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Well-directed inclusion of hematology in African national cancer control plans

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Abstract

In the context of a convergent call for noncommunicable disease integration in the global agenda, recognizing cross-cutting needs and opportunities in national strategies across disease fields with shared priorities in low- and middle-income settings can enhance sustainable development approaches. We reviewed publicly available cancer control plans in Africa to evaluate for inclusion of hematology needs and shared service priorities. Pediatric data remain sparse in cancer control plans. While continental Africa represents incredible diversity, recognizing shared priorities and opportunity for collaboration between oncology and hematology services and across age groups may guide prioritized cancer control efforts and reduce programmatic redundancies in resource-limited settings.

KEYWORDS

Africa, cancer control plans, hematology

1 | INTRODUCTION

The French-African proverb, "les cailloux qui vont dans la brousse tuent les oiseaux" (suggesting that well-directed efforts are the ones that will pay off) resonates with the English expression "to kill two birds with one stone". In Africa, well-directed, partnered frameworks targeted for synergistic results can improve hematology and oncology outcomes. We previously reviewed cancer control plans in Africa for inclusion of pediatric elements.[1] Along with attention on cancer as a public health issue across the age spectrum, nonmalignant hematology disorders are increasingly recognized as a global problem with disproportionate impact on the African continent.[2] As noted in childhood cancer, Ranque et al. depicted that most patients with sickle cell disease (SCD) live in low- and middle-income settings, with increased morbidity and mortality amounting to over 40 years' difference in estimated life expectancy for patients with SCD in sub-Saharan Africa compared to the United States.[3]

Oncology and hematology care teams share essential priorities: scale-up of appropriate screening, accurate and early diagnosis, genetic testing, safe transfusions and certified blood banks, infection control and management of infectious comorbidities, and supportive care to include adherence interventions, whether for penicillin prophylaxis in SCD or sulfamethoxazole/trimethoprim prophylaxis in malignancy. In some settings, patients with oncologic and hematologic concerns may also share the same primary providers (without prior specific subspecialty training time protection), and the same interdisciplinary team members and consultants; however, opportunities for collaborative disease control planning are often not explicitly stated.

Considering the context of shared health resource limitations and health priorities, we reviewed all publicly available national cancer control plans (to include noncommunicable disease plans) from Africa for inclusiveness of nonmalignant hematology components. Cancer control plan identification was based on those plans reported to the World Health Organization in 2010[4] and 2013 plus publicly available country plans and one continental plan published after 2010, including the International Cancer Control Partnership portal (http://www.iccp-portal.org/cancer-plan, last accessed December 1, 2015). Of 18 national plans reviewed, seven represented low-income economies, six represented lower middle income economies, and five represented upper-middle income economies as per the World Bank (http://data.worldbank.org/about/country-and-lending-groups, last accessed December 1, 2015). Plans spanned in scope from 1[5]

Abbreviation: SCD, sickle cell disease

TABLE 1 Inclusion of hematology priorities in publicly available African cancer/noncommunicable control plans*

Country, language, structure	Hematology concerns	Hematology disorder diagnosis	Anemia discussed	Blood services priorities	Sample hematology inputs, outputs, and measurable objectives
Algeria,[a] FR, C	Capacity	NS	NS	NS	NS
Benin,[b] FR, NCD	SCD burden Staffing Training	SC screening not systematic	NS	NS	• Input: Train 50 doctors and 150 HW in hematology (SCD); equip 50 health facilities with SCD diagnostic materials and protocols. Specialized personnel for SCD (five hematologists, 18 technicians) Annual SCD budget • Output: Parental SCD education; quarterly SCD awareness sessions; routine SC screening program, integrated into minimum activities of health facilities
Botswana,[c] EN, NCD	NS	NS	L/D	Safe transfusions	NS
Burkina Faso,[d] FR, C	NS	Equipment and reagents lacking	NS	NS	NS
Cote d' Ivoire,[e] FR, NCD	SCD burden	NS	NS	NS	NS
Gabon,[f] FR, NCD	Facilities Guidelines SCD awareness SCD burden Staffing	Limited ancillary services, for example, for transfusion-related needs	Malaria, HIV, and L/D	Safe transfusions; donor recruitment	• Input: Develop transfusion centers; increase trained transfusion HW • Output: Coordinated implementation of national blood transfusion policy • Objectives: Access to preventive and therapeutic services for at least 95% of people at risk for SCD; reduce mortality and morbidity of SCD by 25% by 2015; ensure safe blood available in 100% of reference health centers
Ghana,[g] EN, C	Staffing	NS	Cancers	Safe transfusions	NS
Madagascar,[h] FR, C	NS	NS	NS	NS	NS
Malawi,[i] EN, NCD	Budget Capacity Guidelines	NS	NS	Safe transfusions; 139 cases of HIV from transfusions (2007); donor recruitment and retention; cold chain; quality assurance	• Input: Budgetary support for blood safety activities to include retention of donors; blood cold chain, and quality assurance • Output: National transfusion guideline publication and dissemination; percentage of health facilities with stock outs of safe blood in last 7 days
Mali,[j] FR, NCD	SCD burden	Genetics of SCD	NS	NS	NS
Mauritius,[k] EN, C	Staffing Training	NS	NS	Safe transfusions; platelet availability; transfusions budgeted with RBC irradiator	Input: Increase the number of hematologists to at least one per million persons and train one clinical hematologist and lab hematologist per year
Morocco,[l] EN, C	Facilities Staffing	NS	NS	Support health care staff with blood transfusion kits	Input: Create two pediatric hemato-oncology centers; ensure minimum of two hematologists for departments managing blood cancers; increase number of hematology lab technicians
Senegal,[m] FR, NCD	SCD burden	Genetics of SCD and hemophilia	NS	Transfusions available for pregnant women	NS

(Continues)

TABLE 1 (Continued)

Country, language, structure	Hematology concerns	Hematology disorder diagnosis	Anemia discussed	Blood services priorities	Sample hematology inputs, outputs, and measurable objectives
Sudan[n] EN, NCD	Facilities	NS	Anemia rate >90% (1997)	Safe transfusions; quality assurance; distribution of lab services; training; reference lab strengthening	• Inputs: Strengthen reference labs • Objective: Reduce incidence of children and pregnant women with Hb below 10 g/dl.
Togo,[o] FR, NCD	Budget Facilities SCD burden Staffing	Reference lab; peripheral centers with SCD diagnostics	NS	Sustainable availability of blood products	• Input: Integrate cost-effective preexisting SCD screening campaigns; advocacy to subsidize key immunizations for SCD pts; provide essential equipment for urgent care of SCD crises; create operational center of reference for SCD pts • Output: Decreased prevalence of homozygous SCD to 1.5%
Continental,[p] EN, C	NS	NS	Cancers	Safe transfusions; sustainable blood products; pts with hemophilia and hemoglobinopathy at risk of transfusion-acquired infections	NS

[a]Algérie Département de la Santé (2010–2019) Engagement solennel au plus haut niveau de l'état qui fait du cancer une priorité nationale 2010–2019.
[b]de Bénin Ministère de la Santé (2014–2018) Plan stratégique integré de lutte contre les maladies non transmissibles 2014–2018.
[c]Ministry of Health Government of Botswana. Integrated health service plan: A strategy for changing the health sector for healthy Botswana 2010–2020.
[d]Burkina Faso Ministère de la Santé (2013) Plan stratégique de lutte contre le cancer 2013–2017.
[e]Ministère de la Santé et de la Lutte contre le SIDA République de Côte d'Ivoire (2011–2014) Politique nationale de prévention et de prise en charge des maladies chroniques non transmissibles en Côte d'Ivoire 2011–2014.
[f]République Gabonaise Ministère de la Santé des Affaires Sociales de la Solidarité et de la Famille (2010) Plan National de Développement Sanitaire 2011–2015.
[g]Ghana Ministry of Health. National strategy for cancer control in Ghana 2012–2016.
[h]Ministère de la Santé Publique République du Madagascar (2010) Politique nationale de lutte contre le cancer à Madagascar 2010.
[i]Malawi Ministry of Health. Malawi health sector strategic plan 2011–2016.
[j]Ministère de la Santé Publique République du Mali (2013) Politique nationale de lutte contre les maladies non transmissibles 2012–2016.
[k]Republic of Mauritius Ministry of Health and Quality of Life. National cancer control programme action plan 2010–2014.
[l]Morocco Ministère de la Santé and Association Lalla Salma de Lutte Contre le Cancer (2010–2019) National Cancer Prevention and Control Plan 2010–2019.
[m]République du Sénégal Ministère de la Santé et de la Prévention (2009) Plan National de Développement Sanitaire 2009–2018.
[n]Republic of the Sudan Federal Ministry of Health (2003–2027) Twenty-Five Years Strategic Plan for the Health Sector 2003–2027.
[o]République Togolaise Ministère de la Santé (2012) Politique et plan stratégique integré de lutte contre les maladies non transmissibles 2012–2015.
[p]African Organisation for Research and Training in Cancer (AORTIC). Cancer plan for the African continent 2013–2017.
*Plans from Kenya (Republic of Kenya Ministry of Public Health and Sanitation and Ministry of Medical Services. National cancer control strategy 2011–2016)(EN, C), South Africa (South Africa Ministry of Health. Strategic plan for the prevention and control of non-communicable diseases 2013–2017)(EN, NCD), and Zimbabwe (Zimbabwe Ministry of Health and Child Welfare. The national cancer prevention and control strategy for Zimbabwe 2013–2017)(EN, C) did not specifically discuss hematology-inclusive elements in the reviewed control plans.
C, cancer control specific plan; EN, English; FR, French; Hb, hemoglobin; HW, health workers; L/D, labor/delivery; NCD, noncommunicable disease plan; NS, not specified; pts, patients; RBC, red blood cell; SC, sickle cell; SCD, sickle cell disease; y, years.

to 25 years,[6] mean 6.8 years, and median 5 years with timeframe 2003–2027. Table 1 presents an overview of the 19 plans extracted independently by authors (M.W. and C.L.), reviewed as a team, with consensus resolution for differences.

2 | RESULTS

SCD was mentioned in 7of 19 plans, while anemia and hemophilia were noted in 5 of 19 and 2 of 19 plans, respectively. In this era of a push for cancer registries, it was interesting that hospital-based hematology data gathering was referenced in only two plans.[7,8] The burden of SCD was quantified in 5 of 19 plans[7–11] with pediatric data noted in 2 of 19 plans.[7,11] Mortality from SCD was reported as 21.3% based on hospital data in the Côte d'Ivoire plan with the Gabon plan noting concern for drastically shortened life expectancy. SCD was described as a public health problem in the Côte d'Ivoire plan and as an economic and social burden for families and health systems in both the Côte d'Ivoire and Gabon plans. Mali's plan quantified how despite efforts to support 2,000 patients with SCD, this met <4% of the expected needs. Across

plans, recognized needs in the context of hematology scale-up included staffing, training, facilities, guideline development, and protected budget. Diagnostic limitations for benign hematologic disorders were recognized as deficiencies in equipment and supplies, standard screening, and health care personnel. Relevant across oncologic and hematologic diagnoses as noted in the continental plan, 7 of 19 plans highlighted the role of safe transfusions, and 5 of 19 emphasized sustainability in blood donor supply. Transfusion safety promotion was specified in one plan's budget. Overall, a commitment to invest in hematology-specific staffing and training was quantified in 3 of 19 plans with investment in hematology-relevant facilities quantified in 2 of 19 plans.

Generalized access to pain medications was depicted in 9 of 19 of the national plans, which raises opportunity for synergistic advocacy for pain management across diagnoses. The need for access to pain medications specific to sickle cell pain crisis was exampled in the Togolese plan, which described two public sector units serving over 2,000 patients annually with one consult desk per unit and no day hospital nor protected area for pain crisis management.

Measurable hematology objectives were listed in three plans for accountable implementation including a reduction in SCD mortality by 25% among patients in Gabon on a stated timeline, a reduction in the incidence of children and pregnant women with hemoglobin below 10 g/dl in Sudan, and a reduction in prevalence of SCD patients with homozygous SS phenotype in Togo.

3 | DISCUSSION

While the relationship between hematologic and oncologic service needs was not necessarily explicitly stated, our review of these cancer control plans revealed key opportunities to further partner oncology and hematology: for interdisciplinary staff training and resource collaborations; for protected educational and professional development opportunities; for creation of registries; for guideline and protocol development; for optimal meeting of practical patient needs, such as access to pain medications and safe blood supplies as well as safe transfusion and adherence promotion practices; and for advocacy and accountability through measurable objectives, implementation research planning, and evidence-supported scale-up. Intentional, coordinated planning and investment in hematology and oncology across age groups in such high-burden settings would be truly well directed to improving patient and public health outcomes.[1] Two birds, one stone, or two disciplines, many shared opportunities.

AUTHORS CONTRIBUTIONS

M.W. and C.L. designed the study, collected data, and wrote the first drafts of the paper. M.W., A.Y., L.R., M.H., and C.L. all contributed to the analysis and interpretation of data, revised the paper critically, and approved the final version.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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