COMPETENCIES FOR HEALTH COMMUNICATION SPECIALISTS:

Results of a Survey of Health Communication Educators and Practitioners

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Executive Summary

The Competency and Training Committee of the Society for Health Communication surveyed health communication educators and practitioners as a first step in developing a comprehensive and manageable list of the competencies expected of health communication specialists graduating with master's degrees. Responses from 142 participants (74 educators and 68 practitioners), recruited through health communication professional groups, were analyzed.

Survey respondents represented all sectors where health communication is taught or practiced. The vast majority held a master's or doctoral degree in communication, a master of public health, or another advanced degree. Among those in practice, half of them worked in private, for-profit industries, with the other half working in government or non-profit organizations. A majority of them worked for national organizations, as opposed to local or international organizations, and half were in organizations with more than 500 employees. The academic sector was represented by predominantly senior faculty at institutions offering graduate degrees in communication, media, and public health. Half of the educators also had practical experience either prior to or parallel to their academic appointment.

The survey included 18 knowledge domains, 11 skill sets, and 14 application bundles labeled "abilities." Nearly all of the 43 items were deemed "somewhat important" or higher by survey participants. This substantiates the Committee's analysis of the literature to generate the initial list for inclusion in the survey. Few respondents added items to any of the domains in the open-ended sections of the survey, suggesting that the list is adequate, if not exhaustive. Factor analysis identified suites of 10 knowledge domains, three skill sets, and five abilities that could be deployed to build competency models for different sub-specializations in health communication.

Practitioners and educators were closely aligned in their perspectives on knowledge, skills, and abilities essential for the job, although educators consistently rated items higher than those in practice, and practitioners were more varied in their ratings. Although many items show a statistically significant differences in mean scores (e.g., a half point difference in a 5-point rating scale), the pattern of responses suggests that practitioners and educators are well aligned. The real divergence in opinion concerns the preparation of students leaving their academic programs and entering jobs. One third of educators had received no feedback from employers. Educators also believed their students to

be adequately prepared, whereas practitioners believed new hires lacked some specific knowledge, technical and soft skills, and abilities.

As for limitations, we noted a lack of input from the healthcare industry, which employs many health communication graduates. Also, it appears that members of the Health Communication subgroup of the Public Health Education and Health Promotion Division of the American Public Health Association were not adequately represented in the survey, although respondents to the survey may hold membership in multiple groups.

Next steps include sharing the competency model with a larger sample of practitioners in sectors that were not adequately represented in the present study, as well as seeking confirmation from the professional societies already included. Our goal is to create a competency model that can be used as the basis of academic training and ultimately credentialing in health communication.

Acknowledgement

The Committee would like to recognize Erin Norvell, Executive Director of the Society for Health Communication, for her assistance throughout the entire process of this project and Dr. Richard Harner for lending his expertise for statistical analysis. The Committee also thanks everyone who contributed to this project by participating in the breakout session at the Society Summit in 2019 and/or participating in the survey in spring 2020.

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1. Background

1.1. Purpose

The primary goal of the Competency and Training Committee ("the Committee" hereafter) of the Society for Health Communication ("the Society" hereafter) is to contribute to the education and training of health communication professionals. As its first step, the Committee took the charge of developing a comprehensive and parsimonious list of the "competencies" required for health communication specialists graduating from accredited programs (offered by any relevant discipline) at the master's degree level.

Despite having multiple professional societies such as the National Communication Association, the International Communication Association, the National Public Health Information Coalition, the Health Communication Sub-Committee and the Public Health Education and Health Promotion Section of the American Public Health Association, no one group has developed a set of "competencies" that represent the knowledge, skills, and abilities that students in an academic program are expected to demonstrate upon graduation. These competencies set the framework for academic accreditation, such as by the Council for Education in Public Health and other accrediting bodies. On the basis of accreditation standards, programs develop course curricula and syllabi.

This is not the first time that health communicators have developed suggestions for academic competencies. Maibach et al. (1994) convened an expert working group "to define competencies required to function effectively as a health communication specialist" (see Maibach et al., 1994, p. 351). Later survey research sought opinions of practitioners (Edgar et al., 2015; Edgar & Hyde, 2005; Edgar et al., 2016; Fowler et al., 1999), educators (Query et al., 2007), or both (McKeever, 2014). However, competencies were but one of several related issues each of the studies was addressing (e.g., employment, salaries, career development) and thus did not receive focused attention, resulting in rather limited scope of the competencies examined. Moreover, none of these surveys have resulted in widespread adoption and translation of competencies into academic programing. Therefore, the Committee intended to pick up where previous work left off by developing a systematic, comprehensive list of competencies that can be assessed broadly and adopted by programs offering health communication master's degrees.

1.2. Planning for the Survey

The Committee conducted a literature review and synthesized the competencies identified in existing sources. The process involved several steps. First, we culled health communication competencies from published journal articles, government/professional organization documents, and academic program websites (see Appendix A for a list of the sources). Second, we eliminated redundant competencies from the list. Third, distinctive sets of "knowledge" and "skills" were separated from the more comprehensive application of these in different contexts, referred to as "abilities." Fourth, the three dimensions were reorganized to match each ability with foundational knowledge and/or skills. Fifth, the original sources were revisited to ensure the thoroughness of the list produced as the output (see Appendix B for the knowledge domains, skill sets, and abilities and the sources that identified them).

Subsequently, the Committee brought a draft version of the health communication competency document to the 3rd National Summit for Health Communication held at the campus of the National Institutes of Health in Bethesda, MD, on April 24, 2019. At the Summit, the Committee led a breakout session with health communication practitioners and educators to review the draft document and discuss the identified competencies. Participants were also asked to make comments on the document and return it to the Committee at the end of the breakout session. Upon returning from the Summit, the Committee revised the draft based on the verbal feedback and written comments received at the breakout session and further in-depth discussions among the Committee members.

More specifically, 17 knowledge domains identified based on the literature review were reorganized into 18 domains after dropping two domains ("marketing principles" and "visual communication") and adding three domains ("health behavior change," "media planning," and "accessible design"). "Research methods and process" was split into "qualitative research methods" and "quantitative research methods," and "crisis communication" and "risk communication" were merged into "crisis and risk communication."

Nine skill sets were also modified into 11 skill sets by dropping two skill sets ("broadcasting/video product" and "marketing"), adding four ("quantitative data analysis," "qualitative data analysis," "social media proficiency," and "teamwork"), folding two into one ("journalistic writing" and "public relations" into "journalistic/public relations writing"), and reorganizing two writing skill sets

("proposal writing" and "policy brief writing") into three ("expository writing," "scientific writing," and "regulatory writing").

Further, abilities were reorganized from 22 to 14. There were five cases where two abilities were merged into one: "choose communication tools and techniques to facilitate discussions and interactions" and "communicate effectively with diverse audiences" became "communicate orally with diverse audiences"; "risk communication" and "crisis communication" became "public health emergency communication"; "strategic planning and implementation" and "project management" became "program/project management"; "marketing health-related products and services" and "manage marketing communication for public health/healthcare organizations" became "market health-related products and services"; and "conduct assessments of population health needs and assets and share the results with stakeholders" and "partner engagement" became "community engagement and interaction." In addition, three abilities ("audience analysis and segmentation," "message development and testing," and "channel identification and selection") were consolidated into one ability ("social marketing/health communication campaign process"). One item was simply dropped ("identify communication gaps and make recommendations").

2. Survey Design and Procedures

During the fall of 2019, the Committee prepared a survey based on the revised competency document. In addition to the updated list of knowledge domains, skill sets, and abilities, questions about the educational and professional background of the prospective survey participants were added to the questionnaire. After the questionnaire was finalized, it was converted to an online survey. The online survey was hosted on Qualtrics licensed through the University of Nevada, Reno (the Committee Chair's institutional affiliation). The institutional review board at the University of Nevada, Reno approved the study. The questionnaire appears in this report as Appendix D. The survey was released on January 7, 2020 and stayed open for six weeks.

2.1. Recruitment

Participants were recruited from multiple sources. First, the Society member list was augmented by adding the names and emails of faculty in charge

of health communication programs in the United States. People on the list were sent an email invitation to participate in the study (see Appendix C for the recruitment email). In addition, the Committee and the Society leadership forwarded the email to their contacts in the Association of Public Health Schools and Programs and the Centers for Disease Control and Prevention and asked them to share the survey with relevant people in their professional networks. Furthermore, a survey announcement was shared with the members of the Health Communication divisions of the International Communication Association and National Communication Association and the Communicating Science, Health, Environment and Risk division of the Association for Education in Journalism and Mass Communication. Everyone invited to participate in the survey was also asked to share the survey link with their colleagues.

The recruitment email and survey announcement clarified that the survey was meant for health communication educators and practitioners with the goal of developing a comprehensive and targeted list of the competencies required for health communication specialists at the master's level. Those agreeing to participate consented by clicking on the link to the survey questionnaire. No compensation was offered for completing the survey apart from an electronic copy of the final report based on the survey.

2.2. Survey Items

The questionnaire comprised five sections.

[Section 1] Everyone: Participants were asked to identify their current sector of employment, highest degrees earned, and fields of study. Sector of current employment was used to direct survey takers to separate questions for educators or practitioners in Section 2.

[Section 2A] Educator: This section asked academic participants about the disciplines in which they taught, number of years teaching health communication, and the highest academic degrees granted by their institution in health communication or a closely related field. Participants were asked about feedback from employers concerning the preparation of their students. Finally, respondents were asked whether they had worked in a non-academic sector before or simultaneously with their academic appointment and, if so, in which sector.

[Section 2B] Practitioner: Practice-based respondents were asked about the number of years they had worked in health communication or a closely related field, the size of their organization, the geographical scope of their work, and the average starting salary for health communication specialists in their organizations. They were also asked to comment on the preparation of new hires with whom they worked.

[Section 3] Everyone: Participants were asked to rate each of 18 knowledge domains in terms of how important they were for health communication specialists to carry out their responsibilities. The 18 knowledge domains and examples of included topics are listed in Table 1 (respondents could add additional topics to any domain). Participants were asked to rate each domain from 0 = "not used at all" to 4 = "essential." Two open-ended slots were provided for participants to identify additional knowledge domains and provide their rating.

Table 1. 18 health communication knowledge domains and subjects in each knowledge domain

K1. **Clinical Communication**: patient-provider, inter-professional, informed consent, use of medical translators
K2. **Organizational Communication**: leadership, mediation, conflict management
K3. **Intercultural Communication**: race/ethnicity, gender, sexual orientation, disabilities, geography, life stages, social identity, implicit bias, cultural differences and communication styles
K4. **Health Literacy**: causal factors, outcomes, healthy literacy screening, plain language use, numeracy, science literacy, media literacy
K5. **Health Science:** human physiology, pathology, infectious diseases, health science methodologies
K6. **Public Health Fundamentals**: ecological model, social determinants, epidemiology, biostatistics, health policy, health systems, environmental health
K7. **Healthcare System**: systems & structures, finance/business, informatics, medical advances, pharma/biotech related issues
K8. **Health Behavior Change**: theories, demographics, psychographics
K9. **Social Marketing**: segmentation, marketing mix, consumer behavior, research, strategy
K10. **Media Planning:** channel selection and mix, social media platforms, use of management tools, analytics, purchasing, preparing content
K11. **Quantitative Research Methods**: data collection, analysis, interpretation
K12. **Qualitative Research Methods**: data collection, analysis, interpretation, participatory research, developmental evaluation
K13. **Media and Journalism**: media economics, news gatekeeping, public opinion, media effects

K14. **New Media and Tools**: eye tracking, EEG/fMRI/facial emotion analysis, virtual/augmented reality, gamification
K15. **Crisis and Risk Communication**: risk appraisal, risk presentation and framing, psychology of risk and crisis, crisis and risk preparation
K16. **Accessible Design**: website, course, and other tools to enhance accessibility for visually and/or hearing impaired
K17. **Global Health Communication**: multicultural health, global health threats, world health com systems and modalities
K18. **Ethics and Law in Health Communication**: Belmont Report, IRB, HIPAA, privacy, cyber security, individual autonomy, propaganda

[Section 4] This section applied the same procedures (rating domains, adding topics, adding domains) and focused on skills. The 11 skill sets and exemplary skills in each set are shown in Table 2.

Table 2. 11 health communication skill sets and specific skills in each set

S1. **Interpersonal and Group Communication**: conversation, public speaking, negotiation, persuasion, presentation
S2. **Expository Writing**: preparing memos, policy briefs, summaries, white papers
S3. **Scientific Writing**: preparing scientific articles for publication, literature reviews, research summaries
S4. **Regulatory Writing**: preparing investigational new drug applications, IRB packages, instructions, biosafety sheets
S5. **Journalistic/Public Relations Writing**: preparing Q&As, speeches, press releases, content editing for news for different platforms
S6. **Web/New Media Design**: apply information architecture principles, user friendly interface design, web content management
S7. **Data Visualization**: design story boards, graphs, charts, and/or infographics using software
S8. **Quantitative Data Analysis**: use statistical software (SAS, SPSS, Stata, etc.) to conduct basic and advanced analyses
S9. **Qualitative Data Analysis**: synthesize qualitative data manually or by using coding/analytical software (AtlasTI, MaxQDA, etc.)
S10. **Social Media Proficiency**: use interactive platforms to create and distribute content across multiple sites, maintain content production and distribution calendars
S11. **Teamwork**: work with others in a responsible and productive manner

[Section 5] The last section used the same procedures as above, asking respondents to rate 14 contextualized abilities for health communication specialists. Table 3 presents the 14 abilities used in the survey.

Table 3. 14 health communication abilities and short description of each ability

A1. **Communicate orally with diverse audiences** (e.g. persons with limited English proficiency, low literacy/health literacy, impaired hearing, or from different sociocultural backgrounds)
A2. **Prepare written materials for diverse audiences** (e.g., persons with limited English proficiency, low literacy/health literacy, impaired vision, or from different sociocultural backgrounds)
A3. **Proposal preparation**: locate funding sources, prepare narratives and other components, and ensure requirement compliance
A4. **Policy and advocacy support**: identify targets, conduct research, prepare documents, and disseminate through appropriate channels
A5. **Health education material development**: develop and test health education materials for children and/or adults to be used in different settings, including schools, healthcare facilities, recreational sites, on-line or digital channels
A6. **Public health emergency communication:** develop message maps, briefing materials, and talking points, work with subject matter experts to simplify messages to be conveyed to the public, develop and manage crisis communication center
A7. **Program/Project management:** develop SMART objectives, implementation plans, budgets, and key performance indicators
A8. **Teaching/training**: assess learning needs, develop learning objectives, create syllabi and curricula for authentic learning experiences, deliver content in-person or on-line, and evaluate student learning
A9. **Social marketing/health communication campaign process**: conduct audience analysis and segmentation, develop concepts, messages, identify channels, test content, work with creative teams, implement and manage programs, evaluate results
A10. **Community engagement and interaction**: identify partners, conduct needs assessment, develop MOU and other engagement tools, conduct meetings with purpose, manage budget and resources to achieve shared objectives, identify funding, share risks and rewards
A11. **Evaluate health communication programs**: identify stakeholder criteria, choose evaluation framework, apply data collection tools, summarize and share results, make decisions
A12. **Administer services**: manage information clearinghouse, product fulfillment, training programs, and contracted research
A13. **Exercise leadership**: generate mission/vision and objectives, lead multi-disciplinary teams to achieve organizational/community objectives
A14. **Market health-related products and services**: identify markets, develop strategies, and communicate product/service benefits

3. Survey Participants

3.1. Sample

Two hundred and thirty-eight people initiated the survey, with 142 (60%) providing complete information. The 96 (40%) surveys without complete information were removed prior to analysis.

3.2. Educational Background

More than half of the 142 participants held a doctoral degree (*n* = 79, 56%). Those with a master's degree were also common (*n* = 54, 38%). People whose highest degree was a bachelor's degree constituted a small minority (*n* = 8, 6%). Only one person reported "high school or vocational training" as the highest degree earned (*n* = 1, 0.7%).

In terms of their field of study, communication (*n* = 41, 29%) was the most common, followed by public health (*n* = 29, 20%) and mass communication (*n* = 17, 12%). Health communication was named by 15 participants (11%). Less commonly mentioned fields included health sciences (*n* = 6, 4%), social sciences (*n* = 6, 4%), interdisciplinary studies (*n* = 4, 3%), business (*n* = 3, 2%), education (*n* = 3, 2%), and humanities (*n* = 3, 2%). Fifteen participants did not answer this question (*n* = 15, 11%). See Table 4 for detailed information about participants' highest degrees earned and fields of study.

Table 4. Participants' highest degrees earned and fields of study

n (*%*)

	Bachelor's	Master's	Doctorate	Total
Communication (e.g., communication studies, communication and information technology)	0 (0)	8 (5.6)	33 (23.2)	41 (28.8)
Health communication	0 (0)	5 (3.5)	10 (7.0)	15 (10.6)
Public health (e.g., health behavior, health education, healthcare administration)	0 (0)	22 (15.5)	7 (4.9)	29 (20.4)
Mass communication (e.g., advertising, PR, journalism, audiovisual communication, media, public communication)	3 (2.1)	4 (2.8)	10 (7.0)	17 (12.0)
Health sciences (e.g., kinesiology, art therapy, aging studies, nursing, behavioral neuroscience, social and administrative pharmacy)	1 (0.7)	1 (0.7)	4 (2.8)	6 (4.2)
Social sciences (e.g., anthropology, political science, psychology, public administration)	0 (0)	4 (2.8)	2 (1.4)	6 (4.2)
Interdisciplinary studies	2 (1.4)	1 (0.7)	1 (0.7)	4 (2.8)
Business (e.g., marketing, management)	0 (0)	3 (2.1)	0 (0)	3 (2.1)
Education (e.g., higher education administration, leadership in educational organizations)	0 (0)	0 (0)	3 (2.1)	3 (2.1)

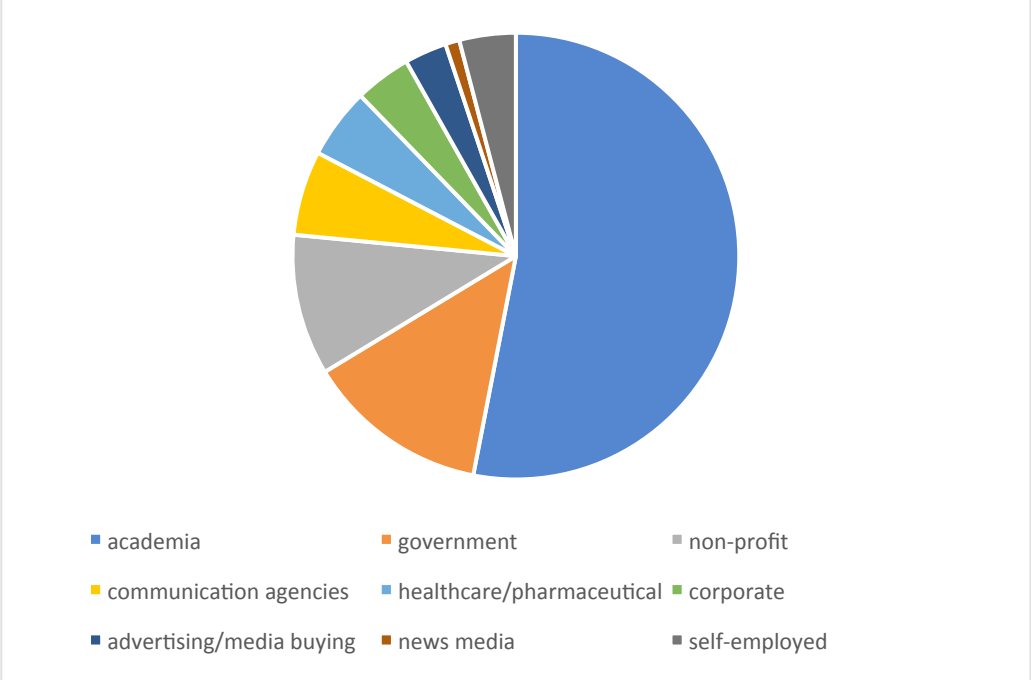
Humanities (e.g., English, digital humanities)	2 (1.4)	0 (0)	1 (0.7)	3 (2.1)
Not identified	1 (0.7)*	6 (4.2)	8 (5.6)	15 (10.6)
Total	9 (6.3)	54 (38.0)	79 (55.6)	142 (100)

*includes one person with a high school/associate degree.

3.3. Field of Employment

Half of the participants were currently working in academia (*n* = 74, 52%). Other major sectors of employment included government (*n* = 19, 13%), non-profit organizations (*n* = 14, 10%), and research/communication agencies working as government contractors (*n* = 12, 6%). A smaller number of participants were working for healthcare/pharmaceutical companies (*n* = 7, 5%), corporations as worksite health and wellness promoters (*n* = 5, 4%), advertising/media buying agencies (*n* = 4, 3%), and news media (*n* = 1, 1%). Six people answered that they were self-employed or working as consultants (*n* = 6, 4%).

Figure 1. Participants' current employment sectors



3.4.A. Focus on Educators

The 74 participants currently holding an academic position were teaching in a variety of disciplines. Although communication, media (e.g., advertising, journalism, media, public relations), and public health were the most common, the answers also included health sciences (e.g., kinesiology, nursing, nutrition), business (e.g., marketing, management), and social/behavioral sciences (e.g., psychology, sociology).

A majority of participants identified communication or media as the discipline in which they were teaching (*n* = 59, 80%), either as the sole discipline or along with another discipline(s). Between the two, communication (*n* = 54, 73%) was identified by far more participants than was media (*n* = 19, 26%). The number of participants teaching in public health (*n* = 20, 27%) was similar to the number of those in media. Because many participants chose more than one discipline, the sum of these numbers is higher than the total number of educators (*n* = 74).

The vast majority of participants was experienced, having been teaching in the identified discipline(s) or related fields for 4 or more years (*n* = 62, 84%). Only 11 participants (15%) had taught only 1-3 years. One participant (1%) did not answer the question. Among the experienced group, there were more participants who taught 11 or more years (*n* = 37, 50%) than those who taught 4-10 years (*n* = 25, 34%). In terms of the highest degrees granted by their academic programs, doctoral degree was the most common (*n* = 45, 61%), followed by master's (*n* = 20, 27%) and bachelor's (*n* = 9, 12%).

Health communication educators were almost evenly split in their work experience in a non-academic sector either before or simultaneously with their academic appointment. Half of them (*n* = 36, 49%) worked in a non-academic sector, and the other half of them did not (*n* = 38, 51%). Among those who worked in a non-academic sector, the highest number worked for government (*n* = 12, 33%). Less common were those who worked for news media/journalism organizations (*n* = 5, 14%), healthcare/pharmaceutical companies (*n* = 4, 11%), research/communication agencies (*n* = 4, 11%), corporations (*n* = 3, 8%), and non-profit organizations (*n* = 3, 8%). There was one person who checked self-employed/consultant (*n* = 1, 3%) and four people who answered "other" (*n* = 4, 11%).

When asked what feedback they had received from those hiring their students upon graduation, approximately one-third of educators answered that they had not received any feedback (*n* = 26, 35%). A similar number of participants answered that they received feedback that their students had high levels of knowledge, technical and soft skills, and ability (*n* = 23, 31%). The remaining one-third of participants identified one or more of these as the specific areas their students lacked: technical skills (*n* = 10, 14%), specific knowledge (*n* = 9, 12%), specific abilities (*n* = 7, 9%), and soft skills (*n* = 4, 5%).

3.4.B. Focus on Practitioners

Overall, the 68 participants currently practicing health communication were highly experienced. Those who had been in the field for 11 or more years were the most common (*n* = 42, 62%), followed by mid-career professionals who had worked in the field 4-10 years (*n* = 22, 32%). Early career professionals with 1-3 years of experience were scarce (*n* = 4, 6%).

Practitioners were also more likely to work in mid-to-large-sized organizations. Nineteen participants (28%) were working in organizations with 51-500 employees, and 18 (27%) were in organizations with more than 5,000 employees. Sixteen participants (24%) were working in organizations with 501-5,000 employees. In comparison, eight participants (12%) were working in organizations with 1-10 employees and seven (10%) in organizations with 11-50 employees.

In terms of the geographical scope of their work, the greatest number of participants answered that their work was national in scope (*n* = 42, 62%). The next common scope of work was city, county, or state-wide (*n* = 12, 18%), followed by global/multinational (*n* = 9, 13%). Participants were rarely involved in community-level work (*n* = 3, 4%) or work at the regional level or in another country (*n* = 2, 3%).

The average starting salary of entry-level health communication specialists was approximately $50,000 per year for those with a bachelor's degree or less and $64,000 for those with a master's degree. The average starting salary of mid-level health communication specialists, regardless of their degree, was approximately $78,900. At the same time, there were wide variations in the salary figures. See Table 5 for more details.

Table 5. Average starting salaries for health communication specialists

Level/degree	*n*	*Minimum*	*Maximum*	*M*	*SD*
Entry-level position with bachelor's	34	25,000	100,000	49,268.82	14,154.57
Entry-level position with master's	40	40,000	120,000	63,638.00	15,008.14
Mid-level position	33	42,000	200,000	78,874.33	26,936.76

When asked to comment on the preparation of new hires with whom they worked, nine out of 58 respondents said that new hires had high levels of knowledge, technical and soft skills, and ability (*n* = 9, 16%), and three participants said that they had no new hire or the question was not applicable (*n* = 3, 5%). The remaining participants identified one or more specific areas lacking in new employees: specific knowledge (*n* = 27, 47%), technical skills (*n* = 20, 34%), specific abilities (*n* = 14, 24%), and soft skills (*n* = 13, 22%). Four people checked "other" and offered comments (*n* = 4, 7%). See Table 6 for a comparison of the responses from educators and practitioners.

Table 6. Preparation of health communication specialists evaluated by educators and practitioners

(%)[a]

	Educators (n = 74)	Practitioners (n = 58)
High level of knowledge, technical and soft skills, and ability	31%	16%
Lacking some specific knowledge	12%	47%
Lacking some technical skills	14%	34%
Lacking some soft skills	5%	22%
Lacking some specific abilities	9%	24%
Other	0%	7%[b]
Received no feedback[c]	35%	-
No new hire/not applicable[d]	-	5%

[a]The sum of percentages in each column is higher than 100 because participants were allowed to check more than one answers.

[b]The comments included: "Entry level people not ready for/interested in doing the support functions."; "New hires are not prepared."; "New hires don't understand office politics and how to advocate for themselves."; "Translating research findings into communication."

[c]This answer was available only to educators.

[d]This answer was available only to practitioners.

4. Results

Results are presented for knowledge domains, skill sets, and abilities showing means and standard deviations for the entire sample. Factor analysis was used to assess whether knowledge domains, skill sets, and abilities could be combined and reduced into more compact suites.

4.1. Knowledge Domains

Responses from all 142 participants were analyzed together to assess the importance of the pre-identified 18 knowledge domains. All of the domains were rated as "somewhat important" or higher (≥ 2) on the 0 ("not used at all") to 4 ("essential") scale.

Six knowledge domains were rated between 3 ("important") and 4 ("essential"): health literacy (*M* = 3.54, *SD* = .79), intercultural communication (*M* = 3.38, *SD* = 0.76), health behavior change (*M* = 3.37, *SD* = 0.86), social marketing (*M* = 3.18, *SD* = 0.97), qualitative research methods (*M* = 3.03, *SD* = 0.88), and public health fundamentals (*M* = 3.00, *SD* = 0.98). Items with the means of 3.0 or higher had smaller standard deviations, suggesting stronger consensus on their importance.

Seven knowledge domains had means between 2.5 and 3.0: media planning (*M* = 2.99, *SD* = 0.94), quantitative research methods (*M* = 2.89, *SD* = 1.02), organizational communication (*M* = 2.72, *SD* = 0.99), crisis and risk communication (*M* = 2.65, *SD* = 1.19), ethics and law in health communication (*M* = 2.63, *SD* = 1.20), clinical communication (*M* = 2.62, *SD* = 1.18), and media and journalism (*M* = 2.52, *SD* = 1.00).

The means of five knowledge domains fell between 2.0 and 2.5: healthcare system (*M* = 2.46, *SD* = 1.13), accessible design (*M* = 2.41, *SD* = 1.18), global health communication (*M* = 2.36, *SD* = 1.07), health science (*M* = 2.18, *SD* = 1.09), and new media and tools (*M* = 2.07, *SD* = 1.14). Table 7 presents the means and standard deviations for knowledge domains in the descending order of importance.

Table 7. Importance of 18 knowledge domains for health communication specialists

(*N* = 142)

Knowledge domain	*M*[a]	*SD*
K4. Health literacy[b]	3.54	.79
K3. Intercultural communication	3.38	.76
K8. Health behavior change	3.37	.86
K9. Social marketing	3.18	.97
K12. Qualitative research methods	3.03	.88
K6. Public health fundamentals	3.00	.98
K10. Media planning[c]	2.99	.94
K11. Quantitative research methods	2.89	1.02
K2. Organizational communication	2.72	.99
K15. Crisis and risk communication	2.65	1.19
K18. Ethics and law in health communication	2.63	1.20
K1. Clinical communication	2.62	1.18
K13. Media and journalism	2.52	1.00
K7. Healthcare system[d]	2.46	1.13
K16. Accessible design	2.41	1.18
K17. Global health communication	2.36	1.07
K5. Health science	2.18	1.09
K14. New media and tools	2.07	1.14

[a] Response scale: 0, "not used at all"; 1, "minimally important"; 2, "somewhat important"; 3, "important"; 4, "essential"

[b] Six knowledge domains with the means between 3 and 4 are shaded in darker gray.

[c] Seven knowledge domains with the means between 2.5 and 3 are shaded in lighter gray.

[d] Five knowledge domains with the means below 2.5 are not shaded.

Factor analysis was conducted to explore whether there was a pattern of relationships among the knowledge domains. First, the knowledge domains were classified into two groups, one primarily concerning health and the other primarily concerning communication, to achieve a statistically sound ratio between the number of knowledge domains and the number of observations for factor analysis. The first group comprised 10 knowledge domains: clinical communication, health literacy, health science, public health fundamentals, healthcare system, health behavior change, quantitative research methods, qualitative research methods, global health communication, and ethics and law in health communication. The second group included eight domains: organizational

communication, intercultural communication, social marketing, media planning, media and journalism, new media and tools, crisis and risk communication, and accessible design.

From the 10 health knowledge domains, three factors were identified that accounted for 60.3% of the variance. One factor included the knowledge of clinical communication, health science, and the healthcare system; all of which focused on healthcare encounters between patients and providers and the system in which the encounters take place. This factor was named "healthcare communication knowledge." The second factor included health behavior change, quantitative research methods, and qualitative research methods. Because the components were squarely in the domain of research, this factor was named "health behavior research knowledge." Only two knowledge domains loaded on the third factor: health literacy and ethics and law in health communication. Because the two domains share their roots in the care for patients and the public, as opposed to providers and authorities, this factor was named "patient/public orientation knowledge." Public health fundamentals and global health communication did not clearly load on any of the three factors. In sum, 10 health knowledge domains were reduced to five. See Table 8 for details.

Table 8. Factor analysis of health knowledge domains

	Knowledge Domains I - Health			
	Factor 1 loadings	Factor 2 loadings	Factor 3 loadings	Communality
Clinical communication	**.796**	-.001	-.003	.633
Health literacy	-.107	.103	**.701**	.514
Health science	**.772**	.152	-.043	.622
Public health fundamentals	.340	.261	.267	.255
Healthcare system	**.707**	.025	.234	.555
Health behavior change	-.276	**.644**	.357	.619
Quantitative research methods	.238	**.834**	.025	.753
Qualitative research methods	.147	**.893**	-.073	.824
Global health communication	.534	.165	.539	.603
Ethics and law	.377	-.114	**.702**	.648
Eigenvalue	2.438	2.052	1.536	
% of total variance	24.380	20.516	15.365	
Total variance		**60.261%**		

Two health knowledge domains did not load on any of the three factors and are shaded here.

From the eight communication knowledge domains, two factors were identified that accounted for 52.3% of the variance. One factor included the knowledge of organizational communication, media and journalism, and new media and tools, all of which focused on conflict, public opinion, journalism, and media. Hence, this factor was named "public opinion and media knowledge." The second factor included social marketing and media planning, two essential knowledge domains for health campaigns. This factor was named "social marketing knowledge." Intercultural communication, crisis and risk communication, and accessible design did not load on either factor. In sum, eight communication knowledge domains were reduced to five. See Table 9 for details.

Table 9. Factor analysis of communication knowledge domains

	Knowledge Domains II – Communication		
	Factor 1 loadings	Factor 2 loadings	Communality
Organizational communication	**.694**	-.092	.490
Intercultural communication	.599	.213	.404
Media and journalism	**.702**	.251	.555
New media and tools	**.717**	.091	.523
Crisis and risk communication	.539	.390	.443
Accessible design	.438	.493	.435
Social marketing	-.010	**.841**	.707
Media planning	.169	**.771**	.623
Eigenvalue	2.359	1.822	
% of total variance	29.482	22.771	
Total variance		**52.253%**	

Three communication knowledge domains did not load on either factor and are shaded here.

Table 10 shows the 10 suites of knowledge domains reorganized based on the factor analysis results. The knowledge domain suites are listed in the order of higher importance determined by the composite means.

Table 10. Revised 10 health communication knowledge domain suites and knowledge domains in each suite

REVISED 10 KNOWLEDGE DOMAIN SUITES	***M***
INTERCULTURAL COMMUNICATION: race/ethnicity, gender, sexual orientation, disabilities, geography, life stages, social identity, implicit bias, cultural differences and communication styles	**3.38**
HEALTH BEHAVIOR RESEARCH	**3.10**

Health Behavior Change: theories, demographics, psychographics	3.37
Qualitative Research Methods: data collection, analysis, interpretation, participatory research, developmental evaluation	3.03
Quantitative Research Methods: data collection, analysis, interpretation	2.89
PATIENT/PUBLIC ORIENTATION	**3.09**
Health Literacy: causal factors, outcomes, healthy literacy screening, plain language use, numeracy, science literacy, media literacy	3.54
Ethics and Law in Health Communication: Belmont Report, IRB, HIPAA, privacy, cyber security, individual autonomy, propaganda	2.63
SOCIAL MARKETING	**3.09**
Social Marketing: segmentation, marketing mix, consumer behavior, research, strategy	3.18
Media Planning: channel selection and mix, social media platforms, use of management tools, analytics, purchasing, preparing content	2.99
PUBLIC HEALTH FUNDAMENTALS: ecological model, social determinants, epidemiology, biostatistics, health policy, health systems, environmental health	**3.00**
CRISIS AND RISK COMMUNICATION: risk appraisal, risk presentation and framing, psychology of risk and crisis, crisis and risk preparation	**2.65**
PUBLIC OPINION AND MEDIA	**2.44**
Organizational Communication: leadership, mediation, conflict management	2.72
Media and Journalism: media economics, news gatekeeping, public opinion, media effects	2.52
New Media and Tools: eye tracking, EEG/fMRI/facial emotion analysis, virtual/augmented reality, gamification	2.07
HEALTHCARE COMMUNICATION	**2.42**
Clinical Communication: patient-provider, inter-professional, informed consent, use of medical translators	2.62
Healthcare System: systems & structures, finance/business, informatics, medical advances, pharma/biotech related issues	2.46
Health Science: human physiology, pathology, infectious diseases, health science methodologies	2.18
ACCESSIBLE DESIGN: website, course, and other tools to enhance accessibility for visually and/or hearing impaired	**2.41**
GLOBAL HEALTH COMMUNICATION: multicultural health, global health threats, world health com systems and modalities	**2.36**

4.2. Skill Sets

All but one of the 11 skill sets were rated as “somewhat important” or higher. Four skill sets were rated between 3 (“important”) and 4 (“essential”):

teamwork (*M* = 3.77, *SD* = 0.53), interpersonal and group communication (*M* = 3.49, *SD* = 0.76), expository writing (*M* = 3.25, *SD* = 0.88), and social media proficiency (*M* = 3.1, *SD* = 0.95). Similar to the knowledge domains, items with the means of 3.0 or higher had smaller standard deviations, suggesting stronger consensus on their importance.

Five skill sets had means between 2.5 and 3: journalistic/public relations writing (*M* = 2.84, *SD* = 1.05), data visualization (*M* = 2.73, *SD* = 1.00), scientific writing (*M* = 2.66, *SD* = 1.08), web/new media design (*M* = 2.6, *SD* = 1.06), and qualitative data analysis (*M* = 2.5, *SD* = 1.19).

The second from the bottom was quantitative data analysis (*M* = 2.43, *SD* = 1.25). Regulatory writing was barely under the threshold (*M* = 1.99, *SD* = 1.08). Table 11 lists all the skill sets with the most important item on top.

Table 11. Importance of 11 skill sets for health communication specialists (*N* = 135)

Skill set	*M*[a]	*SD*
S11. Teamwork[b]	3.77	.53
S1. Interpersonal and group communication	3.49	.76
S2. Expository writing	3.25	.88
S10. Social media proficiency	3.10	.95
S5. Journalistic/Public relations writing[c]	2.84	1.05
S7. Data visualization	2.73	1.00
S3. Scientific writing	2.66	1.08
S6. Web/New media design	2.60	1.06
S9. Qualitative data analysis	2.50	1.19
S8. Quantitative data analysis[d]	2.43	1.25
S4. Regulatory writing	1.99	1.08

[a] Response scale: 0, "not used at all"; 1, "minimally important"; 2, "somewhat important"; 3, "important"; 4, "essential"

[b] Four skill sets with the means between 3 and 4 are shaded in darker gray.

[c] Five skill sets with the means between 2.5 and 3 are shaded in lighter gray.

[d] Two skill sets with the means below 2.5 are not shaded.

Factor analysis was conducted with the 11 skills sets to examine the relationships among them. Three factors emerged that accounted for 65.4% of the variance. The first factor included four skill sets: scientific writing, regulatory

writing, quantitative data analysis, and qualitative data analysis. Because these are the skills involved in research and reporting to scientists and regulators, this factor was named "research and reporting skills." The second factor also included four skill sets: journalistic/public relations writing, web/new media design, data visualization, and social media proficiency. Because the list encompasses a wide range of skills for journalism and media practice, the factor was named "journalism and media practice skills." The remaining three skill sets were loaded on the third factor: interpersonal and group communication, expository writing, and teamwork. Because these are the most fundamental skills, the third factor was named "communication essentials (skills)." In sum, 11 skill sets were reduced to three groups. See Table 12 for details.

Table 12. Factor analysis of skill sets

	Factor 1 loadings	Factor 2 loadings	Factor 3 loadings	Communality
Interpersonal and group communication	.147	.210	**.802**	.709
Expository writing	.130	.166	**.692**	.523
Scientific writing	**.704**	.104	.161	.532
Regulatory writing	**.719**	.233	.073	.577
Journalistic/Public relations writing	.084	**.814**	.153	.693
Web/New media design	-.096	**.782**	.267	.692
Data visualization	.314	**.676**	.006	.556
Quantitative data analysis	**.897**	-.004	-.017	.804
Qualitative data analysis	**.877**	-.020	.099	.780
Social media proficiency	.059	**.765**	.260	.656
Teamwork	-.004	.114	**.805**	.668
Eigenvalue	2.438	2.052	1.536	
% of total variance	24.380	20.516	15.365	
Total variance		**65.363%**		

Table 13 shows the three suites of skill sets reorganized based on the factor analysis results. The skill set suites are listed in the order of higher importance determined by the composite means.

Table 13. Revised three health communication skill set suites and specific skill sets in each suite

REVISED 3 SKILL SET SUITES	***M***
COMMUNICATION ESSENTIALS	**3.50**
Teamwork: work with others in a responsible and productive manner	3.77

Interpersonal and Group Communication: conversation, public speaking, negotiation, persuasion, presentation	3.49
Expository Writing: preparing memos, policy briefs, summaries, white papers	3.25
MEDIA AND JOURNALISM PRACTICE	**2.82**
Social Media Proficiency: use interactive platforms to create and distribute content across multiple sites, maintain content production and distribution calendars	3.10
Journalistic/Public Relations Writing: preparing Q&As, speeches, press releases, content editing for news for different platforms	2.84
Data Visualization: design story boards, graphs, charts, and/or infographics using software	2.73
Web/New Media Design: apply information architecture principles, user friendly interface design, web content management	2.60
RESEARCH AND REPORTING	**2.40**
Scientific Writing: preparing scientific articles for publication, literature reviews, research summaries	2.66
Qualitative Data Analysis: synthesize qualitative data manually or by using coding/ analytical software (AtlasTI, MaxQDA, etc.)	2.50
Quantitative Data Analysis: use statistical software (SAS, SPSS, Stata, etc.) to conduct basic and advanced analyses	2.43
Regulatory Writing: preparing investigational new drug applications, IRB packages, instructions, biosafety sheets	1.99

4.3. Abilities

All but one of the 14 abilities were rated as "somewhat important" or higher. Seven abilities were rated between 3 ("important") and 4 ("essential"): prepare written materials for diverse audiences (*M* = 3.52, *SD* = .73), communicate orally with diverse audiences (*M* = 3.45, *SD* = .79), social marketing/health communication campaign process (*M* = 3.34, *SD* = .90), health education material development (*M* = 3.29, *SD* = .86), program/project management (*M* = 3.27, *SD* = .83), evaluate health communication programs (*M* = 3.15, *SD* = .97), and community engagement and interaction (*M* = 3.05, *SD* = 1.00). Similar to knowledge domains and skill sets, items with higher means had smaller standard deviations, suggesting stronger consensus on their importance.

There were four abilities with the means between 2.5 and 3: exercise leadership (*M* = 2.89, *SD* = 0.95), public health emergency communication (*M* = 2.75, *SD* = 1.12), proposal preparation (*M* = 2.74, *SD* = 1.08), and policy and advocacy support (*M* = 2.69, *SD* = 0.98).

Two abilities had means between 2 and 2.5: market health-related products and services (*M* = 2.38, *SD* = 1.06) and teaching/training (*M* = 2.27, *SD* = 1.22). Administrate services fell below the threshold (*M* = 1.89, *SD* = 1.17). Table 14 lists all the abilities in the order of the most important item first.

Table 14. Importance of 14 abilities for health communication specialists

(*N* = 132)

Ability	*M*[a]	*SD*
A2. Prepare written materials for diverse audiences[b]	3.52	.73
A1. Communicate orally with diverse audiences	3.45	.79
A9. Social marketing/health communication campaign process	3.34	.90
A5. Health education material development	3.29	.86
A7. Program/project management	3.27	.83
A11. Evaluate health communication programs	3.15	.97
A10. Community engagement and interaction	3.05	1.00
A13. Exercise leadership[c]	2.89	.95
A6. Public health emergency communication	2.75	1.12
A3. Proposal preparation	2.74	1.08
A4. Policy and advocacy support	2.69	.98
A14. Market health-related products and services[d]	2.38	1.06
A8. Teaching/training	2.27	1.22
A12. Administer services	1.89	1.17

[a] Response scale: 0, "not used at all"; 1, "minimally important"; 2, "somewhat important"; 3, "important"; 4, "essential"

[b] Seven abilities with the means between 3 and 4 are shaded in darker gray.

[c] Four abilities with the means between 2.5 and 3 are shaded in lighter gray.

[d] Three abilities with the means below 2.5 are not shaded.

Because the factor analysis results of the 11 skill sets suggested that communicating effectively verbally and through writing are the most essential, the top two universally applicable abilities were identified as a factor a priori: prepare written materials for diverse audiences and communicate orally with diverse audiences. Subsequently, factor analysis was conducted with the remaining 12 abilities. Three factors were identified that accounted for 61.5% of the variance. One factor included five abilities: proposal preparation, policy and advocacy support, health education material development, public health emergency communication, and teaching/training. This factor was named "public

health administration abilities." The other factor included three abilities: program/project management, social marketing/health campaign, and evaluate health communication programs. This factor was named "health communication program/campaign abilities." Another factor encompassed three abilities: community engagement and interaction, administer services, and exercise leadership. Because these abilities are more relevant to public health service delivery, the factor was named "health service delivery abilities." Market health-related products and services did not load on any of the three factors. In sum, 12 abilities were reduced to five groups of abilities. See Table 15 for details.

Table 15. Factor analysis of abilities

	Factor 1 loadings	Factor 2 loadings	Factor 3 loadings	Communality
Proposal preparation	**.901**	-.044	-.054	.817
Policy and advocacy support	**.811**	.044	-.080	.666
Health education material development	**.618**	.468	.084	.608
Public health emergency communication	**.769**	.329	.041	.701
Program/Project management	.187	**.840**	.041	.742
Teaching/Training	**.792**	.132	.043	.647
Social marketing/Health campaign	-.009	**.825**	-.249	.742
Community engagement and interaction	.297	.101	**.551**	.402
Evaluate health communication programs	.209	**.593**	.063	.399
Administer services	-.143	.098	**.856**	.763
Exercise leadership	-.102	-.143	**.799**	.670
Market health-related products and services	.014	.387	.267	.221
Eigenvalue	3.269	2.275	1.834	
% of total variance	27.238	18.957	15.285	
Total variance		**61.480%**		

One ability did not load on any of the three factors and is shaded here.

Table 16 shows the five suites of abilities reorganized based on the factor analysis results. The ability suites are listed in the order of higher importance determined by the composite means.

Table 16. Revised five health communication ability suites and short description of abilities in each suite

REVISED 5 ABILITY SUITES	***M***
COMMUNICATE WITH DIVERSE AUDIENCES	**3.49**
Prepare written materials for diverse audiences (e.g., persons with limited English proficiency, low literacy/health literacy, impaired vision, or from different sociocultural	3.52

backgrounds)	
Communicate orally with diverse audiences (e.g. persons with limited English proficiency, low literacy/health literacy, impaired hearing, or from different sociocultural backgrounds)	3.45
HEALTH COMMUNICATION PROGRAM/CAMPAIGN	**3.25**
Social marketing/health communication campaign process: conduct audience analysis and segmentation, develop concepts, messages, identify channels, test content, work with creative teams, implement and manage programs, evaluate results	3.34
Program/Project management: develop SMART objectives, implementation plans, budgets, and key performance indicators	3.27
Evaluate health communication programs: identify stakeholder criteria, choose evaluation framework, apply data collection tools, summarize and share results, make decisions	3.15
PUBLIC HEALTH ADMINISTRATION	**2.75**
Health education material development: develop and test health education materials for children and/or adults to be used in different settings, including schools, healthcare facilities, recreational sites, on-line or digital channels	3.29
Public health emergency communication: develop message maps, briefing materials, and talking points, work with subject matter experts to simplify messages to be conveyed to the public, develop and manage crisis communication center	2.75
Proposal preparation: locate funding sources, prepare narratives and other components, and ensure requirement compliance	2.74
Policy and advocacy support: identify targets, conduct research, prepare documents, and disseminate through appropriate channels	2.69
Teaching/training: assess learning needs, develop learning objectives, create syllabi and curricula for authentic learning experiences, deliver content in-person or on-line, and evaluate student learning	2.27
HEALTH SERVICE DELIVERY	**2.61**
Community engagement and interaction: identify partners, conduct needs assessment, develop MOU and other engagement tools, conduct meetings with purpose, manage budget and resources to achieve shared objectives, identify funding, share risks and rewards	3.05
Exercise leadership: generate mission/vision and objectives, lead multi-disciplinary teams to achieve organizational/community objectives	2.89
Administer services: manage information clearinghouse, product fulfillment, training programs, and contracted research	1.89
MARKET HEALTH-RELATED PRODUCTS AND SERVICES: identify markets, develop strategies, and communicate product/service benefits	**2.38**

5. Differences between Educators and Practitioners

Independent samples t-tests were conducted to determine whether health communication educators and practitioners were different in terms of the importance they assigned to the knowledge domains, skill sets, and abilities. For each comparison, equality of variances between the two groups, educators and practitioners, was examined first and an appropriate t statistic was used as indicated by the test.

Educators and practitioners differed in seven out of the 18 knowledge domains. Educators rated qualitative and quantitative research methods, clinical communication, healthcare system knowledge, ethics and law in health communication, crisis and risk communication, and global health communication higher than practitioners. See Table 17 for detailed statistics.

Table 17. Differences between educators and practitioners in the importance of each knowledge domain

	Educators (*n* = 74) *M*[a] (*SD*)	Practitioners (*n* = 68) *M* (*SD*)	Diff. *p*
INTERCULTURAL COMMUNICATION	3.49 (0.65)	3.26 (0.86)	.082
HEALTH BEHAVIOR RESEARCH			
Health Behavior Change	3.43 (0.88)	3.29 (0.85)	.342
Qualitative Research Methods	**3.20** (0.78)	2.84 (0.94)	.013*
Quantitative Research Methods	**3.11** (0.97)	2.65 (1.02)	.007**
PATIENT/PUBLIC ORIENTATION			
Health Literacy	3.57 (0.72)	3.51 (0.86)	.691
Ethics and Law in Health Communication	**2.86** (1.11)	2.37 (1.25)	.013*
SOCIAL MARKETING			
Social Marketing	3.11 (0.97)	3.25 (0.97)	.386
Media Planning[b]	2.86 (1.04)	3.13 (0.81)	.088
PUBLIC HEALTH FUNDAMENTALS	3.10 (0.93)	2.90 (1.02)	.229
CRISIS AND RISK COMMUNICATION[b]	**2.95** (1.01)	2.34 (1.29)	.002**
PUBLIC OPINION AND MEDIA			
Organizational Communication	2.74 (0.95)	2.69 (1.04)	.756
Media and Journalism	2.47 (1.05)	2.57 (0.95)	.552
New Media and Tools	2.09 (1.08)	2.04 (1.22)	.797
HEALTHCARE COMMUNICATION			
Clinical Communication[b]	**3.07** (0.88)	2.13 (1.28)	< .001***
Healthcare System	**2.70** (0.98)	2.21 (1.22)	.009**

Health Science	2.34 (1.00)	2.00 (1.16)	.064
ACCESSIBLE DESIGN	2.40 (1.14)	2.43 (1.23)	.859
GLOBAL HEALTH COMMUNICATION	**2.70** (0.89)	1.99 (1.14)	< .001***

[a]Statistically significantly higher means are noted in bold.

[b]Variances were not equal between the two groups and thus two-tailed t-test corrected for unequal variance was employed.

Educators and practitioners diverged in the importance they attached to four skills sets that were under the "Research and Reporting" group. Compared to practitioners, educators rated scientific writing, qualitative data analysis, quantitative data analysis, and regulatory writing more important. See Table 18 for detailed statistics.

Table 18. Differences between educators and practitioners in the importance of each skill set

	Educators (*n* = 69) *M*[a] (*SD*)	Practitioners (*n* = 66) *M* (*SD*)	Diff. *p*
COMMUNICATION ESSENTIALS			
Teamwork[b]	3.70 (0.622)	3.85 (0.402)	.099
Interpersonal and Group Communication	3.54 (0.739)	3.44 (0.787)	.462
Expository Writing[b]	3.33 (0.700)	3.17 (1.032)	.276
MEDIA AND JOURNALISM PRACTICE			
Social Media Proficiency	3.01 (0.978)	3.18 (0.927)	.310
Journalistic/Public Relations Writing[b]	2.84 (0.901)	2.83 (1.197)	.968
Data Visualization[b]	2.83 (0.857)	2.63 (1.126)	.263
Web/New Media Design	2.49 (1.052)	2.71 (1.057)	.240
RESEARCH AND REPORTING			
Scientific Writing[b]	**2.91** (0.853)	2.39 (1.226)	.005**
Qualitative Data Analysis	**2.91** (0.996)	2.06 (1.233)	< .001***
Quantitative Data Analysis	**2.90** (1.067)	1.92 (1.245)	< .001***
Regulatory Writing	**2.33** (1.010)	1.62 (1.038)	< .001***

[a]Statistically significantly higher means are noted in bold.

[b]Variances were not equal between the two groups and thus two-tailed t-test corrected for unequal variance was employed.

On the abilities, educators and practitioners were different in eight out of 14 comparisons and the differences were widespread across the five ability suites rather than concentrated in one or two. Educators, compared with practitioners,

ascribed higher importance to communicate orally with diverse audiences, evaluate health communication programs, public health emergency communication, proposal preparation, policy and advocacy support, teaching/training, community engagement and interaction, and administer services. On the measures, standard deviation figures appeared lower among educators than among practitioners. See Table 19 for detailed statistics.

Table 19. Differences between educators and practitioners in the importance of each ability

	Educators (n = 66) M^a (SD)	Practitioners (n = 66) M (SD)	Diff. p
COMMUNICATE WITH DIVERSE AUDIENCES			
Prepare written materials[b]	3.61 (0.579)	3.42 (0.842)	.151
Communicate orally[b]	**3.67** (0.591)	3.24 (0.895)	.002**
HEALTH COMM. PROGRAM/CAMPAIGN			
Social marketing/Health comm. campaign process	3.30 (0.803)	3.38 (0.989)	.630
Program/Project management	3.17 (0.834)	3.37 (0.821)	.164
Evaluate health comm. programs	**3.36** (0.757)	2.92 (1.108)	.009**
PUBLIC HEALTH ADMINISTRATION			
Health education material development	3.38 (0.678)	3.20 (1.003)	.221
Public health emergency comm.[b]	**3.00** (0.911)	2.50 (1.256)	.01*
Proposal preparation[b]	**3.02** (0.953)	2.47 (1.140)	.003**
Policy and advocacy support	**3.00** (0.859)	2.37 (0.993)	< .001***
Teaching/Training	**2.62** (1.120)	1.92 (1.216)	.001**
HEALTH SERVICE DELIVERY			
Community engagement & interaction[b]	**3.29** (0.799)	2.80 (1.112)	.005**
Exercise leadership	2.91 (0.872)	2.86 (1.036)	.786
Administer services	**2.15** (1.085)	1.63 (1.206)	.01*
MARKET HEALTH-RELATED PRODUCTS AND SERVICES[b]	2.52 (0.808)	2.25 (1.250)	.147

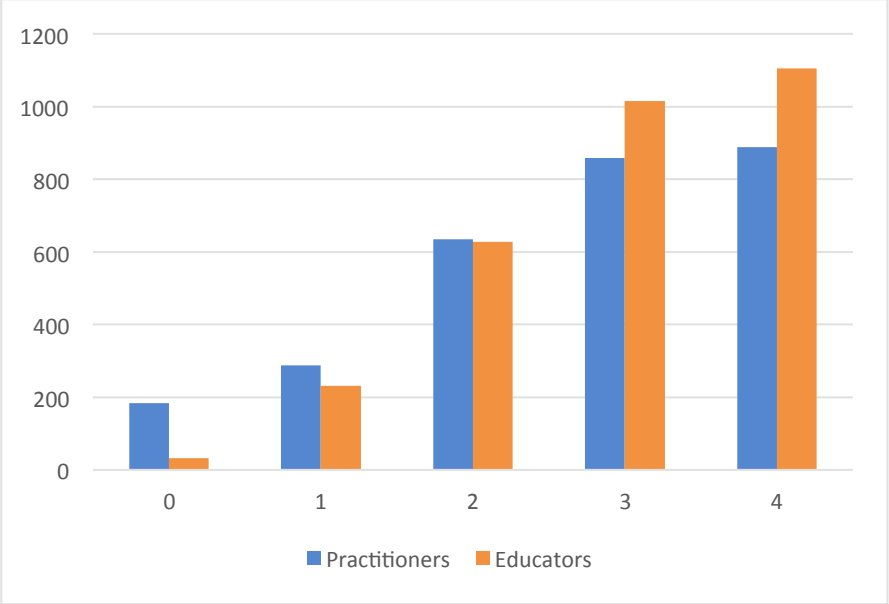
[a]Statistically significantly higher means are noted in bold.

[b]Variances were not equal between the two groups and thus two-tailed t-test corrected for unequal variance was employed.

Distribution of educators and practitioners' ratings of the 43 knowledge domains, skill sets, and abilities illustrates that 0 ("not used at all") was the least common answer and 4 ("essential") was the most common answer for both

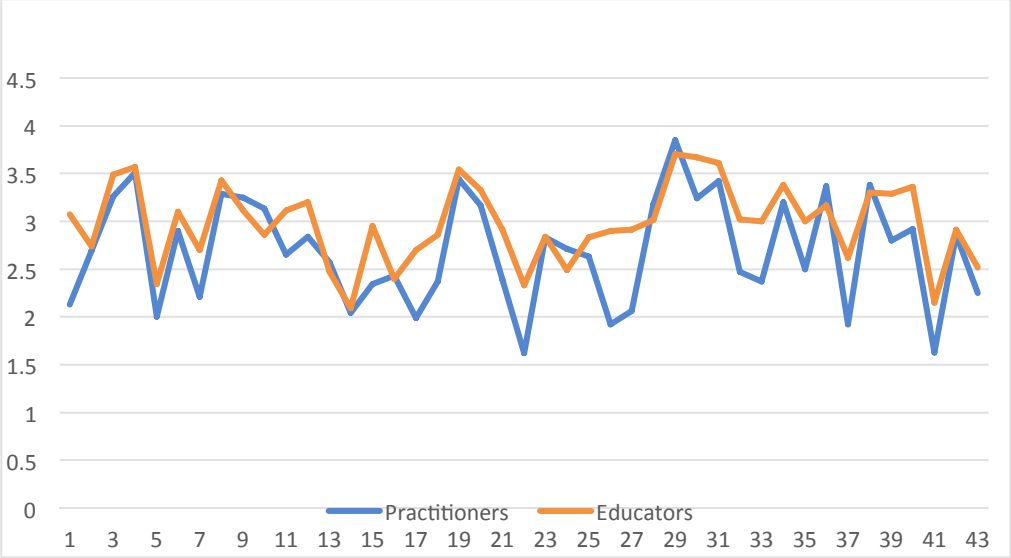
groups. At the same time, practitioners assigned 0 and 1 more frequently than educators whereas educators gave 3 and 4 more frequently than practitioners. See Figure 2 for the distribution of educators and practitioners' evaluation of the importance of the 43 items.

Figure 2. Distribution of the Importance ratings of 43 knowledge domains, skill sets, and abilities by educators and practitioners



When educators and practitioners were compared for their means of the 43 items, they were more similar than different from each other. The differences were more exceptions than the norm and the overall patterns were consistent between the two groups. See Figure 3 for the mean scores of the 43 items by educators and practitioners.

Figure 3. Mean importance of 43 knowledge domains, skill sets, and abilities by educators and practitioners



6. Summary and Discussion

The survey was taken by 142 health communication educators and practitioners, the vast majority of whom had a master's or doctoral degree. Communication, including health communication, was the most common field in which respondents earned their degrees. Public health, especially master of public health, was another common degree. Slightly more than half of the participants were health communication educators currently teaching in colleges and universities. Among practitioners, almost half of them there were working in a government agency or non-profit organization. The other half were in a variety of private, for-profit industries.

Educators were predominantly teaching in communication, media, and public health. Participants in the academic sector were highly experienced faculty at institutions offering graduate degrees. Half of the educators also had practical experience either prior to or parallel to their academic appointment.

Practitioners were also similarly highly experienced. Half of them were working in large organizations with more than 500 employees. The scope of their work was primarily national. The average starting salaries for health communication specialists in their organizations varied widely, with substantial differences by education level and experience.

When presented with a question regarding the preparation of health communication specialists, the responses by educators and practitioners diverged substantially. Twice as many educators as practitioners answered that students

getting hired for health communication positions had high levels of knowledge, technical and soft skills, and ability. On the other hand, more than twice as many practitioners as educators answered that new hires were lacking some specific knowledge, technical and interpersonal skills, and abilities. The discrepancy was especially pronounced for interpersonal skills.

All of the 18 knowledge domains presented in the survey were deemed "somewhat important" or higher. The knowledge domains were widely dispersed in their importance between "somewhat important" and "essential." Similarly, all of the 11 skill sets in the survey were deemed "somewhat important" or higher, and they were widely dispersed between "somewhat important" and "essential." The original 14 abilities were also ranked "somewhat important" or higher, with only one ability below the threshold, but still very close to it. Half of the abilities listed on the survey were rated between "important" and "essential." These findings indicate that the knowledge domains, skill sets, and abilities identified through the literature review and synthesis were all highly relevant to health communication practice. The scarcity of open-ended responses for additional knowledge domains, skill sets, and abilities suggests that the list is also comprehensive, if not exhaustive.

The comparisons between educators and practitioners revealed that educators rated some knowledge domains, skill sets, and abilities more highly than practitioners. In addition, educators were more in agreement with other educators and practitioners were more varied in their ratings. We speculate that educators were influenced by current curriculum models (e.g., Certified in Public Health, Certified Health Education Specialist), whereas practitioners rated the items directly relevant to their work most highly.

The reorganized list of 10 knowledge domains, three skill sets, and five abilities based on the factor analysis results can be useful as the Committee plans to move forward with creating different sets of abilities and related knowledge domains and skill sets for several sub-specializations in health communication practice. Next steps for the Committee include sharing the competency model with a larger sample of practitioners in sectors that were not adequately represented in the present study, as well as seeking confirmation from the professional societies already included. Our goal is to create a competency model that can be used as the basis of academic training and ultimately credentialing in health communication.

7. Limitations and Concluding Thoughts

This study has several limitations. First, the sample size is rather small. The sample is also not representative of health communication educators and practitioners in the United States. Notably absent among the survey participants were practitioners in healthcare industries and their underrepresentation might explain the relatively lower importance scores of health science and healthcare system knowledge, regulatory writing skills, and such abilities as administer services and market health-related products and services. More than a quarter of graduates from a large master's level health communication program reported working in healthcare industries such as medical practices, hospitals, health insurance, pharmaceutical, biotech, and medical devices companies (Edgar et al., 2015). Hence, the competencies related to the segments of health communication practice should not be overlooked.

Second, the attrition rate between survey initiation and the questions concerning knowledge domains was high. Several factors might have contributed to this. It is possible that the highly technical nature of the survey might have made some volunteers feel ill-equipped to answer the questions related to the knowledge domains, skill sets, and abilities. Also, the health communication divisions of the three professional organizations have a substantial number of graduate student members and some of them might have begun taking the survey only to realize that it was meant for those who were currently practicing or teaching health communication and subsequently stopped their participation.

Third, the basis to divide the 18 knowledge domains into health-related knowledge and communication-related knowledge was rather arbitrary. Because 18 items were too many for a factor analysis, dividing them into two groups and running two separate factor analyses was a sound methodological decision. However, there was no pre-established rationale to classify one knowledge domain more as communication knowledge than health knowledge. For example, the quantitative and qualitative research methods and ethics of health communication could have been classified as communication knowledge rather than health knowledge. This time, they were classified as health knowledge because the factor loadings were clearer when they were classified into the health knowledge group.

Last but not least, the survey was conducted during January and February of 2020, a few weeks before most states in the United States went into the Covid-19-related lockdown. We can only speculate how the survey findings would have

been different if it were conducted after the lockdown. Although a single event rarely changes the perspective of highly educated professionals regarding their work, the pandemic put a spotlight on the importance of many of the knowledge domains, skill sets, and abilities not only for health communication educators and practitioners but also for the general public. Because the survey was completed before the declaration of a global pandemic, the results reflect opinions not biased by this particular event. At the same time, we may have to adjust our understanding of the survey results to reflect some fundamental changes in our society in which the expectations about health communication have significantly shifted as well.

Aside from the magnitude and the longevity of the influence of the pandemic on our assessments of the knowledge domains, skill sets, and abilities, it is heartening to know that health communication educators and practitioners identified health literacy and intercultural communication as the most important knowledge domains. Even before the Covid-19 pandemic and the mass demonstrations triggered by the death of George Floyd forced the mainstream U.S. society to reckon with the nation's rampant health inequity and racial injustice, health communication educators and practitioners prioritized the knowledge domains that are instrumental in reducing the gap between the haves and the have-nots and building bridges between groups.

Our hope is that the lessons from this pandemic and the social unrest stay with us long after humanity finds its way out of the current global health crisis. We also hope that, in the new world, health communication educators and practitioners play even more active roles in making our healthcare and public health system more effective, equitable, and just.

8. References

Edgar, T., Gallagher, S. S., Silk, K. J., Cruz, T. B., Abroms, L. C., Evans, W. D., Finley, A. M., & Miller, G. A. (2015). Results from a national survey of health communication master's degree recipients: An exploration of training, placement, satisfaction, and success. *Journal of Health Communication, 20*(3), 354–366. https://doi.org/10.1080/10810730.2014.978514

Edgar, T., & Hyde, J. N. (2005). An alumni-based evaluation of graduate training in health communication: results of a survey on careers, salaries,

competencies, and emerging trends. *Journal of Health Communication*, *10*(1), 5–25. https://doi.org/10.1080/10810730590904553

Edgar, T., Silk, K. J., Abroms, L. C., Cruz, T. B., Evans, W. D., Gallagher, S. S., Miller, G. A., Hoffman, A., Schindler-Ruwisch, J. M., & Sheff, S. E. (2016). Career paths of recipients of a master's degree in health communication: Understanding employment opportunities, responsibilities, and choices. *Journal of Health Communication, 21*(3), 356–365. https://doi.org/10.1080/10810730.2015.1080332

Fowler, K., Celebuski, C., Edgar, T., Kroger, F., & Ratzan, S. C. (1999). An assessment of the health communication job market across multiple types of organizations. *Journal of Health Communication*, *4*(4), 327–342. https://doi.org/10.1080/108107399126850

Maibach, E., Parrott, R. L., Long, D. M., & Salmon, C. T. (1994). Competencies for the health communication specialist of the 21st century. *American Behavioral Scientist*, *38*(2), 351–360. https://doi.org/10.1177/0002764294038002014

McKeever, B. W. (2014). The status of health communication: education and employment outlook for a growing field. *Journal of Health Communication*, *19*(12), 1408–1423. https://doi.org/10.1080/10810730.2014.904024

Query, J. L., Wright, K. B., Bylund, C. L., & Mattson, M. (2007). Health communication instruction: toward identifying common learning goals, course content, and pedagogical strategies to guide curricular development. *Health Communication*, *21*(2), 133–141. https://doi.org/10.1080/10410230701307063

Appendix A. Sources of health communication competencies consulted

Journal articles

Edgar, T., & Hyde, J. N. (2005). An alumni-based evaluation of graduate training in health communication: results of a survey on careers, salaries, competencies, and emerging trends. *Journal of Health Communication*, *10*(1), 5–25. https://doi.org/10.1080/10810730590904553

Fowler, K., Celebuski, C., Edgar, T., Kroger, F., & Ratzan, S. C. (1999). An assessment of the health communication job market across multiple types of organizations. *Journal of Health Communication*, *4*(4), 327–342. https://doi.org/10.1080/108107399126850

McKeever, B. W. (2014). The status of health communication: education and employment outlook for a growing field. *Journal of Health Communication*, *19*(12), 1408–1423. https://doi.org/10.1080/10810730.2014.904024

Government Agencies and Professional Organization Documents

CDC Health Communication Specialist Competencies

Certified in Public Health Exam Communication Competencies: https://www.nbphe.org/cph-content-outline/

ASPPH MPH Core Competency in Communication and informatics: https://www.aspph.org/teach-research/models/mph-competency-model/

CEPH MPH Foundational Competencies (Oct 2016) https://media.ceph.org/wp_assets/2016.Criteria.redline.4-26-18.pdf

Certified Communicator in Public Health (CCPH) Five Core Competencies: https://www.nphic.org/Content/Credentialing/Documents/CCPH-PortfolioPrepGuide.pdf

Academic Program Websites

Colorado State University MPH Health Communication Concentration

George Washington University MPH in Public Health Communication and Marketing

Johns Hopkins University MSPH in Health Education & Health Communication

Tufts University Public Health MS in Health Communication/MPH Behavioral Health and Health Communication Concentration/Digital Health Communication Certificate

Tulane University MPH in Health Education and Communication

University of South Florida MPH Social Marketing Concentration

Appendix B. Draft of health communication knowledge domains, skill sets, and abilities identified from existing sources

Knowledge domains (*n* = 17)	References*
K1. Clinical communication (e.g., patient-provider communication, interprofessional communication)	2,9
K2. Organizational communication (e.g., organizational communication structure, leadership, mediation, conflict management, etc.)	2
K3. Intercultural communication	8,9,11
K4. Health literacy	2
K5. Health science (e.g., biology, physiology, etc.)	11,12
K6. Public health (e.g., the ecological model, epidemiology, biostatistics, health policy, public health system)	1,5,9,11,12
K7. Healthcare (e.g., systems and structures, finance/business, health informatics, technical advances in medicine, issues in pharma/biotech industry, etc.)	11,12
K8. Health communication social marketing (e.g., health behavior theories, media theories, concepts in health communication and marketing)	1,3,6,11,12
K9. Marketing	10,11
K10. Research methods and process	1,3,9,10,11
K11. Media and journalism	1,9,11
K12. New and emerging media	1,9,11
K13. Crisis communication	11,12
K14. Risk communication	1,2,7,9,11,12
K15. Visual communication	1
K16. Global health communication	12
K17. Ethics and law in health communication	2,3,7,11
Skills sets (*n* = 9)	References
S1. Interpersonal/group communication skills (e.g., conversation, presentation, writing, public speaking)	11,12
S2. Proposal writing skills	10,11
S3. Journalistic writing skills	1,9,11
S4. Policy brief writing skills	-
S5. Marketing skills (e.g., client management, customer service)	10, 11
S6. Public relations skills (e.g., media relations, lobbying)	11
S7. Broadcast/video production skills	11
S8. Web design/new tech skills	11,12
S9. Data visualization skills	1,7

Abilities (*n* = 22)	References	Foundations	
		Knowledge	Skills
A1. Choose communication tools and techniques to facilitate discussions and interactions.	2	Clinical comm	Interpersonal/group comm
		Organizational comm	
		Health science	
A2. Communicate effectively with diverse audiences (e.g., people	2	Clinical comm	Interpersonal/group comm
		Intercultural comm	

with limited English proficiency, low literacy, disabilities, limited hearing abilities, from different sociodemographic groups).		Health literacy	
A3. Identify communication gaps and make recommendations	2	Organizational comm	Interpersonal/group comm
		Intercultural comm	Public relations
		Clinical comm	
A4. Demonstrate competence in personal communication encompassing oral, written, and non-verbal components as necessary to effectively engage in communications such as conversations, memos, and presentations appropriate to the needs and abilities of specific audiences such as peers, community audiences, policymakers, and science/technical experts	4,8,9	Clinical comm	Interpersonal/group comm
		Organizational comm	Public relations
		Visual comm	Data visualization
		Health science knowledge	
		Public health knowledge	
		Research methods and process	
A5. Develop health education materials	-	Health literacy	Interpersonal/group comm
		Health science knowledge	Data visualization
		Public health knowledge	
		Research methods and process	
		Visual comm	
A6. Create and disseminate educational information relating to specific health issues and priorities to promote policy development	2	Health science knowledge	Policy brief writing
		Public health knowledge	Journalistic writing
		Research methods and process	Public relations
		Media and journalism	Data visualization
		Visual comm	
A7. Conduct assessments of population health needs and assets and share the results with stakeholders	2	Health science knowledge	Interpersonal/group comm
		Public health knowledge	Public relations

		Research methods and process	Data visualization
		Visual comm	
A8. Teach classes or provide training about health	10	Health literacy	Interpersonal/group comm
		Health science	
		Public health	
A9. Obtain funding for communicating about health	10, 11	Public health	Proposal writing
		Research methods and process	Interpersonal/group comm
A10. Strategic planning and implementation: define end-goals and develop a systematic path to achieve them	1,2,3,10,11	Health comm social marketing	Public relations
		Public health	Interpersonal/group comm
		Organizational comm	
		Ethics and law in health comm	
A11. Audience analysis and segmentation: analyze the characteristics, qualities, needs, and perceptions of receivers to inform successful public health communication and marketing efforts and the strategies such as segmenting, targeting and tailoring	1,3	Health comm social marketing	Marketing
		Public health	Public relations
		Research methods and process	
		Health literacy	
		Intercultural comm	
A12. Message development and testing: preparation of public health communication and marketing messages, including the content, source, delivery channel, and strategies	1,3	Health comm social marketing	Public relations
		Public health	Journalistic writing
		Research methods and process	Data visualization
		Health literacy	Broadcast/video production
		Intercultural comm	Web design/new tech
		Visual comm	Interpersonal/group comm
A13. Channel identification and selection: find the appropriate means of disseminating the message to the audience	1,3	Health comm social marketing	Public relations
		Media and journalism	Interpersonal/group comm
		New and emerging media	
		Research methods and process	

A14. Project management: establish and maintain relationships throughout the lifecycle of public health projects and activities	1,11	Organizational comm	Public relations
		Public health	Interpersonal/group comm
		Intercultural comm	
		Ethics and law in health comm	
A15. Project, product, and service evaluation: assess the effectiveness of public health communication and marketing efforts	1,2,3,9,11	Research methods and process	Public relations
		Public health	Interpersonal/group comm
		Media and journalism	
		New and emerging media	
A16. Partner engagement: work with other organizations to achieve a common goal	1,2,10,12	Organizational comm	Public relations
		Public health	Interpersonal/group comm
		Media and journalism	
		New and emerging media	
A17. Advising and consulting: provide expertise, information, and guidance to other organizations about health	1	Health comm social marketing	Public relations
		Public health	Interpersonal/group comm
		Ethics and law in health comm	
		Media and journalism	
		New and emerging media	
A18. Risk communication: identify, assess, and communicate about risk to various audiences effectively	1,2,9,11,12	Risk comm	Public relations
		Health comm social marketing	Journalistic writing
		Intercultural comm	Data visualization
		Organizational comm	Interpersonal/group comm
		Research methods and process	
		Visual comm	
		Public health	
A19. Crisis communication: prepare for, manage, and communicate about crisis to various audiences effectively	11,12	Crisis comm	Public relations
		Health comm social marketing	Journalistic writing
		Intercultural comm	Data visualization

		Organizational comm	Interpersonal/group comm
		Public health	
		Visual comm	
A20. Market health-related products and services	11,12	Healthcare	Marketing
		Marketing	Interpersonal/group comm
		Health science	Public relations
		Ethics and law in health comm	Journalistic writing
A21. Administer health consumer services	1,12	Clinical comm	Interpersonal/group comm
		Healthcare	Marketing
		Marketing	Public relations
		Health science	
		Ethics and law in health comm	
		Organizational comm	
A22. Manage marketing communication for public health/healthcare organizations	-	Organizational comm	Interpersonal/group comm
		Marketing	Marketing
		Intercultural comm	Public relations
		Health literacy	Journalistic writing
		New and emerging media	
		Media and journalism	
		Ethics and law in health comm	

References

1. CDC & academic program competencies (many of the academic program competencies overlapped with the CDC competencies and thus were not marked separately.)
2. Certified in Public Health Exam (CPH)
3. USF Health Social Marketing Competencies
4. Tufts U. MS in health communication
5. George Washington U. MPH in Public Health Communication and Marketing
6. Tulane MPH in Health Education and Communication
7. ASPPH MPH Core Competency in Communication and informatics
8. CEPH MPH Foundational Competencies (Oct 2016)
9. Certified Communicator in Public Health (CCPH) Five Core Competencies by National Public Health Information Coalition
10. Fowler, K., Celebuski, C., Edgar, T., Kroger, F., & Ratzan, S. C. (1999). An assessment of the health communication job market across multiple types of organizations, *Journal of Health Communication, 4*(4), 327-342.
11. Edgar, T., & Hyde, J. N. (2005). An alumni-based evaluation of graduate training in health communication: Results of a survey on careers, salaries, competencies, and emerging trends. *Journal of Health Communication, 10*, 5-25.

12. McKeever, B. W. (2014). The status of health communication: Education and employment outlook for a growing field. *Journal of Health Communication, 19,* 1408-1423.

Appendix C. Survey recruitment email

Dear [insert name],

The Society for Health Communication is a national organization that brings together health communication researchers, educators, and practitioners to share knowledge and advocate for the field of health communication. As part of such effort, the Competency and Training Committee of the Society is conducting a survey of health communication educators and practitioners to develop a comprehensive and targeted list of the competencies required for health communication specialists at the master's level. The knowledge gained from this project is expected to strengthen health communication education by informing educators and practitioners. We are asking you to contribute your views because of your expertise in health communication as an educator and/or practitioner. We also ask you to kindly share this email with health communication educators or practitioners in your organization or elsewhere.

The survey completion is expected to take about 20 minutes. This entire process will be done electronically, and you may take the survey at a time and location of your choosing. Your identity will remain confidential at all times. If you participate in this survey, you will be entitled to a digital copy of the final report that will come out of this national survey. Just make a request by answering the last question on the survey, and we will send it to you in a timely manner.

If you agree to participate in this study, click the link below:

Health Communication Competency Survey

Please email or call us at the contact information provided below if you have any questions or comments. Human subject approval for this survey was obtained from the Office of Research Integrity at the University of Nevada, Reno. You may discuss a problem or complaint or ask about your rights as a research participant by calling the University of Nevada, Reno Research Integrity Office at (775) 327-2368. You may also use the online form available from the *Contact Us* page of the University's Research Integrity Office website.

Thank you very much for your time and consideration.

Sincerely,

Co-Chairs, Competency and Training Committee, Society for Health Communication
Sung-Yeon Park, Ph.D., University of Nevada, Reno, [contact info]
Nancy Harrington, Ph.D., University of Kentucky, [contact info]
Claudia Parvanta, Ph.D., University of South Florida, [contact info]

Tony Foleno, Senior Vice President for Strategy & Evaluation, The Ad Council, President, Society for Health Communication
Terry Savage, Vice President, Westat, Vice President, Society for Health Communication

Appendix D. Survey questionnaire

Start of Block: Sector

The first questions are about your educational background and present position.

Q1. Please select one choice from below (even if several apply) that best represents your current position.

( ) Academic
( ) Corporate (primarily non-health or communication related)
( ) Entertainment
( ) Government (includes military and agencies at any level of government)
( ) Healthcare/Pharmaceutical
( ) News media/Journalism
( ) Non/Not-for-profit/Non-governmental
( ) Private sector entity/contracts with US, state, or county government for health communication related services
( ) Retired - please choose a position you most strongly identify yourself with.
( ) Self-employed (consultant in health communication)
( ) Other (specify):

Q2. What is your highest educational degree?

( ) High school or vocational training (Please specify the field):
( ) Associate degree (Please specify the field):
( ) Bachelor's degree (Please specify the field):
( ) Master's degree (Please specify the field):
( ) Doctoral degree (Please specify the field):
( ) Other (Please specify the field):

End of Block: Sector

Start of Block: Background (educator)

QE3-1. In which discipline do you teach? Select all that apply.

( ) Advertising/Public Relations
( ) Journalism/Media
( ) Communication
( ) Public Health/Social Work/Behavioral Health
( ) Health Sciences (e.g., nutrition, nursing, kinesiology)
( ) Marketing/Management
( ) Behavioral or Social Sciences (e.g., psychology, sociology, etc.)
( ) Other (Please specify):

QE3-2. How long have you taught in this or a closely related field?

( ) 1-3 years
( ) 4-10 years
( ) 11+ years

QE3-3. What is the highest degree granted by your program?

( ) Associate
( ) Bachelors
( ) Masters
( ) Doctoral
( ) Other (please specify):

QE3-4. What feedback, if any, have you received from those hiring your students upon graduation?

( ) Don't know/No feedback
( ) Graduates enter workforce with a high level of knowledge, technical and soft skills, and competency.
( ) Graduates are generally well prepared, but lack some specific knowledge (please specify area/s):
( ) Graduates are generally well prepared, but lack some technical skills (please specify area/s):
( ) Graduates are generally well prepared, but lack some soft skills (please elaborate):

( ) Graduates are generally well prepared, but lack some specific competencies (please specify area/s):
( ) Other (please specify):

QE3-5. Did you work in a different sector before or simultaneously with your academic appointment?

( ) No
( ) Yes

Skip To: End of Block If Did you work in a different sector before or simultaneously with your academic appointment? = No

QE3-6. Which sector did you work? Please select one that is most relevant below.

( ) Corporate (primarily non-health or communication related)
( ) Entertainment
( ) Government (includes military and agencies at any level of government)
( ) Healthcare/Pharmaceutical
( ) News Media/Journalism
( ) Non/Not-for-profit/Non-governmental
( ) Private sector entity/contracts with US, state, or county government for health communication related services
( ) Self-employed (e.g., consultant in health communication)
( ) Other (specify):

End of Block: Background (educator)

Start of Block: Background (practitioner)

In this section, please refer to your choice in the previous question pertaining to your current position.

QP3-1. How long have you worked in this or a closely related field?

( ) 1-3 years
( ) 4-10 years
( ) 11+ years

QP3-2. How large is your organization in terms of the number of employees?

( ) 1 - 10
( ) 11 - 50
( ) 51 - 500
( ) 500 - 5000
( ) 5000+

QP3-3. How do you describe the geographical scope of your work?

( ) Community-based
( ) City, County or State-wide
( ) National/US
( ) Regional to National/Other country
( ) Global/Multinational

QP3-4. Please indicate the average starting salary (in US$/year) in your organization for a health communication specialist at each of the following levels.

( ) Entry-level/Bachelor's degree or less:

( ) Entry-level/Master's degree:

( ) Mid-level/any degree:

QP3-5. Please comment on the preparation of new hires with whom you work.

( ) New hires enter workforce with a high level of knowledge, skills, and competency.

( ) New hires are generally well prepared, but lack some specific knowledge (please specify area/s):

( ) New hires are generally well prepared, but lack some technical skills (please specify area/s):

( ) New hires are prepared, but lack these "soft skills" (please elaborate):

( ) New hires are generally well prepared, but lack some specific competencies (please specify area/s):

( ) Other (please specify):

( ) No new hire/Not applicable

End of Block: Background (practitioner)

Start of Block: Knowledge

This section asks your opinion of specific knowledge, skills, and competencies/abilities for health communication specialists. Consistent with its use in the federal government, in this survey, **knowledge** refers to "an organized body of information usually of a factual or procedural nature which, if applied, makes adequate performance on the job possible." **Skill** refers to the "proficient manual, verbal or mental manipulation of data or things." Skills can be readily measured by a performance test. **Competency/Ability** refers to "the power to perform an observable activity by combining more than one skill and knowledge area." Examples include the ability or competency to "plan a health communication campaign" and "determine an individual's health literacy needs." Competency increases as we acquire more knowledge, skills, and experience.

Q4. KNOWLEDGE DOMAINS

This includes three parts. First, slide the pointer to indicate how important the listed knowledge domain is for health communication ("com" hereafter) specialists to carry out their responsibilities. 0 represents for "not used at all"; 4 represents "essential." You need to mark your answer, even if the answer is "0."

Second, add any **additional areas/topics** that you think are essential for each knowledge domain in the **text box provided**.

Third, at the end of this list, if you have ideas for any **additional knowledge domains**, please add them there.

K1. **Clinical Com**: patient-provider, inter-professional, informed consent, use of medical translators,	
K2. **Organizational Com**: leadership, mediation, conflict management,	
K3. **Intercultural Com**: race/ethnicity, gender, sexual orientation, disabilities, geography, life stages, social identity, implicit bias, cultural differences and communication styles,	
K4. **Health Literacy** (HL): Causal factors, outcomes, HL screening, plain language use, numeracy, science literacy, media literacy,	
K5. **Health Science** (HS): human physiology, pathology, infectious diseases, HS methodologies,	
K6. **Public Health Fundamentals**: ecological model, social determinants, epidemiology, biostatistics, health policy, health systems, environmental health,	
K7. **Healthcare System**: systems & structures, finance/business, informatics, medical advances, pharma/biotech related issues, ,	
K8. **Health Behavior Change**: theories, demographics, psychographics,	
K9. **Social Marketing**: segmentation, marketing mix, consumer behavior, research, strategy,	
K10. **Media Planning:** channel selection and mix, social media platforms, use of management tools, analytics, purchasing, preparing content,	

K11. **Quantitative Research Methods**: data collection, analysis, interpretation,	
K12. **Qualitative Research Methods**: data collection, analysis, interpretation, participatory research, developmental evaluation,	
K13. **Media and Journalism**: media economics, news gatekeeping, public opinion, media effects,	
K14. **New Media and Tools**: Eye tracking, EEG/fMRI/facial emotion analysis, virtual/augmented reality, gamification,	
K15. **Crisis and Risk Com**: risk appraisal, risk presentation and framing, psychology of risk and crisis, crisis and risk preparation,	
K16. **Accessible Design**: website, course, and other tools to enhance accessiblity for visually and/or hearing impaired,	
K17. **Global Health Com**: multicultural health, global health threats, world health com systems and modalities,	
K18. **Ethics and Law in Health Com**: Belmont Report, IRB, HIPAA, privacy, cyber security, individual autonomy, propaganda,	
K19. Additional knowledge domain 1:	
K20. Additional knowledge domain 2:	

End of Block: Knowledge

Start of Block: Skills

Q5. SKILL SETS

As before, first, slide the pointer to indicate how important the listed skill is. 0 represents "not used at all"; 4 represents "essential." You need to mark your answer, even if the answer is "0."

Second, add any components that you think are essential for each skill domain in the **text box provided**.

Third, at the end of this list, if you have ideas for any **additional skill domains**, please add them there.

S1. **Interpersonal and Group Com**: conversation, public speaking, negotiation, persuasion, presentation,	
S2. **Expository Writing**: preparing memos, policy briefs, summaries, white papers (specific writing skills elaborated below. Check before writing in others here.),	
S3. **Scientific Writing**: preparing scientific articles for publication, literature reviews, research summaries,	
S4. **Regulatory Writing**: Preparing investigational new drug applications, IRB packages, instructions, biosafety sheets,	
S5. **Journalistic/Public Relations Writing**: preparing Q&As, speeches, press releases, content editing for news for different platforms,	
S6. **Web/New Media Design**: apply information architecture principles, user friendly interface design, web content management,	
S7. **Data Visualization**: design story boards, graphs, charts, and/or infographics using software,	
S8. **Quantitative Data Analysis**: use statistical software (SAS, SPSS, Stata, etc.) to conduct basic and advanced analyses,	
S9. **Qualitative Data Analysis**: synthesize qualitative data manually or by using coding/analytical software (AtlasTI, MaxQDA, etc.),	
S10. **Social Media Proficiency**: use interactive platforms to create and distribute content across multiple sites, maintain content production and distribution calendars,	
S11. **Team Work**: work with others in a responsible and productive manner,	
S12. Additional Skill Domain 1:	
S13. Additional Skill Domain 2:	

End of Block: Skills
Start of Block: Competencies

Q6. COMPETENCIES

As before, first, slide the pointer to indicate how important the listed competency is. 0 represents "not used at all"; 4 represents "essential." You need to mark your answer, even if the answer is "0."

Second, add any components that you think are essential for each competency domain in the text box provided.

Third, at the end of this list, if you have ideas for any **additional competency domains**, please add them there.

C1. **Communicate orally with diverse audiences** (e.g. persons with limited English proficiency, low literacy/health literacy, impaired hearing, or from different sociocultural backgrounds),	
C2. **Prepare written materials for diverse audiences** (e.g., persons with limited English proficiency, low literacy/health literacy, impaired vision, or from different sociocultural backgrounds),	
C3. **Proposal preparation**: Locate funding sources, prepare narratives and other components, and ensure requirement compliance,	
C4. **Policy and advocacy support**: Identify targets, conduct research, prepare documents, and disseminate through appropriate channels,	
C5. **Health education material development**: develop and test health education materials for children and/or adults to be used in different settings, including schools, healthcare facilities, recreational sites, on-line or digital channels,	
C6. **Public health emergency com:** develop message maps, briefing materials, and talking points, work with subject matter experts to simplify messages to be conveyed to the public, develop and manage crisis communication center,	
C7. **Program/Project management:** develop SMART objectives, implementation plans, budgets, and key performance indicators,	
C8. **Teaching/training**: assess learning needs, develop learning objectives, create syllabi and curricula for authentic learning experiences, deliver content in-person or on-line, and evaluate student learning,	
C9. **Social marketing/health com campaign process**: conduct audience analysis and segmentation, develop concepts, messages, identify channels, test content, work with creative teams, implement and manage programs, evaluate results,	

C10. **Community engagement and interaction**: identify partners, conduct needs assessment, develop MOU and other engagement tools, conduct meetings with purpose, manage budget and resources to achieve shared objectives, identify funding, share risks and rewards,	
C11. **Evaluate health communication programs**: identify stakeholder criteria, choose evaluation framework, apply data collection tools, summarize and share results, make decisions,	
C12. **Administer services**: manage information clearinghouse, product fulfillment, training programs, and contracted research,	
C13. **Exercise leadership**: generate mission/vision and objectives, lead multi-disciplinary teams to achieve organizational/community objectives,	
C14. **Market health-related products and services**: identify markets, develop strategies, and communicate product/service benefits,	
C15. Additional competency 1:	
C16. Additional competency 2:	

End of Block: Competencies

Start of Block: Thank you

Q7. Anything else to add?

Q8. Thank you for your participation in this survey. If you would like to receive a summary report of this study, please enter your email address that you want us to use to send the report. The email address will not be connected to your survey responses. If you prefer not to share your email but still want to receive the report, please email to Admin@societyforhealthcommunication.org.

End of Block: Thank you