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

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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. [Article copies are available for purchase from InfoSci-on-Demand.com]

Keywords: CATPAC; Checklists; Healthcare Information; Indoor Air Quality (IAQ); Information Completeness; Information Quality; Qualitative Research

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 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; Shankaranarayan & 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 informa-
tion (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, informa-
tion quality, completeness, and a qualitative
methodology to study information complete-
ness. 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 ad-
ditional knowledge. Today, online medical
information is readily available with many bio-
medical 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 (Goldborough, 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 where the child was
started on Pedialyte and solid foods. The child
soon recovered. The parents were obviously
upset and concerned they had received the wrong
information. In fact they had received inaccurate
and incomplete information. Upon review, it
was obvious they had not misrepresented the
information found on the website, rather, the
information they followed did not conform to
standards of care found in any available clinical
practice guidelines (Crocco, et al., 2002). This
example is perhaps extreme but points out the
potential variability of the medical informa-
tion available to healthcare consumers and the
importance of cross checking and evaluating
multiple sources of information.
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