Google searching compared to education materials produced by the Canadian Anesthesiologist's Society- which has better potential to effectively inform patients regarding the risks of anesthesia?

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Introduction

Prior to undergoing a medical procedure requiring anesthesia, some patients find themselves faced with questions regarding the risks associated with anesthesia. Many of these patients will turn to online sources to receive information concerning the risks of anesthesia. Whereas some Canadians will resort to researching this topic using Google, other patients will turn to the Canadian Anesthesiology Society (CAS) for information on the potential risks of anesthesia. Patients hope that an association like the CAS provides comprehensive and precise information regarding the risks of anesthesia, in comparison to a composite list of google search results, however, a comparison of these labeled risks does not exist. For that reason, our primary aim was to compare the labelled risks between the CAS and the top search results, and amongst the top search results themselves.

Methods

All documents discussing risk disclosure from the CAS website were identified and downloaded. A VPN was then utilized with a location of Toronto to complete a google search with the search term 'risks of anesthesia". A composite list of the risks of anesthesia were then extracted from the top 10 search results on Google. Disclosed risks were analyzed using network analysis. Agreement was evaluated using several metrics of overall network density, including positive agreement between the CAS and the composite list from the search results, and positive agreement between the top search results themselves. In order to access the contextualization of the information in the google search results, the stratification of the risks of the risks based on the factors was completed (health status, surgery type, and type of anesthesia). The compiled data was analyzed using UCInet and Microsoft Excel.

Results

As shown in Figure 1, the CAS identified 12 unique risks of anesthesia, while the google search results identified a total of 45 risks of anesthesia with a range of 2-33 risks. The composite Google search results provide a more appreciable list of risks than the CAS does, and consulting only the first google search result would still provide a more comprehensive list of risks (Figure 1). Figure 2 is a plot showing all the risks disclosed and how many times a single risk was disclosed by every website and, as shown in figure 2, nearly half of the overall identified 61 risks risks were identified by only one website. Positive Agreement was 19.6% between the CAS and the composite of the google search results (kappa=-0.68, rating=agreement < chance) and 6.7% between all 11 websites (figure 3). Figure 4 is a contextualization of the disclosure levels in the google search results. Figure 4 demonstrates how the contextualized risk disclosure of the google search results is predominately mediocre, and generally becomes less comprehensive the further down into the search results one goes.

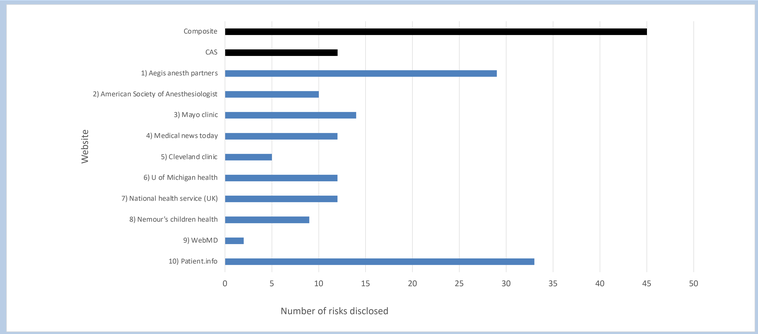

Figure 1- Number of disclosed risk of anesthesia on the CAS website and 10 google search results

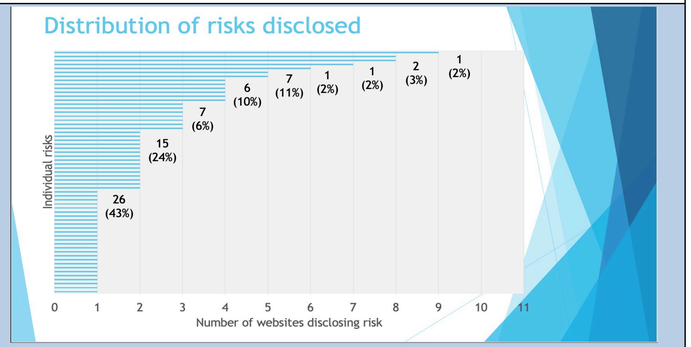

Figure 2- Distribution of the risks disclosed across google search results

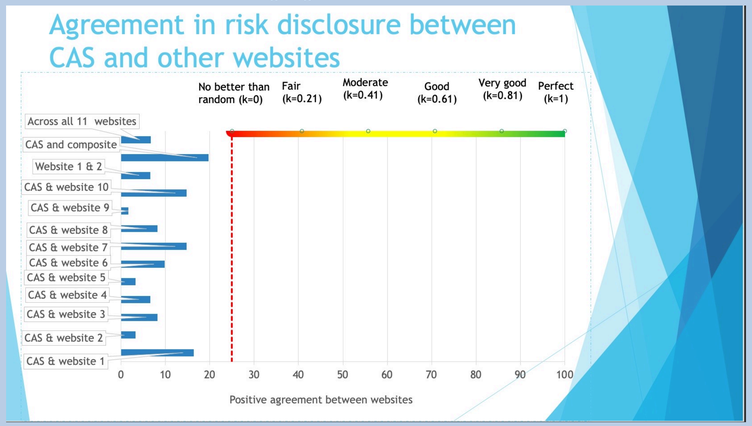

Figure 3- Positive agreement in risk disclosure between CAS and google search results

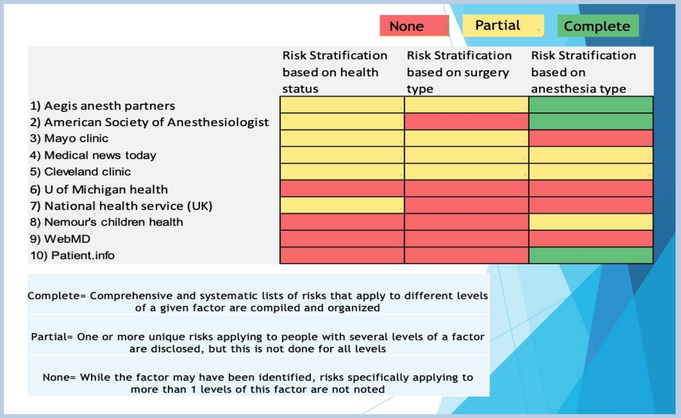

Figure 4- Contextualized disclosure levels in google search results

Conclusions

The observation of poor agreement between the CAS website and the google search results regarding risk disclosure could confuse, overwhelm, and even frighten patients who attempt to research the risks of anesthesia using multiple and discrepant sources of information. Brief Google searching provides a more exhaustive list of the risks of anesthesia than the CAS website does. The more extensive list of risks that google searching produces does not guarantee the clinical relevance of the search results and could overwhelm patients who investigate multiple different websites. On the other hand, the CAS provides prospective patients with a more curated list of the risks of anesthesia. Consequently, we conclude that patients who choose to supplement the tailored list of risks provided by the CAS with the extensive list provided by the top google search results must proceed carefully, given the disparity between the each of the websites.

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References

Barash, P. G. (Ed.). (2009). *Clinical anesthesia*. Lippincott Williams & Wilkins

Borgatti SP, et al. (2013), Analyzing Social Networks. Los Angeles, CA:Sage, locations 2011-2083 (Kindle edition).

Garson GD (2013), The Delphi Method in Quantitative Research. Statistical Associates Publishers, locations 368-438(Kindle edition).

Pew Research Center (2013), Health Online 2013 report,.4.