

Colorectal Cancer Screening in South Africa: Consideration for National Risk Differentiated Colorectal Cancer Screening Programme

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OPINION

Colorectal cancer (CRC) is the fifth most frequent cancer and is ranked top six leading cause of death in South Africa. The world standardised incidence rate for CRC is 14.4 per 100,000 populations as reported by the Global Cancer Observatory. The same report estimates that the new cases in South Africa will increase up to 8,000 per 100,000 populations by 2030 [1,2].

It is known that screening reduces CRC related morbidity and mortality. Worldwide, colorectal screening to detect cancer is recommended from age 45 years in countries with high burden of CRC among high risks groups using effective screening tools including the colonoscopy, guaiac and immunohistochemically faecal occult blood tests and flexible sigmoidoscopy [3-5].

The Constitution of the Republic of South Africa Act, SS. 8-12 No. 108 of 1996 second Amendment Act, No. 3 of 2003, highlight the bill of rights in chapter two, ensuring access to health care services for all its citizens. This article attempts to advocate for a structured risk differentiated national colorectal cancer screening programme to raise awareness; prevent; and promote early detection of colorectal cancer in South Africa.

Studies have shown and have advocated for targeted screening, as means to improve efficiency, particularly because people have various risk of exposure based on genetic, biomarkers, medical and familial disease history, lifestyles and socio-economic status including ethnicity, supported by the validated risk predictive models [6-9].

Usher et al. [10] conducted an online population survey regarding targeted screening among 668 people in the United

Kingdom and found that the uptake to cancer screening is influenced by knowing risks status, hence, starting age could be adjusted based on the risk.

WHAT DO WE KNOW BASED ON THE RECENT EPIDEMIOLOGY AND RISK FACTORS IN SOUTH AFRICA?

McCabe et al. [11] reported that the higher number of young black patients were found to have the microsatellite instability at a younger age, with median age of 47 as compared to other races in South Africa. This shift was also observed and reported by Katsidzira et al. [12,13] and Cronje et al. [14]. This was further concurred by Bouter [15], CRC South Africa study cohort in Johannesburg with 444 enrolled, from 2014-2016, found very important findings: 1) mean age of CRC diagnosis was 56.6 years with 18-91 age- range; 2) CRC location was mainly in the rectum, compared to left or right colon; 3) that by initiating curative treatment within 40 days of CRC diagnosis, the overall survival is improved, whereas the delays almost double the risk of death. Mjoli et al. [16] also found that there is high diagnostic yield of CRC using colonoscopy among patients presenting with constipation. de Waal et al. [17] also found that CRC is associated with increased circulating lipopolysaccharide, inflammation and hypercoagulability. Ntombela et al. [18] found that the clinic-pathological pattern of colorectal carcinoma slightly differs in the public as compared to private healthcare systems. Zuma et al. [19] investigated the influence of HIV infection on the presence of anal squamous cell carcinoma amongst patients located in KwaZulu-Natal province. A number of risk factors have also been reported by Katsidzira et al. [12,13] and Bray et al. [2,20] including genetics, lifestyle, environment and medical and family history.

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The implications from these studies highlight the importance of targeted screening based on the risk factors; differentiated screening based on appropriate starting age and screening intervals depending on the risks, the need for a risk assessment tool to assist with targeting and differentiation and lastly, a clear understanding of the clinical presentation of CRC for early treatment and survival based on population-based surveillance data.

WHAT IS THE SOUTH AFRICAN GOVERNMENT RESPONSE TOWARDS THIS EVIDENCE?

Based on the World Bank economic ranking of countries using Human Development Index, South Africa is the middle-income country [2]. Noting the current CRC burden and rapid changes in lifestyle, dietary patterns, and CRC epidemiology in Sub-Saharan Africa which are some of the factors influencing CRC incidence [12,13]. Nonetheless, South Africa has delayed to proactively develop and implement a national targeted CRC screening programme amidst the estimated rising CRC new cases projected by 2030. This has led to opportunistic and sporadic CRC screening approaches.

The CRC screening services are available in the majority of private health facilities and in selected regional public health sector facilities. Schreuders, reported in 2015 that targeted screening using colonoscopy with treatment has been shown to be cost-effective in Sub-Saharan Africa noting the recommendation by Lambert et al. [21], against mass screening due to low incidence. Besides colonoscopy, there are other tests effective for CRC screening, endorsed by the South African Colorectal Society, including guaiac and immunohistochemically faecal occult blood tests (gFBOT, FIT), flexible sigmoidoscopy, recommended for use [3,5,22] and are used in both private and public health facilities in South Africa.

FACTORS AFFECTING UPTAKE AND ADHERENCE TO SCREENING

The lack of population-based registries to accurately estimate the incidence and informed decisions on CRC screening; availability and cost of screening equipment; lack of skilled health providers to implement the screening procedures and competing demand for resources noting the high burden of communicable diseases requiring vast investments [23].

Moreover, the inaccessibility to CRC screening among high-risk groups, mainly with hereditary nonpolyposis colorectal carcinoma families has promoted the provision of mobile colonoscopic surveillance services in targeted communities [24]. These services are reported to provide quality care similar to the endoscopic unit located in big city hospitals, based on the recent clinical audit on colonoscopy performed to over 1 600 patients, in one of the outpatients endoscopic unit, the authors reported that the provider performance was aligned to the international guidelines for colonoscopy [15].

Most recently, additional tests have been reported effective with limitations pertaining to sensitivity, specificity and patient burden, including computed tomographic colonography, colon capsule endoscopy, and double-contrast barium enema [5,25]. The colorectal cancer screening tests require different provider competence, techniques and also vary in effectiveness. Most of these tests are effectively used in both private and public sector service platforms in South Africa [24,26]. Immuno-histochemical faecal occult blood testing and flexible sigmoidoscopy were both

recommended, by [3,22], as most suitable for population-wide screening targeted at an average-risk population.

There are many factors affecting screening behaviour for CRC that impact on the utilisation of screening services including availability of national guidelines, provider related (knowledge, education, competencies, recommendation, availability and functionality of equipment) and patient related factors (age, cancer personal and family history, education, income, distances of screening facilities, risk perception and procedure related burdens). Adonis et al. [4] reported that their study found that among those insured who underwent colonoscopy CRC screening, less than 50% had adhered to follow-up screening. Additionally, it is regarded as costly, invasive and labour-intensive, requires competent provider to perform and may affect adherence and follow up of patient [24,26-28].

WHAT WILL IT TAKE TO MAKE NATIONAL TARGETED CRC SCREENING PROGRAMME IN SOUTH AFRICA?

Based on these findings, I propose that the South African Department of Health considers a structured and targeted risk differentiated national CRC screening programme. To make this a reality, the department follow guidance from the WHO on key components for implementation including:

Strong national, provincial and district CRC screening Technical Working (TWG) Group made of multidisciplinary experts, in particular policy and programme managers working together with researchers. to guide the development of the policy and programme based on the current local and global evidence.

The TWG will outline recommendations based on:

Targeted population informed by stratification of risk

Guidance on age at start, intervals for screening using different method and age for screening cessation by stratification

Define competency and skills and training of health care workers based on screening methods and different levels of health care

Diverse CRC screening modalities and quality assurance measures and quality indicators to track performance for each per level of care and each with the standard operation procedures as this will influence compliance and referral pathways

Supply chain and maintenance of equipment and supplies

Provides parameters for health promotion and demand creation to raise awareness amongst targets population including information and education and counselling materials

The TWG will also need to strategically identify public health facilities that can be developed to be learning centers of excellence to promote private public partnerships and twinning partnership within public health care facilities to promote quality of services, compliance, expand access, coverage and transference of skills. Lessons learned from cervical cancer and other cancers with matured screening programs can also inform the development, implementation and monitoring of the proposed CRC screening programme.

In conclusion, South Africa is perceived to be the ground breaker in Sub-Saharan Africa, leading in innovations pertaining health science and clinical care in both communicable and non-

communicable disease. As such, South Africa is now at the crossroads to make decisive determination regarding CRC prevention and control considering its highest CRC burden in Sub-Saharan Africa. Developing a national targeted yet risk differentiated CRC screening policy and programme will be a catalyst for coordinated national CRC integrated response in the country.

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