



# Vaccines and non-communicable diseases

## Quick Facts

- Non-communicable diseases (NCDs) are the leading causes of death globally. NCDs killed 36 million people in 2008, representing 63% of global deaths, principally from cardiovascular diseases, diabetes, cancer and chronic respiratory infections.
- Cancer killed 7.6 million people in 2008. More than 70% of these deaths occurred in low- and middle-income countries. The World Health Organization expects cancer deaths to rise to more than 11 million by 2030.
- Chronic hepatitis B virus infection is a major cause of liver cancer. In 2008, liver cancer killed 700,000 people, representing 9% of all cancer deaths.
- Human papillomavirus (HPV) causes virtually all cervical cancer cases. In 2008, 275,000 women died of cervical cancer; 88% of those deaths occurred in developing countries.
- The number of liver cancer and cervical cancer cases can be significantly reduced through safe and effective vaccines that prevent hepatitis B and HPV infections.

Contrary to popular opinion that NCDs are diseases of rich countries, 80% of NCD-related deaths occur in low- and middle-income countries. The burden of NCDs is rising fastest among lower-income countries and has enormous human, economic and social costs.

## Cancer-associated infections

Cancer is the second leading cause of NCD deaths (21% of NCD deaths). Some cancers are caused by a few, specific chronic infections. Hepatitis B virus and human papillomavirus are largely preventable through safe and effective vaccines. These vaccines are especially important as a primary prevention strategy for liver and cervical cancers in low-income countries where access to diagnostic and treatment services is limited.

## Hepatitis B vaccine is a "best buy"

Chronic hepatitis B is a major cause of liver cancer but can be prevented by immunisation. The World Health Organization (WHO) considers hepatitis B immunisation among the "best buys" in preventing NCDs on a population-wide basis.

In GAVI's first decade, an additional 267 million children were immunised with hepatitis B vaccines. As a result, an estimated three million future deaths from liver cancer and other hepatitis B-related infections have been prevented. GAVI will accelerate this effort and plans to support the immunisation of a further 230 million children in the next five years.

## Bridging the vaccine divide

When hepatitis B vaccine first became available in high income countries in 1982, it was not accessible to developing countries largely because of cost. More than a decade passed before the first developing country used the vaccine for routine immunisation.

The GAVI Alliance was established in 2000 to accelerate the introduction of new vaccines into developing countries where the burden of disease was highest. Uptake was quick. By 2006, the proportion of low income countries with hepatitis B in their routine immunisation programmes had overtaken high-income countries.

Hepatitis B vaccine is now routinely available as part of the pentavalent vaccine, a five-in-one vaccine which protects children against five killer diseases (diphtheria, tetanus, pertussis, hepatitis B and Hib disease). By the end of 2010, 61 countries had been approved for GAVI support of pentavalent vaccine, 59 of which had already introduced the vaccine.

## Women's health and cancer

Cervical cancer is the leading cause of cancer death among women in sub-Saharan Africa. In Latin America and Asia more women die

from cervical cancer than from pregnancy-related causes. Without any interventions, it is estimated that by 2030 the number of women dying from cervical cancer will rise to 433,000 deaths, virtually all in developing countries.

HPV vaccines prevent the two most common strains of HPV, 16 and 18, which cause 70% of cervical cancer cases. HPV vaccines have been introduced into the routine immunisation programmes of most high-income nations, but are still not widely available in low-income countries. As part of its vaccine investment strategy, which identifies the vaccines that will have the most impact on disease burden, GAVI prioritised HPV vaccine as one of four vaccines for future support.

### Market shaping is critical

Reducing vaccine prices and securing stable supply is critical to increasing immunisation

coverage. Hepatitis B vaccine shows what can be achieved. With increased demand from developing countries and growing competition among vaccine manufacturers, the cost of the hepatitis B vaccine fell between 2000 and 2010 from US\$ 0.56 to US\$ 0.18, a 68% reduction in price.

The high price of HPV vaccines is a barrier to their introduction in developing countries. GAVI is working with manufacturers to reduce the price of the vaccines to a level that is affordable and sustainable. In June 2011 Merck & Co. announced that it would provide the HPV vaccine to GAVI at US\$ 5 per dose, a 67% reduction on the current lowest public price.

Information current as of September 2011

## China's success at fighting liver cancer with hepatitis B vaccines

Just over a decade ago, barely 40% of children living in China's poorest western and central regions were immunised against hepatitis B and approximately 10% were chronic carriers. An estimated 260,000 to 350,000 people in China died each year from hepatitis B infection and related causes.

Between 2002 until 2010, a partnership between GAVI and the Government of China provided first-dose hepatitis B vaccines to over 25 million newborns in the poorest and most remote provinces in western and central China. Demonstrating the catalytic effect of GAVI's support, the Chinese Government introduced the vaccine into routine immunisation programmes. The vaccine is now given free to all newborns and coverage with the vaccine is 94%. This success has led to a dramatic reduction in the carriage rate of children under the age of five to less than 1%.



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