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NONCOMMUNICABLE DISEASE AND HIV SERVICE INTEGRATION MODELS

AIDSTAR-One
AIDS SUPPORT AND TECHNICAL ASSISTANCE RESOURCES

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NONCOMMUNICABLE DISEASE AND HIV SERVICE INTEGRATION MODELS

AIDS Support and Technical Assistance Resources Project

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ACRONYMS

AIDS	acquired immunodeficiency syndrome
AMPATH	Academy Model Providing Access to Healthcare
ART	antiretroviral therapy
ARV	antiretroviral (medicine)
BP	blood pressure
CCPPZ	Cervical Cancer Prevention Program in Zambia
CIDRZ	Centre for Infectious Disease Research in Zambia
DM	diabetes management
HCT	HIV counseling and testing
HCW	health care worker
Hga1c	hemoglobin a1c
HIV	human immunodeficiency virus
ICAP	International Center for AIDS Care and Treatment Programs
LEEP	loop electrosurgical excision procedure
LMIC	low- and middle-income countries
LTFU	lost to follow-up
M&E	monitoring and evaluation
MeSH	medical subject heading
MJAP	Mulago-Mbarara Joint AIDS Program MJAP
MOH	Ministry of Health
MSF	Médecins Sans Frontières
NCD	noncommunicable disease
OPD	outpatient department
PHC	primary health care
PLHIV	people living with HIV
TB	tuberculosis

UNAIDS	United Nations Joint Programme on AIDS
USAID	U.S. Agency for International Development
VIA	visual inspection with acetic acid
WHO	World Health Organization

INTRODUCTION

While HIV continues to be a significant global health priority, noncommunicable diseases (NCDs) have been largely neglected and are on the rise. Globally, the prevalence of NCDs is expected to increase significantly and NCDs may exceed communicable diseases as the most common cause of death by 2030 (WHO 2010). NCDs, such as cardiovascular disease, diabetes, and cancer, are responsible for 36 million deaths annually, with 80 percent of these in low- and middle-income countries (LMIC; WHO 2011a, CDC 2011). Given the enormous burden of NCDs that will be concentrated in resource-limited settings, it is evident that few countries will have the capacity to adequately address this growing problem (Atun, Jaffar, and Nishtar 2013). Indeed, at the United Nations Conference on Sustainable Development in 2012, NCDs were identified as “one of the greatest challenges for sustainable development in the 21st century” (WHO 2011b). Based on a review of the literature and key informant interviews, this paper outlines various models of integrated HIV and NCD programs with the goal of informing the global community on potential next steps for addressing the NCD epidemic, building on lessons learned from the HIV model of care.

Integration of prevention, care, and treatment of NCDs and HIV has been proposed as a means of capitalizing on the global focus on HIV to improve NCD outcomes. Prevention and control of both HIV and NCDs seek to modify risk behaviors using multisectoral, multi-stakeholder, and multilevel interventions (Haregu 2013). The models for both care and treatment of NCDs and HIV are similar, and so are the long-term management requirements in terms of routine monitoring, follow-up, and healthy lifestyle promotion (Nigatu 2012). This management synergy creates an optimal environment to consider effective integration strategies for combining HIV and NCD services. To reach the World Health Assembly target of reducing preventable deaths from NCDs by 25 percent by the year 2025, innovative, integrative approaches must be considered (WHO 2012).

According to the World Health Organization (WHO), a chronic disease is a “disease of long duration and slow progression” (WHO 2011c). For the purposes of this review, NCDs include hypertension, diabetes, hypercholesterolemia, chronic respiratory disease, and cancer. With the advent of antiretroviral therapy (ART), HIV has also emerged as a chronic disease. In addition, NCDs are a leading cause of death among people living with HIV (PLHIV) (Emanuel 2012). A review of the literature conducted by Haregu et al. (2012) found that one-third of PLHIV attending health facilities suffer from a co-morbid cardiovascular disease. A study in Kenya found that PLHIV had significantly higher rates of hypertension than their HIV-negative cohort (Mwangemi and Lamptey 2010). Additionally, HIV and long-term use of ART may result in increased insulin resistance, contributing to the development of diabetes (Lamptey 2012), with type 2 diabetes being more common among HIV-positive individuals, especially among women on ART (Kalra et al. 2011). HIV and cervical cancer are also highly correlated, as a result of the sexual transmission of both diseases and because of the effects of HIV on the immune system. Haregu and colleagues

(2012) found that approximately 10 to 15 percent of women newly testing HIV-positive experienced cervical abnormalities, with more than 20 percent of women on ART experiencing low-grade or higher cervical changes. Another study found that HIV-positive women have twice the risk of experiencing cervical squamous intraepithelial lesions (Chirenje et al. 2002).

The influx of funding from international donors and development of HIV-focused programming in resource-limited settings has led to significant improvements in health systems internationally. Many within the global health community have advocated for inclusion of NCDs and other health priorities in the HIV agenda, along with sharing of funding and resources (Perriens 2010). Given the similarities and overlap between HIV and NCDs, the global health community has begun to consider taking lessons learned from the scale-up of HIV programs and applying these to strategies for NCD treatment and care.

METHODS OF THE REVIEW

To carry out a critical and evaluative search on what has been published on the topic, we used the following approach:

1. A literature search was conducted using PubMed, including Cochrane Reviews and Embase.
2. A search of conference abstracts was conducted, including:¹
 - a. International AIDS Society 2005–2012
 - b. HIV Implementers' Meeting 2006–2012
 - c. International Association of Physicians in AIDS Care 2006–2012.
3. The focus of the search was specific to HIV integration with NCDs.
4. To enhance the findings of the standard PubMed search technique, we also used key words to identify specific types of integrated services for HIV and NCD, and also included specific types of chronic disease.

KEY INFORMANT INTERVIEWS

Because very few models of HIV and NCD service provision were identified in the literature, key informants from known integrated programs were also contacted for an online survey and telephone interviews to enhance the findings (see Annex A for the electronic survey and Annex B for the telephone interview survey). Key informants were identified via the literature search and from experts in the field with knowledge of existing integrated HIV and NCD programs.

LITERATURE SEARCH

We followed a systematic process to review the literature through an electronic search in which key search terms were entered into each electronic database. (Table 1 describes the sources used.) We then individually reviewed each abstract identified for its relevance to the topic. Articles that were determined to be irrelevant were discarded while articles that appeared to be relevant were tracked down. Additionally, each article that was identified as relevant was reviewed for additional relevant references, which were also tracked down. This review covered articles written between 2005 and the present and conferences taking place between 2005 and 2012. Only articles in English were included.

¹ Abstracts from the Conference on Retroviruses and Opportunistic Infections (CROI) could not be searched because of legal disputes involving its website.

Table I. Description of Data Sources

Type	Source	Description
Electronic Database Search	PubMed	PubMed is a service of the U.S. National Library of Medicine that includes over 17 million international citations, dating back to the 1950s. Although PubMed is primarily a biomedical database, it also includes numerous life science journals.
	Cochrane Library	The Cochrane Library contains high-quality, independent evidence for use in informing health care decision making. It includes comprehensive systematic reviews including clinical trials.
	Embase	Embase is an online information source of published literature designed to support information managers. Embase contains over 25 million records from 1947 to the present and covers over 7,600 biomedical journals from 90 countries.
Electronic Conference Search	International AIDS Society Conference (2006–2012)	The IAC is the most highly attended conference on HIV and AIDS and includes presentations on health and development issues. The conference is a platform for the interaction of science, community, and leadership, as well as the strengthening of evidence-based policies and programmatic responses to the epidemic.
	HIV Implementers' Meeting (2006–2012)	The HIV Implementers' Meeting is the only meeting of that brings together program implementers from around the world to share best practices and lessons learned in the global HIV response.
	International Association of Physicians in AIDS Care (2005–2012)	The International Association of Physicians in AIDS Care includes more than 17,000 health professionals in over 100 countries and works to provide education, advocacy, support, and guidance to advance the global HIV response.

SEARCH TERMS

To conduct a thorough search of the literature, a comprehensive list of search terms was compiled. Using the electronic databases listed above, the titles and abstracts of each article identified in the search were reviewed. Because the term *noncommunicable disease* may include any number of illnesses, additional criteria were added such that any papers that specifically identified chronic illness, but did

not include the term *noncommunicable disease*, would be identified. Abstracts that met this criterion were reviewed and the literature was included if it specifically included information surrounding provision of services for HIV and NCDs. The following were entered in each database searched:

1. Medical subject heading (MeSH) "HIV infections" (as well as "HIV" as a title or abstract word)
AND
2. "Hypertension," "heart disease," "diabetes," "cancer screening," "noncommunicable diseases," "primary health care," "outpatient department" as MeSH terms as well as title/abstract words
AND
3. "Integration" or "integrating" as title/abstract words as well as the MeSH term "delivery of health care, integrated"
AND
4. "Integration" or "integrating" as title/abstract words as well as the MeSH term "primary health care"
AND
5. "Integration" or "integrating" as title/abstract words as well as the MeSH term "outpatient department."

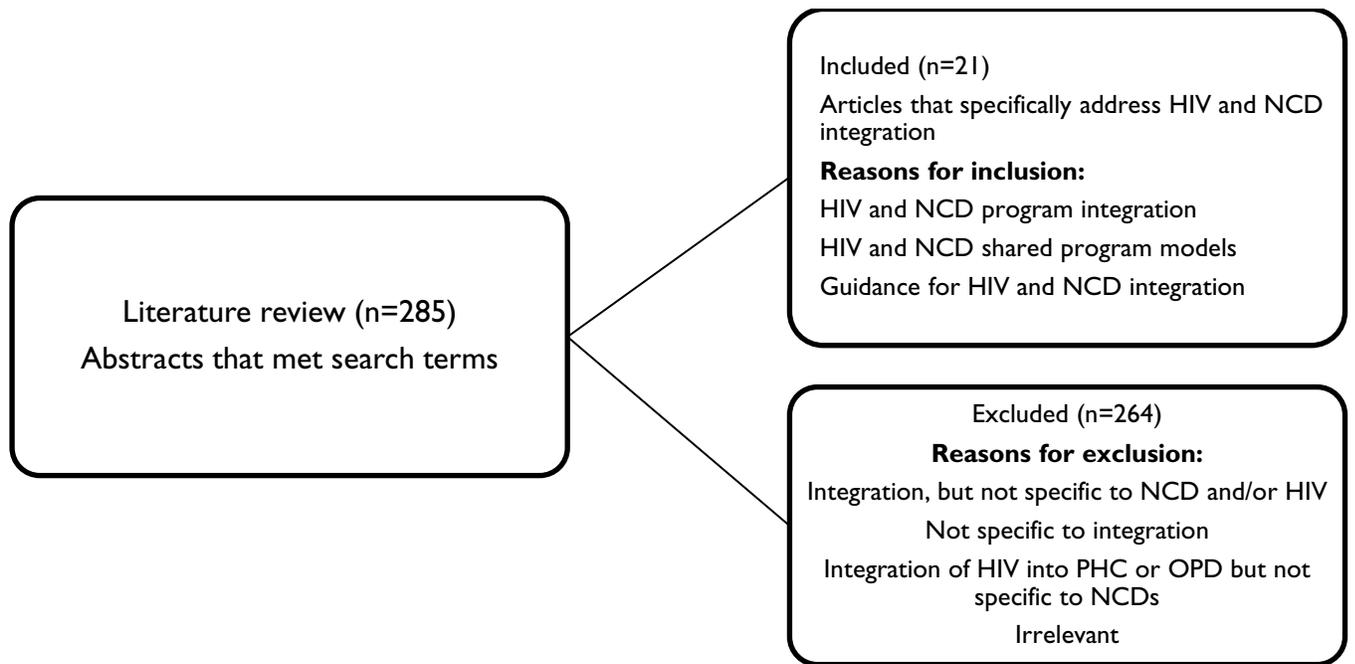
INCLUSION AND EXCLUSION CRITERIA

The search was specific to integration of HIV and NCD programs and thus excluded articles that pertained to integration of HIV into primary health care (PHC) services where it was not clear if NCD was a component of care. Table 2 outlines the criteria for inclusion or exclusion of articles and Figure 1 summarizes the literature review process.

Table 2. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Articles from published peer-reviewed journals	Papers focusing on HIV and PHC integration without specific mention of NCDs
Gray literature specifically addressing HIV and NCD integration	Papers that discussed HIV and/or NCD but not in the context of integration
Descriptions of integration programs	
Evaluations of integration programs	
Telephone interviews and online surveys with key informants from integrated programs	
Conference papers and abstracts	

Figure 1. Systematic Literature Review Process



INTERVIEW AND LITERATURE REVIEW FINDINGS

Following an extensive review of the literature and discussions with fellow implementers, 15 programs globally were identified as having elements of integrated HIV and NCD programs. Availability of implementation information for each of the integrated models was varied; programs for which some implementation information was available included 15 programs: four in Kenya, two in Rwanda and Zambia, and one each in Cambodia, Ethiopia, Lesotho, Nigeria, Swaziland, Tanzania and Uganda. For nine of the 15 programs identified, specific implementation information was available, and these programs were selected for this review.

For key informant interviews, contact was attempted a minimum of three times with each organization. Five interviews were successfully scheduled, with one interview discarded because the nature of the program was not specific to HIV and NCD integration. The programs interviewed were the Centre for Infectious Disease Research in Zambia (CIDRZ), Médecins Sans Frontières (MSF) in Cambodia, MSF in Kenya, and the Academy Model Providing Access to Healthcare (AMPATH) in Kenya. Box 1 summarizes the findings of the literature review and key informant interviews.

Box 1. Summary of Organizations from Key Informant Interviews

CIDRZ: The nongovernmental Centre for Infectious Disease Research in Zambia provides clinical care and research as well as training for African and expatriate doctors. CIDRZ currently provides technical support for integrated service provision in 20 public health clinics in varying settings across Zambia.

MSF: Médecins Sans Frontières is an international humanitarian organization providing medical services globally. The **MSF Cambodia** program, located within two public hospitals, was implemented in 2005–2009 in two separate states in Cambodia. The **MSF Kenya** program started as an HIV program in a Nairobi slum in 2003. In 2007, NCD integration occurred and program efforts are ongoing.

AMPATH: A collaboration between Moi University, Moi Teaching and Referral Hospital, and Indiana University in collaboration with the Government of Kenya, AMPATH was founded to address the HIV epidemic. AMPATH has been offering integrated services since 2011 in 20 catchment areas in western Kenya.

HIV AND NCD INTEGRATED CARE MODELS

Various HIV and NCD integrated models were found in the literature as well as among the key informants. All but one of the 15 models identified from the literature search directly integrated

NCD and HIV services, and each program's strategy varied slightly depending on local needs, available resources, and where the impetus for integration was derived. The models of integrated service provision identified only through the literature were limited in scope—having only one element of NCD integrated into an HIV program, offering integrated community-based screenings as a component of a health campaign, or adapting tools and systems from an HIV program for the NCD context.

All four of the key informant interviews offered similar models of integrated HIV and NCD service provision, wherein NCD services included a number of diseases, such as hypertension, diabetes, and occasional cancer screening. Likewise, implementation of services for all four programs follows a similar client flow, with the only major difference being how clients enter the integrated program. All sites have physicians and nurses who provide integrated HIV and NCD services (i.e., HIV and NCD services are offered by the same provider during a single visit). All four programs also place a similar focus on education surrounding self-care for HIV or NCDs, but the education programs are independent of each other.

Models of integration derived from the literature review and key informant interviews are summarized below and further described in Figure 2.

MODEL 1: INTEGRATION OF NONCOMMUNICABLE DISEASE SERVICES INTO EXISTING HIV PROGRAMS

This model consists of integrating diabetes and hypertension screening and treatment and HIV services. MSF Kenya, MSF Cambodia, and AMPATH adopted this model; however, each program takes a different approach to bringing clients into their services.

AMPATH makes use of community volunteers who are assigned to specific catchment areas to do door-to-door screening for diabetes, HIV, and hypertension, ideally reaching each household in a catchment area. Those individuals who have a positive rapid HIV test, or elevated blood pressure or blood sugar, are subsequently referred to the AMPATH integrated clinic for verification of results (Hoine 2013). In the MSF Cambodia model, the integrated health facility was located within a large referral hospital; clients who were suspected of having an undiagnosed NCD or HIV were referred to the hospital from various health facilities in the region. The hospital would then refer those clients to the MSF clinic for clinical confirmation of the illness and long-term management of the disease (Janssens 2013). In the MSF Kenya model, clients who are suspected of having HIV or an NCD are directly referred from nearby health facilities to the integrated clinic for clinical confirmation and long-term management of the illness (Vandenbulcke 2013).

Regardless of the entry point, once clients have entered care at any of these health facilities, they are screened for diabetes, hypertension, and HIV. While each of these programs originated as an HIV program, they have all adapted to integrate NCD diagnosis and management into HIV services such that any client diagnosed with a chronic disease and/or HIV is enrolled into care.

MODEL 2: INTEGRATION OF CERVICAL CANCER SCREENING INTO HIV SERVICES

A common variation of model 1, this model integrates cervical cancer screening into routine HIV services. In this model, HIV-positive women accessing routine HIV services are provided education on cervical cancer, offered cervical cancer screening during the same visit, and provided follow-up and treatment on-site where possible or referred to higher-level facilities when required (Ezechi et al. 2013, McCree-Hale et al. 2011). The Cervical Cancer Prevention Program in Zambia (CCPPZ) uses the already-existing HIV infrastructure within the PHC clinic to carry out cervical cancer screening targeting (but not limited to) HIV-positive women. Women accessing routine health services including HIV services may receive, as a component of their care, a visual inspection with acetic acid (VIA) for cervical cancer screening; eligible women may also receive cryotherapy. A referral system was also created for women who require punch biopsy loop electrosurgical excision procedure (LEEP) (Mwanahamuntu et al. 2009).

MODEL 3: INTEGRATION OF HIV INTO PRIMARY HEALTH CARE SERVICES THAT INCLUDE NONCOMMUNICABLE DISEASE SCREENING AND TREATMENT

In an alternative approach, whereby HIV services are integrated into PHC services that include NCD screening and treatment, purposeful integration of HIV and NCD is not necessarily the intention, but occurs because of the nature of the PHC program, which includes services for NCDs and other chronic diseases. CIDRZ is one such case: it has been working to integrate HIV testing and treatment into PHC services in Zambia. Clients who previously sought HIV services at separate sites now attend the PHC facilities, where they enter the same client flow as clients who are HIV-negative. All clients are offered screening for HIV, and those who are HIV-positive are provided HIV care during routine visits. Clients are also screened for hypertension, and diabetes when suspected. Clients with a dual diagnosis of an NCD and HIV are provided services for both during the same visit (Topp 2013).

MODEL 4: INTEGRATED OUTREACH FOR NONCOMMUNICABLE DISEASE AND HIV SCREENING WITH REFERRAL FOR SERVICES

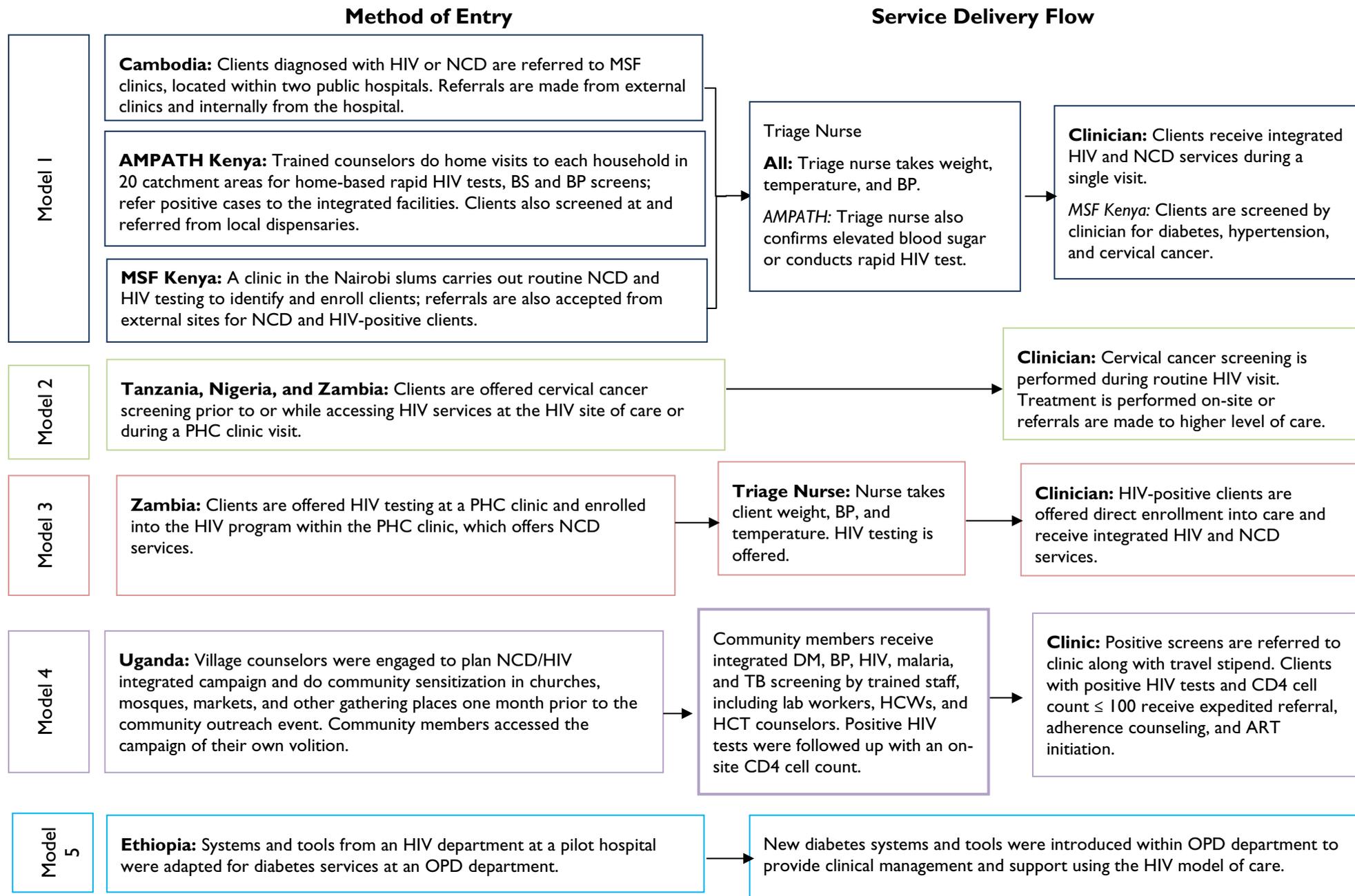
A program in Uganda, designed through a collaboration between Makerere University, the University of California, San Francisco, the Mulago-Mbarara Joint AIDS Program (MJAP), and the Ministry of Health, created a community mobilization campaign in which, following a month of community sensitization with community leaders, an integrated community outreach took place in a central location of town targeting all residents to obtain screenings for malaria, tuberculosis, hypertension, diabetes, and HIV. Laboratory testing was done either at the point of screening or at a nearby laboratory facility. Clients who received a positive result for any of the screens were provided post-test counseling, as well as a transportation stipend to attend a clinic visit. Clients found to be HIV-positive also underwent CD4 testing; clients with a CD4 result ≤ 100 were offered an

expedited appointment within two weeks of the test as well as expedited adherence counseling and ART initiation at their next appointment (Chamie et al. 2012). Seventy-five percent of those who received an expedited referral attended the follow-up appointment within two weeks, whereas only 34 percent of those who did not receive an expedited appointment ($CD4 \geq 100$) attended a follow-up appointment within three months of the campaign. Clients who lived closer to the follow-up facility were more likely to attend the referral appointment following the campaign (Chamie et al. 2012).

MODEL 5: ADAPTING HIV PROGRAM TOOLS TO OFFER MANAGEMENT OF DIABETES SERVICES

Through a pilot study conducted in Ethiopia by the International Center for AIDS Care and Treatment Programs (ICAP), an intervention package, adapted from an HIV program, was introduced into diabetic services within an outpatient department (OPD) at the same site that provided the separate HIV services. While HIV and diabetes services were provided separately, HIV program strategies, including an “essential package of services,” clear protocols, use of a family approach, and use of separate indicators, were adapted for diabetes programs. Furthermore, diabetes care systems and tools were also adapted using the existing HIV systems and tools (Rabkin et al. 2012). These included the appointment system and appointment tools, a clinical mentoring approach with adapted charting procedures, clinical aids, and use of peer educators.

Figure 2. HIV and NCD Integrated Program Models



RANGE OF INTEGRATED NONCOMMUNICABLE DISEASE SERVICES

The range of NCD services offered within the integrated packages varied little by site, mainly limited by availability of supplies to perform testing and treatment. Table 3 summarizes the services offered on a daily basis.

DIABETES

Diabetes screening and treatment were reported to varying degrees, depending on the availability of screening and treatment supplies. Among key informants, treatment for diabetes type 2 was available at all four sites, whereas only three sites were able to offer insulin therapy. Diabetic foot checks were also considered a routine part of care at all four sites, while only two sites had the needed training and materials to routinely carry out neurologic examinations or fundoscopic examinations, respectively. One site reported access to hemoglobin a1c (Hga1c) testing; however, utilization was rare as clients pay out of pocket for this service.

HYPERTENSION

Blood pressure screening and treatment were reported as a core component within each integrated program. Because the equipment required for hypertension screening is minimal, and the skills required to take a routine blood pressure reading are uncomplicated, blood pressure screening was mentioned as easily carried out during outreach visits as well as routine clinic visits. Access to blood pressure medicines was mentioned as problematic due to stockouts and the resulting need to devise alternative supply chain schemes to minimize stockouts of these essential medicines.

HYPERCHOLESTEROLEMIA

None of the key informants nor any of the programs identified in the literature offered routine cholesterol monitoring. Laboratory capacity and drug supply were described as barriers to integrating this service.

CANCER SCREENING AND TREATMENT

Cervical cancer screening was the only routine cancer screening mentioned in the literature and among key informants. Integration of routine cervical cancer screening occurred to varying degrees among the programs. AMPATH is able to routinely perform Pap smears and has an oncologist visit one day per month to provide and follow up on treatment of clients with cancer. The CCPPZ study by Mwanahamuntu et al. (2009) also details integration of cervical cancer screening through VIA with same-visit cryotherapy offered and referrals for punch biopsy and LEEP where required. The literature search identified similar programs in Tanzania and Nigeria, in which clients accessing HIV services were offered cervical cancer screening (McCree-Hale et al. 2011, Ezechi et al. 2013).

RESPIRATORY DISEASE

All key informant sites reported inconsistent availability of respiratory testing and access to medicines. A key informant from AMPATH stated that diagnosis of respiratory disease such as chronic obstructive pulmonary disease (COPD) and asthma are in the process of being added to the curriculum for health care workers. Following finalization and delivery of the training, it is expected that treatment of respiratory illness will be included in the integrated care package.

Table 3. Range of Integrated Services Offered Daily

Program	Integrated Services Offered Daily				
	HIV	Hypertension	Diabetes*	Cervical Cancer Screening	Asthma/COPD
CIDRZ, Zambia	X	X	X		
AMPATH, Kenya	X	X	X	X	X
MSF Kenya	X	X	X**	X	
MSF Cambodia	X	X	X		
UCSF, Makerere University, MJAP, Uganda	X	X	X		
CCPPZ, Zambia	X			X	
Tanzania	X			X	
Nigeria	X			X	

*Symptom assessments are often carried out if screening supplies are not available.

**Limited to diabetes type 2.

MONITORING AND EVALUATION

Monitoring and evaluation (M&E) practices vary slightly by site. The CIDRZ model is the only program in which attempts are being made at measuring the practice of integration itself, or the degree to which integration is occurring, through client exit interviews. However, within this program, the M&E system for NCD and HIV are maintained separately and no new indicators were added as a result of the integrated program. MSF Kenya has added new NCD indicators for Hga1c and for blood pressure. Indicators for new patients enrolled and lost to follow-up (LTFU) have also recently been added. AMPATH has integrated diabetes and blood pressure indicators directly into the existing HIV M&E system. None of the programs reported receiving any national guidance for M&E of their integrated services. Furthermore, none of the programs has yet been able to measure outcomes or the impact of the program. Program results are summarized in Table 4.

Table 4. Summary Results of Integrated Programs

Program	Integration Model	Results
CIDRZ, Zambia	HIV into OPD	Fifty-three percent of clients accessing OPD services agreed to HIV testing, with 13 percent testing HIV-positive and 42 percent enrolled into HIV services. At a second site, 58 percent of OPD clients accepted HIV testing, with 25 percent testing positive and 58 percent enrolled into HIV services. Provider and client interviews noted reductions in stigma surrounding HIV as a result of the integrated program (Topp et al. 2010).
AMPATH, Kenya	NCD and HIV at single site	Between baseline and a six-month follow up, two AMPATH sites noted decreased systolic and diastolic blood pressure readings. Blood sugar was reduced at three sites.
MSF Kenya	NCD and HIV at single site	Ninety-six percent of all eligible patients started on ART, 70 percent of patients on ART remained active after 12 months, and 30 percent of chronic disease patients defaulted (reduced from 37 percent at baseline).
MSF Cambodia	NCD and HIV at single site	Among patients who started highly active antiretroviral therapy (HAART), 87.7 percent were still alive after 24 months of treatment and still in care, and 3 percent of ART patients were LTFU after 24 months. The median CD4 count increased from 53 percent at baseline to 218 at 12 months and 316 at 24 months. Among diabetics, 71 percent were still alive after 24 months of treatment and of those LTFU, 64 percent were LTFU within three months of starting services. Among hypertension patients, 32 percent were LTFU (Janssens 2007).
UCSF, Makerere University MJAP, Uganda	Community health campaign	A total of 74 percent of adult residents and 69 percent of child residents received screenings. Of these, 98 percent of adults received HIV testing; 7.8 percent tested positive. A total of 98 percent of adults received hypertension screening, with 28 percent having readings \geq 140/90. A total of 98 percent of adults were screened for diabetes, with 3.5 percent having an elevated blood glucose level. Among adults newly diagnosed with HIV who were routinely referred to care, 34 percent received services within three months of the campaign. Among adults who received an expedited referral, 75 percent received services within three months of the campaign (Chamie et al. 2012).
ICAP, Ethiopia	Adapt HIV systems/tools for diabetes	A six-month evaluation yielded significant increases in weight measurement (2% to 82%), blood pressure testing (45% to 80%), fundoscopic examination (1% to 50%), foot examination (3% to 81%), and neurologic examination (3% to 56%). Adherence assessments also improved (2% to 77%) (Rabkin 2012).
CCPPZ, Zambia	Cervical cancer screening into HIV	Of the initial 21,010 women who received cervical cancer screening, 31 percent had already been diagnosed with HIV, and 38 percent were positive upon visual inspection. Forty-nine percent of patients referred for histologic evaluation completed the referral (Mwanahanuntu et al. 2009).
Tanzania	Cervical cancer screening into HIV	Between 2006 and 2009, 1,440 women accepted cervical cancer screening as an integrated component of their routine HIV visit. Among these women, 8.61 percent had squamous intraepithelial lesion. Among these, 4 percent presented for treatment at a separate cancer center. Others required tracking down by community health workers (McCree-Hale et al. 2013).
Nigeria	Cervical cancer screening into HIV	Over half of women accessing HIV services had knowledge of cervical cancer. When cervical cancer screening was offered as a component of the routine HIV visit, 79.8 percent of women accepted the screening as an integrated component of their visit (Ezechi et al. 2013).

BARRIERS TO INTEGRATED NONCOMMUNICABLE DISEASE AND HIV SERVICES

Supply Chain and Commodities: While the availability of ART has significantly improved over the past decade, access to medicines for NCDs lags far behind. A study examining the availability of medicines for NCDs in 36 LMIC found availability of medicines for NCDs at 36 percent (compared to 54 percent for acute diseases) (Hogerzeil et al. 2013). While existing HIV programs likely have supply chain mechanisms in place for drug supply and commodities, the requirements associated with integration of NCD-related drugs and supplies add an entirely new dimension, even more so given that treatment of HIV and NCDs require an uninterrupted drug supply. Funding for antiretrovirals (ARVs) is often readily available through a number of mechanisms, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria and the governments themselves. Alternatively, availability of funding and support to procure NCD medications and supplies may not be as reliable.

The key informants reported responding to this issue in a variety of ways. CIDRZ continues to work with existing NCD supply processes through the Government of Zambia. AMPATH is currently in discussions with the Government of Kenya to improve the supply chain for medications and to provide drugs on a pull versus push basis. AMPATH has also created a new community drug fund to purchase medications that are priced at 10 percent above the government rate. This drug fund is used in the case of government stockouts. The MSF programs in Cambodia and Kenya created an alternative and reliable supply chain of medications in place of the government system. In Cambodia, however, the existence of an alternative supply chain was problematic when MSF handed the program over to the MOH—there was a resultant lack of available NCD medicines, forcing the closure of the integrated program.

Notably, the availability of insulin to treat diabetes was mentioned as highly problematic in a number of key informant interviews, an issue that was also reported widely within the literature. Furthermore, laboratory equipment needed to screen for diabetes and diabetes-related diseases (Smart 2011) and carry out cervical cancer screening are additional requirements that need to be considered in the planning and implementation of an integrated program.

Ministries of Health: NCD and HIV services are most often managed within separate divisions within national ministries of health. This separation at the national level leads to integration challenges at the practice level. Some programs have been more successful than others in bringing

together these departments for routine planning, but without routine planning in areas such as integrated funding streams, supply chain management, and management of human resources at the national level, the implementation and sustainability of integrated NCD and HIV programs will be under continual challenge, resulting in serious threats to these programs.

Human Resources: Human resources were reported in the literature and among key informants as an ongoing issue. A key informant noted that the increased workload without an increase in salary is difficult and keeping health care workers motivated is a continual challenge that has yet to be effectively addressed. Staff turnover is also a major issue, which is especially problematic given the time, funding, and other resources expended on the extensive training of staff to enable them to work effectively in an integrated program. To address the increased human resources requirements, the CCPZ program used community volunteers to raise community awareness of the initiative and to track clients who required follow-up for abnormal findings (Mwanahamuntu et al. 2011).

Training: Training of health care workers is a significant component that is time- and resource-intensive, especially at program start-up, because of the need to ensure that clinicians have the skill sets to provide integrated care, and that support staff understand any new protocols to be implemented. All programs mentioned providing training at start-up and subsequently on an ongoing basis to ensure that services are carried out appropriately. *Training* modules include clinical and counseling education as well as basic information on integrated patient flow, handling client concerns, documentation, and referrals. AMPATH clinicians received a seven-day training on NCD screening, treatment and prevention; these clinicians also receive on-the-job mentoring and additional telephone support when clinical issues arise.

Availability of Specialized Care and Referrals and Linkages: Many programs have the ability to integrate basic screening services into care. However, the capability to appropriately respond when a screening result is positive requires planning, local capacity and resources, and follow-up. This issue was highlighted by Belhadj and colleagues (2013), who noted that although a site may have the capacity to integrate cervical cancer screening into routine services, follow-up for abnormal results with more specialized gynecological services is problematic.

When specialized services are available only within an urban setting or in only one location in a country, a client may need considerable resources to be able to complete the referral, which therefore may not be feasible. Furthermore, referral protocols and linkages are often weak, lacking adequate mechanisms for follow-up to ensure that the client has followed through with the referral.

Infrastructure: Changes to infrastructure that have resulted from the introduction of integrated programs are somewhat minimal, but still require resources. These include structural changes to accommodate client flow for the integrated program, such as expanding space available in medical records and increasing waiting room space.

ADDITIONAL CONSIDERATIONS

Focus on Patient Education: Patient education is integral to HIV prevention, care, and treatment. Included are education modules involving prevention with positives, positive living, nutrition, and adherence, among many other topics. NCD requires a similar approach, so that the patient fully understands how to monitor and control the illness. Patient education tools and approaches for HIV may be adapted to provide patient education for NCDs, whether in an integrated program or within a siloed approach (Rabkin and El-Sadr 2011a). The review found some innovative approaches among programs that have integrated the peer educator model to include both HIV- and NCD-related topics, including adherence to medicine, healthy lifestyle decisions, routine monitoring, and follow-up of clinical appointments.

Monitoring and Evaluation: HIV programs have made significant progress toward designing M&E mechanisms that report results and make programs accountable for outcomes as well as providing a tool for program design (Rabkin and Nishtar 2011b). These approaches may be adapted to encompass NCD program M&E, including designing standardized NCD indicators. Despite the diverse technical aspects of HIV and NCD programs, an integrated program will require a multi-sectoral approach to inform an integrated M&E approach to avoid duplicate reporting and to identify indicators for the program (Haregu et al. 2013).

Building upon Existing Systems and Tools: New systems and tools that were created as a result of the integrated programs were minimal, due to the nature of the preexisting programs. Some referral systems were enhanced to include linkages to care with multidrug-resistant tuberculosis (MDR TB) facilities as well as bidirectional linkages between lower-level facilities and home-based counselors in cases such as AMPATH, where new screening was occurring within the community. Other programs noted a reduced need for referrals because, previously, they provided referrals for HIV or NCD care, and in the integrated program model, such referrals are no longer necessary.

Similarly, defaulter tracing systems changed very little as a result of the integrated programs. MSF Cambodia reported using mobile phones to trace defaulters, concentrating more on clients on ART and less so on clients with NCDs. Mwanahamuntu et al. (2011) reported the use of cellular phones to bring clients into care who require follow-up after cervical cancer screening. AMPATH is in the process of creating a defaulter system in which community health workers will be trained to bring clients back into care.

New tools created as a result of the integrated programs varied. AMPATH initially attempted to create integrated client encounter forms, but stopped because providers were overwhelmed by the amount of information requested within a single form. Forms were eventually separated by HIV, hypertension, and diabetes. CIDRZ used the existing form for PHC services and adapted it to include an HIV component, while MSF maintained separate forms. CIDRZ created new patient education tools for the integrated program, including a series of drama scenarios related to the program, which were performed for community sensitization before the new integrated program

was implemented. Key informants mentioned that keeping systems and tools simple is a key element in the success of an integrated program.

SUSTAINABILITY CONSIDERATIONS

Two key informants noted that, for integration to be successful, HIV stigma must be addressed so that clients are more willing to access NCD services within a site that provides integrated HIV services. Where NCD services are integrated into an HIV program, the client may fear that being identified as HIV-positive. An additional challenge noted was the required transition of culture from one of episodic care to one of continuing care over a period of years or even a lifetime—which requires a large shift in health system planning as well as in the attitudes and actions of those providing direct client services. Chronic care requires providers to shift the focus of patient education to gradually build patients’ knowledge and capacity over time to make healthy lifestyle decisions throughout their lives.

The programs identified through the literature and key informant interviews have different approaches, which may impact sustainability. CIDRZ provides technical and logistical support directly to the MOH in Zambia, so the program is effectively owned by the government. Currently, the integrated program is funded by CIDRZ and uses a snowball approach to scale up to other facilities. While the threat to sustainability is diminished through working directly in the government clinics, any changes in the funding environment could have an impact on scale-up. Likewise, CCPZ has established the cervical cancer screening program so that its operations are integrated within the preexisting MOH program; in addition, nurses are trained to provide the Pap smear service and given additional financial incentive to do so by the program (Mwanahamuntu et al. 2011).

Because AMPATH is a collaboration between Moi University, Moi Hospital, and Indiana University, there is some stability of funding. However, AMPATH does rely on the Government of Kenya to support the program by allocating staff to the project. An issue that has arisen is that the government shifts clinicians and support staff to different sites, creating staffing and resource difficulties for AMPATH given its investment of considerable resources and time in training staff members in the integrated program. The remaining components of the program are considered sustainable, given that clients pay for services using a community revolving fund that pays for medical supplies and medications and maintains some staff.

MSF Kenya is currently working to address sustainability through further developing the current integrated model, which will be presented to the MOH to adopt. It is hoped that, with the government’s involvement and buy-in at this stage, the integrated model will be sustainable. The MSF Cambodia program also provided a promising example of HIV and NCD integration; however, there was no national policy for integration and little political will to move the program forward after MSF funding was complete. Ultimately, NCDs and HIV were managed in separate units within the MOH, and despite various meetings and trainings designed to work toward integration at the central level to enhance sustainability at the site level, the integrated clinics closed shortly after MSF’s withdrawal, illustrating that government buy-in and integration at the central level is critical to facilitating sustainable integrated programs.

CONCLUSION

As LMIC begin to address the burgeoning NCD epidemic, program planners and policy makers should look to the HIV response to determine an appropriate NCD response. While the evidence for integration of NCD and HIV programs is scarce, therein lies real potential to address the chronic care needs of those suffering from NCDs. Through use of HIV program approaches—such as defaulter tracing; use of community engagement and expert patients; case management; adapted tools and systems, including optimized supply chain management; and referrals and linkages—real and sustainable solutions for reducing NCD-related morbidity and mortality may be discovered (UNAIDS 2011). Furthermore, NCD and HIV integration may result in stronger health systems that can curb the NCD epidemic in parallel with the HIV epidemic, resulting in decreased disability, lives saved, and more efficient health systems, further enhancing development in LMIC.

REFERENCES

- Atun, R., S. Jaffar, S. Nishtar, et al. 2013. "Improving Responsiveness of Health Systems to Noncommunicable Diseases." *The Lancet* 381(9867):690–97.
- Belhadj, H., J. Rasanathan, L. Denny, and N. Broutet. 2013. "Sexual and Reproductive Health and HIV Services: Integrating HIV/AIDS and Cervical Cancer Prevention and Control." *International Journal of Gynecology and Obstetrics* 121:S29–S34.
- Chamie, G., D. Kwarisiima, T. Clark, et al. 2012. "Leveraging Rapid Community-based HIV Testing Campaigns for Noncommunicable Diseases in Rural Uganda." *PLOS One* 7(8):e43400.
- Chirenje, Z., M. Mwale, P. Nyamapfeni, et al. 2002. "Association of Cervical SIL and HIV-I Infection among Zimbabwean Women in an HIV/STI Prevention Study." *International Journal of STD and AIDS* 13(11):765–68.
- Emanuel, E. J. 2012. "PEPFAR and Maximizing the Effects of Global Health Assistance." [Editorial comment.] *Journal of the American Medical Association* 307(19):2097–100.
- Ezechi, O., C. Gab-Okafor, P. Ostergren, and K. Pettersson. 2013. "Willingness and Acceptability of Cervical Cancer Screening among HIV positive Nigerian Women." *BMC Public Health* 13:46.
- Haregu, T., B. Oldenburg, J. Elliot, and G. Setswe. 2013. Global Responses to HIV/AIDS and Noncommunicable Diseases: Analysis of Similarities and Differences." *British Journal of Medicine and Medical Research*. 3(2):442–65.
- Hogerzeil, H., J. Liberman, V. Witz, et al. 2013. "Promotion of Access to Essential Medicines for Noncommunicable Diseases: Practical Implication of the UN Political Declaration." *The Lancet* 381:680–9.
- Hoine, J. Personal Communication, April 2013.
- Janssens, B., W. Van Damme, B. Raleigh, et al. 2007. "Offering Integrated Care for HIV/AIDS, Diabetes and Hypertension within Chronic Disease Clinics in Cambodia." *Bulletin of the World Health Organization* 85:880–5.
- Janssens, B. Personal Communication, April 2013.
- Kalra, S., B. Kalra, N. Agrawal, and A. G. Unnikrishnan. 2011. "Understanding Diabetes in Patients with HIV/AIDS." *Diabetology and Metabolic Syndrome*. 3(2):2–7.
- Lampthey, P. 2012. "HIV and CVD Integration." Presentation at the International AIDS Society Conference, Washington, DC, July 22–27. Available at http://www.iasociety.org/Web/WebContent/File/health_VA_session4_lampthey.ppt.
- McCree-Hale, R., D. Spiegelmann, E. Aris, et al. 2011. "Making the Case for Better Integration of Cervical Cancer Screening and Treatment for HIV-infected Women Attending Care and Treatment Clinics in Dar es Salaam, Tanzania." Presentation at the 13th International Conference on Malignancies in AIDS and Other Acquired Immunodeficiencies, Bethesda, MD, November 7–8.
- Mwanahamuntu, M., V. Sahasrabudde, K. Pfaendler, et al. 2009. "Implementation of 'See-and-Treat' Cervical Cancer Prevention Services Linked to HIV Care in Zambia." *AIDS* 27:23(6)N1–N5.

- Mwanahamuntu, M., V. Sahasrabudde, S. Kapambwe, et al. 2011. "Advancing Cervical Cancer Prevention Initiatives in Resource-constrained Settings: Insights from the Cervical Cancer Prevention Program in Zambia." *PLOS Medicine* 8(5): e1001032.
- Mwangemi, F., and P. Lamptey. 2010. "Integration of HIV and CVD Services in Kenya." Presentation at the HIV and Health Systems IAS Pre-Meeting, Vienna, July 16–17.
- Nigatu, T. 2012. "Integration of HIV and Noncommunicable Diseases in Health Care Delivery in Low- and Middle-income Countries." *Preventing Chronic Disease* 9:E93.
- Perriens, J. 2010. "The Growing Global Burden of Noncommunicable Diseases: Implications for Health Systems." Presentation at the International AIDS Society Conference Pre-Meeting, Vienna, July 16–17. Available at <http://www.iasociety.org/Default.aspx?pagelid=427>.
- Rabkin, M., and W. El-Sadr. 2011a. "Why Reinvent the Wheel? Leveraging the Lessons of HIV Scale-up to Confront Noncommunicable Diseases." *Global Public Health* 6(3):247–56.
- Rabkin, M., and S. Nishtar. 2011b. "Scaling Up Chronic Care Systems: Leveraging HIV Programs to Support Noncommunicable Disease Services." *Journal of Acquired Immune Deficiency Syndrome* 57(S2):87–90.
- Rabkin, M., Z. Melaku, K. Bruse, et al. 2012. "Supporting Health Systems for Chronic Care: Leveraging HIV Programs to Support Diabetes Services in Ethiopia and Swaziland." *Journal of Tropical Medicine* article ID 137460.
- Smart, T. 2011. "HIV and Noncommunicable Diseases." [Web page.] London: National AIDS Manual/AIDSmap. Available at <http://www.aidsmap.com/HIV-and-noncommunicable-diseases-NCDs/page/2094965> (accessed February 13, 2014).
- Topp, S. M. Personal Communication. April 2013.
- Topp, S. M., J. M. Chipukuma, M. Giganti, et al. 2010. "Strengthening Health Systems at Facility-Level: Feasibility of Integrating Antiretroviral Therapy into Primary Health Care Services in Lusaka, Zambia." *PLoS ONE* 5(7):e11522.
- United Nations Joint Programme on HIV/AIDS (UNAIDS). 2011. *Chronic Care of HIV and Noncommunicable Diseases: How to Leverage the HIV Experience*. Geneva: UNAIDS. Available at http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/20110526_JC2145_Chronic_care_of_HIV.pdf.
- U.S. Centers for Disease Control and Prevention (CDC). 2011. "The Problem of Noncommunicable Diseases and the CDC's Role in Combating Them" [Web page.] <http://www.cdc.gov/globalhealth/ncd/overview.htm>.
- Vandenbulcke, A. Personal Communication. April 2013.
- WHO [World Health Organization]. 2011a. *Noncommunicable Diseases: Country Profiles*. Geneva: WHO. Available at http://whqlibdoc.who.int/publications/2011/9789241502283_eng.pdf.
- WHO. 2011b. *Global Status Report on Noncommunicable Diseases 2010*. Geneva: WHO. Available at http://www.who.int/nmh/publications/ncd_report_full_en.pdf.
- WHO. 2011c. "Health Topics: Chronic Diseases." [Web page.] http://www.who.int/topics/chronic_diseases/en/.
- WHO. 2012. *65th World Health Assembly Document A65/54: Second Report of Committee A*. Geneva: WHO. Available at http://apps.who.int/gb/ebwha/pdf_files/WHA65/A65_54-en.pdf.

ANNEX A.

NONCOMMUNICABLE DISEASE AND HIV ELECTRONIC INTEGRATION SURVEY

According to the World Health Organization, chronic NCDs, such as diabetes, cancer, and respiratory and cardiovascular disease, account for 29 million deaths per year in low- and middle-income countries (WHO 2011). While HIV care and treatment has been scaled up successfully, insufficient investment has been made to meet the growing needs of people living with NCDs or the non-HIV needs of PLHIV. To address this deficit, WHO has called for a paradigm shift from an acute, episodic, and often fragmented model of health care to one that encompasses the needs of those who are living with chronic diseases. Integration of service delivery for NCDs and HIV has been proposed as a key strategy within that paradigm shift.

Supported by PEFAR through USAID, AIDSTAR-One is conducting key informant interviews with health care providers and program managers in countries where integrated delivery of HIV and NCD care is occurring to provide practical examples of service delivery integration. The final product of these interviews will include a report summarizing models of care, best practices, and lessons learned to inform other program planners interested in NCD and HIV services integration.

This survey will take part in two phases; this brief online survey, which will take approximately 20–30 minutes of your time, will be followed by a more in-depth, qualitative telephone interview that will take approximately 45 minutes of your time. We thank you in advance for your responses, as they will help inform USAID and PEPFAR’s work in the area of NCD and HIV service integration.

Do you agree to participate in this interview? If yes, would you like your name and/or agency to be included in the acknowledgments of the overview report? This report will be posted on AIDSTAR-One’s website and be widely disseminated.

Mark one: Yes/No

Section 1: Background Information

1. Please confirm your name, title, and agency/organization.
2. Is your program currently providing NCD services integrated with HIV services?
 - Yes
 - Not any longer
 - Please indicate the number of years your agency/organization has provided or provided in the past integrated NCD and HIV services: _____
3. Are there national policies and guidelines available for NCDs—diabetes, cardiovascular disease, etc.? Please describe them.

[If yes]

- Do you utilize them in your program? Why or why not?
- Are there national guidelines for the integration of NCDs with HIV care?

Section 2: Program Design

1. What is the specific model of NCD/HIV integration at your site?

Please circle one:

- HIV and NCD services are offered during the same appointment by the same provider
- HIV and NCD services are offered during the same appointment by different providers
- HIV and NCD services are offered separately at the same facility
- HIV and NCD services are offered separately at nearby sites with a referral system
- HIV and NCD services are offered separately in the same community with a referral system
- Using integrated tools across different clinics
- Other (please describe)_____

Section 3: Monitoring and Evaluation

1. How are you monitoring your integrated program?

What work was required to put this into place?

2. Do you report any new or adapted indicators due to the integrated program?

[If yes] Please describe.

3. Was any additional M&E training required for the integrated program?

[If yes] Please describe.

4. Have you received any national guidance for reporting on indicated indicators?

[If yes] Please describe.

5. Are you measuring outcomes or impact of the program?

[If yes] Describe which.

6. Have you noted any improvements in outcomes since beginning the integrated program?

- Retention rates_____
- Adherence_____
- Mortality_____
- Hga1c_____
- Other outcomes_____

7. Can you share any of this data with us?

[If yes] Please attach in email.

ANNEX B.

NONCOMMUNICABLE DISEASE AND HIV INTEGRATION TELEPHONE SURVEY

According to the World Health Organization, chronic NCDs, such as diabetes, cancer, respiratory, and cardiovascular disease, account for 29 million deaths per year in low- and middle-income countries (WHO 2011). While HIV care and treatment has been scaled up successfully, insufficient investment has been made to meet the growing needs of people living with NCDs or the non-HIV needs of PLHIV. To address this deficit, the WHO has called for a paradigm shift from an acute, episodic, and often fragmented model of health care to one that encompasses the needs of those who are living with chronic diseases. Integration of service delivery for NCDs and HIV has been proposed as a key strategy within that paradigm shift.

Supported by PEPFAR through USAID, AIDSTAR-One is conducting key informant interviews with health care providers and program managers in countries where integrated delivery of HIV and NCD care is occurring to provide practical examples of service delivery integration. The final product of these interviews will include a report summarizing models of care, best practices, and lessons learned to inform other program planners interested in NCD and HIV integration.

This survey is a follow-up to the electronic survey that you responded to. This should take approximately 45 minutes of your time. During the interview, if any questions are unclear or you do not understand, please let me know. We thank you in advance for your responses, as they will help inform the work of USAID and PEPFAR's work in the area of NCD and HIV service integration.

Taking part is your choice; you can choose not to answer any of the questions or ask me to stop at any time. If you have any questions, you may ask them now before you agree to participate.

Do you agree to participate in this interview? If yes, would you like your name and/or organization to be included in the acknowledgments of the overview report? This report will be posted on AIDSTAR-One's website and be widely disseminated.

Circle one: Yes/No

Section 1: Background Information

1. Please confirm your name, title, and agency/organization.

Section 2: Program Design

2. Describe your integrated care clinic model.

Probe:

- Where does a client go when they arrive for an appointment?
- And where do they go after that?

Probe: Until the client has completed the appointment (flowchart).

- How are patients diagnosed with HIV and referred?

Probe:

- How are referrals from your facility to other types of services done?
- Which days of the week and hours are integrated services offered?
- What is the setting of the clinic?

- Rural
- Semi-rural
- Urban

3. What is the total range of NCD services that you provide?

- Diabetes
- Screening
- Treatment
- Foot checks
- Neurological examinations
- Eye examinations
- Other_____
- Cardiovascular disease
 - Blood pressure screening
 - Blood pressure treatment
 - Cholesterol screening
 - Cholesterol treatment
 - Other_____
- Respiratory Disease
 - Screening
 - For which disease(s)_____
 - Treatment
 - For which disease(s)_____
 - Other_____
- Cancer
 - Screening
 - Type of screening_____
 - Treatment
 - Treatment for which type(s) of cancer_____
 - Other_____
 - Other category not mentioned above
 - Please describe: _____

4. Did you follow another program's strategy when designing this program?

[If yes] Which model?

5. Why did you decide to integrate your programs?

Probe:

- Financial reasons
- Improved quality
- Noticed high rates of a certain disease in HIV patients or high rates of HIV in a patient population with a certain disease. (Specify disease)_____
- Other_____

Section 3: Systems and Tools

1. What new systems have you created or adapted as a result of the integrated program?

Probe:

- Referral systems [If yes] please describe_____
- Defaulter tracing [If yes] please describe_____
- Appointment system [If yes] please describe_____
- Supply chain management systems [If yes] please describe_____
- Laboratory systems [If yes] please describe_____
- Pharmacy [If yes] please describe_____
- Other_____

2. What are the largest challenges that you have encountered in your systems with integration?

3. What lessons have you learned from this?

4. What do you recommend for other program planners encountering similar system challenges?

5. What new tools have you created or adapted as a result of the integrated program?

Probe:

- Adherence tools [If yes] please describe_____
- Medical records [If yes] please describe_____
- Medical forms [If yes] please describe_____
- Registers [If yes] please describe_____
- Job aids [If yes] please describe_____
- Patient education tools [If yes] please describe_____
- Other_____

6. What are the largest challenges that you have encountered with your tools created for integration?

7. What lessons have you learned from this?

8. What do you recommend for other program planners encountering similar challenges with integration tools?

Section 4: Human Resources

1. Did the integrated program require hiring new staff persons?

[If yes] Which cadres?

2. What types of trainings were required prior to starting the integrated program and for which cadres?

3. Do you provide refresher trainings for staff on integrated services?

4. Have you at any point provided supportive supervision or mentorship following training for staff?

[If yes] Please describe.

5. What are the main human resource challenges with the integrated program?
6. What have you learned from this?
7. What are promising practices to overcome these human resource challenges?

Section 5: Financing

1. How is your program financed?
2. Do you receive funding from separate sources for the integrated programs?

[If yes] Probe:

- What have been the challenges with this?
- What lessons have you learned from this?
- What do you recommend for other program planners with separate funding sources for their integrated program?

Section 6: Monitoring and Evaluation

(Review information from online survey and fill in any remaining gaps below; request data if it has not yet been received.)

1. How are you monitoring your integrated program?

Probe:

What work was required to put this into place?

- Do you report any new or adapted indicators due to the integrated program?

[If yes] Please describe.

- Was any additional M&E training required for the integrated program?

[If yes] Please describe.

- How do you measure and ensure the quality of your integrated program?
- Have you received any national guidance for reporting on indicated indicators?

[If yes] Please describe.

2. Are you measuring outcomes or impact of the program?

[If yes] Describe which.

3. Have you noted any improvements in outcomes since beginning the integrated program?

Probe:

- Retention rates_____
- Adherence_____
- Mortality_____
- HgbA1C_____
- Other outcomes_____

4. Can you share any of this data with us?

[If yes] Request electronic copy.

Section 7: Infrastructure

1. What, if any, infrastructure changes were required as a result of the integrated program?

Section 8: General Guidance

1. Do you know of any other programs that are carrying out integrated NCD and HIV services?

[If yes] Can you please provide contact information for them?

2. Have you developed any integrated protocols that you can share with us?
3. What changes or adaptations have you made to the program over time as it has grown?
4. Has your program been replicated?

[If yes] Please describe.

5. What would it require to scale up your program within your site or to other sites?
6. What are the threats to sustainability of your program and how have you overcome them?
7. What have generally been the greatest challenges that you have encountered in designing, implementing, and monitoring the integrated program?
8. What are the greatest lessons learned throughout this experience?
9. What are the most promising practices you have gathered from this experience that may be helpful to other program planners?

For more information, please visit aidstar-one.com.

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