Welcome to the third annual

MALAWI CANCER SYMPOSIUM

May 26th and May 27th, 2021

Ufulu Gardens Hotel

Lilongwe, Malawi

Baylor College of Medicine

UNITY AND FREEDOM

UNC PROJECT Lilongwe, Malawi

UNIVERSITY OF MALAWI

NIH National Institutes of Health

think pink Malawi

WOCACA WOMEN'S COALITION AGAINST CANCER "Together We Can"

Welcome to the third annual Malawi Cancer Symposium!

The purpose of the symposium is to provide a platform for both local and international cancer research, care and advocacy stakeholders to exchange information, highlight strategic priorities and identify opportunities for collaboration and personal development, with the common goal of reducing the burden of cancer in Malawi. The symposium is sponsored by the National Institute of Health.

Cancer is a rapidly emerging problem in resource-limited settings including Malawi. The UNC Project Malawi Cancer Program hopes to help catalyze a coordinated national effort to address this growing problem. The UNC Project Malawi Cancer Program is a collaboration between the University of North Carolina Chapel Hill and the Malawi Ministry of Health. The UNC Project Malawi Cancer Program aims to make Malawi a regional leader for cancer research, through several ongoing studies as well as its dedicated mentoring and career development activities and capacity building to support cancer care.

Moving forward, it is hoped that the Malawi Cancer Symposium will continue to be held annually, to promote ongoing collaborative efforts to reduce cancer burden within the country.

For more information about the UNC Project Malawi Cancer Program, visit our website at https://globalhealth.unc.edu/malawi/cancerprogram/.

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Speakers and chairperson's:

Dr.Jackson Orem, Uganda Cancer Institute
Hon. Khumbize Kandodo Chiponda, Malawi Ministry of Health
Dr.Charles Mwansambo, Malawi Ministry of Health
Dr.Tamiwe Tomoka, UNC Project Malawi
Dr.Lameck Chinula, UNC Project Malawi
Dr.Leo Masamba, Queens Elizabeth Central Hospital
Dr.George Chagaluka, Queens Elizabeth Central Hospital
Jonathan Chiwanda, Ministry of Health
Dr.Richard Nyasosela, Kamuzu Central Hospital
Dr.Matthew Painschab, UNC Project Malawi
Dr.Bongani Kaimila, UNC Project Malawi
Dr.Kate Westmoreland, UNC Project Malawi
Dr.Agness Moses, Partners in Hope
Dr.Nmazuo Ozuah, Global Hope
Mercy Butia, Global Hope
Maria Chikasema, UNC Project Malawi
Maud Mwakasungula, Women's Coalition Against Cancer
TBD, Think Pink
Dr.Benjamin Kumwenda, University of Malawi College of Medicine
Mike Nyirenda, Partner's in Hope
Ruth Chiphaka, Neno District Hospital
Dr.Alyssa Tilly, UNC Chapel Hill
Dr.Stephen Kimani, UNC Chapel Hill
Dr.Sam Phiri, Partner's in Hope
Dr.Yuri Fedoriw, UNC Project Malawi
Dr.Sandford Dawsey, National Cancer Institute
Dr.Evelyn Chilemba, University of Malawi Kamuzu College of Nursing
Dr.Agatha Bula, UNC Project Malawi
Dr.Chifundo Zimba, UNC Project Malawi
Dr.Ashley Leak Bryant, UNC Chapel Hill
Samuel Bingo, Kamuzu Central Hospital
Dr.Jen Harley, UNC Chapel Hill
Tadala Mulemba, Global Hope
Dr.Steve Kamiza , University of Malawi College of Medicine
Dr.Dirk Dittmer, UNC Chapel Hill
Dr.Victor Mwapasa, University of Malawi College of Medicine

Wednesday May 26th Day 1:

Time	Presentation	Presenter
11.30-11.45am	*Presenters and guests arrive*	
11.45-12.45pm	*Lunch for presenters, guests and team.*	
12.45-13.00pm	*Prepare to start*	
Session 1: Keynote, National Strategic Plan and Cancer Center Updates		
13.00-13.05pm	Opening Remarks + overview general agenda	Tamiwe Tomoka (UNCPM)
13.05-13.15pm	Guest of Honor Remarks	Hon. Khumbize Kandodo Chiponda (MOH)
(chairperson Dr.Lameck Chinula)		
13.15-13.45pm	Keynote Speaker	Jackson Orem (UCI)
13.45-13.55pm	Questions	Moderated by chairperson (LC)
13.55-14.25pm	National Cancer Strategic Plan	Jonathan Chiwanda (MOH)
14.25-14.35pm	Questions	Moderated by chairperson (LC)
14.35-15.10pm	*Group photo and press interviews, Tea/Coffee break*	
15.10-15.20pm	*Prepare to resume*	
15.20-15.45pm	Malawi Cancer Center update	Jonathan Chiwanda (MOH) + Richard Nyasosela (KCH/MOH)
15.45-15.55pm	Questions	Moderated by chairperson (LC)
15.55-16.20pm	Updates from BT/Queens Oncology Adult and Peds	Leo Masamba and George Chagaluka (Queens)
16.20-16.30pm	Questions	Moderated by chairperson (LC)
16.30-16.35pm	Close of day 1 remarks	Moderated by chairperson (LC)

Thursday May 27th Day 2:

Time	Presentation	Presenter
8.00-8.20am	*Presenters and guests arrival*	
8.20-8.30am	*Prepare to start*	
Session 2: Community Organizations and Collaborators *(chairperson Agness Moses)*		
8.30-8.35am	Chairperson opening remarks + agenda overview	Chairperson (Agness Moses)
8.35-8.50am	Global Hope pediatric cancer update + tribute to Dr. Kazembe	Nmazuo Ozuah (GH)
8.50-8.55am	Questions	Moderated by chairperson (AM)
8.55-9.10am	Palliative cancer adult and pediatric presentation	Mercy (GH) and Maria Chikasema (UNCPM)
9.10-9.15am	Questions	Moderated by chairperson (AM)
9.15-9.30am	WOCACA Women's Coalition Against Cancer in Malawi	Maud Mwakasungula (WOCACA)
9.30-9.35am	Questions	Moderated by chairperson (AM)
9.35-9.50am	Think Pink Presentation and tribute for Blandina Khondowe	Think Pink team
9.50-9.55am	Questions	Moderated by chairperson (AM)
9.55-10.20am	*Tea/Coffee break*	
10.20-10.25am	*Prepare to resume*	
Session 3: Presentation of top scoring abstracts *(chairperson Dr Benjamin Kumwenda)*		

10.25-10.30am	Introduce next section (Abstracts)	Chairperson (BK)
10.30-10.40am	Abstract Presentation 1	Mike H Nyirenda
10.40-10.50am	Abstract Presentation 2	Ruth Chiphaka
10.50-11.00am	Abstract Presentation 3	Alyssa Tilly
11.00-11.10am	Abstract Presentation 4	Stephen Kimani
11.10-11.20am	Questions	Moderated by chairperson (BK)
Session 4: Scientific Research Updates *(chairperson Dr Sam Phiri)*		
11.20-11.45am	UNC Project Cancer Research Program Overview	Tamiwe Tomoka and Yuri Fedoriw
11.45-11.55am	Questions	Moderated by chairperson (SP)
11.55-12.00pm	*Overview agenda for post-lunch*	Chairperson (SP)
12.00-13.00pm	Lunch for presenters and guests	
13.00-13.05 pm	*Prepare to begin again*	
13.05-13.10pm	Opening remarks	Chairperson (SP)
13.10-13.20pm	UNC Breast + pathology cancer scientific update + future opportunities	Tamiwe Tomoka
13.20-13.25pm	Questions	Moderated by chairperson (SP)
13.25-13.35pm	UNC Lymphoma + KS cancer scientific update + future opportunities	Matt Painschab
13.35-13.40pm	Questions	Moderated by chairperson (SP)
13.40-13.50pm	UNC Esophageal cancer scientific update + future opportunities	Bongani Kaimila and Sandford Dawsey (NCI)
13.50-13.55pm	Questions	Moderated by chairperson (SP)
13.55-14.05pm	UNC Cervical cancer scientific update + future opportunities	Lameck Chinula
14.05-14.10pm	Questions	Moderated by chairperson (SP)
14.10-14.20pm	UNC Peds scientific update + future opportunities	Kate Westmoreland
14.25-14.30pm	Questions	Moderated by chairperson (SP)
14.30-14.50pm	*Tea/Coffee break*	
14.50-14.55pm	*Prepare to resume*	
Session 5: Oncology nursing *(chairpersons Agatha Bula/Evelyn Chilemba) (UNCPM)*		
14.55-15.00pm	Session opening remarks	Chairperson (AB/ EC)
15.00-15.15pm	Presentation on UNC SoN, KCH and KCN nursing collaboration	Ashley Leak Bryant and Chifundo Zimba
15.15-15.20pm	Questions	Moderated by chairperson (AB)
15.20-15.30pm	Adult oncology nursing update	Samuel Bingo and Jen Harley
15.30-15.35pm	Questions	Moderated by chairperson (EC)
15.35-15.45pm	Pediatric oncology update	Tadala Mulemba (GH)
15.45-15.55pm	Questions	Moderated by chairperson (AB)
Session 6: Training and funding opportunities *(chairpersons Dr Steve Kamiza)*		
15.55-16.00pm	Session opening remarks	Chairperson (SK)
16.00-16.10pm	Presentation on Lineberger global oncology opportunities	Dirk Dittmer (Lineberger)
16.10-16.20pm	Training opportunities; D43, funding ops etc.	Yuri Fedoriw (UNC)
16.20-16.30pm	Questions	Moderated by chairperson (SK)
16.30-16.40pm	General training opportunities Malawi	Victor Mwapatsa
16.40-16.50pm	Questions	Moderated by chairperson (SK)
16.50-17.00pm	Closing remarks and how to stay connected	Chairperson (Lameck and Tamiwe)

Abstracts

Kimani S, et al. Safety and Efficacy Of Rituximab For Diffuse Large B-Cell Lymphoma in Malawi: a prospective non-randomized phase I/II clinical trial. *(selected for oral presentation)*

Introduction: There are no clinical trials for diffuse large B-cell lymphoma (DLBCL) focused on sub-Saharan African populations from the human immunodeficiency virus (HIV) treatment era.
Methods: We conducted a phase I/II trial of a rituximab biosimilar plus CHOP (R-CHOP) in Malawi for patients with DLBCL. HIV-positive patients had CD4 ≥100 cells/μL and received concurrent antiretroviral therapy (ART). Hematopoietic growth factors were not available.
Results: From 1 August 2016 to 31 July 2019, 76 patients were screened, and 37 eligible patients received R-CHOP. Primary reasons for exclusion were non-DLBCL (N=19) and CD4 count <100 cells/μL (N=11). Sixteen patients (43%) were female, and the median age was 44 years (interquartile range 39-49). Twenty patients (54%) had stage III/IV, and the age-adjusted international prognostic index was ≥2 in 25 (68%). Twenty-seven patients (73%) were HIV-infected, with median CD4 count 208 cells/μL (interquartile range 144-422) and 21 (78%) being on ART at enrollment. Patients completed a median 6 cycles (interquartile range 4-6), with grade 3/4 neutropenia in 26 patients (70%), and grade 3/4 anemia in 11 (29%). Twelve patients (32%, 95% CI 19-49%) experienced grade 3/4 non-hematological toxicities, most frequently infection (N=9, 24%). Overall survival at 24 months was 55% (95% CI 37-70%). Of 16 deaths, ten were from DLBCL progression, four from treatment-related complications, and two from other causes, yielding treatment-related mortality of 11% (95% CI 4-26%).
Conclusions: R-CHOP may be feasible, safe, and efficacious for patients with DLBCL in Malawi. This is the first completed clinical trial for DLBCL focused on sub-Saharan African populations since ART became widely available. Given scant comparable data from sub-Saharan Africa, these results can inform emerging cancer treatment programs in the region.
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Chiphaka R, et al. Implementation of a Cervical Cancer Tumor Board to Optimize Patient Care and Follow-up at Neno District Hospital. *(selected for oral presentation)*

Introduction: Malawi has the second highest incidence of cervical cancer in the world and cervical cancer accounts for the highest number of cancer-associated deaths. Prior Malawian studies showed that routine visual inspection with acetic acid (VIA) screening identifies a suspected cervical cancer in 0.7 - 4.3% of clients. Cervical cancer is often diagnosed at advanced stages and has poor outcomes, especially when patients are not engaged in care or are lost to follow-up. Loss to follow-up for suspected cervical cancer clients in Malawi is high with prior reports showing rates of up to 68%. Cervical cancer can be prevented with appropriate screening, treatment, follow-up, and targeted referrals. This study describes a multidisciplinary team-based cervical cancer tumor board to capture and care for clients at risk of cervical cancer and those with cervical cancer.
Methods: In February 2019, a monthly interdisciplinary cervical cancer tumor board was initiated to enroll, review and discuss management for clients with suspected cervical cancer at Neno District Hospital. A cervical cancer registry specifically for suspected cervical cancer clients, adapted from the national cervical cancer registry, was previously developed at Neno District Hospital to log clients. The tumor board team members included the cervical cancer screening providers, obstetrics and gynaecology clinicians and a representative from the palliative care, laboratory and community health departments. Any client with suspected cervical cancer who required a cervical biopsy on routine VIA screening was enrolled in the tumor board program electronically. Once enrolled, patients were followed continuously for pathology results, treatments, and other outcomes including referrals for surgeries and death.
Results: Between January 1, 2019 - March 31, 2020, an estimated 4,822 VIA screenings were performed. 72 clients (1.5%) with suspected cervical cancer were enrolled during this time. Of the suspected clients, final pathology results showed 31% of clients had invasive cervical cancer (21 cases of squamous cell carcinoma and 1 case of

adenocarcinoma) and 29.2% had a precancerous lesion (either carcinoma-in-situ (CIS) or cervical intraepithelial neoplasia 2 or 3 (CIN 2 or 3). The remaining clients had chronic cervicitis (16.7%), benign disease (15.3%), or non-diagnostic sampling (8.3%). Of the 21 clients with CIN 2, CIN 3, or CIS, 19 (90.5%) had definitive management with a loop electrosurgical excision procedure (LEEP), cold knife cone (CKC), or hysterectomy with complete excision of the lesion with negative margins. Of the 22 clients with confirmed cervical cancers, 13 were referred to palliative care (if at an advanced stage) and 6 were referred to the central hospital for definitive surgery. Of all the patients enrolled, only 5 (6.9%) were lost to follow-up. Of these clients, one lived outside of the Neno district and thus was more difficult to reach even with community health worker assistance.

Conclusions: A cervical cancer focused tumor board is a low-cost and effective way to follow clients with suspected and diagnosed cervical cancer to ensure that treatment and subsequent follow-up is appropriate. We demonstrated that a cervical cancer tumor board can be successfully implemented in rural Malawi at the district hospital level.

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Tilly AE, et al. Kushankha Pamodzi: Healthcare Decision-Making Preferences Among Patients with Cancer. *(selected for oral presentation)*

Introduction: Oncology teams are encouraged to include patients' preferences and goals of care in determining appropriate treatment courses. This is especially important in Malawi where many patients present with advanced stages of cancer resulting in challenging and complex treatment decisions. There is no existing data from Malawi exploring decision-making preferences among cancer patients to guide providers.

Methods: In the oncology clinic of Kamuzu Central Hospital (KCH) in Lilongwe, Malawi, 100 patients were surveyed related to healthcare decision-making. Survey data were summarized using simple descriptive statistics.

Results: A majority of cancer patients preferred to engage in shared decision-making regarding their cancer treatment: 68% (68/100) of patients preferred the medical team to make decisions regarding their care together with their input and 29% (29/100) of patients preferred for the medical team to make decisions without their input. About half (55%, 53/96) of cancer patients did not feel that their medical team involved them in decision-making regarding their treatment and 53% (53/100) felt they were never or only sometimes listened to by the medical team. Nearly all patients (91%, 91/100) preferred to have their medical team inform them how likely treatments are to lead to cure; and 62% (62/100) felt the medical team explained this to them in a way that was easy to understand. Most patients (63.6%, 63/99) felt the medical team adequately discussed emotional problems, such as anxiety or depression, related to their cancer treatment.

Conclusions: Shared decision-making is the preferred mode of treatment decision-making by the majority (68%) of surveyed cancer patients in Malawi. There is currently a gap, with about half of patients feeling the medical team did not involve them in their treatment planning. Nearly all patients (91%) wanted to know their risk of mortality. Oncology providers are encouraged to ask their patients' preference in decision-making and involve them in treatment decisions.

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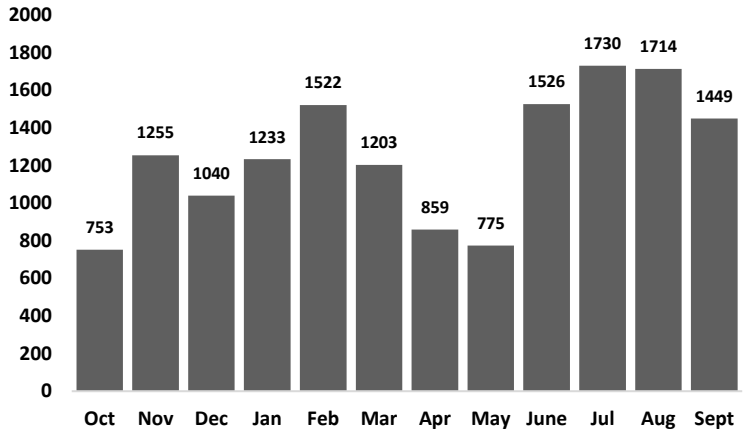
Nyirenda et al. Human Resources for Health investments increase cervical cancer screening among women visiting HIV clinics in Malawi. *(selected for oral presentation)*

Background: Cervical cancer is the most common malignancy among Malawian women, accounting for 45% of all cancer diagnoses. Cervical Cancer Prevention (CECAP) services, VIA screening and treatment of pre-invasive lesions, are effective in preventing morbidity and mortality, but coverage is low mainly due to shortages of trained providers. Available trained Ministry of Health CECAP providers are frequently deployed to other health care activities due to competing priorities, creating gaps in CECAP service delivery. Between October 2019-September 2020, we sought to extend CECAP services for women attending HIV clinics at 9 Partners in Hope (PIH) supported high-burden health facilities in Malawi using a rapid training and deployment strategy.

Methods: PIH engaged 13 facility-based and roving Community HIV Nurses and provided two-week theoretical and practical trainings to them to ensure continuous CECAP services during HIV clinics. In addition, PIH distributed CECAP job aids and conducted monthly mentorship by senior staff using a standardized CECAP mentorship toolkit. Investments were: nurses salaries/effort USD 99,450; training USD 29,000; mentorship USD 3,490 and job aids USD 272.
Results: Between October 2019 - September 2020, we provided CECAP services to 21,629 women on antiretroviral therapy. CECAP service was partially suspended in April-May due to Covid-19 measures. Service provision quantity increased by 60% during the intervention period (quarter 1 vs. quarter 4; *Figure 1*). 432 women were VIA positive (2%), of whom 301 (70%) received same day treatment and 126 (29%) were referred due to large lesions. In 1% of women, treatment was postponed for non-documented reasons.
Conclusion: Limited investments in training and mentorship strongly increased CECAP achievements despite challenges related to the Covid-19 epidemic. Consistent availability of dedicated, trained staff is crucial for optimizing CECAP service uptake among high-risk Malawian women attending ART clinics.
Figure 1. VIA screening among women on ART at 9 Malawian health facilities, Oct 2019-Sep2020



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Painschab MS, et al. Cost-effectiveness analysis of CHOP and R-CHOP treatment of diffuse large B-cell lymphoma in Malawi.

Purpose: Cost-effectiveness data for cancer treatment are needed from sub-Saharan Africa (SSA), where diffuse large B-cell lymphoma (DLBCL) is a common, curable cancer. In high-income countries, the standard of care for DLBCL is R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone) chemoimmunotherapy. Rituximab is often not available in SSA due to cost, and treatment with CHOP is common.
Methods: We evaluated the cost-effectiveness of DLBCL treatment using Malawi-specific data. Clinical data were from a prospective observational cohort treated with CHOP, as well as a clinical trial of R-CHOP. We used a decision-tree model to calculate costs per disability adjusted life year (DALY) averted from the health system perspective and estimated a willingness to pay (WTP) threshold of three times GDP per capita.
Results: On a per-patient level, compared to no chemotherapy, CHOP is estimated to avert 7·9 DALYS, at an incremental cost of $1,500, for an incremental cost-effectiveness ratio (ICER) of $194 per DALY averted, which is well below WTP. In probabilistic sensitivity analysis, CHOP was cost-effective for DLBCL in >99% of simulations. Compared to CHOP, R-CHOP is estimated to avert 2·9 DALYs, at an incremental cost of $3,198 and ICER of $1,104 per DALY averted, which is at the WTP threshold and was below WTP in 45% of simulations.
Conclusion: CHOP is cost-effective for DLBCL in Malawi, and the addition of rituximab may be cost-effective. Future studies in SSA and other LMIC settings should include rigorous economic evaluation to promote continued cancer treatment investments and prioritization.
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Gondwe Y, et al. Spatial Distribution of Incident Pediatric Burkitt Lymphoma in Central and Northern Malawi and Association with Malaria Prevalence.

Background: Burkitt lymphoma (BL) accounts for about 90% of pediatric lymphomas in sub-saharan Africa. Plasmodium falciparum (*Pf*) malaria is considered an etiological factor of BL. We describe the distribution of incident pediatric BL in Malawi and association with malaria prevalence (P*f*PR).
Methods: We prospectively enrolled patients with incident pathologically confirmed BL at the only facility for cancer treatment in Northern and Central Malawi (2013-2018). District-level 6-year average BL incidence rate (BLIR) was calculated using pediatric population estimates from the Malawi Census. District-level *Pf*PR (2010-2014) was extracted from Ministry of Health/KEMRI Welcome Trust malaria report. Geographic visualization of BLIR and P*f*PR was conducted in QGIS. The relationship between *Pf*PR and BL was assessed using simple regression.
Results: Of 218 cases, 143 (67%) were male and median age 9 years (IQR 6-12). Two-hundred (92%) were from Central Malawi and 69 (32%) from the capital Lilongwe. Four (2%) were HIV-positive. Central districts had higher BLIR than Northern, with the highest observed in Mchinji (1.3 cases per 100,000) and lake districts Nkhotakota (BLIR=1.0) and Salima (BLIR=1.0). Northern districts Rumphi and Chitipa had the lowest BLIR (0 and 0.1). Visual comparison of BLIR and P*f*PR maps clearly showed a positive relationship, excluding outliers Ntchisi and Likoma. Ntchisi (Central; high relative P*f*PR) had low BLIR (0.3) compared to neighboring districts. Likoma (Northern; low relative P*f*PR) had the highest BLIR (3.0) (although Likoma only had one crude case, its population is extremely small). Statistical analysis supported these findings. A 1% increase in *Pf*PR predicted an increase of 0.03 BL cases per 100,000 (excluding Likoma) (p=0.001).
Conclusion: Our study supports evidence for an etiologic role of P*f* in BL. Limitations include lack of data from the Southern region and potential confounders such as proximity to treatment facilities. Future studies include evaluating spatial clustering and developing models to compare observed versus expected district-level BLIR.
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Tilly AE, et al. Improving Cancer Knowledge and Patient Empowerment Through Educational Videos.

Introduction: Low health literacy is a leading cause of treatment abandonment among patients receiving cancer care at Kamuzu Central Hospital (KCH) in Malawi.
Methods: We developed cancer educational videos featuring Malawian providers and played them in the KCH oncology clinic waiting and infusion rooms. The videos addressed cancer-related topics, including disease biology, common myths, diagnostic procedures, treatment, side effects, and survivorship. After 6 months of implementation, we compared results from 50 pre- and post-intervention surveys to assess change in cancer knowledge and care experience. Analyses were conducted using R 3.5.2 (New York, New York).
Results: Both pre- and post-intervention cancer knowledge were good: >90% of patients correctly answered questions about managing symptoms and the importance of receiving timely chemotherapy. Despite the intervention, most continued to incorrectly identify cancer as an infection (pre: 26/52%; post: 25/50%). However, improvements were observed in patients' knowledge of correct actions for fever at home (pre: 38/76%; post: 43/86%; p=0.041). Care experiences were overall good. However, post-intervention results indicate an increase in patient dissatisfaction of care as more patients felt they could not understand chemotherapy counseling (pre: 11/22%; post: 22/44%; p<0.001) and fewer felt providers involved them in decision-making (pre: 21/42%; post: 8/16%; p<0.001). Despite this, more patients felt always listened to by their providers (pre: 18/36%; post: 29/58%; p<0.001). Assessments of video satisfaction indicate that patients found the videos very helpful in terms of understanding their disease (47/94%) and side effects of treatment (48/96%) and felt empowered to speak up to their providers (46/92%).
Conclusions: Standardized education materials for patients and families that can be reproduced, translated, and feasibly implemented throughout Sub-Saharan Africa are urgently needed. Cancer educational videos are a low-cost and feasible way to educate and empower cancer patients in resource-constrained settings, although in-person discussions between patients and providers remain a crucial part of cancer care.

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Dewey MG, et al. Update from the Kamuzu Central Hospital Lymphoma Study (2013-2021).

Background: Malawi has seen an increasing burden of lymphoproliferative disorders due to significant HIV burden, population growth, and aging. In collaboration with the Malawi Ministry of Health and Kamuzu Central Hospital (KCH), UNC developed a pathology laboratory including to support enrollment to the KCH Lymphoma Study and perform diagnostic services to a degree required to appropriately guide therapy.
Methods: The prospective Lymphoma Study at KCH in Lilongwe, Malawi has been enrolling patients with newly diagnosed lymphoproliferative disorders since June 2013. Briefly, diagnoses are made first by pathologists in Malawi and confirmed with US pathologists and Malawian clinicians at a weekly telepathology conference. Tissue blocks are then sent quarterly to US pathologists for further evaluation and additional confirmatory evaluation (secondary review). Concordance of diagnosis from primary to secondary review was determined by: exact match (Level 1), differences in granularity of the diagnosis (Level 2), a change in the WHO classification but no change in treatment in Malawi (Level 3), and a change to the diagnosis that would have altered the treatment course in Malawi (Major Discordance). Tissue not evaluable at UNC and plasma cell neoplasms were excluded from concordance evaluation.
Results: From June 2013 to May 2019, We enrolled 306 adult patients, of which 158 were HIV-positive and 148 were HIV-negative. The mean age of adult patients enrolled was 44 years (SD 15). Of the diagnosed lymphoproliferative disorders, diffuse large B-cell lymphoma (DLBCL) was the most common and accounted for 37% of all cases. DLBCL made up a significantly larger proportion of diagnoses in patients with HIV ($p = 0.02$); whereas classical Hodgkin lymphoma (CHL) ($p < 0.01$) and T-cell lymphomas ($p < 0.01$) were significantly more common in HIV-negative patients. Multicentric Castleman disease (MCD) occurred exclusively in HIV positive patients, while acute leukemias, chronic and small lymphocytic leukemias, and marginal zone, mantle cell, and follicular lymphomas occurred exclusively in HIV negative patients. Of the 306, 186 had not been previously evaluated for concordance level in prior studies and were eligible to be reviewed. All of the 186 cases had FFPE tissue evaluated both in Malawi and at UNC. Of the 186, 95 (51%) had an exact match of diagnosis. There were 39 (21%) and 29 (16%) patients at Levels 2 and 3, respectively. Only 23 (12%) patients had major discordances on evaluation.
Conclusions: The KCH Lymphoma Cohort reflects trends in HIV associated cancers and lymphoproliferative disorders. In addition, the telepathology model used at UNC Project Malawi achieves a granularity of diagnosis that leads to appropriate treatments. Of all the patients evaluated for concordance level, 88% achieved a granularity of diagnosis at real-time diagnosis in Malawi later confirmed at UNC to have led to the appropriate treatment course.

Characteristic	HIV+, No. (%)	HIV-, No. (%)	Total, No. (%)	P value (Fisher's)
Diffuse Large B Cell Lymphoma (DLBCL)	68 (43.0)	44 (29.7)	112 (36.6)	0.018
Classical Hodgkin Lymphoma (CHL)	4 (2.5)	20 (13.5)	24 (7.8)	<0.001
Multicentric Castleman Disease (MCD)	22 (13.9)	0 (0)	22 (7.2)	-
Plasma Cell Neoplasms	11 (7.0)	10 (6.8)	21 (6.9)	1
Burkitt Lymphoma	11 (7.0)	7 (4.7)	18 (5.9)	0.47
Mature T-cell Neoplasms	2 (1.3)	15 (10.1)	17 (5.6)	0.00072
High Grade B-cell Lymphoma, NOS	10 (6.3)	3 (2.0)	13 (4.2)	0.088
Low Grade B cell Lymphoma, NOS	4 (2.5)	8 (5.4)	12 (3.9)	0.24

Acute Leukemias	0 (0)	10 (6.8)	10 (3.3)	-
Kaposi Sarcoma (KS)	9 (5.7)	0 (0)	9 (2.9)	-
Chronic/Small Lymphocytic Lymphoma	0 (0)	9 (6.1)	9 (2.9)	-
Primary effusion Lymphoma	2 (1.3)	1 (0.7)	3 (1.0)	1
Marginal zone Lymphoma	0 (0)	2 (1.4)	2 (0.7)	-
Mantle cell Lymphoma	0 (0)	2 (1.4)	2 (0.7)	-
Follicular Lymphoma	0 (0)	1 (0.6)	1 (0.3)	-
Other	15 (9.5)	14 (9.5)	29 (9.5)	1
No diagnosis	0 (0)	2 (1.3)	2 (0.7)	-
Total	158 (100)	148 (100)	306 (100)	-

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Mulanje L, et al. Dose-Intensive Chemotherapy Without Radiation for Pediatric Hodgkin Lymphoma in Low Resource Setting – Single Center Experience.

Background and aim: Excellent survival for paediatric Hodgkin Lymphoma (HL) in high-income countries has been achieved with combination of chemotherapy and radiation. The adoption of dose-intensive regimens in paediatric HL has reduced the need for radiation. Outcomes for paediatric HL in sub-Saharan Africa (SSA) remain poor, with only 50-60% of children surviving. More than 50% of countries in SSA lack access to radiation, and concerns for treatment-related toxicity limit the use of dose-intensive regimens. We investigated the impact of dose-intensive chemotherapy on survival for paediatric HL in Malawi – a country without access to radiation.

Methods: This was an IRB-approved retrospective cohort of children with biopsy-proven HL at Kamuzu Central Hospital in Lilongwe, Malawi, from 2015 to 2019. Patients (age ≤16 years) treated with ABVE-PC (adriamycin, bleomycin, vincristine, etoposide, prednisone, and cyclophosphamide) – a dose-intensive regimen used commonly in North America, were included in this analysis. Chemotherapy was administered every 21 days. The 2-year Progression-Free-Survival (PFS) and Overall Survival (OS) were estimated using Kaplan-Meier analysis.

Results: Twenty-nine patients were included in the analysis. The median age was 11 years (IQR 4); 66% (n=19) had B symptoms, and 62% (n=18) presented with high-risk disease (stage IIB with bulk, IIIB or IV). The median number of cycles was 6 (range 4 - 8). At last treatment follow-up, 86% (n=24) were alive and in clinical remission, and 14% (n=4) had died. No treatment-related deaths were observed. Three out of the four relapses occurred in patients who had treatment interruptions. The 2-year PFS and OS were 81% and 90% respectively.

Conclusion: Dose-intensive chemotherapy resulted in excellent survival without increased treatment-related mortality. With appropriate supportive care, this approach should be considered in low-resource settings, particularly when radiation is unavailable. A reduction in dose intensity arising from treatment interruptions was associated with an increased risk for relapse.

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Gondwe Y, et al. Clinical characteristics of incident lymphoma in Malawi before and after implementation of universal ART.

Purpose: In 2016, Malawi expanded eligibility for antiretroviral therapy (ART) to anyone with confirmed HIV infection. Here, we assess the impact on lymphoma presentation.

Methods: We enrolled patients with newly diagnosed lymphoproliferative disorders 2013-2020. We categorized patients pre-universal ART (pre-UART) (2013-June 2016) or post-universal ART (post-UART) (July 2016-2020) and evaluated clinical characteristics.
Results: There were 156 cases pre-UART and 256 post-UART. The most common diagnoses were diffuse large B-cell lymphoma (DLBCL) (45%), low-grade lymphoma (11%), Burkitt lymphoma (10%), Hodgkin lymphoma (9%), and multicentric Castleman disease (7%). HIV prevalence was 50%, mean age 43, and 62% male. 66% of pre-UART HIV+ knew their HIV status, for median 5 years (IQR 2-8), and 71% were on ART for median 4 years (IQR 2-7). 80% of post-UART HIV+ knew their HIV status (p=0.02), for median 4 years (IQR 2-9) and 84% were on ART (p=0.05) for median 4 years (IQR 2-8). HIV was suppressed <1000 copies/mL in 56% (n=33/59) pre-UART and 71% (n=73/103) post-UART (p=0.05). Among DLBCL, 61% (n=23/38) of pre-UART HIV+ knew their HIV status, for median 5 years (IQR 2-9), and 61% were on ART for median 4 years (IQR 2-6). 82% (n=51/62) of post-UART DLBCL HIV+ knew their HIV status (p=0.02), for median 5 years (IQR 2-9) and 89% were on ART (p=0.003) for median 5 years (IQR 2-9). Post-UART DLBCL patients had median HIV viral load of 0 log copies/mL (IQR 0-10) compared to pre-UART (6.2; IQR 0-10) (p=0.09). CD4 count, age adjusted-IPI and Ki67 proliferation index were similar for DLBCL patients in the two groups.
Conclusion: There were no significant differences in lymphoma subtypes diagnosed or in traditional DLBCL prognostic factors after implementation of universal ART in Malawi. However, HIV was better controlled in the post-UART period and differences in immunological status may have implications for therapy and prognosis.
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Narh CT, et al. Is the practice of Geophagia associated with the risk of squamous cell esophageal cancer in the African esophageal cancer corridor – Findings from the ESCCAPE multi-country case-control studies.

Background: Geophagia, the intentional practice of consuming soil, occurs across the African esophageal cancer corridor, particularly during pregnancy. These soils come in different types, texture, and toxic elements (Figure 1). The health effects of practicing geophagia is skewed towards iron-deficiency anaemia studies. We investigated whether this practice is linked to endemic esophageal squamous cell carcinoma (ESCC) in this region.
Methods: We conducted ESCC case-control studies in Tanzania, Malawi and Kenya. Cases were patients with incident histologically/clinically-confirmed ESCC and controls were hospital patients/visitors without digestive diseases. Cases were age and sex matched to controls. Participants were asked if they had ever eaten soil (never/regularly/pregnancy-only). Odds ratios (OR) are adjusted for sex, age, tobacco, alcohol, country, religion and marital status. An association between the anatomical location (upper, middle, lower) of the tumour within the oesophagus and geophagia habits were tested using chi-squared test.
Results: 934 cases (Malawi 535, Tanzania 304, Kenya females 95) and 995 controls provided geophagia information. Mean age of cases range from 57 years (SD= 14.3) in Malawi/Kenya to 64 years (SD= 14.0) in Tanzania. Among controls, ever-geophagia was common in women (Malawi 49%, Kenya 43%, Tanzania 29%) but not in men (10% Malawi, <1% Tanzania). In women geophagia was practiced by all social groups and in both urban and rural areas. In women, ESCC ORs were 1.25 (95% CI: 0.70, 2.22) for regular versus never geophagia and 0.88 (0.64, 1.22) for pregnancy-only versus never. Findings were stronger based on comparisons of cases with hospital visitor controls and were null using hospital patients as controls. There were no significant differences in the anatomical location of tumours by geophagia habits within each sex-country strata.
Conclusions: Geophagia is too rare to contribute to the male ESCC burden in Africa. In women the practice is common, and in this group we did not find consistent evidence linked to ESCC. The study cannot rule out selection bias masking modest effects. The study was limited by a lack of detailed ESCCAPE questionnaire on geophagia or geophagia samples. Physical effects of geophagia do not appear to have a large impact on overall ESCC risk. Research on effects at young ages with improved constituent-based geophagia exposure assessment is needed.
Figure 1: Geophagia samples or tablets found in marketplaces in the ESCCAPE study locations in Malawi, Tanzania and Kenya

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Chapola J, et al. Barriers to follow-up after an abnormal cervical cancer screening result and the role of male partners: a qualitative study.

Introduction: Cervical cancer is the leading cause of cancer deaths among women in Malawi, but preventable through screening. However, screening uptake and follow-up is poor, particularly in rural areas. We interviewed women who underwent a community-based cervical cancer screen-and-treat campaign to better understand screening challenges and the role of male partners in contributing to, or overcoming these challenges.
Methods: This was a qualitative sub study that targeted women between 25-50 years of age. We conducted in-depths interviews among 17 of the 28 women who underwent thermocoagulation in a pilot study that evaluated the safety and acceptability of a community-based cervical cancer screen-and-treat program, utilizing visual inspection with acetic acid (VIA) and thermocoagulation, in rural Lilongwe, Malawi. Ten of the women interviewed had presented for their scheduled post-treatment follow-up at the healthcare facility, but the other 7 missed their follow-up appointment. The interviews were analyzed for thematic content surrounding follow-up challenges and role of male partners in screening.
Results: Transportation was identified as a major barrier to post-thermocoagulation follow-up appointment, given long distances to the healthcare facility. Male partners were perceived as a barrier for some in that they were not supportive of the 6-week post-thermocoagulation abstinence requirement. However, for others, they were an important source of support for others as they encouraged follow-up attendance, provided emotional support to maintaining post-treatment abstinence, and were a resource for overcoming transportation barriers. Regardless, the majority of women desired more male partner involvement in cervical cancer screening.
Conclusion: While community-based screening program allowed women to access same-day screening and treatment closer to home, post-treatment follow-up at the healthcare facility was limited by long travel distances to the facility.

Male partners were identified both as a barrier to and a source of support for the screen-and-treat process. Generally, women viewed male partner involvement favorably. Ongoing cervical cancer screening and prevention campaigns should continue to address these important factors voiced by participants of this qualitative study.
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Bula AK, et al. Perceptions of Cervical Cancer and Motivation for Screening Among Women in Rural Lilongwe, Malawi: A Qualitative Study.

Introduction: Cervical cancer is the leading cause of cancer death among women in Malawi. Low awareness of cervical cancer and negative perceptions of screening can prevent women from participating in preventative strategies. We sought to explore perceptions and motivations for screening among women who participated in a cervical cancer screen-and-treat pilot study in rural Malawi.
Materials and Methods: We conducted a qualitative sub-study of a community-based cervical cancer screen-and-treat pilot study in rural Lilongwe between July-August 2017. From October 2017-February 2018, 17 of 28 women who underwent screening using visual inspection with acetic acid (VIA) and same-day thermal ablation treatment were recruited at the time of their 12-week follow-up visit post treatment to participate in this qualitative sub-study. Semi-structured interview guides that explored baseline knowledge of cervical cancer, perceptions, and motivation for screening were used for in-depth interviews (IDIs). IDIs were conducted in local language Chichewa, translated and transcribed to English. Data was analyzed using NVivo® V12.0.
Results: Findings included fatalistic views on cancer, but limited knowledge specific to cervical cancer. Misconceptions of cervical cancer screening were common; however, there was a unique understanding of screening as prevention (i.e., finding and treating early disease to prevent progression to worsening disease). This understanding appeared to stem from HIV prevention concepts known to the community. Motivations for screening included desire to know one's health status, convenience of community-based screening, and peer encouragement.
Conclusion: Despite limited knowledge of cervical cancer and misconceptions of screening, the concept of screening for prevention, desire to know one's health status, convenient access, and peers' influence were motivators for participation in screening. Cervical cancer screen-and-treat programs in high HIV prevalence areas should consider utilizing language that parallels HIV prevention language to communicate the need for cervical cancer screening and treatment and utilize prevention concepts that may already be familiar to women living there.
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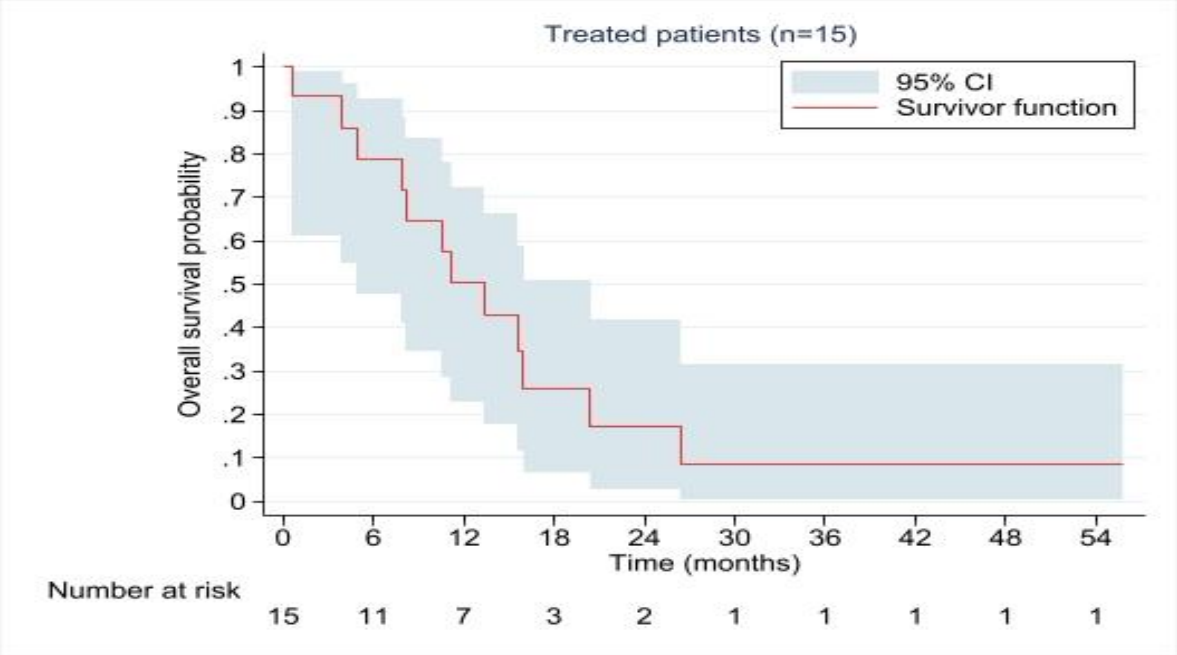
Kasonkanji E, et al. Outcomes of Acute Lymphoblastic Leukemia Among Adolescents and Young Adults in Malawi.

Introduction: Acute Lymphoblastic Leukaemia is the most common pediatric hematologic malignancy worldwide, with high cure rates exceeding 95%. Outcomes among adults remain poor with less than 45% of affected patients expected to achieve long-term disease-free survival. There is limited data on treatment and outcomes for acute lymphoblastic leukemia (ALL) among adolescents and young adults (AYAs) in sub-Saharan Africa. We describe a prospective observational cohort in Malawi.
Methods: Patients aged 15 - 39 years old with newly diagnosed ALL at Kamuzu Central Hospital, Malawi, underwent comprehensive clinicopathologic evaluation at baseline. ALL diagnosis was confirmed onsite using immunohistochemical (IHC) and telepathology consultations involving pathologists in Malawi and the United States. All but 4 patients were treated with a modified pediatric-inspired regimen for AYA modelled after the CALGB 10403 protocol. Key modifications included omission of asparaginase and hematopoietic growth factors due to unavailability, and no dose escalation for methotrexate during interim maintenance. Post-induction remission was confirmed via bone marrow biopsy. We used descriptive statistics to assess patient characteristics and OS using Kaplan-Meier methods. We used Stata version 13 (College Station, TX, USA) to analyse data and R and figures were produced using the package ggplot2. We received ethical approval from the Malawi National Health Science Research Committee (NHSRC) as well as the Institutional Review Board of the University of North Carolina at Chapel Hill (USA) and all patients provided written informed consent.
Results: From 2015 to 2019, we enrolled 19 patients. Thirteen (68%) were male, and the median age was 22 years (range 15-36). Sixteen (84%) had extra medullary involvement, 12 (63%) had ECOG ≥2, and 11 (58%) had T-cell

immunophenotypes. None was HIV infected. Four patients died before initiating treatment. All remaining 15 patients have completed induction treatment; with a median follow-up of 13.3 months among patients still alive (IQR 3.2-55.8 months). No patients were lost to follow-up. Out of the 15 patients who initiated treatment, 12 (80%) achieved remission following induction, 1 died (7%) during induction, and 2 (13%) had refractory disease. Eventually, 11 out of 12 patients (92%) with confirmed post-induction remission relapsed. The median duration of first remission was 7 months (IQR 3-14). Twelve out of 15 treated patients (80%) died, from disease progression but one. Among treated patients (n=15), 12- and 24-month OS were 50.2% (95% CI 23.1-72.4%) and 17.2% (95% CI 2.9-41.8%), respectively [Fig.1 below]. CNS involvement was associated with worse survival.

Conclusion: Our experience demonstrates that it is possible to attain modest outcomes treating AYAs with ALL in low-resource settings using pediatric-inspired complex outpatient-based intensive chemotherapy regimen. However, decreases in treatment intensity due to limits in supportive care led to unacceptable treatment failure rates. Given no reported toxicity-related mortality, escalation of therapy is needed and being implemented.

Figure 1. Overall survival for AYA patients with acute lymphoblastic leukemia treated in Lilongwe, Malawi (2013-2019).



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Msowoya E, et al. Improving Palliative Care Capacity in Malawi through an Educational Intervention for Oncology Nurses.

Introduction: The burden of cancer and other non-communicable diseases in sub-Saharan Africa is increasing, particularly in Malawi. However, there is a lack of trained palliative care nurses to provide the needed care. Palliative care aims to improve the quality of life for patients and families, though access has been largely ignored on the global health agenda. Training and educating oncology nurses in palliative care will increase knowledge and competence of Malawian nurses and build the next generation of palliative care clinicians and researchers. This study aimed to evaluate changes in Malawian nurses' knowledge of palliative care through a palliative care education program.

Methods: Nurses from Kamuzu Central Hospital's cancer clinic completed pre- and post-surveys about their palliative care knowledge. Trainers provided 10 palliative care concepts during a 2-day educational program, including introduction to palliative care, self-awareness, interprofessional communication, symptom management, nutrition, counseling, breaking bad news, grief and bereavement, end of life care, and recording and documentation. Data were analyzed using descriptive statistics.

Results: Malawian nurses completed the education sessions face to face; 22 nurses (11 female and 11 males), 1 clinical office, and 5 nurse trainers participated. Training was rated good to excellent. The mean knowledge score improved

from 74% (pre) to 82% (post) session. Time was a challenge due to the 10 essential palliative care topics being taught in a short period of time.
Conclusions: Building capacity of nurses in palliative care is essential as the burden of cancer increases. Additional trainings are needed to continue to build the next generation of palliative care nurses.
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Kasonkanji E, et al. Prospective Cohort Study of Kaposi Sarcoma Treated Under Real World Conditions in Malawi.

Introduction: Kaposi sarcoma (KS) is the leading cancer in Malawi (34% of cancers). Outside of clinical trials, prospective KS studies from sub-Saharan Africa (SSA) are few and limited by loss to follow up. We conducted a prospective KS cohort study of standard of care bleomycin/vincristine (BV) at Lighthouse HIV clinic, in Lilongwe, Malawi.
Methods: We enrolled pathologically confirmed newly diagnosed, HIV+ KS patients from Feb 2017 to Jun 2019. We collected clinical data, treatment characteristics, toxicity, and outcomes of KS. Patients were treated with bleomycin (25 mg/m2) and vincristine (0.4 mg/m2) every 14 days for a planned maximum of 16 cycles. At the time we conducted the study, bleomycin and vincristine (BV) combined with ART was the standard care in Malawi. STATA v13.0 was used to calculate descriptive statistics and Kaplan Meier survival analysis. We graded toxicity using the national cancer institutes (NCI), the Common Terminology Criteria for Adverse Events (CTEAE) version 5.0. The Malawi National Health Science and Research Committee (NHSRC) and the Institutional Review Board at the University of North Carolina at Chapel Hill, Protection of Human Subjects committee, approved the use of Lighthouse data for these analyses.
Results: Of 134 participants, median age 37 (IQR 33-44) and 108 (81%) were male. By ACTG staging, 115 (86%) were T1 (tumour severity) and 46 (34%) had Karnofsky performance status ≤70. Presenting symptoms included edema in 69 (54%), visceral disease in 9 (7%), and oral involvement in 43 (33%). Prior to KS diagnosis, 68 (51%) participants were aware of being HIV+ for median 16 months (IQR 6-57) and had been on ART for median 16 months (IQR 6-57). Median CD4 count was 197 (IQR 99-339), median HIV-viral load was 3.3 log copies/mL (IQR 1.6 – 4.8) and 72 (56%) were HIV-suppressed (<1000 HIV copies/ml). The median number of treatment cycles receieved was 16 (IQR 8-16). Sixty-two (46%) participants had one or more reduced doses due to stock out. Thirty-four (25%) participants had one or more vincristine only cycles. Thirty-seven (27%) participants had one or more bleomycin only cycles.Fourteen (10%) participants had one or more reduced doses due to toxicity. Five (4%) participants suffered grade ≥3 anaemia, 13 (9%) grade ≥3 neutropenia, and one participant had grade 4 bleomycin-induced dermatitis. There was no reported grade ≥3 bleomycin lung toxicity or vincristine-induced neuropathy. Of 83 evaluable participants, responses at the end of therapy were: complete response in 56 (55%), partial response in 27 (33%) stable disease in 5 (6%), and progressive disease in 5 (6%). At censoring, 73 (54%) were alive, 36 (27%) dead, and 25 (19%) lost to follow-up.
Conclusions: As in other studies from SSA, the majority of KS patients presented with advanced disease. Futhermore, chemotherapy treatment was well tolerated but stock-outs, loss to follow up and mortality were high. Both improved therapies and improvements in implementation are needed for this life-threatening HIV comorbidity.
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Bunya Kamiza A, et al. Chronic hepatitis B Infection is causally associated with extrahepatic cancers: a Mendelian randomization study.

Introduction: Overwhelming evidence suggests that chronic hepatitis infection is associated with extrahepatic cancers. However, uncertainties exist about this association as much of the current evidence evolve from observational studies which are susceptible to confounding.
Methods: We performed two-sample Mendelian randomization (MR) to explore the causal associations between chronic hepatitis infection and extrahepatic cancers. Genetic variants associated with chronic hepatitis B virus (HBV) infection and chronic hepatitis C virus (HCV) infection were identified from a large genome-wide association study. Summary level data for cancer of the biliary tract, cervix, colorectum, endometrium, esophagus, gastric, liver, lung, ovary and pancreas were obtained from the Biobank Japan.
Results: Using the inverse variance weighted method, we found chronic HBV infection to be causally associated with gastric cancer (odds ratio [OR] = 1.19 and 95% confidence interval [CI] = 1.13-1.25, P-value = 0.001) and lung cancer (OR

= 1.21, 95% CI = 1.14-1.28, P-value = 0.001). Moreover, chronic HBV infection (OR = 1.34, 95% CI = 1.17-1.53, P-value = 0.007) and chronic HCV infection (OR = 2.75, 95% CI = 2.21-3.42, P-value = 0.0008) were all causally associated with liver cancer, supporting a well-established association between chronic hepatitis infection and liver cancer.
Conclusions: Our MR findings revealed that chronic HBV infection is causally associated with extrahepatic cancers including gastric and lung cancers.
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Mwango N, et al. Changing Landscape in the Epidemiology of Childhood Cancers in Lilongwe, Malawi.

Background: A true picture of the landscape of childhood cancer in Sub-Saharan Africa has been challenging. Established pediatric oncology programs are scarce and hospital or population-based registries have limited diagnostic capacity. Our group had previously published data before 2014, indicating that Burkitt lymphoma (BL) and Kaposi sarcoma as the most common childhood cancer diagnoses. With increased diagnostic capacity and resources, we provide an update on the epidemiology of childhood cancer at Kamuzu Central Hospital (KCH), Lilongwe, Malawi.
Methods: This is an IRB-approved retrospective analysis of the distribution of childhood cancers seen at the pediatric oncology department at KCH, from 1st January 2017 to 31st December 2020. Patients aged 0-18 years, and diagnosed with a new malignancy were included. The pediatric oncology unit KCH is the only centre providing pediatric oncological services in the Central and Northern regions of Malawi. We compared the distribution of diagnosis in this cohort to the previously published cohort before 2014.
Results: A total of 725 children, with a median age of 7.3 (SD 4.3) years, were identified and 66% were >5 years of age at time of diagnosis. The most prevalent childhood cancer was Non-Hodgkin lymphoma's (NHL) (33.7%) - 77% of which was BL. Leukemias accounted for 18.4% - Acute Lymphoblastic Leukemia (69.6%), Acute Myeloid Leukemia (22.9%), and Chronic Myeloid Leukemia (7.4%). Other incident conditions included Wilms tumor 6%, KS 7.9%, Retinoblastoma's 6% and Hodgkin Lymphoma 4.6%. In the previously published cohort (before 2014) Burkitt lymphoma (BL) accounted for (29%), Kaposi sarcoma (KS) (20%), Hodgkin lymphoma (HL) (8%) and Wilms tumour (WT) (7%) of majority diagnoses in Malawi. This study provides an update on the epidemiology of childhood cancer at Kamuzu Central Hospital (KCH), which serves two-thirds of the Malawi population.
Discussion: We provide an updated overview of the common childhood cancer diagnoses in Lilongwe. While NHL remains the most common diagnosed childhood cancer, leukemias are a frequent diagnosis and KS has become less frequent. We postulate that prior to this time leukemias had been under-diagnosed, and possible improved control of HIV infections may account for lower incidence of KS. This data will help to inform National Pediatric Cancer Programs and Strategies in Malawi.
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Chomba SD & Kaira W. Levels of Depression Amongst Advanced Cervical Cancer Patients at Mzuzu Central Hospital: A Cross Sectional Study.

Introduction: Cancer is a serious and potentially life threatening illness which has an effect on physical and emotional wellbeing of patients and their families. Cervical cancer is one of the leading causes of cancer related deaths amongst women worldwide and it is the fourth most frequent cancer in women worldwide. , Malawi has the highest rate of cervical cancer, followed by Mozambique and Comoros. Studies conducted elsewhere in the west reports high incidence of depression amongst cervical cancer patients. Depression has received the most attention because of the highest incidence and prevalence of cervical cancer in developing countries where Malawi leads the highest. Despite these alarming study findings, little is known on levels of depression amongst advanced cervical cancer patients in Malawi hence necessitating the study on assessing levels of depression amongst advanced cervical cancer patients at Mzuzu Central Hospital.
Specific Objectives:
1. To determine different levels of depression amongst advanced cervical cancer patients at Mzuzu Central Hospital

2. To identify socio-demographic factors associated with different levels of depression amongst advanced cervical cancer patients at MZCH.
Methods: This was a quantitative cross sectional study. A total of 34 advanced cervical cancer patients were sampled using simple random sampling technique and were interviewed using Beck Depression inventory tool (BDI-II) which is an international gold standard self-rating scale questionnaire. Most of the participants (n=30) were interviewed in their respective places of residence on an outpatient basis while some (n=3) were seen at palliative care clinic and only one was seen at gynecology ward. SPSS version 16.0 was used to analyze frequency distribution and percentage of levels of depression amongst advanced cervical cancer patients, correlation and cross-tabulation of socio-demographic factors to levels of depression amongst advanced cervical cancer patients. The SPSS further assisted the researcher to determine significance level at 95% confidence interval ($p<0.05$) using chi-square test.
Results: Findings of this study have shown that MZCH has high levels of clinical depression amongst advanced cervical cancer patients with 32.4% (n=11) of the patients having moderate depression followed by 26.5% (n=9) with severe depression and 11.8% (n=4) with mild depression. Those with minimal depression approximated to 29.4% (n=10). From all the socio-demographic factors in this study, marital status has demonstrated a significant association (p-value 0.003) with depression amongst advanced cervical cancer patients at MZCH. Loss of Libido amongst married women was significantly associated with depression levels at p-value 0.004.
Conclusion: This study has demonstrated that MZCH has high levels of clinical depression amongst advanced cervical cancer patients with most 32.4% (n=11) of the patients having moderate depression followed by 26.5% (n=9) with severe depression and 11.8% (n=4) with mild depression. Marital status amongst married participants has shown a significant association (p-value 0.003) with depression amongst advanced cervical cancer patients at MZCH. Loss of Libido amongst married women was significantly associated with depression levels at p-value 0.004. Use of biopsychosocial patient management approach, holistic care approach by health care providers, establishment of home based palliative care follow up services on advanced cervical cancer patients, enhancement of policies that will aim at the integration of mental health services into primary, secondary and tertiary health care are some of the recommendations which have been suggested in this study which encompasses practice of health workers, education system, Policy and future Research. Further research should be done on the efficiency of using biopsycho-social management approach in managing advanced cervical cancer patients and all other medical and surgical patients.
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Zimba C, et al. Assessing feasibility of integrating depression assessment and care into cancer care at Kamuzu Central Hospital in Malawi: a mixed methods study.

Background/purpose: Depression is common among cancer patients but is under-identified and under-treated, especially in low-resource settings. This study aims to determine the feasibility of integrating depression assessment and care into cancer care at Kamuzu Central Hospital (KCH) in Malawi.
Methods: This is a mixed methods study. Using a cross-sectional quantitative design, we are assessing change commitment, efficacy, and valence of 62 Malawian oncology and mental health practitioners to integrate depression assessment into cancer care, using the 12-item Likert-scale Organizational Readiness for Implementing Change (ORIC). We will also conduct 30 semi-structured in-depth interviews with 8 directors or managers and their deputies and 22 practitioners (11 ocology and 11 mental health) to assess practitioners' beliefs, knowledge, barriers, and facilitators to integrate depression assessment into cancer care. Data collection is in progress. Median responses from the quantitative data will be compared using the Wilcoxon ranksum test. Interviews are being audio-recorded, transcribed, and will be coded by two investigators to identify major themes. We will use NVivo qualitative software to organize and code qualitative data.
Results: The study is ongoing. 44 quantitative responses have been collected. We will report at the conference the oncology practitioners' level of commitment, change valence, beliefs, knowledge, and the identified barriers and facilitators to integrate depression assessment and care into cancer care at KCH. We will also propose potential recommendations for enhancing supportive care for depressed patients with cancer in Malawi.
Conclusion and implications: Results from this study will contribute to our understanding of the feasibility of integrating depression screening and care into cancer care at KCH. These findings will guide the design and implementation of strategies to facilitate linkage of depressed patients with cancer to mental health specialists and supportive care in Malawi.

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Nyondo H, et al. The scope of cancer and the status of survival at Mzuzu Cancer Unit.

Background: Cancer is a leading cause of mortality worldwide accounting for 10 million deaths in 2020. In Malawi it accounted for 12454 deaths. The commonest cancers in Malawi are cancer of the cervix, Kaposi sarcoma, cancer of the esophagus, breast and non-Hodgkin lymphoma. Mzuzu Cancer Unit started offering chemotherapy as a standalone unit in November 2019. Although this has been at a small scale due to the severe chemotherapy shortages, and that it has no resident oncologist. The impact of providing chemotherapy in Mzuzu cannot be underestimated. Therefore this study aims at presenting the outlook of cancer and the survival outcome at the unit.
Method: Mzuzu Cancer Unit Register from November 2019 to March 2021 was used. Information on gender, cancer type, whether they received chemotherapy or not, if yes and if they completed and the outcome status were extracted and percentages were calculated.
Results: During this period a total of 167 cases were registered comprising 62 men and 105 women representing 37.1% and 62.9% respectively. Of all the cancers Kaposi sarcoma (KS) was the common cancer accounting for 35.9% and was more prevalent in men accounting for 69.4%. Among women Cervical cancer was the commonest accounting for 25.7% and second of all the cancers. The other common were Breast cancer (13.2%), gestation trophoblastic neoplasia (3.6%), and leukemia (3.0%). In males Kaposi sarcoma was the most frequent (69.4%) followed by Prostate and colorectal cancers both at 4.8%. Of all the patients 148 received chemotherapy accounting for 88.6% and of these 41.9% completed the recommended cycles. Among those that received chemotherapy 20 died accounting for 13.5% and of these 17 died while receiving the chemotherapy accounting for 85%.
Conclusion: The trend of common cancers at Mzuzu Cancer Unit reflects that of the whole Malawi of which HIV associated cancers are common. In patients who received chemotherapy, death were common before completion of the cycles. This necessitates the need to assess the quality of life and experience of patients receiving treatment and proper follow-up after treatment.
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Notes:

Thank you for attending!