

VACCINES

Highly effective and safe vaccines are available to prevent HBV and HPV infections and associated cancers.

An estimated 257 million people are living with hepatitis B virus (HBV) infection globally. HBV is responsible for nearly 900,000 deaths annually, including more than 300,000 deaths from hepatocellular carcinoma (HCC). HCC results from chronic HBV infection, and the risk of chronic infection is greatest if transmission occurs during birth or early childhood. The vaccines for HBV have been available since 1982 as a three-dose series, and can prevent chronic infection and sequelae including cirrhosis and HCC. As of 2017, 186 countries had introduced HBV vaccination, and globally 3-dose vaccination coverage among children reached 84%. **MAP 29.1** To prevent mother-to-child transmission, the first dose should be given within 24 hours after birth; however, only 101 countries (55%) had introduced universal HBV vaccine birth dose, and coverage globally was estimated at 43%.

Human papillomavirus (HPV) is the cause of 630,000 cancers annually, 83% of which are

cervical cancers, 10.9% other anogenital, and 4.6% oropharyngeal cancers. **FIGURE 29.1** Two HPV vaccines, a bivalent and a quadrivalent vaccine, have been available since 2006. A third vaccine, a nonavalent vaccine, has been available since 2015. These vaccines, combined with screening, have the potential to avert millions of cervical cancer deaths over the coming decades. **FIGURE 29.2** They are given as a three-dose or a two-dose series, are highly effective and safe, and target HPV types 16 and 18 (which cause over 70% of all cervical cancers) and most other cancers that are caused by HPV. The nonavalent vaccine targets HPV types 16 and 18 as well as five additional cancer-causing HPV types; these seven types cause over 90% of cervical cancers. In most countries, the target group for HPV vaccination is young adolescent girls; some countries also recommend vaccination for boys. The first countries to introduce HPV vaccine were high-income countries, due to the cost of vaccines. Middle- and low-income countries started to introduce vaccines three to six years later. By 2019, over 96 countries had introduced HPV vaccination. **MAP 29.2**

ACCESS CREATES PROGRESS

Rwanda has some of the highest cervical cancer rates in the world. However, this country has achieved greater than 98% coverage in its HPV vaccine target population due to government commitment, school-based delivery, and a strategy to reach out-of-school girls.



FIGURE 29.1
Cancers associated with HPV and percent of cases attributable to HPV infection

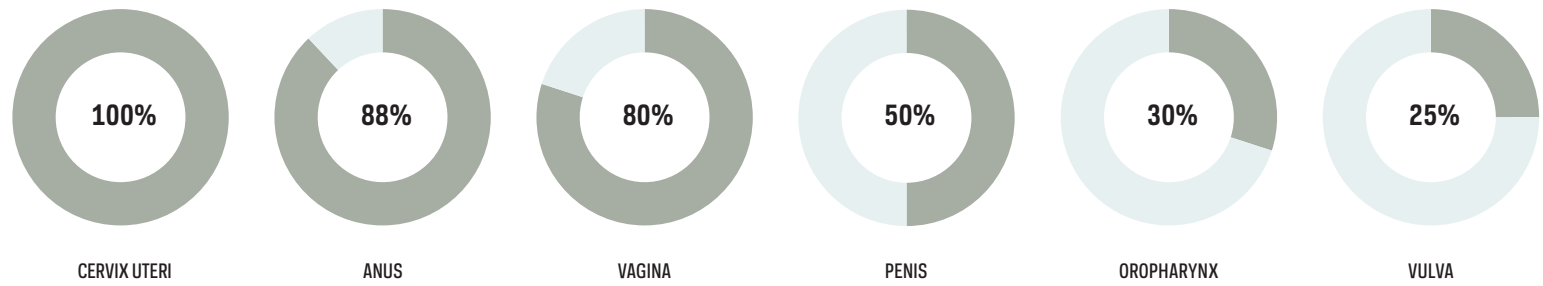
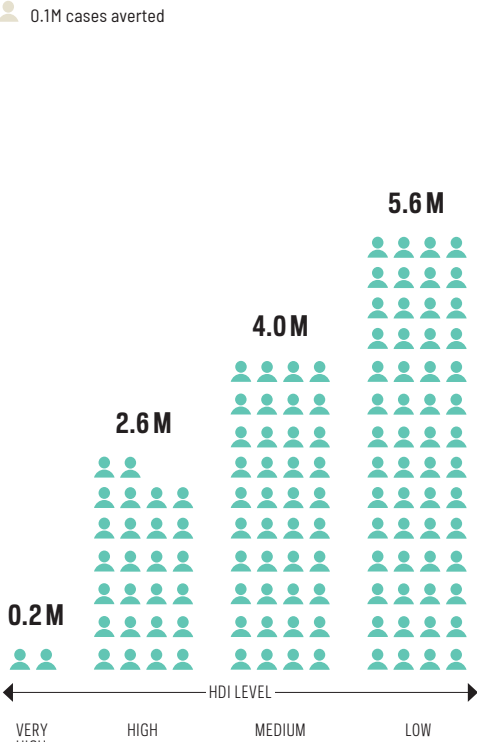


FIGURE 29.2
Cervical cancer cases averted (millions) in 2020-2069 with implementation of screening twice per lifetime and 80-100% female-only vaccine coverage with nonavalent HPV vaccine, by Human Development Index level (HDI)

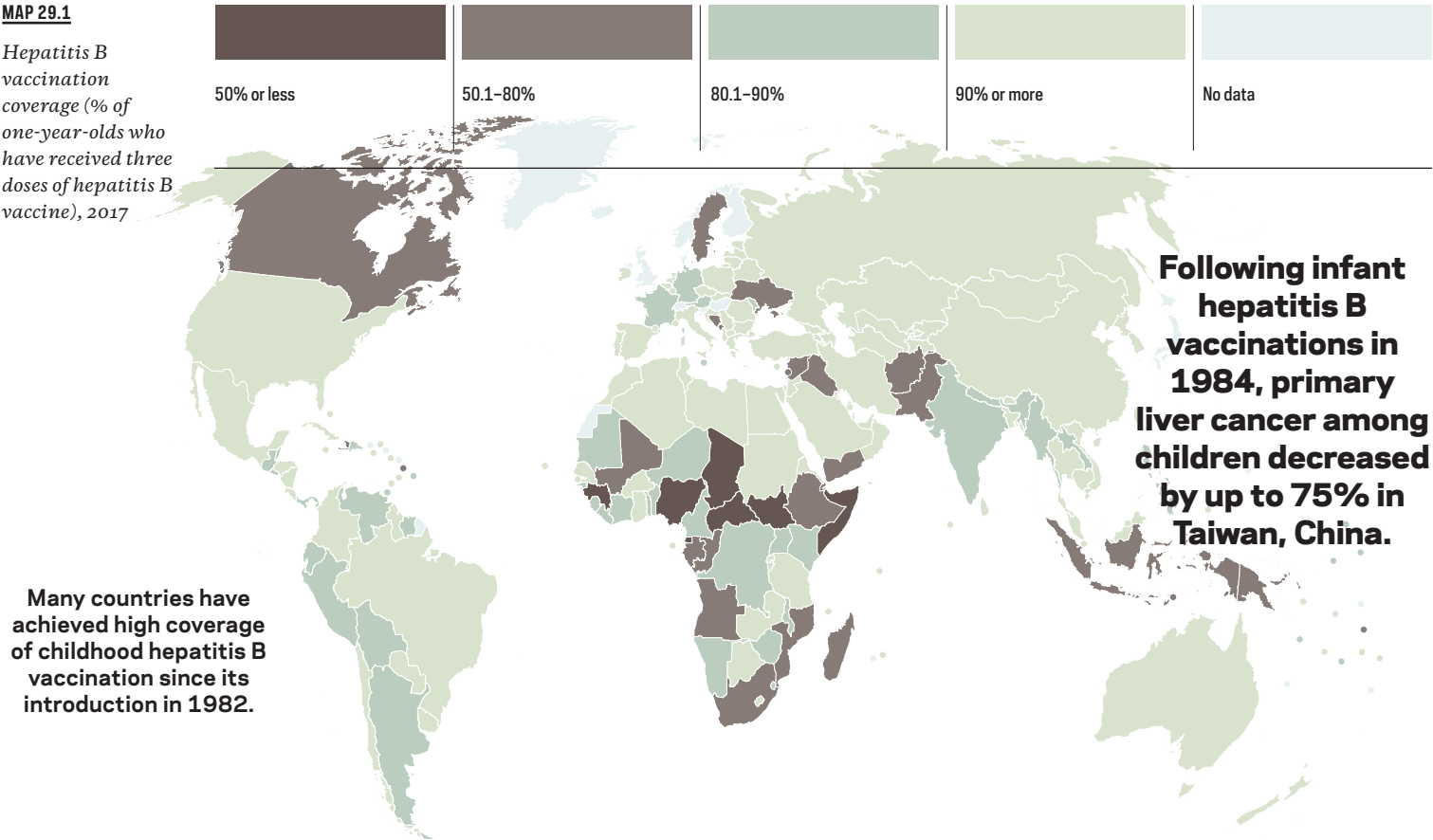


Through a scale-up of HPV vaccination and screening, millions of cervical cancer cases could be avoided in the coming decades, particularly in lower-HDI countries.

HPV is responsible for nearly all cervical cancers and a substantial proportion of other anogenital and oropharyngeal cancers.

MAP 29.1

Hepatitis B vaccination coverage (% of one-year-olds who have received three doses of hepatitis B vaccine), 2017

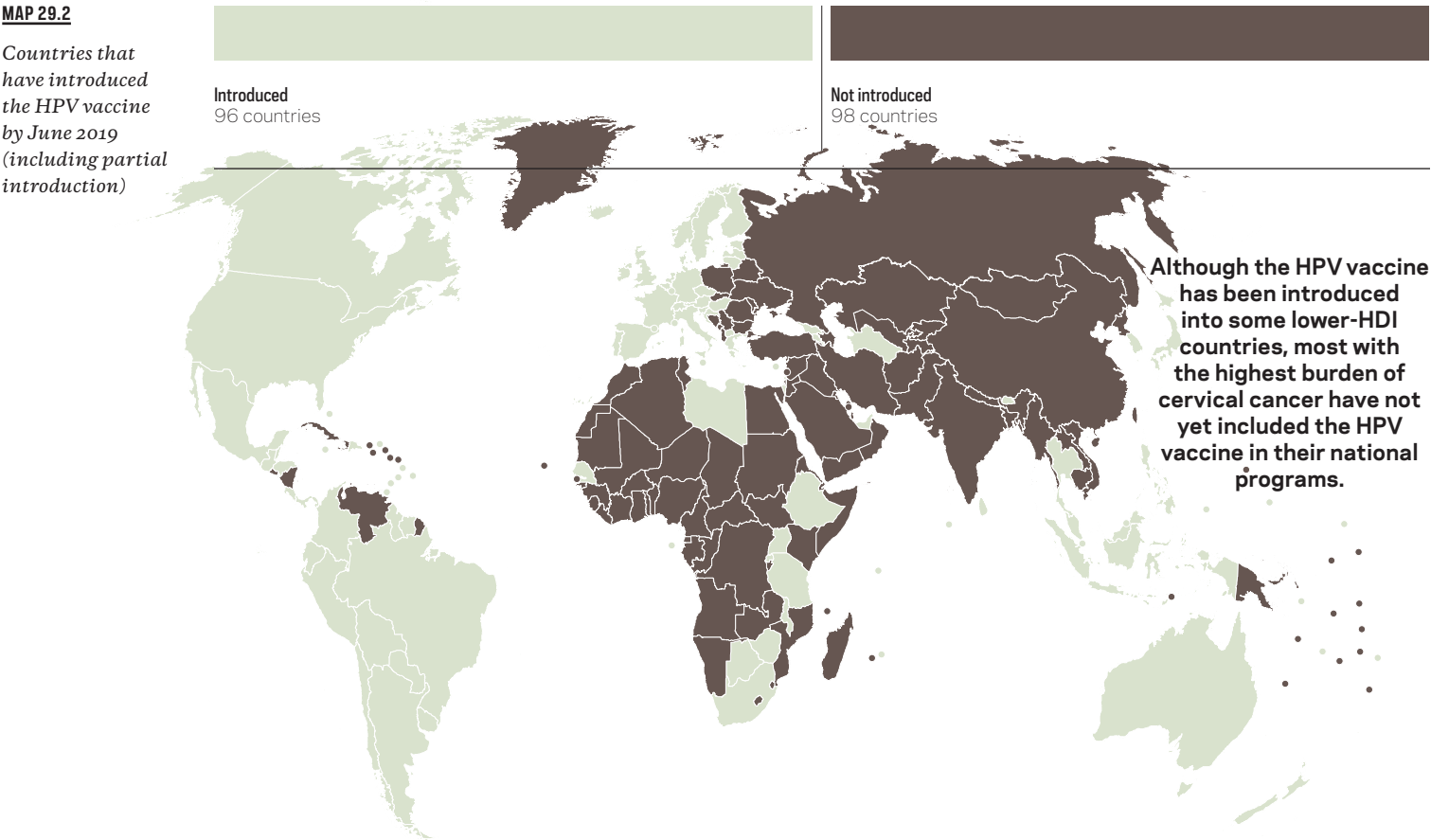


Many countries have achieved high coverage of childhood hepatitis B vaccination since its introduction in 1982.

Following infant hepatitis B vaccinations in 1984, primary liver cancer among children decreased by up to 75% in Taiwan, China.

MAP 29.2

Countries that have introduced the HPV vaccine by June 2019 (including partial introduction)



Although the HPV vaccine has been introduced into some lower-HDI countries, most with the highest burden of cervical cancer have not yet included the HPV vaccine in their national programs.