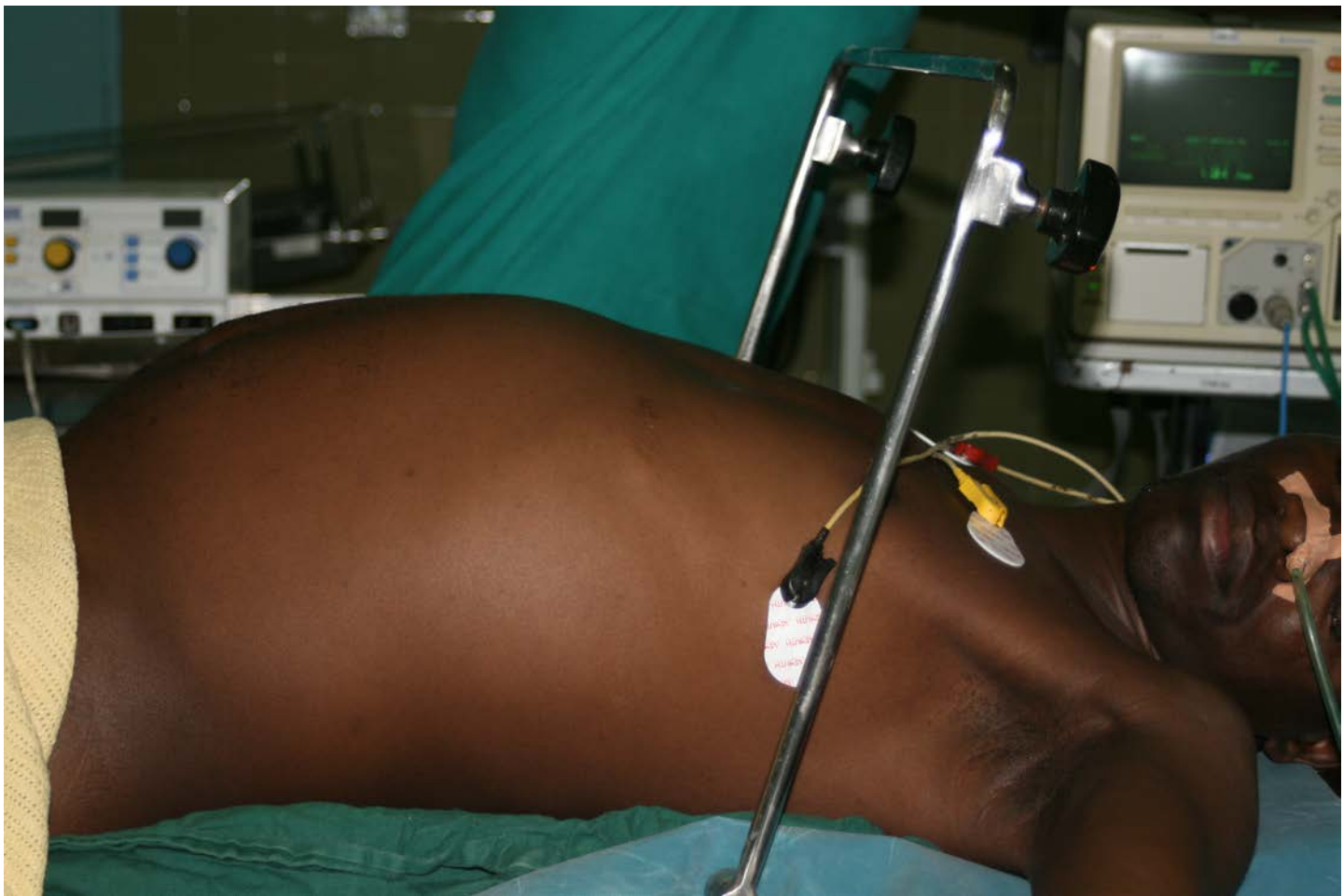

The New York Times

Kingham TP, et al. *Lancet Oncology* 14:e158-167 (2013)
Sullivan R, et al. *Lancet Oncology* 16(11):1193-224 (2015)

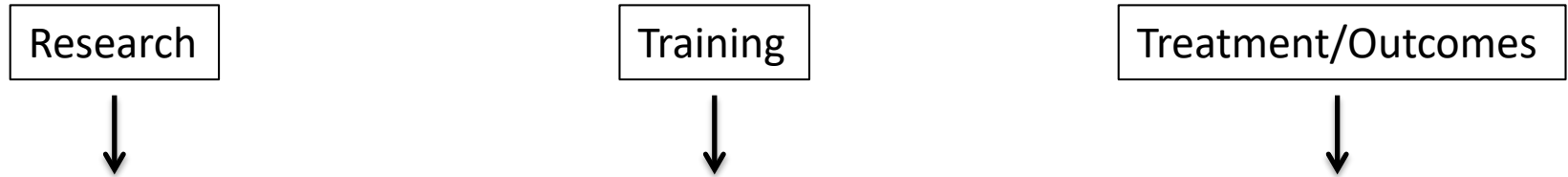Memorial Sloan Kettering Cancer Center

MSK Global Cancer Disparity Initiatives

- Established with Sir Murray Brennan, MD, in 2011

- Multidisciplinary group with monthly meetings

- Goal to improve outcomes for cancer patients in LMIC

Africa Research Group for Oncology (ARGO) Consortium

| Research | Training | Treatment/Outcomes |

↓   ↓   ↓

Goals:
1. Improve outcomes for cancer patients
2. Perform clinically meaningful research
3. Create a model that can be replicated elsewhere
4. Career development in Nigeria and MSK
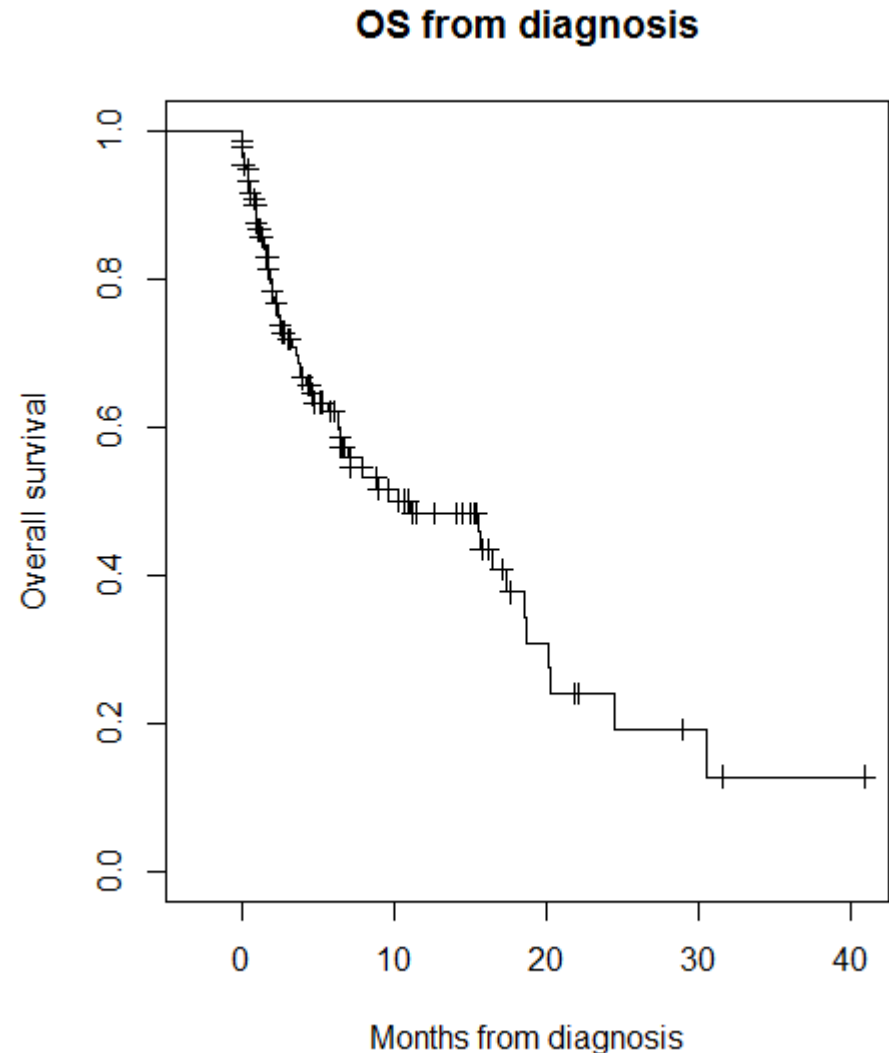
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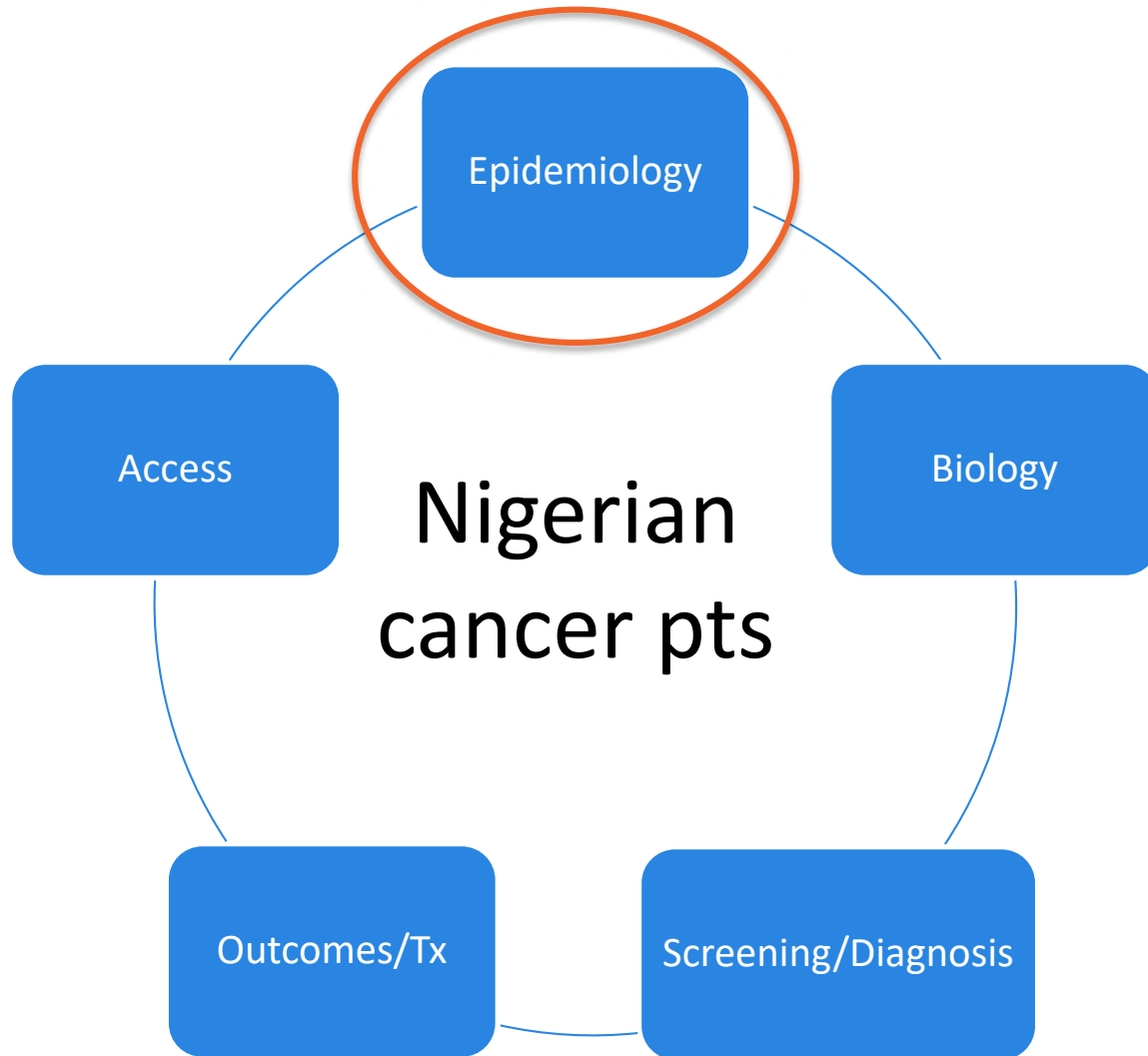
CRC patients present late in Nigeria

Stage	% Nigeria (n=380)	% USA (SEER)
I	.3%	39%
II	13%	36%
III	34%	-
IV	54%	20%

Survival in patients with CRC in Nigeria is poor

- 6-month survival: 62.6% (95% CI: 53.6-72.1)

- 12 month survival: 48.4% (95% CI: 38.9-60.1)

OS from diagnosis

Overall survival — Months from diagnosis

Breast cancer in Nigeria: late stage presentation

- 401/509 (79%) Nigerian women present with locally advanced or metastatic breast cancer[1]

- 5-yr OS stage III disease:
  - Nigeria: 28%[2]
  - USA: 85%[3]

[1] Olasehinde, Romanoff, Kingham unpublished data
[2] Makanjuola SB, et al. Radiother Oncol. 111(2):321-326. 2014
[3] Noone AM, et al. SEER Cancer Statistics. SEER website 2019

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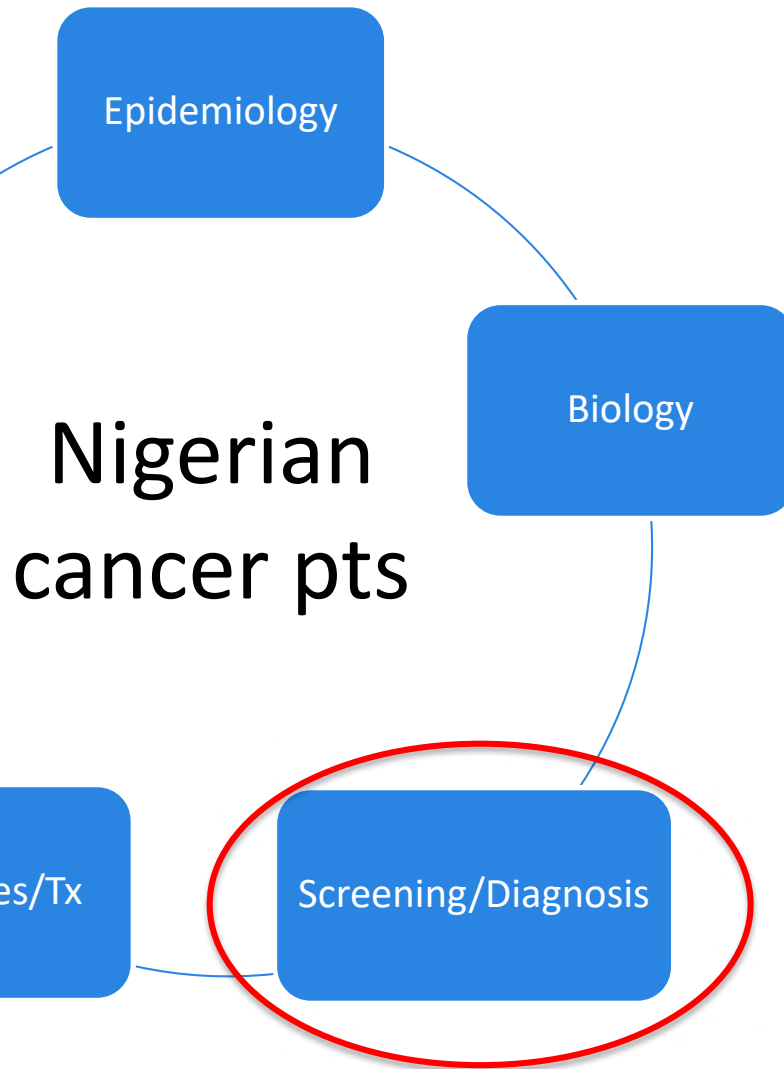
Approaches to screening for CRC in Nigeria

- No prospective trials of any CRC screening method in asymptomatic individuals in sub-Saharan Africa
    - Is it feasible?
    - High-risk groups ideal

- In LMIC, FIT is recommended for both organized and opportunistic screening
    - World Gastroenterology Association, DCPP-3, African Organization for Research & Training in Cancer

- Potentially a unique set of issues with stool testing in Nigeria

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Approaches for screening for CRC in Nigeria

	Average risk	First degree relatives	Symptomatic
FIT	X	X	
Clinical screen			X
Urine metabolites		X	X

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Clinical screen			X
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Can we identify patients at high risk for CRC?

- 362 patients, >45 years old, >1 week rectal bleeding:
  - examination and colonoscopy

Source of bleeding	Training cohort (%) n=217	Validation cohort (%) n=145
Hemorrhoid	89 (41%)	31 (21.4%)
Diverticulosis	54 (24.9)	27 (18.6)
CRC	**37 (17%)**	**28 (19%)**
Polyps	**15 (7%)**	**11(8%)**

Alatise OI...Kingham TP. *Cancer* 124(13):2766-2773. 2018

Clinical algorithm can identify highest risk pts
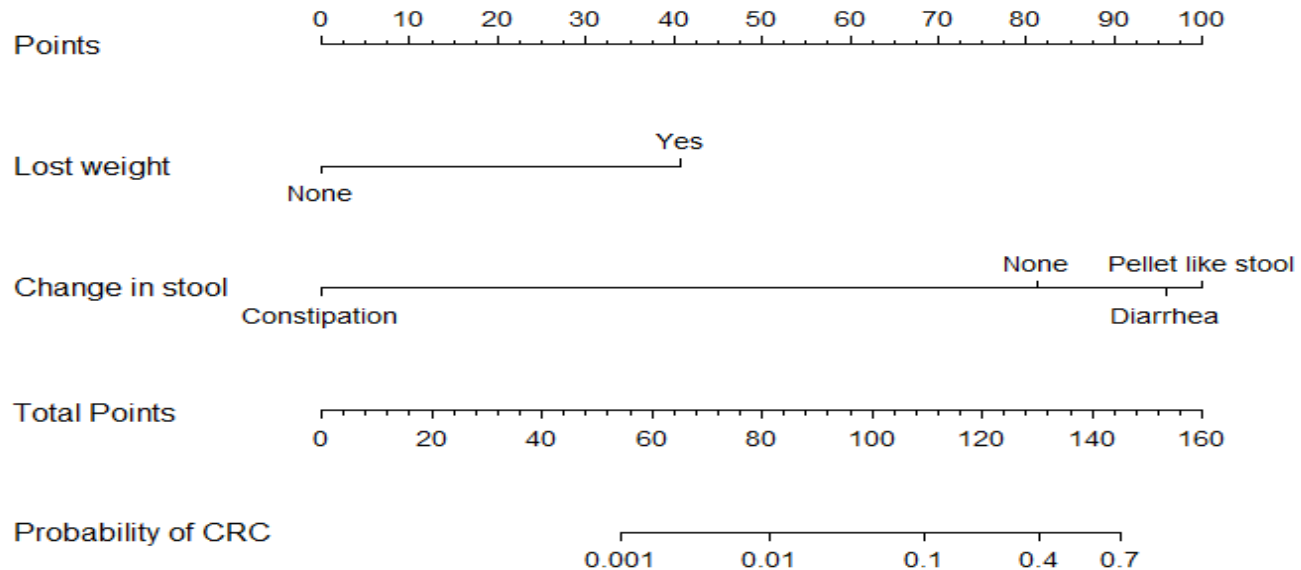
Cancer stage at diagnosis in high-risk patients

CRC stage	Overall	Training	Validation
II	19 (29%)	16 (42%)	3 (11%)
III	30 (46%)	11 (29%)	19 (68%)
IV	17 (26%)	11 (29%)	6 (21%)

Currently in Nigeria:

Presenting stage	% cases (n=380)
I	.3%
II	13%
III	34%
IV	54%

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Approaches for screening for CRC in Nigeria

	Average risk	First degree relatives	Symptomatic
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Improving detection of early stage breast cancer

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Improving detection of early stage breast cancer

- 400 women pilot
- Community-based study
  - Clinical breast exam
  - iBreast handheld device
  - US/Mammo

- 88pts: PPV 45%; NPV 95%

ARGO LAGOS BREAST SCREENING-16 OCT 2019

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Mobile health technology can be used for breast mass biopsy

Standard US

mHealth US device

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Remote and on-site training opportunities utilizing simulation-based training and m-Health

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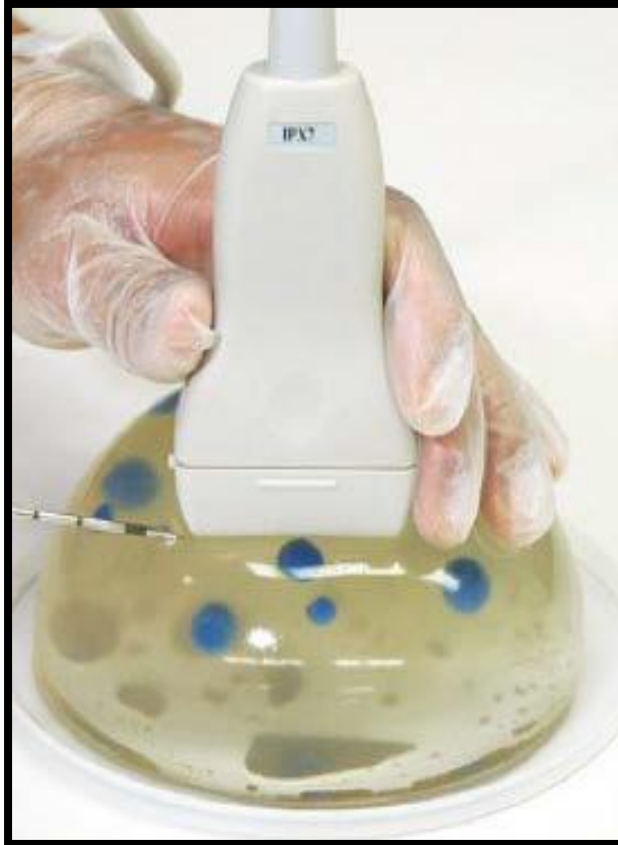
Conclusions

- Global oncology is a growing field
  - Meaningful additions to oncology knowledge

- Opportunity for partnerships to bridge barriers to screening, diagnosis and treatment

Thank you

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