

COVID-19 Vaccines

Preparing for vaccination in the context of clinical oncology care

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BACKGROUND: In the environment of an infectious pandemic, vaccines are a primary public health strategy to prevent the spread of disease. With the COVID-19 pandemic, there is heightened interest in safe and effective vaccines and their use in the context of clinical oncology practice.

OBJECTIVES: This article provides foundational information about vaccines in general and vaccines developed to protect against the SARS-CoV-2 virus in the United States, as well as clinical nurse strategies to apply vaccines in clinical oncology practice.

METHODS: The article is based on a review of public health literature and reputable websites about vaccines and their development in clinical care.

FINDINGS: This foundational information about vaccines reviews their history and development, as well as the development of COVID-19 vaccines specifically, and discusses COVID-19 vaccines as part of clinical oncology care. Supporting best practices in clinical oncology care, nurses can provide factual, evidence-based information about vaccine safety, effectiveness, and safe administration.

KEYWORDS

vaccines; cancer; prevention of infection; COVID-19 vaccine; cancer program safety

DIGITAL OBJECT IDENTIFIER

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AS A PUBLIC HEALTH STAPLE, VACCINES ARE AN IMPORTANT COMPONENT of comprehensive programs to reduce the spread of disease during a pandemic. Although vaccines rarely provide complete protection from infection in all individuals, the coverage vaccines do provide is significant (American Cancer Society [ACS], 2020b; American Society of Clinical Oncology [ASCO], 2020b; Centers for Disease Control and Prevention [CDC], 2020f). A clinical foundation for COVID-19 vaccines continues to develop. This article reviews the latest on COVID-19 vaccines related to clinical oncology practice in the United States as of December 2020.

To address morbidity and mortality associated with the COVID-19 pandemic, there is intense interest in vaccines and the infection control capabilities they promise. To provide background for clinicians in practice in the United States, this article reviews vaccines, vaccine development, and how vaccines are a component of oncology clinical practice. In the context of the COVID-19 pandemic, the article also reviews the role of COVID-19 vaccines in oncology clinical practice and how oncology nurses can provide factual, evidence-based information about vaccine safety and efficacy. Issues associated with vaccine hesitancy as a public health concern are also reviewed. That hesitancy can include distrust of the vaccine's safety and efficacy; political, cultural, and values-based influences; and general and specific misinformation about vaccines.

When written in December 2020, this article was a prelude to many milestones associated with the development and launch of safe and effective COVID-19 vaccines. Figure 1 provides a resource list of sources for updated information about vaccines in general, COVID-19 vaccines, and clinical guidelines about implementing vaccination in oncology clinical practice.

History of Vaccines

As one of the more effective strategies to ensure public health, vaccines have a storied history that goes back centuries. As a time stamp for vaccines as a focus in public health, Edward Jenner used material from cowpox pustules as a foundation to protect against smallpox in 1796. Centuries later, that work ultimately led to the eradication of smallpox (College of Physicians of Philadelphia [CPP], 2020).

The scientific basis for effective vaccines has advanced, building on an understanding of molecular biology. In the 1700s, the vaccinia virus was