

Safe Infant Sleep Recommendations on the Internet: Let's Google It

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Objectives To determine the accuracy of information on infant sleep safety on the Internet using Google. We hypothesized that the majority of Web sites would accurately reflect the American Academy of Pediatrics (AAP) recommendations for infant sleep safety.

Study design We searched for advice using 13 key phrases and analyzed the first 100 Web sites for each phrase. Web sites were categorized by type and assessed for accuracy of information provided, based on AAP recommendations. The accuracy of information was classified as "accurate," "inaccurate," or "not relevant."

Results Overall, 43.5% of the 1300 Web sites provided accurate information, 28.1% provided inaccurate information, and 28.4% were not relevant. The search terms "infant cigarette smoking," "infant sleep position," and "infant sleep surface" yielded the highest percentage of Web sites with accurate information. "Pacifier infant," "infant home monitors," and "infant co-sleeping" produced the lowest percentage of Web sites with accurate information. Government Web sites had the highest rate of accuracy; blogs, the lowest.

Conclusion The Internet contains much information about infant sleep safety that is inconsistent with AAP recommendations. Health care providers should realize the extent to which parents may turn to the Internet for information about infant sleep safety. (*J Pediatr* 2012;161:1080-4).

The Internet is an increasingly common source for health-related information and medical questions.¹ In 2010, 59% of the US population used the Internet to search for health information,^{2,3} with parents searching for health information regarding their children among the top users.³ Furthermore, almost 70% of adults surveyed reported that information found online has affected their health decisions or actions.⁴ Access to health information on the Internet has the potential to empower patients and revolutionize health care. Indeed, 61% of adults who use the Internet for health information believe that it has improved how they care for themselves or someone else.⁴ One study found that increased access to health information, including Internet information, was associated with a decrease in pediatric visits.⁵

Persons who use the Internet to search for health information generally trust the information found. In a national survey, 72% of adults agreed that one can believe most or all of the health information presented on the Internet.⁴ However, depending on the topic and the Web site, the reliability and accuracy of health information on the Internet ranges from poor to excellent.^{6,7} This is true for Web sites addressing pediatric concerns as well.⁷⁻⁹

The American Academy of Pediatrics (AAP) has published recommendations for infant sleep safety to reduce the risk of sudden infant death syndrome (SIDS), suffocation, strangulation, entrapment, and other accidental sleep-related infant deaths.^{10,11} However, parents and health care professionals frequently have questions and concerns about specific recommendations,¹²⁻¹⁵ and the Internet is likely a primary source of additional information. No previous study has documented the accuracy and reliability of information on infant sleep safety available on the Internet.

Google, one of the most popular Internet search engines, is frequently used by both patients¹⁶ and physicians¹⁷ to access health-related and medical information. The typical adult seeking health information on the Internet will begin not at a medical Web site, but rather at a search Web site and will spend at least 30 minutes on a search, during which she or he will visit 2-5 different Web sites.⁴ To evaluate the accuracy of information regarding infant sleep safety encountered by a typical user conducting an Internet search, we attempted to simulate this experience by conducting Internet searches on the Google Web site. We hypothesized that the majority of Web sites uncovered in our Google searches would accurately reflect the AAP recommendations for infant sleep safety.

Methods

We searched for advice with 13 key phrases relating to infant sleep safety (Table I), chosen to reflect specific AAP recommendations for infant sleep safety.^{10,11} For each recommendation, up to 2 key phrases were used to perform a search on www.google.com. Web sites were categorized by type (Table II; available at

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AAP	American Academy of Pediatrics
SIDS	Sudden infant death syndrome

Table I. Acceptable advice for key phrases based on AAP recommendations for safe infant sleep environment

Recommendation	Key phrase	Acceptable advice
Sleep position	Infant sleep position	Back position only for all periods of sleep. Side sleeping is not advised.
Sleep surface	Infant sleep surface	Infants should sleep on a firm sleep surface. No soft materials or objects (ie, pillows, quilts, comforters) should be placed under infant. A firm crib mattress, covered by a fitted sheet, is the only recommended sleeping surface.
Bedding	Safe infant bedding	No soft objects or loose bedding should be on or in bed.
Smoking	Infant sleep bedding Infant cigarette smoking	Bumper pads should not be used. No smoking during pregnancy. Infant should not be exposed to second hand smoke.
Room sharing	Infant room sharing	The risk of SIDS is decreased if the infant sleeps in the same room as the parent.
Pacifier	Pacifier sleeping	Pacifiers have been shown to reduce the risk of SIDS.
Overheating	Infant pacifier Infant overheating	For breast-fed infant, delay until 1 month to ensure that breast-feeding is established. Infants should be lightly clothed for sleep. Infants should be dressed similar to how parent/guardian is dressed. Overbundling should be avoided; infant should not be hot to the touch.
Infant products	SIDS products	Avoid products marketed to reduce the risk of SIDS.
Home monitors	Infant home monitors	Do not use home monitors as a risk reduction method.
Bed sharing	Infant bed sharing Infant co-sleeping	Infants should always sleep alone on own sleep surface.

www.jpeds.com) and assessed for accuracy of information provided, based solely on consistency with AAP recommendations^{10,11} (Table I). Each appearance of a Web site was noted, because some Web sites appeared more than once in a single search. The type of Web site was identified by analyzing the site's URL and checking the Web site for any section titled "About Us" or something similar (Table II). The accuracy of the information found on each Web site was classified as "accurate" (consistent with current recommendations), "inaccurate" (inconsistent with current recommendations), or "not relevant" (did not address the topic, did not give advice, was a nonworking Web site, or was unrelated to the key phrase).

Because we believed it unlikely that a typical search would extend further, we analyzed only the first 100 Web sites (8-10 pages of results) for each of the key phrases. We also analyzed the first page of search results (10-12 Web sites) separately, to evaluate the accuracy of information on the Web sites that a typical searcher would most likely read. Four researchers performed the searches independently over a 2-month period. To minimize observer bias, strict definitions for acceptable advice were used to determine the accuracy of Web site contents (Table I). Any uncertainty or disagreement about the accuracy of a Web site's content was resolved through discussion and ultimate consensus among the researchers. This study was granted exemption by the Children's National Medical Center Institutional Review Board.

Results

A total of 1300 Web sites (100 for each of the 13 key phrases) were analyzed in July and August 2011 and reanalyzed for accuracy after the most recent AAP guidelines were published,¹¹ specifically with regard to the new recommendation against all bumper pad use. The proportion of Web sites with accurate information varied depending on the key phrase

analyzed. Overall, 566 of the 1300 Web sites searched (43.5%) provided accurate information, 365 (28.1%) provided inaccurate information, and 369 (28.4%) were not relevant to the key phrase (Table III). Excluding the Web sites that were irrelevant, 60.8% of the relevant Web sites provided accurate information.

The key phrases associated with the highest percentage of Web sites with accurate information were "infant cigarette smoking" (82% accurate), "infant sleep position" (74% accurate), and "infant sleep surface" (73% accurate). For each of the other 10 key phrase searches, less than 58% of the Web sites (range, 14%-58%) contained accurate information. The key phrases yielding the highest percentage of Web sites with inaccurate information were "pacifier infant" (14% accurate), "infant home monitors" (18% accurate), and "infant co-sleeping" (20% accurate). When the search results were limited to the first page of Web sites (Table IV), excluding the 24 Web sites that were not relevant, 67.3% of the relevant Web sites contained accurate information.

Table III. Number of first 100 Web sites with accurate information, by key phrase searched*

Key phrase	Accurate	Inaccurate	Not relevant
Infant sleep position	74	11	15
Infant sleep surface	73	16	11
Safe infant bedding	47	7	46
Infant sleep bedding	58	28	14
Infant cigarette smoking	82	11	7
Infant room sharing	38	62	0
Pacifier sleeping	40	5	55
Pacifier infant	14	1	85
Infant overheating	52	48	0
SIDS products	17	28	55
Infant home monitors	18	19	63
Infant bed sharing	33	64	3
Infant co-sleeping	20	65	15
Total	566 (43.5%)	365 (28.1%)	369 (28.4%)

*Based on recommendations made by the AAP Task Force on SIDS.^{10,11}

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