Delays in initiation of curative intent CRT/RT and patterns of survivorship care for cervical cancer patients living with or without HIV in Botswana

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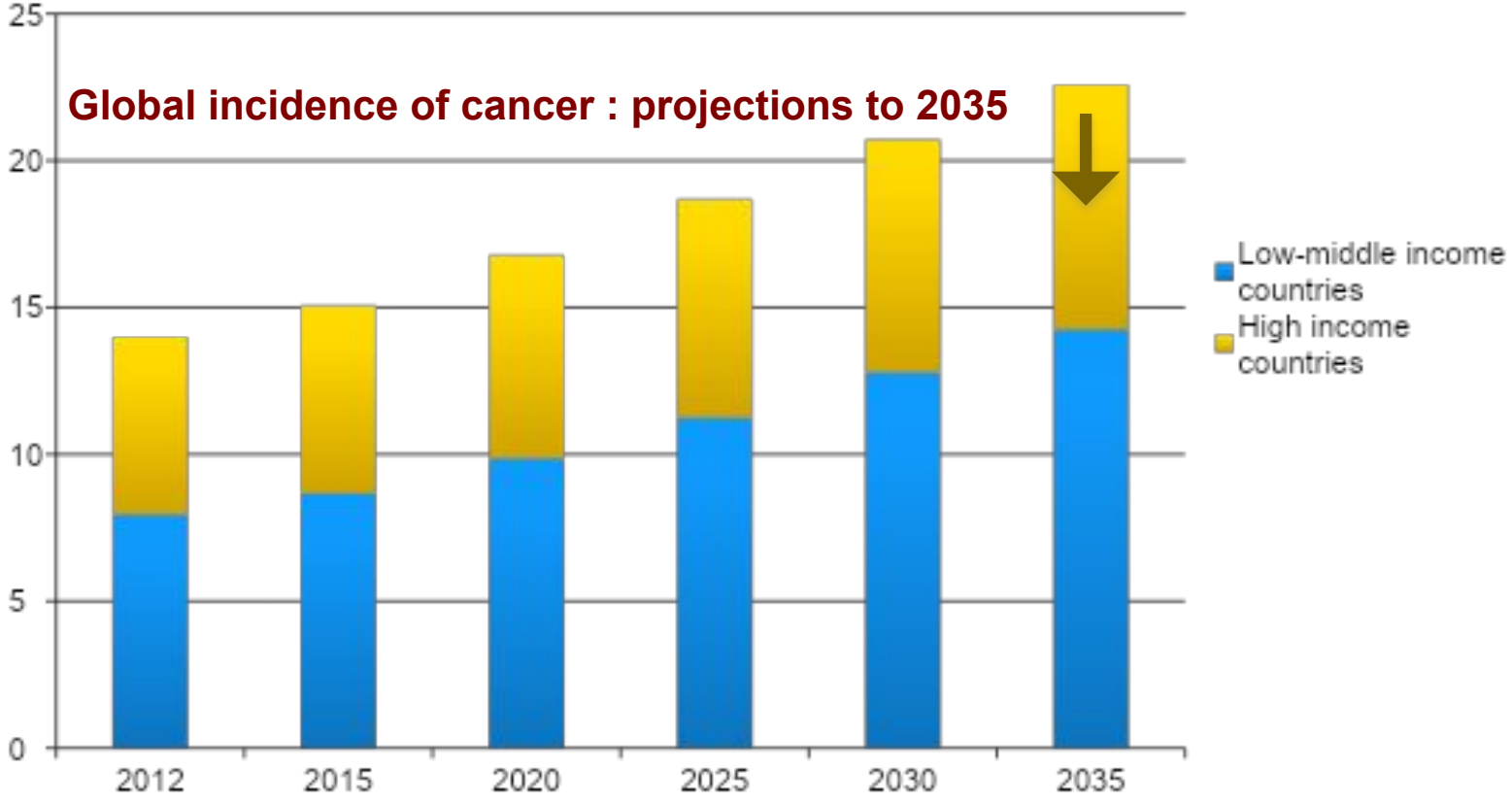
Disclosures

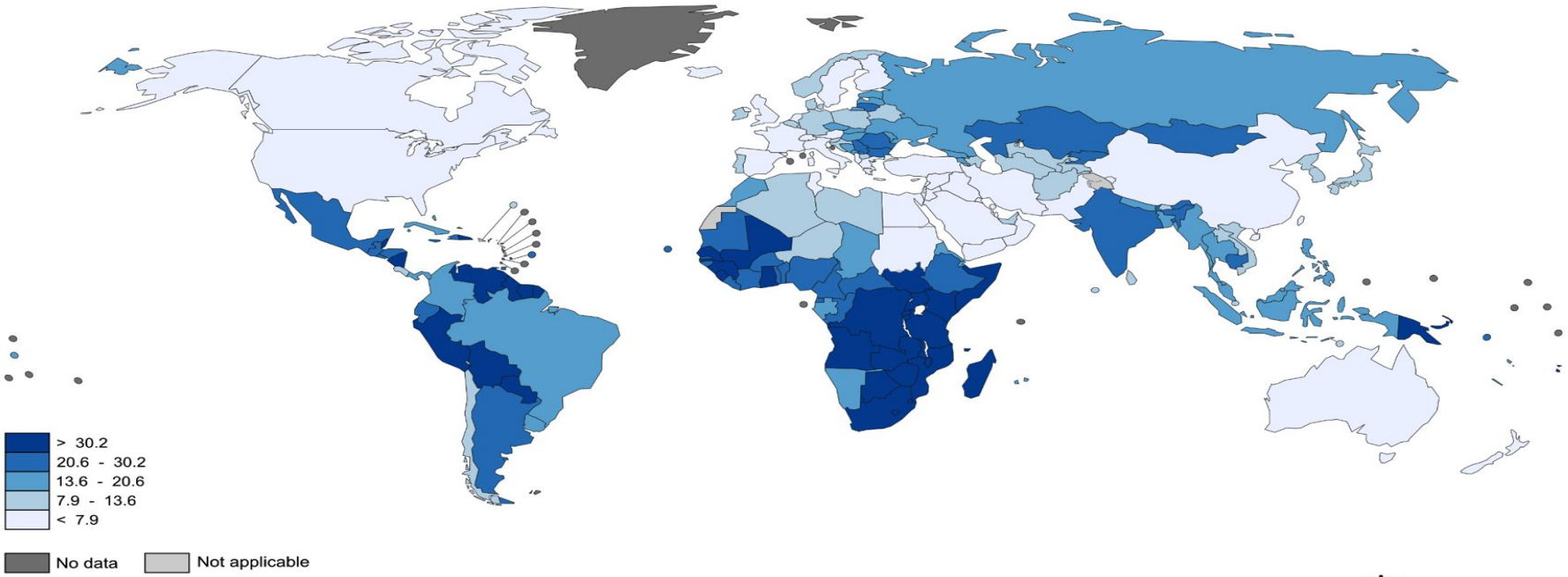
- None

Cancer is not just a '1st world problem'



*Raw data for graph provided by Globocan, IARC

Cervical Cancer Incidence Worldwide-GLOBOCAN 2012



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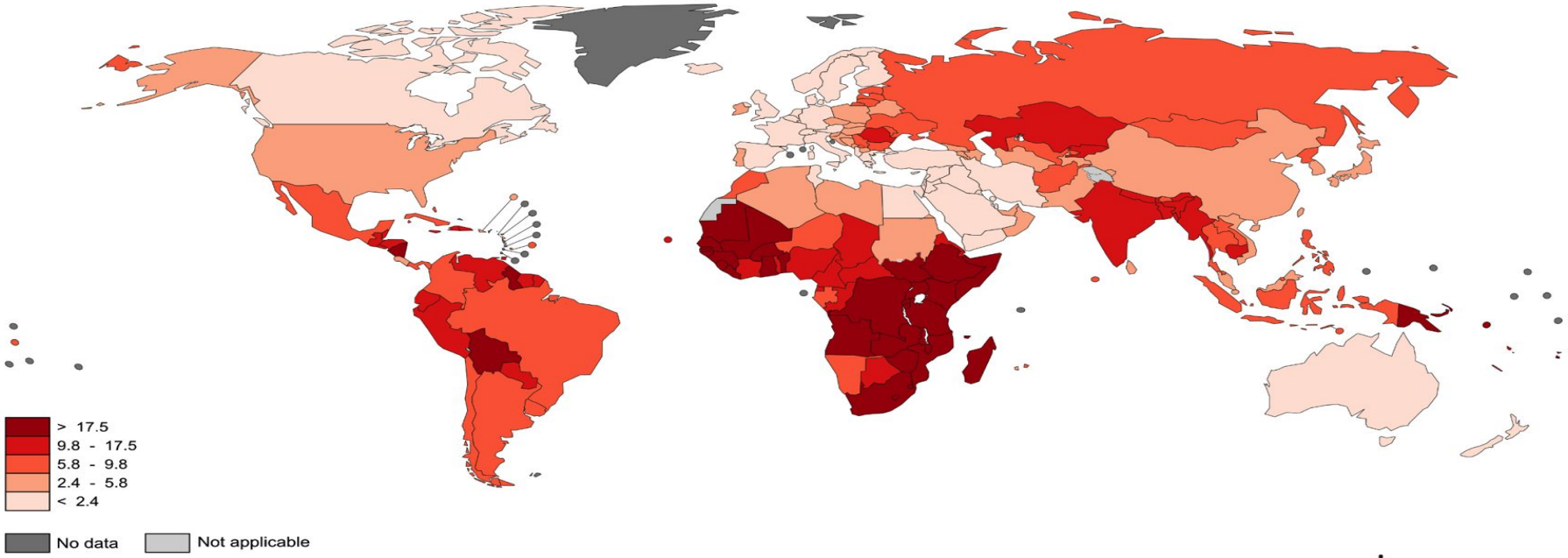
Data source: GLOBOCAN 2012
Map production: IARC
World Health Organization

World Health Organization

Estimated age-standardised rates (World) per 100,000

Cervical Cancer Mortality-GLOBOCAN 2012



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Estimated age-standardised rates (World) per 100,000

Background

- The morbidity and mortality of cervical cancer disproportionately affects women in low and middle income countries.
- Cervical cancer is known as a HIV-associated malignancy.
- Longer delays to treatment initiation in low- and middle-income countries can allow time for disease progression and upstaging.
- Following treatment, survivorship care allows physicians to continue to manage disease outcomes and reduce risk of recurrence.

Introduction

- **The goal of the study was:**

To investigate patterns of survivorship care for HIV- and HIV+ patients with advanced stage cervical cancer who were treated with radiation therapy in Botswana (2015-2022).

To prospectively evaluate factors associated with retention in survivorship care among the radiotherapy-treated population (2015-2022).

To assess delays in cervical cancer treatment initiation for HIV- and HIV+ women who received curative intent chemoradiation or radiation therapy in Botswana (2015-2019).

To prospectively evaluate factors associated delays in treatment initiation and 24-month survival after treatment initiation among those who received curative intent chemoradiotherapy or radiotherapy (2015-2019).

Methods

- **Women with or without HIV in Botswana with locally advanced cervical cancer (stages IB2-IVB) were enrolled in an observational cohort study (2013-2022).**

- **Logistic regression was used to:**
  - Analyze patterns of survivorship care following radiation therapy between 2015 and 2022.
  - Assess factors associated with retention in survivorship care between 2015 and 2022.
  - Evaluate association between delays in cervical cancer treatment initiation (time from date of pathology diagnosis to initiation of curative intent chemoradiation ≥90 days) between 2015 and 2019.
  - Assess factors associated with 24-month survival from cervical cancer treatment initiation (start date of curative intent chemoradiation or radiation therapy) between 2015 and 2019.

Demographic and Clinical Characteristics

- Of the 1,405 cervical cancer patients, 964 (68.6%) were treated with radiation therapy between 2015 and 2022.
- Of those, 852 (88.4%) were eligible for survivorship care.

Demographic and clinical characteristics of cervical cancer patients who were treated with radiation therapy and eligible for the first 2 years of survivorship care

Characteristic	Overall n=852 (100%)
Age (years)	48 (41.6-59.6)
HIV status	
Negative	276 (32.4%)
Positive	566 (66.4%)
Disease stage	
I (IA, IA1, IA2)	6 (0.7%)
I (IB, IB1, IB2, IB3)	78 (9.2%)
II (IIA, IIB)	309 (36.3%)
III (IIIA, IIIB, IIIC1)	264 (31%)
IV (IVA, IVB)	151 (17.7%)
CD4 (cells/μL)	443 (280-653)
Detectable viral load	35 (6.2%)
Treatment	
Radiation therapy	338 (39.7%)
Chemoradiation	471 (55.3%)
Surgery + Radiation therapy	24 (2.8%)
Surgery + Chemoradiation	19 (2.2%)
Treatment duration (days)	44 (35-51)

Survivorship Care Guidelines

National cervical cancer guidelines recommend survivorship care every 6 months for the first 2 years and annually for the subsequent 3 years following the end of treatment.

Adherence to Survivorship Care

- **Of the 852 radiation therapy patients eligible for the first 2 years of survivorship care:**
  - 627 (73.6%) attended at least 1 follow-up via office visit or phone call.
  - 201 (23.6%) followed up every 6 months for the first 2 years.

- **For the subsequent 3 years of survivorship care, of the 722 radiation therapy patients eligible for follow-up care:**
  - 362 (50.1%) attended at least 1 follow-up via office visit or phone call.
  - 101 (14%) followed up every year for the subsequent 3 years.

Factors associated with with adherence to first 2-year survivorship care of cervical cancer patients: MVA

Characteristic	OR (95% CI)	p
Age (years)		
21-39	1 (ref)	--
40-59	0.95 (0.51-1.83)	0.9
60+	0.71 (0.32-1.6)	0.4
HIV status		
Negative	1 (ref)	--
Positive	0.67 (0.39-1.16)	0.2
Disease stage		
I-II	1 (ref)	--
III-IV	0.48 (0.28-0.82)	**0.008**
Treatment type		
Curative	1 (ref)	--
Definitive	0.58 (0.35-0.97)	**0.04**
Palliative	0.23 (0.06-0.67)	**0.01**

Patients were less likely to follow up every 6 months for the first 2 years at advanced stage disease (stages III-IV) compared to early stage disease (stages I-II) and if they were treated with definitive intent and palliative intent compared to curative intent.

Defining Delays in Treatment Initiation

- **Of the 949 cervical cancer patients, 686 (72.3%) were stage IB2+ and had a known treatment initiation date between 2015 and 2019.**
- **Of these 686 patients, we excluded patients who received definitive or palliative treatment (n=281) or had unknown treatment intent (n=297).**
- **To assess delays in treatment initiation, we evaluated 108 patients who received curative intent chemoradiation or radiation therapy.**

We calculated the number of days between the date of pathology review and the date of treatment start, and categorized delays as 90 or greater days.

Demographic and Clinical Characteristics

Demographic and clinical characteristics of cervical cancer patients who received curative intent chemoradiation or radiation therapy

Characteristic	Overall n=108 (100%)
Age (years)	46 (39-58.3)
HIV status	
Negative	40 (37%)
Positive	68 (63%)
Disease stage	
I (IB2, IB3)	16 (14.8%)
II (IIA, IIB)	57 (52.8%)
III (IIIA, IIIB, IIIC1)	31 (28.7%)
IV (IVA, IVB)	4 (3.7%)
CD4 (cells/μL)	364.6 (170-591)
Detectable viral load	9 (8.3%)
Treatment	
Radiation therapy	12 (11.1%)
Chemoradiation	96 (88.9%)
Delay in treatment initiation ≥90 days	46 (42.6%)

Factors associated with delays in treatment initiation ≥90 days in cervical cancer patients who received curative intent chemoradiation or radiation therapy: MVA

- **Patients were:**
  - Less likely to experience delays in treatment initiation ≥90 days at stage III disease compared to stage I disease.
  - More likely to experience delays in treatment initiation they lived further away from the treatment site (100-500 km vs. 100 km).

Characteristic	OR (95% CI)	p
Age (years)		
21-39	1 (ref)	--
40-59	0.56 (0.2-1.53)	0.3
60+	1.2 (0.29-5.08)	0.8
Distance (km)		
<100	1 (ref)	--
100-500	2.78 (1.13-7.12)	**0.028**
>500	1.05 (0.17-5.48)	>0.9
HIV status		
Negative	1 (ref)	--
Positive	1.34 (0.45-4.09)	0.6
Disease stage		
I	1 (ref)	--
II	0.54 (0.15-1.86)	0.3
III	0.21 (0.05-0.85)	**0.031**
IV	0.86 (0.07-10.1)	>0.9
Pathology year		
Before 2016	1 (ref)	--
2016-2017	0.67 (0.18-2.55)	0.5
2018-2019	1.13 (0.31-4.22)	0.9

Factors associated with 24-month survival after treatment initiation in cervical cancer patients who received curative intent chemoradiation or radiation therapy: MVA

- **Patients were:**
  - Less likely to survive 24 months after treatment initiation if they experienced delays in treatment initiation ≥90 days.
  - More likely to survive 24 months after treatment initiation with total radiation dose, EQD2 ≥65 Gy vs. <65 Gy.

Characteristic	OR (95% CI)	p
Age (years)		
21-39	1 (ref)	--
40-59	1.41 (0.4-4.86)	0.6
60+	0.92 (0.15-5.63)	>0.9
HIV status		
Negative	1 (ref)	--
Positive	0.51 (0.12-1.98)	0.3
Disease stage		
I-II	1 (ref)	--
III-IV	0.4 (0.01-16.7)	0.6
EQD2 (Gy)		
<65	1 (ref)	--
≥65	7.08 (1.4-44.8)	**0.023**
Chemotherapy received (cycles)		
0	1 (ref)	--
≥1	1.39 (0.09-16.2)	0.8
Delay in treatment initiation (days)		
<90	1 (ref)	--
≥90	0.28 (0.09-0.81	**0.024**

Conclusions

Most cervical patients with advanced disease do not adhere to the recommended survivorship care plan, especially those with advanced stage disease.

Delays in treatment initiation are common especially for stage I and II cervical cancer patients living further away from the centralized treatment clinic.

There is an association between delays in treatment initiation and survival at 24 months after treatment initiation.

There is a need for targeted strategies to reduce delays in treatment initiation and interventions to improve patient adherence to the national survivorship care plan in Botswana.

Thank you

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