

Women, HIV, and Non-Communicable Diseases: Making the Links and Moving to Action

Over the past two decades, the particular social and biological risks women confront in the face of the HIV epidemic have become increasingly evident. The rapid feminization of the epidemic and its burdens have shaped our efforts to find new female controlled prevention strategies, increase women's access to Highly Active Antiretroviral Therapy (HAART) and Prevention of Mother-to-Child Transmission (PMTCT) initiatives, and develop gender-specific programs to support the health and well-being of women living with HIV and AIDS. While important progress has been made, there is still much work to be done as our knowledge of the needs of HIV-positive women continues to evolve. Emerging evidence suggests that people living with HIV and AIDS are at a significantly increased risk for developing non-communicable diseases (NCDs) – including cancers, cardiovascular diseases, diabetes, and depression.

HIV-positive women's heightened risk for NCDs is impacted by a number of factors. While NCDs are commonly driven by genetics, lifestyle, and environment, in HIV-positive individuals, NCDs can also be a direct consequence of HIV infection, increased behavioral and lifestyle risks and, in some cases, side effects of HAART regimes.¹ The international community must work quickly to integrate the prevention, treatment, and care of cardiovascular diseases, diabetes, cancers, and depression into health programs targeting HIV-positive women. Unless swift action is taken to confront the rise of NCDs among HIV-positive women, these diseases will increasingly undermine our efforts to reduce the health gap between HIV-positive and HIV-negative populations and weaken hard earned gains in health and survivorship of HIV-positive individuals.

Although research and clinical care in this important area of confluence – HIV, women, and NCDs in developing countries – is scarce, this brief aims to pull together the research that does exist, increase the visibility of these links, and encourage a robust research and programmatic response to this important area of women's health.

Background

Throughout the developing world, the incidence of NCDs continues to increase dramatically. New evidence reveals that, like HIV, women in developing countries are particularly at risk.² Women living in developing countries increasingly face the many environmental and lifestyle risks associated with urbanization, industrialization of food, sedentary lifestyles, and the targeted marketing of products like cigarettes and alcohol.³ At the same time, gender and social norms seem to be creating a perfect storm for the rapid rise of NCDs among women in developing countries given women's limited opportunities for physical exercise and exposure to solid fuels during cooking.^{4,5,6,7}

Environmental and behavioral risks for NCDs

Although evidence shows no country, community, or village is immune, NCD risk factors are disproportionately common in areas of high HIV prevalence. In urban sub-Saharan Africa, for example, obesity levels are now equal to Western countries.⁸ According to UNAIDS, over a third of individuals screened at HIV testing sites were obese and had high blood pressure.⁹ Global estimates indicate that between 40 and 70% of HIV-positive people smoke and fewer engage in smoking cessation programs compared to HIV-negative populations.¹⁰ High-risk behavior, poverty, urbanization, and fatalism have been known to play a role in smoking habits and the low uptake of smoking cessation programs among HIV-positive individuals.¹¹ These same environmental and behavioral influences could also increase risk for other NCDs and increase the challenges for programs to quickly or easily have an impact.

Women, HIV, and NCDs

The biological risk of developing an NCD does not affect all women equally. Clinical research from developed and developing countries indicates that HIV-positive individuals are at significantly higher risk for developing an NCD for three key reasons: HIV causes changes in the body that can cause an NCD; HAART can have significant side effects that increase the likelihood of developing an NCD; and those living with HIV are now living long enough for underlying genetic, diet, and lifestyle risks to impact their risk for NCDs, as they would the general population.¹² For HIV-positive women, these biological and treatment-related risks are common and life threatening, and are exacerbated by the fact that current HIV treatment programs and women's health services have yet to acknowledge and address the scale and speed of these diseases in HIV-positive women.

HIV infection unabated

HIV infection has been shown to cause biological changes in the bones, heart, lungs, and other systems that cause damage and can predispose a person to NCDs. Kidney problems, the unusual redistribution of fat in the body, high cholesterol levels, and some cancers – namely Kaposi's sarcoma, non-Hodgkin's lymphoma and, for women, cervical cancer – are all associated with the natural course of HIV infection.¹³ Once common in all settings, many of these diseases are becoming less prevalent in places where access to treatment is widespread. However, for the tens of millions who are infected with HIV but are not eligible or do not have access to HAART, HIV left unabated can wreak damage.

HAART and NCDs

For the millions of women and men on HAART, there are unique and significant challenges. Protease inhibitors (PIs) and nucleoside reverse transcriptase inhibitors (NRTIs), common components of HAART combinations, have side effects including metabolic syndrome (MS), and are now linked to an increased risk for diabetes and heart disease.¹⁴ MS is a precursor to many diseases. Defined by fat collection in the mid-section of the body (central obesity), high blood sugar (hyperglycemia), high blood cholesterol (dyslipidemia) and hypertension, MS is common in HIV-positive people taking certain HAART combinations. This syndrome is a result of the toxicity of HAART, inflammation caused by HIV, and some lesser-understood indirect effects of HIV.^{15,16,17} As women appear to be more adherent to long-term HAART regimens than men,¹⁸ their biological vulnerabilities and the gap between their emerging needs and currently available services and information must be considered.

Cancer, Cardiovascular Disease, Diabetes, and Depression: The Big Four

Cancer

Well documented since the early days of the HIV epidemic, cancer is the most common AIDS-related disease. Three AIDS defining cancers – Kaposi’s sarcoma, non-Hodgkin’s lymphoma and cervical cancer – are strong indicators of HIV progression among HIV-positive individuals not on treatment. Among these, cervical cancer is the most common and the most life threatening AIDS-related disease in women, accounting for 55% of AIDS-related malignancies in some settings.¹⁹ Evidence shows that HIV increases a woman’s risk of cervical cancer by between five and nine-fold.²⁰ HIV-positive women have a higher prevalence of human papillomavirus (HPV) and are more likely to be infected with multiple cancer-causing sub-types of HPV compared to HIV-negative women.²¹

This higher prevalence of HPV infection is directly correlated to a progression of HIV, including a decrease in CD4 count and an increase in HIV RNA levels.^{22,23} HPV infection in HIV-positive women is more likely to develop into pre-cancer over a shorter period of time and less likely to respond favorably to treatment.²⁴ Unlike other AIDS-defining cancers, the impact of HAART on HPV infection and cervical cancer is less clear.²⁵

Liver and anal cancers – also caused by viruses uncontrolled by weakened immune systems – are similarly common.²⁶ In Asia and Sub-Saharan Africa, 20 to 30% of HIV-positive people are co-infected with hepatitis B (HBV).^{27,28} This co-infection increases the risk of liver disease by two to three times compared to those who are infected just with HIV.^{29,30,31} As more individuals have begun HAART and are living longer, non-AIDS defining cancers have become increasingly prevalent among HIV-positive people.^{32,33} Among them, lung cancer has shown to be significantly more common in HIV-positive individuals, independent of smoking status.³⁴ For HIV-positive women in developing countries, smoking and daily exposure to carcinogens through use of solid fuel cook stoves can exacerbate their risk of lung cancer.³⁵

Cardiovascular disease

HIV-positive individuals are known to be at a significantly higher risk for cardiovascular disease than HIV-negative individuals. Research shows that HIV-positive adults over 49 years of age have a 60% higher risk of cardiovascular disease than HIV-negative adults.³⁶ In Africa, more than 50% of HIV patients have cardiac abnormalities.³⁷ HIV infection – known to elevate triglycerides, lower high-density lipoprotein (HDL) or “good cholesterol”, and cause chronic inflammation of the arteries and veins – can cause kidney failure, hypertension, insulin resistance, and high cholesterol.^{38,39,40} The result for many is cardiovascular disease. Among HIV-positive individuals, cardiovascular disease presents itself in a variety of ways. Pericardial effusion (fluid in the pericardial space) and myocarditis (inflammation of the heart muscle) are among the most common manifestations.⁴¹ These risks appear to increase significantly more with long-term use of HAART.^{42,43} Patients treated with PIs, a common component of HAART combinations, have between a three and five-fold increased risk of heart attacks compared with untreated HIV-infected patients.^{44,45}

The risk of cardiovascular diseases among HIV-positive women can be compounded by the fact that these diseases can present differently in women than in men and often clinicians, if trained at all, are trained to identify the symptoms of these diseases more often seen in men.⁴⁶ Although men are twice as likely to get heart disease, once a woman reaches

menopause, her risk becomes the same as a man's.⁴⁷ In developing countries, where heart disease among women is only recently receiving attention and women's health services focus primarily on women during their childbearing years, women are at particular risk for under diagnosis and treatment of cardiovascular disease.

Diabetes

Diabetes is on the rise in all populations. Between 2010 and 2030, diabetes is expected to increase by 50% globally and by 100% in sub-Saharan Africa.⁴⁸ The implications for health systems are enormous and the particular challenges of caring for people with HIV are extraordinary. Type II diabetes in both sexes and possibly gestational diabetes among women are more common in HIV-positive populations.

HIV is known to affect the growth hormones that create insulin resistance.⁴⁹ This predisposition has been shown to increase with cumulative exposure to HAART. HIV-positive women taking PIs are three times more likely to develop diabetes than HIV-positive women not taking PIs as part of their HAART.⁵⁰

HIV-positive pregnant women could also be at risk for increased incidence of gestational diabetes. Among the general population, gestational diabetes – glucose intolerance during pregnancy – occurs in one out of every 25 pregnancies.⁵¹ Recent research shows women on PI-based HAART could develop gestational diabetes at higher rates than women not on HAART.⁵²

Once a person is diabetic, common treatment modalities may not be suitable for people living with HIV. Metformin, a commonly used oral diabetic drug, may not be appropriate if an HIV-positive individual is suffering from wasting or lactic acidosis.⁵³ Individuals suffering from these conditions will likely require special monitoring and insulin to manage their diabetes. In developing countries, ensuring a steady supply of insulin and the needles used to inject it, coupled with the necessary safety precautions to ensure the safe management of sugar testing strips and injection supplies is a considerable challenge. As more HIV-positive people get on HAART, the challenges of screening and managing Type II diabetes will be considerable. As such, special precautions must be taken in developing a HAART regime for individuals with a family history of diabetes.⁵⁴

Depression

Research shows that depression, the most prevalent mental health condition associated with HIV, disproportionately impacts women and can have significant consequences for the quality of life and disease progression.^{55,56} Among HIV-positive individuals, depression can lead to accelerated disease progression, increased mortality, and poor adherence to antiretroviral treatment regimes.^{57,58} HIV-positive women have four times the rate of depression as HIV-negative women.⁵⁹ A study conducted in Rwanda highlighted that one-third of HIV-positive women showed symptoms of depression.⁶⁰ Furthermore, a study of HIV-positive women in Tanzania found that women experiencing depression had a two-fold increase in their risk of death as well as a significantly higher risk of increased disease progression.⁶¹ HIV-positive women are significantly less likely to initiate HAART and for those individuals who are on HAART, the odds of non-adherence to treatment plans are three times higher in depressed patients.^{62,63}

Given the well-established links between mental health and HIV, mental health care has been an integral part of HIV treatment programs in the developed world since the early days of the epidemic.⁶⁴ However, in developing countries, the connection between mental health and HIV has yet to be widely acknowledged and there is an acute shortage of resources devoted to addressing mental health among HIV-positive populations. Research shows that psychosocial support is a vitally important component of HIV treatment and may provide protection against HIV-related mortality and immune decline.⁶⁵ The integration of mental health into HIV initiatives in developing countries is an urgent priority to extend and improve the lives of HIV-positive women.

The Road Forward

As HIV-positive women straddle sexual and reproductive health, maternal health, and HIV/AIDS programs for their care, it is unclear which programs and providers – if any – will be prepared to prevent, recognize, and treat NCDs. Currently, women and the clinicians serving them are vastly under-informed and ill-equipped to manage these diseases.

Experts are beginning to explore the potential to integrate, or at a minimum co-locate, HIV and NCD screening and care. The benefits could be significant for HIV-positive women. As evidenced in this brief, the prevention and care of NCDs must be fully integrated into efforts to serve HIV-positive women, with special attention to antiretroviral use. A minimum package of NCD prevention and treatment services based on current HIV treatment status, childbearing status, and family history of NCDs should be provided to all HIV-positive women.⁶⁶ Similarly, decentralizing HIV prevention and treatment services by integrating them within existing women's health programs and newly emerging efforts to screen and manage NCDs provides an opportunity to expand and decentralize HIV screening and treatment services. This could have important benefits for the scale, cost, and ability to manage HIV among women and better align services with diseases that are increasingly common among HIV-positive women on HAART.

The integration of services to prevent and treat these diseases across the women's health infrastructure could have benefits for HIV-negative women at risk from NCDs. Experience in managing HIV, including the promotion of healthy behaviors, ensuring long-term adherence to treatment, and regular monitoring of disease status, could have important benefits for other areas of women's health – namely NCD prevention, screening, and treatment.⁶⁷ If services are effectively integrated, fewer women will go undiagnosed and untreated for these life-threatening conditions, whether it be HIV, diabetes, or depression.

The few pilot initiatives underway merit further exploration. However, these programs are few and far between. Pilot projects in South Africa to integrate screening efforts and in Cambodia to integrate treatment are among the few. In the absence of a robust international effort to develop new delivery models, evidence is scarce on how to scale up these integrated services at the national level. As a result, opportunities for integration are being missed. With more and more women on HAART and skyrocketing rates of NCDs among women in developing countries, the time has come to consider whether the siloed approach to the prevention and treatment of HIV, NCDs, and the delivery of maternal, sexual, and reproductive health programs continues to make sense.

Written by Sarah Goltz, MPH, MIA and Aubrey Cody, MPH of Sage Innovation and Sara Pellegroni of IPPF for the Task Force on Non-Communicable Diseases (NCDs) and Women's Health.

About the Task Force

The Task Force convenes a diverse group of global health organizations from the women's health and NCD communities. Our mission is to advocate and provide technical leadership for a robust response to the evolving needs of women's health in developing countries. Together we work to increase global awareness and support for a gender-based approach to NCD prevention and control and re-ignite global interest and support for a lifecycle approach to women's health. For more information, please visit www.taskforcewomenandncds.org.

Founding Members



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