

**CREDIBILITY AND MEDICAL WEB SITES:
EXECUTIVE SUMMARY
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The following literature review is an extensive survey of credibility research. The first two major sections focus on credibility research in the fields of rhetoric, speech communication, social psychology, conflict management, and human-computer interaction, and provide a theoretical basis for the third major section. The third major section focuses on research in the field of medicine concerning the impact of electronic technology on medical discourse and the issues raised. Many of these issues involve questions of quality of information, patient rights, physician responsibilities, and liability, questions that have been answered in the medical community by the provision of numerous ethics and privacy policies, disclaimers, and disclosure statements. In light of the emphasis on these types of statements, we have included extensive appendices containing samples of the following:

- App. 1-2 Ethics policies or principles—including the AMA’s Principles Governing AMA Web Sites
- App. 3-4 Web site evaluation forms—used for rating the compliance of sites with specific standards
- App. 5-9 Privacy statements—including the one displayed by WebMD
- App. 10 Model privacy statement provided by TRUSTe (TRUSTe reviews and approves Web sites)—sites approved by TRUSTe can display its logo
- App. 11 Web site disclaimer
- App. 12 Forum/chat room disclaimer

In addition, on page 19 we have reproduced in full the Health On the Net (HON) Foundation’s code of conduct. Web sites complying with this code can display the HON logo. These sample statements provide a firm basis upon which to develop an ethics policy, a privacy statement, and disclaimers tailored specifically for Algenix. Ideally, these statements will address up front the concerns many users raise when searching for or communicating medical information on the Internet.

The third major section addressing online medical discourse and credibility is organized by type of electronic communication: Web site, e-mail and electronic informed consent, and listservs and bulletin boards. Each subsection contains a detailed discussion of concerns specific to the particular form of electronic communication. For instance, the subsection on Web sites includes rating the quality of information, privacy and user information, marketing and endorsement, and advice and content sites. The subsection on e-mail and electronic informed consent products addresses security and authenticity, privacy and confidentiality, and disclosure and informed consent. Finally, the subsection on listservs and bulletin boards discusses rating the quality of information and privacy, confidentiality, and informed consent. Each subsection ends with a discussion of liability management. We have also included a short section on clinical trials at the very end of the literature review, based on a letter written to the editor of the *American Journal of Human Genetics*, that provides some interesting guidelines on Internet solicitation of research subjects.

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CREDIBILITY AND MEDICAL WEB SITES: A LITERATURE REVIEW

**Helen Constantinides
Jenni Swenson**

Department of Rhetoric
University of Minnesota
64 COB
1994 Buford Ave.
St. Paul, MN 55108

OVERVIEW

The following literature review is divided into three main sections: ethos and source credibility, computers and trust, and online medical discourse and credibility. The first section summarizes research conducted in rhetoric, speech communication, social psychology, and conflict management, focusing on Aristotle's concept of ethos, the concepts of trust and suspicion, and interpersonal trust. Researchers have isolated Aristotle's three features of ethos, which they have labeled competence, character, and goodwill. Competence refers to expertise or practical wisdom, character to virtue or goodness, and goodwill to friendliness or disinterested motivation. As is illustrated in the section on medical credibility, the concept of competence in particular plays a major role in health site credibility, specifically with respect to the disclosure of Web site author credentials, affiliations, and qualifications. Concerns with the ethics of online medical Web sites relate to the second feature of character, and concerns regarding advertising, funding, and sponsorship relate to the third feature of goodwill. The research on trust and suspicion emphasizes the importance of disinterested behavior and some measure of control to the formation of trust, as well as knowledge concerning another's actions, the establishment of a system of cooperation, and a procedure for handling violations. In the context of medical Web sites, these concerns are addressed by the provision of disclaimers, privacy policies, information collection policies, and feedback mechanisms. And lastly, the research on interpersonal trust raises issues concerning the effect of attraction on perception, a concept directly related to the second major section on computers and trust.

The second major section on computers and trust briefly summarizes recent research in the field of human-computer interaction, focusing on persuasive computers. The section begins with a brief summary of the relationship between thoughts and emotions. This relationship forms the basis for the research on emotions and design features described next, in which researchers correlated specific user interface design features to the evocation of the emotion of trustworthiness. The impact of intercultural factors on design features is also addressed briefly. This section ends with a discussion of computers and credibility, describing four different types of credibility—assumed, reputed, surface, experienced—and three types of evaluation methods—binary, threshold, spectral. The implications of the evaluation methods in particular are critical for medical Web sites. Users with high levels of involvement, familiarity, and motivation concerning a specific subject—we can assume the typical users for medical Web sites—are more likely to focus on content rather than peripheral cues when evaluating credibility.

Finally, the third major section on medical discourse and credibility covers a broad range of topics organized by type of electronic communication: Web sites, e-mail and electronic informed consent products, and listservs and bulletin boards. The first type of communication, Web sites, raises questions concerning the quality and rating of online medical information, privacy as it pertains to online data collection, and self-interest or commercial gain as implied by online advertising and external links. The second type, e-mail and electronic informed consent products, raises questions of patient privacy, confidentiality, and informed consent, as well as physician responsibility and potential liability. The third type of communication, listservs and bulletin boards, merges the concern with content, discussed with respect to Web sites, and the concern with interaction, discussed with respect to e-mail. Because listservs and bulletin boards both provide information and facilitate communication between patients or between patients and physicians, issues of content quality, privacy, confidentiality, informed consent, physician responsibility, and liability are all relevant. The literature review ends with a brief discussion concerning the posting of clinical trials on the Internet.

ETHOS AND SOURCE CREDIBILITY

Research on credibility frequently begins with reference to Aristotle, who established the basis for this concept. In *On Rhetoric*, Aristotle defines ethos as persuasion through character, or as a means of persuasion that makes a speaker worthy of credence (1.2.4). Aristotle further defines ethos as comprised of three features: practical wisdom, virtue, and goodwill (2.1.5-6). These features can be described respectively as practical sense, a good character, and wanting the best for others. The following section summarizes research conducted in social psychology that has attempted to develop semantic differential scales distinguishing between Aristotle's three features of ethos. Contemporary definitions of trust and suspicion are then discussed, focusing on situational characteristics that can enhance the formation of trust in relationships. Lastly, this section briefly reviews some of the research in interpersonal trust, which has drawn from both studies of credibility and concepts of attraction.

Competence, Character, and Goodwill

Since the 1960s, many contemporary scholars have attempted to analyze these three features in terms of semantic differential scales. One of the earliest attempts was made by James McCroskey in 1966, who identified two dimensions of ethos—authoritativeness and character. In a later study David Berlo, James Lemert, and Robert Mertz isolated four dimensions—safety, qualification, dynamism, and sociability—the last of which they characterized as weak and subsequently dropped (574). McCroskey's and Berlo, Lemert, and Mertz's dimensions are comparable in the following manner: authoritativeness = qualification and character = safety. These two dimensions, which we will call competence and character respectively, have remained fairly stable throughout subsequent research on semantic differential scales of ethos; however, Berlo and Lemert's dimension of dynamism has caused some controversy.

Berlo, Lemert, and Mertz define dynamism as “the energy available to the source which can be used to emphasize, augment, and implement his suggestions” (575). Finding this dimension relatively instable, Berlo et al. caution that it may not be independent of their other two dimensions and in fact describe it as an “intensifier” (575-76). McCroskey does not find the dynamism factor and states that its significance with respect to ethos is not established. However, many researchers have included and in some cases expanded upon this factor in their analyses. The following are some examples of the dimensions of ethos isolated in subsequent research: reliable-logical or validity, dynamism, trustworthiness (Markham 61); trustworthy, competence, dynamism, objectivity (Whitehead 60-61); safety, competence, extroversion, emotional stability (Falcione 66); trustworthiness, expertise, dynamism, co-orientation, charisma (Tuppen 258-59); and competence, character, sociability, composure, extroversion (McCroskey and Jenson 173). As shown, the dimensions of competence and character have appeared consistently, while other dimensions, including dynamism, objectivity, extroversion, emotional stability, co-orientation, charisma, sociability, and composure, have not. In fact, Jack Whitehead notes the absence of a correlation between dynamism and attitude shift, stating that “subjects expect communicators of high and low credibility alike to exhibit dynamism” (62).

Based on the inconsistency of this research, McCroskey and Thomas Young concluded in 1981 that the dimension of dynamism obscured the construct of ethos (26). They based their conclusion on the distinction between personality perception and source credibility. According to them, source credibility is a limited subset of personality perception, the latter of which also includes dimensions such as activity (active-passive) and potency (strong-weak) (30). McCroskey and Young emphasize that factor analysis must proceed directly from the definition of a construct. Based on Aristotle's definition of ethos and that given by Carl Hovland, Irving Janis, and Harold Kelley—“a source's knowledge of the subject that he or she discusses, his or her veracity, and his or her attitude toward the well-being of the receiver” (McCroskey and Young 25)—they argue that the construct of ethos has three parts, reflected in the dimensions of competence, character, and goodwill, and is independent of perceptions of dynamism.

In his 1966 study, McCroskey was unable to isolate the goodwill dimension. However, he did note that two of the semantic pairs in the character scale, friendly-unfriendly and unselfish-selfish, could be interpreted as reflections of goodwill (66, 67). In a 1999 study, McCroskey, along with Jason Teven, has returned to his work on ethos, successfully isolating all three of Aristotle's features and defining them using semantic differential scales as follows:

Competence	Trustworthiness	Goodwill
Intelligent-Unintelligent	Honest-Dishonest	Cares about me-Doesn't care about me
Trained-Untrained	Trustworthy-Untrustworthy	Has my interests at heart-Doesn't have my interests at heart
Expert-Inexpert	Honorable-Dishonorable	Not self-centered-Self-centered
Informed-Uninformed	Moral-Immoral	Concerned with me-Unconcerned with me
Competent-Incompetent	Ethical-Unethical	Sensitive-Insensitive
Bright-Stupid	Genuine-Phony	Understanding-Not understanding

McCroskey and Teven's term "trustworthiness" appears to be a misnomer, as all three dimensions contribute to the trustworthiness of a speaker. Therefore, we will use the term "character" to refer to this dimension, and correspondingly refer to competence, character, and goodwill as the three features of ethos.

Trust and Suspicion

In parallel with the research conducted on Aristotle's notion of ethos in rhetoric and speech communication, scholars have studied the concept of trust in social psychology and conflict management. In his classic research on trust and suspicion, Morton Deutsch defines the former as follows:

An individual may be said to have trust in the occurrence of an event [produced by some person or behavior by another person] if he expects its occurrence and his expectation leads to behavior which he perceives to have greater negative motivational consequences if the expectation is not confirmed than positive motivational consequences if it is confirmed. (266)

Deutsch uses the term "integrity" to describe the personality characteristic of an individual who is both aware of and bound by the trust shown him or her by others (268). Accordingly, Deutsch defines "integrity" as related to personal characteristics such as "(1) the strength of internalized values with regard to responsibility; (2) the ability to prevent or resolve conflict in responsibilities; (3) the ability to take the goals of others as goals of one's own" (268). These three characteristics correspond roughly to Aristotle's virtue, practical wisdom, and goodwill, and to McCroskey and Teven's character, competence, and goodwill respectively.

Deutsch also provides the following definition of suspicion:

Thus an individual may be said to be suspicious of the occurrence of an event if the disconfirmation of the expectation of the event's occurrence is preferred to its confirmation and if the expectation of its occurrence leads to behavior which is intended to reduce its negative motivational consequences. (267)

Deutsch distinguishes between suspicion and fear based on the ability of an individual to avoid negative consequences. If avoidance of negative consequences is possible, the individual suspects the event; if avoidance is impossible, then the individual fears the event (267). Deutsch's definitions thus rely on the concepts of expectation, the ratio of anticipated positive to negative motivational consequences, and the possibility of avoidance.

Using game theory, Deutsch determines that the following elements are required for the establishment and maintenance of a stable cooperative system: (1) expectation; (2) intention; (3) retaliation; (4) absolution (273). In other words, the complementary notions of expectation and intention are the minimum ingredients of a cooperative exchange: each individual expects that the other individual will act in a certain way, and in turn intends to act in a certain way, that will provide for the mutual gratification of both. Furthermore, each individual must have a way of retaliating for and absolving violations of this expectation.

Deutsch concludes that an individual will be more likely to trust (1) if he or she believes that the other individual has nothing to gain from untrustworthy behavior, and (2) if he or she perceives that he or she is able to exert some control over the other individual's outcome (277). Therefore, certain situational characteristics will facilitate the development of mutual trust. Specifically, each individual must (1) have the opportunity to know what the other individual will do; (2) be able to communicate a system for cooperation with mutual

responsibilities; (3) be able to specify a procedure for handling violations; and (4) have the power to influence the other individual's outcome (279).

In a 1997 paper, Peter Hwang and Willem Burgers define trust as “the probability that one party attaches to cooperative behavior by the other parties” (67). They then define trust analytically and derive seven properties of trust based on the concepts of cooperation, risk, fear, and greed, which can be summarized as follows: trust is necessary for cooperation, eases the risk of victimization and the risk of losing a trustworthy partner, and has the potential to eliminate all fear but not all greed (70-71). Hwang and Burgers' analysis thus addresses the relationship between trust and fear raised in Deutsch's research.

Interpersonal Trust

The confusion regarding the dynamism dimension discussed above arose from the confusion of personality perception in toto and credibility perception. The former is particularly applicable in studies of interpersonal trust, an application summarized by Kim Giffin in a 1967 paper. According to Giffin, trust is “reliance upon the characteristics of an object, or the occurrence of an event, or the behavior of a person in order to achieve a desired but uncertain objective in a risky situation,” and interpersonal trust is correspondingly “reliance upon the communication behavior of another person in order to achieve a desired but uncertain objective in a risky situation” (105). She distinguishes four degrees of interpersonal and intrapersonal trust: (1) trust of a speaker by a listener, comparable to Aristotle's ethos or Hovland, Janis, and Kelley's source credibility; (2) trust of a listener by a speaker, corresponding to acceptance, psychological safety, or perceived supportive climate; (3) trust one has of oneself as a speaker, consisting of a continuum extending from high self-confidence to speech fright; and (4) trust one has of oneself as a listener (106-07). Giffin focuses on the first two types of interpersonal trust.

Summarizing the research discussed above on source credibility, Giffin concludes that there are five characteristics of a speaker that contribute to a listener's perception of interpersonal trust: expertness, reliability, intentions, dynamism, and personal attraction (107). Giffin's first three characteristics—expertness, reliability, intentions—correspond to Aristotle's practical wisdom, character, and goodwill and McCroskey and Teven's competence, character, and goodwill respectively. Her characteristics of dynamism and personal attraction, however, are not relatable to credibility per se, but to perceptions of personality and reflect the confusion between personality and credibility discussed above. However, her personal attraction feature, in particular, is interesting in that it seems to encompass some of the dimensions—extroversion, charisma, sociability—identified in early credibility research but later excluded by McCroskey and Young. Giffin defines personal attraction as likability or affiliation and relates it to Lemert's sociability factor and selected semantic differential pairs identified by David Markham. Based on Giffin's discussion and Markham's and Berlo, Lemert, and Mertz's work, we can characterize the dimensions of dynamism and personal attraction using the following semantic differential pairs:

Dynamism	Personal Attraction
Aggressive-Meek	Attractive-Unattractive
Emphatic-Hesitant	Cheerful-Gloomy
Bold-Timid	Pleasant-Unpleasant
Active-Passive	Likable-Unlikable
Energetic-Tired	Sociable-Unsociable

Although Giffin summarizes previous research rather than conducting further experimental research, her discussion provides a basis for interesting speculation on the components of personality perception not directly relatable to credibility.

Herbert Simons, Nancy Berkowitz, and R. John Moyer extended this idea in 1970, combining research on similarities and credibility and analyzing the impact of these constructs on persuasion. Simons et al. distinguish between cognitive (respect) and affective (attraction) bases of attitude toward a source, characterizing expertise and prestige as cognitive bases and likability and friendliness as affective bases. According to Simons et al.,

respect and attraction may both affect a listener's perception of a speaker's trustworthiness. These three components can serve as a means of distinguishing between Giffin's five characteristics of interpersonal trust—Giffin's expertness dimension corresponds to the respect component, her dynamism and personal attraction dimensions correspond to the attraction component, and her reliability and intentions dimensions correspond to the trustworthiness component. Simons et al.'s components of respect and trustworthiness can also be compared to McCroskey and Teven's dimensions of competence and character, although their attraction component does not correspond to McCroskey and Teven's goodwill dimension.

Simons et al. distinguish between similarities along two dimensions: attitudinal vs. membership-group similarities, and relevant vs. irrelevant similarities. According to Simons et al., attitudinal similarities refer to shared subjective states, or shared interests, beliefs, and feelings (2). In contrast, membership-group similarities refer to shared origins, parentage, schooling, religious training, work experiences, economic class, etc. (2). Relevant and irrelevant similarities relate to the logical relationship between similarities and the proposition being advocated, irrelevant similarities being cited only to gain rapport (2). Based on these distinctions and the components of attitude toward a source, Simons et al. derive a series of propositions relating similarities to attitude change or persuasion, which they summarize under one general proposition as follows: "Attitude change toward the position advocated by the source depends on the extent to which interpersonal similarities or dissimilarities are perceived as having instrumental value for the receiver" (12).

By instrumental value, they mean the following: "similarity or dissimilarity must be perceived as performing a function for the receiver in his capacity as a recipient of a particular message" (12). In brief, Simons et al. conclude that relevant attitudinal similarities have high instrumental value; membership-group similarities have instrumental value only if they contribute to perceptions of competence, fairness, etc. Irrelevant similarities, whether attitudinal or membership-group, have little instrumental value. Simons et al. frame their conclusion in terms of psychological distance, relating proximity to attraction, and distance to respect and trust (13).

In 1972, Scott Bandhuim and Margaret Kis Davis tested for the familiar dimensions of character, authoritativeness, and dynamism, as well as for a fourth factor of interpersonal attraction based on Giffin's personal attraction characteristic and Simons et al.'s social attraction component. Bandhuim and Davis were unable to isolate the four factors, and concluded that semantic differential scales are not comparable across concepts and, in fact, that there are no universal scales for the measurement of ethos (300). These conclusions seem unwarranted in light of the fact that McCroskey and Teven have recently obtained three independent factors of ethos. Furthermore, as McCroskey and Young explained, the essential problem rested in the researchers' conflation of personality and credibility factors. Both of these factors, however, have been considered in studies of computers and trust.

COMPUTERS AND TRUST

Although the field of human-computer interaction (HCI) is still relatively young, researchers have made progress in studying user perceptions of computer credibility and the relationship between computers and persuasion. A particularly useful resource for the research currently underway in the field is "Web Credibility: Research and Design," a Web site sponsored by Stanford University that serves as a gateway to references on computers and credibility. Within this field is a new special interest area that has been christened "captology," a name based on the phrase "Computers as Persuasive Technologies" (Fogg 225). Those undertaking research in captology are interested in exploring persuasive computers, or "an interactive technology that changes a person's attitudes or behavior" (225). This element of persuasion entails some form of intentionality on the part of designers or users (226). Research in this area, then, focuses on designing computers and/or user interfaces such that they persuade individuals to use them, and one of the factors that plays a large role in this persuasion is trust. Drawing on the research summarized above in both rhetoric and social psychology, researchers in captology have attempted to determine design aspects that can inspire trust.

This section begins with a brief explanation of the relationship between thought and feeling, a relationship that forms the basis for subsequent research on persuasive computers. The discussion then turns to one comprehensive study of the relationship between emotions and design features, specifically with respect to user interfaces. The impact of cultural factors on design features is considered briefly, and the development of cultural models is described. Lastly, the section ends with a discussion of credibility as it applies to computers.

Thoughts and Emotions

R. B. Zajonc discusses the relative impact and sequence of affect (emotion) and cognition (thought) on perception in a 1980 paper. He argues that, in contrast to beliefs held by contemporary psychologists, affect is fairly independent of and precedes cognition. Zajonc says, "Affect dominates social interaction, and it is the major currency in which social intercourse is transacted" (153). Furthermore, he argues that while "affect is *always* present as a companion to thought," the converse is not always true (154). Affect is a matter of likes or dislikes, or evaluations such as pleasant-unpleasant, good-bad, strong-weak, and quick-slow; affect is heavier on energy, cognition on information (156, 157).

A study by Louisa Lui and Lionel Standing provides support for Zajonc's contention. In Lui and Standing's study, a message concerning the transmission of the AIDS virus was given to nuns by either a priest, a doctor specializing in AIDS, or a citizen. The nuns then completed a 4-item questionnaire that asked how competent was the speaker, how convincing was the message, how relevant was the message to the recipient, and how much the recipient believed the message to be true (220). The nuns perceived the priest as more credible than both the doctor and the citizen. Lui and Standing conclude, "The data indicate that the trustworthy communicator enjoyed high credibility, whereas the expert had no more impact than a neutral speaker," a result that supports Zajonc's assertion that affect rather than cognition dominates attitudes and behavior (221).

Zajonc offers the following ways in which affective judgments and reactions differ from cognitive ones:

1. Affective reactions are primary.
2. Affect is basic.
3. Affective reactions are inescapable.
4. Affective judgments tend to be irrevocable.
5. Affective judgments implicate the self.
6. Affective reactions are difficult to verbalize.
7. Affective reactions need not depend on cognition.
8. Affective reactions may become separated from content.

Items 4 and 7 in particular have important implications. Zajonc notes that the independence of affect from cognition explains why persuasion has dimly failed to achieve substantial attitude change (158). He states, "Direct persuasion effects have been so weak that researchers have instead turned to more pernicious avenues of attitude change, such as insufficient justification, persuasion through distraction, the foot-in-the-door technique, or the bogus pipeline" (159). And further, that "affect often persists after a complete invalidation of its original cognitive basis" (157). Within the context of Zajonc's discussion, the importance of first impressions cannot be underestimated.

Emotions and Design Features

Jinwoo Kim and Jae Yun Moon analyze first impressions as they pertain to user interfaces, focusing on the relationship between emotions and design features, and in particular on the emotion of trustworthiness. They begin with a description of emotion similar to Zajonc's, in which they refer to neurobiological studies that have shown that practical and social decision making occurs within the region of the brain connecting the emotional and cognitive centers (4). Thus, they base their study on the following statement: "Emotions provide information on the emotional desirability of the options available and thereby reduce and limit reasoning to those that induce positive feeling" (4). They further justify their study of user interfaces with an analogy, stating that a user interface, or the "physical appearance" of a computer, can influence feelings of trustworthiness just as the physical appearance of a communicator does (5). It is important to note here that this proposed relationship between attraction and trust, as discussed above, is not without controversy.

Kim and Moon describe a series of four studies in which they identified semantic differential scales of emotion; determined important visual design features; investigated the correlations between the emotional and design factors; and verified those correlations by evaluating the trustworthiness of two different interface designs. First, Kim and Moon selected eight cyber-banking interfaces, including text-based interfaces, videotex system interfaces, and World Wide Web homepage interfaces, to which the study subjects recorded their first impressions on a set of 318 emotive semantic scales. Based on this data, Kim and Moon isolated 10 clusters, each comprised of four semantic differential scales (10). In the second study, Kim and Moon asked the subjects to record their first impressions, draw free-hand sketches of some of the interfaces, and then sort the interfaces based on visual similarity (11). Their method was based on the assumption that the design features remembered

by the subjects would be the ones that had elicited emotion, an assumption they attempted to verify with the visual sorting (11). The design features represented in the drawings were then classified, resulting in four major categories—title, menu, main clipart, color—containing a total of 14 design features (12).

Title	Menu	Main Clipart	Color
Format	Format	Motion	Color tone
Graphics	Size	Format	Main color
Position	Content	Size	Background
			Brightness
			Symmetry

Using the 40 scales identified in the first study, Kim and Moon asked the subjects to rate their emotional impressions of 12 interfaces specifically selected to illustrate the 14 design features above. The resulting seven factors describe the dimensions of the “emotive space” of customers using the interface:

Attractiveness	Symmetry	Sophistication	Trustworthiness	Awkwardness	Elegance	Simplicity
Exciting	Simple	Childish	Dependable	Dull	Tasteful	Simple
Epochal	Consistent	Countrified	Reliable	Awkward		
Vibrant	Balanced	Rustic	Realistic	Obscure		
Witty	Dignified	Common	Uniform			
Exhilarating	Slick	Cluttered				

With respect to the interrelation between the emotive scales and the design factors, Kim and Moon determined that only feelings related to symmetry, trustworthiness, awkwardness, and elegance were differentiated by the design factors (15). They provide a table detailing the relationship between trustworthiness and the design features, stating that only the major categories of clipart and color determined trustworthiness (16). They conclude that the following design would evoke the emotion of trustworthiness: 3D, dynamic clipart that covers half of the total screen size; preferably in a cool tone of color, such as a moderate pastel; with low brightness and a symmetrical application (16-17).

Category	Design Factor	Value
Clipart	Format	3D
	Size	Over ½ screen size
	Motion	Animation
Color	Color tone	Cool tone
	Main color	Pastel colors
	Background	N/A
	Brightness	Low
	Symmetry	Symmetric color tones

In the last study, Kim and Moon attempted to verify this relationship by designing two interfaces, one using the design factors they related to trustworthiness and one not. Their results confirmed the proposed relationship between the design factors of clipart and color shown in the table above and trustworthiness.

Kim and Moon caution that their studies had several limitations that preclude the immediate application of their results. First, they focused exclusively on the visual interface and did not test the impact of functionality on trustworthiness (20). Second, they did not analyze the interaction among the design factors or among the emotional factors (21). Third, all of their subjects were Korean, or homogeneous with respect to ethnicity and nationality (21), a limitation with many implications. For instance, intercultural research in communication has emphasized the cultural implications of color (discussed below). And fourth, their research was based on a series of assumptions: 1. That the emotions elicited by the interfaces were evoked by the design features noted by the subjects, 2. That the factors identified in the third study transferred to the fourth study, 3. That the subjects' subjective feelings could be measured accurately by self-reports, 4. That the cyber-banking designers who performed the initial classification of design features had a "richer vocabulary" for describing emotive aspects, and 5. That the subject pool consisting of those accustomed to Internet and online transactions were representative (21). Kim and Moon also note that their research relied on a multidimensional view of emotion, the dimensions of which are determined by the specific situation (3). Kim and Moon, who conducted a study of cyber shopping malls and obtained similar results, speculate that their conclusions may be applicable to electronic commerce interfaces in general (22). But it is questionable whether their results are transferable to other domains such as medical Web sites.

As stated in the discussion above, McCroskey and Young criticized research using semantic differential scales that proceed from the scales backwards rather than forwards toward a definition of trustworthiness. As they noted, attraction is not the same concept as trustworthiness. It could be argued that Kim and Moon erred in conflating attraction and trustworthiness. This criticism is supported by their characterization of this research as focusing on the first impression of a visual interface (20). As many authors have asserted, trust has a temporal aspect: trust either increases or decreases over time as the result of experience (or functional use). Therefore, relating a first impression to the concept of trust seems problematic. But Zajonc's article points to the dominance of affect over cognition, thus suggesting that whether or not attraction contributes to impressions of credibility or trust, it does play a role in emotional response. As Kim and Moon state, "Whether or not the casual navigator will become a loyal customer of a particular cyber shopping mall or cyber bank may depend on the first impression of the interface" (20).

Culture and Design Features

First impressions, of course, are filtered by each culture's specific lens. Kim and Moon recognize the impact of culture on perception when they identify the homogeneity of their research subjects as one of the limitations of their study. The design features they isolate, such as cool pastel colors, will not necessarily translate to cultures other than the one they studied. One way in which to address this translation problem is to incorporate cultural models, which compare the similarities and differences of two or more cultures, into Web designs. According to Rob Sellin and Elaine Winters and Tony Fernandes, documents can be designed to incorporate cultural diversity in three ways:

1. Globalization—Consists of a base design that can be later modified to reflect the unique features of a country or culture. It often uses universal symbols and thought processes to ensure that the document will be successful in a majority of cultures.
2. Localization—Adapts a global document for use in a specific culture.
3. Internationalization—Modifies a document to remove all cultural and language imprints for use in any culture.

Localization is appropriate when the content targets a small locale or specific group. Globalization is most practical for large-scale Web sites where content will be viewed by numerous cultures. Internationalization is the most difficult to design and sometimes neither practical nor possible. Until the advent of a universally accepted language and symbols, most large-scale Web projects should strive for globalization so that they are prepared for localization. Small-scale Web projects should localize to a target culture.

The first step for developing a cultural model consists of identifying the type of culture. According to Edward Hall, there are two types:

- Low-Context Cultures—Include native English and German speaking cultures, and Scandinavian cultures. These cultures expect an abundance of detail in their communication and want important information to be communicated in a straightforward manner.

- High-Context Cultures—Include everyone else. These cultures analyze surrounding details such as ambiance and decorum. They also look at the source of the information, the status of the information giver, and the manner in which the message is delivered.

Information specific to the culture must then be incorporated into the cultural model, such as language (dialects, literacy, formality, etc.); format (numbers, dates, time, etc.); technology (computer literacy, Internet access, etc.); and environment (hazards, animals, plants, etc.). In addition, Edward Stewart and Milton Bennett divide cultural characteristics into objective and subjective groups. Objective culture is visible and tangible; subjective culture is psychological. Objective culture is visible and easy to examine (Hoft); subjective culture deals with attitudes and is much harder to determine. Because the components of objective culture are visible, it is easy to obtain information on objective culture through observation. Some components of objective culture include ethnic groups, politics, economic system, scientific theory, religions, etc. Because attitudes have a deep cultural basis, subjective cultural information should be gathered by individuals raised in the culture. Some components of subjective culture include (Sellin and Winters; Fernandes; Nielsen and Del Gado; Victor; Yeo):

- Masculine/Feminine—Are sexes considered equal? What are the roles of men, women, and children in the culture? How is sexuality treated?
- Individuality/Collectivity—Some cultures embrace individuality while others find it offensive. For example, in the U.S. “The squeaky wheel gets the grease,” while in Japan “The tallest nail gets hammered first.”
- Prejudices—Is there racial equity in the culture? What is considered beauty or ugliness? What are the attitudes toward aging, leisure time, and outsiders?
- Technology—Is technology embraced, tolerated, or feared? What are the learning styles?
- Family Values—Are families large and extended or small and nuclear? What is proper parenting? What is appropriate discipline?
- Authority/Status—How is status determined? Is age a factor? Is money? What is the definition of “well-educated”?
- Etiquette/Gift Giving/Praise—When is gift giving appropriate? Is bartering acceptable? Is praise acceptable? What is the etiquette, both personal and business?
- Sense of Time—Do people arrive on time for appointments? Is time considered linear and critical or elastic and unimportant relative to other things?
- Symbols—Do shapes, colors, numbers, animals, or food carry meaning, for example, white means purity, 7 is lucky, etc.? What symbolizes respect and knowledge?
- Taboos—Are there certain religious principles that cannot be violated such as certain foods, colors, or behaviors? Is nudity acceptable? What are the attitudes toward certain body parts?
- Gestures/Movements—How do people stand when they talk to each other? What are acceptable seating arrangements? Which hand gestures are acceptable or unacceptable? What is the head/hand movement for yes and no?
- Multisensory—Are there limits to the amount of color, sound, taste, or texture use? For example, does the culture enjoy bright or subdued colors?

With respect to Kim and Moon’s study above, the symbols, taboos, and multisensory components of a specific culture could impact how color and clip art are perceived, and should be considered when designing Web sites.

Persuasive Computers

In their articles on computers and credibility, B. J. Fogg and Hsiang Tseng correlate “credibility” with “believability” and “trustworthiness” with “dependability” (Fogg and Tseng 81; Tseng and Fogg 39-40). Specifically, they argue that credibility is a perceived quality composed of multiple dimensions, the two key components of which are trustworthiness and expertise (Fogg and Tseng 80). Trustworthiness can be defined by the terms well-intentioned, truthful, and unbiased; expertise, by the terms knowledgeable, experienced, and competent (80). As defined by Fogg and Tseng, these two terms are consistent with the dimensions of character

and competence isolated by social psychologists and discussed above. Fogg and Tseng provide a specific definition of trust as follows: “Trust indicates a positive belief about the perceived reliability of, dependability of, and confidence in a person, object, or process” (81). Furthermore, they emphasize that there is a distinction between trust (dependability) and trust in information (credibility) (81). According to them, computer credibility matters in certain specific situations, such as when computer products act as knowledge sources, instruct or tutor users, act as decision aids, report measurements, run simulations, render virtual environments, report on work performed, or report about their own state.

Research on credibility can be grouped into six categories: the credible computer myth, dynamics of computer credibility, situational factors that affect credibility, user variables that affect credibility, visual design and credibility, and human credibility markers in HCI research (81-82). The first group of research focuses on the myth that people are in awe of computers, a myth that Fogg and Tseng claimed is unsupported by empirical research (81). The second group studies the temporal aspect of credibility, specifically how it is gained, lost, and regained. Fogg and Tseng claim, “Computers gain credibility when they provide information that users find accurate or correct; conversely, computers lose credibility when they provide information users find erroneous” (81). And computers can regain credibility by either “providing good information over a period of time” or “continuing to make the identical error,” which allows users to anticipate and compensate for the error (82). This group of research in particular highlights one of the limitations of Kim and Moon’s study on interfaces and credibility; specifically, that it is the functionality of computers that establishes credibility.

The third group of research focuses on the situations in which computer credibility is increased; namely, in unfamiliar situations, by orienting users; after people have failed to solve a problem on their own; and when people have a strong need for information (82). The fourth group focuses on user variables that can affect credibility, isolating two: user familiarity with subject matter (increased familiarity, decreased credibility) and user understanding of the computer system (increased understanding, increased credibility) (82). The fifth group of research has studied visual design and credibility, and contains Kim and Moon’s study. And the last group of research focuses on how human-human interactions translate to human-computer interactions. Fogg and Tseng identify three key findings in this research: common affiliation leads to credibility, similarity leads to credibility, and labels of expertise give more credibility (82-83).

Fogg and Tseng distinguish between four types of credibility (83):

- Presumed credibility—based on general assumptions and stereotypes.
- Reputed credibility —based on reports from third parties. (awards, official titles, hypertext links [Tseng and Fogg 42])
- Surface credibility—based on simple inspection.
- Experienced credibility—based on first-hand experience.

Experienced credibility in particular illustrates the temporal aspect of credibility. Within this framework, Kim and Moon’s study focused on surface credibility rather than experienced credibility.

Fogg and Tseng also identify three models of credibility evaluation: binary evaluation, threshold evaluation, and spectral evaluation, running from basic to more sophisticated (Fogg and Tseng 84). Binary evaluation—credible or not credible—is used when users have low interest in or little familiarity with the subject, low ability to process information, or no reference points for comparison. Threshold evaluation—upper and lower thresholds—is used when users have moderate interest, partial familiarity, moderate ability, or moderate opportunity for comparison. And spectral evaluation—shades of gray—is used when users have high interest, high familiarity, high ability, and considerable opportunity for comparison. Fogg and Tseng explain that people can process information either peripherally or centrally. If their personal involvement, ability, or motivation is low, people tend to process peripherally; if their personal involvement, ability, or motivation is high, they process centrally. The critical implication is as follows:

if the computer product is intended for users with low involvement or limited cognitive ability, then designers concerned about credibility need only focus on peripheral cues such as attractiveness of source, number of argument, likability of source. . . . If, on the other hand, the computer product is one that is highly involving and very important to the user, then users will tend toward spectral evaluations of credibility. In this case, users are likely to focus heavily on content and less on peripheral cues when assessing trustworthiness or expertise. (84)

This implication is critically important with respect to medical Web sites, which users are accessing because of high levels of personal involvement and motivation. Within the context of online medical information, we can speculate that users will be highly interested in and highly familiar with the subject matter, highly motivated, and able to compare many different sources. Therefore, they will focus heavily on content and less on peripheral cues.

Lastly, Fogg and Tseng discuss the aspects upon which users can focus when assessing credibility. These issues can be viewed from a systems perspective or from a psychological perspective. From a systems perspective, users can focus on four different aspects: the device or physical aspect; the interface or display and interaction; the functionality or services and processes; and the information or believability (85). From a psychological perspective, users can focus on the following four aspects: on-screen characters; the computer itself; the brand of the computer product; and the expert who created the computer (85).

Variation over Time, Population, and Subject

Before we relate the research summarized above to studies of medical Web site credibility, we must make note of some of the concerns raised by researchers with respect to the translatability of semantic-differential scales. McCroskey's constructs as identified in his 1966 article were later found to vary over time. In 1963, Kenneth Andersen and Theodore Clevenger, Jr., summarized contemporary experimental research in ethos, defining ethos as the "the image held of a communicator at a given time by a receiver—either one person or a group" (59). They further differentiated between extrinsic and intrinsic ethos, the former the image of the speaker held prior to a given speech and the latter the image derived during the presentation of the speech and directly comparable to Aristotle's concept (69). David Markham, in his study of the dimensions of newscasters' source credibility, promotes a similar distinction, differentiating between fixed and variable ethos. Similarly, Berlo, Lemert, and Mertz distinguish between static and dynamic ethos in their study of the acceptability of message sources. Ronald Applbaum and Karl Anatol test this temporality, showing that semantic differential scales of ethos are variable over time and that only a few of the pairs in McCroskey's scales of authoritativeness and character are consistently highly correlated: expert-inexpert, informed-uninformed, intelligent-unintelligent in the former scale, and virtuous-sinful, friendly-unfriendly in the latter (236).

Applbaum and Anatol state more generally that a set of semantic differential scales "can be expected to exhibit variation as a feature of specific concepts, subjects, cultures, experiments, and time" (231). Other researchers provide similar cautions: "One should . . . exercise caution in applying scales to populations other than the ones on which they were developed" (Whitehead 63); "While it is suggested that these scales may be generalizable across organizational contexts; it should be remembered that these findings should not be necessarily considered representative of all potential subject populations" (Falcione 66); "We need research designed to determine perceptions of source image for different types of sources on the part of different kinds of receivers to find measures of specific communication contexts" (McCroskey and Jenson 170). Much of the research described above was conducted with students (except for Berlo, Lemert, and Mertz's study) and dealt with messages pertaining to politics or the media. Therefore, perceptions of credibility within the field of medicine, while conforming to the general features defined by Aristotle, must be analyzed with respect to medical discourse.

ONLINE MEDICAL DISCOURSE AND CREDIBILITY

In a 1995 article, Jerome Kassirer describes "the next transformation in the delivery of health care," which will consist of online, computer-assisted communication between patients and medical databases and between patients and physicians. This change, he claims, will occur as a result of three current trends: the growth of electronic communication, the new generation's comfort with the electronic transfer of information, and the shift towards giving patients increased responsibility for their own health care decisions (52). Lawrence Widman and David Tong also identify three trends that have resulted in the public's interest in online medical consultation: an increasingly well-educated public accustomed to seeking information from print, an increasing number of people enrolled in managed care organizations (which have a vested interest in keeping health costs down), and an interest on the part of patients in verifying treatments as the best available (211). And Frank Sonnenberg has similarly argued that patients are seeking health information online because of a lack of trust in health care providers and an increased awareness of health care controversies and thus an interest in confirming physician recommendations (151).

Unsurprisingly, this trend toward online medical exploration and consultation has raised concerns in the medical profession. Early discussions concerning medical information online focus on identifying both the

possible opportunities and the potential problems of the Internet; it is only later (around 1997) that articles begin focusing on rating and ensuring a high quality of information. Some of the promises of online medical exploration include more highly educated patients willing to take responsibility for their own health care decisions and more convenient communication between patients and physicians; however, the problems are numerous.

Kassirer identifies several kinds of information that can be or already are provided online, including authoritative medical databases geared toward the lay person and topic-specific forums. In addition, he notes the potential for online consultation and standard reminders for routine tests or vaccinations. Mark Pallen provides a more specific list of possible uses of the Internet, grouping them by type of electronic communication. For instance, e-mail can be used to disseminate medical records, provide medical education, communicate between the clinic and the patient, provide drug information, provide disaster relief, and report adverse incidents (506). Electronic mailing lists (listservs) and newsgroups can be used to disseminate information, request help on clinical problems, and engage in discussions (506). And the World Wide Web itself is useful for both searching for and publishing medical information (507).

Authors also discuss potential problems associated with Internet exploration and consultation. Kassirer identifies several possible areas of concern, including the quality of care, the continuity of care, the validity and consistency of available information, privacy, and the effects on the physician-patient relationship (52), and ends with a brief discussion of possible limitations, questioning whether the public will accept online communication concerning medical matters and whether improvements in science education will improve the public's understanding of medical information (53). Specifically, he provides a detailed list of issues that will have to be addressed: ease of use; promotion of patient-centered responsibility but protection against self-diagnosis and treatment; maintenance of patient privacy; protection and treatment of those unable to pay for online access; physician interpretation of unfiltered, disorganized information; physician credentialing, licensure, and malpractice; and the nature of the medical record (53).

Pallen's list of problems includes the potential for overinformed patients, who access the latest information before their physicians do and thus undermine their physicians' authority; the potential for misinformed patients, who access misleading, out-of-date, or incorrect information; the possible conflict between a free market in information and a controlled market in health care; and confidentiality issues with respect to the online discussion of clinical problems and the online publication of test results (508-09).

Widman and Tong describe a study in which they established a Web site on cardiology, invited inquiries about cardiovascular disease, and analyzed the e-mails sent by nonmedical individuals. Based on those e-mails, Widman and Tong concluded that the public can choose whom to ask for information accurately, as 96% of the e-mails received were in the area of cardiology (211). The majority of the inquiries either sought a second opinion or advice about whether to consult a physician (211). Widman and Tong do articulate the "downside" of providing information to patients online: the possibility of misinterpretation, misinformation, outdated information, or more up-to-date information; the possibility of disagreement between the online consultant and the patient's physician; and legal issues such as licensure, medical negligence, and patient abandonment (211-12).

Several authors describe specific cases in which these problems are illustrated. For instance, in *Scientist* Franklin Hoke discusses the controversy over the ownership of an online cancer-information service between medical and academic physicians at the University of Pennsylvania. He raises questions concerning the responsibility of providers for the information they disseminate, the appropriate role for online experts, and the qualifications of an online expert (1), a problem also addressed by Kassirer, who states that the accuracy of medical information and advice will depend on the expertise of the professional providing the advice (53). Brad Keoun discusses the unreliable, inaccurate, and outdated cancer information available online, stating that freedom of speech issues and the magnitude of the Internet have made the regulation of this information nearly impossible (1263). He notes the difficulty of identifying who is responsible for a site, and the deceptiveness of many search engine algorithms, which measure the number of times a search word appears in a site rather than the site's accuracy or currency. The possible solution found in physician-moderated newsgroups is also problematic, as many newsgroups are based on hostility toward physicians (1264).

In a letter to the editor of *Lancet*, Pankaj Sharma describes two cases in which pleas for diagnostic suggestions were e-mailed over the Internet, noting several ethical, legal, and medical issues associated with these pleas. In one case, the name and city of origin was available. Also, both e-mails originated in China, raising the issue of

the lack of national or international governance of the Internet. Sharma notes that acting on online advice could cause morbidity or mortality, and that the patients in both cases should have the right to know and the right of recourse. Hilary Bower also addresses the issue of international regulation, noting in an article appearing in *British Medical Journal* that products sold over the Internet by foreign companies are not controlled by the UK Advertising Standards Authority, which requires that products making medical claims have a product license supported by scientific evidence. Lastly, Sharma raises the same questions as Hoke and Keoun concerning the qualifications of online advice givers and the necessity of identity verification. In another letter in the same issue of *Lancet*, T. M. Reynolds divides those providing information on the Internet into three groups: “those who know at least something of what they are talking about; those who think they do but are often dangerously misinformed; and those who have a hidden (or not so hidden) agenda to persuade their readers that their beliefs (however crackpot) are true” (250). He specifically locates the problem in the lack of cues online that indicate whether an opinion is valid, such as “a doctor’s brass plate or a consulting room” (250).

We can divide the concerns discussed above based on type of electronic communication: Web sites, e-mail and electronic informed consent products, and listservs and bulletin boards. The use of Web sites raises questions concerning the quality of online medical information, privacy, and advertising; the use of e-mail raises questions concerning patient rights and physician responsibility; and the use of listservs or bulletin boards raises questions concerning both content and communication. Each of these types is addressed below. We end with a brief discussion regarding online solicitation for clinical trials.

Web Sites—Quality of Information

In an attempt to voluntarily regulate online health information, Hi-Ethics, a coalition of 20 widely-used Internet health sites and content providers, has developed 14 ethical operating principles. The member organizations have all endorsed the following statement: “Internet users deserve high quality content, responsible advertising and the protection of personal health information. In response to these needs, we agree to develop a set of ethics principles for health information on the Internet” (“Hi-Ethics on the Internet”). In May of 2000, Hi-Ethics released their fourteen principles, shown in Appendix 1. Hi-Ethics identified four areas of concern: content, privacy, advertising, and commerce (“Hi-Ethics”). In Appendix 2, we have included the American Medical Association (AMA) principles for Web sites, which also address the four areas of content, advertising and sponsorship, privacy and confidentiality, and e-commerce. Below we discuss several issues related to the provision of health information online: rating the quality of content, privacy and user information, marketing and endorsement, and advice and content sites, many of which address in depth the issues covered by Hi-Ethics’ and the AMA’s principles.

Rating the Quality of Information

Sonnenberg identifies the following problems with patient exploration of health information on the World Wide Web: the lack of online editorial control of information; potential conflicts of interest on Web sites providing information on diseases treated by products/services sold on the site; the lack of filtration of information, resulting in unbalanced views of medical issues; and the volume of requests for information when patients e-mail Web site authors directly (152). In contrast to the previous authors, Sonnenberg suggests several ways in which academic physicians can address these problems, including developing Internet resources of their own; accelerating the trend toward the online publication of medical journals; ensuring editorial control of sites published under official auspices; endorsing sites published by professional organizations; and becoming comfortable in a new role as intermediaries between patients and online medical information (152). This section focuses on the first issue mentioned by Sonnenberg—online editorial control—and discusses some of the approaches that have been suggested for rating the quality of online information.

One of the articles frequently cited in discussions regarding the quality of online medical information is “Assessing, Controlling, and Assuring the Quality of Medical Information on the Internet: Caveant Lector et Viewer—Let the Reader and Viewer Beware,” by William Silberg, George Lundberg, and Robert Musacchio. Silberg et al. argue that the same standards that are applied to printed information can be applied to online information, namely, standards that rely on the “foundation of accountability”: “an identifiable person or group of people stands behind what is being ‘published’ on the Web and in Internet discussion forums” (1244). They define four core standards that readers can use to judge credibility:

- **Authorship:** Authors and contributors, their affiliations, and relevant credentials should be provided.

- **Attribution:** References and sources for all content should be listed clearly, and all relevant copyright information noted.
- **Disclosure:** Web site ownership should be prominently and fully disclosed, as should any sponsorship, advertising, underwriting, commercial funding arrangements or support, or potential conflicts of interests. This includes arrangements in which links to other sites are posted as a result of financial considerations. Similar standards should hold in discussion forums.
- **Currency:** Dates that content was posted and updated should be indicated. (1245)

Silberg et al. also emphasize that the “effective use of technology can be an important indicator of quality—and especially utility—in communicating medical information on the Net” (1244). They claim that the best sites will facilitate navigation, provide mechanisms for feedback and interactivity, monitor and maintain links to other sites, and commit the resources needed to maintain the site (1244). Jeremy Wyatt argues that Silberg et al.’s criteria are insufficient, and proposes a matrix that distinguishes between credibility and conflicts of interest, site structure and content, site functions, and site impact, proposing evaluative methods for each. The concern with appearance as illustrated by Silberg et al.’s discussion of the effective use of technology and Wyatt’s structural and functional categories reflects the attraction dimension of personality perception discussed in the first section of this literature review, rather than specifically credibility perception. But Wyatt’s matrix helpfully provides in one place all of the attributes of a site that may be used to evoke user interest.

Aspect	Evaluation method
Credibility, conflicts of interest	
Web site owner or sponsor, conflicts of interest	Inspect site (Silberg et al.)
Web site author, credentials	Inspect site (Silberg et al.)
Structure and content of Web site	
References to sources	Inspect site (Silberg et al.)
Coverage, accuracy of content material	Inspect site (Silberg et al.); Compare with current best evidence
Currency of content material	Inspect site (Silberg et al.); Compare with current best evidence
Readability of material	Calculate reading age, readability indices (word processor grammar checks)
Quality of links to other sites	Inspect site, judge if appropriate
Media used to communicate material	Inspect site, judge if appropriate
Functions of Web site	
Accessibility of site via search engine	Laboratory test with users
Use of site, profile of users	Web server statistics, online questionnaires
Navigation through material	Laboratory test with users
Impact of Web site	
Educational impact on users	Laboratory test, field trial
Impact on clinical practice, patient outcome	Laboratory test, field trial

Source: Wyatt, Jeremy C. “Commentary: Measuring Quality and Impact of the World Wide Web.” *British Medical Journal* 314 (1990): 1880.

Mitretek Systems’ Health Summit Working Group has published a policy paper specifying seven criteria for assessing the quality of information. Participants included members of four working groups—the general public, medical librarians, health-care providers, and Web site developers.

Credibility	Source	Name/logo of responsible institution/organization Name/title of author Qualifications/credentials of organization and author Financial associations/Potential sources of bias
	Currency	Date of original document Date of posting
	Relevance	Content of site corresponds to information it purports to offer
	Site Evaluation	Seal of approval Subjected to review Describe review process and individuals involved
Content	Accuracy	Underlying data Clinical/scientific evidence Lay language Testimonials not evidence
	Disclaimer	Limitations, purpose, scope, authority, currency of information Sources of information Content general health information, not medical advice
	Completeness	Pertinent facts Negative results Statement of information not known
Disclosure	Purpose	Mission of site
	Profiling	Inform users regarding collection, use, dissemination of information
Links	Selection	Evaluate appropriateness
	Architecture	Ease of navigation Timely escape mechanisms Backwards and forwards Apparent and logical structure Meaningful, consistent image-based icons and textual identifiers
	Content	Accurate, current, credible, relevant Links to high-quality sites Alert users when about to view an external site
	Back Linkages	Purpose, relevance, credibility, authority
Design	Access	Lowest-level browser Options for access if multimedia browsers unavailable Options for hearing and seeing impaired
	Logical Organization (Navigability)	Simple, internally-consistent, easy to use Cross-references Awareness of reading level, language Balance of text and graphics, color and sound
	Internal Search Capability	Scope and function should be described Keyword or search string Interface that is easy to understand and use
Interactivity	Feedback Mechanism	Comments, corrections, criticisms, questions
	Chat Room Moderator	Indicate whether moderated Provide expertise, affiliations, source of compensation of moderator Warn that information may be inaccurate
Caveats		Indicate whether marketing or content provider

Source: Mitretek. Health Summit Working Group Policy Paper. "Criteria for Assessing the Quality of Health Information on the Internet." 4 May 1999. 16 July 2000 <<http://hitiweb.mitretek.org/hswg/documents/default.asp>>.

Emory University's Rollins School of Public Health provides an online Health-Related Web Site Evaluation Form, which is organized into categories similar to those of Wyatt: content, accuracy, author, currency, audience, navigation, external links, and structure (Appendix 3). OMNI (Organising Medical Networked Information), a British gateway to online medical information, provides a list of guidelines that it uses to assess biomedical information resources. OMNI's guidelines include three major categories: (1) context—scope, audience, authority, provenance; (2) content evaluation—coverage, accuracy, currency/frequency of updates, uniqueness; and (3) access evaluation—accessibility and usability, access restrictions, charging policy, special requirements, software reliability, copyright, language, design and layout/user interface, and user support/documentation (Appendix 4).

Alejandro Jadad and Anna Gagliardi have rated the instruments that are used to rate medical Web sites. They speculate that due to the magnitude of information available on the Internet, users “may rely on a number of Internet resources that review and rate Web sites that provide health information” (611). Therefore, in their study they identify instruments used to rate sites, rate the criteria used, and establish the degree of validation of the instruments. They conclude that the 14 instruments they examine (out of 47) are incompletely developed, and that it is unclear “whether they [the instruments] should exist in the first place, whether they measure what they claim to measure, or whether they lead to more good than harm” (611).

Piero Impicciatore et al. compare online information on managing fever in children with published guidelines, finding that only four sites provided complete and accurate information for this common complaint. They attribute problems with the quality of online information to the lack of validity verification and the lack of peer review (1877), and conclude that “there is an urgent need to check public oriented healthcare information on the Internet for accuracy, completeness, and consistency” (1878). Stephen McLeod echoes this call, claiming that health care providers and physicians have a responsibility to provide their patients with adequate information. Therefore, he recommends that providers and physicians review online sites themselves for quality; suggest sites sponsored by government agencies, professional organizations, and universities to their patients; and inform patients of the availability of packages of personalized information (1664). These packages include descriptions of the most up-to-date treatment options; current research; clinical trials; recommended treatment centers and physicians; patient experiences; information regarding support groups; and periodic information updates (1664). William Hersh mentions four mechanisms for determining the validity of online information, including checking authorship, accessing meta sites that rate medical sites, looking for voluntary codes of conduct, and judging sites based on quality criteria such as that provided by Silberg et al.

Privacy and User Information

Privacy is an overriding concern on Web sites. In this section, we focus on the consideration of privacy within the context of collecting information from Web sites. The California Healthcare Foundation, in conjunction with the Internet Healthcare Coalition, recently completed an ethics survey on consumer attitudes toward health Web sites. The survey found that “the average American Internet user is concerned about the privacy of online health information, suspicious of the ethics of many Internet health Web sites, uncertain whether personal health data are protected by law, and confused about who should regulate Internet health information, or if it should be regulated at all” (“Executive Summary”). In addition, “seventy-five percent of those seeking health information on the Internet are concerned or ‘very concerned’ about the sites, with which they’ve registered, sharing their personal health information without permission with a third party” (“New Survey”). However, the survey identified several ways in which Web site designers can enhance user confidence. The following are positive influences on users’ willingness to share information with a site:

1. Recommended by the user’s doctor.
2. Has published a privacy policy that states information will not be shared with advertisers, other sites or marketing partners.
3. Gives user the opportunity to see who has access to the user’s profile.
4. Allows user to make choices about the use of the user’s information.

Correspondingly, the following are negative influences:

1. Shares information with advertisers or marketing partners.
2. Automatically collects information about user.

3. Is sponsored by an insurance or pharmaceutical company.

Surprisingly, the survey also identified five factors that would neither increase nor decrease user willingness to provide information, including

1. Has seal of approval from trade group such as HON or TRUSTe.
2. Is sponsored by a non-profit organization.
3. Is sponsored by patient groups.
4. Is free of banner advertisements.
5. Is sponsored by a library or medical librarians. (“Survey Slides”)

Various associations or organizations provide health providers with guidelines to assist them in allaying the privacy concerns of users. For instance, the Online Privacy Alliance provides five general guidelines for protecting individually identifiable information in an online environment.

1. Adoption and Implementation of a Privacy Policy

An organization engaged in online activities or electronic commerce has a responsibility to adopt and implement a policy for protecting the privacy of individually identifiable information. Organizations should also take steps that foster the adoption and implementation of effective online privacy policies by the organizations with which they interact; e.g., by sharing best practices with business partners.

2. Notice and Disclosure

An organization’s privacy policy must be easy to find, read and understand. The policy must be available prior to or at the time that individually identifiable information is collected or requested.

The policy must state clearly: what information is being collected; the use of that information; possible third party distribution of that information; the choices available to an individual regarding collection, use and distribution of the collected information; a statement of the organization’s commitment to data security; and what steps the organization takes to ensure data quality and access.

The policy should disclose the consequences, if any, of an individual’s refusal to provide information. The policy should also include a clear statement of what accountability mechanism the organization uses, including how to contact the organization.

3. Choice/Consent

Individuals must be given the opportunity to exercise choice regarding how individually identifiable information collected from them online may be used when such use is unrelated to the purpose for which the information was collected. At a minimum, individuals should be given the opportunity to opt out of such use.

Additionally, in the vast majority of circumstances, where there is third party distribution of individually identifiable information, collected online from the individual, unrelated to the purpose for which it was collected, the individual should be given the opportunity to opt out.

Consent for such use or third party distribution may also be obtained through technological tools or opt-in.

4. Data Security

Organizations creating, maintaining, using or disseminating individually identifiable information should take appropriate measures to assure its reliability and should take reasonable precautions to protect it from loss, misuse or alteration. They should take reasonable steps to assure that third parties to which they transfer such information are aware of these security practices, and that the third parties also take reasonable precautions to protect any transferred information.

5. Data Quality and Access

Organizations creating, maintaining, using or disseminating individually identifiable information should take reasonable steps to assure that the data are accurate, complete and timely for the purposes for which they are to be used.

Organizations should establish appropriate processes or mechanisms so that inaccuracies in material individually identifiable information, such as account or contact information, may be corrected. These processes and mechanisms should be simple and easy to use, and provide assurance that inaccuracies have been corrected. Other procedures to assure data quality may include use of reliable sources and collection methods, reasonable and appropriate consumer access and correction, and protections against accidental or unauthorized alteration.

Appendices 5-9 provide examples of Web site privacy policies from WebMD, Mediconsult.com, HealthCentral, and drkoop.com. Appendix 10 provides a Model Privacy Statement provided by TRUSTe, an online organization that reviews and approves sites providing sufficient privacy protection.

Marketing and Endorsement

Nicolas Terry provides a detailed and well-documented discussion of some of the liability issues that will arise concerning Web sites, as well as possible analogies from real world cases. Terry restricts his discussion to cybermedicine, which he defines as follows: “Cybermedicine includes marketing, relationship creation, advice, prescribing and selling drugs and devices, and as with all things in cyberspace, levels of interactivity as yet unknown” (328). He further notes that liability actions on the Web will primarily involve information torts, or judging the “quality of information flow between provider and patient” (330). Terry focuses on three trends in cybermedicine in order to discuss liability issues: Web-based marketing by health care institutions, Web-based marketing and product support by pharmaceutical manufacturers, and health-oriented advice sites (336).

It is the element of marketing that plays the central role in Terry’s discussion. In a brief summary of the business models now prevalent on the Web, Terry distinguishes between two types of portals: those that provide a free service to Web surfers and concurrently sell products (their own or others’) and advertising, versus those that concentrate on specific population subsets (vertical portals) (335). It is this latter type of portal that is most relevant for health care provider Web sites. According to Terry, provider Web sites conform to one of two models: those that target other professional or commercial members of the vertical health market and those that target consumer-patients (335).

Terry notes the expansion of provider liability to include managed care organizations and pharmaceutical manufacturers (329), an expansion he specifically links to marketing practices such as direct-to-consumer (DTC) or consumer-oriented marketing (329, 331). By relying on marketing that de-emphasizes the individual physician in favor of the integrated institution, institutional providers are increasingly vulnerable to corporate liability (331, 337). And by circumventing the physician with DTC marketing, drug manufacturers have sacrificed their immunity, an immunity that has traditionally been based on the concept of the “learned intermediary doctrine” (347, 344-48). Specifically, this doctrine is premised on the idea that the physician functions as a learned intermediary between a drug manufacturer and the patient (345).

Spielberg discusses advertising with respect to hypertext links and possible liability. Spielberg states that a Web site may be considered a form of advertising subject to regulation; for instance, links to hospitals or health plans may invoke problems regarding antitrust, antikickback, and self-referral (“On Call” 1358). And hypertext links to other sites may be seen as an endorsement of those sites (“On Call” 1358).

Advice and Content Sites

The third trend in cybermedicine discussed by Terry—advice and content sites—similarly entails specific issues of liability. Terry states, “Where the web opens up unique issues, however, is in the provision of medical content that does not flow from a colorable physician-patient relationship—a context that in cyberspace maps to advice, chat or diagnosis sites” (349). He speculates that the majority of cases involving these types of sites will focus on the provision of poor advice or content, based on charges of negligence or negligent misrepresentation or alternately warranty or products liability (351). The first type of charge—negligence relating to advice or content—necessitates that duty on the part of the provider be established (351). According to Terry, these cases have typically favored the defendant and, based on the examples provided by Terry, refer to the First Amendment right to free speech (351-53). Traditionally, publishers have not been held accountable for content,

although Terry speculates that a Web site that publishes its own content may be liable for defective content (353-54). The second type of charge—products liability, in which the information is characterized as a product—has had some success. The group of cases in which a charge of products liability has been successfully applied to information concerns aeronautical charts, which Terry states are distinct from ideas or expressions because they are functionally equivalent to physical products (i.e., compass, radar, navigational instrument) (355-56). In addition, publishers who guarantee the accuracy of information are susceptible to charges of product liability (356).

Managing Liability

Terry describes four ways in which these liability issues can be managed: self-regulatory codes of conduct, disclaimers, site zoning, and federally granted immunity (359). Both Terry and Hersh state that the leading advocate of voluntary codes of conduct is the Health On the Net Foundation (HON), which provides a code of conduct containing eight principles (Terry 359; Hersh 44; Health on the Net). Sites complying with this code can display its logo.

- | | |
|--|--|
| Authority | 1. Any medical or health advice provided and hosted on this site will only be given by medically trained and qualified professionals unless a clear statement is made that a piece of advice offered is from a non-medically qualified individual or organisation. |
| Complementarity | 2. The information provided on this site is designed to support, not replace, the relationship that exists between a patient/site visitor and his/her existing physician. |
| Confidentiality | 3. Confidentiality of data relating to individual patients and visitors to a medical/health Web site, including their identity, is respected by this Web site. The Web site owners undertake to honour or exceed the legal requirements of medical/health information privacy that apply in the country and state where the Web site and mirror sites are located. |
| Attribution | 4. Where appropriate, information contained on this site will be supported by clear references to source data and, where possible, have specific HTML links to that data. The date when a clinical page was last modified will be clearly displayed (e.g. at the bottom of the page). |
| Justifiability | 5. Any claims relating to the benefits/performance of a specific treatment, commercial product or service will be supported by appropriate, balanced evidence in the manner outlined above in Principle 4. |
| Transparency of authorship | 6. The designers of this Web site will seek to provide information in the clearest possible manner and provide contact addresses for visitors that seek further information or support. The Webmaster will display his/her E-mail address clearly throughout the Web site. |
| Transparency of sponsorship | 7. Support for this Web site will be clearly identified, including the identities of commercial and non-commercial organisations that have contributed funding, services or material for the site. |
| Honesty in advertising & editorial policy | 8. If advertising is a source of funding it will be clearly stated. A brief description of the advertising policy adopted by the Web site owners will be displayed on the site. Advertising and other promotional material will be presented to viewers in a manner and context that facilitates differentiation between it and the original material created by the institution operating the site. |

With respect to disclaimers, Terry notes two trends: exculpatory statements and preinjury releases (360). According to Terry, exculpatory statements serve mainly to subordinate the Web site to the physician-patient relationship (360). He provides the following example: “The health information contained herein is provided for education purposes only and is not intended to replace discussions with a healthcare provider. All decisions regarding patient care must be made with a healthcare provider and consider the unique characteristics of each patient” (360). The second type—preinjury releases—are, according to Terry, much more extensive; for instance, in his example, the release expressly disclaims warranty, the currency of the site’s information, the endorsement of external sites, and the currency of information on those external sites (361). In spite of the publication of these more extensive disclaimers, Terry notes that few sites attempt to make agreement to them a precondition for site access, a requirement that would entail consideration of click-wrap or click-through contracting (361). Terry also notes the use of disclaimers for hypertext links, as have other authors such as Spielberg and Arnold Rosoff (Terry 343; Spielberg, “On Call” 1358; Rosoff 380 n54). For instance, Pfizer’s

corporate site precedes every external hypertext link with the following disclaimer: “You are now leaving www.pfizer.com/exploringhealth. Links to these outside sites are provided as a resource to the viewer” (Terry 343). Rosoff also suggests the design of an exit control, or site border protocol, that forces visitors to acknowledge that they are leaving a site (380). Appendix 11 provides an example Web site disclaimer from MDchoice.com.

The third approach for managing liability discussed by Terry is site zoning, in which access is denied to certain groups or the site is segregated by subpopulation (363). He describes three ways in which site zoning is implemented: by disclaiming off-site content, by demarcating physician and patient areas, and by geographical lines (363-64). The last approach discussed by Terry, federally granted immunity, refers to 47 U.S.C. § 230. This code provides immunity from liability to ISPs, hosting services, and other distributors (364). Basically, the code protects those sites that host or sponsor information provided by others; however, it may not provide protection for sites that publish their own content (365).

Electronic Communication—Patient Rights and Physician Responsibilities

In addition to the issues concerning Web sites discussed above, the medical community is concerned about preserving the patient’s rights and forestalling the physician’s liability in online communication. Patricia Kuszler examines the issue of liability as it applies to telemedicine, which she defines as follows: “the use of telecommunication to diagnose and treat a patient” (299). Kuszler states that the following technologies are included in telemedicine: teleimaging; telesurgery; video and Internet/e-mail conferencing; transmission of physiological data by telephone, telecommunications, Internet; and telehealth education via the Internet and cable TV (299-300). In general, telemedicine is characterized by four features: a geographic separation between provider and patient; the use of telecommunication or computer technology to facilitate their interaction; the development of protocols and normative standards appropriate for the context; and sufficient staffing and infrastructure to support the technology (305). She further separates the field into three functional areas: decision-making aids—information resources and artificial intelligence; remote sensing—transmission of complex images; and collaborative arrangements for remote patient management—interactive video workstations (305-06).

Many of the questions concerning online communication revolve around the use of e-mail in the physician-patient relationship. Kenneth Mandl, Isaac Kohane, and Allan Brandt distinguish between the appropriate and inappropriate use of patient-physician electronic communication. According to them, the use of e-mail for making or reminding patients of appointments, requesting general information, conducting routine guidance and education, and checking on patients’ progress are appropriate; whereas its use for addressing urgent needs, communicating abnormal or confusing test results, relaying bad news, or diagnosing new problems is not (496). Spielberg, who has published two articles on the legal and ethical implications of the use of e-mail for patient-physician communication, identifies several issues raised by the use of e-mail, including security and authenticity of authorship, privacy, confidentiality, patient consent, and liability (“On Call” 1353). These concerns are discussed below.

Security and Authenticity

Mandl et al. emphasize that confidentiality and privacy are not assured in e-mail communication, and recommend that procedures be established for authenticating users’ identities and encrypting stored data (497). This issue of authentication is critical, since e-mail communication is a medical record in and of itself (Spielberg, “On Call” 1357). Like Mandl et al., Spielberg also emphasizes the vulnerability of e-mail, which is susceptible to interception and alteration; can be forwarded, printed, and copied; and is stored on a central computer (“Online” 270). According to Spielberg, “Providers and insurers are now obligated to take affirmative technological and physical precautions against data interception during transit” (“Online” 294). Therefore, she lists several mechanisms that can or have been used to ensure the security of e-mail for transmitting sensitive medical data, including encryption software (which can also be used for authentication purposes), a secure server, anonymous communication, or self-imposed discretion (“On Call” 1355). An anonymous article in the *Canadian Medical Association Journal* similarly recommends the use of encryption techniques, firewalls (security access codes), closed systems, or “smart” cards to protect medical records in general (1313).

Privacy and Confidentiality

Both Paul Starr and Helena Rubinstein define privacy with reference to Louis Brandeis and Samuel Warren’s phrase “the right to be let alone” (Starr 194; Rubinstein 206); however, both contend that the privacy of

personal health information must be balanced against medical research and public health measures (Starr 194; Rubinstein 226). In support of his contention, Starr states that medical research and public health are “not interested in disclosing individual identities to the public” and have not abused trust (194, 200). Rather, Starr distinguishes between three kinds of violations of health information privacy: individual misappropriations of medical records, the use of personal data for marketing resulting in ambiguous or little harm, and institutional practices causing unambiguous harm to identifiable individuals (196-98). The first type Starr states could be corrected by stronger penalties and more aggressive enforcement of laws and policies regarding data security (197). The second type Starr sees as relatively unproblematic, or at least difficult to address (198). It is the third type that Starr sees as needing correction and reform (198). Starr recommends mechanisms such as encryption, the use of a universal health identifier, segmentation of medical records, and biometric identifiers for and audit trails of those accessing medical records (200-01). Rubinstein similarly argues that the focus of reform should be on data security rather than control over access (230).

Both Mandl et al. and Spielberg discuss privacy and confidentiality as they apply to e-mail communication. As stated previously, e-mail communication is itself a medical record; therefore Spielberg recommends that all patient-related messages contain a header stating that the communication is confidential (“On Call” 1357). But since employers own their e-mail systems and service providers can access e-mail messages on their systems, Spielberg also suggests that physicians caution their patients against using e-mail for confidential information (“On Call” 1355-1356). With respect to the storage of e-mail communication, Mandl et al. recommend that e-mail addresses and messages be linked to medical records (497). Spielberg recommends that they be maintained in a separate, private section of the medical record—one that requires patient consent for viewing—since many authorized but unwanted personnel, such as insurers, hospitals, or state regulators, can access a patient’s medical record (“Online” 274-75, 286).

Interestingly, the California HealthCare Foundation found that online medical record keeping is viewed as the greatest threat to individual privacy on the Internet (“Executive Summary”). Rubinstein reproduces in her article some of the proposals that have been advanced to address the issue of privacy with respect to medical records, of which one in particular, the 1997 recommendations of the Secretary of the Department of Health and Human Services, provides a useful guideline for privacy concerns:

1. **Boundaries.** Subject to a few carefully defined exceptions, an individual’s healthcare information should be used for health purposes and only those purposes.
2. **Security.** Organizations must protect health information against deliberate or inadvertent misuse or disclosure.
3. **Consumer access.** Patients should be permitted to examine their records, obtain a copy of them, correct errors, and find out who else has seen them.
4. **Accountability.** Misuses of information should be sanctioned.
5. **Public responsibility.** Individuals’ claims to privacy must be balanced by their public responsibility to contribute to the public good through the use of their information for important socially useful purposes, with the understanding that their information will be used with respect and care and will be legally protected. (Rubinstein 213)

Disclosure and Informed Consent

Another issue that must be considered within the context of electronic communication is informed consent. Rosoff provides the following definition of informed consent: “Generally, the doctrine of informed consent protects patients by making sure that physicians and other health care providers provide information to patients about their treatment” (372). Specifically, then, the provider must disclose to the patient “the diagnosis, the nature and purpose of any proposed treatment, the risks and consequences of that treatment, any reasonably feasible treatment alternatives and the prognosis if the proposed treatment is not undertaken” (372). Informed consent forms have thus serve two purposes: informing the patient and documenting that the required information has been provided (373).

Rosoff discusses this concept of informed consent as manifested in the use of computer-based patient education and informed consent products (CD-ROMs). According to him, the use of these products allows for dynamic interaction, a flexible pace of learning, and the incorporation of exercises that verify the patient’s comprehension (375). The use of the electronic medium not only informs the patient and documents that the

required information has been provided, but also records the patient's level of comprehension (376). Rosoff notes that the Internet will be an even more efficient delivery system for this type of patient education and informed consent. Some advantages would be the ease of update, the greater availability of libraries of programs, and the ability to tailor the product to the health provider's needs, the first of which is critical (378). Rosoff emphasizes that accurate information is an "irreducible requirement of the informed consent process," and that this goal is difficult to achieve due to the current rate of knowledge generation and the use of prepackaged disclosure devices (379).

Spielberg discusses informed consent in depth as well, but with respect to e-mail communication. Spielberg contends that the patient's right to informed consent should be extended to the use of e-mail: "Patients should be informed of the potential risks and benefits of using e-mail" ("On Call" 1356). She recommends that disclosure with respect to e-mail should inform patients of the potential ramifications of e-mail use, storage, and retention; who has access to the physician's e-mail address; whether e-mail responses are written by the physician; whether e-mail will be forwarded; the circumstances under which a physician may e-mail a third party about the patient; whether and in what medium e-mails are incorporated into medical records; and what security measures are in place ("On Call" 1357). The patient should then be given the option to prohibit the use of e-mail for confidential information ("On Call" 1357), or specifically exclude certain types of information from his or her medical record ("Online" 286). These preferences could then be indicated in an "e-mail consent" form, which the patient would sign ("Online" 287). Spielberg also recommends the online publication of e-mail security risks if e-mail addresses are provided on a Web site ("On Call" 1358).

Managing Liability

Federal law does not provide a concrete legal standard for maintaining the confidentiality and privacy of medical records; rather patients must rely on state common law or statutory safeguards for recourse, under which they can claim breach of confidentiality, invasion of privacy, breach of contract, malpractice, defamation, or intentional infliction of emotional distress ("On Call" 1356; "Online" 276, 281). The physician's duty to maintain the confidentiality of medical information provides an additional form of protection for patients; however, this duty makes physicians legally liable (Spielberg, "Online" 283). According to both Kuszler and Spielberg, a patient-physician relationship must exist for there to be a charge of malpractice (Kuszler 307; Spielberg, "Online" 292). Using the telephone as an analogy for e-mail, Spielberg states, "once the physician offers advice by telephone, a relationship is established. Accordingly, physicians who participate in e-mail consultation with their ongoing patients will likely satisfy the threshold requirements necessary to establish a doctor-patient relationship and its attendant duty of care" ("Online" 292). Similarly, if Congress legislates payment for telemedicine interactions, this reimbursement may also imply some type of professional duty and consequent liability ("Online" 289-90). Spielberg recommends that physicians therefore take precautions to safeguard e-mail communications through technological security and office practices (284). Lastly, Spielberg emphasizes the licensing problems inherent in electronic communication, in which by communicating across state lines, physicians may be practicing medicine without a license ("On Call" 1357; "Online" 291).

Kuszler examines telemedicine liability with respect to two lines of case law: telephone calls and consultants (308). She identifies three factors that must be present for the establishment of a physician-patient relationship over the telephone: the physician must agree to counsel the patient, the physician must provide some advice, and the patient must rely on the physician's advice (310). Case law with respect to consultation distinguishes between formal and informal. In the former, the consultant forms a relationship with the patient, the patient is both aware of and consents to the consultation, and the patient is usually billed for the advice (311). In the latter, the consultant has little or no contact with the patient, the patient is unaware of the consultation, and the consultant does not bill for the advice (311-12). Therefore, a formal consultation typically results in the formation of a physician-patient relationship; an informal consultation does not (312, 313). Kuszler states that in addition and subsequent to proving the existence of a physician-patient relationship, the patient-plaintiff must prove that standard of care was breached, traditionally through application of the "locality rule" (comparison with standard of care in geographic neighborhood) (315). However, Kuszler states that rulings on standard of care have been moving toward a single standard, a move that has been reinforced by technology, and that if telemedicine technology becomes the standard, considerations of liability could expand to include malfunctions or misuse of that technology (316). She therefore states that this type of technology must be bolstered with safeguards and back-up systems (318).

Like Terry, Kuszler also addresses the increasing vulnerability of hospitals and integrated health plans to charges of liability. Kuszler distinguishes between vicarious and direct liability. The first, vicarious liability, relies on an idea of derived liability, in which the negligence is committed by an agent of the institution, even if the agent is not directly employed by the institution but viewed as an employee by the patient (319). The second, direct liability, includes nondelegable duty—in which an institution cannot shift a duty to the physician; corporate negligence—in which the institution is held responsible for what occurs within its walls; and poorly designed managed care systems—in which an HMO is responsible for defects in the design or implementation of health plans (323). In all of these cases, as noted by Terry, liability is shifting from the individual physician to the institution; therefore, negligence and neglect resulting from an online consultation by a physician may reflect back on the institution or health plan (326).

Mandl et al. address the question of medicolegal liability in terms of delays in responding to urgent or emergency messages. They recommend the use of electronic receive-and-read receipts, as well as the implementation of a well-designed interface that can aid in triaging messages as they are received (498, 497). This interface can include features such as menu categories and priority specification, as well as mechanisms that can allow for tracking the number and length of messages received and sending automated responses to routine queries (497).

Rosoff also discusses liability with respect to incorrect or obsolete information as provided by the computer-based patient education and informed consent products he discusses. According to Rosoff, “The law has long held it is solely the physician’s responsibility [not that of the hospital or other health care institution] to make sure the patient’s consent is based on adequate information” (381). Rosoff, however, notes that there are some indications that this will change (382), a view that correlates to both Terry’s and Kuszler’s assessments of liability concerning Web sites and telemedicine respectively.

Listservs and Bulletin Boards—Content and Communication

Pallen defines electronic mailing lists (listservs) as follows: “a message sent to one of these lists is disseminated to all the subscribers to the list” (506). These lists are usually dedicated to discussions of specific topics. Because their main purpose is to disseminate information and engage in discussion (Pallen 506), possible concerns may be raised with respect to both content and communication. Therefore, both of the previous discussions regarding Web sites and electronic communication apply here as well: issues such as quality of information, patient rights, and physician responsibilities play a part in listservs. Jean Deason Culver, Fredric Uerr, and Howard Frumkin articulate this merging of content and communication, identifying two specific concerns relating to the free flow of information on the Internet: the threat to patients’ medical confidentiality and the dissemination of misinformation (466).

Rating the Quality of Information

In Culver et al.’s study, they focus on the concern with misinformation as it is manifested in an Internet discussion group. Culver et al. list several ways in which information on the Internet may be misleading or incorrect: controversial information may be presented in a biased manner, medical information may not be supported by cites, nonprofessionals may provide advice, and information may not be peer-reviewed (466). Culver et al. test two hypotheses in their study (466): that medical information in a discussion group may be proffered by nonmedical personnel; and that medical information in a discussion group may be unconventional, experientially rather than evidentially based, nonbeneficial, and perhaps harmful.

Culver et al. collected messages from SOREHAND, an online bulletin board, which they then coded by author qualifications—affected person, health care provider, ergonomist, vendor, other, unknown; message purpose—requesting information, providing information, both, housekeeping; and message content—ergonomic topics, medical topics, other (467). They further classified messages addressing medical topics by author’s medical training; information conventionality; information source—published citation, personal experience, neither; and cost of compliance—≤\$10, >\$10 to ≤\$200, >\$200. Lastly, Culver et al. classified the messages based on whether they expressed dissatisfaction with the medical system or not. Culver et al. interpret their results with respect to two contexts: “snake oil,” which “thrives in situations where conventional medicine has little to offer, scientific data are equivocal, or patients are desperate”; and self-help (469). They note that the Internet is particularly appropriate for self-help, which is characterized by shared concern, self-governance, a democratic ideology, and nonprofit status. According to Culver et al., the pros of self-help include useful information and emotional support, the cons, misinformation and reinforcement of disability (470).

Culver et al.'s hypotheses concerning misinformation were corroborated by the results of their study. They found that most of the messages proffering medical advice were sent by nonmedical individuals (89.3%); that 60% of those messages contained information based on experience alone; and that more than one third of the messages recommended unconventional treatments (468). Their most interesting finding was the credulity of the contributors; Culver et al. state that "In general, contributors appeared to assume that what was stated by other contributors was true, and there was a conspicuous absence of critical evaluation of conclusions drawn" (468).

Of more relevance to this discussion, however, are the categories that Culver et al. used for coding the messages, many of which echo the standards set by Silberg et al. for rating information credibility. As noted previously, Silberg et al. argue that their four core standards of Authorship, Attribution, Disclosure, and Currency apply to discussion forums as well as to Web sites (1244). Although they do not expand on their contention, we can speculate on the ways in which these standards can be met based on Culver et al.'s study. First, the standard of Authorship can be met through the use of e-mail signature information, such as e-mail sender's name, affiliation, and credentials. (The possible use of pseudonyms in forums must be kept in mind [Kassirer 52].) Second, Attribution issues can be addressed in the same way that they are addressed on Web sites, by providing reference and source information for all content. Third, Disclosure is met by publication of the owner of the e-mail list, typically when individuals subscribe to the list. And fourth, Currency is automatically met, because e-mail messages typically include date and time of posting.

Privacy, Confidentiality, and Informed Consent

Jonathan Rosenoer, Sandy Isaacs, Ruth Macklin, and Sam Silverman respond to a fictional case concerning research on an electronic mail forum, presenting the perspectives of a lawyer, a networker, a professor of bioethics, and a user. All of their responses address issues of privacy and confidentiality on listservs. Rosenoer notes that there is a great deal of confusion regarding the rights and obligations of the subscribers and providers of listservs. This confusion to a great extent pertains to the question of whether listservs are public or private, and is reflected in the four responses to the fictional case. Rosenoer, a lawyer, unambiguously describes electronic discussions as public (107), as does Macklin, a professor of bioethics (114). But the two other respondents do not share this characterization of a forum as public.

Sam Silverman, a physics professor, argues that a request to subscribe to an e-mail list may not be automatically granted if the list is moderated, a contingency that implies in principle that a discussion list is not in the public domain (although he does say that users have only a limited expectation of privacy) (116-17, 118). Silverman states that privacy and confidentiality become especially critical when the subject of a discussion list is sensitive, and that such lists should be carefully monitored (117-18). One of the suggestions proffered by Silverman is the inclusion of a section on ownership of postings and the potential use of list archives for research in the list manual provided by the list owner (118).

Sandy Isaacs, who sets up hospital-Internet connections, also discusses this issue of privacy in depth. Isaacs casts the fictional case as one involving the rights of a researcher versus the subject's right to privacy (110). Although his argument regarding research is irrelevant within the context of this literature review, his discussion of privacy is useful. Isaacs claims that the right to privacy is situational, and therefore that the main question raised by the fictional case is the following: "Do the participants on [the] Internet have a reasonable expectation of privacy and freedom from being quoted and identified?" (112). Isaacs claims that this expectation depends on two issues: the type of list and the user's level of sophistication. Isaacs distinguishes between use net readers, moderated, and unmoderated lists. On a moderated list, the owner of the list establishes rules and determines whether messages are posted; therefore, Isaacs seems to imply that moderated lists are more private than unmoderated lists. With respect to user sophistication, Isaacs states that Internet users are less sophisticated now than previously (when the Internet was mainly used by scientists and academics), and that many users therefore have a false expectation of privacy (112). However, the topic of the listserv also plays a role in level of sophistication, as listservs devoted to more technical topics presumably have more technically savvy subscribers.

Based on Silverman's and Isaacs' discussions, we can infer that users may have a high expectation of privacy on listservs or bulletin boards, and should therefore be informed of the vulnerability and possible uses of their messages when subscribing. This instruction could take the form of the "e-mail consent" form described by Spielberg. This approach is supported by Macklin's analysis of the fictional case, in which she qualifies the requirement for informed consent based on whether participants expect privacy or not (115). Based on Isaacs'

argument, we can assume that many Internet users have an expectation of privacy (albeit a false one) and should therefore always be informed of possible violations of that expectation. The use of disclaimers as discussed above with respect to Web sites could be considered here. (Examples of Web forum and chat room disclaimers used by The Massachusetts General Hospital—Department of Neurology <<http://neuro-www.mgh.harvard.edu/disclaimer.html>> are reproduced in Appendix 12.)

Managing Liability

The liability concerns pertaining to discussion forums are similar to those raised previously regarding Web sites and e-mail. However, Rosenoer raises two legal issues raised by the fictional case that are relevant, copyright infringement and unlicensed medical practice. With respect to copyright, Rosenoer states that online services may hold compilation copyright of online discussions (108). Although Rosenoer raises this issue within the context of research, it has implications similar to those discussed by Spielberg above, in which service providers may read e-mail believed by patients to be confidential.

Rosenoer also refers to the licensing problems briefly addressed by Spielberg above. He states, “advice given by a professional in one state in response to an inquiry from a participant in another state may constitute unlicensed professional practice” (109). This issue is particularly relevant in an online discussion forum, especially in light of Culver et al.’s study, which found that 5.1% of the messages providing medical information on the SOREHAND listserv came from medical professionals, and that one third of those messages contained unconventional advice (468). It would seem that these medical professionals were leaving themselves open to many legal problems. Kuszler refers to a study published in the *Journal of the American Medical Association*, in which a fictitious patient solicited e-mail advice from 58 physicians. According to Kuszler, 50% of the physicians responded and 59% suggested a diagnosis (310). She concludes, “Had the patient relied on any one of the diagnoses, the formation of a [physician-patient] relationship would be complete. Moreover, if the online diagnosis was in error or falsely reassuring and as a result the patient sustained harm, the patient would likely have a viable negligence action against the e-mail physician” (310). One can assume that the same possibility would exist within the context of electronic discussion lists.

Clinical Trials—Subject Solicitation and Clinician Response

The posting of clinical trials is one instance of a specific use of Web sites. Leslie Biesecker and Evan DeRenzo’s letter to the editor of the *American Journal of Human Genetics* provides some interesting guidelines on Internet solicitation of research subjects for genetics studies, guidelines that can be considered with respect to other clinical trials. They recommend that an Internet solicitation be reviewed and approved by the IRB and include the following:

- A discussion of the risks and a brief statement that these risks have been addressed and approved by the IRB. (1255)
- A discussion of the procedure for soliciting patients from other countries, which may include special requirements such as a collaborator in the subject’s country, a local IRB review, and a single-project assurance from the NIH Office of Protection from Research Risks. (1255)

Biesecker and DeRenzo state that clinicians responding to the online solicitation should

- Be aware of their own institutional and geographical jurisdiction regarding collaborations with outside research projects and the release of patient information. (1255-56)
- Respond by private communication rather than broadcast their response to all of the service subscribers. (1256)
- Respond with general information about the subject, not information that could be used to identify the subject or the subject’s family. (1256)

And lastly, Biesecker and DeRenzo caution that direct solicitation of patients on the Internet is problematic, and thus that Internet service editors, researchers, and the IRB need to carefully consider issues such as

- Privacy, autonomy, and coercion, and
- Cultural and regulatory variations. (1256)

Steven Epstein studies the impact that AIDS activists have had on the reform of clinical trials, focusing in particular on the way in which these activists have achieved credibility. Epstein provides the following definition of scientific credibility: “the capacity of claims makers to enroll supporters behind their claims, to legitimate their arguments as authoritative knowledge, and to present themselves as the sort of people who can give voice to science” (411). This credibility includes both social authority, as reflected in organizational hierarchies, and cultural authority, or “an actor’s capacity to offer what is taken to be truth” (411). Epstein states that social markers such as academic degrees, track records, and institutional affiliations indicate credibility (411). Within the context of his study, he notes that AIDS activists had credibility from the beginning in the form of pre-existing organizations, political clout, fund-raising capacity, and high degrees of cultural capital (illustrated by their training as doctors, scientists, educators, nurses, professionals) (415). Epstein identifies four tactics used by AIDS treatment activists to achieve credibility:

1. Acquired cultural competence by learning the language and culture of medical science.
2. Established themselves as representatives.
3. Yoked together methodological (or epistemological) arguments and moral (or political) arguments.
4. Took sides in pre-existing debates over how clinical research should be done.

Epstein discusses the dual role of clinical trials within the context of this fourth tactic, claiming that clinical trials are both scientific experiment and health care (424).

CONCLUSION

This review has addressed rhetorical concepts of credibility, the concept of computers as persuasive technologies, medical concepts of the quality of medical information available on the Web, the changing nature of the physician-patient relationship, and liability concerns raised by the infusion of telecommunications technology in general into medicine.

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APPENDIX 1—HI-ETHICS 14 ETHICAL PRINCIPLES

Source: Healthwise, Inc. "Health Internet Ethics: Ethical Principles for Offering Internet Health Services to Consumers." 16 July 2000 <<http://www.hiethics.org/Principles/index.asp>>.

1. Privacy Policies

Our members will adopt a privacy policy that is easy for consumers to find, read, and understand. Our privacy policies will—

- A. Provide users with reasonable notice of our information practices, including disclosure of—
 1. collection or use of any information about the user;
 2. collection or use of aggregate data; and
 3. what, if any, access to personal information collected on our health web site we provide to unrelated third parties.
- B. Provide consumers with a meaningful choice on our health web site to accept or decline our proposed collection and use of personal information provided by the consumer including, if any, consent to the transfer of information to third parties.
- C. Contain a positive commitment from us to use security procedures to protect personal information we collect from misuse.
- D. Provide, where appropriate, procedures for consumers to review and correct their personal information that we maintain, or to request that we delete the information, and include a description of the effect of any changes on other information about the user that we maintain.

2. Enhanced Privacy Protection for Health-Related Personal Information

- A. If we collect health-related personal information, we will only use it for the purposes for which a reasonable consumer would expect us to use it or as agreed to by the consumer.
- B. We will not disclose health-related personal information to an unrelated third party and/or for unrelated purposes without first obtaining the consent of the consumer (by means of an explicit "opt-in" procedure).
- C. When we make significant changes to our privacy policies that affect the use of the health-related personal information we collect, we will give notice to our users. We will not make use of information we gathered from individuals prior to a significant change in policy without first obtaining their consent for any new uses. We may also make non-significant changes to our privacy policies that will not affect our use of a consumer's personal information. We will post such changes on our health web site.

3. Safeguarding Consumer Privacy in Relationships with Third Parties

- A. Where third parties have access to health-related personal information from our site, our agreements with these third parties will follow these principles in giving consumers notice and choice with respect to that third party's access and use.
- B. Where we have relationships with third parties, we will adopt procedures to tell consumers if third parties have access to personal information about them from our site.
- C. We will take appropriate precautions to prevent inadvertent disclosures of personal information to third parties and will take immediate steps to eliminate such disclosures, if they occur, once they have come to our attention.
- D. We will not allow third parties any access to non-personal individual information collected on our site unless the third party agrees that it will not use the information to identify individuals.

4. Disclosure of Ownership and Financial Sponsorship

We will disclose those who have major financial interests in us or the health web sites we operate, and those who give us significant funding or other assistance. We will—

- A. Clearly state who owns any health web site we operate.

- B. Clearly identify those who hold an ownership interest of 10% or more in our company, and those whose financial contributions to our health web site represent 10% or more of the annual revenues of our company. Financial contributions means both cash and in-kind services or materials by persons who are not otherwise identified as sponsors.

5. Identifying Advertising and Health Information Content Sponsored by Third Parties

- A. We will clearly distinguish advertising from health information content, using identifying words, design, or placement. We will design our health web sites to avoid confusion between advertising and health information content.
- B. We will clearly disclose significant relationships between commercial sponsors and our health information content by identifying a sponsor's involvement in—
 - 1. selecting or preparing health information content that appears on our health web site, including any sponsorship of priority listings in search engine results, product listings, or other preferences in presentation of information to consumers; and
 - 2. any “co-branding” of health information content or Internet health services.
- C. We will provide consumers with a policy that is easy for consumers to find, read and understand regarding our acceptance of advertising and of health information content sponsored by others. Our policy will disclose—
 - 1. how we identify advertising and commercially sponsored health information content on our health web site;
 - 2. how we may obtain revenues from third parties related to advertising and health information content sponsored by others on our health web site, including advertising revenues, commissions on consumer purchases, fees based on consumer use of links to other web sites, and revenues for transfer or use of information about users, including aggregate data;
 - 3. whether we target advertising or sponsored health information content to consumers based on information about them or their use of our health web site; and
 - 4. whether we intend any links to other web sites, logos, or marks of other companies, or any co-branding to constitute recommendations to the consumer.

6. Promotional Offers, Rebates, and Free Items or Services

We will comply with existing federal and state laws regarding any promotions, rebates, and free or discounted offers on our health web sites.

7. Quality of Health Information Content

- A. We will not make claims of therapeutic benefit without reasonable support, or deliberately provide false or misleading information.
- B. We will not accept advertising or sponsored health information content that we know either contains false or misleading claims or promotes ineffective or dangerous products.
- C. We will have an editorial policy that is easy for consumers to find, read, and understand. Our editorial policy will describe procedures we use for evaluating the quality of the health information content on our health web site, whether created by us or obtained from others.

8. Authorship and Accountability

- A. We will disclose any cases where we have placed health information content on our health web site because of sponsorship or other support from a third party. In addition to identifying the sponsor, we will clearly disclose significant relationships between the commercial sponsor and our health information content by identifying the sponsor's involvement with that content.
- B. Where we reproduce health information content created by third parties, we will clearly disclose the author and/or source of the material and the date of the material or its last update.

- C. Where we present health information content as the result of clinical experience or scholarly research, we will clearly disclose the actual author(s) of the health information content.
 - D. Where we create health information content for use by consumers, we will provide consumers general information about our authors and their qualifications, our editorial policy, and, if any, our expert review process.
 - E. Where we create health information content, we will clearly disclose the date it was created or last updated.
 - F. We will have a conflict of interest policy for all authors that is easy for consumers to find, read, and understand. We will disclose all affiliations and financial relationships of authors consistent with our policy.
9. Disclosure of Source and Validation for Self-Assessment Tools
- A. Where we offer self-assessment tools, we will disclose their source and appropriately describe the scientific basis for their operation.
 - B. We will also describe how we maintain self-assessment tools, including a description of any formal evaluation process and the date of the last review or update.
10. Professionalism
- A. We believe that current codes of ethics apply when health care professionals use health web sites to provide professional care. However, these codes do not apply to every interaction between a consumer and a professional. Our health web sites shall provide conspicuous and appropriate information for consumers to understand when they are and are not in an interaction with a health professional that is covered by the ethical standards of the profession.
 - B. Where we allow health care professionals to engage in professional care on our health web sites, we will design Internet health services to enable health care professionals to adhere to professional ethical principles in the online environment. We will continue to evolve new standards of practice to meet the changing expectations created by consumers' use of Internet health services.
 - C. Internet health services directed to and for use by health care professionals are beyond the scope of these principles.
11. Qualifications
- A. We will provide the credentials and qualifications of persons responsible for health care services delivered via our consumer health web sites. If applicable, we will also provide information about professional licensure.
 - B. We will disclose whether we verify information regarding health care professionals or others who provide services or information on our health web sites.
12. Transparency of Interactions, Candor and Trustworthiness
- A. We will inform consumers who use our Internet health services of the risks, responsibilities, and reasonable expectations associated with their use of our services. We will make sure that this information is easy for consumers to find, read, and understand.
 - B. We will strive to make it apparent to consumers when they move within a site, or leave one site for another, and when the move changes the risks, responsibilities, and expectations associated with their activities.
13. Disclosure of Limitations
- We will advise consumers of any limitations of our health web site as a source of health care services. In particular, we will state that online health services and health information content cannot replace a health professional-patient relationship, and that consumers should always consult with a professional for diagnosis and treatment of their specific health problems.
14. Mechanism for Consumer Feedback
- We will make it easy for consumers to provide us with feedback or complaints concerning our health web sites.

APPENDIX 2—GUIDELINES FOR MEDICAL AND HEALTH INFORMATION SITES ON THE INTERNET: PRINCIPLES GOVERNING AMA WEB SITES

Source: American Medical Association. "Guidelines for Medical and Health Information Sites on the Internet: Principles Governing AMA Web Sites." 17 Mar. 2000. 17 July 2000 <<http://www.ama-assn.org/about/guidelines.htm#guide>>.

Guidelines for Medical and Health Information Sites on the Internet: Principles Governing AMA Web Sites

Margaret A. Winker, MD; Annette Flanagin, RN, MA; Bonnie Chi-Lum, MD, MPH; John White, MS; Karen Andrews; Robert L. Kennett; Catherine D. DeAngelis, MD, MPH; Robert A. Musacchio, PhD

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The Internet has permitted physicians, other health care professionals, patients, and other consumers to quickly access medical information in unprecedented volume. Such access has the potential to speed the transformation of the patient-physician relationship from that of physician authority ministering advice and treatment (with sometimes questionable patient understanding and adherence to recommendations) to that of shared decision making between patient and physician. However, several substantial barriers remain before this relationship can be realized. These barriers include equitable access to information, imbalance between patient health literacy and the information provided, extreme variability in the quality of the content, potential for commercial interests to influence content, and uncertain preservation of personal privacy.¹⁻⁴

Web users have been warned regarding the incomplete, misleading, or inaccurate medical information available on the Web.³ For those seeking easy ways to identify high-quality, reliable information, some Web sites and organizations have provided rating systems to evaluate quality of information on the Internet. However, these systems often do not provide the criteria used to assess quality, nor do they provide the reliability and validity of their measures.^{2,4,5} Ultimately, assessing the quality of content depends on the same factors that readers of print publications depend on: authorship of the content, attribution to the sources of content, disclosure of funding and competing interests, and timeliness of the information presented.³

Among Internet users who seek medical information, personal privacy was ranked as their most important concern.⁶ A recent study found that while many Internet health information sites provide privacy policies, most do not follow them.⁷ More than nearly any other type of information provided via the Web, medical Web sites must adhere to strict personal privacy codes to prevent individuals' personal medical information, including patterns of use and interests, from involuntarily entering the hands of marketers, employers, and insurers.

Information from the American Medical Association (AMA), including the tables of contents and abstracts of JAMA and the Archives Journals, has been available on the Web since 1995. Physician Select, a database of physicians that is intended for the public and is searchable by name, specialty, and location, has been online since July 1996. Health Insight, a health information site for consumers, was launched in spring 1997. JAMA and the Archives Journals have been available in full text and fully searchable online since September 30, 1999.

The AMA has developed and followed a number of guidelines to govern aspects of its Web offerings. For example, in 1995, the Principles Governing Advertising in Publications of the American Medical Association⁸ were revised from guidelines that addressed only print publications to guidelines addressing advertising on the Web sites of JAMA and the Archives Journals. In 1997, an editorial in JAMA proposed a set of quality standards for medical information on the Internet.³ These standards include proper identification of authors and contributors; attribution for all sources of information; disclosures of site ownership, financing, advertising, and

conflicts of interest; and indication of the dates content is posted and updated. In October 1999, the AMA Board of Trustees approved Web Site Linking Guidelines.

Now, in addition to the AMA Publications site and the AMA Web site, the AMA and 6 other founding societies are preparing to launch Medem, a health information Web site for the public. To provide guidance for all these sites, the Guidelines for the AMA Web Sites, provided herein (see below), address the creation and updating of content, acquisition and posting of advertising, the preservation of privacy and confidentiality, and the provision of reliable and efficient e-commerce.

The development of these guidelines began in 1999. An AMA staff committee, composed of the listed authors, was organized to review the existing individual guidelines and draft a single document that would provide principles to govern the presentation and functionality of the 4 major areas for which quality standards were needed: content, advertising and sponsorship, privacy and confidentiality, and e-commerce. Initial drafts were reviewed by committee members and consensus was reached on the content of each of the 4 principles. The document was then reviewed internally and externally by experts in ethics, publishing, government regulations, law, and medical informatics and by the AMA Online Oversight Panel. After subsequent revision, the document was reviewed by the Executive Committee of the AMA Board of Trustees and was approved on February 28, 2000.

The dissemination of medical and health information via the AMA Web sites has been evolving since 1995. During the last 5 years, the AMA has had substantial experience providing online content, some experience with online advertising and sponsorship, and limited experience with e-commerce. The Guidelines for AMA Web Sites were created to facilitate the maturation and implementation of these and other Web-based functions, while simultaneously assuring site visitors' rights to privacy and confidentiality. Many of the principles outlined in these guidelines have served the AMA Web sites during their 5-year evolution. However, the guidelines will be fully operational on the AMA Web sites in conjunction with the implementation of registration and access control in the near future. The primary goal in creating these guidelines was to guide the development and maintenance of the AMA Web sites. However, these guidelines may be helpful to others providing medical information on the Web, as well as to viewers who want to know what to look for as they search for reliable high-quality medical information.

These guidelines are not static; the constant evolution of the Web ensures that guidelines will need ongoing reevaluation and frequent revision. We encourage readers, viewers, others interested in the provision of online medical information, and policymakers to review and comment on these guidelines. Future revisions will consider these comments while retaining the guidelines' fundamental principles: authorship, attribution, and disclosure must always be clearly provided; editorial content must be current and the way in which quality is ensured explicitly stated; advertising and commercial sponsorship must not influence any editorial content and advertising must be easily discernible from editorial content; privacy and confidentiality policies must be explicit and adhered to, ensuring that individuals' rights to privacy and confidentiality are preserved; and e-commerce must function efficiently and securely. Adherence to these fundamental principles will facilitate acquisition and application of medical information by patients, the public, physicians, and other health care professionals.

Guidelines for AMA Web Sites

The following guidelines apply to all American Medical Association (AMA) Web sites, including any Web sites with which the AMA's name is associated in any way other than a simple link to any of the AMA Web sites. These guidelines are the AMA's policy for its Web sites but also are intended to provide guidance for creators of Web sites that provide medical and health information for professionals and consumers. These guidelines are established with the understanding that the World Wide Web is a constantly evolving technology, and the guidelines must be reviewed and revised frequently to ensure that they reflect the current state of technology and practice on the Web.

A standing committee composed of AMA staff members from the Scientific Publications and Multimedia, Publishing and Business Development, Ethical Standards, and Internet and Database Services areas will review the guidelines regularly and revise as necessary. The committee will seek review and comment from an advisory panel of individuals outside the AMA with expertise in Web-based content, advertising, privacy and confidentiality, and e-commerce.

I. PRINCIPLES FOR CONTENT

The AMA is committed to providing medical and health information of high quality via its Web sites. Visitors to AMA Web sites will be given information, navigational direction, and tools needed to judge the quality, reliability, objectivity, sources, and funding of content and to make effective use of content.

Definition of Content

Content is defined as all material (including text, graphics, tables, equations, audio, and video) and menu/directional icons, bars, indicators, listings, and indexes. These principles also address functions that support content (eg, links, navigation, searches, calculations).

Site Ownership

Web site ownership, including affiliations, strategic alliances, and significant investors, should be clearly indicated on the home screen or directly accessible from a link on the home screen.

Copyright ownership of specific content should be clearly indicated on screen and on items printed from the site.

Site Viewing

The site should provide information about the platform(s) and browser(s) that permit optimal viewing in a location that is easy to find.

Viewer Access, Payment, and Privacy

Information about restrictions on access to content, required registration, and password protection (if applicable) should be provided and easy to find.

Information about payment (ie, subscriptions, document delivery, pay per view, etc) should be provided and easy to find. See “Principles for E-commerce” herein.

Information about privacy should be provided and easy to find. See “Principles for Privacy and Confidentiality” herein.

Funding and Sponsorship

Funding or other sponsorship for any specific content should be clearly indicated and should comply with the “Principles for Advertising and Sponsorship” herein.

Content should be easily distinguished from advertising as described in “Principles for Advertising and Sponsorship.”

Quality of Editorial Content

Guidelines for editorial content review, posting dates, and sources were developed based on experience with the AMA Scientific Publications’ sites. All scientific publications and consumer site information adhere to these guidelines. As of publication of these guidelines, content posted on the AMA corporate site will adhere to these guidelines as well.

Review

Content should be reviewed for quality (including originality, accuracy, and reliability) before posting. Clinical editorial content should be reviewed by content experts not involved in creation of the content, and the content should be revised appropriately in response to such review. The method of review will be determined by individual sites. (For example, Scientific Publications sites include peer review. Other sites rely on review by editorial boards.)

The language complexity of the content should be appropriate for the site’s audience. Content should be reviewed for grammar, spelling, and composition before posting.

A description of the editorial process and method of content review should be posted on the site.

A list of staff members and other individuals (eg, editorial board) responsible for content quality, other than anonymous peer reviewers, should be posted on the site.

Date of Posting, Revising, and Updating and Timeliness of Editorial Content

The dates that content is posted, revised, and updated should be clearly indicated. Procedures for updating and removing time-sensitive content should be developed, implemented, and periodically reviewed to ensure that the updating and review schedule is appropriate. (For example, content can be sorted by date posted and all content older than 6 months reviewed for timeliness and accuracy.) An indication of significant revisions to any specific content should be posted and may include instructions to discard copies of versions previously printed or downloaded.

Sources of Editorial Content

Source for specific content should be clearly identified (ie, author byline or names of individual, organizational, departmental, institutional, agency, or commercial provider/producer).

Affiliations and relevant financial disclosures for authors and content producers should be clearly indicated.

Individuals who post content in online discussions, chat rooms, and e-lists should be instructed to disclose financial interests and commercial funding or affiliations related to the subject of the posted content discussion, chat, or list.

Reference material used to develop content should be cited in a manner appropriate for the site's audience.

Linking

Intrasite content links should be reviewed before posting and maintained and monitored. If links are not functional, links should be repaired in a timely manner.

External site links should be reviewed before posting and maintained and monitored. If links are not functional, these links should be repaired in a timely manner.

External links to commercial sites must comply with the "Principles for Advertising and Sponsorship."

Intersite Navigation

Sites should not prevent viewers from returning to a previous site.

Sites should not redirect the viewer to a site the viewer did not intend to visit.

Sites should not frame other sites without permission.

Downloading Files

If content can be downloaded in a portable document file (PDF) format, instructions regarding how to download the PDF file and how to obtain the necessary software should be provided and easy to find. A link to such software should be provided.

Navigation of Content

Features that facilitate use of the site should be provided and easy to find, and should include a site map or other site organizational guide, a help function or frequently-asked-questions page, a feedback mechanism, and customer service information (if available).

Each distinct site should provide a search engine or appropriate navigation tool to facilitate use. If the site provides a search engine, instructions specifying how to use the search function and how to conduct different types of searches may be provided.

Graphics files should include a "mouse over" indication of the graphical content. For large files, the space where the file resides should include the size of the file. As a courtesy to the viewer, when possible, when a large file can be downloaded by clicking, the viewer may be informed of the size of the file before the file begins downloading and should have the opportunity to cancel the download.

II. PRINCIPLES FOR ADVERTISING AND SPONSORSHIP

These principles are revised from the Principles Governing Advertising in Publications of the American Medical Association, previously revised in May 1999.

These principles are applied by the AMA to ensure adherence to the highest ethical standards of advertising and to determine the eligibility of products and services for advertising on the AMA Web sites.

The appearance of advertising on the AMA Web sites is neither a guarantee nor an endorsement by the AMA of the product, service, or company or the claims made for the product in such advertising. The fact that an advertisement for a product, service, or company has appeared on the AMA Web sites shall not be referred to in collateral advertising.

As a matter of policy, the AMA will sell advertising space on its Web sites when the inclusion of advertising does not interfere with the mission or objectives of the AMA or its publications.

To maintain the integrity of the AMA Web sites, advertising (ie, promotional material, advertising representatives, companies, or manufacturers) cannot influence editorial decisions or editorial content (as defined in “Principles for Content”). Decisions to sell advertising space are made independently of and without information pertinent to specific editorial content. The AMA Web sites’ advertising sales representatives have no prior knowledge of specific editorial content before it is published.

Placement of advertising adjacent to (ie, next to or within) editorial content on the same topic is prohibited (for the table of contents, a banner advertisement must not appear next to the title of a related article). Just as a print advertisement should not be placed next to an editorial page on the same topic, a digital advertisement should not be adjacent to editorial content on the same topic, either by linking or appearing adjacent in the content section of the same screen. Similarly, just as a print reader can choose to read an advertisement or skip over it, a computer user should have the option to click or not click on an advertisement. Viewers will not be sent to a commercial site unless they choose to do so by clicking on an advertisement.

The AMA, in its sole discretion, retains the right to decline any submitted advertisement or to discontinue posting of any advertisement previously accepted.

Advertising

1. Digital advertising may be placed on the AMA Web site.
2. Digital advertisements must be readily distinguishable from editorial content. If the distinction is unclear, the word “advertisement” should be added.
3. Digital advertisements may appear as fixed banners or as rotating advertisements.
4. Digital advertisements may not be juxtaposed with, appear in line with, or appear adjacent to editorial content on the same topic, or be linked with editorial content on the same topic.
5. Digital advertisements that are fixed in relation to the viewer’s screen or that rotate should be placed to ensure that juxtaposition (as defined in item 4 above) will not occur as screen content changes.
6. Digital banner advertisements should be limited to 1 advertisement per screen view.
7. Advertisements and promotional icons may not appear on the home page of the AMA Web site (<http://www.ama-assn.org>) or the home pages of JAMA (<http://www.jama.com>) or the AMA Archives Journals (http://pubs.ama-assn.org/archive_home.html).
8. AMA, JAMA, and Archives Journals logos may not appear on commercial Web sites as a logo or in any other form without prior written approval by the individuals responsible for the respective areas within AMA.
9. Advertisements may link to additional promotional content that resides on the AMA Web site.
10. Advertisements may link off-site to a commercial Web site, provided that the viewer is clearly informed with a buffer page that to proceed by clicking would mean the viewer would leave the AMA Web site and that the AMA Web site does not vouch for or assume any responsibility for any material contained on the Web site to which it links. The buffer page will display the following statement:

You are leaving the AMA Web site. If you wish to link to a Web site maintained by [company name], please click below. If you do not wish to leave the AMA Web site, please click on the “back” button of your browser to return to the site. The AMA does not assume responsibility for content of other Web sites.

The AMA will not link to Web sites that frame the AMA Web site content without express permission of the AMA; prevent the viewer from returning to the AMA Web site or other previously viewed screens, such as by disabling the viewer's "back" button; or redirect the viewer to a Web site the viewer did not intend to visit.

The AMA reserves the right to not link to or to remove links to other Web sites.

11. Methods of corporate funding should be described in the Web site's information about advertising or the digital rate card.

Sponsorship

1. All financial or material support for electronic collections of articles, Web site content, and other types of online products (such as condition-specific Web sites, online databases, or material on CD-ROM) will be acknowledged and clearly indicated on the home screen or via a link from the home screen.

2. Acknowledgment of support will appear on the home page, on the running foot of all pages, on any packaging and collateral material included (eg, CD-ROM jewel case and companion print insert), and on any materials used to publicize the online product. Content accessed through the site that does not reside on the site (eg, abstracts or articles from another site) will not include sponsorship information.

3. These acknowledgments will not make any claim for any supporting company product(s). The final wording and positioning of the acknowledgment will be determined by the AMA. The wording will be similar to "Produced by [AMA publication] with support from [Company]."

4. The home page acknowledgment of digital products may be linked to an on-site "About [Company]" page or may link to the company's Web site through the intervening buffer page referred to in "Advertising," item 10.

5. The "About [Company]" page may be linked to other on-site pages provided by the supporting company. These pages must be readily distinguishable from editorial content, must be clearly labeled as provided by the supporting company, and must not be linked to related AMA editorial content.

6. The running foot acknowledgment will not be linked to any other materials.

7. Other acknowledgments and disclosures may be required, as deemed necessary by the AMA.

8. AMA, JAMA, and Archives Journals logos may not appear on the sponsoring company Web site as a logo or in any other form without prior written approval by the individuals responsible for the respective areas within the AMA.

III. PRINCIPLES FOR PRIVACY AND CONFIDENTIALITY

The following principles reflect the AMA's commitment to maintain the Web site visitor's rights to privacy and the confidentiality of personal information. In this context, privacy refers to the right of the individual site visitor to choose whether to allow personal information to be collected, by the host site (in this case, the AMA) or by third parties, and to know what type of information is collected and how that information is used. Confidentiality is the right of an individual to not have personally identifiable medical or other information disclosed to others without that individual's express informed consent.

The Internet has the potential to allow information about Web site use to be tracked in aggregate (which can help site developers understand site use and improve the experience of the viewer) and at the individual user level. Individual user information can improve the visitor's experience of the site by permitting personalization of the site related to the individual's particular interests or concerns. However, tracking of personal medical and health information (ie, medical conditions, health-seeking behaviors and questions, and requests about drug therapies or medical devices or information pertaining to them) could breach an individual's personal privacy and reveal an individual's health data.

Thus, health and medical Web sites have a particular obligation to protect the privacy and confidentiality of individuals. Patients and individuals with interest in particular medical conditions should feel confident in obtaining information and using resources on the site, without concern that such use will be identified with them without their permission. The AMA believes that all site visitors should have the opportunity to opt in or out of allowing personal information to be tracked. In addition, the AMA takes extensive measures to ensure the safety and security of its Web site servers and to guard against divulging private information. The AMA believes that Web site visitors should know who (eg, the site organization or third party) is tracking personal information and

the types of personal information that are tracked and should have the right to opt out of such information being collected at any time.

Protection of patients' rights to confidentiality is fundamental to medical publishing. Health care professionals must adhere to privacy and confidentiality principles to legally and ethically share important information about medical conditions of individual patients. The sharing of such information may improve clinical care for the individual or improve the general state of knowledge about medical and health care through medical research. Medical publications, whether in print or online, must not reveal identifiable information about an individual without that person's express informed consent. These principles apply to information in medical publications (eg, JAMA) as well as less formal venues used by health care professionals, such as online discussion groups, chat rooms, and e-lists.

Privacy

1. A link to the privacy policy of the Web site should be provided on the home page or the site navigational bar and should be easily accessible to the user. The Web site should adhere to the privacy principles posted.
2. Individuals responsible for Web sites that post advertising should be aware of current technology and access possessed by third parties that post or link to advertisements. Web sites should ensure that the technology and access used by third parties adheres to the Web site's privacy policies.
3. The site should not collect name, e-mail address, or any other personal information unless voluntarily provided by the visitor after the visitor is informed about the potential use of such information.
4. The process of opting in to any functionality that includes collection of personal information should include an explicit notice that personal information will be saved, with explanation of how the information will be used and by whom. The opt-in statement should not be embedded in a lengthy document and should be explicit and clear to the viewer.
5. Collection, retention, and use of nonmedical personal information about site visitors may be offered to viewers when the AMA believes that such information would be useful in providing site visitors with products, services, and other opportunities, provided such use adheres to these principles and is within bounds of current regulations and law (<http://www.ftc.gov/privacy/index.html>). Individuals may agree to have such nonmedical personal information collected or may choose not to, with the understanding that opting out of having such information collected prevents the site from being tailored to their particular needs and interests. Such information will not include personal health information, such as any information about medical conditions or medications purchased.
6. Names and e-mail addresses of site visitors should not be provided or released to a third party without the site visitor's express permission.
7. E-mail information, personal information about specific visitor's access and navigation, and information volunteered by site visitors, such as survey information and site registration information, may be used by the site owner to improve the site but should not be shared with or sold to other organizations for commercial purposes without the site visitor's express permission.
8. The AMA will use e-mail addresses voluntarily provided by site visitors to notify them about updates, products, services, activities, or upcoming events. Site visitors who do not wish to receive such notifications via e-mail should be able to opt out of receiving such information at any time.
9. The AMA has licensed its physician and medical student list to third parties for more than 50 years. This information is licensed to database licensees under strict guidelines. The names and addresses of physicians in the AMA Physician Masterfile are made available only for communications that are germane to the practice of medicine or of interest to physicians or medical students as consumers. E-mail addresses are excluded from such licensing agreements.
10. Nonidentifiable Web site visitor data may be collected and used in aggregate to help shape and direct the creation and maintenance of content and to determine the type of advertisement to be seen by site visitors while on the AMA site.
11. The AMA will not collect and will not allow third parties to collect personal medical information (medical conditions, health-seeking behaviors and questions, and use of or requests for information about drugs,

therapies, or medical devices) without the express consent of the site visitor after explanation of the potential uses of such information.

12. A cookie is a small file stored on the site user's computer or Web server and is used to aid Web page navigation. Two types of cookies are commonly used. A session cookie is a temporary file created whenever a Web site is accessed and is self-terminated based either on an expiration date (eg, 3 hours from creation of the cookie) or by closing the Web browser. A persistent cookie is a permanent file and must be deleted manually. Cookies referred to in the context of these Guidelines are persistent cookies. A cookie function may be used on the site to track visitor practices to help determine which site features and services are most important and guide editorial direction. The cookie makes it possible for the user to access the site without requiring entry of a user name or password, allows the user to view different restricted areas of the site without reregistering, allows the user to personalize the site for future use, and permits the user to make subsequent purchases without reentering credit card information. Users who do not desire the functionality created by the cookie should have the option to disable the cookie function, either by indicating when asked that they do not wish to have a cookie created or by disabling the cookie function on their browser. Individuals should be able to opt out of cookie functions that permit tracking of personal information at any time.

13. E-mail messages sent to a Web site may not be secure. Site visitors should be discouraged from sending confidential information by e-mail. Site visitors sending e-mail accept the risk that a third party may intercept e-mail messages.

14. Market research conducted by the site or its agent to enhance the site should be clearly identified as such.

15. E-mail alerts and newsletters should contain an "unsubscribe" option.

Confidentiality

Content published within the AMA Web sites that includes patient information should adhere to the patient privacy and anonymity principles followed by JAMA and the Archives Journals, which are based on the recommendations of the International Committee of Medical Journal Editors (http://jama.ama-assn.org/info/auinst_req.html). These principles apply equally to formal medical publications and the informal interactive communication permitted by the Web, including online discussion groups, chat rooms, or e-lists.

Patients should be aware when they provide information about their individual medical conditions in the context of such discussions that information may be linked with a personal identifier. However, AMA Web sites will not collect information about individual medical conditions without the express permission of the site visitor. Physicians and other health care professionals should be aware that any patient information reported in the context of such venues must adhere to the confidentiality principles listed herein. Moderators of such sessions should make every effort to ensure that listed material adheres to the principles stated herein and, when in doubt, should query the individual providing the information. If the individual is a patient providing such information, the moderator should query the patient as to whether the patient intends for the sensitive medical information to be revealed. If the individual providing the information is a health care professional, the moderator should query the professional as to whether the patient reported has provided informed consent and state so.

Patients have a right to privacy that should not be infringed without express informed consent. Identifying patient information should not be published in print or online descriptions, photographs, or pedigrees (illustrations of how a disease is expressed within an extended family for purposes of determining possible inheritance) unless the information is essential for scientific purposes and the patient (or parent or guardian) gives express informed consent for publication. Identifying details should be omitted if they are not essential, but patient data should never be altered or falsified in an attempt to attain anonymity. Complete anonymity is difficult to achieve, and informed consent should be obtained if there is any possibility as to whether identifiable information may be disclosed.

When express informed consent has been obtained, it should be indicated in the posted Web content.

IV. PRINCIPLES FOR E-COMMERCE

The AMA e-commerce principles are intended to ensure that users and purchasers of information, products, and services on the site will have access to secure, efficient transactions for online and remote customer fulfillment. All such transactions should adhere to the AMA "Principles for Privacy and Confidentiality."

1. A link or reference to the site's policies on privacy should be clearly visible.
2. The security software and encryption protocol used on the site for financial transactions should be described.
3. Users should be able to select whether or not the Web host will retain the user name and password (ie, disable cookie function, as described in "Principles for Privacy and Confidentiality"). Users should be able to opt in or opt out of functions that track personal information at any time.
4. A link or reference to customer service contact information (e-mail, telephone, fax, mail), including hours of operation and time zone, should be clearly visible.
5. The terms of use for e-commerce should require a deliberate selection (accept/not accept).
6. Users should be able to review transaction information prior to execution (information, products, and services listed; prices; totals; shipping and handling expenses).
7. As a courtesy, following execution of the transaction, users should be provided, on a page or by e-mail, purchase information (see item 6 above) as well as shipping tracking number, if appropriate.
8. Users will be notified on-screen when entering or leaving a secure site and will have the option to proceed or remain on the current site.
9. If a user's browser does not support a secure connection, no financial transactions will be permitted over the Internet.
10. Response times for feedback and fulfillment should be clearly stated.
11. Products and services will not be endorsed or cobranded by the AMA or AMA publications. Any product promotions must adhere to the "Principles for Advertising and Sponsorship."

AUTHOR/ARTICLE INFORMATION

Author Affiliations: American Medical Association, Chicago, Ill.

Corresponding Author and Reprints: Margaret A. Winker, MD, JAMA, 515 N State St, Chicago, IL 60610 (e-mail: margaret_winker@ama-assn.org).

Acknowledgment: We thank Linda Emanuel, MD, PhD, Sophia Drivalas, Todd Allen, Marty Suter, and the AMA Online Oversight Panel and Corporate Review Team for their critical review and comments.

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APPENDIX 3—ROLLINS SCHOOL OF PUBLIC HEALTH’S HEALTH-RELATED WEB SITE EVALUATION FORM

Source: Emory University. Rollins School of Public Health. "Evaluating Health-Related Web Sites." 14 Apr. 1999. 16 July 2000 <<http://www.sph.emory.edu/WELLNESS/abstract.html>>.

Health-Related Web Site Evaluation Form

Since the mid-1990s, consumers have referred to the World Wide Web (the Web) to learn how they can improve their health, prevent disease, and learn details about specific diseases. While efforts are being made to monitor information found on the Web, they are not enough to cover every web site with health information. As a result, this evaluation instrument is for health educators and clinicians to use to evaluate the appropriateness of web sites for their clientele for further health education. Please take a few minutes to browse the site you would like to evaluate before completing the evaluation form. You may print this Evaluation Instrument from your web browser for your own personal use.

I. Web site information

Title of site:

Subject of site:

Web site address:

Whom do you think is the intended audience?

What do you think the objective is for this site?

Circle the number which you feel best represents the site: 1 = disagree, 2 = agree, 0 = not applicable (N/A). Add up the total points scored for each page at the bottom of each page.

II. Content

	Disagree	Agree	N/A
1. The purpose of the site is clearly stated or may be clearly inferred.	1	2	0
2. The information covered does not appear to be an "infomercial" (i.e., an advertisement disguised as health education).	1	2	0
3. There is no bias evident.	1	2	0
4. If the site is opinionated, the author discusses all sides of the issue, giving each due respect.	1	2	0
5. All aspects of the subject are covered adequately.	1	2	0
6. External Links are provided to fully cover the subject (if not needed, circle 0).	1	2	0

III. Accuracy

7. The information is accurate (if not sure, circle 0).	1	2	0
8. Sources are clearly documented.	1	2	0
9. The web site states that it subscribes to HON code principles.	1	2	0

Page Score _____

Health-Related Web Site Evaluation Form - Page 2

	Disagree	Agree	N/A
IV. Author			
10. The site is sponsored by or is associated with an institution or organization.	1	2	0
11. For sites created by an individual, author's/editor's credentials (educational background, professional affiliations, certifications, past writings, experience) are clearly stated.	1	2	0
12. Contact information (email, address, and/or phone number) for the author/editor or webmaster is included.	1	2	0
V. Currency			
13. The date of publication is clearly posted.	1	2	0
14. The revision date is recent enough to account for changes in the field.	1	2	0
VI. Audience			
15. The type of audience the author is addressing is evident (academic, youth, minority, general, etc.).	1	2	0
16. The level of detail is appropriate for the audience.	1	2	0
17. The reading level is appropriate for the audience.	1	2	0
18. Technical terms are appropriate for the audience.	1	2	0
VII. Navigation			
19. Internal links add to the usefulness of the site.	1	2	0
20. Information can be retrieved in a timely manner.	1	2	0
21. A search mechanism is necessary to make this site useful.	1	2	0
22. A search mechanism is provided.	1	2	0
23. The site is organized in a logical manner, facilitating the location of information.	1	2	0
24. Any software necessary to use the page has links to download software from the Internet.	1	2	0

Page Score _____

Health-Related Web Site Evaluation Form - Page 3

	Disagree	Agree	N/A
VIII. External Links			
25. Links are relevant and appropriate for this site.	1	2	0
26. Links are operable.	1	2	0
27. Links are current enough to account for changes in the field.	1	2	0
28. Links are appropriate for the audience (e.g. sites for the general public do not include links to highly technical sites).	1	2	0
29. Links connect to reliable information from reliable sources.	1	2	0
30. Links are provided to organizations that should be represented.	1	2	0

IX. Structure

31. Educational graphics and art add to the usefulness of the site.	1	2	0
32. Decorative graphics do not significantly slow downloading.	1	2	0
33. Text-only option is available for text-only Web browsers.	1	2	0
34. Usefulness of site does not suffer when using text-only option.	1	2	0
35. Options are available for disabled persons (large print, audio).	1	2	0
36. If audio and video are components of the site, and can not be accessed, the information on the site is still complete.	1	2	0

Page Score _____

Total score _____

Total number of possible points _____

Percentage of total points _____

To calculate the web site's score, the total points scored must be added up as well as total points possible. Total points possible is defined as the number of questions answered as either agree or disagree multiplied by two. The total score must then be divided by the total number of points possible to determine the overall rating of the web site.

Total score/Total number of possible points = percentage of total points

For example, if 30 out of 36 questions were answered with either disagree or agree, then the total number of points possible is 60 (30 multiplied by 2). If the total points scored was 54, then divide 54 by 60 (the total points possible). The overall rating of the web site is 90%, which falls into the excellent range.

Total score: 54

Total number of possible points: $30 \times 2 = 60$

Percentage of total points: $54/60 = 90\%$

Rating of web site: Excellent

Score**Rating**

At least 90% of total possible points.

Excellent: This web site is an excellent source of health information. Consumers will be able to easily access and understand the information contained in this site. Do not hesitate to recommend this site to your clientele.

At least 75% of total possible points.

Adequate: While this web site provides relevant information and can be navigated without much trouble, it might not be the best site available. If another source cannot be located, this site will provide good information to your clientele. Care should be taken to discuss with your clientele what information was found on this web site and what information is still needed.

Less than 75% of total possible points.

Poor: This site should not be recommended to your clientele. Validity and reliability of the information can not be confirmed. All information on the site might not be accessible. Look for another web site to prevent false or partial information from being read.

APPENDIX 4—OMNI GUIDELINES FOR RESOURCE EVALUATION

Source: OMNI. "OMNI Guidelines for Resource Evaluation." 27 Feb 1999. 16 July 2000
<<http://omni.ac.uk/agec/evalguid.html>>.

ESTABLISHING CONTEXT

Establishing the context of a resource can be a challenging task. By context we refer to aspects such as scope, audience, authority and provenance. Networked information resources tend not to have a common set of features such as statement of responsibility, introduction or preface from which to draw such information. The policy of pointing directly to individual resources places a greater responsibility on OMNI contributors to examine sources of information about a resource (eg home pages, parent documents and help files), in order to place a candidate resource in context.

Scope

- is the subject area, breadth, depth, time period and format or type of information covered relevant to the OMNI user community?

'Medical' is interpreted widely, and OMNI covers resources in health care, biomedicine, clinical medicine and allied health.

Audiences

- who is the intended audience and does this affect the suitability of the resource for the OMNI user community?
- is the information pitched at a suitable level for higher education students, academics, practitioners or researchers?

Information resources emanating from higher education or research institutions are clearly strong candidates for inclusion. Arguably, though, any information of value to the practice or management of health care or biomedicine can be deemed to be of value to the business of biomedical and health care education and research, provided the level is appropriate.

Authority

- has an individual or institution taken clear and unambiguous responsibility for the resource? Material unsigned by an author cannot easily be assessed as to the authority of the information content, except by subject experts.
- is it possible to ascertain the status, qualifications or reputation of the author?
- is the publisher a reputable, recognised organisation?
- does the resource document the sources the information is based on and how that information was obtained?
- who has copyright over the information?
- is the resource sponsored in any way or funded by grants?
- is an e-mail discussion list or newsgroup moderated?
- is an electronic journal refereed?
- is an electronic journal indexed? (where?)
- has the resource been reviewed elsewhere? (is that source reputable?)
- does a recognised professional association or a specialist information service link to the resource?

For many resources, the authority of the publishing organisation will carry sufficient weight to allow inclusion of a resource in the OMNI database. Information from peer reviewed journals, medical schools, hospitals, and health related government agencies and research centres, is generally valued highly. Many resources are maintained directly by universities, professional associations, government bodies or international organisations that are well known to the academic or health care community. If a resource is provided or sponsored by a recognised institution, or the author is providing the information in their capacity as employee of such an institution, there may be no need to establish authority further.

Provenance

- how long has a resource been available (either in print or as an electronic version)?

- if a print equivalent exists, how well established is that?
- is it possible to establish the version or revision number of a document?
- are there any indications of some established history and continued maintenance?
- how extensive are the archives of electronic journals or discussion lists or newsgroups? are they available for retrospective searching?
- are versions of software updated and issued regularly?

OMNI points to resources which are likely to be relatively stable. While a special note is made for further checking when resources inherently carry an expiry date, OMNI also has in operation a link checking program, which identifies resources that are no longer available or have moved.

CONTENT EVALUATION

The main focus of the evaluation is the information contained in a resource. Is it accurate? Is it unavailable elsewhere? Ascertaining the currency of information, and the frequency and regularity of its updating, also forms an important aspect of the overall evaluation of a resource.

Comparison of a resource with identical or near identical alternative versions can often help shape an opinion of its acceptability in terms of content and coverage. Electronic journals are beginning to offer facilities that could not be offered through the print medium, for example the online version of the Journal of Biological Chemistry <URL:<http://www-jbc.stanford.edu/jbc/>> supports access to Medline references directly through hyperlinks. However, mirror versions of a resource may lag in updating content or may cease to be maintained. Establishing the most authoritative source of an information resource can assist in evaluating the relative merits of alternative sources.

Coverage

- does the resource cover a subject adequately? are there inexplicable omissions?
- is coverage integral, or is the resource part of a greater whole?
- does the resource contain substantive information or is it simply a list of links? if links are provided are these evaluated or annotated in any way?

Accuracy of information content

- is the information factual, or opinion?
- can its objectivity be assessed? is there any evidence that it may be representing vested interests or undeclared biases?
- is it possible to determine the accuracy of the information provided?
- is a subject specialist available who could advise as to the accuracy of information content?

In some cases, there may be uncertainty about the accuracy of the information content. For example, the creation of teaching materials has become a popular activity among medical students as a very valid learning experience; the Clearinghouse for Subject-Oriented Internet Resource Guides (now simply called the Argus Clearinghouse <URL:<http://www.clearinghouse.net/>>) started out as a collection of resource guides compiled by students: how can you assess the accuracy of that type of information?

Questions of information accuracy can often be answered only by subject experts; nonetheless, positive evaluations of authority and provenance can provide strong indications of likely accuracy. OMNI hopes to have in place before long a panel of subject expert reviewers who may help to assess the accuracy of information content.

Currency / frequency and regularity of updating

- is the resource static or reliant on regular updating?
- can the currency of the information be ascertained? is it possible to assess the currency relative to another source?
- in the case of a document, is a date given?
- for software, is there a version number?
- how often is a resource updated? is a policy for maintenance stated (eg frequency of updates)?
- how current is the material included in each update?

- if a resource is meant to be updated regularly, how reliable is the updating? (eg for a weekly electronic journal: are updates as regular as expected? if it is mirrored, might it fall behind schedule? if there is a choice, how does one source compare with another?)
- are time sensitive resources (eg news) available in near real time?

Uniqueness / comparison with other sources

- is the resource original, or has it been derived from other sources? are these documented?
- does it complement another resource, for instance by providing updates to a print source?
- is this an original resource or a mirror site? is the resource mirrored elsewhere? how do the two compare?
- are there any print or other equivalents (eg CD-ROM)? how do they compare? (eg for electronic journals: are illustrations available as well as the text? how do they compare with the print original?)
- if the resource is available in different formats, how do they compare? (eg FTPable resources may be available as ASCII, .pdf or Postscript files etc)
- if mirrored, does a resource provide the same extent of coverage (both retrospectively, eg archives, as well as current extent of coverage), currency of data, ease of use? does it provide special features, unavailable from the original site? is the user interface significantly different?

Much of the evaluation process can be applied comparatively to identical or near identical alternative versions of a resource. If possible, the original source is identified to establish which mirror sites are recommended. OMNI points to different resources providing similar information, and to sites mirroring the same information, especially if they are located in the UK.

ACCESS EVALUATION

The Internet as a medium of publication has significant bearing on the value of an information resource, affecting its accessibility and general usability. Establishing that a resource is available consistently, rather than intermittently due to server unreliability or overwhelming demand, requires assessment over time. Heavy use of graphics, sometimes to the exclusion of text-only alternatives, can impede access altogether. Access restrictions can place important barriers to use and their existence also needs to be established - geographical access restrictions may be imposed on the use of significant datasets; special registration may be required; special hardware or software may be necessary. Finally, design or interface issues all too frequently enhance or compromise the usability of a resource. For example, navigation is assisted by such factors as the sensible use of hypertext links and the consistent use of screen design.

Accessibility and usability

- is a resource available 24 hours a day, 7 days a week?
- is the resource easily accessible in the UK, at least some times of the day?
- do large files take a long time to retrieve? is it possible to retrieve them at all during some part of the day?
- are large and unnecessary graphics used?
- is access to a resource reliable or is it intermittent due to server maintenance?

If there are access restrictions:

- is a resource available only during certain specific access times?
- do geographical access restrictions apply?
- are special login instructions available?
- is registration required? can users sign up electronically, or must written contracts be negotiated first?
- is prior subscription required?

Charging policy

- is there a charge to access the resource? how do charges compare with alternative sources?
- if a resource is freeware, is there also a shareware or a full cost version? how do they compare?
- if a dataset is available for free, is there a fuller superset available for a fee? how do they compare?

While OMNI does point to commercial resources, users are made aware of the mode and level of charging (if applicable).

Special requirements

- has the information provider allowed for different modes of access to a resource? is use of a resource possible at all with a text mode browser (eg Lynx)?
- is use of a resource hampered without graphical capability?
- are there special hardware requirements? (eg software available only for Macs)
- does the resource require any special software for viewing or full use?

Software reliability

- is an FTP site a known repository? is it supported by a reputable institution?
- is installation of software trouble free?
- does the software function correctly once installed? are features available as advertised?
- is there a user discussion list where enquiries can be made as to its reliability?

Copyright

- is the information in the public domain and free from copyright restrictions?
- is further distribution or reuse restricted?

A special mention is made if resources are freely available for reuse.

Language

- is the resource entirely in English?
- is a significant part of the resource available in English?
- is it available in other languages as well?
- is a special character set in use?

While the language of the OMNI database is English, this does not preclude non-English language resources, provided OMNI contributors are confident in their recommendations for inclusion. If particular fonts are required to read a resource, then this should be mentioned in the resource description.

OMNI points to resources that are fully accessible in the UK at least during some part of the day. Also highlighted are any special requirements or restrictions that affect the usability of a resource. While inclusion of a resource in the OMNI database may not be decided exclusively on the grounds of either charging policies alone or whether it is consistently impossible to access, mention of such aspects is made, in order to alert users about any likely difficulties of access.

Design and layout / user interface

- is the general layout of a resource functional? are menus, headings and formatting used effectively?
- are navigation aids available to guide users?
- is there a consistent look and feel from one page to another?
- is the standard of HTML coding indicated?
- are hypertext links used appropriately? are they relevant? are they maintained?
- are images used appropriately (eg are thumbnail images used)? or are they merely decorative?
- is a simple search facility available?
- is a full complement of search options available? (eg use of Boolean logic for search term combination, truncation, adjacency and proximity searching, field searching, keyword searching, case sensitivity)
- are any special search features available? (eg access to a thesaurus of terms to choose from)
- for a database: can a search session be maintained? can search sets be created and combined?
- is the search interface resilient?
- is the search speed acceptable?
- is a choice of display formats available?
- for a database, is there a consistent record layout? is the data presented in a standard fashion (eg not in all-upper-case)? are the data elements easily distinguishable? are they tagged consistently? can the data be recommended for importing into spreadsheets or reference management software?
- for an electronic journal: are tables and graphical material included? if not, are they referenced and are captions included?

Although the appearance and functionality of the interface of a resource will have a significant bearing on the overall impression a resource creates, it is primarily the value of a resource in terms of information content that OMNI is concerned with. If usability is compromised by design or interface factors, notes to that effect are made in the resource description. Special features are also documented.

User support / documentation

- is the resource accompanied by any introductory or explanatory material (eg home page or parent document, or FAQs or README files)? does this outline policies regarding the scope and coverage of a resource, currency and maintenance?
- is on screen help available? is it context sensitive?
- is there a contact name and e-mail address for further advice and information?
- is online or print documentation available? is it accurate and clear? is it available free or at a nominal cost?
- are search aids available? do news items point to useful features, as well as to temporary availability problems?
- is there a user discussion list which can provide support?
- is there a user group which can take forward user suggestions?

Where the availability or absence of user support is noticeable, a special mention is made.

APPENDIX 5—WEBMD PRIVACY STATEMENT

Source: WebMD. "WebMD Privacy Statement." June 2000. 17 July 2000
<<http://www.webmd.com/corporate/>>.

Your privacy is important to WebMD. As a user of our website, you learn about health perhaps for yourself, perhaps on behalf of someone else. At WebMD, we understand that health is a very personal, private subject, and we want you to feel as comfortable as possible visiting our website and using its services. This Privacy Policy will tell you what information we collect, how we protect it and what choices you have about how that information is used. We urge you to read our Privacy Policy so that you will understand both our commitment to you and your privacy, and how you can participate in that commitment.

WebMD is a licensee of the TRUSTe Privacy Program. This statement discloses the privacy practices for the WebMD site. When you visit a web site displaying the TRUSTe trustmark, you will be informed of the following: What personally identifiable information of yours is collected; What organization is collecting the information; How the information is used; With whom the information may be shared; What choices are available regarding collection, use and distribution of the information; What kind of security procedures are in place to protect the loss, misuse or alteration of information under the company's control; and, How you can correct any inaccuracies in the information.

WebMD also complies with the standards set by Health on the Net [HON], as is indicated by the presence of the seal below.

The following Articles make up our Privacy Policy. We hope that reading them gives you a clear idea of how we manage information regarding you. For immediate access to a particular topic, click on the title of that Article.

ARTICLE 1: Personal Information We Collect

ARTICLE 2: Disclosure of Your Information

ARTICLE 3: How WebMD Handles Privacy Internally

ARTICLE 4: Your Privacy Choices

ARTICLE 5: Updating Your Personal Information and Contacting WebMD

Please remember that any information (including personal and medical information) that you reveal in a public forum (such as a bulletin board, mail list, chat room/event) is not subject to this Privacy Policy and will be seen by third parties not related to WebMD and may be used by them to contact you or for unauthorized purposes. Also, if you link to a third party site from WebMD, any information you reveal on that site is not subject to this Privacy Policy you should consult the privacy policies of each site you visit.

ARTICLE 1

Personal Information We Collect

We collect information in three distinct areas: (1) Registration; (2) Member Profile; and (3) MyHealthRecord. The information we collect in these areas includes:

Registration	Member Profile
Member Nickname*	Full Name
Password*/Hint	Street Address
Email Address*	Gender
Zip Code*	Year of Birth
	Health Topics of Interest
	Health Plan

Required information is indicated by an asterisk*. Provision of all other information is optional.

We also collect information that you voluntarily provide to us through responses to surveys, questionnaires and the like and through your use of information storage facilities on our sites, such as MyHealthRecord.

MyHealthRecord is a service that allows you to record limited amounts of personal health information on a voluntary basis on servers maintained by WebMD or on its behalf. MyHealthRecord is structured to allow access only by means of a valid password that you create. Whenever you submit or modify your information in MyHealthRecord, we will send such information over the Internet using Secure Socket Layer, version 3 (or other later versions) (“SSL”) encryption technology. The information you submit to MyHealthRecord will be stored on a separate server as an additional security precaution. However, we do not warrant or represent that the information you submit to MyHealthRecord will be protected against, loss, misuse, or alteration by third parties.

We also collect information about you and your use of our site through the use of Cookies. “Cookies” are small computer files that we transfer to your computer’s hard drive that allow us to know how often someone visits our site and the activities they conduct while on our site (such as the chatrooms you visited, etc.). This information helps us dynamically generate advertising and content on web pages specifically designed for you and also allows us to statistically monitor how many people are using our site and for what purpose. Sponsors and advertisers may also use Cookies when you select their advertisement; we are unable to control their use of Cookies or how they manage the information they gather.

ARTICLE 2

Disclosure of Your Information

Except as set forth in this paragraph, WebMD will not disclose to unaffiliated companies any information it gathers from you which could be used to identify or contact you (“Personal Information”). Any Personal Information provided to entities affiliated with WebMD will be treated in accordance with the terms of this Privacy Policy, unless you are otherwise notified. In the following limited circumstances we will consider, and may release, Personal Information to third parties: (1) to comply with valid legal requirements such as a law, regulation, search warrant, subpoena or court order; or (2) in special cases, such as a physical threat to you or others. We also provide Personal Information to our vendors and suppliers where it is necessary for them to provide us with products and services related to better operation and maintenance of our website (“Vendors”). We will attempt to require that each of these Vendors not further use or disclose your Personal Information for any purpose other than providing us or you with products and services. Of course, we cannot guarantee their compliance with these restrictions.

WebMD may provide information about you which does not allow you to be identified or contacted (“Aggregate Information”) to third parties. For example, we might inform third parties regarding the number of users of our site and the activities they conduct while on our site. We might also inform a pharmaceutical company (that may or may not be an advertiser on our site) that “30% of our users live east of the Mississippi” or that “25% of our users have tried alternative medicine.” Depending on the circumstances, we may or may not charge for this information.

Except as provided in the first paragraph of this section, WebMD will not disclose to unaffiliated companies any Personal Information that you store in MyHealthRecord. The MyHealthRecord service is a powerful storage tool that we hope you will enjoy, however, please note that you are responsible for taking all reasonable steps to ensure that no unauthorized person shall have access to your MyHealthRecord password or account. It is your sole responsibility to (1) control the dissemination and use of activation codes and passwords; (2) authorize, monitor, and control access to and use of your MyHealthRecord account and password; (3) promptly inform WebMD of any need to deactivate a password. You grant WebMD and all other persons or entities involved in the operation of the WebMD website and MyHealthRecord the right to receive, transmit, monitor, retrieve, store and use your Personal Information, including information which may be privileged and confidential under applicable state and federal laws, in connection with the operation of MyHealthRecord. WebMD cannot and does not assume any responsibility or liability for any information you submit to MyHealthRecord or your or third parties’ use or misuse of information transmitted or received using MyHealthRecord.

While we collect personal information about you if you use our service called the Health Risk Appraisal (HRA), we do not store this information unless you request it.

HRA is an educational tool that is designed to help you better understand how to maintain your health and the health of your family. HRA interacts with MyHealthRecord to give you a place to store your and your family's health risk information. Over time, as you and your family members learn more about their health status, the HRA tool can track your progress and their progress in reducing the risk of illness. You may change the information collected through use of HRA at any time. If you purchase an item through WebMD's Sports and Fitness Store, you will be purchasing it from The Sports Authority (operated by Global Sports, Inc). Sports Authority requests information from the user on its order form. You will be asked for contact information (like name and shipping address) and financial information (like credit card number, expiration date). This information is used for billing purposes and to fill customers' orders. If Sports Authority has trouble processing your order, this contact information is used to contact you. This information is also subject to Sports Authority's privacy policy and we encourage you to review that policy before you place your order.

ARTICLE 3

How WebMD Handles Privacy Internally

WebMD wants your personal information to remain as secure as reasonably possible. That is why we have a two-tier system at WebMD that combines leading technical safeguards and a code of conduct for those employees that are permitted to access our customers' personal information. On the technical side, WebMD uses SSL to help ensure the integrity and privacy of the Personal Information you provide to us via the Internet. As an additional security measure, your Personal Information is also kept physically separate on a separate server where your password is encrypted and stored on a data base. On the employee side, only authorized WebMD employees are permitted to access your personal information. All WebMD employees must abide by our Privacy Policy and those who violate our Privacy Policy are subject to disciplinary action, up to and including termination. Access by authorized personnel is controlled by two factor authentication (i.e., a token and a thumbprint).

ARTICLE 4

Your Privacy Choices

When you complete Registration or your Member Profile, you will be given the option of receiving recurring informational/promotional emails from WebMD and/or third parties. You may opt out of receiving these emails when you provide the information or by changing your preferences within your Member Profile at any time. We ask for contact information (such as name and email address) if you wish to subscribe to various newsletters. You can unsubscribe from such newsletters very easily. When you have received a newsletter you wish to stop, click on the "reply" button in your mail program, then type in the word "UNSUBSCRIBE" in the "Subject" field and send. WebMDHealth Customer Service will unsubscribe you from that newsletter in two to three business days.

This privacy statement applies only to the WebMD web site. The WebMD site does contain links to other sites. Please be aware that WebMD is not responsible for the privacy practices of such other sites. We encourage you to read the privacy statements of each and every web site that collects personal information from you."

ARTICLE 5

Updating Your Personal Information and Contacting WebMD

You can always contact us in order to (i) delete your Personal Information from our systems, (ii) update the Personal Information that you have provided to us, and (iii) change your preferences with respect to marketing contacts, by emailing us at support@webmd.net.

WebMD may change this Privacy Policy at any time by posting revisions to our website. Your use of the site constitutes acceptance of the provisions of this Privacy Policy and your continued usage after such changes are posted constitutes acceptance of each revised Privacy Policy. If you do not agree to the terms of this Privacy Policy or any revised policy, please exit the site immediately.

APPENDIX 6—MEDICONULT.COM: PRIVACY POLICY

Source: Mediconsult. "Privacy Policy." 17 July 2000

<<http://www.mediconsult.com/mc/mcsite.nsf/conditionnav/policyandpractices>>.

Introduction

Protecting the privacy of our visitors is our topmost concern.

Since our inception in 1996, Mediconsult has set the standard for online privacy and security and the protection of visitor interests. These policies exceed the guidelines established by the Health on the Net (Geneva) Code of Conduct guidelines, TRUSTe, and the Federal Trade Commission.

Our policies are clear and easily accessible on the site. In addition we have established practices and procedures to ensure that our policies are effectively implemented. These practices include training of staff, separation of duties, storage of data, password controls and oversight by our Chief Medical Officer.

We have taken a third step in engaging outside independent audits of our policies and practices by organizations including IBM eCommerce, Price Waterhouse Coopers, legal firm Arent Fox, and TRUSTe

Mediconsult's family of web sites adhere to guidelines outlined in a "Visitor Bill Of Rights" which is easily accessible through all of our consumer sites.

As a leader in setting security standards on the Internet, Mediconsult has partnered with the Internet Healthcare Coalition- a non-profit, non-partisan organization dedicated to improving the quality of health resources on the Internet. Mediconsult is also a founding member of Hi-Ethics, an industry group established to promote self-regulation and ethical behavior among leading health web sites. Mediconsult provided a financial commitment to support the creation of ethical standards that ensure consumers receive information that is reliable, safe and trustworthy.

[Click here to read our Privacy Policy](#)

[Click here to read our Visitor Bill of Rights](#)

[Click here to read about our newsletters](#)

[Click here to read about our surveys](#)

[Click here to read about bulletin board policies](#)

[Click here to read about DoubleClick ad technology and Privacy Policies](#)

[Click here to learn about cookies](#)

PRIVACY POLICY

Mediconsult.com, Inc. has very strict policies and procedures designed to protect the privacy of our visitors. We will never share your personal information with any external organization without your consent. We do not sell any personal information about our visitors, including email addresses. Any personal information you do wish to provide is protected internally.

All personnel with access to personal information are aware of our policies. Any breach of policy would result in immediate dismissal.

We use aggregated information to determine trends and visitor needs. Some aggregated information is analyzed and used as input to improve our site or is presented to clients as market research; however, no personal information is divulged. Commerce partners who are privy to personal information (such as the product purchased and the name and address of the purchaser) have also been screened to ensure they have appropriate policies in place.

It is important to note that when you click on a link that takes you off our site, this Privacy Statement no longer applies.

Visitor Bill of Rights

To read our Visitor Bill of Rights, please [click here](#).

Our Newsletters

If you decide to submit your email address to us in order to be added to our mailing list, you may be assured that you will not receive separate emails from other marketers as a result of joining our newsletter. You will receive no offers from our sites other than those made through the newsletter itself, which, of course, you have elected to receive. You may unsubscribe at any time through the text and link provided in the newsletter. There is no means on the site to allow you to unsubscribe.

Our Surveys

You may elect to respond to our brief on-site Visitor Surveys. Some of the information requested is of a personal nature but there is certainly no obligation to answer every question. In particular, submission of your email address is entirely optional. If you do opt to include your email address, it is used only for the purpose of adding you to our newsletter mailing list and is not linked to the survey. We use the information gathered to help improve our understanding of your needs and preferences in order to provide you with the best medical information. Large population demographics are compiled and published using this data but no individual information is ever disseminated.

Our Bulletin Boards and Support Group Policies

Our Support Groups have a bulletin board format that allows our visitors the opportunity to interact with our on-line community for their specific medical condition. These areas are moderated by medical professionals strictly to keep inappropriate messages from being posted. You are offered the opportunity to include your email address with your message but you are not obligated to do so. If you do include your email address then it is visible to the general public on the bulletin board and we cannot control the actions of any 3rd parties. We will not sell email addresses from our bulletin boards.

About DoubleClick ad technology

Mediconsult sites deliver banner ads and sponsorship announcements using DoubleClick DART ad technology. The DART system allows us to deliver targeted information based on customer traffic patterns within Mediconsult. We maintain control of this information and do not use it for any purpose other than to enhance the visitor experience.

Mediconsult does NOT use the DoubleClick Abacus Online service.

DoubleClick Usage and Privacy Policy

Internet user privacy is of paramount importance to DoubleClick, our advertisers and our Web publishers. The success of our business depends upon our ability to maintain the trust of our users. Below is information regarding DoubleClick's commitment to protect the privacy of users and to ensure the integrity of the Internet.

Information Collected in Ad Delivery

In the course of delivering an ad to you, DoubleClick does not collect any personally-identifiable information about you, such as your name, address, phone number or email address. DoubleClick does, however, collect non-personally identifiable information about you, such as the server your computer is logged onto, your browser type (for example, Netscape or Internet Explorer), and whether you responded to the ad delivered.

The non-personally identifiable information collected by DoubleClick is used for the purpose of targeting ads and measuring ad effectiveness on behalf of DoubleClick's advertisers and Web publishers who specifically request it. For additional information on the information that is collected by DoubleClick in the process of delivering an ad to you, please click here.

There are also cases when a user voluntarily provides personal information in response to an ad (a survey or purchase form, for example). In these situations, DoubleClick (or a third party engaged by DoubleClick) collects the information on behalf of the advertiser and/or Web site. This information is used by the advertiser and/or Web site so that you can receive the goods, services or information that you requested. Where indicated, DoubleClick may use this information in aggregate form to get a better general understanding of the type of individuals viewing ads or visiting the Web sites. Unless specifically disclosed, the personally-identifiable information collected by DoubleClick in these cases is not used to deliver personally-tailored ads to a user and is not linked by DoubleClick to any other information.

If you do not wish to be included in DoubleClick's profiling initiatives, please click [here](#) for information on the DoubleClick opt-out program.

Cookies

A cookie is a very tiny piece of text we're asking permission to place on your computer's hard drive. If you accept a cookie, then your browser adds the text in a small file. The purpose of the file is to let us know when you visit www.mediconsult.com. This text, by itself, merely tells us that a previous visitor has returned; it doesn't tell us anything else (who you are, your email address, or anything personal). They are similar to the stamp placed on the back of a child's hand when visiting a fair or carnival; they merely indicate that you have visited before.

Cookies help us evaluate your use of our site, such as what kind of information you want to see and what kind you will never read. Cookie technology allows Web sites to ask for your registration and preference questions only once. The next time you return to the Web site you will not necessarily need to "sign in" again. Remember that cookies are "non-executable" pieces of code; that is, they are incapable of doing anything to your hard drive.

Cookies are easy to delete from your hard drive; talk to your systems administrator or your Internet provider for detailed instructions.

If you would like to know more about cookies we encourage you to read the US Government Information Bulletin (I-034) regarding cookie technology at: <http://www.ciac.org/ciac/bulletins/i-034.shtml>.

APPENDIX 7—MEDICONULT.COM: VISITOR BILL OF RIGHTS

Source: Mediconsult.com. "Visitor Bill of Rights." 17 July 2000

<<http://www.mediconsult.com/mc/mcsite.nsf/conditionnav/visitorbillofrights>>.

Whether our visitors are caregivers, healthcare professionals or interested members of the public, we believe that we have certain duties and obligations when it comes to being chosen as their online health information provider. The following principles are the standards that we have set for ourselves to better meet their expectations of service and quality from our network. This is our commitment to them:

1. All of the Mediconsult Web sites, communities and technologies will support a superior visitor experience.
2. All of the Mediconsult sites provide serious, in-depth, trusted information and interactive tools across the most common chronic medical conditions.
3. All content adheres to sound editorial principles and utilizes the provision of evidence-based content from peer-reviewed sources.
4. All users can expect active and professionally monitored online communities – bulletin boards, chat, live events - where they will be treated with compassion and respect.
5. All editorial content is unbiased and is free from influence of sponsors or advertisers.
6. Mediconsult will provide full and complete disclosure of sponsor and advertising relationships.
7. All sponsorship programs are designed to add value to the visitor experience.
8. All visitors can expect the utmost privacy as outlined in our published privacy policy.
9. All Mediconsult sites provide consistent navigation that takes the visitor as quickly and intuitively as possible to the information or services sought.
10. All visitors can expect that general help and support queries will be answered within 24 hours by a Mediconsult professional.

Please contact _us@mediconsult.com with any comments or questions.

APPENDIX 8—HEALTHCENTRAL: PRIVACY POLICY

Source: HealthCentral. "Privacy Policy." 17 July 2000
<<http://www.healthcentral.com/terms/privacypolicy/privacypolicy.cfm>>.

HealthCentral.com's goal is to become and remain the most trusted, personalized, and useful source of health information, health-related decision support, and health-related e-commerce on the Internet. The protection of your privacy is of the greatest importance to us. We believe that you have the right to understand how your information is stored and used. Our privacy commitment is described in this Privacy Policy.

This Privacy Policy will let you know the following:

- What Information HealthCentral.com Collects From You
- How Healthcentral.com Uses the Information that it Collects
- Who Else Collects Information From Your Use of HealthCentral.com
- What Are Your Choices As to Collection, Use and Distribution of Information
- Children's Privacy
- Security Measures in Place
- How HealthCentral.com Can Modify This Privacy Policy
- How You Can Contact HealthCentral.com About this Policy

What Information Does HealthCentral.com collect from me?

Our web server automatically recognizes your domain name. Our web server does not recognize your e-mail address. Most of HealthCentral.com has been designed to not require the use of any personal identifiers (such as name, address, telephone number or e-mail address). IF YOU SEND US AN E-MAIL OR SUBSCRIBE TO A NEWSLETTER, WE WILL HAVE YOUR E-MAIL ADDRESS AT OUR SITE.

You may request delivery of content, service, or merchandise to your e-mail address or an off-line destination, or you may elect our more personalized services. If so, you will be notified of the need to provide personal identifying information to us or to another company providing the content, service or merchandise. You may choose whether to request the services or utilize the services.

We use "cookies" to personalize our site for you and to collect aggregate information about site usage by all of our users. A cookie is a text file that our web site transfers to your computer's hard drive for record keeping purposes. The cookie assigns a random, unique number to your computer. It does not contain information which would personally identify you. Our log files contain "clickstream" information (data reporting the categories or sections on [our site] that you have visited) along with the cookie information.

If you provide personal identifying information to us by using one of our services, or if you participate in one of our communities or discussion thread, we can connect that information with the data collected by our cookie so that such data will become personally identified.

How does Healthcentral.com use the information that it collects?

We will only use the information to provide you with the services you have requested and as otherwise described in this Privacy Policy.

When you provide us with personal identifying information for a specific purpose, we may also use that information to personalize the site for you. We will not use that information to contact you for other purposes, unless use of that information is necessary for enforcement of any of the terms of this Privacy Policy.

Who Else Collects Information From My Use of HealthCentral.com?

In order to bring you offers that are of interest to you and to help finance the cost of making our site available, we have relationships with other companies that we allow to place advertisements and/or product and service offers on our web site. As a result of your visit to our site, these advertising service companies may collect information such as:

1. your domain type
2. your IP address (binary code address for your domain)

3. “clickstream” information (data reporting the categories or sections on our site that you have visited).

Our advertising service companies may place cookies on your computer. We do not allow our advertising service companies to collect personal identifying information about you without your express prior consent. Note that if you do provide personal identifying information to an advertising service company, it may be able to connect that information with the data collected by its cookie and other information it may have from other sources so that such data will become personally identified. Other sites linked to our site may also use cookies. For further information, consult those companies’ privacy policies: for example, http://www.doubleclick.net:8080/privacy_policy/

Unless it is necessary to provide you with the service you have requested, we will not disclose your personal identifying information to any third party; provided that a limited number of our employees, such as customer service representatives, and contractors providing services to us, such as market research companies, may have limited access to personal identifying information maintained on our systems. All are required to keep such information strictly confidential and to use it only as necessary to perform their responsibilities. Failure to do so may result in termination. We also take immediate steps to address any accidental disclosure to third parties which come to our attention.

We sometimes use, or supply to others, aggregated data (independent of any personal identifiers) for the purposes of target advertising, research and other commercial purposes.

Note that if you obtain dial-up access to our site from a third party independent Internet service provider (an “ISP”), it may have information relating to you which can be connected with information it collects about your usage of our site.

Please check the privacy policy of any ISP that you use, or other company providing content, service or merchandise to you, as to its use of the information. We require that sites we link to include a notice identifying their privacy policies.

What Are My Choices As to Collection, Use and Distribution of Information?

If personal identifying information must be disclosed to a third party to provide a requested service, we will tell you, so you can decide whether to request the service [i.e. opt in or opt out].

You will always have the option of requesting that the personal identifying information be removed from our systems by contacting us at the address indicated at the end of this policy. If you register with us, you also have the right, upon reasonable notice, to view your registration information and make any corrections that are necessary. If you have requested e-mails from us, but you decide that you do not want to receive e-mails from us in the future, please contact us at the address indicated at the end of this policy.

What About Children’s Privacy?

We do not intend to collect information from children. If we learn that we inadvertently have collected personal identifying information from a child under the age of 13, we will promptly delete that data from our systems.

What Security Measures Are in Place?

We have significant security measures in place in our physical facilities and in our computer systems, databases, and communications networks to strictly protect information contained within our systems from loss, misuse or alteration.

How Can HealthCentral.com Modify this Privacy Policy?

We may decide to use information collected from you in new ways and our services may evolve to serve you better. As a result, we may from time to time change this Privacy Policy. It is your responsibility to check back here periodically.

Can I Contact HealthCentral.com About this Privacy Policy?

If you have any questions or suggestions with respect to this Privacy Policy, or if you wish to ask us to delete or show you your information as provided above, please contact us at: privacypolicy@healthcentral.com.

APPENDIX 9—DRKOOP.COM PRIVACY STATEMENT

SOURCE: DRKOOP.COM. "DRKOOP.COM PRIVACY STATEMENT." 18 JULY 2000
<[HTTP://NETSCAPE.DRKOOP.COM/ABOUTUS/POLICIES/PRIVACY.HTML](http://netscape.drkoop.com/aboutus/policies/privacy.html)>.

Overview

drkoop.com is recognized for our commitment to safeguarding consumer privacy on our Web site. We operate under the following set of strict privacy principles:

- The only information drkoop.com obtains about individual visitors to its Web site is that supplied voluntarily by visitors.
- In cases when drkoop.com may need personal information to provide visitors with customized content or to inform them about new features or services, visitors are explicitly asked for that information.
- Personally identifiable information provided by visitors (name, e-mail or home address, etc.) will not be disclosed to anyone unless visitors indicate that drkoop.com may do so.
- Only statistical information about our visitors as a group (usage habits, demographics) may be shared with any partner of drkoop.com. Personally identifiable information will not be shared at any time without the visitor's permission. drkoop.com employs strict security measures to safeguard online transactions; personal information is stored in a secured database and always sent via an encrypted Internet channel.

The following discloses our information gathering and dissemination practices for this Web site: drkoop.com.

IP Addresses

An IP address is a number automatically assigned to your computer whenever you access the Internet. All computer identification on the Internet is conducted with IP addresses, which allow computers and servers to recognize and communicate with each other. drkoop.com collects IP addresses in order to conduct system administration, report aggregate information to sponsors and advertisers, and to conduct site analysis. If a visitor requests pages from drkoop.com, the drkoop.com servers enter the visitor's IP address into a log. To maintain visitor anonymity, drkoop.com does not associate IP addresses with records containing personal information. However, drkoop.com will use IP addresses to identify any visitors who refuse to comply with drkoop.com's in-house rules or terms of service, and to identify visitors who threaten our service, site, customers or others.

Cookies

Our site places a text file called a "cookie" in the browser files of your computer. Cookies are pieces of information that a Web site transfers to an individual's hard disk for record keeping purposes. Our site uses cookies during your online session to deliver content specific to your interests. Cookies allow us to avoid showing you the same ad or other message repeatedly. Our cookies do not contain personal information. They do enable drkoop.com to relate your use of the site to information that you have specifically and knowingly provided to our site.

Registration

Our site's registration system requires users to give us contact information such as their name and e-mail address, and demographic information such as a ZIP code, sex, age or income level. The customer's contact information is used to contact the visitor when necessary. Users may choose (opt-in) to receive future mailings; see the choice/opt-in section below. Demographic and profile data is also collected at our site. We use this data to tailor the visitor's experience at our site, showing the visitor content that reflects their stated preferences. This information is shared with advertisers on an aggregate basis, but it does not indicate the identity of individual users.

External Links

In order to provide visitors with greater value, drkoop.com may provide links to various third party Web sites. However, even if a third-party affiliation exists between drkoop.com and that destination site, drkoop.com exercises no authority over linked sites, each of which maintains independent privacy and data collection policies and procedures. drkoop.com assumes no responsibility or liability for these independent methods or

actions and is not responsible for the independent policies or procedures of destination sites. Similarly, drkoop.com cannot take responsibility for the privacy initiatives or the content of such Web sites. These destination links are provided only for your convenience, and as such, you access them at your own risk. However, drkoop.com wishes to ensure the integrity of the drkoop.com Web site and its destination links, so any comments pertaining to the drkoop.com Web site or any sites accessed through drkoop.com links are greatly appreciated.

Community Partners

drkoop.com Community Partners represent well-respected healthcare organizations across the country. Through these partnerships, drkoop.com provides its Web site content and services to enhance the Web sites of our Community Partners. These sites also offer information about local healthcare resources, thereby helping members of their communities take active steps towards improving or maintaining their health.

When registering to become a member of the drkoop.com site, you may also be asked if you would like to register as a member of our partner's "local community." Some of our healthcare partners have their own newsletters and events that you may want to participate in and you will have the opportunity to share your e-mail address with them for this purpose (see choice / opt-in below). drkoop.com also shares aggregate information such as site activity (number of visitors, page view statistics) and demographic distribution of local community members.

See the External Links section above for additional disclaimers regarding third-party Web sites.

Surveys and Questionnaires

Our online surveys and questionnaires may ask visitors for contact and demographic information. The customer's contact information is used to contact the visitor when necessary. Users may opt-out of receiving future mailings; see the choice/opt-in section below. Demographic and profile data is also collected at our site. This information is shared with advertisers on an aggregate basis, but it does not indicate the identity of individual users.

E-Commerce and E-Healthcare transactions

Some drkoop.com site features may use applications to collect data to facilitate an e-commerce or e-healthcare transaction. We will ask your explicit permission to transfer this data to the third party to facilitate this transaction.

drkoop.com may store this information to verify the transaction for customer service and accounting reasons and may use this information to help personalize your experience on the drkoop.com site. drkoop.com may also share this information with other third parties on an aggregate basis, but it does not indicate the identity of individual users.

See the External Links section above for additional disclaimers regarding third-party Web sites.

Contests

We run contests on our site in which we ask visitors for contact and demographic information. The customer's contact information is used to contact the visitor when necessary. Users may choose to receive future mailings; see the choice/opt-in section below. Demographic and profile data is also collected at our site. This information is shared with advertisers on an aggregate basis, but it does not indicate the identity of individual users.

Third Party Ad Services

drkoop.com utilizes certain third-party advertising services (including, but not limited to, DoubleClick) to display advertising for our advertisers. These third-party services may place a cookie on your computer for the purposes of ad tracking and presentation. drkoop.com does not share personally identifiable visitor information with its advertising services.

Public Forums

drkoop.com provides its users with chat rooms, forums, message boards and/or news groups. Please remember that any information disclosed in these areas becomes public information and you should exercise caution when deciding to disclose your personal information.

Security

The drkoop.com Web site has security measures in place to protect the loss, misuse and alteration of the information under our control. drkoop.com employs strict security measures to safeguard online transactions; personal information is stored in a secured database and always sent via an encrypted Internet channel.

Children's Guidelines

Some sections of drkoop.com may be designed specifically for use by children under the age of 16. Contact information such as their name and e-mail address, and demographic information such as their ZIP code or age may be requested in those sections. In such cases, children will be notified that they should obtain permission from their parents before providing such information.

drkoop.com does not disclose personally identifiable information about users under 16, whether or not an approval is obtained. Information about users under the age of 16 may be shared with third parties on an aggregate basis. Parents and those permitting minors to use the drkoop.com Web site should be aware that any information voluntarily given by children in chat sessions, e-mail exchanges, BBS's, forums, etc., may be used by third parties to generate unsolicited mail or other contact with children.

Choice/Opt-In

Our site gives users the opportunity to opt-in to receive communications from us and our partners at the point where we request information about the visitor.

This site also gives users the following options for removing their information from our database in order to stop receiving communications or our service.

1. You can send e-mail to privacy@drkoop.com
2. You can visit the following URL: www.drkoop.com/registration/
3. You can send mail to the following postal address:
Security and Privacy Officer
drkoop.com, Inc.
7000 N. Mopac, Suite 400
Austin, TX 78731
4. You can call the following telephone number: (512) 583-KOOP

Correct/Update

This site gives users the following options for changing and modifying information previously provided:

1. e-mail privacy@drkoop.com
2. visit www.drkoop.com/registration/
3. call the following telephone number: (512) 583-KOOP

Contacting the Web Site

If you have any questions about this privacy statement, the practices of this Web site, or your interaction with this Web site, contact:

Security and Privacy Officer
drkoop.com, Inc.
7000 N. Mopac, Suite 400
Austin, Texas 78731
privacy@drkoop.com

Online Service Agreement

Please see our Online Service Agreement for other terms and conditions governing your use of the drkoop.com Web site.

APPENDIX 10—TRUSTE MODEL PRIVACY STATEMENT

SOURCE: TRUSTE. MODEL PRIVACY STATEMENT. MS WORD 1997 FILE. 17 JULY 2000
<[HTTP://WWW.TRUSTE.ORG/WEBPUBLISHERS/PUB_RESOURCEGUIDE.HTML](http://www.truste.org/webpublishers/pub_resourceguide.html)>.

MODEL PRIVACY STATEMENT

This confirms that [COMPANY X] is a licensee of the TRUSTe Privacy Program. This privacy statement discloses the privacy practices for [URL of COMPANY X WEBSITE].

TRUSTe is an independent, non-profit organization whose mission is to build users' trust and confidence in the Internet by promoting the use of fair information practices. Because this web site wants to demonstrate its commitment to your privacy, it has agreed to disclose its information practices and have its privacy practices reviewed for compliance by TRUSTe. By displaying the TRUSTe trustmark, this web site has agreed to notify you of:

1. What personally identifiable information of yours or third party personally identification is collected from you through the web site
2. The organization collecting the information
3. How the information is used
4. With whom the information may be shared
5. What choices are available to you regarding collection, use and distribution of the information
6. The kind of security procedures that are in place to protect the loss, misuse or alteration of information under [NAME OF COMPANY] control
7. How you can correct any inaccuracies in the information.

If you feel that this company is not abiding by its posted privacy policy, you should first contact [INSERT NAME OF INDIVIDUAL, DEPARTMENT OR GROUP RESPONSIBLE FOR INQUIRIES] by [INSERT CONTACT INFORMATION; EMAIL, PHONE, POSTAL MAIL, ETC.] If you do not receive acknowledgment of your inquiry or your inquiry has not been satisfactorily addressed, you should then contact TRUSTe at <http://www.truste.org>. TRUSTe will then serve as a liaison with the Web site to resolve your concerns.

Information Collection and Use

Company X is the sole owner of the information collected on this site. We will not sell, share, or rent this information to others in ways different from what is disclosed in this statement. Company X collects information from our users at several different points on our website.

Registration

In order to use this website, a user must first complete the registration form. During registration a user is required to give their contact information (such as name and email address). This information is used to contact the user about the services on our site for which they have expressed interest. It is optional for the user to provide demographic information (such as income level and gender), and unique identifiers (such as social security number), but encouraged so we can provide a more personalized experience on our site.

Order

We request information from the user on our order form. Here a user must provide contact information (like name and shipping address) and financial information (like credit card number, expiration date). This information is used for billing purposes and to fill customer's orders. If we have trouble processing an order, this contact information is used to get in touch with the user.

Cookies

A cookie is a piece of data stored on the user's hard drive containing information about the user. Usage of a cookie is in no way linked to any personally identifiable information while on our site. Once the user closes their browser, the cookie simply terminates. For instance, by setting a cookie on our site, the user would not

have to log in a password more than once, thereby saving time while on our site. If a user rejects the cookie, they may still use our site. The only drawback to this is that the user will be limited in some areas of our site. For example, the user will not be able to participate in any of our Sweepstakes, Contests or monthly Drawings that take place. Cookies can also enable us to track and target the interests of our users to enhance the experience on our site.

Some of our business partners use cookies on our site (for example, advertisers). However, we have no access to or control over these cookies.

Log Files

We use IP addresses to analyze trends, administer the site, track user's movement, and gather broad demographic information for aggregate use. IP addresses are not linked to personally identifiable information.

Sharing

We will share aggregated demographic information with our partners and advertisers. This is not linked to any personal information that can identify any individual person.

We use an outside shipping company to ship orders, and a credit card processing company to bill users for goods and services. These companies do not retain, share, store or use personally identifiable information for any secondary purposes.

We partner with another party to provide specific services. When the user signs up for these services, we will share names, or other contact information that is necessary for the third party to provide these services.

These parties are not allowed to use personally identifiable information except for the purpose of providing these services.

Links

This web site contains links to other sites. Please be aware that we [COMPANY X] are not responsible for the privacy practices of such other sites. We encourage our users to be aware when they leave our site and to read the privacy statements of each and every web site that collects personally identifiable information. This privacy statement applies solely to information collected by this Web site.

Newsletter

If a user wishes to subscribe to our newsletter, we ask for contact information such as name and email address.

Surveys & Contests

From time-to-time our site requests information from users via surveys or contests. Participation in these surveys or contests is completely voluntary and the user therefore has a choice whether or not to disclose this information. Information requested may include contact information (such as name and shipping address), and demographic information (such as zip code, age level). Contact information will be used to notify the winners and award prizes. Survey information will be used for purposes of monitoring or improving the use and satisfaction of this site.

Tell-A-Friend

If a user elects to use our referral service for informing a friend about our site, we ask them for the friend's name and email address. [COMPANY X] will automatically send the friend a one-time email inviting them to visit the site. [COMPANY X] stores this information for the sole purpose of sending this one-time email. The friend may contact [COMPANY X] at [INSERT URL] to request the removal of this information from their database.

Security

This website takes every precaution to protect our users' information. When users submit sensitive information via the website, your information is protected both online and off-line.

When our registration/order form asks users to enter sensitive information (such as credit card number and/or social security number), that information is encrypted and is protected with the best encryption software in the

industry - SSL. While on a secure page, such as our order form, the lock icon on the bottom of Web browsers such as Netscape Navigator and Microsoft Internet Explorer becomes locked, as opposed to un-locked, or open, when you are just 'surfing'. To learn more about SSL, follow this link [INSERT LINK].

While we use SSL encryption to protect sensitive information online, we also do everything in our power to protect user-information off-line. All of our users' information, not just the sensitive information mentioned above, is restricted in our offices. Only employees who need the information to perform a specific job (for example, our billing clerk or a customer service representative) are granted access to personally identifiable information. Our employees must use password-protected screen-savers when they leave their desk. When they return, they must re-enter their password to re-gain access to your information. Furthermore, ALL employees are kept up-to-date on our security and privacy practices. Every quarter, as well as any time new policies are added, our employees are notified and/or reminded about the importance we place on privacy, and what they can do to ensure our customers' information is protected. Finally, the servers that we store personally identifiable information on are kept in a secure environment, behind a locked cage.

If you have any questions about the security at our website, you can send an email to security@thiswebsite.com.

Supplementation of Information

In order for this website to properly fulfill its obligation to our customers, it is necessary for us to supplement the information we receive with information from 3rd party sources.

For example, to determine if our customers qualify for one of our credit cards, we use their name and social security number to request a credit report. Once we determine a user's credit-worthiness, this document is destroyed.

(or)

In order for this website to enhance its ability to tailor the site to an individual's preference, we combine information about the purchasing habits of users with similar information from our partners, Company Y & Company Z, to create a personalized user profile. When a user makes a purchase from either of these two companies, the companies collect and share that purchase information with us so we can tailor the site to our users' preferences.

Special Offers

We send all new members a welcoming email to verify password and username. Established members will occasionally receive information on products, services, special deals, and a newsletter. Out of respect for the privacy of our users we present the option to not receive these types of communications. Please see our choice and opt-out below.

Site and Service Updates

We also send the user site and service announcement updates. Members are not able to un-subscribe from service announcements, which contain important information about the service. We communicate with the user to provide requested services and in regards to issues relating to their account via email or phone.

Correction/Updating Personal Information:

If a user's personally identifiable information changes (such as your zip code), or if a user no longer desires our service, we will endeavor to provide a way to correct, update or remove that user's personal data provided to us. This can usually be done at the member information page or by emailing our Customer Support. [Some sites may also provide telephone or postal mail options for updating or correcting personal information].

Choice/Opt-out

Our users are given the opportunity to 'opt-out' of having their information used for purposes not directly related to our site at the point where we ask for the information. For example, our order form has an 'opt-out' mechanism so users who buy a product from us, but don't want any marketing material, can keep their email address off of our lists.

Users who no longer wish to receive our newsletter or promotional materials from our partners may opt-out of receiving these communications by replying to unsubscribe in the subject line in the email or email us at

support@thiswebsite.com [Some sites are able to offer opt-out mechanisms on member information pages and also supply a telephone or postal option as a way to opt-out.]

Users of our site are always notified when their information is being collected by any outside parties. We do this so our users can make an informed choice as to whether they should proceed with services that require an outside party, or not.

Notification of Changes

If we decide to change our privacy policy, we will post those changes on our Homepage so our users are always aware of what information we collect, how we use it, and under circumstances, if any, we disclose it. If at any point we decide to use personally identifiable information in a manner different from that stated at the time it was collected, we will notify users by way of an email. Users will have a choice as to whether or not we use their information in this different manner. We will use information in accordance with the privacy policy under which the information was collected.

APPENDIX 11—MDCHOICE.COM: DISCLAIMER

Source: MDchoice.com. "Disclaimer." 17 July 2000 <<http://www.mdchoice.com/disclaimer.asp>>.

DISCLAIMER The information contained in MDchoice.com is presented for the purpose of educating consumers and health care professionals about wellness, diseases, and other health science related topics. Through a multi-stage editorial process, MDchoice.com makes every effort to provide accurate and reliable information. However, the content within MDchoice.com is not intended to be instructional for medical diagnosis or treatment by non-physician site users. Likewise, physician and other qualified health care providers are encouraged to confirm through use of other sources (e.g. textbooks, medical journals, specialty physician consultation) the accuracy of the information found within our site and on other sites that may be reached through the search engine and other links. The information should not be considered complete, nor should it be relied on to suggest a course of treatment for a particular individual. It should not be used in place of a visit, call, consultation or the advice of a user's personal physician or other qualified health care provider. Information obtained in MDchoice.com is not exhaustive and does not cover all diseases, ailments, physical conditions or their treatment. Should you have any health care related questions, please call or see your physician or other qualified health care provider promptly. Always consult with your physician or other qualified health care provider before embarking on a new treatment, diet or fitness program. You should never disregard medical advice or delay in seeking it because of something you have read while visiting MDchoice.com. MDchoice.com assumes no responsibility for how the health information material found on the site is used. The information contained within MDchoice.com is compiled from a variety of sources ("Information Providers"). Neither MDchoice.com nor Information Providers directly or indirectly practice medicine or dispense medical services as part of MDchoice.com. The MDchoice.com search engine links to sites throughout the Internet that are regularly screened for accuracy by our editorial board of physicians. However, because the Internet is a highly dynamic environment, MDchoice.com cannot guarantee that all web pages reached through the search engine contain up to date, reliable, or even relevant information. You are encouraged to use discretion while browsing the Internet on searches initiated at MDchoice.com. MDchoice.com links may lead unintentionally to sites containing information that some people find inappropriate or offensive. It may also lead to sites that contain inaccurate information, false or misleading advertising, or information that violates copyright, libel or defamation laws. Statements made in websites, newsgroups, message boards, email, forums, conferences and chats reflect only the views of their authors. Forum managers, forum hosts, CPs, or Merchants appearing on MDchoice.com are not authorized MDchoice.com spokespersons, and their views do not necessarily reflect those of MDchoice.com. MDchoice.com SERVICES AND MDchoice.com SOFTWARE AND INFORMATION ACCESSED through MDchoice.com (the "SERVICES") ARE provided "AS IS" without warranty, express or implied. MDchoice.com hereby excludes all implied warranties of merchantability and fitness for a particular use or purpose with respect to the SERVICES. There are no warranties that extend beyond the description on the face OF THIS AGREEMENT. MDchoice.com and Information Providers make no warranty as to the reliability, accuracy, timeliness, usefulness, adequacy, completeness or suitability of the Services. MDchoice.com and Information Providers cannot and do not warrant against human and machine errors, omissions, delays, interruptions or losses, including loss of data. MDchoice.com and Information Providers cannot and do not guarantee or warrant that files available for downloading from this online site will be free of infection by viruses, worms, Trojan horses or other code that manifest contaminating or destructive properties. MDchoice.com and Information Providers do not warrant or guarantee that the functions or Services performed in mdchoice.com will be uninterrupted or error-free or that defects in mdchoice.com will be corrected. Users of mdchoice.com are responsible for (1) implementing and maintaining adequate procedures and checkpoints to satisfy their particular requirements for accuracy of data input and output and (2) maintaining a means external to mdchoice.com for the reconstruction of any lost data a means external to MDchoice.com for the reconstruction of any lost data.

APPENDIX 12—MASSACHUSETTS GENERAL HOSPITAL, DEPARTMENT OF NEUROLOGY WEB FORUM AND CHAT DISCLAIMERS

Source: Massachusetts General Hospital. Department of Neurology. 17 July 2000 <<http://neuro-www.mgh.harvard.edu/disclaimer.html>>.

Massachusetts General Hospital - Department of Neurology

Web Forum Disclaimer and Statement of Purpose

Web Chat Room Disclaimer and Statement of Purpose

Users of these forums and chatrooms are ENCOURAGED to be supportive as well as tolerant of other points of view. Most of the users of the forums and chatrooms are dealing with SERIOUS medical problems, many of them incurable and progressive. Some postings may be full of strong emotions and even strong language. Please remember what these patients and caregivers are going through, and try to be understanding of their perspective and emotional state. Thank you!

As stated below, no messages, chats or postings are screened for content. However, MGH Neurology reserves the right to delete any material or links to material that is libelous, defamatory, obscene, indecent, lewd, pornographic, violent, abusive, threatening, harassing, or is otherwise in violation of the law.

MGH Neurology reserves the right to limit or terminate Web Forum or Web Chat Room access to anyone for any reason.

Web Forum Disclaimer and Statement of Purpose

This Web Forum is not moderated in any sense. Anyone on the Internet can post articles or reply to previously posted articles, and they may do so anonymously. Therefore, the opinions and statements made in all articles and replies do not represent the official opinions of MGH and MGH Neurology. Neither is MGH or MGH Neurology responsible for the content of any articles or replies. No messages are screened for content.

All posted articles and replies are PUBLICALLY ACCESSIBLE on the Web, and may be indexed or linked to by other web servers outside of MGH Neurology. Access to these postings is not restricted in any way.

MGH Neurologists do not monitor the forums, but they may occasionally answer a question or post an article as they see fit. The information posted by MGH physicians is not medical advice and should not be taken as medical advice. Information posted by MGH physicians must be recognized as personal opinions only. To obtain medical advice, patients must consult an MGH physician one-on-one (telephone, official visit, or private email).

The MGH Neurology Service has not sought the counsel of non-MGH Neurologists, however, some replies posted may come from neurologists who have no connection to the MGH Neurology Service.

MGH Neurology is providing this public forum as a public service and is operating as a “common carrier” in this regard (please see the Communications Decency Act of 1996 (“CDA”) -- 47 U.S.C. § 230 -- as described in footnote 2 by the U.S. 4th Circuit Court of Appeals ruling on ZERAN v AMERICA ONLINE INC. for details). No guarantees are made or implied.

IMPORTANT COMMENTS FROM THE SYSOP (John Lester):

The Neurology Web Forums at Massachusetts General Hospital have been running since 1995, and are a continuing effort by the Department of Neurology at Massachusetts General Hospital to foster online discussions between patients, caregivers and physicians about various Neurology-related topics.

You can think of this as a simple BBS or newsgroup forum...except that you can access it easily via the World Wide Web. Please send all comments to me, John Lester (MGH Neurology IS Director) at lester@helix.mgh.harvard.edu.

Please don't expect all your medical questions to be answered! These forums are NOT designed to be places where you can get unlimited medical advice. Rather, the forums are primarily intended to foster discussions between interested patients, caregivers, and physicians. There are certain MGH Neurologists who may occasionally monitor the forums, but it is NOT their responsibility to answer all requests for information. These are OPEN FORUMS...anyone can participate, and we want to provide a place where people can discuss medical issues freely.

Finally, if you wish to remain ANONYMOUS, please do NOT enter your real name and email address when making posts...all posts here are viewable by anyone on the Internet, and posts may be indexed by global Internet search engines (e.g., Altavista). If you have a serious medical/neurological problem, consult a physician in person for proper care!

Web Chat Room Disclaimer and Statement of Purpose

These Chat Rooms are not moderated in any sense. Anyone on the Internet can post messages on this chat system, and they may do so anonymously. Therefore, the opinions and statements made in all messages do not represent the official opinions of MGH and MGH Neurology. Neither is MGH or MGH Neurology responsible for the content of any messages. No posts are screened for content.

All chats are PUBLICALLY ACCESSIBLE on the Web, and may be indexed or linked to by other web servers outside of MGH Neurology. Access to these chats is not restricted in any way.

Any information posted by MGH physicians is not medical advice and should not be taken as medical advice. Information posted by MGH physicians must be recognized as personal opinions only. To obtain medical advice, patients must consult an MGH physician one-on-one (telephone, official visit, or private email).

The MGH Neurology Service has not sought the counsel of non-MGH Neurologists, however, some replies posted may come from neurologists who have no connection to the MGH Neurology Service.

MGH Neurology is providing these chat rooms as a public service and is operating as a "common carrier" in this regard (please see the Communications Decency Act of 1996 ("CDA") -- 47 U.S.C. § 230 -- as described in footnote 2 by the U.S. 4th Circuit Court of Appeals ruling on ZERAN v AMERICA ONLINE INC. for details). No guarantees are made or implied.

IMPORTANT COMMENTS FROM THE SYSOP (John Lester):

The Neurology Chat Rooms at Massachusetts General Hospital have been running since 1996, and are a continuing effort by the Department of Neurology at Massachusetts General Hospital to foster online discussions between patients, caregivers and physicians about various Neurology-related topics.

These rooms allow you to converse in real-time with other people on the net about a variety of Neurology-related topics. Please feel free to join in any time...they are open to everyone! I've set these rooms up to be as simple as possible. You don't need the fastest modem, the fanciest multimedia computer, and latest Web Browser to participate...these chat rooms use minimal graphics and very basic HTML tags. You can also be anonymous to other users on the system...you can use whatever nickname you want.