

# Building impactful collaborations in Global Oncology: Examples from Rwanda and Botswana



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Photo: CHAI



Photo: Matt Craven



Photo: PIH

# Rwanda: Butaro Cancer Center of Excellence

# Rwanda Context

Health indicators (WHO)	
Total population (2015)	11,918,000
GNI pc (PPP IntI\$ 2013)	1,430
Life expectancy at birth m/f (years, 2015)	66/70
Total health expenditure pc (IntI\$ 2014)	125 (7.5% GDP)
Doctors per 100k pop	6
Nurses per 100k pop	83
Development indicators (UNDP)	
Rural residence (2016)	82%
Adult literacy rate (2015)	71.2%



# Partners In Health in Rwanda



Rwinkwavu Hospital entrance, 2005



Rwinkwavu hospital



Butaro Hospital, 2011



Kirehe hospital

# Approach

## Health Workforce

- **Task shifting**, with training and strong decision support
- **Training** for generalists
- Adapted standardized **protocols**
- **Rotating specialists** and fellows
- **Telepathology**

## Information

- Open source **EMR**, suitable for low-resource setting (e.g. offline functionality)
- **Multipurpose**: clinical care and safety, utilization data, drug forecasting, clinical outcomes, program reports

## Medical and Social services

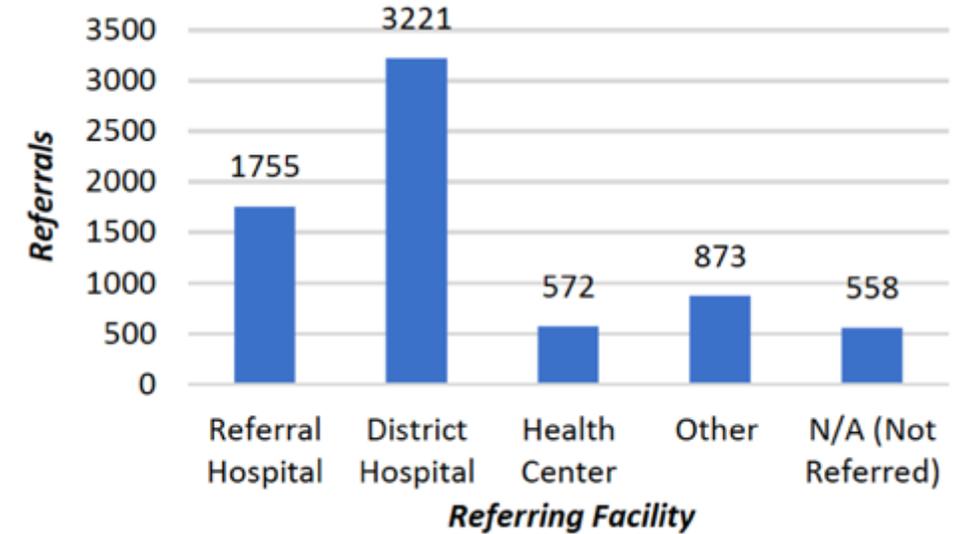
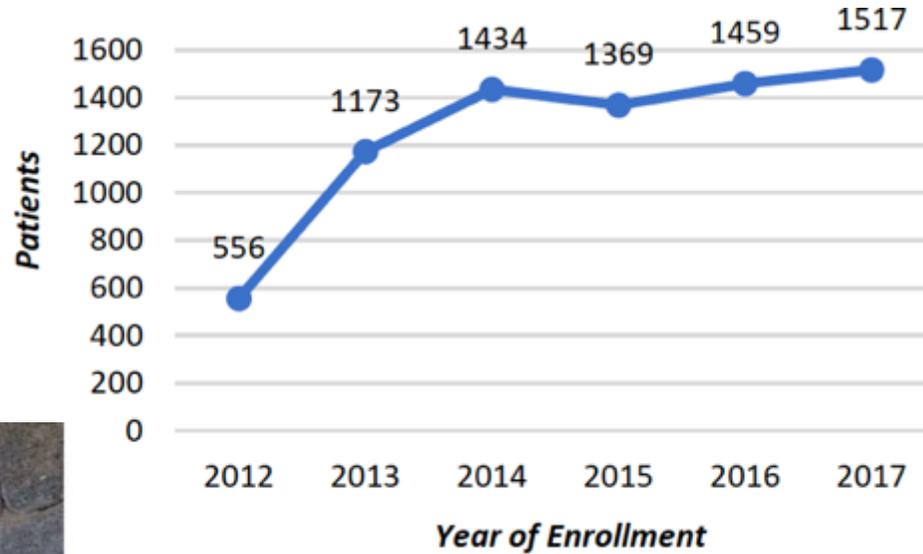
- Standard formulary medications and consumables (WHO, off-patent, PPE)
- **Socioeconomic supports** (transport, food, CHW)
- **Shared investment** by PIH-MOH



Photos: PIH, Cecille J. Avila



# Results: Patients treated



Oncology patient enrollment and referral type, 2012-2017

## Top 5 cancers treated

- Breast (~20%)
- Cervical (~20%)
- Head and Neck (~5%)
- ALL (~4%)
- Stomach (~4%)



Butaro Outpatient Infusion Center, 2014

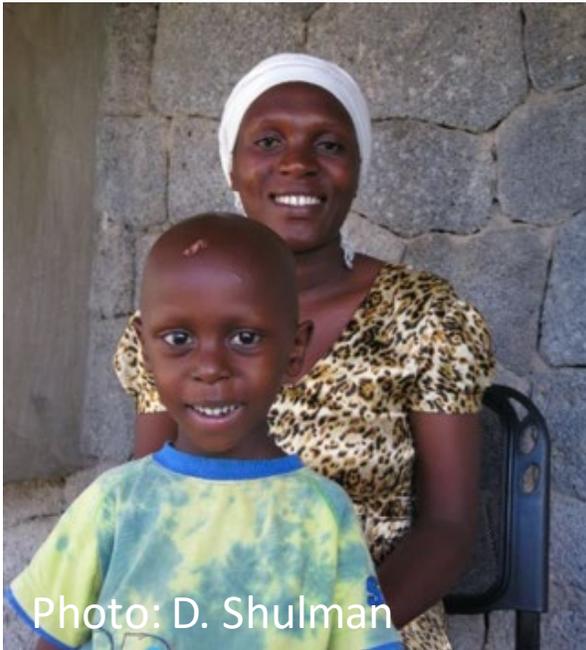
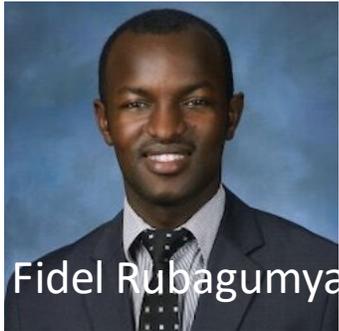


Photo: D. Shulman

Fabrice (Wilm's tumor) and mum

# Broader Impact

- >30 published manuscripts
- Contribution to infrastructure and human capacity



Fidel Rubagumya



Joel Mubiligi



Cyrprien Shyiramber



Hon. Dr Tharcisse Mpunga, State Minister of Health



PIH global nurse leaders graduate



UGHE campus, 2019



UGHE graduates, 2019



**Botswana:**

Botswana Harvard Partnership Oncology

# Botswana Context

## Health indicators (WHO)

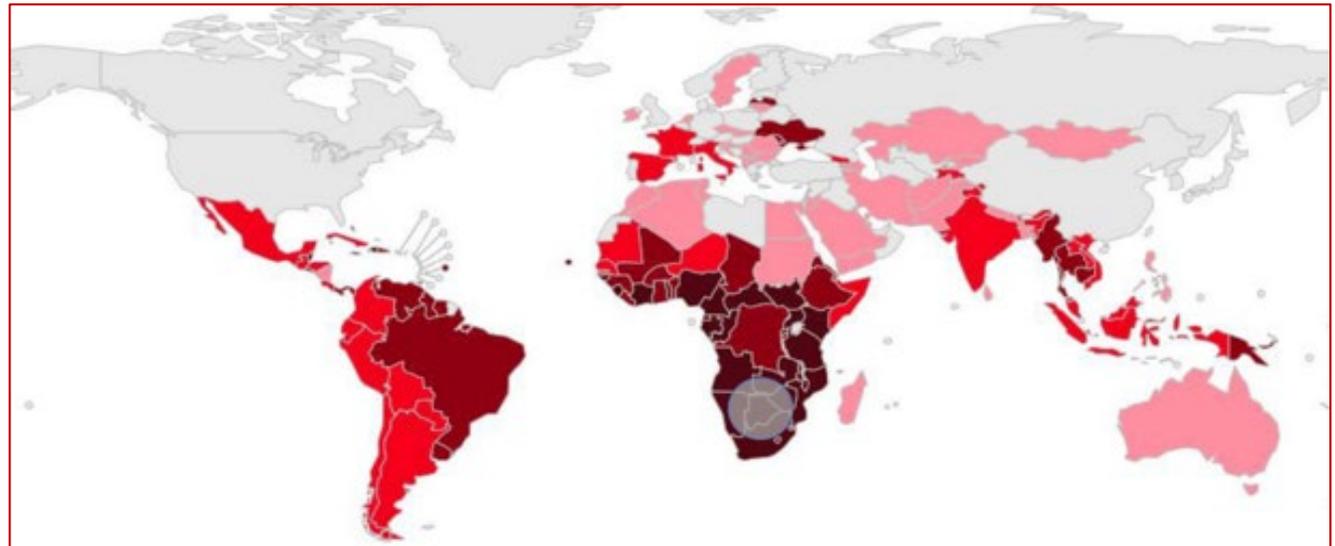
Total population (2015)	2,262,000
GNI pc (PPP IntI\$ 2013)	15,500
Life expectancy at birth m/f (years, 2015)	63/68
Total health expenditure pc (IntI\$ 2014)	871 (5.4% GDP)
Doctors per 100k pop	40
Nurses per 100k pop	272

## Development indicators (UNDP)

Rural residents (2016)	39%
Adult literacy rate (2016)	88.5%



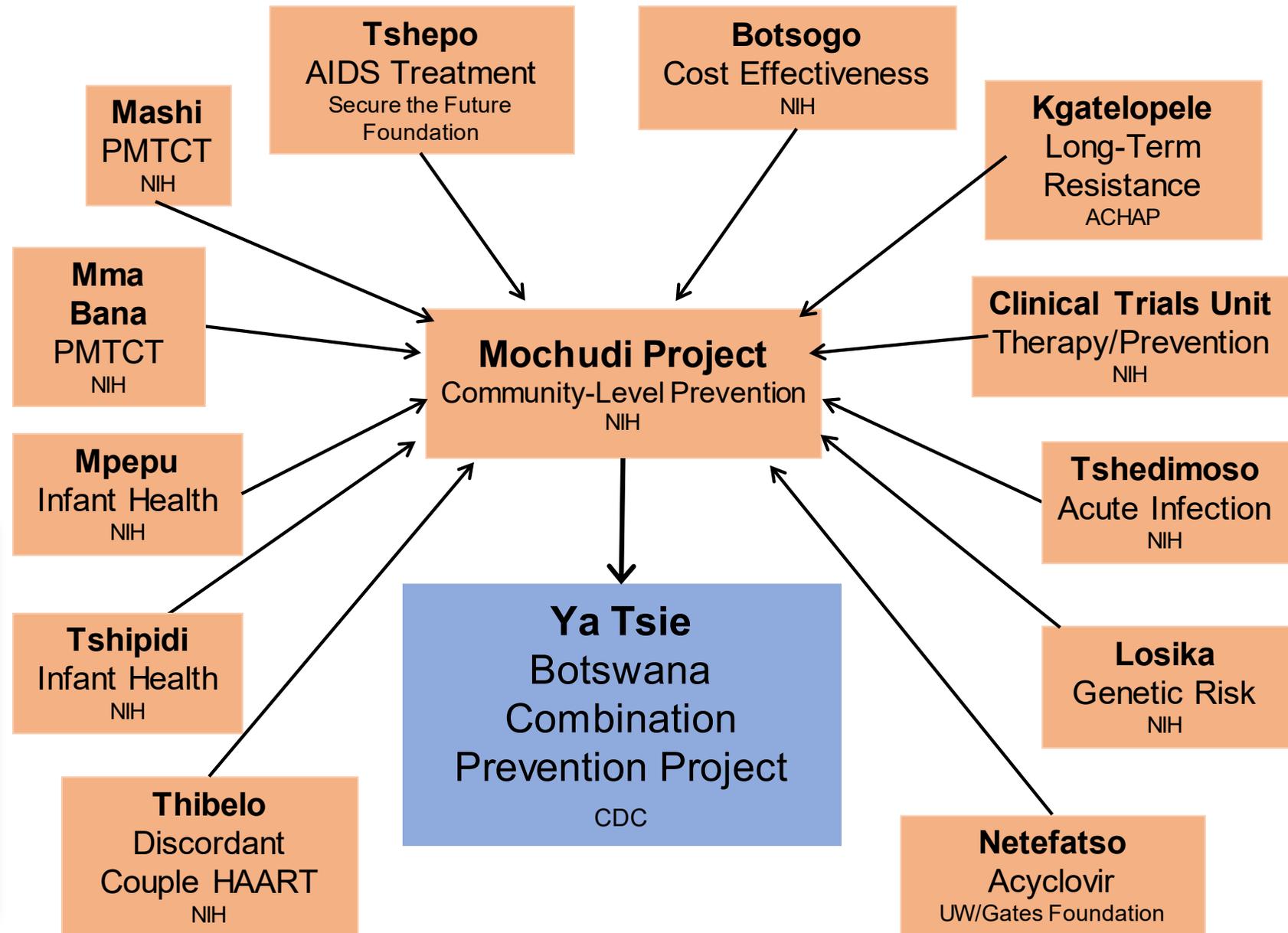
## Global prevalence of HIV, 2016 UNAIDS



# Botswana Harvard AIDS Institute Partnership

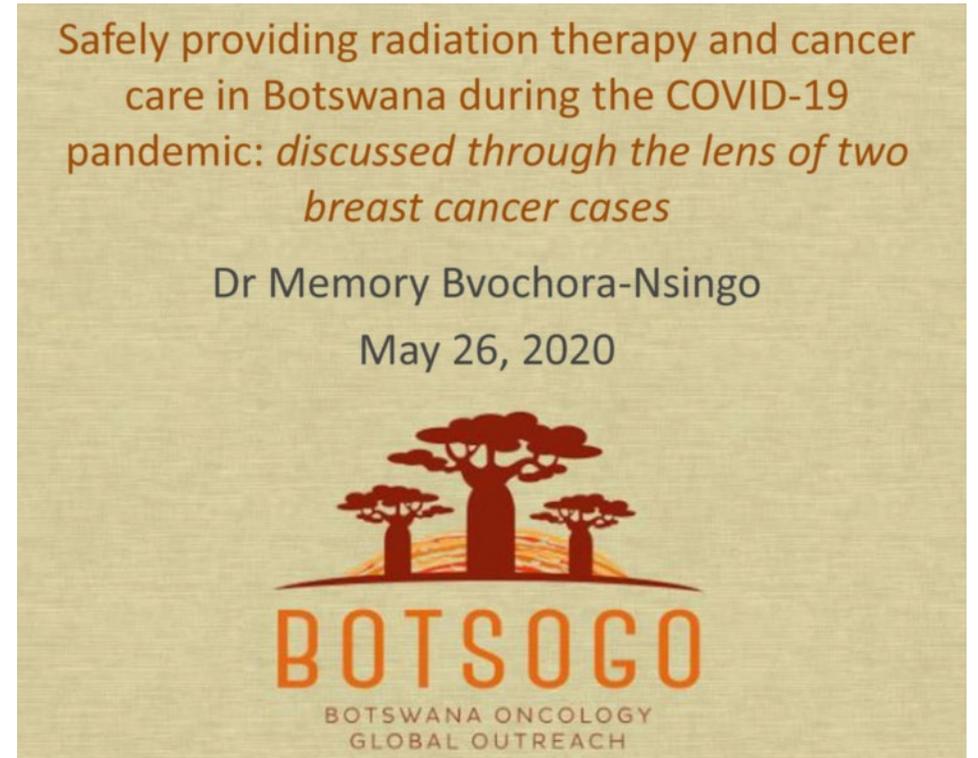


Dr Joe Makhema, CEO



# Approach

- Thabatse cohort (2010, Scott Dryden-Peterson)
- Tumor board (2011)
- Short courses for local nurses and doctors
- Rotating fellows, students
- Country-based oncologists
- **Potlako early diagnosis (2016)**
- **Peo NCDs research planning project (2017)**
- Expansion of funded research, including cervical cancer early detection, other NCDs



# Standardized algorithm

Saving lives through early detection

## Potlako

Know the common cancer symptoms in Botswana

- 1. Lump or bump**  
Breast, lymphoma, sarcomas, penis
- 2. Pelvic pain and bleeding**  
Cervix, anal, vulva, colon
- 3. Skin changes**  
KS, melanoma, skin SCC
- 4. Mouth sores and pain**  
KS, head and neck
- 5. Can't swallow**  
Esophageal, head and neck

**Overall Diagnostic Pathway for Cancer Suspects**

**Primary Clinic or Health Post** → **Primary or Secondary Hospital** → **Tertiary Hospital**

**District Hospital—Scottish Livingston Hospital**

**SLH Specialist: FNA/ Biopsy procedure** → **SLH Specialist: Path results** → **PMH Specialist: Treatment initiation**

**OPD/SRH: Review**

**Procedures:**

- History taking
- Physical Examination
- HIV testing and other labs
- Medicines: antibiotics, painkillers, IVFs
- Patient counseling
- Documentation-Potlako Register
- Phone consultation
- Prompt referral
- Return visit in 1 month
- NB: Observation should only be after review by senior MCO, and reassessment should be within 2 weeks

**Additional procedures:**

- Labs: X-ray, Ultrasound
- Pathology testing (FNA, biopsy)
- IV medications
- Documentation
- Phone consultation
- Prompt referral

**Additional procedures:**

- Complicated biopsies (CT)
- Consent for treatment initiation
- Treatment: surgery, chemotherapy & radiation
- Documentation

**Review results:**

- Order labs (HIV, FBC, RFT, LFT), CXR
- F/u results within 1 wk or refer directly to specialty
- Consider abd US\* (if mastitis (only lactating women) suspected, review response - if none, refer to Surgeon (1 wk))
- Book appt for FNA or biopsy

**Review results:**

- Gynecologist: cervix, vagina, vulva, uterus, ovary
- Surgeon: breast, skin, lymph nodes, other external tumors
- ENT specialist: head and neck
- Dental surgeon: oral
- Ophthalmologist: eye
- Urologist: penis, prostate, other male GU
- General surgeon: liver, lung, GI

**Review results:**

- If indicated, order/perform biopsy or FNA
- Book appt for FNA results (2 wks), or biopsy results (4 wks)
- PMH Specialist: Complex biopsies

**Review results:**

- Review results
- If cancer, book appt at PMH (1 wk)
- If biopsy neg, consider repeat biopsy vs pursue other diagnoses
- If no biopsy, call Potlako coordinator and rebook (1 wk)

**Review results:**

- F/u biopsy results

# Appointment booking



# Training and coaching



# Results f/u



Transport support



Defaulter tracing



Phone-based navigation

# Results

- >3000 patients enrolled in cancer cohort
- >80 tumor boards held
- >40 published manuscripts
- Expansion of funded research



Botswana 1<sup>st</sup> NCD Symposium: Panelists (including Peo PIs) discussing NCD research priorities



Potlako+ witnessed randomization, May 2020



Peo Fellows and mentors at inaugural training, June 2017

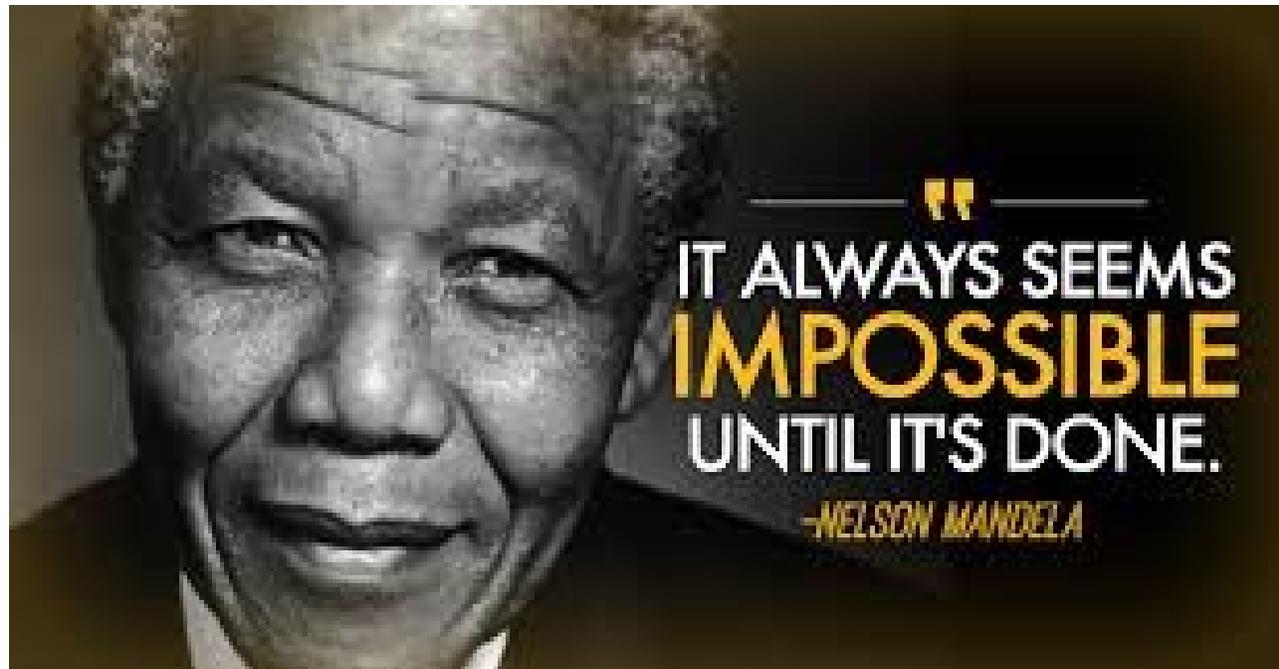
# Enablers & Challenges

- **Local leadership and strong partnership with MOH**
- Research, while **strengthening health systems** (responsiveness to local need, care, building local capacity, supporting broader national efforts)
- **Innovation**
- Addressing social barriers
- **Brick and mortar**
- **Personal relationships**
- Building a **successful career** (both for local and foreign clinicians/scientists)
- More **female leaders**
- **Burn out**, turn over, raising families in rural settings
- **Institutional rivalries**
- Individuals who lack **humility**



# Summary

- Two different settings and programs that are contributing to global oncology
- Key enablers and ongoing challenges relevant to global oncology program development



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