

## **The “Informed Patient” Bibliography**

Of the 357 articles published in the history of the *Journal of Health Communication: International Perspectives*, 49 were selected as having potential value for the “information to patients” evidence to support the European Commission report. Undoubtedly there are many other articles, from a variety of other Journals, that can supplement these findings. Nonetheless, this is one of the first annotated bibliographies related to such an issue. This bibliography supplements the work published in Finland, “Drug information for consumers and patients – a review of the research” by the National Agency for Medicines (report available at [http://www.nam.fi/english/whats\\_new/news/drug\\_information.html](http://www.nam.fi/english/whats_new/news/drug_information.html)) and the Informed Patient Project at the University of Cambridge (report available at <http://www.jbs.cam.ac.uk/research/health/tip/pdf/crstudy.pdf>).

The public is becoming less accepting of a passive role as patients. The term, "Informed Patient", assumes that people with illnesses need information in order to be involved in their healthcare. This information is essential for seeking care, deciding on the best courses of action with their healthcare professionals, or for follow-through on an agreed course of treatment. Informing patients also necessitates educating professionals about interpersonal and communication skills and the needs of patients. It also includes making the public aware of specific high-risk conditions and how they might reduce their risks while conveying the value of health information; that is, why health information is important and why patients should be happy to ask for more information.

Peer-reviewed research on the aforementioned areas of creating informed patients was culled from over a decade of research published in the *Journal of Health Communication: International Perspectives*. This evidence base can be applied towards answering the questions: Does informing patients lead to improved health outcomes? Does informing patients lead to increased demand for healthcare? Can information help manage demand for healthcare? Articles are grouped according to their association within the following categories: attitudes towards health care and descriptions of information needs, the complexity of medicine and increasing burden of health care, health literacy, health information and technology, and direct to consumer advertising. The following details some conclusions from each area.

## **Summary Points**

### **Attitudes Towards Health Care/Information Needs:**

Nine articles addressed aspects of informing patients/consumers to affect choices and improve outcomes, informing as a necessary precursor to consent and agreement for treatment. They also explore patient needs for information as they vary with individual characteristics and across/within cultures, information needs for minority groups with special needs or cultural differences.

- Four segments of the US adult population can be identified regarding health information preferences based on their degree of engagement in health enhancement, and their degree of independence in health decision-making. Independent Actives and Doctor-Dependent Actives – value health information and are actively trying to maintain their health. Independent Actives are more self-efficacious with regard to understanding health information, and more likely to consult multiple sources when making health decisions. Doctor-Dependent Actives are more likely to rely on their doctor as their primary health information source. Independent Passives and Doctor-Dependent Passives are less engaged in prevention efforts and less likely to seek health information. Doctor-Dependent Passives are more open to health information provided by their doctors than Independent Passives.

- For the type of patient that discusses Internet health information with a health care provider, there are two distinct dimensions of reliance, one regarding the patient's reliance on the health care provider for decision making and the other regarding the patient's reliance on the health care provider to stay healthy. Self-reliant patients tended to be female, have lower incomes, and report less frequent visits to the health care provider than did health care provider-reliant patients.
- Among cancer patients the desire for information and the desire for involvement in medical care decisions are independent factors. Patients with a strong desire for both information and involvement in making health care decisions actively seek involvement in their treatment plans. Patients who want to be informed about their disease and treatment prefer to delegate most decision-making to their physicians. Other patients choose to delegate information gathering and decision making exclusively to their physicians. These variables affect whether patients discussed with their physicians information that they received from other sources, whether the information they obtained helped them make decisions about treatment or care, whether the patient sought a second opinion about his/her diagnosis or treatment, and changes in self-reported stress levels from diagnosis to the time of interview.
- In regards to making decisions about hormone replacement therapy (HRT), results indicate that women's information behavior differed according to which decision they were making (starting versus stopping HRT, considering CAM), as did the sources they consulted. When information is lacking, women rely on informal sources, and on their own judgment, to make decisions.
- Factors linked to the health care-related behaviors and adjustment of African American cancer patients included limited knowledge and misinformation about cancer, mistrust of the medical community, concerns about privacy, lack of insurance, religious beliefs, and emotional issues such as fear and stigma associated with seeking emotional support.

### **Complexity of Medicine and Increasing Burden of Health Care.**

As medicine becomes more complex, it is harder for an individual clinician to be able to provide all the information that a specific patient may need or want in order to make a decision. These six articles address barriers in communicating complex information (such as risk) to patients and consumers.

- Participants who received social comparison risk factor feedback expressed greater intentions to undergo cancer screening than participants who received absolute risk feedback and controls; they also expressed less ambivalence about screening than controls. Providing social comparison risk factor feedback can effectively reduce optimistic comparative risk perceptions. Contrary to findings of models of health behavior change, being informed that one does not have more than the average number of risk factors did not result in higher ambivalence toward and lower intentions to screen or the lowest rate of screening.
- Many laypeople have difficulty using probability information. In a hypothetical medical tradeoff situation in which a treatment would decrease one risk but increase another. Accuracy was greater when the following occurred: (1) the amount of cognitive effort required to evaluate the tradeoff was reduced; (2) probability information was presented as a graphical display rather than as text only; and (3) information was presented as percentages rather than as frequencies (n in 100). These suggestions provide ways to present risk probabilities that may help patients understand their treatment options.
- Looking at clinical trial acceptance and the variables associated with physicians offering the trials, researchers found that based on their results, clinical trial

acceptance does not appear to be based on a rational decision-making model; this has implications for both the ethics of informed consent and research conceptual models.

- Graphic displays can enhance quantitative risk communication. Examining the effect of graphic format elements on perceptions of risk magnitude and perceived truth of data. We found that elements of graphic format used to convey quantitative risk information affect key domains of risk perception. One must be cognizant of these effects when designing risk communication strategies.
- Different formats of informing men and women of the risks of colorectal cancer may affect their perceptions of their risks. Participants who received risk factors information were more likely to increase their perceived absolute 10-year and lifetime risks of getting colorectal cancer compared to participants who did not receive risk factors information. Participants who received risk factors information were more likely to believe age was related to getting colorectal cancer, and felt at greater risk for having polyps compared to participants who did not receive this information.
- The literature about manipulations of risk and benefit information in the clinical setting shows that the way information is presented can have significant effects on decisions made. The largest effects are evident when relative risk information is presented, as compared with absolute risk data. A pattern of evidence from studies comparing simpler with more complex information, more data with less, and those comparing numerical with verbal descriptions of risks suggests that providing more information, and which is more understandable to the patient, is associated with improved patient knowledge and a greater wariness to take treatments or participate in trials.

## **Health Literacy**

These eight articles address the challenges of informing patients with limited literacy. Patients are individuals with their own needs, preferences, and capabilities. It should not be expected that 'one size fits all' in terms of information provision.

- Patients receiving treatment for HIV infection, especially those with limited literacy skills, may find it difficult to respond to existing HIV medication adherence questionnaires. Participants struggled to define adherence, relied on visual cues to identify medications, and had a short recall timeframe for missed doses. Most preferred simple question formats and for their physician to assess adherence orally.
- Functional health literacy is not an independent predictor of colorectal cancer screening knowledge, beliefs, attitudes, or behavior. Latino ethnicity and education, however, often predicted screening responses, suggesting that efforts to improve communication about colorectal cancer screening with Latino patients and patients with low education clearly are needed to reduce the disparities in awareness and utilization of colorectal cancer screening tests. Physician recommendation was found to be a powerful motivator of intention to undergo colorectal cancer screening regardless of literacy level.
- Visual aids may improve the accuracy of medication assessment, especially for patients with communication barriers. Shifting from verbal to visual modes was associated with greater patient-provider concordance across all patient subgroups, but especially for those with communication barriers.
- Language interpreters mediate a growing number of health care communication events, including the informed consent process. Accuracy may be promoted if clinicians used less technical language and shorter sentences, and are more "process driven." Interpreters may need to be better informed about research-related concepts such as randomization.
- Printed cancer information is often written at or beyond high school reading levels, despite lower average literacy abilities of the public. Though readability plays a role

in older adults' understanding of cancer information, cancer type and content are also important factors that influence comprehension. Use of plain language is recommended for colorectal cancer resources.

- Quantitative information occupies a central role within health care decision-making. This work highlights the need for clarification of the numeracy concept and refinement of health numeracy assessment instruments. Identifying patients' numeracy strengths and weaknesses will enable the development of focused numeracy interventions and may contribute to moving individuals further along the continuum of health literacy proficiency.
- Decision aids still rely heavily on written information, health and digital literacy, and reading ease. Although designing patient decision aids that are educational, entertaining and targeted toward poor readers and those with limited computer skills is a complex task, it is a promising strategy for aiding this population. Entertainment education may be a highly effective approach to promoting informed decision-making for patients with low health literacy.

### **Availability and Interpretation of Technology: Healthcare Information on the Internet**

The 11 articles below delve into various aspects of the increasing quantity of information available on the Internet. Health is reputedly the second most popular topic to be searched for on the internet, which may indicate significant unmet demand from other channels, though this may be more to validate, confirm, or to seek more detail to support the primary channel of doctor-patient communication.

- For female Web users and non-Web users who seek health information, Web users sought health information at a higher rate than non-Web users. Web users were more likely to communicate with medical professionals about the health information found and claimed that their decisions about health treatments were influenced by the health information. In most cases, Web users expressed a higher awareness of resources, regardless of format. However, Web users did not report that finding health information, from any channel, was noticeably easier.
- Trust in information-oriented media, entertainment-oriented media and one's health care provider all predicted Web use behavior and/or perceptions.
- On health-related message boards the most commonly discussed medical topics were medical treatments and drugs (often specific brands) and that these boards are clearly important sources of information and emotional support.
- Searches were made on the four most popular Internet search engines using different combinations of the terms, "vaccination," "immunization," "immunisation," "immunize," "immunise," "vaccine," and "shots." Searching with the keyword "vaccination" resulted in a significantly higher percentage of anti-vaccination websites as compared with searches with all other keywords. By contrast, the single keyword "immunization" yielded pro-vaccination sites. Thus, any use of the term "vaccination" during an Internet search is likely to expose a parent to a significant amount of anti-vaccination information.
- Although the Internet has great potential for assisting people to find information on breast cancer, at present that potential is not being realized. The literature shows considerable dissatisfaction with information provision for breast cancer, including on the Internet where appropriate information suited to particular needs often cannot be found.

- On on-line message boards there was an increase in pharmaceutical advice over time on the medical board and a trend on the community board after the WHI. Similarly, after the WHI there was an increase in the frequency of codes on the community board related to "Is this menopause?" suggesting a heightened awareness about menopause as a health issue.
- Reliance on the web for health-related information positively influenced website credibility in both searches. Of the credibility dimensions, trust/expertise and depth were significant predictors of intention to revisit a site in both searches.
- An audiovisual, bilingual, interactive computer module was well received among a medically underserved urgent care clinic population. Benefits appear greatest among populations having the least experience with this medium.
- For visually-impaired individuals, only 19% of 500 individual web sites representing 50 common illnesses and conditions were accessible.
- In the relationship of Internet health information use with patient behavior and self-efficacy among newly diagnosed cancer patients. There were significant relationships among Internet use and key study variables: subject characteristics, patient task behavior, and self-efficacy. Significant relationships also were found among Internet use and perceived patient-provider relationship, question asking, and treatment compliance. Finally, Internet use was also significantly associated with self-efficacy variables (confidence in actively participating in treatment decisions, asking physicians questions, and sharing feelings of concern).

### **Direct to Consumer Advertising**

This area is new and there is still much debate about the interpretation of the results and whether the overall outcome from DTCA is positive or negative. These 11 articles address the effects of DCTA, consumers' attitudes, the quality of the information presented and other aspects of this mechanism for informing consumers.

- Regarding consumers' perceptions of the trustworthiness of on-line drug information, (1) on-line drug information is not highly trusted; (2) trust in on-line drug information is not differentially affected by consumer demographic or pre-dispositional characteristics; (3) trust in the traditional media of DTC advertising is predictive of trust in on-line drug information; and (4) trust in on-line drug information is associated directly with specific types of ad-promoted behavior following exposure to DTC advertising.
- For the extent to which DTC prescription drugs advertising provides consumers with the information they need to make an informed evaluation of an advertised drug's relative benefits and risks, research strongly suggests a direct relationship between risk statement completeness and consumers' perceptions of drug safety and appeal. Consumers rate the safety and appeal of drugs described with an incomplete risk statement significantly more positively than comparable drugs described with a more complete risk statement.
- Direct-to-consumer drug advertisements occupy a large percentage of network television commercial advertising and, based on time and program placement, many ads may be targeted specifically at women and older viewers. Americans who watch average amounts of television may be exposed to more than 30 hours of direct-to-consumer drug advertisements each year, far surpassing their exposure to other forms of health communication.
- When examining the content of prescription drug websites, and specifically focusing on the quantity and quality of risk information, results show that even though most prescription drug websites provide both risk and benefit information, the two types of information are presented differently.

- A majority of ads used both medical and lay terms to convey medical ideas. Most gave consumers somewhat more time to absorb facts about benefits than those about risks, which could have implications for the “fair balance” requirement. Complete references to additional product information were given only in text, casting doubt on whether these ads are making “adequate provision” for dissemination of detailed product information.
- Consumers’ general attitude toward Direct-to-Consumer-Advertising (DTCA) influenced their drug inquiry intent, and whether the relationship between attitude toward DTCA and drug inquiry intent was moderated by their perceived knowledge in health and medicine. Those with favorable views of DTCA were more likely to inquire and request an advertised drug they saw. The effect was greater in magnitude for consumers with high perceived knowledge in health and medicine than those with low perceived knowledge.
- The use of qualifying language in Direct-to-Consumer (DTC) pharmaceutical advertising affects consumers’ perceptions of drug appeal, anticipated pleasantness of drug usage, and the expected incidence of side effect occurrence. Qualifying language has a profound effect on drug perceptions, especially when used in combination. Drug appeal and the anticipated drug-using experience were almost always more positive in the presence of qualifying language. Qualifying language appears to exert its influence by causing individuals to reduce their estimate of the likelihood of experiencing individual side effects.
- Looking at the pharmaceutical web sites of forty-four leading direct-to-consumer advertised drugs to determine the extent to which risk information was completely communicated, results indicated that regardless of the measures used, pharmaceutical web sites are unlikely to completely communicate risk information. About two-thirds of all sites communicated the single highest incidence side effect or all top three side effects. For drugs with side effects at 10% incidence, only about half of their web sites fully reported all effects at this level of incidence.
- The factors influencing consumers’ opinions of the utility of DTC ads for health care decision making suggest consumers value information about both risks and benefits, but the perception of risk information is more important in shaping opinions of ad utility than the perception of benefit information. Consumers still perceive, however that the quality of benefit information in DTC ads is better than that of risk information. Opinions about ad utility significantly influence whether information from DTC ads is used in health care decision making.

## **Annotated Bibliography**

### **A. Attitudes Towards Health Care/Information Needs:**

Nine articles addressed aspects of informing patients/consumers to affect choices and improve outcomes, informing as a necessary precursor to consent and agreement for treatment. They also explore patient needs for information as they vary with individual characteristics and across/within cultures, information needs for minority groups with special needs or cultural differences.

1. **Kimberly K. Engelman, Denise L. Perpich, Shelly L. Peterson, Matthew A. Hall, Edward F. Ellerbeck, Annette L. Stanton, Cancer Information Needs in Rural Areas, Journal of Health Communication, Volume 10, Issue 3, Apr 2005, Pages 199 – 208.**

Although cancer presents obstacles for all who experience it, persons in rural communities must negotiate additional challenges. This study determined the cancer information (CI) needs and the

CI-seeking behavior and preferences among rural-dwelling persons. Patients (N = 801) = 50 years of age seen in 36 rural Kansas primary care practices completed a Cancer Care Information Needs Survey (CCINS); physicians completed a cancer resource knowledge and preference survey. Of the 801 patients, 184 (23%) reported a CI need. Of these 184 patients, 45% reported either not discussing cancer or having insufficient discussion time with their physicians; 44% needed more information after consulting their physician. Patients more likely to report a CI need were young, female, Internet users, persons with a prior cancer diagnosis, and persons seeing male physicians or physicians in group/multi-specialty practices. Patients and physicians were unfamiliar with services provided by national cancer organizations. Physicians are a primary CI source; however, patients who need CI report insufficient cancer discussion time with their physician and need more CI after consulting their physician. Promoting access to national CI sources could bridge the CI needs gap that exists in rural areas currently.

**2. Ronald Czaja, Clara Manfredi, Jammie Price, The Determinants and Consequences of Information Seeking Among Cancer Patients, Journal of Health Communication, Volume 8, Issue 6, Nov 2003, Pages 529 – 562.**

This research was designed to examine information seeking behavior among cancer patients. We present a model which identifies the determinants and consequences of information seeking and, in turn, examines the effects of prior variables on four outcome variables: whether patients discussed with their physicians information that they received from other sources, whether the information they obtained helped them make decisions about treatment or care, whether the patient sought a second opinion about his/her diagnosis or treatment, and changes in self-reported stress levels from diagnosis to the time of interview. The model is estimated separately for three groups: patients who sought information from multiple sources including the National Cancer Institute's Cancer Information Service, patients who sought information from multiple sources but did not call the Cancer Information Service, and patients who did not seek information other than from their physician(s). We discuss variables that have similar impacts on outcome variables in all three groups as well as variables that operate differently within the groups. The results indicate that the desire for information and the desire for involvement in medical care decisions are independent factors. Some patients have a strong desire for both information and involvement in making health care decisions. These patients actively seek involvement in their treatment plans. Other patients, however, want to be informed about their disease and treatment but prefer to delegate most decision-making to their physicians. Still other patients choose to delegate information gathering and decision making exclusively to their physicians. We discuss the implications of these results for both patients and providers.

**3. C. Nadine Wathen, Health Information Seeking in Context: How Women Make Decisions Regarding Hormone Replacement Therapy, Journal of Health Communication, Volume 11, Issue 5, Jul 2006, Pages 477 – 493.**

This multi-method study explored women's information seeking behavior and decision making regarding menopause, hormone replacement therapy (HRT), and use of complementary and alternative medicines (CAM) during menopause. This research was underway during the mass media release of the Women's Health Initiative (WHI) estrogen-progestin trial results, allowing an examination of the impact of this news on women's decisions. There were two studies: first, 20 women who currently were or previously had used HRT were interviewed about their experiences with menopause and HRT-related information seeking and decision making. Following this, 285 demographically representative Canadian women aged 45–65 who were current or former HRT users completed a questionnaire. Results indicate that women's information behavior differed according to which decision they were making (starting versus stopping HRT, considering CAM), as did the sources they consulted. In general, there has been a paucity of good information to help women who are deciding to stop HRT. The types and sources of CAM information often are found to be less than credible and helpful. When information is lacking, women rely on informal

sources, and on their own judgment, to make decisions. The results are discussed in the context of information behavior and help-seeking theory.

**4. Carma L. Bylund, Exploration of the Construct of Reliance Among Patients Who Talk With Their Provider About Internet Information, Journal of Health Communication, (in press, 2007).**

The paternalistic model of the doctor-patient relationship that holds the doctor as expert and patient as submissive has been challenged (e.g., Engel, 1978; Stewart et al., 1995), and a variety of models have been proposed in its place. Central to these other models is the notion that patients vary in their attitudes and preferences about health and health care. A particular area of variance that has received much attention in the literature is patient preferences for involvement in medical decision making. 350 participants, recruited from internet health message boards, completed online surveys about their experiences talking with health care providers about internet health information. Two distinct dimensions of reliance emerged from the data, one regarding the patient's reliance on the health care provider for decision making and the other regarding the patient's reliance on the health care provider to stay healthy. Self-reliant patients tended to be female, have lower incomes, and report less frequent visits to the health care provider than did health care provider-reliant patients. Age, comfort level, and frequency of talking about internet health information were not related to reliance level.

**5. Piia Jallinoja, Arja R. Aro, Does Knowledge Make a Difference? The Association Between Knowledge About Genes and Attitudes Toward Gene Tests, Journal of Health Communication, Volume 5, Issue 1, Jan 2000, Pages 29 – 39.**

A survey was conducted (n=1,216) to evaluate the level of knowledge about basic facts of genetics and attitudes towards gene tests among the population. Our results show that a majority of the Finnish population generally approved of gene tests. Well over half of the respondents believed that genetic testing will have positive consequences, but many also had worries related to the development of gene tests. We showed that there was an association between knowledge and attitudes, but better knowledge did not simply lead to unambiguous acceptance. Among those with the highest level of knowledge there was in many respects both more enthusiasm and more skepticism than among those with the lowest level of knowledge. Those with a low level of knowledge had more difficulties in taking a stance towards attitude statements. In general, steps should be taken, first, to increase citizens' capabilities to seek for and understand information of genetics and specific diseases when faced with a need for it. Second, steps should be taken to provide citizens with tools to perceive and discuss potential ethical and social problems, which development of gene technology, genetic testing and screening bring along. Sites for these enterprises could be the biology school curriculum, genetic counseling, media, as well as health education and health communication in general.

**6. Alicia K. Matthews, Sarah A. Sellergren, Clara Manfredi, Maryann Williams, Factors Influencing Medical Information Seeking Among African American Cancer Patients, Journal of Health Communication, Volume 7, Issue 3, May 2002, Pages 205 – 219.**

Qualitative research methods were used to explore factors that may affect medical information seeking, treatment engagement, and emotional adjustment among African American cancer patients. Focus group findings suggest that an array of cultural and socioeconomic factors plays important roles in the behavior of African American cancer patients. Participants described a number of important barriers and facilitators of medical information seeking and treatment participation. Factors linked to the health care-related behaviors and adjustment of African American cancer patients included limited knowledge and misinformation about cancer, mistrust of the medical community, concerns about privacy, lack of insurance, religious beliefs, and emotional issues such as fear and stigma associated with seeking emotional support.

Recommendations are made that may assist mental and physical health providers in improving patient information and mental and physical health outcomes of African American cancer patients.

- 7. Jill Armstrong Shultz, Maureen A. Sprague, Laurel J. Branen, Suzanne Lambeth, A Comparison of Views of Individuals with Type 2 Diabetes Mellitus and Diabetes Educators About Barriers to Diet and Exercise, Journal of Health Communication, Volume 6, Issue 2, Apr 2001, Page 99.**

Diet and exercise are the cornerstones of treatment for persons with type 2 diabetes mellitus; yet, patients find these areas of self-management to be the most difficult. Considerable research has indicated that barriers to diet and exercise are critical influences determining adherence to diet and exercise plans. Standards of practice require educators to assess patient barriers to self-management. However, little research has investigated whether or not patients and educators perceive these barriers similarly. This project's objectives were to compare and contrast patients' and educators' perspectives of patient barriers to following a meal or exercise plan, and to identify differences in patients' perceived barriers as related to patient characteristics. Patients with type 2 diabetes mellitus (n = 97) from three eastern Washington area hospitals and diabetes educators (n = 143) from the Washington Association of Diabetes Educators were recruited for a mail survey. From the patient survey, the proportion of patients on a meal plan (52%) or exercise plan (26%) was low. Certain barriers were prominent for both patients and educators relative to diet (difficulty maintaining a diet away from home; liking foods not in the meal plan) and exercise (not a high priority; weather). However, multivariate analyses indicated that patients and educators view barriers differently. Similarities and differences between educators and patients in response to barriers are discussed relative to enhancing diabetes counseling and education, and overall communication between educators and patients.

- 8. Edward W. Maibach, Ph.D., Deanne Weber, Ph.D., Holly Massett, Ph.D, Gregory R. Hancock, Ph.D. and Simani Price, Ph.D. Understanding Consumers' Health Information Preferences: Development and Validation of a Brief Screening Instrument. Journal of Health Communication, Volume 11, Issue 8, Dec 2006.**

The impact of health communication is generally enhanced when it is targeted or tailored to the needs of a specific population or individual. In a segmentation analysis of the U.S adult population – using data from 2,636 respondents to a mail panel survey – we identified four segments of the adult population that vary significantly with regard to health information preferences based on their degree of engagement in health enhancement, and their degree of independence in health decision-making. Our findings support the idea that there are clear group differences in how consumers value, understand and access health information. Using a psycho-behavioral approach to segmentation, we identified four distinct groups and developed a 10-item screening instrument that classifies people into these segments. Two of these segments -- Independent Actives and Doctor-Dependent Actives -- value health information and are actively trying to maintain their health. Independent Actives, however, are more self-efficacious with regard to understanding health information, and therefore more likely to consult multiple sources (e.g., doctors, Internet, books, etc.) when making health decisions. In contrast, Doctor-Dependent Actives are more likely to rely on their doctor as their primary health information source, presumably because they are less confident about their ability to understand health information. The other two segments -- Independent Passives and Doctor-Dependent Passives -- are markedly less engaged in prevention efforts and less likely to seek health information. Doctor-Dependent Passives are more open to health information provided by their doctors than Independent Passives, who have little communication with health care providers. We believe this instrument offers a practical tool for differentiating motivationally coherent sub-groups of the adult population with regard to their health information preferences, and therefore may have practical value in improving health communication and health services provision efforts. Additional

research is needed to further validate the tool, and test its utility in guiding the creation of targeted health messages and programs.

**9. Itzhak Yanovitzky, Cynthia L. Blitz, Effect of Media Coverage and Physician Advice on Utilization of Breast Cancer Screening by Women 40 Years and Older, Journal of Health Communication, Volume 5, Issue 2, Apr 2000, Pages 117 – 134.**

The purpose of this study is to examine the relative importance of media coverage and physician advice on the decision of women 40 years and older to obtain a mammogram. Five theoretical models, by which media coverage and physician advice may interact to affect individual health behavior, are presented. These models are tested with time-series regression analysis based on national-level data on mammography utilization and physician advice from the Behavioral Risk Factor Surveillance System (BRFSS) and content analysis of mammography-related national news coverage. Results suggest that although physician advice plays a key role in women's decisions to have mammograms, media coverage of mammography screening also contributes to mammography utilization by women. In particular, media coverage seems to be important for women who do not have regular contact with a physician or access to physicians. A possible conclusion is that mass media and physician advice complement one another in persuading individuals to adopt preventive health behavior.

**B. Complexity of Medicine and Increasing Burden of Health Care.**

As medicine becomes more complex, it is harder for an individual clinician to be able to provide all the information that a specific patient may need or want in order to make a decision. Clearer processes and quality measures are needed to support proper provision of healthcare information in the future. These articles address barriers in communicating complex information (such as risk) to patients /consumers.

**1. Isaac M. Lipkus, William M.P. Klein, Effects of Communicating Social Comparison Information on Risk Perceptions for Colorectal Cancer, Journal of Health Communication, Volume 11, Issue 4, Jun 2006, Pages 391 – 407.**

People typically believe their health risks are lower than those of others (i.e., optimistic bias). We sought to increase perceptions of colorectal cancer (CRC) risk among adults aged 50–75 who were nonadherent to fecal occult screening (FOBT). 160 participants were randomized to receive information about the following: (1) general CRC risk factors (control), (2) general and tailored CRC risk factor feedback (absolute risk group), or (3) absolute CRC risk factor feedback plus CRC feedback as to how their total number of risk factors compared with that of others (absolute plus comparative risk group). Primary outcomes were perceived absolute and comparative risks, attitudinal ambivalence toward FOBT, and screening intentions; the secondary outcome was return of a completed FOBT. Participants who were told that they had more than the average number of risk factors believed their comparative CRC risk was higher than that of controls and of participants informed that they did not have more than the average number of risk factors. Perceived absolute risk did not vary by group. Participants who received social comparison risk factor feedback expressed greater intentions to screen via a FOBT than participants who received absolute risk feedback and controls; they also expressed less ambivalence about FOBT screening than controls. Although not statistically significant, participants informed they were at lower comparative risk had the highest proportion of completing an FOBT than any other group. These results suggest that providing social comparison CRC risk factor feedback can effectively reduce optimistic comparative risk perceptions. Contrary to findings of models of health behavior change, being informed that one does not have more than the average number of CRC risk factors, while resulting in lower evaluations of perceived comparative risk, did not result in higher ambivalence toward and lower intentions to screen using FOBT or the lowest rate of screening.

- 2. Erika A. Waters, Neil D. Weinstein, Graham A. Colditz, Karen Emmons, Formats for Improving Risk Communication in Medical Tradeoff Decisions, Journal of Health Communication, Volume 11, Issue 2, Mar 2006, Pages 167 – 182.**

To make treatment decisions, patients should consider not only a treatment option's potential consequences but also the probability of those consequences. Many laypeople, however, have difficulty using probability information. This Internet-based study (2,601 participants) examined a hypothetical medical tradeoff situation in which a treatment would decrease one risk but increase another. Accuracy was assessed in terms of the ability to determine correctly whether the treatment would increase or decrease the total risk. For these tradeoff problems, accuracy was greater when the following occurred: (1) the amount of cognitive effort required to evaluate the tradeoff was reduced; (2) probability information was presented as a graphical display rather than as text only; and (3) information was presented as percentages rather than as frequencies ( $n$  in 100). These findings provide suggestions of ways to present risk probabilities that may help patients understand their treatment options.

- 3. Barbara Curbow, Linda A. Fogarty, Karen A. McDonnell, Julia Chill, Lisa Benz Scott, The Role of Physician Characteristics in Clinical Trial Acceptance: Testing Pathways of Influence, Journal of Health Communication, Volume 11, Issue 2, Mar 2006, Pages 199 – 218.**

Eight videotaped vignettes were developed that assessed the effects of three physician-related experimental variables (in a  $2 \times 2 \times 2$  factorial design) on clinical trial (CT) knowledge, video knowledge, information processing, CT beliefs, affective evaluations (attitudes), and CT acceptance. It was hypothesized that the physician variables (community versus academic-based affiliation, enthusiastic versus neutral presentation of the trial, and new versus previous relationship with the patient) would serve as communication cues that would interrupt message processing, leading to lower knowledge gain but more positive beliefs, attitudes, and CT acceptance. A total of 262 women (161 survivors and 101 controls) participated in the study. The manipulated variables primarily influenced the intermediary variables of post-test CT beliefs and satisfaction with information rather than knowledge or information processing. Multiple regression results indicated that CT acceptance was associated with positive post-CT beliefs, a lower level of information processing, satisfaction with information, and control status. Based on these results, CT acceptance does not appear to be based on a rational decision-making model; this has implications for both the ethics of informed consent and research conceptual models.

- 4. Marilyn M. Schapira, Ann B. Nattinger, Timothy L. McAuliffe, The Influence of Graphic Format on Breast Cancer Risk Communication, Journal of Health Communication, Volume 11, Issue 6, Jun 2006, Pages 569 – 582.**

Graphic displays can enhance quantitative risk communication. However, empiric data regarding the effect of graphic format on risk perception is lacking. We evaluate the effect of graphic format elements on perceptions of risk magnitude and perceived truth of data. Preferences for format also were assessed. Participants (254 female primary care patients) viewed a series of hypothetical risk communications regarding the lifetime risk of breast cancer. Identical numeric risk information was presented using different graphic formats. Risk was perceived to be of lower magnitude when communicated with a bar graph as compared with a pictorial display ( $p < 0.0001$ ), or with consecutively versus randomly highlighted symbols in a pictorial display ( $p = 0.0001$ ). Data were perceived to be more true when presented with random versus consecutive highlights in a pictorial display ( $p < 0.01$ ). A pictorial display was preferred to a bar graph format for the presentation of breast cancer risk estimates alone ( $p = 0.001$ ). When considering breast cancer risk in comparison to heart disease, stroke, and osteoporosis, however, bar graphs were preferred pictorial displays ( $p < 0.001$ ). In conclusion, elements of graphic format used to convey

quantitative risk information effects key domains of risk perception. One must be cognizant of these effects when designing risk communication strategies.

- 5. Isaac M. Lipkus, Yancey Crawford, Kathryn Fenn, Monica Biradavolu, Ruth Ann Binder, Al Marcus, Mondri Mason, Testing Different Formats for Communicating Colorectal Cancer Risk, Journal of Health Communication, Volume 4, Issue 4, Dec 1999, Pages 311.**

This study assessed the extent to which different formats of informing men and women aged 50 and over of the risks of colorectal cancer affected their: perceptions of their absolute and comparative (self vs. other) 10-year and lifetime risks; emotional reactions about getting colorectal cancer; and screening intentions. Forty-four men and seventy-eight women received information about the absolute lifetime risk of getting colorectal cancer. In addition, participants either did or did not receive information about the: 1) lifetime risk of getting colorectal cancer compared to other cancers, and 2) risk factors for colorectal cancer (age and polyps). Participants who received risk factors information were more likely to increase their perceived absolute 10-year and lifetime risks of getting colorectal cancer compared to participants who did not receive risk factors information. In addition, participants who received risk factors information were more likely to believe age was related to getting colorectal cancer, and felt at greater risk for having polyps compared to participants who did not receive this information. None of the experimental conditions affected how worried, anxious and fearful participants felt about getting colorectal cancer, nor did they affect screening intentions. Independent of experimental condition, participants tended to increase their intentions to get screened for colorectal cancer in the next year or two. Intention to be screened was more pronounced among participants who had been screened via a fecal occult blood test or sigmoidoscopy. Implications for the design of interventions involving the communication of colorectal cancer risks are discussed.

- 6. Adrian Edwards, Glyn Elwyn, Judith Covey, Elaine Matthews, Rolsin Pill, Presenting Risk Information A Review of the Effects of Framing and other Manipulations on Patient Outcomes, Journal of Health Communication, Volume 6, Issue 1, Jan 2001, Pages 61 – 82.**

Discussing risks and benefits of treatments or care options is becoming an increasingly important part of modern health care. This paper reviews the literature about manipulations of risk and benefit information in the clinical setting. There is a paucity of evidence in this field, particularly when examining specific manipulations. Only three categories of manipulation had three or more studies. The available evidence shows that the way information is presented can have significant effects on decisions made. The largest effects are evident when relative risk information is presented, as compared with absolute risk data. In addition, "loss framing" is more effective in influencing screening uptake behaviors than "gain framing" (odds ratio 1.18 [95% confidence interval 1.01-1.38]). There is also a pattern of evidence from studies comparing simpler with more complex information, more data with less, and those comparing numerical with verbal descriptions of risks. These studies suggest that providing more information, and which is more understandable to the patient, is associated with improved patient knowledge and a greater wariness to take treatments or participate in trials. These findings can contribute to efforts to improve communication between professionals and patients.

- 7. Fiona Bull, Understanding the Effects of Printed Health Education Materials: Which Features Lead to Which Outcomes? Journal of Health Communication, Volume 6, Issue 3, Jul 2001, Pages 265 – 279.**

Printed health education materials (HEMs) are widely used to increase awareness and knowledge, change attitudes and beliefs, and help individuals adopt and maintain healthy lifestyle behaviors. While much of the contemporary research and development of persuasive

communication is based on McGuire's input/output model, to date few studies have compared the impact of a large set of inputs across a comprehensive set of the 12 outputs. We examined the effects of printed HEMs on weight loss on the cognitive, affective, and behavioral responses of 198 overweight adults. Participants were recruited via a newspaper advertisement and were randomly assigned to review one of three HEMs. Participants were interviewed and asked to complete a series of questionnaires both before and after viewing the HEMs. Regression analyses were conducted to identify the input characteristics associated with success at each of the output steps. The results revealed attractiveness, encouragement, level of information, and application to one's life were significantly associated with early steps (attention, liking, and understanding) as well as some of the mediating steps (recalling, keeping, and rereading HEMs). Later steps, such as intention to change behavior and show others, were associated with readiness to change, self-efficacy, and perceived application to one's life. Behavior change was more likely for those who received tailored materials and those who had higher self-efficacy. These results provide useful direction for the use of computers in tailoring the content of HEMs and the development of effective communication of health information on weight loss.

## **A. Health Literacy**

These eight articles address the challenges of informing patients with limited literacy. Patients are individuals with their own needs, preferences, and capabilities. It should not be expected that 'one size fits all' in terms of information provision.

- 1. Michael S. Wolf, Charles L. Bennett, Terry C. Davis, Estela Marin, Connie Arnold, A Qualitative Study of Literacy and Patient Response to HIV Medication Adherence Questionnaires, Journal of Health Communication, Volume 10, Issue 6, Sep 2005, Pages 509 – 517.**

The purpose of this study was to elicit patient feedback regarding the perceived clarity and level of difficulty associated with self-report HIV medication adherence measurement tools. HIV-infected patients from clinics in Shreveport, LA and Chicago, Illinois were recruited to participate in four focus group discussions. Three groups consisted of patients with limited literacy skills (<9th grade reading ability), and one group contained patients with adequate literacy skills (≥9th reading ability). Five themes emerged: 1) respondent understanding of the term "adherence", 2) recall, 3) question format, 4) visual aids, and 5) instrument administration. Participants struggled to define adherence, relied on visual cues to identify medications, and had a short recall timeframe for missed doses (≈3 days). Most preferred simple question formats and for their physician to assess adherence orally. Patients receiving treatment for HIV infection, especially those with limited literacy skills, may find it difficult to respond to existing HIV medication adherence questionnaires.

- 2. Carmen E. Guerra, Francisco Dominguez, Judy A. Shea, Literacy and Knowledge, Attitudes, and Behavior About Colorectal Cancer Screening, Journal of Health Communication, Volume 10, Issue 7, Oct 2005, Pages 651 – 663.**

This cross-sectional survey explored the association between functional health literacy and knowledge of, beliefs and attitudes about, and reported usage of colorectal cancer screening tests. The results indicate that functional health literacy, as assessed by the Short Test of Functional Health Literacy in Adults (STOFHLA), is not an independent predictor of colorectal cancer screening knowledge, beliefs, attitudes, or behavior. Latino ethnicity and education, however, often predicted screening responses, suggesting that efforts to improve communication about colorectal cancer screening with Latino patients and patients with low education clearly are needed to reduce the disparities in awareness and utilization of colorectal cancer screening tests. This study also explored influences on intended screening behavior. Physician recommendation

was found to be a powerful motivator of intention to undergo colorectal cancer screening regardless of literacy level, indicating that interventions aimed at increasing physician recommendation of colorectal cancer screening may be an effective way of increasing screening rates.

- 3. Dean Schillinger, Frances Wang, Jorge Palacios, Maytrella Rodriguez, Edward L. Machtinger, Andrew Bindman, Language, Literacy, and Communication Regarding Medication in an Anticoagulation Clinic: A Comparison of Verbal vs. Visual Assessment, Journal of Health Communication, Volume 11, Issue 7, Aug 2006, Pages 651 – 664.**

Despite the importance of clinician–patient communication, little is known about rates and predictors of medication miscommunication. Measuring rates of miscommunication, as well as differences between verbal and visual modes of assessment, can inform efforts to more effectively communicate about medications. We studied 220 diverse patients in an anticoagulation clinic to assess concordance between patient and clinician reports of warfarin regimens. Bilingual research assistants asked patients to (1) verbalize their prescribed weekly warfarin regimen and (2) identify this regimen from a digitized color menu of warfarin pills. We obtained clinician reports of patient regimens from chart review. Patients were categorized as having regimen concordance if there were no patient–clinician discrepancies in total weekly dosage. We then examined whether verbal and visual concordance rates varied with patient's language and health literacy. 50% of patients achieved verbal concordance and 66% achieved visual concordance with clinicians regarding the weekly warfarin regimen ( $P < .001$ ). Being a Cantonese-speaker and having inadequate health literacy were associated with a lower odds of verbal concordance compared to English-speakers and subjects with adequate health literacy (AOR 0.44, 0.21–0.93, AOR 0.50, 0.26–0.99 respectively). Neither language nor health literacy was associated with visual discordance. Shifting from verbal to visual modes was associated with greater patient–provider concordance across all patient subgroups, but especially for those with communication barriers. Clinician–patient discordance regarding patients' warfarin regimen was common, but occurred less frequently when patients used a visual aid. Visual aids may improve the accuracy of medication assessment, especially for patients with communication barriers.

- 4. Christian M. Simon, Stephen J. Zyzanski, Ellen Durand, Xavier Jimenez, Eric D. Kodish, Interpreter Accuracy and Informed Consent Among Spanish-speaking Families with Cancer, Journal of Health Communication, Volume 11, Issue 5, Jul 2006, Pages 509 – 522.**

Interpreters mediate a growing number of health care communication events, including the informed consent process, which underlies the ethical conduct of clinical research. This article explores a key interpretive outcome, accuracy, in 21 Spanish/English informed consent consultations. Discussions were transcribed, translated, and coded according to established techniques. Most (74%) discussion was accurately interpreted (range: 47%–98%; std. deviation: .137). Accuracy was lower in the more technical portions of the discussion when compared with nontechnical portions such as discussion of coping and quality-of-life issues ( $p = .024$ ). The concept of “randomization” often was poorly communicated and interpreted. These differences may be due in part to the use of long, uninterrupted, and jargon-filled sentences by clinicians explaining research, among other factors. The article concludes that accuracy may be promoted if clinicians used less technical language and shorter sentences, and are more “process driven.” Interpreters may need to be better informed about research-related concepts such as randomization. Further research is needed to determine the effects of interpretive accuracy on the informed consent process, the decision to participate in research, and other outcomes.

- 5. Laurie Hoffman-Goetz. An Exploratory Study of Older Adults' Comprehension of Printed Cancer Information: Is Readability a Key Factor? Journal of Health**

**Communication, in press, 2007.**

Printed cancer information is often written at or beyond high school reading levels, despite lower average literacy abilities of the public. The objectives of this exploratory study were twofold: (1) To evaluate older adults' comprehension of breast (BC), prostate (PC), and colorectal (CC) cancer information; and (2) To determine if comprehension of BC, PC, and CC information varies according to text readability. Comprehension of printed cancer resources was evaluated with 44 community-dwelling older adults using the Cloze procedure and recall questions. Participants' comprehension scores were examined by SMOG readability level (<Grade 13 vs. Grade 13+). Overall, older adults had satisfactory comprehension of cancer information as measured by Cloze (.86 ± .01) and recall (.71 ± .02). However, for CC information written at Grade 13, a significant negative correlation between readability and Cloze comprehension was found ( $r_s = -.44$ ,  $SE = .17$ ,  $p = .019$ ), indicating poorer participant comprehension at higher readability levels. Comprehension of BC or PC information did not vary by readability level. Though readability plays a role in older adults' understanding of cancer information, cancer type and content are also important factors that influence comprehension. Use of plain language is recommended for CC resources.

**6. Laurie Hoffman-Goetz, Assessing Health Numeracy Among Community Dwelling Older Adults, Journal of Health Communication, in press, 2007.**

Quantitative information occupies a central role within health care decision-making. Despite this, numeracy has attracted little research attention. Therefore the purpose of this study was to: (1) describe the health numeracy skill of a non-clinical, Canadian community based senior population and (2) determine the relationship between health numeracy skill and prose health literacy, education, and math anxiety in this population. A convenience sample of 140 men and women, 50+ years, completed a questionnaire assessing demographic details, math anxiety, functional health literacy (STOFHLA), general context numeracy, and health context numeracy skills. Most participants had adequate functional health literacy (prose and numeracy) as measured by the STOFHLA, poorer general context numeracy skill, higher health context numeracy skill, and moderate math anxiety. Approximately 36% of the variation in general context numeracy scores and 26 % of the variation in health context numeracy scores were explained by prose health literacy skill (STOFHLA), math anxiety and attained education. This research offers an initial assessment of health numeracy skills as measured by three existing numeracy scales among a group of independently functioning older Canadian adults. This work highlights the need for clarification of the numeracy concept and refinement of health numeracy assessment instruments. Moreover, identifying patients' numeracy strengths and weaknesses will enable the development of focused numeracy interventions and may contribute to moving individuals further along the continuum of health literacy proficiency.

**7. Christina Zarcadoolas, Mercedes Blanco, John F. Boyer, Andrew Pleasant, Unweaving the Web: An Exploratory Study of Low-Literate Adults' Navigation Skills on the World Wide Web, Journal of Health Communication, Volume 7, Issue 4, Jul 2002, Pages 309 – 324.**

For traditionally underserved populations, the Web can potentially unlock resources that could fundamentally improve health and wellbeing. However, there are many barriers to using Web-based content. While physical access issues are well documented, there is little understanding of how non-mainstream populations use or will use the Web. Based on an ethnographic study of a group of low-literate adults, we have identified specific navigational and content issues that present barriers to this population. We discuss preliminary assumptions that can be used to inform the development of Web tools for this target audience, and directions for future applied research.

- 8. Maria Jibaja-Weiss, Utilizing Computerized Entertainment Education in the Development of Decision Aids for Lower Literate and Naïve Computer Users, Journal of Health Communication, in press, 2007.**

Decision aids have been developed by using various delivery methods, including interactive computer programs. Such programs, however, still rely heavily on written information, health and digital literacy, and reading ease. We describe an approach to overcome these potential barriers for low-literate, underserved populations by making design considerations for poor readers and naïve computer users and by using concepts from entertainment education to engage the user and to contextualize the content for the user. The system design goals are to make the program both didactic and entertaining and the navigation and graphical user interface as simple as possible. One entertainment education strategy, the soap opera, is seamlessly linked to interactive learning modules to enhance the content of the soap opera episodes. The Edutainment Decision Aid Model guides developers through the design process. Although designing patient decision aids that are educational, entertaining and targeted toward poor readers and those with limited computer skills is a complex task, it is a promising strategy for aiding this population. Entertainment education may be a highly effective approach to promoting informed decision-making for patients with low health literacy.

#### **D. Availability and Interpretation of Technology: Healthcare information on the Internet**

The 11 articles below delve into various aspects of the increasing quantity of information available on the Internet. Health is reputedly the second most popular topic to be searched for on the internet, which may indicate significant unmet demand from other channels, though this may be more to validate, confirm, or to seek more detail to support the primary channel of doctor-patient communication.

- 1. J. Drew Procaccino, Women Seeking Health Information: Distinguishing the Web user, Journal of Health Communication, in press, 2007.**

Given the advantages of using the Web for health information-seeking and a survey result that women are more likely to use the Web as a channel to locate health information, the authors explored the health information-seeking process and behavior of women who use the Web to seek such information. Although based on previously collected data, this paper represents an extension of the earlier analysis with its focus on women who, at least to some extent, seek healthcare information via The Web (herein, Web user), a topic not thoroughly addressed in the earlier study. A comparison of female Web users and non-Web users who seek health information revealed that Web users sought health information at a higher rate than non-Web users. Web users were more likely to communicate with medical professionals about the health information found and claimed that their decisions about health treatments were influenced by the health information. In most cases, Web users expressed a higher awareness of resources, regardless of format. However, Web users did not report that finding health information, from any channel, was noticeably easier.

- 2. Stephen Rains, The Influence of Traditional Information Sources on Use of the World Wide Web to Seek Health Information, Journal of Health Communication, in press, 2007.**

As medical information becomes increasingly available and individuals take a more active role in managing their personal health, it is essential for scholars to better understand the general public's information-seeking behavior. This study explores the use of the World Wide Web to

seek health information in a contemporary information-media environment. Drawing from uses and gratifications theory and the comprehensive model of health information seeking, perceptions of traditional information sources (e.g., mass media, one's health care provider, etc.) are posited to predict use of the Web to seek health information and perceptions of information acquired from searches. Data from the Health Information National Trends Survey ( $N = 3982$ ) were analyzed to test study hypotheses. Trust in information-oriented media, entertainment-oriented media and one's health care provider all predicted Web use behavior and/or perceptions. The implications of the findings for research on information seeking and the role of the Web in patient empowerment are discussed.

- 3. Wendy Macias, Liza Stavchansky Lewis, Tenikka L. Smith, Health-Related Message Boards/Chat Rooms on the Web: Discussion Content and Implications for Pharmaceutical Sponsorships, Journal of Health Communication, Volume 10, Issue 3, Apr 2005, Pages 209 – 223.**

A content analysis study examined health-related message boards to better understand who is using this on-line health information and support device and what topics they are discussing. Besides needing to understand this support and coping mechanism for individuals, this has become an increasingly important topic for health communicators to understand because the Health and Human Services' (HHS) Inspector General recently gave permission to a pharmaceutical manufacturer for sponsorship of a disease management chat room. Very little research has been done on the content of these message boards/chat rooms. Key findings include that the most commonly discussed medical topics were medical treatments and drugs (often specific brands) and that these boards are clearly important sources of information and emotional support. Implication and future research are discussed.

- 4. Robert M. Wolfe, Lisa K. Sharp, Vaccination or Immunization? The Impact of Search Terms on the Internet, Journal of Health Communication, Volume 10, Issue 6, Sep 2005, Pages 537 – 551.**

With steadily rising use of the Internet as a source of health information, public health authorities have expressed concern about the increasing visibility of unscientific information promulgated on the Internet by opponents of childhood vaccination. Searches were made on the four most popular Internet search engines using different combinations of the terms, "vaccination," "immunization," "immunisation," "immunize," "immunise," "vaccine," and "shots." Thirty results were tabulated for each search engine. Searching with the keyword "vaccination" resulted in a significantly higher percentage of antivaccination websites as compared with searches with all other keywords. Of all child-related websites retrieved, the single keyword "vaccination" yielded 40% provaccination sites and 60% antivaccination sites. By contrast, the single keyword "immunization" yielded 98% provaccination sites and 2% antivaccination sites. Using a combination of the words "vaccination" and "immunization" produced results between these two extremes. Thus, any use of the term "vaccination" during an Internet search is likely to expose a parent to a significant amount of antivaccination information. Recommendations are discussed for future research and methods to reduce the impact of misinformation on health consumers using the Internet.

- 5. Kirsty Williamson, Where One Size Does Not Fit All: Understanding the Needs of Potential Users of a Portal to Breast Cancer Knowledge Online, Journal of Health Communication, Volume 10, Issue 6, Sep 2005, Pages 567 – 580.**

The article argues that, although the Internet has great potential for assisting people to find information on breast cancer, at present that potential is not being realised. The literature shows considerable dissatisfaction with information provision for breast cancer, including on the Internet

where appropriate information suited to particular needs often cannot be found. An Australian project (Breast Cancer Knowledge Online [BCKOnline]), in its first stage, set out to explore the needs for breast cancer information using an ethnographic method and a purposive sample of 77 participants, most of them women with breast cancer. A portal, which will enable users to tailor information to their particular needs, is at present being developed based on the results of the needs analysis. The process includes user-selected profiles, enabled through "user-centric" resource descriptions, and a metadata repository that links the profiles with specific information resources. The article presents limited results from the needs analysis—those highlighting the differences between younger and older women and the problems with present Internet information provision as seen by the sample. The final section discusses how the portal will both tailor information to needs and assist with the problems with the Internet revealed in the literature.

**6. Tara M. Cousineau, Diana Rancourt, Traci Craig Green, Web Chatter Before and After the Women's Health Initiative Results: A Content Analysis of On-line Menopause Message Boards, Journal of Health Communication, Volume 11, Issue 2, Mar 2006, Pages 133 – 147.**

A content analysis was conducted on two on-line menopause message boards over 18 months, before and after the announcement of the Women's Health Initiative (WHI) study results on hormone therapy risks. Messages (N = 785) were coded based on overall context themes and specific content (N = 1132 codes). Results showed that "seeking symptom advice" about physical symptoms represented half (49%) of all codes. More specific content codes reflected inquiries about taking prescription hormone therapies, (HTs) how to cope with the menopausal transition, checking in with community members, and questions related to menopause onset and changes in menstrual patterns. Chi-square tests showed an increase in pharmaceutical advice codings over time on the medical board ( $p = .057$ ) and a trend on the community board after the WHI ( $p = .10$ ). Similarly, after the WHI there was an increase in the frequency of codes on the community board related to "Is this menopause?" suggesting a heightened awareness about menopause as a health issue. In conclusion, analyses of on-line message boards provide a rich, economical method to discern the needs of menopausal women, as well as to observe the potential impact of a widely publicized medical event that can inform innovative strategies in health promotion for this target population.

**7. Traci Hong, Contributing Factors to the Use of Health-Related Websites, Journal of Health Communication, Volume 11, Issue 2, Mar 2006, Pages 149 – 165.**

This study explicates the influence of audience factors on website credibility and the subsequent effect that credibility has on the intention to revisit a site. It does so in an experimental setting in which participants were given two health-related search tasks. Reliance on the web for health-related information positively influenced website credibility in both searches. Knowledge was a significant predictor for the search task that required more cognitive ability. Of the credibility dimensions, trust/expertise and depth were significant predictors of intention to revisit a site in both searches. Fairness and goodwill were nonsignificant predictors in both searches.

**8. Bonnie A. Leeman-Castillo, Kitty K. Corbett, Eva M. Aagaard, Judith H. Maselli, Thomas D. MacKenzie, Ralph Gonzales, Acceptability of a Bilingual Interactive Computerized Educational Module in a Poor, Medically Underserved Patient Population, Journal of Health Communication, in press, 2007.**

We evaluated the acceptability and impact of an audiovisual, bilingual, interactive computer module relating to appropriate antibiotic use. In winter 2001, adults seeking urgent care for acute respiratory infections at an inner-city urgent care clinic were invited to complete the computer module and survey (N=296). After responding to questions about their symptoms, patients were

provided information about their illness and appropriate antibiotic use, and then asked several questions about the acceptability of the module. The main outcomes, reflecting qualities known to enhance diffusion of innovations, were "learning something new about colds and flu" and trusting the computer information. Spanish-language respondents (16%) were much less likely to report prior computer experience, more likely to need help, and strongly preferred answering to a person compared with English-language respondents. In multivariable analysis, Spanish-language respondents were more likely to report learning something new (OR=5.0;95% CI: 2.0, 12.4) and trusting the information (OR= 2.5; 95% CI: 1.0, 6.0)]. We conclude that an interactive computer module was well received among a medically underserved urgent care clinic population. Benefits appear greatest among populations having the least experience with this medium.

- 9. Jay M. Bernhardt, Ruth Ann Weaver Lariscy, Roxanne L. Parrott, Kami J. Silk, Elizabeth M. Felter, Perceived Barriers to Internet-Based Health Communication on Human Genetics, Journal of Health Communication, Volume 7, Issue 4, Jul 2002, Pages 325 – 340.**

The Internet has emerged as potential vehicle for distributing health communication to millions of individuals because it is interactive, user controlled, and offers breadth and depth of information. However, its widespread use by the public may be limited due to three overarching concerns: privacy and confidentiality, information accuracy and perceptions of credibility, including limited credibility of some government-sponsored web sites. To explore the potential of using the Internet, especially for delivering information on human genetics communication, 15 focus groups and one interview were conducted with African American and European American adult males and females in a southeastern town. We found that the participants recognized great potential in the Internet for health communication on human genetics, but they also voiced concerns about the credibility and accuracy of online information, lack of trust in many web sites, and fear of safeguarding privacy. Their concerns are summarized here, along with potential remedies health communicators could implement and should research further. The Internet cannot achieve its full potential for human genetics communication until the public's concerns are addressed and resolved.

- 10. Joel J. Davis, Disenfranchising the Disabled: The Inaccessibility of Internet-Based Health Information, Journal of Health Communication, Volume 7, Issue 4, Jul 2002, Pages 355 – 367.**

Individuals are increasingly turning to the Internet for health-related information. The acquisition of this information influences how people decide to treat an illness or condition, the types of questions doctors are asked, and how people take care of themselves. The power and importance of this information makes it essential that it be accessible to all individuals. This research explored the extent to which Internet-based health information is accessible to visually-impaired individuals who rely on automated screen readers (the most common way that visually-impaired individuals access the Internet). The home pages of 500 individual web sites representing 50 common illnesses and conditions were selected for evaluation. Findings indicate that accessibility is currently very low; only 19 % of examined sites' home pages were accessible. Analyses of reasons why home pages were inaccessible indicate that accessibility could be improved if recommended design and coding changes are implemented.

- 11. Sarah Bauerle Bass, Sheryl Burt Ruzek, Thomas F. Gordon, Linda Fleisher, Nancy McKeown-Conn, Dirk Moore, Relationship of Internet Health Information Use With Patient Behavior and Self-Efficacy: Experiences of Newly Diagnosed Cancer Patients Who Contact the National Cancer Institute's Cancer Information Service, Journal of Health Communication, Volume 11, Issue 2, Mar 2006, Pages 219 – 236.**

This study examines the relationship of Internet health information use with patient behavior and self-efficacy among 498 newly diagnosed cancer patients. Subjects were classified by types of Internet use: direct use (used Internet health information themselves), indirect use (used information accessed by friends or family), and non-use (never accessing Internet information). Subjects were recruited from callers of the National Cancer Institute's (NCI's) Cancer Information Service, Atlantic Region. They were classified by type of Internet use at enrollment and interviewed by telephone after 8 weeks. There were significant relationships among Internet use and key study variables: subject characteristics, patient task behavior, and self-efficacy. Subjects' Internet use changed significantly from enrollment to 8 week follow-up; 19% of nonusers and indirect users moved to a higher level of Internet use. Significant relationships also were found among Internet use and perceived patient-provider relationship, question asking, and treatment compliance. Finally, Internet use was also significantly associated with self-efficacy variables (confidence in actively participating in treatment decisions, asking physicians questions, and sharing feelings of concern). The results of this study show that patients who are newly diagnosed with cancer perceive the Internet as a powerful tool, both for acquiring information and for enhancing confidence to make informed decisions.

## **B. Direct to Consumer Advertising**

This area is new and there is still much debate about the interpretation of the results and whether the overall outcome from DTCA is positive or negative. These 11 articles address the effects of DCTA, consumers' attitudes, the quality of the information presented and other aspects of this mechanism for informing consumers.

- 1. Kimberly A. Kaphingst, Rima E. Rudd, William DeJong, Lauren H. Daltroy, Comprehension of Information in Three Direct-to-Consumer Television Prescription Drug Advertisements Among Adults With Limited Literacy, Journal of Health Communication, Volume 10, Issue 7, Oct 2005, Pages 609 – 619.**

Direct-to-consumer (DTC) television advertisements present a number of facts about prescription drug risks and benefits in a brief time. This study assessed comprehension of information in three advertisements among 50 adults with limited literacy. Participants correctly answered an average of 59% of comprehension questions. The percentage of respondents correctly answering individual comprehension questions ranged from 26% to 92%. A multivariate analysis suggested that type of information (risk vs. other) and channel (text vs. audio) predicted comprehension. There was a significant interaction effect for literacy and place of birth. Our results suggest key areas for future research on comprehension of DTC advertising.

- 2. Jisu Huh, Denise E. DeLorme, Leonard N. Reid, Factors Affecting Trust in On-line Prescription Drug Information and Impact of Trust on Behavior Following Exposure to DTC Advertising, Journal of Health Communication, Volume 10, Issue 8, Dec 2005,**

Despite growing concerns about the quality and accuracy of Internet-based prescription drug information, there has been very little empirical research on consumers' perceptions of the trustworthiness of on-line drug information. In this article, we report on a study modeled after that of Menon, Deshpande, Perri, and Zinkhan (2002) in Health Marketing Quarterly that reexamines how key demographic, pre-dispositional, and media factors are associated with consumer trust in on-line prescription drug information and the impact of trust in on-line drug information on ad-promoted behavior following exposure to direct-to-consumer (DTC) advertising. Four major findings are reported: (1) on-line drug information is not highly trusted; (2) trust in on-line drug information is not differentially affected by consumer demographic or predispositional

characteristics; (3) trust in the traditional media of DTC advertising is predictive of trust in on-line drug information; and (4) trust in on-line drug information is associated directly with specific types of ad-promoted behavior following exposure to DTC advertising. Implications and recommendations are offered based on the results.

**3. Soontae An, Attitude toward Direct-to-Consumer Advertising and Drug Inquiry Intention: The Moderating Role of Perceived Knowledge, Journal of Health Communication, in press.**

This study examined how consumers' general attitude toward Direct-to-Consumer-Advertising (DTCA) influenced their drug inquiry intent, and whether the relationship between attitude toward DTCA and drug inquiry intent was moderated by their perceived knowledge in health and medicine. Results showed that those with favorable views of DTCA were more likely to inquire and request an advertised drug they saw. However, the effect was greater in magnitude for consumers with high perceived knowledge in health and medicine than those with low perceived knowledge.

**4. Joel J. Davis, The Effect of Qualifying Language on Perceptions of Drug Appeal, Drug Experience and Estimates of Side Effect Incidence in DTC Advertising, Journal of Health Communication, in press.**

This study examined how the use of qualifying language in Direct-to-Consumer (DTC) pharmaceutical advertising affects consumers' perceptions of drug appeal, anticipated pleasantness of drug usage, and the expected incidence of side effect occurrence. A sample of 669 individuals participated in a 2 x 8 complete factorial design. The design manipulated the number and severity of side effects associated with drug use and the type of qualifying language used to describe the side effects. The 8 experimental qualifying language cells represented one control condition (no qualifying language), three cells where each of three types of qualifying language were presented individually, and four cells where qualifying language was combined. The results indicate that qualifying language has a profound effect on drug perceptions, especially when used in combination. Drug appeal and the anticipated drug-using experience were almost always more positive in the presence of qualifying language. Qualifying language appears to exert its influence by causing individuals to reduce their estimate of the likelihood of experiencing individual side effects. Policy implications of the research, particularly for evaluation of "fair balance" and the reporting of side effects are presented.

**5. Joel J. Davis, Pharmaceutical Web Sites and the Communication of Risk Information Journal of Health Communication, in press.**

This study examines the pharmaceutical web sites of forty-four leading direct-to-consumer advertised drugs to determine the extent to which risk information was completely communicated. Three operational definitions of "completeness" were used: communication of the single highest incidence side effect, communication of top three highest incidence side effects and communication of side effects with incidence of ≥10% (all measured in terms of absolute percentage). Results indicated that regardless of the measures used, pharmaceutical web sites are unlikely to completely communicate risk information. About two-thirds of all sites communicated the single highest incidence side effect or all top three side effects. For drugs with side effects at ≥10% incidence, only about half of their web sites fully reported all effects at this level of incidence. Implications for advertisers and regulatory agencies are presented.

**6. Joel J. Davis, Riskier Than We Think? The Relationship Between Risk Statement Completeness and Perceptions of Direct to Consumer Advertised Prescription Drugs, Journal of Health Communication, Volume 5, Issue 4, Oct 2000, Pages 349 – 369.**

Direct to consumer (DTC) prescription drug advertising is one of the fastest growing categories of advertising. Expenditures have increased from about \$25 million in 1992 to nearly two billion dollars in 1999. Given strong evidence of consumer-driven demand for advertised prescription drugs, research was conducted to assess the extent to which DTC prescription drugs advertising provides consumers with the information they need to make an informed evaluation of an advertised drug's relative benefits and risks. Two studies explored the relationship between the completeness of the statement describing drug-associated side effects (the "risk statement") and consumer's perceptions of a drug's safety and appeal. The research manipulated risk statement completeness with regard to the incidence levels of side effects mentioned in the statement (which in turn affected the number of side effects mentioned) and the presence or absence of a numeric indicator of side effect incidence. The research strongly suggests a direct relationship between risk statement completeness and consumers' perceptions of drug safety and appeal. Consumers rate the safety and appeal of drugs described with an incomplete risk statement significantly more positively than comparable drugs described with a more complete risk statement. Implications of the research for the regulation and presentation of DTC prescription drug advertising and advertiser communication practices are discussed.

**7. Erica D. Brownfield, Jay M. Bernhardt, Jennifer L. Phan, Mark V. Williams, Ruth M. Parker, Direct-to-Consumer Drug Advertisements on Network Television: An Exploration of Quantity, Frequency, and Placement, Journal of Health Communication, Volume 9, Issue 6, Nov 2004, Pages 491 – 497.**

Prescription and over-the-counter (OTC) drug advertisements that appear on television are among the most common forms of health communication reaching the U.S. public, but no studies to date have explored the quantity, frequency, or placement of these ads on television. We explored these questions by recording all programs and advertisements that appeared on network television in a southeastern city during a selected week in the summer of 2001 and coding each prescription and OTC drug ad for its frequency, length, and placement by time of day and television program genre. A total of 18,906 ads appeared in the 504-hour sample, including 907 OTC drug ads (4.8%) and 428 prescription (Rx) drug ads(2.3%), which together occupied about 8% of all commercial airtime. Although OTC drug ads were more common, Rx drug ads on average were significantly longer. Direct-to-consumer drug ads appeared most frequently during news programs and soap operas and during the middle-afternoon and early-evening hours. Overall, we found that direct-to-consumer drug advertisements occupy a large percentage of network television commercial advertising and, based on time and program placement, many ads may be targeted specifically at women and older viewers. Our findings suggest that Americans who watch average amounts of television may be exposed to more than 30 hours of direct-to-consumer drug advertisements each year, far surpassing their exposure to other forms of health communication.

**8. Aparna Deshpande, Ajit Menon, Matthew Perri Iii, George Zinkhan, Direct-to-Consumer Advertising and its Utility in Health Care Decision Making: A Consumer Perspective, Journal of Health Communication, Volume 9, Issue 6, Nov 2004, Pages 499 – 513.**

The growth in direct-to-consumer advertising (DTCA) over the past two decades has facilitated the communication of prescription drug information directly to consumers. Data from a 1999 national survey are employed to determine the factors influencing consumers' opinions of the utility of DTC ads for health care decision making. We also analyze whether consumers use DTC ad information in health care decision making and who are the key drivers of such information

utilization. The study results suggest that consumers have positive opinions of DTCA utility, varying across demographics and perceptions of certain advertisement features. Specifically, consumers value information about both risks and benefits, but the perception of risk information is more important in shaping opinions of ad utility than the perception of benefit information. Consumers still perceive, however that the quality of benefit information in DTC ads is better than that of risk information. Opinions about ad utility significantly influence whether information from DTC ads is used in health care decision making.

**9. Kimberly A. Kaphingst, William Dejong, Rima E. Rudd, Lawren H. Daltroy, A Content Analysis Of Direct-To-Consumer Television Prescription Drug Advertisements, Journal Of Health Communication, Volume 9, Issue 6, Nov 2004, Pages 515 – 528.**

This article reports the results of a content analysis of 23 direct-to-consumer (DTC) product-specific television prescription drug advertisements broadcast during 2001. A majority of ads used both medical and lay terms to convey medical ideas. Most gave consumers somewhat more time to absorb facts about benefits than those about risks, which could have implications for the “fair balance” requirement. Complete references to additional product information were given only in text, casting doubt on whether these ads are making “adequate provision” for dissemination of detailed product information. Overall, our results call into question the potential of these ads to educate consumers.

**10. Jisu Huh, Brenda J. Cude, Is the Information “Fair and Balanced” in Direct-to-Consumer Prescription Drug Websites?, Journal of Health Communication, Volume 9, Issue 6, Nov 2004, Pages 529 – 540.**

This study applies the Food and Drug Administration's(FDA's)“fair-balance disclosure” provision to examine the content of prescription drug websites, specifically focusing on the quantity and quality of risk information. The results show that even though most prescription drug websites provide both risk and benefit information, the two types of information are presented differently. This study suggests directions for regulators to consider in writing a more specific rule to ensure that information on prescription drug websites is balanced.

**11. Benjamin R. Bates, Kristan Poirot, Tina M. Harris, Celeste M. Condit, Paul J. Achter, Evaluating Direct-to-Consumer Marketing of Race-Based Pharmacogenomics: A Focus Group Study of Public Understandings of Applied Genomic Medication, Journal of Health Communication, Volume 9, Issue 6, Nov 2004, Pages 541 – 559.**

Some medical providers have advocated applied genomics, including the use of genetically linked racial phenotypes in medical practice, raising fear that race-based medication will become justified. As with other emerging medical genetic technologies, pharmaceutical companies may advertise these treatments. Researchers fear that consumers will uncritically accept pharmaceutical messages and demand the product. In this exploratory study, we examined public reactions to advertisements for applied genomic medications. A focus group methodology was employed. Participants tended to resist the message and generated warrants for doing so, indicating critical reception of the messages. Message accepters also provided warrants. Warrants for resistance and acceptance differ between self-identified racial groups. Consumers, health care providers, and pharmaceutical corporations will benefit from a better understanding of direct-to-consumer advertisements as medical communication. Our study concludes that both advocates and opponents of direct-to-consumer advertisements should recognize that potential consumers of pharmacogenomics act as critical consumers of health advertising discourse.

