Barriers to Immunizations and Strategies to Enhance Immunization Rates in Adults with Autoimmune Inflammatory Diseases

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KEYWORDS

• Immunization • Barriers • Autoimmune inflammatory disease • Adult

KEY POINTS

- Barriers to immunization have existed for as long as immunization.
- Immunization rates in adults are below target.
- Barriers to immunization must be identified and strategies developed to increase immunization rates.
- All health care providers, both primary and specialty, should assess patients for immunization needs.
- Specialty providers, including rheumatologists, should offer vaccines appropriate to immunocompromised patients.

INTRODUCTION AND BRIEF HISTORY OF BARRIERS TO IMMUNIZATION

It seems that for as long as humans have practiced immunization, there have been barriers to it. Evidence suggests that immunizations have been used to prevent disease for almost 1000 years; the variolation technique, used to prevent smallpox, was likely developed in the 1100s and used in Turkey, Africa, China, and parts of Europe.[1] In many of these areas those in favor of variolation were challenged by traditional healers who believed that smallpox was a natural way for the body to expel "bad humors" and religious leaders who believed that attempting to prevent smallpox would anger gods or goddesses.[2] Nevertheless, the practice of variolation spread to

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Western Europe and North America in the 1700s, but there, too, it was not without controversy. Even then, when smallpox outbreaks routinely caused significant illness, disfigurement, and death, there were barriers to immunization of both children and adults. Some physicians saw the benefit of variolation but attempted to corner the market by intentionally making the process more difficult than it needed to be; by cultivating the belief that variolation required deep cuts and significant bloodletting, they ensured that those seeking immunization would have to pay for a major procedure versus the light scratch and inoculation that historically had been performed at times even by amateurs.[3] The major objections to variolation in the Puritan colonies during the early to mid-1700s were on both medical and religious grounds; ministers weighed in on the debate and had significant influence over their congregations. Although many Puritan ministers supported variolation (including, most famously, Cotton Mather [**Fig. 1**]), those who opposed it were often able to prevent their members from seeking immunization. One way to combat this barrier was to instruct nonphysicians on how to immunize themselves and their children (thereby overcoming 2 barriers: cost and stigma); Benjamin Franklin encouraged his friend, the English physician William Heberden, to write a pamphlet in 1759 entitled, "Some Account of the Success of Inoculation for the Small-Pox in England and America: Together with Plain Instructions, By which any Person may be enabled to perform the Operation, and conduct the Patient through the Distemper." The pamphlets were distributed for free in the American colonies.[4] By 1775 the benefit to national security seen by preventing smallpox was recognized, and George Washington ordered that all troops in the Continental Army be variolated. This helped spread acceptance of the practice until it was eventually replaced by the safer form of immunization, vaccination.[4]

During the 1721 Boston smallpox epidemic, Puritan minister Cotton Mather urged a local physician to use variolation to prevent the spread of the epidemic. The practice,

Fig. 1. Cotton Mather, FRS (1663-1728).