Discussion paper on how to promote the inclusion of the prevention and control of noncommunicable diseases within other programmatic areas

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1. Introduction

1.1 Background

Despite the improvements achieved in health during the past 50 years, many low- and middle-income countries still face a large and evolving disease burden. There is a substantial unfinished agenda on infectious diseases such as malaria, HIV and tuberculosis (TB); nutritional disorders; and maternal and childhood illnesses, which continue to account for substantial morbidity and premature mortality in low- and middle-income countries. In low-income countries, communicable diseases continued to be responsible for the top five causes of death in 2011 (1).

Meanwhile, noncommunicable diseases (NCDs) have gradually emerged as a significant cause of death and disability in all countries and in the near future will become the main causes of both morbidity and mortality in all low- and middle-income countries. The major NCDs are cardiovascular diseases, diabetes, cancers and chronic respiratory diseases. Other major NCDs are injuries and mental illness. In 2011 in these countries, ischaemic heart disease, stroke and chronic obstructive pulmonary disease constituted three of the top five causes of death (1).

Nevertheless, the most established public health responses in low- and middle-income countries continue to address communicable diseases such as HIV, TB and malaria, as well as sexual and reproductive health and maternal and child health services. For example, in 2010, the Government of the United States of America allocated only US$ 10.8 million of more than US$ 8 billion in global health aid to NCDs in 2010 (2).

The recent Ebola virus outbreak in West Africa served as a reminder of the threat emerging diseases pose not only to health but also to fragile health systems and the economies of countries in the region. Similarly, health systems in many low- and middle-income countries are inadequate to respond to the significant and rapidly growing NCD epidemic.

While we continue to reduce infant, child and early adult mortality, there is an increasing burden of premature mortality (death at age less than 70 years) in adults from NCDs. We are saving our younger population from premature death from communicable diseases only for them to die prematurely from noncommunicable diseases.

There are several compelling reasons to integrate NCD responses into other health programmes:

- The underlying determinants of the major health challenges are similar and synergistic.
- The key beneficiaries of health services are often the same.
• Integration can minimize duplication of scarce resources and inputs and promote efficiency.
• Integration can improve the effectiveness of outcomes.
• As realized through the integrated and indivisible Sustainable Development Goals, NCD integration can enhance the sustainability of health, social and environmental goals more broadly.

The purpose of this discussion paper is to promote the inclusion and harmonization of the prevention and control of NCDs within other programmatic areas, including responses to HIV/AIDS and programmes for sexual and reproductive health and maternal and child health, in order to support governments in the implementation of the World Health Organization (WHO) Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2020. The terms of reference are described in detail in Annex 1.

1.2 Defining integration

Integration can be defined as the “management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system” (3).

Integration of health services is once again a topical issue, largely because of the rise of single-disease funding and recognition of the fact that the health Millennium Development Goals and now Sustainable Development Goals will not be met without fundamentally improving health systems (3). Bolstering the response to NCDs is reflected in a number of Sustainable Development Goals. For example, NCD integration is inherent in goal 3, “Ensure healthy lives and promote well-being for all at all ages”. Similarly, it is an important factor in reaching goal 8, “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”. Sustainable, equitable growth requires a healthy population that has access to and can contribute to a healthy economy.

For this discussion paper, integration is defined more narrowly as “the integration of health services for the major causes of NCD mortality (cardiovascular diseases, cancer, chronic respiratory diseases and diabetes) into existing programme areas in health such as HIV, maternal and child health, sexual and reproductive health and community-based primary health care services”. The definition could be broadened to include the other major causes of NCD morbidity, such as mental and substance abuse disorders and injuries. Since NCDs have multisectoral risk factors and determinants, it is essential to strive for integration across other sectors outside health, such as nutrition, education, gender, trade and industry, and environment considerations should also be addressed.

For NCD integration to be effective, it should be reflected not only across the health system
but also within other sectors relevant for the prevention and control of NCDs. This means that NCD integration is addressed in health policy and national health strategies and is also integrated into cross-sectoral national development strategies, and has resources allocated for implementation. NCD integration must be included in logistics and supply systems, and incorporated into routine supervision, pre-service and in-service training, and monitoring and evaluation. Moreover, NCD programming should span all levels of health services: tertiary, secondary, and primary care levels, including the community level. Finally, cross-sectoral programmes, such as youth and gender programmes, should be considered as potential opportunities for NCD integration.

While NCD integration should be as extensive as possible, prioritization and implementation will be unique to each country. National and health system requirements will inform specific models of NCD integration; health system resources, prevalence of disease types, available services, and what is rational and feasible for the setting are key considerations. Integration of NCD services has the potential to lead to efficiencies and benefits for patients (Box 1), including combined services that result in the coordinated management of patient illnesses at the same visit. Integration can also lead to the extension of services to underserved areas and additional services to existing areas. Moreover, integration may result in time and cost savings for the patient, and can help address such problem areas as lost wages and out-of-pocket expenses for transportation. Patient-centred approaches can also lead to self-empowerment and self-management.

<table>
<thead>
<tr>
<th>Box 1. Potential client and health system efficiencies</th>
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<tr>
<td>• Patient-centred versus disease-centred services</td>
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<td>• Time savings for patient consultation and other services</td>
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<td>• Multi- and co-morbidities can be addressed at same visit</td>
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<td>• Cost savings for patient, for example with regard to lost wages and out-of-pocket expenses for transportation</td>
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<td>• More efficient use of resources</td>
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<td>• Synergistic management of patient symptoms</td>
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<td>• Opportunity for integrated health screening, for example HIV, blood pressure</td>
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<tr>
<td>• Improved self-management and self-empowerment of patient</td>
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<td>• Reduced client dropout, reduced stigma of health-seeking behaviour</td>
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<td>• Improved prospects for long-term health system sustainability</td>
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<td>• Reduces stigma associated with specific disease programmes (for example HIV)</td>
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In a recent multicountry survey of integrated health programmes that focused on specific
integration programmes in low- and middle-income countries across Africa, Asia and Latin America, all 10 countries used similar decision-making criteria to identify and decide which services to integrate and how best to organize integration (4). However, these decisions were found to be very context specific in regard to national and subnational conditions. The assessment also identified three different integration models: (a) “one-stop shops”, where all services are provided by the same provider in the same location; (b) co-location of services, where services are located at the same facility, usually offered by different providers; and (c) a health integration model not encompassed by one of the above models.

Respondents noted that multiple integration models were being used effectively and in a mixed fashion as a means to implement and operationalize integrated service delivery. The report however noted that there was a lack of indicators to measure integration, especially by the government. More work is needed to understand what data on integration or integrated packages should be collected and how the data can be used for project monitoring and evaluation.

1.3 Evidence-based integration

Key health interventions such as immunizations, antiretroviral therapy, prevention of mother-to-child transmission (MTCT) of HIV, voluntary medical male circumcision to reduce sexual transmission of HIV, and family planning are backed by solid scientific evidence and have been proven to be effective at the national and global levels.

The idea of integrated health services is not new – indeed, it was the basis for the focus on primary health care in the 1980s. Traditionally, the rationale for health service integration is that (a) the underlying determinants of most health problems are similar and synergistic; (b) beneficiaries of various health programmes are often one and the same; (c) it could minimize duplication of scarce resources and inputs; and (d) it could bolster the effectiveness of multiple health outcomes.

Despite this strong rationale for integration of health programmes, how do we know whether our past efforts at integration have been effective and cost-efficient? Unfortunately, to date, a large proportion of these interventions appear to have been launched based on hypotheses rather than credible evidence of effectiveness. They are often driven by what we believe is logical or needed, what will appeal to funders, or what is popular.

A 2007 Cochrane Systematic Review of integration concluded: “Few studies of good quality, large and with rigorous study design have been carried out to investigate strategies to promote service integration in low- and middle-income countries. All describe the service supply side, and none examine or measure aspects of the demand side. Future studies must also assess the client’s view, as this will influence uptake of integration strategies and their effectiveness on community health” (5). Client satisfaction can be an important tool to
inform decision-making and management and highlight opportunities to reduce cost, and improve service utilization and quality of services. Clients’ views can be measured through qualitative or quantitative methods, depending on the context and indicators to be measured. Common methods include focus group discussions, structured or open interviews, participant observations and self-administered surveys.

Evidence-based and well-designed integrated health programmes should reach recipients at the community level; should be synergistic and minimize duplication; should improve effectiveness and uptake of services; and should enhance the sustainability of development solutions. If this is the case, then we are missing unique opportunities to leverage interventions within health and other sectors that would have a synergistic impact on the effectiveness of single programme or sector outcomes. Examples of integrated solutions include screening for blood pressure, cholesterol and blood sugar in sexual and reproductive health and family planning clinics; monitoring body mass index throughout childhood and adolescence in schools; screening and management of hypertension and diabetes at primary health care clinics and HIV clinics; and depression screening and treatment in antenatal care, sexual and reproductive health, primary health care, and HIV clinics. Much less clear though is how best to achieve improved outcomes through strategically integrated programmes, deliberately designed to leverage those linkages and synergies. Equally challenging is how to determine effectiveness and attribution in complex programmes with multiprogramme components.

An often critical problem with integration is the lack of adequate funding to promote integration – it is unreasonable to believe that we can do more in an integrated programme but with less resources. In our experience, integration of NCD services into other programme areas often requires additional resources for the following, at least in the short term: (a) training of providers in NCD screening, diagnosis and management; (b) provision of equipment such as blood pressure monitors and weighing scales; (c) additional staff for the increased workload; (d) laboratory reagents for NCD tests; (e) procurement of NCD drugs in pharmacies and dispensaries; and (f) monitoring and evaluation of the integration. We also need to use evidence to decide what to integrate and what not to integrate – intuition is not the solution. Priority must be given to outcome-based evaluation, as this is critical to ensure successful integration on a large scale.

2. **Valuable lessons from the HIV response**

Over the last 25 years, the global, national and community responses to the HIV/AIDS epidemic have provided valuable lessons that can be applied or leveraged for the NCD response. With the scale-up of highly effective, life-extending antiretroviral therapy, HIV infection has become a chronic condition that requires daily treatment for life. Many
low- and middle-income countries have already developed and scaled up HIV prevention, care and treatment programmes employing intersectoral approaches. These long-term HIV treatment programmes serve as local and effective models that can be emulated, adapted and expanded for other chronic conditions (6–8). NCD management can be integrated into these systems that have been strengthened by HIV investments.

2.1 International, national and community leadership

The first key lesson is the critical role of international, national and community leadership and cooperation in achieving a coordinated and broad-based national response (6). As with HIV, the NCD response must start with national leadership of country-owned and country-managed strategies and programmes. The HIV/AIDS response has led to improved elements of the six key health system components identified in the WHO Health Systems Framework: health financing, governance, health workforce, health information, medical products and technologies, and health service delivery. Furthermore, the HIV response demonstrates that in order to develop sustainable and effective programmes, community health infrastructure must be strengthened.

Community-based programmes have been generally successful at reaching the most at-risk and vulnerable populations with HIV services such as counselling and testing, prevention, care and treatment. These community platforms could be adapted for the NCD response as well.

The NCD response can leverage infrastructure, planning and management mechanisms, such as (a) lessons learned in multisectoral strategic planning and implementation, governance, resource mobilization, application of a human rights approach, community mobilization and an enhanced role for civil society; (b) valuable facility-based and community-based service delivery platforms on which a more integrated and horizontal response can be built; and (c) existing expertise in how to deliver effective and rapid health care in resource-poor settings, such as programme scale-up, programme outreach and chronic disease management (6). In addition to HIV, there are other health and development platforms, such as sexual and reproductive health and maternal and child health services, that offer similar opportunities to apply the principles described here of building on existing platforms at the country level.

2.2 Critical need for a multisectoral national coordination mechanism to coordinate policy and planning

The breadth of the determinants and the populations at risk of NCD necessitate that any control effort involve integrated health service approaches as well as multisectoral coordination. Facing a similar need for broad coordination, most countries with a large
The burden of HIV have developed a high-level, whole-of-government, multisectoral committee or team for the HIV response, which coordinates policy, management and resource allocation. A national coordinating mechanism of this kind has been widely recommended as part of the national strategies for NCD control, and would prove invaluable for NCD integration within other health services and sectors. Rather than reinventing the wheel, these coordination mechanisms could be adapted for the equally multisectoral NCD response. The lessons learned from the successes – and the difficulties – in implementing this kind of coordination to address HIV can inform the response to NCDs. In addition, the planning experience and insights that have been gained at the country level by leaders in the response to HIV are critical resources to apply valuable lessons and to help improve the policy- and decision-making environment for NCD integration and control.

2.3 Engaging nongovernmental stakeholders as partners in the response

In addition to working across government, among the most valuable aspects of the response to HIV is the extensive and successful participation of civil society and the private sector. In many countries, the coordination of the HIV response involves soliciting and incorporating the input of various nongovernmental stakeholders in setting priorities for planning the response and allocating limited resources. The participation of stakeholders in civil society has also created an invaluable platform for public–private partnerships in the health and development response. Both international and local nongovernmental organizations have been at the forefront of the HIV response and would be equally valuable partners in the NCD response. Their unique role includes advocacy, especially at the national and community levels, resource mobilization, programme implementation, enhancing the participation of the community and serving as watchdogs of the response. Another valuable opportunity is the extensive civil society experience in reaching the most at-risk, vulnerable populations with HIV. Community-based organizations can play an important role in targeting populations at risk of and vulnerable to NCDs, especially those who may not be accessing health services.

2.4 Integration of NCD services into existing HIV service delivery platforms

One critical component of a successful national NCD response is a facility- and community-based health delivery system that can effectively ensure access to quality affordable services. The existence of relatively well-developed delivery systems in low- and middle-income countries to address HIV offers a unique opportunity for the integration of relevant components of NCD services. The potential benefits of such integration efforts include:
• a more diagonal or horizontal health service delivery platform that is more affordable and sustainable in low-income countries, made possible by leveraging existing primarily vertical platforms for the delivery of multiple services;
• time and cost savings for clients by establishing a one-stop shop for health services, as compared to the current system of multiple, duplicative and costly health service visits;
• reduced duplication and improved cost-efficiency of the health workforce, service infrastructure, management and financial resources;
• enhanced promotion of country ownership with the development of country-driven and country-led health systems for multiple disease burdens.

3. Integration of NCDs within HIV programmes

Unprecedented investments have been made to strengthen health systems to prevent and treat HIV infection. In 2015, global funding for HIV in low- and middle-income countries was US$ 20 billion, and 15 million people were on antiretroviral therapy globally. HIV infection is now a chronic condition requiring lifelong treatment, and with the latest WHO recommendation to treat HIV infections even earlier, millions more are likely to be on antiretroviral therapy for a substantial part of their lives. As a result of effective and affordable therapies, people with HIV are living longer – long enough for genetics and lifestyle to increase their risk to NCDs. The valuable lessons learned in the HIV response can be adapted for the management of NCDs in people with HIV and well as in the general population.

FHI 360 has developed an approach that builds on the HIV cascade model to prevent and treat NCDs (see Table A1.1 in Annex 1). As the treatment options for HIV have expanded and improved, management approaches have transitioned from acute, emergency care to chronic care. Through experience, we have learned that chronic care management for HIV is a platform that can be leveraged to integrate NCD services that are otherwise lacking. The similarities in prevention, detection, care and long-term management of HIV and NCDs highlight such opportunities.

Based on our experiences in Kenya, Zambia, Nigeria, Viet Nam and in other countries in East Africa, NCD and HIV service integration is both feasible and acceptable in resource-limited settings.

4. Rationale for the integration of NCDs within health services for women

The major causes of morbidity and mortality in women in low- and middle-income countries are biologically, epidemiologically and socioeconomically interrelated. In many countries,
HIV and other infectious diseases; NCDs, including mental disorders and their risk factors; and sexual and reproductive disorders are major and synergistic causes of morbidity and mortality in women. Gounder and Chaisson (9) describe the interrelationships between these disease burdens in women:

- Smoking, second-hand smoke, obesity and diabetes during pregnancy are associated with pre-eclampsia, spontaneous abortion, stillbirth, congenital anomalies, macrosomia, obstructed labour, and need for caesarean delivery.

- HIV increases the risk of active TB, exacerbates the severity of malaria, and increases the risk of some NCDs, including AIDS-associated cancers (for example Kaposi sarcoma and cervical cancer) and cardiovascular diseases.

- TB, the biggest killer of HIV-infected persons, (a) increases the risk of MTCT of HIV in pregnant women co-infected with TB and HIV; (b) in the presence or absence of HIV infection may lead to poor pregnancy outcomes; (c) may be transmitted vertically; and (d) may worsen glycaemic control in diabetics.

- Malaria/HIV co-infection leads to poor pregnancy outcomes, including increased risk of MTCT of HIV. Diabetics are at a threefold higher risk for TB non-diabetics postpartum haemorrhage and risk of neonatal mortality and diabetes in the offspring.

- Many of the common medications prescribed for women interact, most notably: hormonal contraceptives; antiretroviral therapy, TB drugs; most antimalarials; or diabetes drugs and drugs for hyperlipidemia. Some medications are contraindicated during pregnancy: artemisinin combination therapies during the first trimester, and angiotensin-converting enzyme inhibitors for hypertension.

Women face numerous barriers to accessing health care even before attempting to navigate fragmented health service and referral systems. Furthermore, referrals between services and facilities will always suffer from loss to follow-up. An integrated one-stop shopping approach to service delivery that is centred on women and their families has already been used by MTCT-Plus programmes and should be expanded to encompass other diseases of epidemiological importance to women (9). Integration of NCD with HIV, sexual and reproductive health, maternal and child health and other relevant diseases offers a unique opportunity to address these multiple co-morbidities and linkages in women more efficiently and effectively. Box 2 summarizes some of the key synergies between NCDs and their risk factors and sexual and reproductive health.
Box 2. Sexual and reproductive health and NCD synergies

- Gestational diabetes is a risk factor for type II diabetes.
- Hypertension in pregnancy is a risk factor for later hypertension.
- Obesity is a risk factor for both pregnancy and NCDs.
- Smoking and alcohol intake are risk factors during pregnancy.
- Women are more at risk of smoke inhalation from cookstoves.
- Women (at sexual and reproductive health contacts) are often a captive audience for screening and targeting of interventions.
- Opportunities exist for screening and early treatment for breast cancer, cervical cancer, hepatitis C virus, depression.

4.1 Integration of NCDs within sexual and reproductive health services

NCDs have been the leading causes of death among women globally for at least the past three decades and are now responsible for two in every three deaths among women each year (11). This burden is expected to increase substantially in the coming decades, especially in low- and middle-income countries, because of a combination of factors, primarily the “ageing” of the population, improvements in maternal health in low- and middle-income countries, and a projected increase in smoking, obesity and other risk factors for NCDs among women (12).

Several enduring myths have contributed to the neglect of NCDs in women (13). First, there is a strong and persistent view that only health-related issues of importance to women are defined through their reproductive capacity (14), yet two thirds of all deaths and disabilities in women relate to chronic diseases, violence and other injuries. This myth in particular reflects a gender bias (15). Second, NCDs, especially cardiovascular diseases, have been considered primarily as diseases of men. Although age-specific NCD death rates in women lag behind the rates in men by about 10 years, the absolute number of NCD deaths in women (16.2 million) is similar to that of men (18.4 million) because women live longer – on average, between six and eight years longer (16). The third myth is that NCDs in women are an issue only in high-income countries. In fact, most NCD deaths in women occur in low- and middle-income countries, and the rates in these countries are much higher than in wealthy countries. The fourth and most distressing myth is that NCDs cause deaths only in older people and “we have to die of something, so why bother with complicated conditions like NCDs” (12).

Both NCDs and sexual and reproductive health share important risk factors, linkages and synergies, such as obesity, tobacco smoking and secondary smoking, gestational diabetes, hypertension in pregnancy, human papillomavirus and cancer of the cervix. Integration of
NCDs within sexual and reproductive health services is important in addressing the synergistic needs of women. Table A1.2 in Annex 1 illustrates the synergies and linkages in the integration of NCDs within sexual and reproductive health services.

4.2 Integration of NCDs into maternal and child health services

Since maternal and child health services are often the primary point of contact with most women, it is important that these services offer screening, early diagnosis and treatment where feasible, or referral for selective NCDs such as cardiovascular diseases, diabetes, asthma and some cancers (see Table A1.3 in Annex 1).

A community-based nurses programme in Ethiopia offers such opportunities. The availability of 3000 trained community-based health providers offers the unique opportunity to provide much needed NCD services close to the community.

In another example, the Community-based Hypertension Improvement Project in Ghana offers screening and monitoring of NCD risk factors as well as prevention services through maternal and child health service delivery points (via community health officers) and private drug outlets at the community level. Community-based cardiovascular nurses provide treatment for moderate uncomplicated hypertension with referral to district level when needed. The programme involves a walk-in system for free screening of all adults for hypertension at maternal and child health clinics and private drug outlets.

5. Role of innovation in integration

Innovation can be defined as “the intentional introduction and application of ideas, processes, products or procedures, designed to significantly benefit the individual, the group, or wider society” (17). Lansisalmi et al. 2006 captures the three most important characteristics of innovation: (a) novelty, (b) an application component and (c) an intended benefit (18). In line with this definition, innovation in health care organizations are typically new services, new ways of working or new technologies. Most health systems and programmes in low- and middle-income countries are inadequately funded and are plagued by workforce shortages and inefficiencies in service delivery. If we are to be successful in the integration of NCD services into existing health programmes, we would need evidence-based, patient-centred, technology-enabled, cost-effective and sustainable health care innovations that improve health care delivery and health outcomes, especially in underserved populations, and represent cost-effective solutions in low-resource settings.

While innovation to improve health systems and health outcomes should be encouraged, the usefulness, applicability, effectiveness and affordability of the innovation must be ensured. Ideally, innovation should demonstrate attributes in at least one of the following applications: product innovation, process innovation, marketing innovation and
organizational innovation. For the innovation to have impact on a larger scale, there should also be a mechanism for diffusion of the concept.

The Ghanaian Community-based Hypertension Improvement Project illustrates the application and testing of innovation in an integrated NCD programme within a community-based primary health care programme. The innovations being tested in the programme include task shifting and several technological applications:

- screening and monitoring for NCD risk factors by private drug outlets and community health officers;
- use of tablets for diagnosis, treatment, data collection and information management;
- diagnosis, treatment and follow-up of moderate, non-complicated hypertension by community-based cardiovascular nurses and referral when needed;
- telemedicine for improved management of patients, consultation and access;
- use of a cloud-based patient monitoring system for case management, sharing health information, research and management;
- use of SMS messages for patient education, appointment reminders and treatment adherence support.

While it is tempting to see technology and other innovations as the answer to health care problems, solutions lie not in new tools themselves but in how skilfully, reliably and creatively health care providers and their patients can make use of them. Research and innovation are vital in improving quality and equitable health systems, achieving universal health coverage and improving health outcomes, especially in underserved populations.

6. Overarching challenges to NCD integration

Integration of evidence-based NCD services within other health services provides a unique opportunity to provide much-needed services in chronic diseases to underserved populations. However, there are several challenges that need to be addressed for effective, efficient, affordable and sustainable services (see Box 3 and following text).

<table>
<thead>
<tr>
<th>Box 3. Challenges in the provision of integrated services</th>
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<tr>
<td><strong>Leadership and governance</strong></td>
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<tr>
<td>• Lack of multisectoral coordination mechanism at the national level</td>
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<td>• Vertical international and national funding silos for health programmes</td>
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<td>• Lack of enforceable integration policies and strategies at the national, regional, district and community levels</td>
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<td>Health care financing</td>
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<td>----------------------------------------------</td>
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<td>• Insufficient resource allocation</td>
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<td>• Lack of or inadequate health insurance schemes</td>
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<tr>
<th>Health workforce</th>
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<tr>
<td>• Human resources shortage</td>
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<td>• Health care workforce attrition</td>
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<td>• Inadequate training on NCD screening and management</td>
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<th>Medical products and commodities</th>
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<tr>
<td>• Stock-outs of essential medicines</td>
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<td>• No or limited stock of key NCD diagnostics and supplies</td>
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<th>Information and research</th>
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<td>• Inadequate national NCD surveillance, health management information system</td>
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<td>• Lack of adequate evidence-based data on integration effectiveness and cost-effectiveness</td>
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<th>Service delivery</th>
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<tr>
<td>• Inadequate infrastructure</td>
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<td>• Limited awareness of prevalence of NCDs (by government officials, health care workers and community members)</td>
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<tr>
<td>• Lack of access to services</td>
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<tr>
<td>• Misperceptions about causes of and treatment for NCDs, limited knowledge of chronic nature of NCDs</td>
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The first challenge is the perception that integration is the panacea for the NCD response and that integration alone is an adequate solution to this massive and growing disease burden. The NCD burden is bigger and more complex than most of the health programmes within which we desire to integrate. Evidence-based and effective integration can certainly help but it is not the ultimate solution for the NCD disease burden. Moreover, integration of NCDs with other poorly funded health programmes in the presence of a weak health infrastructure will not make a significant dent in the NCD response, and might end up weakening both programmes. What is urgently needed is an international, national and community response similar to the HIV response while integration efforts continue.

The second major challenge is the lack of adequate evidence-based data on integration effectiveness and cost-effectiveness. Despite decades of integration efforts in health, we are still in the dark in terms of what to integrate and what not to integrate; what works and what does not work; and what is feasible and appropriate for different levels of health
services and systems. In their paper on integrated development, Wigley and Petruney (19) propose a long-term outcome whereby “integrated development approaches are considered when tackling complex, interrelated development challenges and their root causes, and deployed when appropriate”. Furthermore, “this outcome treats integrated development as a possible means to an end, and therefore is neither a goal in itself nor necessarily the most appropriate approach in all cases. The core aim, rather, is for integrated approaches to be explored for effectiveness, routinely considered within decision making, and systematically supported if they will add value and produce the most impact” (19). These concepts are equally applicable to integrated health programmes. Inadequate funding for implementation research is necessary to improve the science of integration.

The third challenge is the lack of enforceable integration policies and strategies at the national, regional, district and community levels. There is an urgent need for comprehensive and coordinated planning and implementation of integrated services at policy-making, management and resource allocation levels, as well as within the areas of logistics, supplies, training and supervision. It is also critical to ensure adequate funding for improvements of health systems to accommodate integration.

Another key challenge is the difficulty in evaluating large and complex integration programmes, even when the initial designs are evidence based. Often, the only data available are process and limited-outcome measures. For integration to be successful and effective, sufficient funding must be allocated to determine whether it is making a difference – input and output indicators are inadequate for such an assessment. Assessment of integration outcomes should include both demand and supply sides of the services.

Finally, the most important and challenging obstacle to integration is the vertical national and international funding silos for health programmes. Unless there is a coordinated and significant paradigm shift in strategies and funding of health programmes, integration will continue to be poorly implemented and ineffective.

7. Role of research in integration

Implementation research has three critical roles to play in integration of NCDs into other health services. First, the available evidence needs to be assessed to determine what works and what does not work, and to identify research gaps to improve the evidence base. Second, new evidence needs to be generated to ensure rational decision-making in the design of new programmes in integration. Third, there is a need to develop appropriate methodologies to evaluate complex integrated programmes to assess effectiveness, efficiency and cost-effectiveness.
8. Conclusion

Integration of NCDs into other health programmes, such as HIV, maternal and child health, and sexual and reproductive health, is desirable in order to enhance synergies and linkages and to improve efficiencies in the delivery of services in low- and middle-income countries. While it is a logical approach, decisions on what to integrate and what not to integrate, and what is feasible, efficient, affordable and effective, should be based on evidence and not just intuition.

Integration should be reflected at the policy-making, management and resource allocation levels, as well as in the areas of logistics, supplies, training, supervision, monitoring and evaluation. Integration of NCD services into inadequately funded, inefficient and poorly managed health programmes will not be successful unless these deficiencies are rectified.

Integration of NCD programmes should also be at different levels of the health service, such as hospitals, health centres, health posts and community-based health delivery services.

Cross-sectoral programmes on youth and gender, and multisectoral interventions that impact NCDs, maternal and child health, sexual and reproductive health, and HIV, should also be considered.

Evidence-based innovation is critical in order to maximize the benefits of integration and improve outcomes, such as extending geographical access to services, improving diagnosis and treatment, facilitating patient communications, encouraging patient compliance and improving data management.

While evidence-based integration of NCDs into other health programmes is desirable, it is inadequate to address the NCD burden alone. NCDs constitute one of the greatest challenges to the health of low- and middle-income countries. It is much bigger, more complex and more challenging disease burden than most other existing health challenges. It requires a major and strategic response to address the long-term, multifaceted, multisectoral and challenging epidemic of the century.

Lessons learned from the NCD responses in high-income countries indicate that the NCD response can be successful, but requires commitment of adequate resources. An urgent response is needed in low- and middle-income countries, since the NCD burden is likely to grow as a result of ageing of their populations as life expectancy continues to increase.

The specific outcomes for NCDs in an integrated programme include improved screening, early diagnosis and treatment; improved adherence to treatment; improved access to services and improved coverage for underserved populations; improved affordable and sustainable services; and an enhanced health system.
There is also an urgent need for implementation research to improve the poor evidence base for integration and the evaluation of integrated programmes.

“Integration” is used by different people to mean different things. Combined with the fact that this is an issue that arouses strong feelings, there is clearly great potential for misunderstanding and fruitless polarization. Integration can be broken down into a series of practical questions about who does what at what levels of a health system. Being clear about these questions can be the basis for constructive discussions about the development of integrated health services \( (3) \).
### Annex 1. Synergies and linkages for the integration of NCDs

#### Table A1.1 NCDs and HIV cascade synergies

<table>
<thead>
<tr>
<th>HIV</th>
<th>Synergy area</th>
<th>NCDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public information/education, risk reduction (condom use), prevention of mother-to-child transmission, clean needles</td>
<td>Prevention</td>
<td>Raise awareness of NCD risk factors, health promotion and risk reduction</td>
</tr>
<tr>
<td>HIV testing, counselling and referral system</td>
<td>Diagnosis</td>
<td>Early detection and screening of NCD risk factors, referral system</td>
</tr>
<tr>
<td>Antiretroviral therapy initiation, behaviour change counselling, link with community care/support</td>
<td>Enrolment into care</td>
<td>Early treatment, behaviour change counselling, link with social support</td>
</tr>
<tr>
<td>Prevention for positives, treatment adherence, routine monitoring, self-management, peer support</td>
<td>Disease management</td>
<td>Behaviour change counselling, lifestyle change, treatment adherence, routine monitoring, self-management, peer support</td>
</tr>
<tr>
<td>Pain management, pyschosocial support</td>
<td>Palliative care</td>
<td>Rehabilitation, pain management, psychosocial support</td>
</tr>
<tr>
<td>New HIV infections and/or prevalence; number of HIV infected population on treatment; HIV mortality; adherence to HIV treatment</td>
<td>Evaluation indicators</td>
<td>Human papillomavirus immunization, prevalence of NCD risk factors, prevalence of NCDs, control of NCDs (e.g. diabetes, hypertension), NCD mortality</td>
</tr>
<tr>
<td>Sexual and reproductive health</td>
<td>Synergy area</td>
<td>NCDs</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sexual health information, education and counselling, to enhance personal relationships and</td>
<td>Prevention</td>
<td>Raise awareness of NCD risk factors, health promotion and risk</td>
</tr>
<tr>
<td>quality of life; voluntary, informed and affordable family planning services; prevention and</td>
<td></td>
<td>reduction</td>
</tr>
<tr>
<td>treatment of sexually transmitted infections, including HIV/AIDS and cervical cancer;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prevention of violence against women and girls, including torture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy testing; sexually transmitted disease testing; nutritional disorders, e.g. anaemia,</td>
<td>Diagnosis</td>
<td>Early detection and screening of NCD risk factors, referral system</td>
</tr>
<tr>
<td>vitamin deficiencies, underweight/overweight; counselling and referral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prenatal care; safe motherhood services; assisted childbirth from a trained attendant (e.g.</td>
<td>Enrolment into</td>
<td>Early treatment, behaviour change counselling, link with social</td>
</tr>
<tr>
<td>a physician or midwife); comprehensive infant health care; safe and accessible post-abortion</td>
<td>care</td>
<td>support</td>
</tr>
<tr>
<td>care and, where legal, access to safe abortion services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of pregnancy-related diseases, e.g. anaemia, malaria, gestational diabetes,</td>
<td>Disease</td>
<td>Behaviour change counselling, lifestyle change, treatment adherence,</td>
</tr>
<tr>
<td>hypertension of pregnancy, urinary tract infections; treatment of violence against women and</td>
<td>management</td>
<td>routine monitoring, self-management, peer support</td>
</tr>
<tr>
<td>torture; treatment adherence; routine monitoring; self-management and peer support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain management; psychosocial support</td>
<td>Palliative care</td>
<td>Rehabilitation, pain management, psychosocial support</td>
</tr>
<tr>
<td>Births attended by a skilled provider; violence against women; maternal mortality; newborn</td>
<td>Evaluation</td>
<td>Human papillomavirus immunization, prevalence of NCD risk factors,</td>
</tr>
<tr>
<td>mortality; infant mortality; contraceptive prevalence</td>
<td>indicators</td>
<td>prevalence of NCDs, control of NCDs (e.g. diabetes, hypertension),</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NCD mortality</td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>Synergy area</td>
<td>NCD</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Voluntary, informed, and affordable family planning services; prevention and treatment of sexually transmitted infections, including HIV; immunization – childhood and maternal (human papillomavirus, tetanus, hepatitis B virus); nutrition – infant, childhood and maternal; Promotion of breastfeeding and other infant/child feeding practices</td>
<td>Prevention</td>
<td>Raise awareness of NCD risk factors, health promotion and risk reduction</td>
</tr>
<tr>
<td>Pregnancy testing; sexually transmitted disease testing, including HIV; risk assessment – diabetes, hypertension, sickle cell disease, HIV; nutritional disorders, e.g. anaemia, vitamin deficiencies; counselling and referral</td>
<td>Diagnosis</td>
<td>Early detection and screening of NCD risk factors, referral system</td>
</tr>
<tr>
<td>Prenatal care; intrapartum services, complications and early referral; assisted childbirth from a trained attendant; postpartum care; comprehensive infant and childhood health care; safe and accessible post-abortion care and, where legal, access to safe abortion services</td>
<td>Enrolment into care</td>
<td>Early treatment, behaviour change counselling, link with social support</td>
</tr>
<tr>
<td>Management of pregnancy-related diseases, e.g. anaemia, malaria, gestational diabetes, hypertension of pregnancy, urinary tract infections, postpartum depression; management of newborn, infant and childhood illnesses; treatment adherence – maternal and paediatric; self-management and peer support</td>
<td>Disease management</td>
<td>Behaviour change counselling, lifestyle change, treatment adherence, routine monitoring, self-management, peer support</td>
</tr>
<tr>
<td>Pain management; psychosocial support</td>
<td>Palliative care</td>
<td>Rehabilitation, pain management, psychosocial support</td>
</tr>
<tr>
<td>Births attended by a skilled provider; maternal mortality; newborn mortality; infant mortality; Modern contraceptive prevalence</td>
<td>Evaluation indicators</td>
<td>Human papillomavirus immunization, prevalence of NCD risk factors, prevalence of NCDs, control of NCDs (e.g. diabetes, hypertension), NCD mortality</td>
</tr>
</tbody>
</table>
Annex 2. Case studies for integration of HIV and NCD programmes

Case study 1. Leveraging the HIV platform in Kenya: a pilot project integrating HIV and NCD services

Source: Lamptey and Dirks (20).

In 2009, in collaboration with the Ministry of Health and the Kenya Cardiac Society, FHI 360 introduced the integration of biomedical and behavioural screening for cardiovascular diseases and diabetes risk factors within existing HIV services. The integration project began in five USAID-supported AIDS Population and Health Integrated Assistance (APHIA) II project sites in Rift Valley and Coast provinces. A total of 4074 HIV clients at these sites were systematically screened for NCD behavioural, biological and therapeutic risk factors. Clients included those accessing HIV counselling and testing services (n = 1447) and those who were enrolled in HIV care and treatment (n = 2627). Those identified with low-to-moderate risks were treated by clinicians at the comprehensive care centres, and those with moderate-to-high risks were referred to specialists. Clients were also referred to nutritionists for nutritional counselling and to alcohol addiction counsellors and psychiatrists, if appropriate.

The pilot was found to be acceptable by both health care providers and clients. Health care workers appreciated the relationship between NCDs and HIV and supported the integration of NCDs into routine HIV care. Integration raised awareness of NCDs among health care workers and improved their capacity to diagnose and treat both conditions. Furthermore, clients were pleased to receive both NCD and HIV services at the same location and, in some cases, from the same health care workers.

The key challenges experienced during implementation centred on human resource, infrastructure and commodity constraints. For example, frequent staff turnover, which was common in many of the pilot sites, resulted in trained staff taking their NCD skills with them, leaving a void within the comprehensive care centres. Staff turnover also contributed to inconsistent completion of client NCD risk assessment forms, which made long-term monitoring of NCD risk factors difficult. Next, several of the facilities were faced with space constraints prior to integrating NCD services. The addition of services that required a private space compounded this challenge. Additionally, the linkages between departments in the hospitals were generally weak, which made tracking referrals and monitoring patients at high risk of developing an NCD difficult. Finally, the supply of NCD-related drugs in hospital pharmacies was inadequate. Even when the drugs were available, the cost of treatment was high and not affordable for many clients.

Results from this pilot programme have been incorporated into the Kenya national
guidelines to ensure that routine screening for cardiovascular diseases and diabetes is included in HIV management.

**Case study 2. Integration of screening for cardiovascular diseases in HIV programmes in Nigeria**

In 2010, FHI 360, under the USAID-funded Global HIV/AIDS Initiative Nigeria (GHAIN), piloted the integration of cardiovascular diseases into HIV programmes (Usman et al. 2012). The pilot took place in Murtala Mohammed Specialist Hospital in Kano, and it assessed the feasibility of integration of routine screening of cardiovascular disease risk factors in an HIV programme setting. Clients with one or more risk factors were referred for evaluation. Following the successful implementation of the pilot programme, NCD (hypertension, diabetes mellitus) screening was integrated into the Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS), a follow-on project to GHAIN, at both facility and community levels.

FHI 360 under the SIDHAS project has supported the implementation of a comprehensive chronic care approach and integration of NCD screening in 243 HIV clinics in primary, secondary and tertiary health facilities in 15 states. Between October 2014 and September 2015, the project screened 134,313 persons living with HIV for hypertension and diabetes.

As part of the chronic care model for positive health dignity and prevention, and the bid to enhance the capacity of persons living with HIV to participate in their care, NCD screening is implemented at the community level among HIV support groups. The chronic care model ensures that HIV clients are routinely screened for cardiovascular diseases and associated risk factors during support group meetings.

Implementation of NCD integration in the HIV programme at the health facility level is feasible and adds value to the care for persons living with HIV. Setting up an effective triage system in health facilities is essential. Availability of adequate human resources, however, remains a challenge. The use of data collection and monitoring tools at the community level, including client self-care cards, facilitates clients’ meaningful involvement in care.
References


