Public Health Action

International Union Against Tuberculosis and Lung Disease
Health solutions for the poor

VOL 2 NO 3 PUBLISHED 21 SEPTEMBER 2012

UNRESOLVED ISSUES

Addressing the challenge of the emerging NCD epidemic: lessons learned from Botswana's response to the HIV epidemic

M. J. A. Reid,[1,2] M. Mosepele,[3] B. M. Tsima,[2] R. Gross[1,3]

http://dx.doi.org/10.5588/pha.12.0014

Botswana has the second highest prevalence of human immunodeficiency virus/acquired immune-deficiency syndrome (HIV/AIDS) in the world, and yet it has built one of Africa's most progressive and comprehensive HIV programs. While public health infrastructure has responded remarkably to the HIV epidemic, the prevalence of non-communicable diseases (NCDs), particularly diabetes mellitus and cardiovascular disease, in both HIV-infected and non-infected individuals, is increasing rapidly. Applying lessons learned from the scale-up of HIV/AIDS services may help with the implementation of an effective response to the challenges of the emerging NCD epidemic. We suggest that a successful response should include integrated service delivery, capacity building to provide disease-specific care, and strong partnerships to mobilize communities.

Despite having the second highest prevalence of human immunodeficiency virus/acquired immune-deficiency syndrome (HIV/AIDS) in the world, Botswana has built one of Africa's most progressive and comprehensive programs for dealing with the disease. Antiretrovirals (ARVs) first became available in public health facilities through the national ARV treatment program in 2002. By 2010, Botswana had achieved near universal access: 93% of all eligible patients (n = 160 000) had been initiated on ARVs.[1] Despite this success, Botswana is faced with another impending epidemic: non-communicable diseases (NCDs), particularly diabetes mellitus (DM) and cardiovascular disease (CVD). Lessons learnt from Botswana's success with the ARV scale-up, as well as its initial failures in HIV prevention, could avert a public health crisis.

ASPECT OF INTEREST: THE EMERGING EPIDEMIC

Since its independence in 1966, Botswana has maintained one of the world's highest economic growth rates.[2] Through fiscal discipline and sound management, particularly of its diamond resources, Botswana has transformed itself from one of the world's poorest countries to a middle-income country with per capita gross domestic product of US$16 200.[2] Commensurate with economic growth has been the emergence of an increasingly urbanized population. Increasing prosperity and population growth have unfortunately given rise to many health issues that are commonplace in high-income, urbanized countries. Available data from Botswana indicate that 23% of adults are overweight and that over half of all women aged 25–64 years are overweight or obese.[3] The prevalence of hypertension in the general population is estimated to be 16.2%.[3]

There is also a worrying rise in the prevalence of NCDs among people living with HIV (PLWH) in Botswana. Although people are living longer on ARVs, they are at increased risk of DM, dyslipidemia and CVD.[4,5] This increase is not only a consequence of increasing prosperity and urbanization: exposure to ARVs as well as chronic inflammation secondary to HIV also increases the risk of metabolic and cardiovascular disease.[6]

Rather than a public health threat, the rising prevalence of DM and CVD represents an important opportunity to leverage Botswana's HIV infrastructure to enhance health outcomes across the spectrum of care. However, to address the emerging NCD epidemic will require a multifaceted, multidisciplinary response. Of many interventions that will be necessary, we suggest three that may be effective: 1) integration of HIV/AIDS and NCD services across Botswana's health care system; 2) rapid scale-up of clinical capacity to provide NCD-specific services; and 3) strong partnerships with community groups, private organizations and academic institutions for effective scale-up of NCD programs.

INTEGRATION

The ARV roll-out, supported by huge donor investments, has resulted in the recruitment of additional and separate staff, new buildings and more government infrastructure to deliver HIV care. Unfortunately, HIV clinics often remain separate from where patients access primary health care for other illnesses. There is little evidence that investment has improved outcomes for the general population in Botswana.[7] While data are sparse,[8] research has demonstrated that integrated HIV and NCD care is both feasible and effective in resource-constrained settings.[9]

The Botswana Ministry of Health (MoH) is keenly aware of the need for better integration: palliative care and sexually transmitted infections programs have been integral components of the AIDS program for several years. However, acknowledging that coordination and integration across disease programs was still suboptimal, the MoH recently shifted the status of the HIV department to a program under the Department of Public Health, rather than a stand-alone division.

Apart from programmatic integration at ministry

AFFILIATIONS
1 Botswana–University of Pennsylvania Partnership, University of Pennsylvania, Philadelphia, Pennsylvania, USA
2 School of Medicine, University of Botswana, Gaborone, Botswana
3 Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA

CORRESPONDENCE
Michael Reid
HIV Division
Botswana UPenn Partnership
PO Box AC 157
ACH Gaborone, Botswana
Tel: (+267) 724 787 77
Fax: (+267) 317 0957
e-mail: michael.reid@doctors.org.uk
reidm@botswana-upenn.co.bw

KEY WORDS
non-communicable diseases; Botswana; HIV

Received 9 May 2012
Accepted 21 June 2012
First published online 10 August 2012

PHA 2012; 2(3): 47–49

level, front-line synergistic care for HIV/AIDS and NCDs is essential to optimize the use of scarce resources. Botswana has employed monitoring and evaluation tools, electronic medical records and a multidisciplinary team approach to attain universal access to care. Leveraging these strategies across the health system to support NCD programs can reduce duplication of efforts, increase equity and sustainability and improve health sector efficiency.

CAPACITY BUILDING

A successful response to the emerging NCD epidemic will require training of health workers to deliver high-quality, disease-specific care. At present, the primary care response to NCDs is unstructured and inadequate. Furthermore, while Botswana has more doctors per capita than other countries in southern Africa,[10] many are insufficiently skilled to manage complex NCDs. The Knowledge, Innovation, and Training Shall Overcome AIDS (KITSO) training program, established by the MoH and the Harvard AIDS Institute, was developed to build clinical capacity to deliver HIV care. It offers a model for how disease-specific, contextually relevant training can be provided at scale. To date, KITSO-trained health professionals have supported ARV delivery at over 32 hospital sites and 69 satellite clinics. The training program, which emphasizes application of national guidelines, is imminently applicable across disease platforms. Incorporating NCD training into the KITSO curriculum and replicating the KITSO model to build capacity to deliver standardized care for patients with DM, CVD and dyslipidemia may significantly improve NCD service delivery. While there has been some donor support to build NCD capacity, further external investment is warranted, given the burden of disease and lack of clinical capacity.

STRONG PARTNERSHIPS

Community mobilization to support NCD prevention messages and diffuse health-related knowledge is also important. Part of why early HIV prevention interventions in Botswana may have been ineffective was lack of community involvement. Latterly the AIDS program has successfully partnered with community groups, such as the Tebelopele Voluntary Couseling and Testing Centers Network, to deliver targeted HIV prevention messages. To ensure that NCD prevention interventions are effective, it is essential that community groups are integral to an approach that targets those at highest risk.

Recruiting public-private partnerships to strengthen NCD services across industry and business sectors may also improve NCD outcomes. Debswana, the government co-owned diamond-mining corporation, has successfully employed 'health and wellness' initiatives, screening employees for diabetes, high blood pressure and obesity. The continued success of such initiatives is predicated on maintaining strong linkages to public services. Finally, collaborative partnerships with academic institutions are urgently needed to understand how to respond appropriately to the changing disease burden.

CONCLUSION

The scale of the challenge posed by the combined and growing burden of HIV/AIDS and NCDs demands an extraordinary response. Concerted action is needed to integrate the HIV/AIDS and NCD programs and build capacity to manage NCDs. Fostering strong partnerships with business and community groups to implement prevention strategies and deliver high-quality patient-centered care is also important.

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C'est au Botswana que se trouve la deuxième prévalence la plus élevée du virus de l'immunodéficience humaine/syndrome d'immunodéficience acquise (VIH/SIDA) au monde, et pourtant il a élaboré les programmes les plus progressifs et complets du VIH de toute l'Afrique. Alors que l'infrastructure de santé publique a répondu remarquablement à l'épidémie de VIH, la prévalence des maladies non transmissibles (NCD), particulièrement du diabète sucré et des maladies cardiovasculaires, augmente rapidement à la fois chez les sujets infectés et non infectés par le VIH. L'application des leçons retenues de l'extension des services VIH/SIDA peut aider à la mise en œuvre d'une réponse efficiente au défi de l'émergence de l'épidémie des NCD. Nous suggérons qu'une réponse couronnée de succès comporte la fourniture de services intégrés, la formation des compétences à fournir des soins spécifiques à la maladie ainsi que de puissants partenariats pour mobiliser les collectivités.

Botsuana presenta la segunda prevalencia más alta de infección por el virus de la inmunodeficiencia humana (VIH) y síndrome de inmunodeficiencia adquirida (SIDA) en el mundo y sin embargo, ha establecido uno de los programas más progresistas e integrales contra el VIH en África. Si bien la infraestructura de salud pública ha respondido de manera sobresaliente a la epidemia de infección por el VIH, la prevalencia de enfermedades no transmisibles (NCD), en especial la diabetes y las enfermedades cardiovasculares, progresa rápidamente en todas las personas, ya sea que padezcan o no la infección por el virus. Las enseñanzas extraídas de la ampliación de escala de los servicios contra el VIH y el SIDA podrían contribuir a poner en práctica una respuesta eficaz frente a los retos que plantea la epidemia incipiente de NCD. En el presente artículo se propone que la eficacia de esta respuesta exige los siguientes elementos: la prestación de servicios integrados, el fortalecimiento de la capacidad de suministrar una atención orientada a enfermedades específicas y el establecimiento de colaboraciones dinámicas que movilicen las comunidades.

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e-ISSN 2220-8372
Editor-in-Chief: Donald A Enarson, MD, Canada
Contact: pha@theunion.org
PHA website: http://www.theunion.org/index.php/en/journals/pha
Article submission: http://mc.manuscriptcentral.com/pha