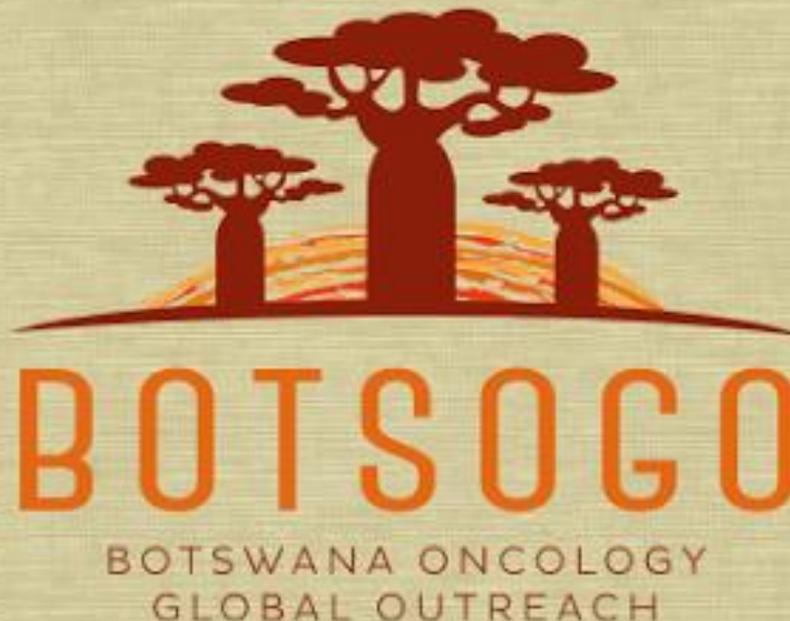


Safely providing radiation therapy and cancer care in Botswana during the COVID-19 pandemic: *discussed through the lens of two breast cancer cases*

Dr Memory Bvochora-Nsingo

May 26, 2020



Continuing Medical Education Announcement

Harvard Medical School

RSS 3081: Monthly BOTSOGO Tumor Board; 2019 - 2020 Academic Year

Today's Objectives:

- Describe the need for timely cancer case presentation and referral to treatment
- Formulate a multi-disciplinary plan for the care of common and complex oncologic cases
- Adopt successful, sustainable strategies to mitigate barriers to quality cancer care common in resource constrained environments

Target Audience:

Oncologists, internists, surgeons, radiation oncologists, infectious disease specialists, nurses, physicists, therapists, technicians, research staff, administrators, policy makers.



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- You can do this at your convenience on your personal or work computer by navigating to www.botsogo.org
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Core Principles of Case Review

Clinicians, pathologists, and other other members of the health care team uniformly strive to provide the best possible clinical care.

Despite these efforts, adverse outcomes still occur.

Reflection on, and re-evaluation of, our practices and outcomes are imperative to continuously improve the care we provide to patients.



Core Principles of Case Review

Discussion will focus on medical decision-making and reporting systems.

Discussion is privileged and content should not be discussed outside of this forum.

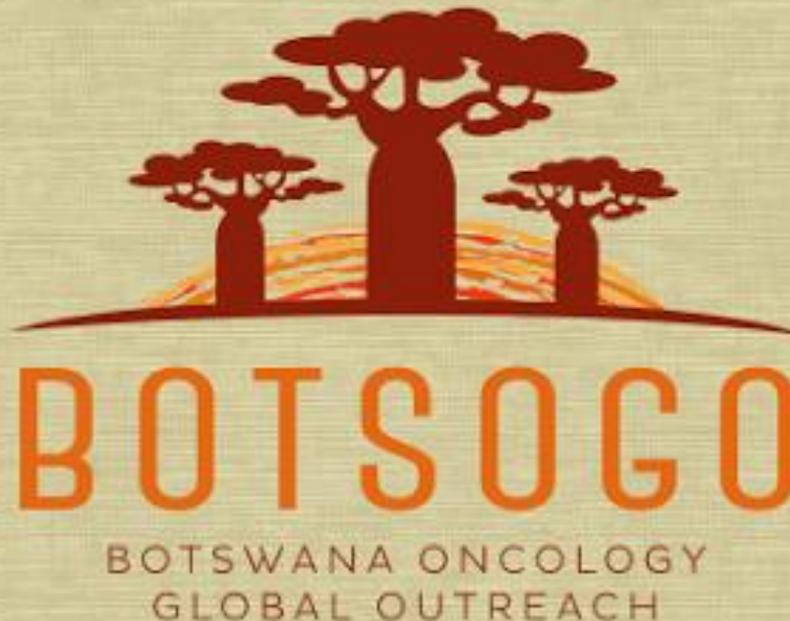
We seek to create a safe, collaborative, open and respectful atmosphere for discussion, learning, and improvement



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WELCOME TO THE NEW WAYS OF WORKING!
#LetsDefeatCOVID19Together
#ARefeyengCOVID19Mmogo 🇸🇩



**CORONA VIRUS IS STILL
A SERIOUS THREAT!**

THE NEW NORMAL.

Hold your meetings virtually at
home and at the office.

Own your space. Own your health!



Botswana COVID-19 statistics



General Impact of COVID-19 (Dr Taolo)

- So far, in a busy hospital like PMH, we haven't been so busy at the dept. of Peads
- With 3 teams, we've been having an average of 4-5 patients per team, of which normally a team may have 10 pts/team.
- Learning was not so efficient.



Impact on outpatients

Those being followed up at the clinics, it initially took longer time to acquire the permits.

The barrier for those without transport are hindered to come for their scheduled follow up, hence lost to follow up.



Negative Impacts

- Complications of those chronic illnesses, which may necessitate change of management methods or medications.
- Still goes back to revenue of the ministry.
- The only admissions we had were commonly DKA, 1 case of severe acute malnutrition with severe dehydration.
- We may have already missed out a lot of new cases since the lockdown/ this pandemic in peads! malnutrition, AGE-dehydration



Radiation in Botswana

Gaborone Private Hospital is the sole provider of radiation.

Our aim during the pandemic is to:

1. Keep patients safe;
2. Keep staff safe;
3. Treat as many patients as reasonably possible;
4. Keep the Department open during the whole lockdown and optimize available resources.



Keeping patients safe

Managing the patient population:

- Referrals and bookings have remained high.
- Previously had up to 25 patients waiting for services in the waiting room;
- Now limit patients to 8 waiting inside. Other patients wait in garden outside;
- However, cold season starting.



Managing patients waiting outside



Avoid crowding

Patients still arriving in groups, e.g. 8 patients at a time.

Would be helpful to bring patients in groups of 4?

Treatment takes 15 minutes per patient, so if 8 come at the same time 2 hours waiting, including nurse.



Screening for COVID-19

All patients complete a questionnaire with questions regarding fever, travel contacts, etc;

All patients have temperature checks on entering department;

Register kept of all patients entering department;

Generally not allowing visitors into the department;

Use of hand sanitizer on entering department.



Masks for all



Can cases be deferred?

- One of the recommendations is to defer patients who do not have an urgent need for radiation.
- So far we have been consulting patients as referred.
- To defer patients, one has to have a clear understanding of the benefits of radiation for a tumour & the patient-specific risk of **NOT** undergoing radiation, or of postponing radiation.



High priority

Patient condition is immediately life threatening, clinically unstable, and/or the magnitude of benefit qualifies the intervention as high priority

Medium priority

Patient situation is non critical but delay beyond 6 weeks could potentially impact overall outcome and/or the magnitude of benefit qualifies for intermediate priority

Low priority

Patient's condition is stable enough that services can be delayed for the duration of the COVID-19 pandemic and/ or the intervention is non-priority based on the magnitude of benefit



Case # 1: A 72 year old patient with left breast cancer

72 year old very well patient with no comorbidities

- Felt a lump in the left breast 2 years ago
- Lump was about the size of a plum when she presented
- Lumpectomy in early 2020
- Histology confirmed invasive ductal carcinoma
- Had mastectomy and axillary dissection



A 72 year old patient with left breast cancer

Pathology confirmed residual disease 1cm x 1cm x 1cm

Margins clear with closest, anterior margin 0,5 cm

Skin tissue and nipple show Paget's disease

2 out of 9 lymph nodes have evidence of metastatic disease

Modified Bloom Richardson grade total: 5



A 72 year old patient with left breast cancer

Pathology – continued:

High grade DCIS in background

Perineural and angiolymphatic invasion identified.

ER, PR strongly positive

Her II negative



Indication for radiation

Before COVID-19, what is the general indication for radiation in this patient?

What is her benefit versus toxicity?

Could we potentially avoid radiation in the face of COVID-19, considering:

- Age
- Cancer/diagnosis
- At what risk to the patient?



Priorities for breast cancer radiation

High priority

Palliative treatment of acute spinal cord compression, symptomatic brain metastases, bleeding/painful inoperable breast masses or any urgent palliative radiation therapy, when control of symptoms cannot be achieved pharmacologically

Patients already on radiation treatment

Adjuvant postoperative radiation therapy for high-risk patients with breast cancer (inflammatory disease at diagnosis, node-positive disease, triple-negative or HER2-positive breast cancer, residual disease at surgery postneoadjuvant therapy, young age (<40 years))

Medium priority

Adjuvant postoperative radiation therapy for low-risk/intermediate-risk patients with breast cancer (aged <65 years and stage I/II luminal cancer, ER positive regardless of nodal status or positive margins). *Use of hypofractionated regimens should be considered to reduce hospital visits. Endocrine therapy can be started during the waiting interval.*

Low priority

Elderly patients with low-risk breast cancer (aged >70 years, with low-risk stage I ER-positive/HER2-negative breast cancer): *starting adjuvant endocrine therapy is recommended while postponing radiation therapy.*

Carcinoma in situ.



Priorities for breast cancer radiation (High)

- Palliative treatment of acute spinal cord compression, symptomatic brain metastases, bleeding/painful inoperable breast masses or any urgent palliative radiation therapy, when control of symptoms cannot be achieved pharmacologically
- Patients already on radiation treatment
- Adjuvant postoperative radiation therapy for high-risk patients with breast cancer (inflammatory disease at diagnosis, **node-positive disease**, triple-negative or HER2-positive breast cancer, residual disease at surgery postneoadjuvant therapy, young age (<40 years))



Priorities for breast cancer radiation (Medium)

Adjuvant postoperative radiation therapy for low-risk/intermediate-risk patients with breast cancer (aged <65 years and stage I/II luminal cancer, ER positive regardless of nodal status or positive margins).

Use of hypofractionated regimens should be considered to reduce hospital visits. Endocrine therapy can be started during the waiting interval.



Priorities for breast cancer radiation (Low)

- Elderly patients with low-risk breast cancer (aged >70 years, with low-risk stage I ER-positive/HER2-negative breast cancer): *starting adjuvant endocrine therapy is recommended while postponing radiation therapy.*
- Carcinoma in situ



Case #2: A 34 year old patient with recurrent breast cancer (Dr Peter)

Premenopausal.

Had Ri mastectomy + ALND in September 2018:
pT1N2M0

Received 4 * AC (3/2019 to 8/2019), No Paclitaxel afterwards (availability issues)

During surgery in 2018: residual lump in Upper Int quadrant was left

Lump resected >1 year later in November 2019 for diagnostic purpose

Positive for malignancy.(No margins noted)

Tumour ER + PR positive and HER II negative.

CXR and USS abdomen: not metastatic



Questions

1. Is there a role for chemotherapy now?
2. What are the optimal radiation fractionation regimes for younger patients?

Patient will receive LHRH and Tamoxifen (or AI if Tam not available)



Fractionation

Radiation for breast cancer takes anywhere from 3 weeks to 6 weeks.

Small doses of radiation are given daily to allow damage to cancer cells whilst allowing normal cells to heal.

Weekend break is given to allow healing of normal tissues

Hypofractionation: The total dose is divided into large doses per treatment resulting in fewer total treatment days.



Fractionation regimes for breast cancer

50Gy/25# i.e. 25 days

40Gy/15#

Forward and fast forward trials?



Could virtual care be delivered?

Telephonic history taking?

On site for examination, simulation and treatment



Virtual chart rounds, On treatment Visits?

Weekly Multidisciplinary virtual meeting to discuss RT cases?

Multidisciplinary virtual meeting to discuss Breast cancer cases?

Multidisciplinary virtual meeting to discuss unusual cancer cases?



Availability of PPE



PPE



Could we safely deliver radiation to a
COVID-19 patient at our institution?



Thank you

Keep your
distance!!!!

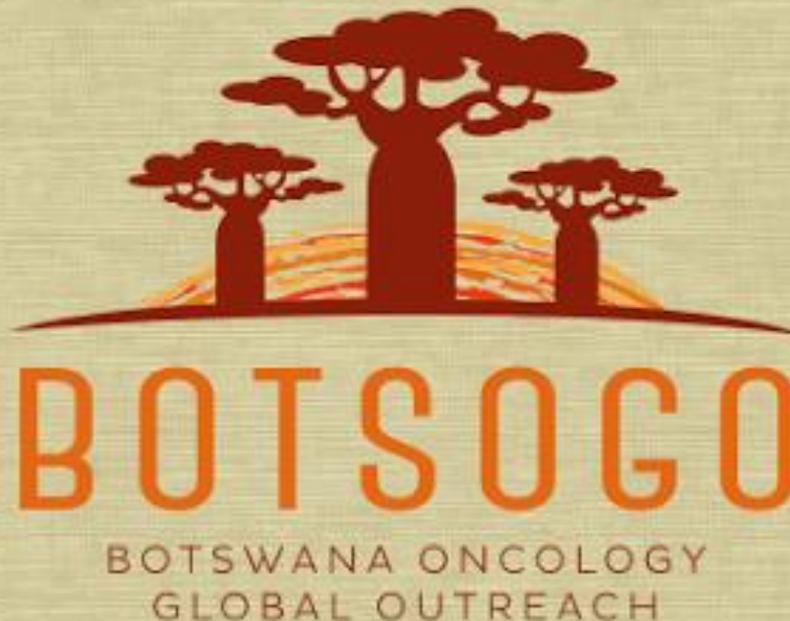
Wear your mask!

Tlhapa diatla



Breast Radiotherapy During the COVID-19 Pandemic

Alice Y. Ho, MD MBA
Department of Radiation Oncology
Massachusetts General Hospital



Rationale for Preserving Resources

- Radiotherapy (RT) is a major treatment component for breast cancer; however, there is minimal locoregional benefit for some and no survival benefit for others.
- In the setting of COVID where exposure may confer a mortality risk, the limited benefit of breast RT in certain patients must be carefully considered.
- Resource preservation is therefore critical for minimizing infectious risk, without compromising oncologic outcomes.



3 Methodologies to Preserve Resources in Breast Rad Onc:

(1) Omitting RT

(2) Delaying RT

(3) Abbreviating RT, wherever appropriate.



ASBS/NCCN Priorities for Breast Cancer Focused Radiation Oncology During COVID

Patients already on treatment	Category 2: Adjuvant post-operative breast cancer patients within 3-6 months of last surgery or chemotherapy with low intermediate/intermediate risk indications for radiation, such as age < 65yo and stage I/II luminal cancer, ER+ node negative, ER+ node positive, or positive margins-use of hypofractionation where clinically appropriate is recommended to reduce visits	Women with DCIS may omit radiation therapy, especially those with ER positive lesions taking adjuvant endocrine therapy, without affecting overall survival
Patients with spinal cord compression, brain metastases, or other critical metastatic lesions		

The COVID-19 Pandemic Breast Cancer Consortium. In Press. 2020.



Omission of RT

- **Favorable-Risk DCIS^{1,2}:**

- <2.5 cm, mammographically-detected
- Low to intermediate grade
- Negative surgical margins (≥ 2 mm)
- ER+ disease; planning on ET

- **Low-risk Invasive Disease^{3,4}:**

- ≥ 70 years old, ER+/HER2-, <3cm, pN0, negative margins, planning to receive hormone therapy
- <65 years old, ER+/HER2-, biomarker low-risk

¹ McCormick B et al. JCO 2015.

² Solin et al. JCO 2015.

³ Hughes et al. JCO 2013.

⁴ Jagsi et al, IJROBP abstract. 2019.



How Long Can We Delay RT After Breast-Conserving Surgery for Early Stage Disease?

- DCIS patients requiring RT: ≤ 12 -week delay appears safe¹
- Favorable-risk Invasive: T1-2N0, ER+/HER2-
 - ≤ 20 -week delay does not appear to compromise disease outcomes²
- If RT delay is anticipated, can begin hormone therapy postop
- Concurrent hormonal therapy and RT is tolerable, with minimal toxicities & no apparent detriment to cancer outcomes³.

¹ Shurell et al. Cancer 2017.

² Olivotto et al. JCO 2008.

³ Pierce et al, JCO 2005.



High Risk Invasive Disease: Do Not Delay (≤ 16 wks* from surgery or chemo)

- Inflammatory breast ca - ***start RT as soon as possible***
- Residual disease after NAC (any subtype).
- Unresectable local or regional recurrence or resected recurrence with skin involvement, LVI or limited systemic therapy options.
- 3 or more positive nodes, any subtype.
- 1-2 positive nodes with LVI (any), young age; ER+ or HER2+
- TN, any node positive.
- Age <40 with high-risk features (TN, LVI, T2 and up, N+).



Omitting or Abbreviating the Boost

- Greatest absolute benefit of boost to lumpectomy cavity observed in young women, with smaller absolute benefit in older (≥ 60) women¹
- Omit boost altogether in older women with low-risk disease
- Hypofractionated boost (single 5.2-5.7 Gy)² to tumor bed, delivered with 3D-CRT methods, in setting of ultra-hypofractionated whole breast RT (UK FAST)

¹ Bartelink et al. Lancet Oncol 2015.

² Agrawal et al. CRUKE/04/015. Radiother Oncol 2011.



Hypofractionated Whole Breast RT

- Represents standard of care in US and Europe, given equivalent tumor control and in some cases, fewer toxicities, compared to longer fractionations
- 42.65 Gy/16 fx¹ and 40 Gy/15 fx² with longest follow-up data
- Ultra-Hypofractionation:
 - 28.5 Gy/ 5 once-weekly fx (UK FAST⁴) for ≥ 50 years, pN0
 - 26 Gy/ 5 daily fractions (FAST FORWARD⁵); shorter follow-up

¹ Whelan et al. NEJM 2010.

² Haviland et al. UK START. Radiother Oncol 2011.

³ Agrawal et al. CRUKE/04/015. Radiother Oncol 2011.

⁴ Brunt et al. Radiother Oncol 2016.



ASBS/NCCN Priorities for Breast Cancer Focused Radiation Oncology During COVID

Priority A	Priority B	Priority C
Bleeding/painful inoperable breast mass	Category 1: Adjuvant post-operative breast cancer patients within <u>16</u> weeks of last surgery or chemotherapy with high risk indications for radiation such as inflammatory disease, node positive disease, triple negative breast cancer, post neoadjuvant chemo with residual disease at surgery, young age (<40) with additional high-risk features	Patients over age 65-70yo with lower risk Stage I hormone receptor positive/HER2- cancers and taking adjuvant endocrine therapy can be encouraged to defer/omit radiation without affecting overall survival- If patient cannot tolerate endocrine therapy, re-evaluate for radiation depending on individual patient and pathologic factors and current severity of pandemic. Invasive cancers should be prioritized over DCIS.

The COVID-19 Pandemic Breast Cancer Consortium. In Press. 2020.



Accelerated Partial Breast Irradiation (APBI)

- Smaller target volumes enable acceleration of treatment time from 3-6 weeks to 1-2 weeks.
- Suitable candidates are >50 years old, ER+, ≤ 2 cm invasive tumor; low-int DCIS ≤ 2.5 cm¹.
- Brachytherapy methods not advised during pandemic.
- Recommended regimens include 40 Gy/10 daily fractions² (MGH; MSKCC); 38.5 Gy/10 fractions BID³ (NSABP B-39) delivered with 3D-conformal, external beam techniques.

¹ Smith et al. Pract Radiat Oncol 2018

² Braunstein et al. IJROBP 2019.

³ Vicini et al. Lancet 2019.



Hypofractionated PMRT and/or RNI

- Several trials supports 40 Gy/15 fx to breast/CW and regional nodes
- Limited data to support faster fractionations (36.6Gy/11 fx)³; higher complications rates observed in reconstructed patients.
- In patients with breast reconstruction, hypofractionated PMRT should be used on-trial only (FABREC, Alliance).
- Consider integrated boost in patients with lumpectomy (RTOG 1005: 3.2Gy x 15; alternative is 3Gy x 16)

Haviland et al. UK START. Lancet Oncol 2013.
Wang et al. Lancet Oncol 2019.
Khan et al. JCO 2017.



Strategies for Newly Diagnosed COVID+ Patients Receiving Breast RT:

- Convert remaining dose to hypofractionated regimen
- Minimize treatment break during work-up and treatment with supplemental O₂, anti-viral therapy.
- Consider re-planning to minimizing lung volume.
- Re-commence RT only after respiratory symptoms are stabilized, with multidisciplinary input.



Status of MGH Breast Research Protocols

New enrollment to the following studies are on hold:

- **RADCOMP** (protons v. photons)
- **U19** (subsidiary study)
- **PRECISION** (omission of RT in low PAM50 score)
- **FABREC** (hypofx v. conv fx in patients with implant reconstructions)
- **#19-055** Niraparib/RT for TNBC
- **#19-720 TailorRT-** Activation on hold
- **#20-157 P-RAD** (Pembro/SBRT for N+ TNBC)- SRC-approved 4/6/20

