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The growing chronic disease burden: Implications for reproductive health

Currently, 80% of deaths from chronic disease occur in low- and middle-income countries, where people develop these diseases at younger ages, suffer longer, and die sooner. Chronic diseases have been defined as illnesses that are preventable, prolonged, unlikely to resolve spontaneously, and impossible to cure completely.

This issue of Outlook discusses the emerging chronic disease burden in terms of likely challenges and opportunities for reproductive health, with a focus on cardiovascular conditions, diabetes, and the risk factor of obesity. This focus was identified due to clear relationships with reproductive health (e.g., hypertension and diabetes in pregnancy, contraceptive choice for women with cardiovascular conditions and risk factors). Additionally, these conditions represent large burdens of ongoing illness: an estimated 246 million people in the developing world are living with diabetes, and around 1 billion are living with hypertension.

Finally, this focus represents less redundancy with ongoing initiatives in other areas (e.g., cancer and reproductive health,* tobacco control), and therefore, more opportunities for new thinking.

Patterns of disease: a complex global picture

In general, cardiovascular disease, diabetes, and obesity are more common in lower-middle-income countries than in low-income countries. For example, chronic diseases account for the majority of deaths in China, Egypt, Nicaragua, Peru, Thailand, Ukraine, and Vietnam, and nearly the majority in India (Table 1, page 2). By contrast, the majority of deaths are still due to communicable diseases in many sub-Saharan African countries, as well as in Cambodia.

Nationally representative prevalence rates for cardiovascular disease and diabetes are not available in many countries. However, the World Health Organization (WHO) has collected comparable data on overweight and obesity (body mass index, or BMI, ≥25 kg/m²). Rates of overweight and obesity in

*In addition, cancer is often less of an ongoing or chronic issue in low-resource settings, due to the low survival rates. More generally, if detected and treated early, cancer does not require the same kinds of long-term treatment as hypertension, diabetes, and obesity. For more information on cancer in the developing world, visit: www.who.int/topics/cancer/en/.
women are currently highest in countries of Eastern Europe, Latin America, and the Middle East and North Africa, as well as South Africa (Table 1).8 Continuing high rates of underweight women in many countries of South and Southeast Asia, as well as sub-Saharan Africa, may mask a growing obesity problem, although even in Côte d’Ivoire, Senegal, and Thailand, more than one-third of women are overweight or obese. Both underweight and obesity have implications for chronic disease: women who are underweight during pregnancy are more likely to have low-birthweight infants who then face a higher subsequent risk of cardiovascular diseases and diabetes in adulthood.9-11

Patterns of chronic diseases also vary within countries, although high-quality subnational data are still hard to find (see box, page 5, "Data sources for select chronic diseases and risk factors"). Urban populations overall are more likely to be affected by cardiovascular disease, diabetes, and obesity than rural populations, as are higher-wealth quintiles. This may be changing in some places, however (and has already changed in most developed countries). A recent analysis found that obesity trends are shifting toward the poor in developing countries.12 The 2007 Demographic and Health Survey (DHS) in Ukraine, one of the few to include data on hypertension, showed higher rates among rural than urban women and among women in lower-wealth quintiles.13 A similar pattern by wealth status was reported in a WHO study of rural Vietnam.14

Assumptions that chronic diseases affect mainly older populations and men should also be reconsidered in most settings. According to one estimate, 44% of all premature deaths worldwide are due to chronic disease,15 and the majority of disability due to chronic disease occurs in those between the ages of 30 and 59 years.1 Figure 1 demonstrates that chronic diseases cause a substantial number of deaths among women aged 15 to 44 years in many countries; the authors of that analysis go so far as to say that “cardiovascular disease, cancer, and diabetes are the important causes of female death even during childbearing years and for women with young families.”16 Additionally, rates of cardiovascular disease and diabetes are roughly equal in men and women worldwide, and rates of obesity and overweight are notably higher in women than in men in many countries (Table 1).11,17

### Addressing chronic diseases in developing countries

Addressing the growing chronic disease burden will require building on or modifying existing approaches and systems for low- and middle-income settings as well as developing novel approaches. One of the first and most important tools will be high-quality information on the risk factor profile of the population to help focus policy and programming. Some currently available data sources on chronic diseases and risk factors are highlighted in the box on page 5. For examples of approaches to addressing chronic diseases in developing countries, see the box on page 6.

### Primary prevention

The public health community has long experience with behavior change in developing countries that may be relevant for shaping community-oriented, culturally specific interventions to prevent chronic diseases. Most evidence on such interventions in the area of chronic disease comes from developed

### Table 1. The burden of chronic diseases and risk factors varies by region and by country*

<table>
<thead>
<tr>
<th>Region</th>
<th>Chronic diseases</th>
<th>Communicable diseases</th>
<th>Injuries</th>
<th>Overweight or obese females 15+</th>
<th>Overweight or obese males 15+</th>
<th>Thin (BMI &lt; 18.5), females 15–49</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>34</td>
<td>61</td>
<td>5</td>
<td>9.3</td>
<td>13.3</td>
<td>20.3</td>
</tr>
<tr>
<td>China</td>
<td>77</td>
<td>12</td>
<td>11</td>
<td>24.7</td>
<td>33.1</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>49</td>
<td>41</td>
<td>10</td>
<td>15.2</td>
<td>16.8</td>
<td>35.6</td>
</tr>
<tr>
<td>Thailand</td>
<td>58</td>
<td>31</td>
<td>11</td>
<td>35.3</td>
<td>27.9</td>
<td></td>
</tr>
<tr>
<td>Vietnam</td>
<td>66</td>
<td>24</td>
<td>9</td>
<td>8.7</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>Nicaragua</td>
<td>52</td>
<td>30</td>
<td>12</td>
<td>68.1</td>
<td>52.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Peru</td>
<td>58</td>
<td>32</td>
<td>9</td>
<td>64.7</td>
<td>54.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Ukraine</td>
<td>87</td>
<td>4</td>
<td>9</td>
<td>48.5</td>
<td>41.3</td>
<td></td>
</tr>
<tr>
<td>Egypt</td>
<td>78</td>
<td>18</td>
<td>4</td>
<td>74.2</td>
<td>64.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Côte d’Ivoire</td>
<td>23</td>
<td>67</td>
<td>9</td>
<td>34.2</td>
<td>11.6</td>
<td>5.8</td>
</tr>
<tr>
<td>Kenya</td>
<td>22</td>
<td>72</td>
<td>6</td>
<td>24.9</td>
<td>8.4</td>
<td>12.3</td>
</tr>
<tr>
<td>Senegal</td>
<td>26</td>
<td>64</td>
<td>10</td>
<td>36.7</td>
<td>16.1</td>
<td>18.2</td>
</tr>
<tr>
<td>South Africa</td>
<td>28</td>
<td>65</td>
<td>7</td>
<td>67.2</td>
<td>39.3</td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>17</td>
<td>77</td>
<td>6</td>
<td>27.0</td>
<td>15.4</td>
<td>10.4</td>
</tr>
<tr>
<td>Uganda</td>
<td>18</td>
<td>75</td>
<td>7</td>
<td>22.2</td>
<td>7.4</td>
<td>12.1</td>
</tr>
<tr>
<td>Zambia</td>
<td>12</td>
<td>86</td>
<td>2</td>
<td>18.6</td>
<td>7.5</td>
<td>9.6</td>
</tr>
</tbody>
</table>

*Notes: All numbers are percentages. BMI: Body mass index. Countries were chosen for regional variation. Data on deaths by cause are from the World Bank Health, Nutrition, and Population database for the year 2002; data on overweight and obesity are from WHO InfoBase 2005; data on underweight women are from the most recent country Demographic and Health Surveys (see box on page 5 for more information on these sources). These data were used for the purpose of comparability and may vary from official national estimates.
Chronic diseases and reproductive health: Challenges and opportunities

A woman’s reproductive life extends from early adolescence into her 40s, if not longer. Reproductive health services therefore provide an important entry point for reaching a large population of women for whom chronic disease is an established or emerging concern, depending on the context. For example, reproductive health services for adolescents may provide an entry point for behavior change communication interventions that help to prevent chronic conditions. Services for pregnant women may present opportunities for secondary prevention among women in the early stages of chronic disease. Finally, women who develop chronic diseases relatively early in life may have different needs for safe pregnancy, childbirth, and family planning services.

Screening

Due to their long course, there are many opportunities to prevent and/or slow progression of chronic diseases. Ensuring appropriate screening services are in place may involve developing new diagnostics and biomarkers for low-income settings, training providers on use of currently available tools, and raising awareness among communities at risk so that they seek appropriate care. For example, blood pressure screening remains challenging in many low-resource settings because accurate and reliable devices are not available or health workers are not appropriately trained. A recent study in Vietnam found that very few health care workers responsible for internal medicine in either the public or private sector knew appropriate questions to ask a patient with hypertension. As another example, measuring waist circumference may be a relatively straightforward approach to assessing future cardiovascular risk that would require minimal training or technologies; a recent study from Japan found waist circumference greater than 90 cm in men and 80 cm in women was a strong predictor of cardiovascular disease.

Ongoing public health initiatives in other areas may provide helpful starting points for national screening programs. For example, current work to develop approaches for cervical cancer screening appropriate to lower-income settings may offer valuable lessons. For more information, visit: www.rho.org/screening.

Treatment and management

In many cases, health systems in developing countries are oriented toward treatment of communicable diseases that generally requires a short-term, finite period of intervention. Management and treatment of chronic diseases, by contrast, requires ongoing and continuous interactions between the health system and patients. Developing countries working to dramatically expand treatment programs for HIV/AIDS will face—or are already facing—similar kinds of large-scale health system demands. The experience of HIV/AIDS programming in developing countries may therefore have important lessons for the chronic disease community. For example, experience in provincial hospitals in Cambodia has shown that care for diabetes, HIV/AIDS, and hypertension can be effectively integrated, with good acceptability and retention.

Figure 1. Deaths among women from maternal causes and HIV/AIDS compared with chronic diseases as defined in nine countries

<table>
<thead>
<tr>
<th>Women aged 15-34 years</th>
<th>Women aged 35-44 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>Argentina</td>
</tr>
<tr>
<td>Chile</td>
<td>Chile</td>
</tr>
<tr>
<td>Colombia</td>
<td>Colombia</td>
</tr>
<tr>
<td>Ecuador</td>
<td>Ecuador</td>
</tr>
<tr>
<td>Mexico</td>
<td>Mexico</td>
</tr>
<tr>
<td>Peru</td>
<td>Peru</td>
</tr>
<tr>
<td>S. Africa</td>
<td>S. Africa</td>
</tr>
<tr>
<td>China</td>
<td>China</td>
</tr>
<tr>
<td>India</td>
<td>India</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Female Mortality</th>
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</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>60</td>
</tr>
</tbody>
</table>

Maternal + HIV deaths | Chronic disease deaths

North Karelia project in Finland demonstrated that community-based programs can change lifestyles and reduce rates of cardiovascular disease. A recent evaluation of a six-year lifestyle intervention in China found that it is possible to prevent or delay diabetes in a high-risk population through diet and exercise and that relatively simple short-term interventions had long-term effects. However, the effects on cardiovascular disease and overall mortality was unclear. Another four-year lifestyle intervention in Iran found that dietary and physical activity measures improved in the intervention area compared with the control area. Evidence from North Karelia and elsewhere has shown that interventions around diet and exercise must consider factors beyond the individual. In some settings, for example, exercise may be challenging due to restrictions on women’s mobility, the physical environment of an urban slum, or a demanding work and childcare schedule. On the other hand, peer networks in communities may also help to facilitate behavior change.
The following topics are based on a review of currently available evidence. As more knowledge and experience with chronic diseases in developing countries accumulates, there may be important implications for safe abortion, infertility, and sexually transmitted infections, for example, which are not addressed in detail here.

**Hypertension in pregnancy**

Hypertensive disorders are the most common medical complication of pregnancy and a major cause of maternal mortality. They are estimated to affect about 10% of pregnant women worldwide. Nearly 10% of maternal deaths in Africa and Asia, and more than one-quarter in Latin America and the Caribbean, are due to hypertensive disorders of pregnancy.26

Hypertensive disorders of pregnancy include:

- Chronic hypertension (generally defined as a blood pressure measurement of 140/90 mm Hg or more) experienced during pregnancy.
- Gestational hypertension, which is hypertension that develops after 20 weeks of gestation without proteinuria.
- Preeclampsia, which is a multi-organ disease characterized by development of hypertension and proteinuria after 20 weeks gestation.

Women who experience chronic hypertension during pregnancy, gestational hypertension, and preeclampsia are at greater risk for perinatal morbidity and mortality as well as intrauterine growth retardation and low-birthweight infants. In severe cases, preeclampsia may progress to eclampsia and cause maternal death by cerebral hemorrhage.

Research from African countries shows that the majority of hypertensive disorders of pregnancy involve women with gestational hypertension or preeclampsia, rather than chronic hypertension.28 Although neither gestational hypertension nor preeclampsia are chronic conditions, they have been associated with cardiovascular disease and risk factors later in life.29,30

**Why use the term “chronic diseases”?**

“Chronic diseases” is often used interchangeably with such terms as “noncommunicable diseases,” “lifestyle diseases,” and “diseases of affluence” or “Western diseases.” No term is perfect, but some may be more useful than others; for example, the diseases of affluence paradigm implies incorrectly that these conditions are not a concern for low-income populations. This article uses “chronic disease” because the term helps convey important characteristics of this subset of diseases: for example, that they often cause decades of disability.1 The World Health Organization’s (WHO) major report on chronic disease provides several examples of how disability caused by chronic diseases has affected real people’s lives in developing countries.

This article focuses on the chronic conditions of cardiovascular disease, diabetes, and obesity (for more information on the rationale for this focus, see page 1). Illnesses and risk factors like cancer, depression, tobacco use, and blindness are all often grouped under a broad definition of chronic disease, and obviously impact people living in developing countries, including their reproductive health (e.g., reproductive cancers, maternal smoking, and postpartum depression). WHO’s website (www.who.int) is an excellent starting point for more information on these and other topics.

**Screening**

Classifying hypertensive disorders of pregnancy can be challenging due to varying opinions on correct patient position for blood pressure measurement and other factors.31 In addition to blood pressure screening and urine tests for proteinuria, screening for preeclampsia can include identification of the following risk factors: previous history of preeclampsia, history of chronic hypertension, age 35 and older, obesity, diabetes, and family history of preeclampsia.26,32,33 Work is under way to identify biomarkers for preeclampsia,14 although it likely be necessary to develop specific tools for low-resource settings. Detecting hypertensive disorders of pregnancy will be more likely in settings where women can make multiple antenatal visits.

**Preventing hypertensive disorders of pregnancy**

Although more research is needed in this area, there is some evidence that dietary improvements and exercise before and during pregnancy may prevent preeclampsia—including calcium supplementation,36 dietary fiber intake,37 and intake of elongated n-3 fatty acids.38 Calcium, however, may also interact with other nutrients, including iron, that are needed during pregnancy—an important consideration in countries where women are already anemic prior to pregnancy.29 Reducing salt intake is also one of the best ways to prevent hypertension in general. While most salt intake in developed countries comes from purchased food, most salt intake in many countries of Africa and Asia comes from salt added during meal preparation or consumption.

Low-dose aspirin has also been shown to prevent preeclampsia, preterm delivery, and fetal death.40 Benefit is greatest for women at highest risk. Some experts have suggested that women at high risk or with multiple risk factors receive aspirin, particularly in low-resource settings where preeclampsia is prevalent and sophisticated screening and treatment modalities are not available.40

**Treatment and management**

Magnesium sulfate is often used and is recommended by WHO to prevent eclampsia in women with preeclampsia.26 It may also help to reduce maternal and perinatal morbidity and mortality, even in women who do not experience seizures. Bed rest and regular examinations by skilled health workers are common recommendations for managing hypertensive disorders of pregnancy. According to WHO, physicians should choose antihypertensive medications to reduce severely high blood pressure during pregnancy based on their own experience and data on maternal and fetal effects; hydralazine is one of the few relevant medications widely available in such settings.41
Women at high risk of developing cardiovascular conditions may interact with the health system for the first time when they seek pregnancy care. Identifying risk factors and involving women in chronic disease prevention and management may lead not only to better reproductive health outcomes but reduce the likelihood of disability and death overall. For example, a recent WHO review demonstrated that treatment of mild to moderate hypertension in pregnancy may prevent progression to severe hypertension (but did not have any effect on risk of preeclampsia). In addition to clinical management, targeting these women for comprehensive behavior change campaigns that focus on improving diet and exercise may also have benefits.

**Gestational diabetes**
Worldwide, up to 10% of pregnancies are associated with diabetes, with 90% of these cases involving gestational diabetes—defined as any degree of glucose intolerance with onset or first recognition during pregnancy. Like individuals with type 2 diabetes, women with gestational diabetes are unable to effectively utilize insulin, which is the hormone produced by the pancreas that allows glucose, or blood sugar, to move from the bloodstream into the body.

Lack of screening services and standards in most countries are challenges to determining the exact prevalence of gestational diabetes. In India, one survey estimated that prevalence of gestational diabetes is 16.5%, up from 2% in 1982. Consequences of gestational diabetes include preeclampsia, miscarriage, stillbirth, perinatal morbidity, and long-term complications in children (including obesity, delayed psychomotor development, and early onset of type 2 diabetes). Women with gestational diabetes are at increased risk of developing type 2 diabetes. Estimates of that risk vary widely, but range from 15% to 70% likelihood over time.

**Screening**
Diabetes is often diagnosed through a blood sugar test. Many global experts—including representatives from WHO, the United Nations, and countries such as Bangladesh, China, India, South Africa, and Tanzania—advocate that screening and treatment for gestational diabetes be incorporated into prenatal care. The India-based Diabetes in Pregnancy Study Group recommends screening pregnant women between 24 and 28 weeks gestation. Research has shown that appropriate management can decrease negative outcomes for mother and child, including high birth weight and associated complications. Policymakers and programmers will need to consider whether there is sufficient prevalence in their context to merit universal or targeted screening and weigh those considerations against the likelihood of negative outcomes for women with undetected and untreated gestational diabetes.

For example, a US-based expert group recently pointed out that screening may incorrectly identify a large number of women as having the condition who do not, and that evidence of complications for the mother or the fetus is ambiguous. Regardless, new results from the Hyperglycemia and Adverse Pregnancy Outcomes study are expected to assist in the development of a simple, widely applicable diagnostic test. Settings with increasing burdens of obesity and diabetes among women, as well as more women giving birth after age 25, may have higher rates of gestational diabetes.

**Preventing gestational diabetes**
As with gestational hypertension, there is some evidence that dietary and exercise interventions prior to pregnancy may reduce a woman's risk of developing gestational diabetes.

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**Data sources for select chronic diseases and risk factors**

Minimal data are available on cardiovascular diseases, diabetes, and obesity in developing countries, although the World Health Organization (WHO) and some ministries of health are making efforts to change that. Some of the best currently available resources for national and subnational data are listed below.

**Demographic and Health Surveys (DHS)**
www.measuredhs.com/start.cfm
Full country reports occasionally include national data on body mass index (BMI), hypertension, diabetes, and dietary patterns disaggregated by gender, age, residence (urban/rural), education, and wealth status. This information is not currently available using the DHS STATcompiler tool.

**WHO STEPS country reports**
www.who.int/chp/steps/reports/en/index.html
Select country reports provide national data on chronic disease risk factors, including BMI and hypertension, disaggregated by gender, age, and residence.

**WHO GlobalInfoBase SuRF 2 country profiles**
www.who.int/infobase/surf2/country_list.html
Select country compilations of data on risk factors include tobacco use, BMI, physical inactivity, fruit and vegetable intake, blood pressure, lipid profiles, and blood cholesterol, as well as diabetes. Profiles often include DHS and STEPS data, as well as smaller research studies. Aside from DHS and STEPS, data tend not to be nationally representative and may be several years old.

**World Bank Health, Nutrition, and Population statistics (HNPSstats)**
go.worldbank.org/N2N84RDV00
This data query system enables you to pull figures for individual countries on deaths due to chronic disease, prevalence of diabetes, obesity, and overweight, as well as undernutrition.

**WHO Global school-based student health survey**
Select country fact sheets summarizing data on male and female students aged 13–15 years on hygiene, dietary behaviors, overweight, physical activity, tobacco use, and mental health.
Treatment and management

Treatment for women with gestational diabetes is designed to normalize fetal growth and birth weight in order to minimize maternal and neonatal trauma or complications at delivery.53 Treatment may include medication, support from diabetes educators and nutritionists, and increased surveillance, although the effectiveness of these interventions is unclear.43 Nutrition recommendations are similar for all pregnant women, including those with gestational diabetes.59 There is emerging evidence that oral agents such as glyburide and metformin are safe and effective for controlling diabetes during pregnancy,54 and these medicines may be less expensive, easier to administer to patients, and easier to store than insulin—important advantages for developing-country contexts.55

Preventing type 2 diabetes

Among women with gestational diabetes, postpartum screening for type 2 diabetes at six weeks or more after delivery, at one year postpartum, and every three years afterward is recommended.47,56 The definition of gestational diabetes is so broad that previously undetected type 2 diabetes may be missed, making follow-up care even more important.49

It may also be possible to prevent or slow progression to type 2 diabetes among women with gestational diabetes.46–47 For example, breastfeeding has also been associated with reduced blood glucose levels and reduced incidence of type 2 diabetes (as well as cardiovascular disease) for women.47,57 Children who are breastfed may also have lower rates of type 2 diabetes.58 Another study found that people at risk for developing type 2 diabetes who began exercising regularly and eating mainly fruits, vegetables, lentils, and whole grains decreased their risk substantially.

Approaches to chronic disease prevention and management in low- and middle-income countries

Policies and programs to address chronic diseases in developing countries are relatively new, and so rigorous evaluation data are not widely available in many cases. The following examples, however, can provide helpful starting points for potential interventions in similar settings.

Increasing physical activity and empowering adolescent girls. In rural Egypt, the Ishraq program involves out-of-school girls aged 13 to 15 years in volleyball, soccer, basketball, and handball two days per week. The program also includes additional health and rights components. An evaluation demonstrated not only increased participation in sports, but also improved literacy levels and support to resist early marriage and female genital mutilation.59 The Mathare Youth Sports Association, through involving girls from an impoverished rural area in a soccer program that was originally developed for boys, also helped to change gender norms and improve girls’ leadership.58

Managing chronic diseases through primary health care services. Many people with chronic diseases in Ethiopia cannot access services because they are too expensive or too far from their homes. In recognition of this challenge, a program for community-based health services in Ethiopia was expanded to include services for chronic diseases. The first chronic disease clinic was established at Jimma University in 2000. From that central clinic, senior staff have worked to train and provide ongoing supervision to staff in surrounding rural health centers. This approach has improved access to lifesaving health services, including for patients with diabetes.61

Intervening at the policy level. A recent survey by the World Health Organization (WHO) of the 11 countries in the Southeast Asia region showed that governments are beginning to address the challenge of chronic disease.62 For example, six governments reported including chronic diseases in their national health policies and developing targets to monitor progress, including measurements of disease rates, community awareness, and health care infrastructure. Eight countries reported a budget line for chronic disease, funded by taxes on tobacco and alcohol, international and national donations, and WHO support.

Family planning

Accurate guidance regarding contraceptive options is increasingly important as women in developing countries experience chronic conditions at younger ages and as demand for family planning increases. WHO’s Medical Eligibility Criteria for Contraceptive Use (MEC) provides a thorough and evidence-based starting point for family planning providers working in settings where chronic diseases are already a concern.63 Combined hormonal methods, although safe for most women, have been associated with a slightly elevated risk of adverse cardiovascular events in women with other risk factors. Women who smoke are 3 to 11 times more likely than nonsmokers to experience a heart attack; smoking together with combined oral contraceptive use has been shown to increase the risk of heart attack by as much as 30-fold, particularly among women aged 35 and older.64 As another example, somewhat elevated cardiovascular risk and limited evidence that increased weight or BMI can decrease the efficacy of combined hormonal methods make them slightly less preferable than other methods in obese women, especially in settings where other methods are readily available. However, even with increased risk of failure, unintended pregnancy associated with combined hormonal methods is so unlikely that the method is still considered clinically effective.65–68

As chronic diseases become increasingly common, it will be important to work with providers both to raise awareness of MEC guidelines—including through integration into national standards—and to assess whether providers have additional questions that need to be addressed.

Access and other service delivery issues

In general, contraception is safe for most women, including those with chronic diseases—and unintended pregnancy represents a much greater health risk. Therefore, guidelines for women with chronic diseases should be evidence-based and not present undue...
obstacles to access, especially in settings where other obstacles (e.g., cultural, geographical, financial) are clearly present.

A few experiences from developed countries have documented how changing guidelines and poorly handled information management regarding rare contraceptive complications have led women to discontinue contraceptives unnecessarily (i.e., “panic-stopping”). In addition, some contraceptives, including combined hormonal contraceptives, have health benefits beyond prevention of unintended pregnancy. For example, combined oral contraceptives can reduce anemia and regulate women’s menstrual cycles and are slightly preventive against several invasive cancers. There is also evidence that increasing the interval between births can help prevent undernutrition—meaning that strengthening family planning programs for the general population can have a positive impact on chronic disease risk for new generations, as mentioned previously.

It is currently not known to what extent women with chronic conditions, including obesity, may face discrimination from family planning providers or may fail to seek family planning services due to misinformation regarding their options—or even a sense of shame. Efforts to improve provider knowledge on clinical implications of chronic disease for family planning might also include an assessment of provider attitudes and incorporate relevant interventions as needed.

The way forward
In 2005, WHO proposed a goal of an additional 2% reduction per year in age-specific death rates attributable to chronic disease by 2015. Achievement of the global goal would avert 36 million deaths. Most would be in low- and middle-income countries, and about half would be in people younger than 70 years.

Policymakers and program managers working in reproductive health can consider the following entry points for addressing the growing burden of chronic disease:

- Participating in, and helping to forge, broad-based partnerships to address chronic disease at global, regional, and national levels—including with actors outside the health community, such as those in the agricultural, educational, and transportation sectors.
- Improving health information systems and collecting improved basic data on variables such as weight (both under- and overweight), BMI, waist circumference, and blood pressure—and associated disability, an understudied issue—among people accessing reproductive health services.
- Helping to formulate national reproductive health strategies that consider context-specific chronic disease challenges and ensuring that emerging chronic disease strategies are sensitive to reproductive health needs and gender inequalities.
- Raising awareness among communities seeking reproductive health services regarding their specific chronic disease risks and resources available for prevention and treatment.
- Developing guidelines for optimal nutrition and incorporating them into reproductive health services to help reach appropriate levels of consumption for women who are both under- and overweight.
- Building on existing collaborations with those in the HIV/AIDS field to apply lessons learned regarding integration of services, or to facilitate connections with chronic disease experts working to establish long-term population health care.
- Considering how emerging technologies, including mobile and cell phone-enabled communications, can facilitate data collection, diagnosis, and management of chronic diseases.

References
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