



ORIGINAL ARTICLE

**Transdisciplinary Science: The Nexus
Between Communication and Public Health**

Gary L. Kreps^{1,2} & Edward W. Maibach³

- 1 Department of Communication, George Mason University, Fairfax, VA
- 2 Center for Health and Risk Communication, George Mason University, Fairfax, VA
- 3 Center for Climate Change Communication, George Mason University, Fairfax, VA

Theory development and empirical research conducted at the intersection of communication and public health are advancing both academic disciplines and accelerating progress toward important societal goals. An exciting emergent new research framework that combines key aspects of these two disciplinary perspectives has developed and become known as public health communication. This article examines the major intersections between health communication and public health scholarship that underlies public health communication; identifies unique theoretical, methodological, and societal contributions from the nexus between these 2 disciplines; and suggests fruitful directions for future collaborations. We also examine ways that collaboration between health communication and public health scholars has begun to generate important transdisciplinary scientific outcomes.

doi:10.1111/j.1460-2466.2008.00411.x

There are important areas of convergence and tremendous opportunities for collaboration between communication and public health scholars. Health communication scholarship has advanced both theory and practice in many areas of public health including public health promotion, environmental health, health policy, and global health (Abroms & Maibach, 2008; Bernhardt, 2004; Kreps, 2001b). The growing focus in public health on communication has led to the development of transdisciplinary frameworks for research, education, practice, and public health communication (Bernhardt, 2004; Maibach, Abroms, & Marosits, 2007; Nelson, Brownson, Remington, & Parvanta, 2002; Parvanta, Maibach, Arkin, Nelson, & Woodward, 2002). In return, the focus on public health problems has given communication scholars important opportunities to expand and test theories of communication methods, processes, and effects (Bernhardt, 2004; Nelson et al., 2002).

The rapid growth and continuing development of public health communication scholarship lead from the insights that this work provides to understanding the complex social processes involved in health information disseminating, adoption

Corresponding author: Gary L. Kreps; e-mail: gkreps@gmu.edu

of recommended health behaviors, and delivery of health care services and support (Kreps, Query, & Bonaguro, 2007). The past decade has seen many collaborative research efforts between communication and public health scholars designed to address complex health promotion issues (Bernhardt, 2004). We will track the major intersections between communication and public health scholarship, identify important contributions from each discipline, and suggest fruitful directions for future collaborative efforts.

An overarching benefit emerging from the blending of communication and public health scholarship is the growth of transdisciplinary science, resulting from the synergistic development of innovative integrative study designs, collection of relevant and revealing data sets, and generation of important new insights for promoting public health (Kreps, 2001b). "Transdisciplinary science involves the integration of theoretical and methodological perspectives drawn from different disciplines, for the purpose of generating novel conceptual and empirical analyses of a particular research topic" (Stokols et al., 2003, p. S21). Transdisciplinary science goes beyond borrowing ideas and methods from different disciplines (as in interdisciplinary science) to combine and integrate disciplinary perspectives and build new scientific perspectives and applications (Higginbotham, Albrecht, & Connor, 2001; Rosenfield, 1992; Stokols, Harvey, Gress, Fuqua, & Phillips, 2005). We examine here the ways that collaborative efforts between communication and public health scholars are generating important transdisciplinary scientific outcomes.

The public health and communication disciplines

Public health and communication are broad, well-established, and growing academic disciplines, with long histories and a range of vibrant subfields. Both disciplines have labored in the shadows of other well-established disciplines (communication in the shadow of psychology and public health is the shadow of medicine). However, both disciplines have been gaining increased stature and credibility within academia and the public sphere. Public health scholars study threats to societal health and develop evidence-based strategies (programs/policies) for improving the health of populations (Kass, 2001; Schneider & Lilienfeld, 2008) and has many subfields, such as health policy, health administration, hygiene, epidemiology, biostatistics, global health, infectious disease, health informatics, and health education. Communication scholars study the broad influences of message development and exchange and the creation of meanings across multiple channels in society (Cohen & Craig, 1995; Delia, 1987; Morreale & Backlund, 2002) and includes many subfields, such as interpersonal communication, rhetoric organizational communication, media studies, group communication, communication education, political communication, public address, intercultural communication, public relations, social influence, and health communication.

Both disciplines have historical roots in ancient Greek intellectual traditions. The influential writings of Hippocrates influenced the development of modern public

health (Porter, 1999), and the communication discipline has been deeply influenced by the work of Aristotle (Anderson & Baym, 2004). They both also combine aspects of professional, arts/humanities, and social/physical science traditions. Public health has a strong professional disciplinary orientation that grows out of its close historical association with Western medicine and its mission to promote public health (Schneider & Lilienfeld, 2008). Schools of public health train students to serve in important professional health service roles, such as public health officials, health educators, epidemiologists, and health care administrators. However, there are also strong behavioral science, public policy, and even biological components to the study of public health. The communication discipline is focused firmly on the humanities and social sciences, although there are professional aspects to the discipline, such as the training of public relations practitioners and journalists.

Both disciplines also attempt to understand the functioning of complex systems by focusing on how the system operates at multiple levels of analysis (Flora, Maibach, & Maccoby, 1989; Maibach et al., 2007). Both disciplines concern themselves with how people function at various levels of analysis—individuals, social networks, communities, or populations—and with how people interact with the attributes of place around them (including organizations, policies, the physical attributes of place, and the communication environment). Attempting to understand complex dynamic systems from a multilevel perspective positions both disciplines well—as well as those working at their intersection—to respond effectively to the challenges associated with moving beyond reductionism to embrace the paradigm of complexity theory (Resnicow & Page, 2008).

There has been steady academic growth in both disciplines, with the development of new programs, departments, and schools of communication and of public health. Public health focuses primarily on graduate education, with the practice-oriented master's degree in public health (MPH) as a prime degree program and an increasing number of doctoral programs reflecting an expanded focus on public health research. The communication discipline has had a major focus on undergraduate education, with large undergraduate majors and the provision of basic required courses. However, graduate education at the master's and doctoral levels has also been steadily expanding as the focus on communication research and communication as a management function has grown.

Health communication scholarship and public health

Communicating relevant, accurate, and timely health information to at-risk populations is a critical factor for promoting public health, making the study of communication a primary area of interest for public health scholars. Ineffective public health communication can lead to serious societal health problems, such as the failure to effectively warn groups about imminent health risks. Effective public health communication, such as development of persuasive campaigns to encourage adoption of health behaviors, is a major goal of public health. The communication discipline has

grown increasingly relevant to public health as more communication scholars have begun examining health issues.

Health communication has developed over the past several decades as a vibrant applied subfield of the communication discipline concerned with the influences of human and mediated communication on health care delivery and health promotion (Kreps et al., 2007). Health communication inquiry is often problem based, focused on addressing important and troubling health care and health promotion issues (Kreps & Bonaguro, in press). Communication is conceptualized as the central social process in the provision of health care delivery and the promotion of public health based upon the powerful functions communication performs in creating, gathering, and sharing relevant health information (Kreps, 1988). Health information directs health activities, guides health care delivery, and empowers “informed” health-related decisions.

Concerted study of health communication is needed to make sense of the complex roles performed by communication in health care and health promotion. For example, health care delivery systems involve a broad range of diverse, yet interdependent, communicators (health care consumers, providers, administrators, and others) who use many different channels and exchange numerous, sometimes contradictory, messages that influence health outcomes (Kreps & O’Hair, 1995). Health communication inquiry increases knowledge about the influences of communication on health outcomes and directs knowledge gained toward helping participants in the modern health care system to use communication strategically to accomplish health goals. Public health promotion is an area of great interest in health communication research (Kreps, 2001b).

Major areas for health communication research include (a) health care consumer–provider interactions; (b) social support; (c) health campaigns; (d) information technologies for health education, risk prevention, and health behavior change; (e) communication practices for health care systems; (f) using communication to influence public health policies; and (g) the impact of media and media use on health. Each of these interrelated health communication research areas has direct relevance to public health promotion and has spawned collaborations between public health and health communication scholars.

Public health scholarship and communication

The public health discipline is dedicated to improving the health of populations, emphasizing disease prevention and health promotion, and developing interventions to reduce incidence of illness, injury, and disability (Kass, 2001; Koo, O’Carroll, & LaVenture, 2001). Communication knowledge and skills have been identified as primary educational foci for public health workers, and communication instruction is incorporated in most public health educational programs (Allengrante, Moon, Auld, & Gebbie, 2001; Shortell, Weist, Sow, Foster, & Tahir, 2004). Communication is also central to the development of public health interventions, which are

2
3 introduced at multiple system levels (local, regional, national, and international) and
4 depend on the delivery of relevant and persuasive health promotion and risk pre-
5 ventation messages to key audiences (Institute of Medicine, 2002, 2003a, 2003b).
6 Public health promotion messages are designed to influence the health behaviors
7 of targeted audiences (such as seeking screening and early detection services and
8 promoting reductions in risky behaviors and increases in healthful actions) and to
9 advocate for improvements in communities that enhance health (such as policies
10 and services; Abrams & Maibach, 2008; U.S. Department of Health and Human
11 Services [USDHHS], 2000).

12 [4] The growing dependence on the use of health promotion campaigns as a primary
13 strategy for public health intervention has paved the way for developing active
14 collaborations between public health and health communication scholars (Hornik,
15 2002). The most effective public health campaigns typically feature strategically
16 designed persuasive messages delivered to targeted, often carefully segmented, audi-
17 ences with sufficient reach and frequency to be easily accessed and remembered
18 (Abrams & Maibach, 2008; Maibach, Kreps, & Bonaguro, 1993). Collaborations
19 between communication and public health scholars to develop, implement, and
20 evaluate health promotion campaigns have become common. For example, health
21 communication and public health scholars at Johns Hopkins University have col-
22 laborated on a series of research programs to develop, implement, and evaluate HIV/
23 AIDS prevention campaigns in Africa (Cho & Witte, 2005; Farr, Witte, Jarato, &
24 Menard, 2005; Green & Witte, 2006; Smith, Ferrara, & Witte, 2007). Many commu-
25 nication scholars hold public health faculty appointments, and others hold joint
26 appointments between communication and public health. We expect to see these
27 active collaborations between communication and public health scholars increase.
28

29 **The influences of federal agencies on transdisciplinary collaborations**

30
31 Over the past decade, there has been a groundswell of increased interest in the role of
32 communication in promoting public health by major government agencies such as
33 the Centers for Disease Control and Prevention (CDC), the National Institutes of
34 Health, and the DHHS (Kreps, Viswanath, & Harris, 2002). These agencies have
35 encouraged health communication and public health scholars to work together
36 through the introduction of innovative transdisciplinary research units, such as
37 the Health Communication and Informatics Research Branch at the National Cancer
38 Institute (NCI) and the National Center for Health Marketing and the National
39 Center for Public Health Informatics at the CDC. These agencies have also intro-
40 duced exciting large transdisciplinary research programs focused on health commu-
41 nication and public health promotion, such as the Centers of Excellence in Cancer
42 Communication Research (NCI) and the Centers of Excellence in Health Commu-
43 nication and Marketing (CDC), that have encouraged collaboration between com-
44 munication and public health scholars to address important health issues. The
45 DHHS highlighted the important role of communication in promoting public health
46

in Healthy People 2010, which dramatically identified health communication as a major focus area (chapter) for improving public health (USDHHS, 2000). There has also been increased activity and many new initiatives across other government health agencies, such as the Agency for Health Care Research and Quality, the Health Resources Services Administration, the Food and Drug Administration, the National Library of Medicine, the Office of Disease Prevention and Health Promotion, and the Veterans Health Administration, focused on disseminating relevant health information to diverse audiences, developing evidence-based health promotion campaigns that address the complex communication issues related to health disparities, and applying strategic communication to improve quality of care. The increased focus on communication in promoting public health, coupled with exciting new opportunities provided by major federal agencies to conduct collaborative research on communication and public health, has been a major impetus to promoting transdisciplinary public health communication science.

Transdisciplinary contributions to theory, method, and application

The transdisciplinary nexus between communication and public health has helped to expand and refine theories, methods, and applications for both disciplines. Communication and public health have unique research traditions that foster different theories, methods, and intervention strategies. When working together, scholars from these disciplines have innovatively combined, adopted, and expanded these research traditions to develop new transdisciplinary approaches to public health communication scholarship. These innovative research and application advances are important integrative outcomes of the collaborations between communication and public health.

There are several complementary theoretical perspectives grounded in communication or public health that are being used to guide collaborative public health communication research. Ecological social theory, for example, which has a long history in public health, has powerful implications for guiding scholarship on the systemic influences of public health communication in societies (Abroms & Maibach, 2008; Green & Kreuter, 1999; Green, Richard, & Potvin, 1996; Patrick, Intille, & Zabinski, 2005; Sallis & Owen, 2002). The “people and places” framework, for example, builds upon the ecological model to explain and predict how the health of populations can be influenced by communication according to the unique: (a) attributes of members of different populations, (b) attributes of the environments where people live and work, and the (c) important interactions between the attributes of people and places (Maibach et al., 2007). The diffusion of innovations model (Rogers, 1973, 1995), which has a long history in communication research, has been adopted and extended for directing the development and implementation of large-scale public health communication interventions, especially in the area of development communication (Berwick, 2003; Haider & Kreps, 2004; McCannon, Berwick, & Massoud, 2007). The transtheoretical model, often referred to as the

2
3 “stages of change” model (Prochaska & DiClemente, 1983; Prochaska & Velicer,
4 1997), is a powerful public health framework that has been used to guide the devel-
5 opment and implementation of health promotion interventions according to the
6 readiness of targeted audiences to adopt changes. Increasingly, the transtheoretical
7 model is being adopted to guide public health communication campaigns designed
8 to influence a broad range of health behaviors (Brown, 2005; Hausenblas et al., 2001;
9 Herrick, Stone, & Mettler, 1997; Nigg et al., 1999). Additionally, Weick’s (1969)
10 model of organizing, that describes the systemic role of information and commu-
11 nication for social organizing and has seen long use by communication scholars
12 (Bantz & Smith, 1977; Everett, 1994; Kreps, 1980, 2007), is now being used as
13 a theoretical perspective for guiding public health communication research and
14 intervention (Kreps, in press-a; Weick, 2002; Weick & Sutcliffe, 2003).

15 There are also important methodological advances from transdisciplinary col-
16 laborations between communication and public health. For example, there is a long
17 tradition of using randomized clinical trials (RCTs) in the public health and med-
18 ical disciplines as a highly controlled experimental design that provides tight
19 manipulation of independent variables and careful measurement of antecedent
20 dependent variables for establishing causality (Oakley, 1998). Although rarely used
21 by communication scholars in the past, RCTs have proven to be a useful method
22 for increasing experimental control and prediction in evaluating the impact of
23 public health communication interventions (Kreps & Chapelsky Massimilla,
24 2002; Williams-Piehot, Schneider, Pizarro, Mowad, & Salovey, 2004). Interest-
25 ingly, this has also led to transdisciplinary innovation in experimental designs for
26 public health communication research due to several limitations with RCTs that
27 influences both internal and external validity (Chaulk & Kazandjian, 2004; Victora,
28 Habicht, & Bryce, 2004). For example, it is difficult to fully capture the complex
29 multifactorial nature of health communication with RCTs due to limitations on the
30 numbers of relevant variables represented in these experimental designs and
31 because of the use of often artificial tightly controlled conditions (Freudenheim,
32 1999; Green & Tones, 1999). There are also challenges to effectively operationaliz-
33 ing variables in RCTs that fully measure the concepts the variables represent,
34 encouraging researchers to find ways to limit measurement errors for maintaining
35 high levels of internal validity (Fogg & Gross, 2000; Knäuper & Turner, 2003).
36 Additionally, there are concerns about the ethics of randomizing some subjects to
37 experimental conditions and others to the control conditions, especially when the
38 experimental conditions being tested are likely to provide health care and/or health
39 [6] promotion benefits to subjects (Jadad & Rennie, 1998; Senn, 2002). In response to
40 these concerns with RCTs, public health communication scholars have champ-
41 ioned the use of quasiexperimental designs that eliminate random assignment
42 and provide greater freedom in the use of control groups, which makes it easier
43 for researchers to conduct experimental studies in complex social environments
44 (Campbell & Stanley, 1966; Cook & Campbell, 1979; Kreps, 2001a; Shadish,
45 [7] Campbell, & Cook, 2002; Trochim, 1986). Quasiexperiments that use direct
46

1 observation of naturally changing conditions (natural experiments) rather than
2 actively manipulating phenomena as independent variables to enhance ecological
3 validity are also being used in public health communication research (e.g., see Agha,
4 2002; Grimshaw, Campbell, Eccles, & Steen, 2000; Lu-Yao, 2000; Shapo, Coker, &
5 McKee, 2002). *Adaptive* interventions have also recently been developed by public
6 health communication scholars as an alternative to RCTs where different dosages of
7 prevention or treatment components are assigned to different individuals, and/or
8 within individuals across time, with the dosage varying in response to the interven-
9 tion needs of individuals (Collins, Murphy, & Bierman, 2004). These adaptive treat-
10 ment designs have been useful in analyzing the impact of tailored communication
11 interventions (Collins, Murphy, Nair, & Strecher, 2005).

12 There has not been a strong tradition for using qualitative research methods in
13 public health scholarship in the past, perhaps due to overdependence on experimen-
14 tal (especially RCTs) and survey research methods. This has resulted in limited depth
15 in many public health studies. Although experimental research enables tight control
16 and observation of small influences and changes between closely related variables,
17 and large-scale standardized surveys provide broad information about population
18 health, attitudes, and behaviors, these methods do not typically allow researchers to
19 probe into the deeper meanings behind these phenomena (Kreps, in press-b). There
20 is limited understanding derived from these quantitatively oriented empirical
21 research methods (experimental and survey-based studies) about the history of
22 observed phenomena, the embeddedness of these phenomena within social struc-
23 tures, and the feelings health participants have for the processes under study. Public
24 health communication scholarship has helped to expand the use of qualitative meth-
25 ods to provide deeper understanding of public health communication processes
26 (Victora et al., 2004). For example, the use of ethnographic methods to provide
27 in-depth descriptions of social events has been gathering strength in public health
28 communication (Devers & Frankel, 2001; Dixon-Woods, 2003; Lambert & McKeivitt,
29 2002; Simpson & Freeman, 2004). Ellingson (2003) reports a fascinating participant
30 observational study of cancer clinics to identify the communication patterns used to
31 engender teamwork. Ellerbeck et al. (2001) conducted a direct observational study of
32 physician–patient encounters in doctors’ offices to better understand colorectal can-
33 cer screening practices in primary care. Leydon et al. (2000) conducted a revealing
34 ethnographic study using in-depth personal interviews with newly diagnosed cancer
35 patients to explore why they seek information about their condition beyond that
36 volunteered by their physicians. These studies provide important insights into the
37 underlying influences on health behaviors.

38 Another methodological innovation that has grown out of collaborations
39 between communication and public health is the frequent use of content analysis
40 in public health communication research. Public health communication researchers
41 have adopted content analytic research to identify, enumerate, and analyze
42 occurrences of specific messages and message characteristics embedded in relevant
43 health texts, such as in print or electronic media, medical records, health promotion
44
45
46

Web sites, and even prescriptions. For example, Anglin, Johnson, Giesbrecht, and Greenfield's (2000) content analyzed alcohol industry trade newsletters to examine discrepancies and common ground with respect to alcohol policy. Logan, Zengjun, and Wilson's (2000) content analyzed science and medical news coverage in the *Los Angeles Times* and the *Washington Post* newspapers to evaluate the ways scientists and medical professionals were portrayed in newspapers. Henderson, Kitzinger, and Green's (2000) content analyzed both visual and verbal references to breast or bottle feeding in newspapers and television programs to examine how breast feeding and bottle feeding were represented in the British media. Content analysis is an important method for tracking the ways health messages are covered and disseminated across different media to influence public health.

Although there has been a long history of the use of survey research in both communication and public health, public health communication scholarship has helped to expand the use of survey research methods. In communication studies, there is not a strong tradition for conducting large-scale national, or longitudinal, surveys. Instead, small limited application surveys have been the norm. In public health, particularly in the epidemiology subfield, there are many examples of large multiple administration surveillance surveys, often supported by government agencies (i.e., NCI's Surveillance Epidemiology and End Results research program and CDC's Behavioral Risk Factor Surveillance System and National Health Interview Survey; National Center for Health Statistics, 2000; Nelson, Holtzman, Bolen, Stanwyck, & Mack, 2001; U.S. Cancer Statistics Working Group, 2007). Few large-scale public health surveys, however, have examined communication issues related to public health until the NCI introduced the Health Information National Trends Survey (HINTS) to study the American public's preferences, access, and use of health information (see Hesse, Moser, Rutten, & Kreps, 2006; Nelson et al., 2004). HINTS provides important data on a biennial basis (every 2 years) for guiding public health communication research, interventions, and policy.

There have also been advances in the use of evaluation research methods as a direct result of collaborations between communication and public health. The communication discipline has great strengths in the conduct of formative evaluation research, such as the applications of audience analyses, usability, and message-testing studies (Atkin & Freimuth, 1991; Ratzan, Payne, & Massett, 1994). Public health, on the other hand, has greater strengths in the use of summative evaluation methods, especially cost analyses, impact analyses, and the evaluation of policy implications of public health interventions (Friel, Hope, Kelleher, Comer, & Sadlier, 2002; Hornik, 2002). The collaborations between communication and public health have increased the use of both formative and summative evaluation research methods for guiding implementation, refining, and assessing the outcomes of public health communication interventions (Flay, 1987; Kreps, 2002).

Perhaps the most profound transdisciplinary impact of collaborations between communication and public health has been the increasing focus on translating public

health communication research into practice (Dearing, Maibach, & Buller, 2006; Kreps, Neuhauser, Sparks, & Villagran, in press; Maibach, Van Duyn, & Bloodgood, 2006; Parrott, 2008). The relevance of public health communication scholarship for addressing pressing public health problems has helped to reinforce the need for sustaining and institutionalizing public health communication interventions into the communities where studies have been conducted. Community participatory research, in particular, although complex and sometimes cumbersome to administer, has shown great promise for effectively translating public health communication research into practice, as well as for increasing both the participation and the sustainability of health intervention programs (Kreps, 2003, 2006, 2008b). For example, Wray (2006) describes lessons learned from community-based public health communication research to identify strategies for institutionalizing interventions that promote interpersonal violence prevention. Similarly, Freimuth and Quinn (2004) describe the ways that public health communication research has helped to reduce health disparities.

Future directions for collaboration between communication and public health

Collaborations between communication and public health scholars will continue to expand. The use of interactive health communication technologies shows tremendous promise for enhancing dissemination of relevant and influential health information based on careful public health communication study to guide design, implementation, and policy development (Kreps, 2003; Kukafka & Hayden, 2005; Neuhauser & Kreps, 2003; Whitten, Notman, Maynard, Henry, & Glandon, 2004). There are important opportunities to conduct public health communication research concerning the role of risk communication in preventing, preparing for, and responding to public health crises and emergencies, such as natural disasters, epidemics, and even acts of terrorism (Kreps et al., 2005; Rowan et al., 2007; Sparks, Kreps, Botan, & Rowan, 2005). There is also increased demand to examine global public health communication issues (Institute of Medicine, 1997, 2003a). There will also be increased focus on ethical issues related to communication and public health (Guttman, 2000). There is a growing emphasis on public advocacy, consumerism, and empowerment in health communication research that will help revolutionize the modern health care system by equalizing power between providers and consumers and relieving a great deal of strain on the modern health care system by encouraging disease prevention, self-care, and empowering consumers as equal partners in the health care enterprise (Kreps, 1996a, 1996b). Public health communication research will increasingly be used to identify the information needs of consumers and suggest strategies for encouraging consumers to take control of their health and health care. Ideally, public health communication research will help identify appropriate sources of relevant health information that are available to consumers, gather data from consumers about the kinds of challenges and

constraints they face within the modern health care system, as well as develop and field-test educational and media programs for enhancing consumers' health literacy. Such research will help consumers negotiate their ways through health care bureaucracies and develop communication skills for interacting effectively with health care providers. The nexus between communication and public health shows great promise for promoting transdisciplinary advances in public health communication research, education, and practice.

References

- Abroms, L. C., & Maibach, E. W. (2008). The effectiveness of mass communication to change public behavior. *Annual Review of Public Health*, 29. Retrieved April 3, 2008, from <http://arjournals.annualreviews.org/eprint/62aIzq67kfwRyWgv84VR/full/10.1146/annurev.publhealth.29.020907.090824>
- Allengrante, J. P., Moon, R. W., Auld, M. E., & Gebbie, K. M. (2001). Continuing education needs of the currently employed health education workforce. *American Journal of Public Health*, 91, 1230–1234.
- Anderson, J. A., & Baym, G. (2004). Philosophies and philosophic issues in communication, 1995–2004. *Journal of Communication*, 54, 589–615.
- Anglin, L., Johnson, S., Giesbrecht, N., & Greenfield, T. (2000). Alcohol policy content analysis: A comparison of public health and alcohol industry trade newsletters. *Drug and Alcohol Review*, 19, 202–212.
- Atkin, C. K., & Freimuth, V. (1991). Formative evaluation research in campaign design. In R. E. Rice & C. K. Atkin (Eds.), *Public communication campaigns* (2nd ed., pp. 125–146). Newbury Park, CA: Sage.
- Bantz, C. R., & Smith, D. H. (1977). A critique and experimental test of Weick's model of organizing. *Communication Monographs*, 44, 171–184.
- Bernhardt, J. (2004). Communication at the core of effective public health. *American Journal of Public Health*, 94, 2051–2053.
- Berwick, D. M. (2003). Disseminating innovations in health care. *Journal of the American Medical Association*, 289, 1969–1975.
- Brown, K. (2005). Current applications of the transtheoretical model: Improving health in community and workplace settings. *Health Psychology Update*, 14, 30–32.
- Campbell, D. T., & Stanley, J. C. (1966). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally.
- Chaulk, C. P., & Kazandjian, V. A. (2004). Moving beyond randomized controlled trials. *American Journal of Public Health*, 94.
- Cho, H., & Witte, K. (2005). Managing fear in public health campaigns: A theory-based formative evaluation process. *Health Promotion Practice*, 6, 482–490.
- Cohen, H., & Craig, R. T. (1995). The history of speech communication: The emergence of a discipline. *Communication Theory*, 5(2), 1–17.
- Collins, L. M., Murphy, S. A., & Bierman, K. A. (2004). A conceptual framework for adaptive preventive interventions. *Prevention Science*, 5, 181–192.
- Collins, L. M., Murphy, S. A., Nair, V. N., & Strecher, V. J. (2005). A strategy for optimizing and evaluating behavioral interventions. *Annals of Behavioral Medicine*, 30, 65–73.

- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis for field settings*. Chicago: Rand McNally.
- Dearing, J., Maibach, E., & Buller, D. (2006). A convergent diffusion and social marketing approach for disseminating proven approaches to physical activity programs. *American Journal of Preventive Medicine*, 31(4 Suppl.), S11–S23.
- Delia, J. G. (1987). Communication research: A history. In C. R. Berger & S. H. Chaffee (Eds.), *Handbook of communication science* (pp. 20–98). Beverly Hills, CA: Sage.
- Devers, K. J., & Frankel, R. M. (2001). Getting qualitative research published. *Education for Health: Change in Learning & Practice*, 14, 109–117.
- Dixon-Woods, M. (2003). What can ethnography do for quality and safety in health care? *Quality and Safety in Health Care*, 12, 326–327.
- Ellerbeck, E. F., Engelman, K. K., Gladden, J., Mosier, M. C., Raju, G. S., & Ahluwalia, J. S. (2001). Direct observation of counseling on colorectal cancer in rural primary care practices. *Journal of General Internal Medicine*, 16, 697–700.
- Ellingson, L. (2003). Interdisciplinary health care teamwork in the clinic backstage. *Journal of Applied Communication Research*, 31, 93–117.
- Everett, L. (1994). Communication and sociocultural evolution in organizations and organizational populations. *Communication Theory*, 4(2), 93–110.
- Farr, A., Witte, K., Jarato, K., & Menard, T. (2005). The effectiveness of media use in health education: Evaluation of an HIV/AIDS television campaign in Ethiopia. *Journal of Health Communication*, 10, 225–235.
- Flay, B. R. (1987). Evaluation of the development, dissemination and effectiveness of mass media health programming. *Health Education Research*, 2, 123–129.
- Flora, J., Maibach, E., & Maccoby, N. (1989). The role of media across four levels of health promotion intervention. *Annual Review of Public Health*, 10, 181–201.
- Fogg, L., & Gross, D. (2000). Threats to validity in randomized clinical trials. *Research in Nursing and Health*, 23, 79–87.
- Freimuth, V. S., & Quinn, S. C. (2004). The contributions of health communication to eliminating health disparities. *American Journal of Public Health*, 94, 2053–2055.
- Freudenheim, J. L. (1999). Study design and hypothesis testing: Issues in the evaluation of evidence from research in nutritional epidemiology. *American Journal of Clinical Nutrition*, 69, 1315S–1321S.
- Frey, L. R., Botan, C. H., & Kreps, G. L. (2000). *Investigating communication: An introduction to research methods* (2nd ed.). Boston: Allyn & Bacon.
- Friel, S., Hope, A., Kelleher, C., Comer, S., & Sadlier, D. (2002). Impact evaluation of an oral health intervention amongst primary school children in Ireland. *Health Promotion International*, 17, 119–126.
- Green, E., & Witte, K. (2006). Can fear arousal in public health campaigns contribute to the decline of HIV prevalence? *Journal of Health Communication*, 11, 245–259.
- Green, J., & Tones, K. (1999). For debate. Towards a secure evidence base for health promotion. *Journal of Public Health Medicine*, 21, 133–139.
- Green, L. W., & Kreuter, M. W. (1999). *Health promotion planning: An educational and ecological approach* (3rd ed.). Mountain View, CA: Mayfield.
- Green, L. W., Richard, L., & Potvin, L. (1996). Ecological foundations of health promotion. *American Journal of Health Promotion*, 10, 270–281.

- Grimshaw, J. M., Campbell, M. K., Eccles, M. P., & Steen, I. N. (2000). Experimental and quasi-experimental designs for evaluating guideline implementation strategies. *Family Practice*, *17*, S11–S18.
- Guttman, N. (2000). *Public health communication interventions: Values and ethical dilemmas*. Thousand Oaks, CA: Sage.
- Haider, M., & Kreps, G. L. (2004). Forty years of diffusion of innovations: Utility and value in public health. *Journal of Health Communication: International Perspectives*, *9*(Suppl. 1), 3–11.
- Hausenblas, H. A., Nigg, C. R., Dannecker, E. A., Downs, D. S., Gardner, R. E., Fallon, E. A., et al. (2001). A missing piece of the transtheoretical model applied to exercise: Development of the temptation not to exercise scale. *Psychology and Health*, *16*, 381–390.
- Henderson, L., Kitzinger, J., & Green, J. (2000). Representing infant feeding: Content analysis of British media portrayals of bottle feeding and breast feeding. *British Medical Journal*, *321*, 1196–1198.
- Herrick, A. B., Stone, W. J., & Mettler, M. M. (1997). Stages of change, decisional balance, and self efficacy across four health behaviors in a worksite environment. *American Journal of Health Promotion*, *12*, 49–56.
- Hesse, B. W., Moser, R. P., Rutten, L. J., & Kreps, G. L. (2006). The Health Information National Trends Survey: Research from the baseline. *Journal of Health Communication: International Perspectives*, *11*(Suppl. 1), vii–xvi.
- Higginbotham, N., Albrecht, G. & Connor, L. (Eds.). (2001). *Health social science: A transdisciplinary and complexity perspective*. Melbourne, Australia: Oxford University Press.
- Hornik, R. C. (2002a). Evaluation design for public health communication. In R. C. Hornik (Ed.), *Public health communication: Evidence for behavior change* (pp. 385–385). Mahwah, NJ: Lawrence Erlbaum.
- 14 Hornik, R. C. (Ed.). (2002b). *Public health communication: Evidence for behavior change*. Mahwah, NJ: Lawrence Erlbaum.
- Institute of Medicine. (1997). *America's vital interest in global health*. Washington, DC: National Academy Press.
- Institute of Medicine. (2002). *Speaking of health: Assessing health communication strategies for diverse populations*. Washington, DC: National Academy Press.
- Institute of Medicine. (2003a). *The future of the public's health in the 21st century*. Washington, DC: National Academy Press.
- Institute of Medicine. (2003b). *Who will keep the public healthy?* Washington, DC: National Academy Press.
- Jadad, A. R., & Rennie, D. (1998). The randomized controlled trial gets a middle-aged checkup. *Journal of the American Medical Association*, *279*, 319–320.
- Kass, N. E. (2001). An ethics framework for public health. *American Journal of Public Health*, *91*, 1776–1782.
- Knäuper, B., & Turner, P. A. (2003). Measuring health: Improving the validity of health assessments. *Quality of Life Research*, *12*, 81–89.
- Koo, D., O'Carroll, P., & LaVenture, M. (2001). Public health 101 for informaticians. *Journal of the American Medical Informatics Association*, *8*, 585–597.
- Kreps, G. L. (1980). A field experimental test and reevaluation of Weick's model of organizing. In D. Nimmo (Ed.), *Communication yearbook 4* (pp. 384–398). New Brunswick, NJ: Transaction Press.

- Kreps, G. L. (1988). The pervasive role of information in health care: Implications for health communication policy. In J. Anderson (Ed.), *Communication yearbook 11* (pp. 238–276). Newbury Park, CA: Sage.
- Kreps, G. L. (1996a). Communicating to promote justice in the modern health care system. *Journal of Health Communication*, 1, 99–109.
- Kreps, G. L. (1996b). Promoting a consumer orientation to health care and health promotion. *Journal of Health Psychology*, 1, 41–48.
- Kreps, G. L. (2001a). Consumer/provider communication research: A personal plea to address issues of ecological validity, relational development, message diversity, and situational constraints. *Journal of Health Psychology*, 6, 597–601.
- Kreps, G. L. (2001b). The evolution and advancement of health communication inquiry. In W. B. Gudykunst (Ed.), *Communication yearbook 24* (pp. 232–254). Newbury Park, CA: Sage.
- Kreps, G. L. (2003). Opportunities for health communication scholarship to shape public health policy and practice: Examples from the National Cancer Institute. In T. Thompson, R. Parrott, K. Miller, & A. Dorsey (Eds.), *The handbook of health communication* (pp. 609–624). Hillsdale, NJ: Lawrence Erlbaum.
- Kreps, G. L. (2006). One size does not fit all: Adapting communication to the needs and literacy levels of individuals. *Annals of Family Medicine* [Online, invited commentary]. Retrieved April 3, 2008, from <http://www.annfammed.org/cgi/eletters/4/3/205>
- Kreps, G. L. (2007). A Weickian approach to public relations. In T. Hansen-Horn & B. Dostal-Neff (Eds.), *Public relations theory*. Boston: Allyn & Bacon.
- Kreps, G. L. (in press-a). Applying Weick's model of organizing to multi-level health communication across the continuum of care: A social ecological process approach to sense making in health care and health promotion. *Patient Education and Counseling*.
- Kreps, G. L. (in press-b). Qualitative inquiry and the future of health communication research. *Qualitative Research Reports in Communication*.
- Kreps, G. L., Alibek, K., Bailey, C., Neuhauser, L., Rowan, K., & Sparks, L. (2005). The critical role of communication to prepare for biological threats: Prevention, mobilization, and response. In H. D. O'Hair, R. L. Heath, & G. R. Ledlow (Eds.), *Community preparedness and response to terrorism: Vol. 3. Communication and the media* (pp. 191–210). Westport, CT: Praeger.
- Kreps, G. L., & Bonaguro, E. W. (in press). Health communication as applied inquiry. In L. Frey & K. Cissna (Eds.), *Handbook of applied communication*. Mahwah, NJ: Lawrence Erlbaum.
- Kreps, G. L., & Chapelsky Massimilla, D. (2002). Cancer communications research and health outcomes: Review and challenge. *Communication Studies*, 53, 318–336.
- Kreps, G. L., Neuhauser, L., Sparks, L., & Villagran, M. (in press). Editors introduction: Translational community-based health communication interventions to promote cancer prevention and control for vulnerable audiences. *Patient Education and Counseling*.
- Kreps, G. L., & O'Hair, H. D. (1995). *Communication and health outcomes*. Cresskill, NJ: Hampton Press.
- Kreps, G. L., Query, J. L., & Bonaguro, E. W. (2007). The interdisciplinary study of health communication and its relationship to communication science. In L. Lederman (Ed.), *Beyond these walls: Readings in health communication* (pp. 2–13). Los Angeles: Roxbury.

- 2
3 Kreps, G. L., Viswanath, K., & Harris, L. M. (2002). Advancing communication as a science:
4 Opportunities from the federal sector. *Journal of Applied Communication Research*, *30*,
5 369–381.
- 6 Kukafka, R., & Hayden, J. (2005). Career development. Public health informatics: The nature
7 of the field and its relevance to health promotion practice. *Health Promotion Practice*, *6*,
8 23–28.
- 9 Lambert, H., & McKeivitt, C. (2002). Anthropology in health research: From qualitative
10 methods to multidisciplinary. *British Medical Journal*, *325*, 210–213.
- 11 Leydon, G. M., Boulton, M., Moynihan, C., Jones, A., Mossman, J., Boudioni, M., et al.
12 (2000). Cancer patients' information needs and information seeking behaviour: In depth
13 interview study. *British Medical Journal*, *320*, 909–913.
- 14 Logan, R. A., Zengjun, P., & Wilson, N. F. (2000). Prevailing impressions in science and
15 medical news: A content analysis of the *Los Angeles Times* and *The Washington Post*.
16 *Science Communication*, *22*, 27–45.
- 17 Lu-Yao, G., Albertson, P. C., Stanford, J. L., Stukel, T. A., Walker-Corkery, E. S., & Barry, M. J.
18 (2002). Natural experiment examining impact of aggressive screening and treatment on
19 prostate cancer mortality in two fixed cohorts from Seattle area and Connecticut. *British*
20 *Medical Journal*, *325*, 740–746.
- 21 [20] Maibach, E. W., Abrams, L., & Marosits, M. (2007). Communication and marketing as tools
22 to cultivate the public's health: A proposed "people and places" framework. *BMC Public*
23 *Health*, *7*, 88.
- 24 Maibach, E. W., Kreps, G. L., & Bonaguro, E. W. (1993). Developing strategic communication
25 campaigns for HIV/AIDS prevention. In S. Ratzan (Ed.), *AIDS: Effective health*
26 *communication for the 90's*. Washington, DC: Taylor and Francis.
- 27 [21] Maibach, E. W., Van Duyn, M., & Bloodgood, B. (2006). *A marketing perspective on*
28 *disseminating evidence-based approaches to disease prevention and health promotion*.
29 *Preventing Chronic Disease* [Serial online]. Retrieved July, 2006, from http://www.cdc.gov/pcd/issues/2006/jul/05_0154.htm
- 30 [22] McCannon, J. C., Berwick, D. M., & Massoud, R. (2007). The science of large-scale change in
31 global health. *Journal of the American Medical Association*, *298*, 1937–1939.
- 32 Morreale, S., & Backlund, P. M. (2002). Communication curricula: History,
33 recommendations, and resources. *Communication Education*, *51*, 2–18.
- 34 National Center for Health Statistics. (2000). *Health, United States, 2000*. Hyattsville,
35 MD: Public Health Service.
- 36 Nelson, D. E., Brownson, R. C., Remington, P. L., & Parvanta, C. (Eds.). (2002).
37 *Communicating public health information effectively: A guide for practitioners*. Washington,
38 DC: American Public Health Association.
- 39 Nelson, D. E., Holtzman, D., Bolen, J., Stanwyck, C. A., & Mack, K. A. (2001). Reliability and
40 validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). *Social*
41 *and Preventive Medicine*, *46*(Suppl. 1), S3–S42.
- 42 Nelson, D. E., Kreps, G. L., Hesse, B. W., Croyle, R. T., Willis, G., Arora, N. K., et al. (2004).
43 The Health Information National Trends Survey (HINTS): Development, design, and
44 dissemination. *Journal of Health Communication: International Perspectives*, *9*, 443–460.
- 45 [23] Nigg, C. R., Burbank, P. M., Padula, C., Dufresne, R., Rossi, J. S., Velicer, W. F., et al. (1999).
46 Stages of change across 10 health risk behaviours for older adults. *Gerontologist*, *39*,
47 473–482.

- Oakley, A. (1998). Experimentation and social interventions: A forgotten but important history. *British Medical Journal*, *317*, 1239–1242.
- Parrott, R. (2008). A multiple discourse approach to health communication: Translational research and ethical practice. *Journal of Applied Communication Research*, *36*, 1–7.
- Parvanta, C., Maibach, E., Arkin, E., Nelson, D. E., & Woodward, J. (2002). Public health communication: A planning framework. In D. E. Nelson, R. C. Brownson, P. L. Remington, & C. Parvanta (Eds.), *Communicating public health information effectively. A guide for practitioners* (pp. 11–13). Washington, DC: American Public Health Association.
- Patrick, K., Intille, S. S., & Zabinski, M. F. (2005). An ecological framework for cancer communication: Implications for research. *Journal of Medical Internet Research*, *7*(3), e23.
- Porter, D. (1999). *Health, civilization, and the state: A history of public health from ancient to modern times*. New York: Routledge.
- Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, *51*, 390–395.
- Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American Journal of Health Promotion*, *12*, 38–48.
- Ratzan, S. C., Payne, J. G., & Massett, H. A. (1994). Effective health message design: The America responds to AIDS campaign. *American Behavioral Scientist*, *38*, 294–309.
- Resnicow, K., & Page, S. (2008). Embracing chaos and complexity: A quantum change for public health. *American Journal of Public Health*.
- Rogers, E. M. (1973). *Communication strategies for family planning*. New York: Free Press.
- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: Free Press.
- Rosenfield, P. L. (1992). The potential of transdisciplinary research for sustaining and extending linkages between the health and social sciences. *Social Science & Medicine*, *35*, 1343–1357.
- Rowan, K. E., Kreps, G. L., Botan, C. H., Sparks, L., Samoilenko, S., & Bailey, C. L. (2007). Responding to terrorism: Risk communication, crisis management, and the CAUSE model. In H. D. O’Hair, R. L. Heath, G. Ledlow, & K. Ayotte (Eds.), *Terrorism: Communication and rhetorical perspectives* (pp. 421–449). Cresskill, NJ: Hampton Press.
- Sallis, J. F., & Owen, N. (2002). Ecological models of health behavior. In K. Glanz, B. K. Rimer, & F. M. Lewis (Eds.), *Health behavior and health education: Theory, research, and practice* (3rd ed., pp. 462–484). San Francisco: Jossey-Bass.
- Schneider, D., & Lilienfeld, D. E. (2008). *Public health: Volume one: From the age of Hippocrates to the progressive era*. New Brunswick, NJ: Rutgers University Press.
- Senn, S. (2002). Ethical considerations concerning treatment allocation in drug development trials. *Statistical Methods in Medical Research*, *11*, 403–411.
- Shadish, W., Campbell, T., & Cook, D. (2002). *Experimental and quasiexperimental designs for generalized causal inference*. Boston: Houghton Mifflin.
- Shapo, L., Coker, R., & McKee, M. (2002). Tracking diabetes in Albania: A natural experiment on the impact of modernization on health. *Diabetic Medicine*, *19*, 87–88.
- Shortell, S. M., Weist, E. M., Sow, M. K., Foster, A., & Tahir, R. (2004). Implementing the Institute of Medicine’s recommended curriculum content in schools of public health: A baseline assessment. *American Journal of Public Health*, *94*, 1671–1674.

- Simpson, K., & Freeman, R. (2004). Critical health promotion and education—A new research challenge. *Health Education Research*, *19*, 340–348.
- Smith, R., Ferrara, M., & Witte, K. (2007). Social sides of health risks: Stigma and collective efficacy. *Health Communication*, *21*, 55–64.
- Sparks, L., Kreps, G. L., Botan, C., & Rowan, K. E. (2005). Responding to terrorism: Translating communication research into practice. *Communication Research Reports*, *22*, 1–5.
- Stokols, D., Fuqua, J., Gress, J., Harvey, R., Phillips, K., Baezconde-Garbanati, L., et al. (2003). Evaluating transdisciplinary science. *Nicotine & Tobacco Research*, *5*(Suppl. 1), S21–S39.
- Stokols, D., Harvey, R., Gress, J., Fuqua, J., & Phillips, K. (2005). In vivo studies of transdisciplinary scientific collaboration: Lessons learned and implications for active living research. *American Journal of Preventive Medicine*, *28*(Suppl. 2), 202–213.
- Trochim, W. (Ed.). (1986). *Advances in quasi-experimental design and analysis*. San Francisco: Jossey-Bass.
- U.S. Cancer Statistics Working Group. (2007). *United States cancer statistics: 2004 incidence and mortality*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute.
- U.S. Department of Health and Human Services. (2000). *Healthy people 2010: Understanding and improving health* (2nd ed.). Washington, DC: U.S. Government Printing Office.
- Victora, C. G., Habicht, J. P., & Bryce, J. (2004). Evidence-based public health: Moving beyond randomized trials. *American Journal of Public Health*, *94*, 400–405.
- Weick, K. E. (1969). *The social psychology of organizing*. Reading, MA: Addison Wesley.
- Weick, K. E. (2002). The reduction of medical errors through mindful interdependence. In M. M. Rosenthal & K. M. Sutcliffe (Eds.), *Medical error: What do we know? What do we do?* (pp. 177–199). San Francisco: Jossey-Bass.
- Weick, K. E., & Sutcliffe, K. M. (2003). Hospitals as cultures of entrapment: A reanalysis of the Bristol Royal Infirmary. *California Management Review*, *45*, 73–84.
- Whitten, P., Notman, M., Maynard, C., Henry, R., & Glandon, R. (2004). Interactive health communication technologies in the public health sector: Positive perceptions still outpace actual utilization. *Journal of Technology in Human Services*, *22*(3), 25–40.
- Williams-Piehot, P., Schneider, T. R., Pizarro, J., Mowad, L., & Salovey, P. (2004). Matching health messages to health locus of control beliefs for promoting mammography utilization. *Psychology and Health*, *19*, 407–423.
- Wray, R. (2006). Public health communication theory and strategies for interpersonal violence prevention. *Journal of Aggression, Maltreatment & Trauma*, *13*(3–4), 41–60.

Author Query Form

Journal: Journal of Communication

Article : jcom_411

Dear Author,

During the copy-editing of your paper, the following queries arose. Please respond to these by marking up your proofs with the necessary changes/additions. Please write your answers on the query sheet if there is insufficient space on the page proofs. Please write clearly and follow the conventions shown on the attached corrections sheet. If returning the proof by fax do not write too close to the paper's edge. Please remember that illegible mark-ups may delay publication. Many thanks for your assistance.

Query No.	Query	Remark
1	Please check if the short title introduced is correct.	
2	Please provide the ZIP code for all the affiliations and also please check if the edits made to the affiliation are correct.	
3	Please note that the spelling of the author name "Allengrant" in the reference citation "Allengrante et al. (2001)" has been changed to "Allengrante" as per the reference list. Please check if this is correct.	
4	Please clarify if "2002" refers to "2002a" or "2002b" in all the citations of "Hornik (2002)" and also please check if the edits made to the initials of the author name are correct in the reference list of "Hornik (2002)."	
5	Please note that the year "1999" in the reference citation "Green et al. (1996)" has been changed to "1996" as per the reference list. Please check if this is correct.	
6	Please note that the year "1968" in the reference citation "Trochim (1986)" has been changed to "1986" as per the reference list. Please check if this is correct.	

- 7 Please note that the references “Agha (2002)” and “Lu-Yao (2000)” are cited but are not listed. Please add to the list or delete the citations.

- 8 Please note that the spelling of the author name “Masset” in the reference citation “Ratzan et al. (1994)” has been changed to “Masset” as per the reference list. Please check if this is correct.

- 9 Please note that the references “Kreps (2002)” and “Kreps (2008b)” are cited but are not listed. Please add to the list or delete the citations.

- 10 Please note that the reference “Neuhauser and Kreps (2003)” is cited but is not listed. Please add to the list or delete the citation.

- 11 Please provide the page range for the reference “Abroms and Maibach (2008).”

- 12 Please provide the page range for the reference “Chaulk and Kazandjian (2004).”

- 13 Please note that the reference “Frey et al. (2000)” is listed but is not cited. Please provide an in-text citation or delete from the reference list.

- 14 Please note that the first and last page are same for the reference “Hornik (2002).” Please check.

- 15 Please provide the volume number and the page range for the reference “Kreps (2006).”

- 16 Please provide the page range for the reference “Kreps (2007).”

- 17 Please update the references “Kreps (in press-a)” and “Kreps (in press-b).”

- 18 Please update the reference “Kreps and Bonaguro (in press).”

- 19 Please update the reference “Kreps et al. (in press).”

- 20 Please note that the reference “Lu-Yao et al. (2002)” is listed but is not cited. Please provide an in-text citation or delete from the reference list.

- 21 Please provide the page range for the reference “Maibach et al. (1993).”

22 Please provide the retrieved date for the reference
“Maibach et al. (2006).”

23 Please check if the edits made to the page range for
the reference “Nelson et al. (2004)” are correct.

24 Please provide the volume number and the page
range for the reference “Resnicow and Page
(2008).”

UNCORRECTED PROOF