

15 NON-COMMUNICABLE DISEASES

KNOWLEDGE SUMMARY: WOMEN'S & CHILDREN'S HEALTH

2011



Women and children in low- and middle-income countries often bear a triple burden of ill-health related to pregnancy and childbirth, to communicable diseases and to non-communicable diseases (NCDs), mainly cardiovascular disease, cancer, chronic respiratory disease and diabetes. This burden is exacerbated by high healthcare costs and productivity losses that push households into a vicious cycle of poverty, loss of income, debt and ill-health, and adversely affects national economies. NCDs increasingly affect women and children across the reproductive, maternal, newborn and child health (RMNCH) continuum. Tobacco use and exposure to secondhand smoke, unhealthy diet, physical inactivity and harmful use of alcohol are the four main risk factors for NCDs.¹ The RMNCH continuum of care provides several opportunities to prevent, diagnose and treat NCDs. The UN Secretary-General's Global Strategy for Women's and Children's Health recommends that healthcare for NCDs be provided as part of an integrated approach to promote women's and children's health.²

The problem

NCD-related burden is increasing in low-income countries

Most premature deaths in low-income countries are caused by infectious diseases, maternal and perinatal conditions and nutritional deficiencies.³ Adding to this burden, there is now a higher proportion of premature NCD-related deaths in low- and middle-income countries than in high-income countries (Fig 1). Nearly 80% of all NCD-related deaths in 2008 occurred in low- and middle-income countries, and a third of these deaths were in people less than 60 years old.¹ In 2004, there were more NCD-related deaths among women aged 15 to 44 years in Africa than in high-income countries (see Fig 2).⁴

There are some NCDs that specifically affect women, adolescent girls and children. For example, breast cancer is the leading cause of cancer death among women worldwide, causing an estimated 458,400 deaths in women in 2008, despite the availability of methods for early detection and treatment.^{5,6} Of the 1.4 million new cases of breast cancer identified in 2008, about half were in low- and middle-income countries.⁵ Certain types of human papillomavirus (HPV), a sexually transmitted infection, lead to the development of pre-cancer and cancer of the cervix.⁶ 88% of the 275,000 women who died from cervical cancer in 2008 were in low- and middle-income countries.⁵ Children can develop chronic conditions such as asthma, diabetes and congenital heart abnormalities.⁷ Each year 8 million children are born with birth defects, including heart defects.⁸

NCDs can impose high costs on households and economies

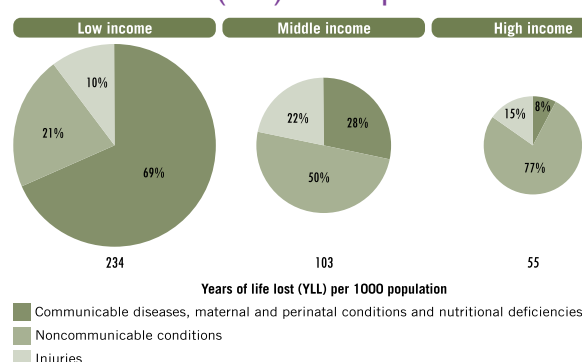
Healthcare costs often have to be borne by households. In India, of the 4% of the Gross Domestic Product spent on healthcare in 2008, public expenditure was 1.1%.⁹ The rest was from private sources of which 80% were out-of-pocket payments. People with NCDs incurred nearly twice the treatment expenses compared to other health problems. Paying for healthcare for NCDs can push households into a vicious cycle of poverty, loss of income, debt and ill-health. Related productivity losses adversely affect national economies and projected increases in NCD incidence in low-income countries could be catastrophic.¹ By 2020, low-income countries in Africa, South East Asia and the Eastern Mediterranean region could see a 20% increase in NCD-related deaths, as their populations age.¹

NCD risk factors across the RMNCH continuum

There are a number of known risk factors for NCDs. Age, gender and family history are non-modifiable risk factors for NCDs. The four main modifiable risk factors for the four major NCDs are tobacco use and exposure to secondhand smoke, unhealthy diet, physical inactivity and harmful use of

Figure 1

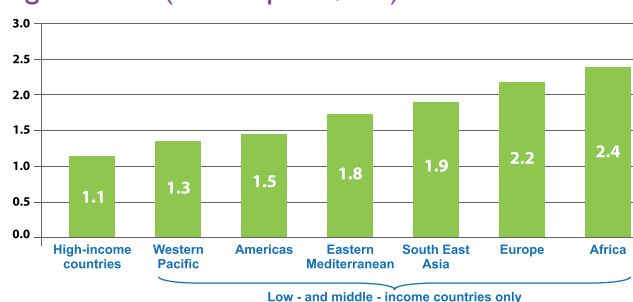
Years of life lost (YLL) due to premature mortality



Source: WHO (2010). World Health Statistics, pg 60
<http://www.who.int/whosis/whostat/2010/en/index.html>

Figure 2

NCD-related mortality rates among women aged 15-59 (deaths per 1,000)



Source: WHO (2011). Combating NCDs: protecting health, promoting development (Fact 9, pg 14) www.who.int/entity/nmh/events/2011/ncds_booklet_2011.pdf

alcohol.¹ If these risk factors were prevented, an estimated 75% of premature heart disease, stroke and diabetes, and 40% of cancer could be prevented globally.^{1, 10} Many behaviors related to NCD risk factors are initiated during adolescence. The low socio-economic, legal and political status of many women and children increases their exposure and vulnerability to NCD risk factors¹¹ across the RMNCH continuum. There are also projected increases in urbanization, which leads to lifestyle changes that increase the risks of developing NCDs.¹

- Tobacco use, exposure to secondhand smoke and indoor air pollution.** Tobacco use, including cigarettes, *Bidis* (hand-rolled tobacco leaves), snuff and chewing tobacco, during pregnancy adversely impacts fetal health.¹² Smoking during pregnancy is increasing in low- to middle-income countries.¹³ Smoking, exposure to secondhand smoke and indoor air pollution during pregnancy increases risk of pregnancy complications, including fetal deaths, low birth-weight and premature delivery.¹³⁻¹⁵ Exposure to indoor air pollution from wood and solid fuel smoke from cooking is a widespread risk

factor among women and children in low-income countries and is a contributing factor to childhood pneumonia, which causes 18% of all deaths in children under the age of five.^{16, 17}

- **Unhealthy diet and physical inactivity.** Many low- and middle-income countries have a large burden of under-nutrition.¹⁸ Undernutrition during pregnancy increases the risk of intrauterine growth retardation in the babies, which will increase children's risk of obesity and developing NCDs, such as cardiovascular diseases and type II diabetes later in life.¹ Undernutrition in mothers is also associated with low birth-weight and pre-term births, which increases the risk of infant deaths.¹⁸ In addition, rates of overweight and obesity are increasing. Overweight and obesity in women increase the risk of Gestational Diabetes (GDM) (a form

of diabetes with onset during pregnancy), pre-eclampsia, pregnancy-induced hypertension, large babies, induced labor, caesarean sections¹⁹ and stillbirths.²⁰ GDM is estimated to develop in one in 25 pregnancies and is associated with perinatal complications.¹¹

- **Harmful use of alcohol.** Although 55% of women globally have never consumed alcohol, it is of growing concern that there are high risk patterns of drinking among women who have consumed alcohol in the past year in many low- and middle-income countries.²¹ Consuming alcohol during pregnancy may lead to fetal death or premature delivery.²² Fetal alcohol syndrome, which can occur in a baby whose mother consumed alcohol during pregnancy, is associated with heart abnormalities.²²

What works

Because addressing NCDs requires a focus on a range of conditions, reducing the burden of NCDs is challenging, particularly for health systems with limited capacity. Evidence shows that NCDs are largely preventable and can be treated and controlled.¹ The Global Strategy for Women's and Children's Health recommends that healthcare for NCDs be provided as part of an integrated approach to promote women's and children's health.²

Integrating care for RMNCH and NCDs

The RMNCH continuum of care (Fig 3) offers critical entry points for women and children who may not otherwise have access to healthcare services. Nearly 80% of pregnant women in low- and middle-income countries have at least one antenatal visit²³ and children get a series of immunizations - this provides a crucial opportunity for providing integrated services.

Preventative care and health promotion interventions throughout the RMNCH continuum of care can promote sexual health, good nutrition, and physical activity and prevent tobacco use, exposure to secondhand smoke and indoor air pollution and harmful use of alcohol. Interventions addressing alcohol use among adolescents should prevent the use of alcohol among this population. The HPV vaccine can prevent up to 70% incidence of cervical cancer.¹ Pre-conception planning can reduce maternal and newborn health risks for NCDs, particularly for women with diabetes.²⁴

In antenatal care, assessment, counselling and management can help prevent and reduce tobacco use in women as well as exposure to secondhand smoke and alcohol use and prevent sexually transmitted diseases and related birth defects.²⁵ A comprehensive, universally available antenatal

Figure 3

The RMNCH Continuum of Care



Source: PMNCH (2011). Adapted from WHO (2005) – Make every mother and child count.

care package which includes detection and management of diabetes in pregnancy can help reduce stillbirths by up to 45%, and also prevent maternal and newborn deaths.²⁶

As part of post-natal care, congenital heart disease in babies can be screened and treated immediately, preventing newborn deaths and chronic heart conditions.²⁷

Strengthening health systems to diagnose, manage and monitor NCDs in women and children

A skilled workforce, affordable interventions, effective referral systems and public awareness and engagement are needed in many low- and middle-income countries to provide care for RMNCH as well as chronic diseases. National health information systems need to be strengthened to get accurate data on NCDs. In Africa, around 80% of people with diabetes are undiagnosed.²⁸ In many low- and middle-income countries, screening coverage for cancer is usually low. A review of cervical cancer screening programs in 57 countries suggests low-cost screening such as pelvic

exams or visual inspection with acetic acid are possible when women contact obstetric services.²⁹ Integrating NCD-related information with other data on the health of women, children and other household members can help design programs that address the needs of vulnerable and high-risk groups in a more comprehensive manner.

Population-based policies and programs are needed

Population-based programs and policies are required to effectively prevent NCDs and can be implemented with relatively modest resources. For example, interventions to control tobacco and alcohol use include raising taxes and regulating advertising, packaging and labelling of cigarettes and tobacco products.¹ Interventions such as promoting

and supporting exclusive breastfeeding for the first six months of life and appropriate complementary feeding can reduce NCD risk factors and prevent NCDs.¹ Smoke free laws and clean cookstoves can protect women and children from harmful effects of secondhand smoke and indoor air pollution.^{1,30} Policies on food marketing communications can protect children against the impact of marketing of foods and non-alcoholic beverages high in saturated fats, trans-fatty acids, free sugars or salt.³¹ School health programs to promote healthy dietary practices and physical activity benefit girls in particular and help prevent overweight and obesity in the long-term.³² School programs on safe-sex behavior have been successful in improving knowledge on the topic.³³

Conclusion

To reach the Millennium Development Goals (MDGs) 4 and 5, accelerated progress is required. NCDs can impede progress towards the MDGs and severely affect women's and children's health worldwide. Increasing exposure to NCD risk factors affects not only women's and children's health, but also increases the vulnerability

of future generations to ill-health. The RMNCH continuum of care provides many opportunities to integrate NCD services. These synergies can be strengthened by forging links between the 2010 UN Secretary-General's Global Strategy for Women's and Children's Health and the UN High-level Summit on NCDs in September 2011.

References

1. WHO. Global status report on noncommunicable diseases 2010. 2011.
2. UN. Every Woman Every Child. Global strategy for women's and children's health. 2010.
3. WHO. World Health Statistics 2010. 2010.
4. WHO. Women and health: today's evidence tomorrow's agenda. 2009.
5. International Agency for Research on Cancer. Globocan 2008. <http://globocan.iarc.fr>
6. American Cancer Society. Global cancer facts & figures 2nd Edition. 2011.
7. NCD Alliance. Children in every policy: recommendation for a lifecourse approach to NCDs. 2011.
8. March of Dimes Birth Defects Foundation. March of Dimes global report on birth defects: the hidden toll of dying and disabled children. 2006.
9. World Bank. Capitalizing on the demographic transition: tackling noncommunicable diseases in South Asia. 2011.
10. WHO. 10 facts on noncommunicable diseases. 2011.
11. NCD Alliance. Noncommunicable diseases: a priority for women's health and development. 2011.
12. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. The health consequences of smoking: a report of the Surgeon General. 2004.
13. Lumley J, Chamberlain C, Dowswell T, Oliver S, Oakley L, Watson L. Interventions for promoting smoking cessation during pregnancy. Cochrane Database Syst Rev. 2009; (3): CD001055.
14. Subramoney S, d'Espaignet ET, Gupta PC. Higher risk of stillbirth among lower and middle income women who do not use tobacco, but live with smokers. Acta Obstet Gynecol Scand. 2010; 89(4): 572-7.
15. Pope DP, Mishra V, Thompson L, Siddiqui AR, Rehfuess EA, Weber M, et al. Risk of low birth weight and stillbirth associated with indoor air pollution from solid fuel use in developing countries. Epidemiol Rev. 2010; 32(1): 70-81.
16. WHO. Comparative quantification of health risks: global and regional burden of disease attribution to selected major risk factors. 2004.
17. WHO. WHO Global Burden of Disease: Cause-specific mortality: regional estimates for 2008. 2011.
18. Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, et al. Maternal and child undernutrition: global and regional exposures and health consequences. Lancet. 2008; 371(9608): 243-60.
19. Bhattacharya S, Campbell DM, Liston WA, Bhattacharya S. Effect of Body Mass Index on pregnancy outcomes in nulliparous women delivering singleton babies. BMC Public Health. 2007; 7:168.
20. Flenady V, Koopmans L, Middleton P, Froen JF, Smith GC, Gibbons K, et al. Major risk factors for stillbirth in high-income countries: a systematic review and meta-analysis. Lancet. England; 2011 Elsevier Ltd; 2011. p. 1331-40.
21. WHO. Global status report on alcohol and health 2011. 2011.
22. U.S. National Library of Medicine - National Institutes of Health. Fetal alcohol syndrome. 2009. <http://www.nlm.nih.gov/medlineplus/ency/article/000911.htm>
23. UN. The Millennium Development Goals Report 2010. 2010.
24. Wahabi HA, Alzeidan RA, Bawazeer GA, Alansari LA, Esmail SA. Preconception care for diabetic women for improving maternal and fetal outcomes: a systematic review and meta-analysis. BMC Pregnancy Childbirth. 2010; 10:63.
25. Atrash HK, Keith LB. Preconception care: science, practice, challenges and opportunities. Maternal and Child Health Journal. 2006; 10(Suppl 1).
26. Pattinson R, Kerber K, Buchmann E, Friberg IK, Belizan M, Lansky S, et al. Stillbirths: how can health systems deliver for mothers and babies? Lancet. England; 2011 Elsevier Ltd; 2011. p. 1610-23.
27. National Collaborating Centre for Women's and Children's Health. Antenatal care: routine care for the healthy pregnant woman. London; 2008.
28. World Diabetes Foundation. Diabetes facts. 2011. <http://www.worlddiabetesfoundation.org/composite-35.htm>
29. Gakidou E, Nordhagen S, Obermeyer Z. Coverage of cervical cancer screening in 57 countries: low average levels and large inequalities. PLoS Med. United States; 2008. p. e132.
30. WHO. Indoor air pollution and health. 2005.
31. WHO. Set of recommendations on the marketing of foods and non-alcoholic beverages to children. 2010.
32. Brown T, Summerbell C. Systematic review of school-based interventions that focus on changing dietary intake and physical activity levels to prevent childhood obesity: an update to the obesity guidance produced by the National Institute for Health and Clinical Excellence. Obes Rev. England; 2009. p. 110-41.
33. Shepherd J, Kavanagh J, Picot J, Cooper K, Harden A, Barnett-Page E, et al. The effectiveness and cost-effectiveness of behavioural interventions for the prevention of sexually transmitted infections in young people aged 13-19: a systematic review and economic evaluation. Health Technol Assess. 2010; 14(7): 1-206, iii-iv.