

Organizational work of immunization and vaccination in primary care

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Abstract. The use of vaccines for the prevention of diseases in children, adults and the elderly leads to fewer medical visits, diagnostic tests, treatment and hospitalizations, which leads to significant savings in health care costs. Vaccines also contribute to reducing resource use by preventing hospital-acquired infections such as rotavirus gastroenteritis. Vaccination also plays an important role in the prevention of cancer, for example, with vaccines against human papillomavirus or hepatitis B. Since the financial consequences of cancer are high for patients, health systems and society as a whole, any prevented cases will reduce this impact. New vaccines, such as the herpes zoster vaccine, can provide a response to unmet medical needs by preventing and reducing the severity of shingles and associated postherpetic neuralgia, which are difficult to treat conditions. Thus, in the face of increasing pressure on health budgets, vaccination can contribute to the sustainability of health systems by reducing and using health resources more efficiently.

Keywords: vaccination, immunization, secondary infections, cancer, cost savings.

Over the past decades, vaccination has dramatically reduced the incidence of several infectious diseases that have caused many sufferings and deaths. The impact of vaccination was demonstrated by the assessment that in the era of "vaccines for children" (1994-2013), the total number of prevented routine childhood vaccinations in the United States amounted to more than 322 million cases of infectious diseases, 21 million hospitalizations and 731,700 deaths. Thus, vaccination has made a significant contribution to the sustainability of health systems by reducing the burden of frequent infectious diseases and the associated use of resources. The number of vaccines protecting against a number of infections affecting not only children, but also adults and the elderly is growing.

Today, children in different countries regularly receive vaccines that protect them from more than a dozen diseases. Vaccination of children has led to a significant reduction in the incidence of numerous infectious diseases and related mortality, such as diphtheria, tetanus and polio, tuberculosis, whooping cough, measles, mumps and rubella.

Vaccines that can prevent diseases such as influenza, pneumococcal diseases and shingles in older people are likely to reduce not only the costs associated with drug consumption, but also the costs associated with their side effects. For example, a Dutch study of 84 patients with postherpetic



neuralgia (PHN is a well-known complication of shingles) showed that 89% of patients took prescription medications such as antidepressants, opioids, various analgesics, as well as antiepileptic drugs. Older people are very susceptible to side effects from medications, partly because they usually take more than one medication and there is often no dose adjustment. It is known that polypharmacy is associated with negative health consequences and is the main cause of drug interactions and safety problems in this age group (34 years).

Vaccination can also play a role in preventing hospital-acquired infections. For example, RV is one of the main etiological agents for pediatric nosocomial diarrhea, responsible for 31 to 87% of cases. Vaccines can also reduce the risk of secondary infections, which is relevant not only for vaccinated people, but also for the general population. For example, vaccination of healthcare workers against influenza (HCW) has been shown to be associated with a significant reduction in mortality among elderly patients.

In 2012, 2.7 million people in the European Union were diagnosed with cancer. Infectious agents, including viruses and bacteria, cause almost a fifth of all cancers in the world. Among the most important cancer-related infections are: HPV, which can cause most cases of cervical and anal cancer, as well as part of oral cancer; hepatitis B virus (HBV) and hepatitis C virus (HCV), which can cause liver cancer; and *Helicobacter pylori*, which is a bacterium that may cause stomach cancer.

Vaccines are the most effective way to prevent some of these infections. Effective HBV vaccines have been available for several decades, and more than 90% of countries include HBV vaccination in their childhood immunization programs, which has been shown to be responsible for a dramatic reduction in liver cancer.

In addition to having a direct impact on health resources and costs, vaccines can increase the resilience of health systems by responding to unmet medical needs. The herpes zoster vaccine is a good example, as there are no preventive measures or satisfactory treatment.

Conclusion: Vaccination reduces healthcare costs associated with hospitalization and outpatient visits in several real-life impact studies. Prevention of diseases in children, adults and the elderly through vaccination makes it possible to preserve people's health. Consequently, vaccination can contribute to the sustainability of health systems by avoiding unnecessary use of financial and human resources and freeing up resources for other medical interventions. Improving the use of vaccination programs is crucial at times when Governments are looking for solutions to use health resources more efficiently.

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