

## HIV care infrastructures in Sub-Saharan Africa for integrated chronic disease and pandemic management

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### ABSTRACT

Apart from the ongoing HIV/AIDS epidemic, communicable and other tropical infectious illnesses remain serious issues in Sub-Saharan Africa. Noncommunicable disease awareness and prevalence have increased across Africa, necessitating a rethinking of healthcare delivery to support populations dealing with not only HIV, tuberculosis, and COVID-19, but also cancer, cardiovascular disease, diabetes, and depression. Many non-communicable diseases can be prevented or treated with low-cost therapies, but their use in the region has been limited. In this Perspective, we argue that deploying an integrated service delivery model is a critical next step, present a South African model for integration, and finish with research and implementation recommendations. A South African-inspired app-

roach would expand on existing HIV-focused infrastructure created by Ministries of Health with strong backing from the US President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, Tuberculosis, and Malaria. An integrated chronic healthcare approach has the potential to provide infectious disease and non communicable disease care in a sustainable manner. As health systems try to deal with the unique problems posed by COVID-19 and future pandemic threats, integrated care will be extremely important.

**KeyWords:** *Non-communicable diseases; HIV; Infectious diseases; Integrated care; Health system strengthening; Sub-Saharan Africa*

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### COMMENTARY

In Sub-Saharan Africa (SSA), reducing severe poverty rate have been accompanied with rising rates of Noncommunicable Diseases (NCDs), chronic infectious disease loads, and new pathogens such as the novel coronavirus (COVID-19) [1]. Given the scale of the HIV/AIDS and tuberculosis (TB) epidemics, donor countries, the US President's Emergency Plan for AIDS Relief (PEPFAR), the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund), and ministries of health have all contributed to scaling up testing and treatment. This investment has resulted in a 50% drop in AIDS-related fatalities in Eastern and Southern Africa since 2010, but there is currently significant disparity in chronic disease care due to a lack of appropriate NCD screening and management. As evidenced by the sluggish vaccine roll-out in SSA, COVID-19 has merely exacerbated pre-existing disparities. COVID-19 patients enter the conventional health-care system with just marginally improved pandemic resources, at best. New solutions are needed to enhance health systems, reduce disparities and silos in s Universal Health Coverage in the era of the Sustainable Development Goals [2].

We recommend continued investment in integrated primary care to meet these requirements in this brief Perspective piece, relying on the successes of HIV programming and the Ideal Clinic model in South Africa. NCDs are becoming more prevalent in Sub-Saharan Africa. From 1990 to 2017, the share of NCDs in the total burden of disease in SSA grew from 18.6% to 29.8%. Hypertension affects 10–20 million people in SSA; if 70% of them were treated, 4.5 million deaths would be avoided (11.5 percent of global delayed deaths). Following cardiovascular illnesses (which account for 22.9 million Disability Adjusted Life Years (DALYs)), malignancies (16.9 million DALYs) and mental disorders (13.6 million DALYs) are the next leading causes of NCDs in SSA. According to a comprehensive study, the prevalence of Type 2 diabetes varies greatly by region and country, but can reach as high as 12 percent in some urban areas [3]. The World Health Organization (WHO) has created guidelines for packages of care, such as NCD control, maternity and child health, and sexual and reproductive health and rights, to avoid morbidity and mortality due to NCDs. Some of these NCD control methods have been dubbed "great buys" by the WHO because they are clinically and cost-effective and practicable [4].

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National guidelines, on the other hand, frequently focus on a single sickness or concern, thus encouraging redundant infrastructures and inefficiencies. As a result, new collaborations and capacity-building will be required to fulfil the needs of the expanding NCD epidemic, which may increase post-COVID [5]. We believe that integrated service delivery that incorporates NCD control into existing HIV and TB testing and treatment programmes will be the key to combating the expanding NCD epidemic in SSA in many venues, particularly in rural SSA. By eliminating siloed HIV/AIDS care without consideration of competing causes of death, such integration will also help countries recover from COVID-19 and prepare for future pandemics. In this way, new coordinated efforts and limit building will be important to extend existing clinical frameworks to address the issues of the developing NCD pandemic, which might deteriorate post-COVID. In numerous settings, especially in provincial SSA, we accept that coordinated assistance conveyance that fuses NCD control into existing HIV and TB testing and treatment projects will be the way to tending to the developing NCD scourge in SSA. Such reconciliation will likewise fill in as nations remake from COVID-19 and look forward to future pandemic readiness, by lessening siloed care for HIV/AIDS without thought of contending reasons for death. All through SSA, PEPFAR and the Global Fund have banded together with Ministries of Health to lay out centers that have been powerful in light of numerous measurements. This PEPFAR clinical help period started in 2003-2004 and keeps on supporting expanded HIV testing and ART-based clinical consideration for people living with HIV (PLHIV) and extremist decreases in mother-to-youngster HIV transmission. The scale-up of PEPFAR-subsidized programs gave ART to in excess of 15 million individuals, train north of 280,000 new wellbeing laborers and save more than 18 million lives through 2019. According to the point of view of foundation and manageability, PEPFAR has likewise added to compelling public-private organizations to further develop medication supply chains and lab frameworks, as well as limit working in creating and growing local area wellbeing specialist units, adherence to clinical rules and checking and assessment framework. PEPFAR-financed programming has likewise evolved key stages for local area commitment and activation. Such a large number of these projects, in any case, stay committed by financing necessities to zero in on HIV and TB without conveying their strategies, offices, and prepared staff for the more extensive requirements communicated by networks. Coronavirus has given a valuable chance to use the stages intended for persistent HIV and TB care to advance COVID-related avoidance (testing and contact following, immunization), and urge patients to get back to essential consideration as COVID-related lockdowns retreat [6]. This is the ideal opportunity to put resources into expanding their transmits much further into NCDs, endemic contaminations, and tropical sicknesses, among others. Natural dangers connected with expanded vector limits from environment warming, evolving flood-dry spell cycles, changing air dampness limits, and environment outcasts will build the earnestness of this more extensive order for moderation of wellbeing dangers. Regardless of PEPFAR's commitments to mediation improvement and execution, a lot of this work was firmly centered on HIV/TB and not more extensive wellbeing frameworks fortifying. As PEPFAR subsidizing and objectives change away from an upward crisis reaction towards country possession and maintainability, we accept it fundamental that this HIV foundation be incorporated with other wellbeing administrations to meet more extensive local area needs. Treating a more extensive exhibit of ailments will expand the political and local area support important to keep up with HIV/TB administrations on the inescapable day that the U.S. Congress lessens its PEPFAR support. As the U.S. furthermore, other contributor nations face the monetary emergency ignited by the COVID-19 pandemic, these subsidizing cuts might show up sooner than anticipated.

In this Perspective piece, we give a short survey of coordinated transmittable/noncommunicable sickness avoidance and care models and contend that South Africa's IDEAL Clinics might offer experiences for different nations looking to stretch out their HIV foundation to address developing NCD and arising wellbeing challenges. We finish up with suggestions for future exploration and execution.

#### **Incorporated service delivery**

There is a developing writing portraying various models of effective incorporated assistance conveyance in low-and center pay nations (LMICs), especially for more established grown-ups that could assist with advising the cycle regarding progressing facilities to more extensive help conveyance. The greater part of these models incorporate clinical administrations at the place of care. Nonetheless, later suggestions support further joining past the office because of the normal requirements across levels of medical care frameworks (Figure 1) presents normal medical care conveyance needs paying little mind to illness type, at each level of a worked on medical care framework, from the local area to the medical care office to the public level. People, paying little heed to analysis or status, require commitment at the local area level for wellbeing avoidance, reference, or backing. Inside center or medical clinic offices, framework and clinical limit can be utilized by patients, no matter what their finding. At the framework or public level, administration and administration (counting financing, utilization of information for navigation, rule improvement and execution, and strategies and inventory network the board) ought not to be siloed by sickness. Achievability studies in an assortment of low-and center pay nations have shown guarantee in coordinating HIV care with TB, sexual and regenerative administrations, essential consideration administrations, and NCD screening and treatment administrations. Incorporating irresistible and NCD administrations permits more people to be screened, treated, and held in care for a more extensive scope of conditions. The board of HIV-uncovered, uninfected kids in SSA gives further instances of how coordinated clinical administration can be carried out, by expanding on HIV foundation. In the time of avoidance of mother-to-kid transmission, HIV-uncovered, uninfected youngsters stay a weak gathering, as they are bound to experience the ill effects of hunger, hindering, pallor, neurologic issues, more extreme reactions to normal respiratory ailments, and have higher paces of mortality in any event, when they stay uninfected. Associate investigations of HIV-uncovered, uninfected youngsters and pilot intercessions propose that coordinated consideration frameworks that incorporate longitudinal development and observing, NCD screening and backing (dietary mediations, mental and formative screening and backing, maternal wellbeing backing), and contamination anticipation and treatment might alleviate the adverse consequences of HIV openness. Supportability is upheld utilizing previous framework and assets. Ongoing costing investigations of coordinated care in SSA additionally upholds the maintainability of these models. A pilot study in Tanzania and Uganda observed that overseeing at least two circumstances in a solitary member was less expensive (for both the wellbeing framework and the patient) than dealing with various circumstances independently. A review in Malawi correspondingly found lower cash based costs for patients in coordinated care, contrasted with non-incorporated care. Intersectoral funding and additionally local area based miniature supporting to address both different determinants of wellbeing are likewise being investigated as choices to help the scale-up of coordinated care. Further, numerous components of the wellbeing framework set up or fortified for irresistible illness anticipation and treatment can be applied to NCD care and arising microbe needs, or the other way around.

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It recognizes components of wellbeing framework building blocks that have been fortified through HIV limit building exercises, and how these components could be applied for transferable (counting arising microbes) and non-transmittable illnesses.

### A South african model

We suggest one approach for implementation of such integrated care. South Africa's IDEAL clinics provide a promising model of integrated HIV/NCD care that could be scaled-up and replicated elsewhere in SSA. The IDEAL Clinic Realisation and Management (ICRM) initiative began in 2013 as part of a series of reforms to implement a National Health Insurance System, expand Universal Health Coverage, and systematically improve South Africa's primary care clinics. The NCD component of the IDEAL clinic initiative was piloted from 2011–2013 in a sub-set of districts, with promising results, leading to its inclusion in the IDEAL clinic guidelines. However, the concept of integrated primary care as proposed by the ICRM is not new to South Africa. In the mid-20th century, Sidney and Emily Kark and collaborators developed the concept of community-oriented primary care in rural South Africa, integrating both preventive and curative services based on the needs of local communities. The IDEAL Clinics represent a modern re-imagining of these concepts. A set of tools comprising a manual and an electronic dashboard support the implementation of integrated services and certification as an IDEAL clinic. To receive IDEAL clinic certification, a facility must achieve a metrics score indicating successful implementation of key elements. These elements include good infrastructure; adequate staff; adequate medicine and supplies; strong administrative processes including use of appropriate clinical guidelines and protocols; partner and stakeholder engagement to ensure delivery of high-quality care to the community; and integrated clinical services management that “builds on the strengths of the HIV program to deliver integrated care to patients with chronic and/or acute diseases”. The ICRM process requires that primary care facility managers conduct routine assessments of progress towards certification. Quality improvement plans are then developed to guide further planning and implementation. However, much work is needed, as the implementation of the standards has been slower than planned, and evaluations of the integrated care approach have produced mixed results. As of 2018/2019 (the most recent data available), 55.4% of primary care facilities had achieved IDEAL certification.

Two recent studies attribute the slow implementation, in part, to limited governance and leadership that has contributed to poor communication, resource constraints, limited input from frontline managers and staff, and limited accountability. We feel that now is the moment for PEPFAR and Global Fund-supported HIV/AIDS/TB clinical services to shift from a razor focus to integrated care that includes a broader range of NCDs and pandemic threats. As we've shown, integrated care approaches exist and have the potential to be adapted and scaled up across Sub-Saharan Africa. Despite the fact that health system constraints (including people and financial resources) make integrated care implementation difficult, there is growing evidence that it can be more efficient than vertical programming. When integrated services are given, policymakers and communities are more likely to support them. A broader range of high-quality services may also encourage healthcare personnel to stay in their own country rather than migrate elsewhere.

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