

# Googling for Information About Alternative Vaccination Schedules

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## ABSTRACT

**Introduction:** The purpose of this study was to explore and describe the information a parent may find when Googling for information about alternative vaccination schedules.

**Methods:** The data collection tool included evaluation of Web site quality and vaccine-specific content on the 12 sites that met the inclusion criteria.

**Results:** Seven of the Web sites had a bias toward vaccination, three sites were anti-vaccine, and two sites were neutral in their stance. Three of the four Web sites authored by physicians had an antivaccine bias. Only three sites included 50% or more of the vaccine-specific content. Fewer than half of the Web sites recommended that vaccine concerns be discussed with a health care provider. Three alternate vaccine schedules were found in the study sample.

**Discussion:** Although the majority of the Web sites indicated that vaccines are important and acknowledged that parents may have legitimate concerns regarding vaccinations, few addressed parental fears surrounding vaccine safety. It would be challenging for a parent to decide what vaccine information constitutes “science” and which site is “right” when there are “expert” physicians on both sides of an intense debate. It is important for parents to bring in the vaccine information they find to facilitate an open dialogue and build trust with their health care provider. *J Pediatr Health Care.* (2015) 29, 379-384.

## KEY WORDS

Alternate vaccine schedule, parent, Web

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Up to 21% of parents of young children are using alternative vaccination schedules (Robison, Groom, & Young, 2012). Dempsey and colleagues (2011) reported three worrying trends that may suggest that even the attitudes of parents who do comply with the Centers for Disease Control and Prevention (CDC) recommended vaccine schedule might change over time. These investigators found that: (a) 30% of parents originally following the CDC schedule were presently using alternate schedules for their young children; (b) 20% of parents who were following the CDC schedule thought delaying doses was safer; and (c) 22% of parents did not agree that the CDC schedule was the best plan to follow.

When using an alternative schedule, vaccines are administered to children at later ages than recommended by the CDC, or there is selective delivery of one or more recommended vaccines. Parents give a variety of reasons for choosing alternative vaccine schedules, ranging from concerns about vaccine safety to reducing the number of injections a child will receive at a single clinic visit. However, young infants and children on alternate or selective schedules are not fully protected against vaccine-preventable diseases, and if they are

exposed to these diseases, they are at increased risk for serious illness (Smith, Humiston, Parnell, Vannice, & Salmon, 2010).

An increasing number of parents consult the Internet for child health information. In a recent study, parents who reported searching the World Wide Web (Web) for vaccine information had limited knowledge about vaccine safety and reduced concerns about preventable infectious diseases, and they did not believe that their health care professional was a trustworthy information source (Jones et al., 2012). To design educational interventions for parents who may be hesitant about vaccines, it is important for pediatric health professionals to be knowledgeable about the information parents may find about alternative vaccination schedules on the Web. Thus, the purpose of this study was to explore and describe the information a parent may find when Googling for information about alternative vaccination schedules.

## METHODS

An exploratory descriptive design was used to guide the study. A systematic Internet search was conducted in February 2013 using Google, the most popular search engine in the United States (Chitika, Inc., 2012). The search phrases for the study included combinations of two or three of the following key words: alternate, baby, delay, infant, schedule, vaccine, and shots (e.g., “alternate vaccine schedule”). The aim of using these search phrases was to simulate a simple search a parent might conduct. In preliminary searches, it was determined that the terms “immunization” and “vaccine” did not produce the same search results. Therefore, the key word “vaccine” was used in the search queries. All site links on the first two pages (10 links per page) from each search were reviewed. Research indicates that the majority of users will select sites on the first page of search results (Spink, Wolfram, Jansen, & Saracevi, 2001). Inclusion criteria were Web sites that were written in English and contained content about vaccine schedules. Exclusion criteria included duplicate Web sites, news reports, articles that a parent could not freely access, blogs (or forums), videos, and portable document files.

The data collection tool for the study was based on a tool used in previous Web-based studies by the second author. It included two parts: (a) Web site quality

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assessment items and (b) vaccine-specific content items. The quality assessment items included author and credentials, author affiliation, last update for the vaccine information, date of the last Web site update, Health on the Internet Foundation certification seal (HONcode), and references. Bias for or against vaccinations was determined by weighing the arguments on each Web site as pro-vaccine (using the recommended CDC schedule), neutral, or anti-vaccine (recommended against following the recommended CDC schedule). The vaccine-specific content portion of the tool was designed using a professional pamphlet developed by the California Immunization Coalition (2010). This document discusses how health care providers can approach questions that parents have about vaccines, including alternate schedules.

## RESULTS

The searches identified a total of 61 Web sites. Only 12 sites met the inclusion criteria of the study (see Table 1). Assessment items were tallied using descriptive statistics, and frequency tables were constructed to present data across the sites.

Table 1 describes selected quality assessment items for each of the 12 Web sites. Three of the four Web sites that were authored by physicians (pediatrician, pediatric infectious disease specialist, and cardiac surgeon) had an anti-vaccine bias. Web site affiliation as determined by the domain name included one governmental agency (.gov), three organizational (.org) sites, and eight sites that were commercial (.com). Ten of the 12 Web sites included references for their sources of information. Only 1 of the 12 sites displayed the HONcode certification seal. Seven of the 12 Web sites either did not list a date for the vaccine-specific information posted on the Web site or had information posted that was more than 5 years old. Seven of the Web sites had a bias toward vaccination, three sites were anti-vaccine, and two were neutral in their stance.

Tables 2 and 3 summarize the type of vaccine-specific content found on each of the sites. Each of the 12 Web sites contained from 2 to 11 of the 18 vaccine-specific content items. The three Web pages with the most vaccine-specific content items were found at the Web site for Dr. Sears Wellness Institute ( $n = 11$ ), Parents.com ( $n = 10$ ), and the children’s arm of WebMD.com ( $n = 9$ ). The remaining nine sites included fewer than half of the vaccine-specific content items.

The first vaccine-specific content category included reasons why parents may desire to vaccinate their child (see Table 2). Ten of the 12 Web sites included information on the danger of catching vaccine-preventable diseases as a reason for vaccinating. Nine of the 12 sites included information on the importance of vaccines and mentioned the importance of vaccines to protect the health of the individual; however, only five sites stressed the importance of vaccination in infants and

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