

## Chapter 6

# Information Completeness: A Qualitative Analysis of Indoor Air Quality (IAQ)

**Gary Hackbarth**

*Northern Kentucky University, USA*

**John McQuade**

*J.P. Morgan, USA*

### ABSTRACT

*Medical information is readily online to patients, family's doctors and others in search of enhanced or supplementary information arising from healthcare concerns. To a large extent, this information varies greatly in terms of information quality and depending on the healthcare information source, is often incomplete. This study used an indirect qualitative analysis of the information completeness of 31 Indoor Air Quality (IAQ) checklists using CATPAC and found that these sources differed in both the depth and breathe of information provided. We suggest that users of healthcare information may be underserved and that healthcare information providers might act in a more collaborative way to better balance the presentation of their information in terms of depth and breathe of presented content.*

### INTRODUCTION

Healthcare providers, patients, family, and friends are increasingly seeking medical information to discover, research, and evaluate the credibility of healthcare information found on the web,

informational pamphlets, books, magazines, and advice from healthcare professionals (Kang, Yoo, & Ko, 2006). The easy availability of healthcare information online has led to concerns over the quality of health information rather than the way in which users interact with health information systems (Williams, Nichols, Huntington, & McLean, 2002). Poor quality or incomplete information may

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lead to discomfort, a wrong diagnosis, confusion, or perhaps death in extreme cases (Ammenwerth & Shaw, 2005; Smith, Wilson, & Henry, 2005). Users of healthcare information often evaluate the attributes of information quality in terms of the timeliness, accuracy, and completeness contained in the message (Cline & Haynes, 2001; Shankaranarayanan & Yu, 2006) but often see a high degree of information variability (Lindars & Spickett, 2000). While critical thinking skills are important in evaluating the timeliness and accuracy of medical type information, we often neglect to consider the completeness of information (Hsu, Li, & Zhi, 2004) because users often are not provided fundamental information that enables informed decision making (Hoffman-Goetz & Clarke, 2000).

Information completeness is about the depth and breadth of information provided to healthcare consumers about a particular topic. However, unlike accuracy and timeliness where users can receive cues (dates, references, etc.), users who are not experts lack the experience to gauge the completeness and credibility of the information they are receiving as it is tainted by the perspective of the information provider (Cline & Haynes, 2001). Prior medical studies note the importance of breadth and depth of information but they provide little insight into how a user might determine whether or not the information is complete (Williams, et al., 2002). Qualitative research is a useful methodology in developing new insights where a theory driven approach might overlook other factors. Thus, this study uses a qualitative approach to evaluate definitive information (collected facts and data about a particular subject, i.e. Indoor Air Quality) in order to determine the extent to which an informational set is complete and can be evaluated by a healthcare consumer.

Following the introduction, this article discusses medical information quality, information quality, completeness, and a qualitative methodology to study information completeness. The article concludes with a discussion of results, study

limitations, implications for future research, and culminates with conclusions.

## MEDICAL INFORMATION QUALITY

Healthcare consumers seek medical information to take better care of themselves and participate in a more informed way when they interact with a healthcare professional (Quintana, Feightner, Wathen, Sangster, & Marshall, 2001). In one study focusing on children requiring cardiac surgery for congenital heart disease, 58% used the Internet related to their child's diagnosis and 74% used the Internet for educational purposes before their child's diagnosis of congenital heart disease (Ikemba, et al., 2002). Traditionally, healthcare consumers read brochures, books, magazines or asked professionals to gain additional knowledge. Today, online medical information is readily available with many biomedical journals offering free Internet access as soon as articles are published or at least within the last two years of publication (Hundie, 2002). Weiler (2000) reported that two thirds of online users from the United States who searched for healthcare information reported success 90% of the time yet, there were few measures present to ensure accuracy (Weiler & Pealer, 2000). Unfortunately, information delivery channels may reflect inaccurate, incomplete and dated information that reaches users who have no way to evaluate the quality of the information they are receiving (Goldsborough, 2001).

Inaccurate and incomplete information can be costly. In one cited case, parents found a website with information from a purported tertiary care pediatric medical center based in the United States regarding advice "not" to hydrate a child who suffered from diarrhea (Crocco, Villasis-Keever, & Jadad, 2002). The parents faithfully followed this advice even as their child became progressively more ill. Ultimately the child required admittance to the tertiary care Pediatric Gastroenterology service at McMaster University Medical Center

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