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FEASIBILITY OF IMPLEMENTING THE TORONTO CHILDHOOD CANCER STAGE GUIDELINES IN A SUB-SAHARAN AFRICAN HOSPITAL-BASED CANCER REGISTRY

BACKGROUND: Lack of accurate data from countries with limited resources is a major obstacle to improve outcome for all children with cancer. The Toronto Childhood Cancer Stage Guidelines target population-based registries (PBCR), seeking to provide internationally comparable information to evaluate childhood cancer outcome. Stage, given at diagnosis is allocated to one of the 2 tiers to classify 15 tumor types, Tier-1 (T1) was developed for use in limited resource settings, coding, localized, regional and metastatic disease, and Tier-2 (T2) requiring more detailed stage information. Here we report on a pilot study testing the feasibility of the use of these guidelines, in Sub-Saharan Africa, using data extracted from the GFAOP international Hospital Based Cancer Registry (HBCR), established in 2016.

OBJECTIVES: in limited resource settings :

(1) Assess the feasibility of using T1 or T2 Toronto guidelines for staging the 15 different cancer types identified by the guidelines.
(2) Identify the different cancer types for which either T1 or T2 Staging was possible using available data from the GFAOP HBCR.
(3) Identify the reasons why the guidelines could not be adapted from the data collected.

METHOD: Registered data from **7 GFAOP Paediatric Oncology Units (POU**) with at least 40 new cases diagnosed per year from **January 1st 2017 to the 31st of December 2019** was analysed. Units were in: **Abidjan, Antanarivo, Bamako, Dakar, Ouagadougou, Kinshasa and Yaoundé**. Diagnosis was confirmed when clinical, radiological or histological, cytological or ophthalmological diagnosis concurred and validated when the diagnosis corresponded to treatment. Staging was **not possible for 4 tumour types**, ALL (CNS involvement was not available) and 3 CNS tumours (histology group information was not available). Children <18 years with one of the **11 remaining tumour types** as defined by the international Classification of Childhood Cancer, 3rd edition **(ICCC-3)** were included. T2 was considered when all cases could be staged, otherwise T1 was used.

RESULTS: **2303** children had a confirmed diagnosis**: 684 were not eligible** for analysis, 340 because the diagnosed malignancy was not included in the Guidelines, 344 because their diagnoses was one of the 4 cancer types for which diagnostic criteria demanded by the guidelines was not compatible with data, they include: 328 ALL, and 16 CNS tumours. **A total of 1619 eligible cases** were analysed. Data for T-1 staging was available for **749** cases (46%) with a low of 63% for Hodgkin lymphomas and retinoblastomas and a high percentage of 89% for neuroblastoma. Data for T-2 staging was available for 577 cases 36%, with 93% for Burkitt lymphomas. For **8/11 tumor types data for T-1** was available 46%, and available for T2 for 36% of cases. These results show that the guidelines can be implemented in 82% of the 11 cancer types studied.

Diagnosis Group	Total N° Diag.	T1	% T1	T2	% T2
Non-Hodgkin (Burkitt lymphoma)	498			462	93%
Hodgkin lymphoma	72			45	63%
Retinoblastoma	366	232	63%		
Renal tumors	394	331	84%		
Neuroblastoma	61	54	89%		
Hepatoblastoma	20	17	85%		
Bone tumors	78			70	89%
Sarcomas RMS	75	66	88%		
Soft tissue sarcomas non RMS	25	25	100%		
Testicular	5	3	60%		
Ovarian	25	21	84%		
Total	1619	749	46%	577	36%

CONCLUSION: The **guidelines,** while **adaptable** for a **high 82% (T1+T2)** of cancer cases are not adaptable for all 15 cancer types. For ALL, diagnostic requirements are different from the GFAOP group where diagnosis is based on WBC, age, and mediastinum involvement. For CNS tumors, requiring biopsy, diagnosis is not possible in these settings because of lack of adequate diagnostic equipment. We note that for Burkitt lymphomas both T1 and T2 have available data for a high 93%, possibly reflecting historical knowledge of this cancer type in Sub-Saharan Africa. These **results concur with coverage of 83% for T1** for 3 cancer types demonstrated in a recent article using data from population based cancer registries in 3 Sub-Saharan African countries.

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