Patient-Provider Communication: Training fourth year medical students on communication with individuals with communication disorders

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TABLE OF CONTENTS Page

LIST OF TABLES

Table Number Page

Introduction to PPC

Patient-provider communication (PPC) is the communication that occurs between healthcare providers and their patients. Effective PPC consists of a shared exchange of messages such that both the patient and providers are active participants in relaying information. Effective PPC involves finding a common ground in which patients clearly understand their diagnosis, treatment decisions and outcomes, and other information relevant to making informed healthcare decisions; and similarly, providers clearly understand their patient's background, needs, and wants to guide them towards making informed healthcare decisions (Stewart et al., 2000). Effective PPC is uniquely tailored to the individual patient through consideration of patient values and preferences. Hence, effective PPC can be considered "patient-centered" (Mead & Bower, 2002).

Significance of PPC

In the field of medicine, there has been a heightened emphasis on patient-centered care achieved through effective PPC (Makoul, 2001). This focus moves toward a holistic view of the patient rather than a focus that is impairment based and disease-centered. Communication that is patient centered grants an individual the communicative access needed to participate in medical decisions and to promote successful health outcomes (Street, R., Makoul, G., Arora, N., & Epstein, R., 2009). Effective PPC is central to patient autonomy in which individuals are empowered to actively participate in decisions about their own care and outcomes (Street et al., 2009). Effective PPC can also have a positive influence on a patient's overall health status, reduce costs through efficiency of care, reduce emotional barriers to communication, and improve patient safety (Blackstone, Ruschke, Wilson-Stronks, & Lee, 2011; Charlton, Dearing,

Berry, & Johnson, 2008; Heisler, Bouknight, Hayward, Smith, & Kerr, 2002; Mauksch, Dugdale, Dodson, & Epstein, 2008).

Poor health outcomes have also been identified as a result of unsuccessful PPC (Stewart et al., 2000). The Joint Commission, a non-profit organization that accredits health care facilities, recognized communication errors as a commonly identified root cause of serious injuries in healthcare organizations (The Joint Commission, 2010b). Individuals with communication disorders, including those with acquired or developmental speech, language, hearing, vision, and cognitive communication impairments or a combination of multiple communication impairments, are even more vulnerable to the consequences of poor communication. Specifically, patients with communication disorders face increased risks of unnecessarily losing communicative access at the cost of autonomy in their medical decisions, decreased quality of medical care, and poorer health outcomes (Bartlett, Blais, Tamblyn, Clermont, & MacGibbon, 2008; Howe, 2008). Healthcare outcomes are frequently determined by the presence or absence of barriers to quality healthcare. Prior research, to be discussed below, suggests that barriers to effective PPC for individuals with communication disorders may exist at the level of the individual, the physical healthcare environment, and the policies and procedures of the setting.

Barriers to Healthcare Access for Individuals with Communication Disorders

Barriers and facilitators to effective PPC for individuals with communication disorders have been explored through qualitative research consisting of interviews, surveys, and focus groups. The topic has been explored from the perspective of individuals with communication disorders, their caregivers, and healthcare providers.

Barriers - perspective of individuals with communication disorders. Prior studies involving individuals with communication disorders included people with cerebral palsy (Hemsley, Balandin, & Togher, 2008), hearing loss (O'Halloran , Hickson, & Worrall, 2008), vision impairments (O'Halloran et al., 2008), developmental and language delays (Law et al., 2005; Murphy, 2006; O'Halloran et al., 2008), intellectual disability (Ziviani et al., 2006), cognitive-communication impairments (Iezzoni, Ramanan, & Drews, 2005), patients who are ventilator dependent (Patak, Gawlinski, Fung, Doering, & Berg, 2004), and stroke survivors (Law et al., 2005; Murphy, 2006; Nordehn et al., 2006; O'Halloran et al., 2008). Across these studies, people with communication disorders identified barriers at the level of the individual, the physical environment, and policies and procedures. Barriers at all levels present threats to effective PPC by impeding the communicative access needed to make informed health choices.

At the individual level, patients with communication disorders recognized challenges due to their own communication difficulties as well as challenges posed by individual providers. Specifically, patients acknowledged their own difficulties with not understanding information and not remembering instructions or information (Murphy, 2006). People with communication disorders reported that providers pose barriers to communication when physicians present information using complex vocabulary or with a fast rate of speech, lack knowledge about a patient's communication difficulties, do not understand them, and do not support patients' communication through an accessible means such as alternative communication systems. Beyond the individuals involved in the interaction, patients with communication disorders also identified barriers in the physical environment included a shortage of readily available memory and communication aids and supports, excessive background noise and distractions, and poor

lighting. Barriers presented by health care policies and procedures involved time constraints (e.g., quick pace of appointments and consultations) and a lack of continuity in providers.

Barriers – perspective of caregivers. Barriers to effective PPC for patients with communication disorders have also been described from the perspective of those patients' families and caregivers (Nordhem et al., 2006). Obstacles reported by the caregivers included individual providers having limited time with patients and using time inefficiently by persisting with ineffective communication methods. Systems and policies issues that contributed to ineffective PPC according to caregivers included multiple staff shift changes resulting in the need for constant readjustment to different communication partners, and poor relay of information from one shift of providers to the next regarding effective communication supports (Hemsley, Balandin, Togher, 2008).

Barriers – perspective of healthcare providers. Lastly, healthcare providers have identified barriers that prevent them from maximizing PPC with individuals with communication disorders. Providers were represented across a range of disciplines including nurses (Hemsley, Sigafoos, & Balandin, 2001), medical students (Iezzoni et al., 2005) and general practitioners (Murphy, 2006; Ziviani et al., 2006). They reported a lack of awareness and knowledge of communication disorders, reliance on personal experience to guide their communication style, lack of knowledge of strategies to support communication, and feelings of reluctance, uncertainty, and frustration in communicating with individuals with communication disorders as barriers that affect them as individuals. One barrier that they face in the physical environment relates to difficulty in reliably finding information about a patient's communication needs in the charts so that information can be identified quickly by changing providers. At the policies and

procedures level, quick turnover rates, productivity requirements, time constraints, and lack of funding for readily available communication aids were cited as barriers to effective PPC.

Outcomes of Barriers

The obstacles described above faced by patients with communication disorders, caregivers and providers, all lead to increased risks of communication breakdowns in healthcare situations. These breakdowns can result in many negative consequences. Patients with communication disorders are found to be at a higher risk for preventable adverse events in health care settings (Bartlett et al., 2008). They have also been documented to receive less health information during communication exchanges with providers (Knight, Worrall, & Rose, 2006) and have reported lower satisfaction with healthcare (Hoffman, 2006). Patients with communication disorders may tend to take on a passive role in health care settings (Worrall et al., 2007), which negatively affects their autonomy in making informed health care decisions. Specifically, both patients and providers may defer to caregivers for information (Hemsley et al., 2008), resulting in decreased direct participation in decision making for the individual with the communication disorder. Additionally, patients have reported a range of experiences and emotions relative to poor PPC including frustration, anxiety, confusion, and unfulfilled healthcare needs (Hemsley et al., 2008)

In addition to the patient-focused consequences of ineffective PPC, providers and institutions face similarly challenging outcomes. Communication breakdowns have resulted in difficulties for providers in making accurate diagnoses and verifying patient understanding and adherence with treatment plans (Legg et al., 2006). Finally, at the policy and procedure level, consequences to barriers of time and staff turnover may lead to less individualized

communication and the resulting emotional and communicative frustrations of both patients and providers (Hemsley et al., 2008). Overall, the consequences of ineffective PPC with patients with communication disorders draw attention to the importance of communication in the health care setting. Effective PPC must be considered an imperative aspect of patient safety and satisfaction for patients with communication disorders.

Call to Action for Improved PPC

The obstacles and outcomes faced by those with communication disorders in the health care setting have led to calls for change to improve PPC for people with communication disorders. In particular, The Joint Commission has included PPC as a principle of care in new and revised standards (The Joint Commission, 2010a). The standards promote an effort to remove the barriers impeding successful PPC. With such guidelines, The Joint Commission specifically aims to aid populations who are communicatively vulnerable, including individuals with communication disorders. Specific to individuals with communication disorders, the guiding principles pertain to identifying individual communication needs, addressing specific communication needs, and clearly establishing such needs in the patient's medical records. Improving PPC by providing a supportive communication environment is anticipated to help individuals with communication disorders to participate more actively in their healthcare and to improve health outcomes for these populations (Blackstone et al., 2011; O'Halloran, Worrall, & Hickson, 2011). Communication skills training for healthcare providers is one method of increasing communication support in the healthcare environment.

General PPC Training

Many medical school curricula now include programs to train medical students in how to conduct effective PPC with patients. General PPC skills training is provided in an effort to teach healthcare providers the components and behaviors of effective PPC. These communication skills training programs target general patient populations and do not specifically pertain to individuals with communication disorders. Nevertheless, it is important to examine these general PPC training programs to understand the procedures and effectiveness of such programs. For example, at the University of Washington (UW) School of Medicine, patient-centered communication is the emphasis of a six week rotation for third year medical students in family medicine (Egnew, Mauksch, Greer, & Farber, 2004). The curriculum consists of communication strategies adapted from the Kalamazoo consensus statement (Makoul, 2001). The authors focused on the strategies of Establishing Focus, Understanding the Patient's Perspective of the Illness, and Reaching Common Ground. These strategies were chosen to support the elements of organization, efficiency, shared decision making, and understanding the patient. Student feedback on the training was measured through a web-based questionnaire and qualitatively analyzed by themes. The training was generally well received by students as specified through positive comments following training. Students perceived the skills as valuable, applicable, and as a positive addition to their education and future practice. This study illustrates students' positive reception to communication skills training, and is promising for future studies involving PPC training.

Another example of specialized PPC training comes from the field of oncology. Baile et al. (2000) developed a six-step communication protocol for "breaking bad news" to cancer

patients about their course of illness. The six steps were presented as a mnemonic, SPIKES, to oncologists and medical students as part of the training protocol. The components of the SPIKES mnemonic include: Setting up the interview, assessing the patient's Perception, obtaining the patient's Invitation, giving Knowledge and information to the patient, addressing the patient's Emotions with empathic responses, and Strategy and Summary. The training utilized a patient-centered approach to breaking bad news. Specifically, the strategies surrounded concepts of responding to the patient's emotions and supporting the patient. Feedback from the trainees regarding confidence in implementing communication skills, usefulness of a communication skills training program, and practicality of the program were measured through surveys. A majority of those surveyed reported that the protocol was practical and comprehensible, yet acknowledged the challenge of implementing empathy and emotion-driven techniques. The protocol was found to increase trainees' confidence in their ability to disclose bad news to patients. This study provides further insight to the self-identified benefit of PPC training for providers regarding a specific population.

As mentioned above, the PPC training currently offered in medical schools provides instruction for communicating with general patient populations, but it does not specifically address the communication needs of patients with communication disorders (Burns, Baylor, Morris, McNalley, & Yorkston, 2012). Continued focus on improving patient provider communication for individuals with communication disorders is essential for their communicative participation in healthcare environments. Medical students could benefit from communication strategies beyond general skills training, specifically tailored to individuals with communication disorders. A call to action in healthcare disciplines for strategies and specific

training of providers to assist individuals with communication disorders has been noted in the literature (Blackstone et al., 2011, Hoffman et al., 2005). Specific examples will be detailed below.

Specific calls to action for improved PPC for individuals with communication disorders. Interviews of nurses experienced with patients with communication disorders were conducted to assess positive and negative experiences with patients with communication disorders (Hemsley et al., 2001). The results revealed that 70% of nurses surveyed indicated a need for training in communication impairments and support strategies. The findings from Hemsley et al. (2001) support a desire from nursing disciplines for training programs relative to communicating with individuals with communication disorders.

Kagan & LeBlanc (2002), draw attention to training partners, specifically healthcare providers, to improve communicative access for people with communication disorders. The authors emphasize the need for adapting generic communication skills training to a specific skills training centered on those with communication disorders. Kagan & LeBlanc (2002) anticipate that adaptive PPC will provide the environmental support needed to ease the patient's medical experience and improve healthcare outcomes.

Skinder-Meredith, Bye, Bulthuis, and Schueller (2007) surveyed patient care providers, including nurses and rehabilitation therapists, to assess attitudes and use of strategies in achieving patient-centered care for individuals with communication disorders. Descriptive analysis revealed that a majority of those providers desired training in supplemental tools and strategies for communicating with people with communication disorders in order to avoid or repair communication breakdowns. However, availability and consistency of such supports and

training sought by healthcare professionals were reported as limited in health care settings (Skinder-Meredith et al., 2007). Such limitations in availability and consistency further promote a need to establish well-defined training programs emphasizing PPC for individuals with communication disorders.

PPC Training Programs for Individuals with Communication Disorders

In response to the current emphasis on training healthcare providers how to support communication for those with communication disorders, training programs have been developed for medical students (Harper & Wadsworth, 1992; Legg, 2006), nurses (Harper & Wadsworth, 1992; Simmons-Mackie, 2007) and general staff, such as social workers or occupational therapists who work with individuals with communication disorders (Simmons-Mackie, 2007). Such programs have been explored to a limited extent in prior research. These training programs target the communication partner and lie within the World Health Organization (WHO) *International Classification of Functioning, Disability and Health* (ICF) framework (WHO, 2001). Specifically, patient participation in health care communication is directly supported by environmental adaptations such as partner training. Modifying the health care environment through changing the behavior of healthcare providers would ideally influence communicative access by reducing barriers created by ineffective PPC. The question is whether PPC can improve when providers are given adequate supports and training.

Legg et al. (2006) examined the effectiveness of PPC following communication skills training of sixth year medical residents. This randomized control trial looked at the effectiveness of communication skills training for interacting with individuals with aphasia. The training provided to the residents was based on the Supported Conversation for Adults with Aphasia™

(SCA) program as described by Kagan (1998). The medical residents were divided into two groups, an experimental group who received SCA training and a control group who did not receive immediate SCA training but instead received lectures about aphasia. Case history interviews between the residents and individuals with mild to severe aphasia were examined for effectiveness of the residents' communication skills. Interview effectiveness outcomes were measured by pre- and post- qualitative descriptions of performance and quantitative rating scales. Additionally, provider perceptions of the interview were assessed using visual analog scales. The results suggested that medical students who received training improved in their interview abilities and perceptions of interviews with individuals with aphasia compared to students who did not receive training, some of whom even showed a decrease in performance. Notable improvements in the group that received training included applying strategies through providing environmental supports, gathering information, and establishing rapport. Legg et al. (2006) suggested that improvements in PPC following training may influence the patient's ease of interaction in the healthcare setting and contribute to increased communicative accessibility within the system. Of particular interest, after completion of the formal study the control group was given the option to attend an extra training session to receive training on Supported Communication for individuals with aphasia. The improvements in performance that had been seen in the original experimental group were not seen for some in the control group. The authors hypothesized the differences between the experimental and control group outcomes were associated with repeated negative interactions without skills training for the control group (Legg et al., 2006).

Further support for provider training was provided by Simmons-Mackie et al. (2007). Healthcare providers and staff participated in a two-day training focused on information and strategies for communicating with individuals with aphasia. The healthcare providers included multiple disciplines who work with individuals with aphasia, ranging from nurses to social workers, therapists, and general cafeteria staff. The training consisted of discussion and practice of communication strategies. Participants were grouped and assessed across three different settings representing acute care, rehabilitation, and long term care. Qualitative thematic analysis of observations of patient interactions, interviews, and focus groups in addition to pre- and post-training questionnaires were used to examine gains in knowledge and implementation of strategies. Outcome measures revealed that providers in long term care and rehabilitation settings improved in knowledge and use of supportive communication strategies immediately after training and maintained skills when re-tested 4 months later. Despite gains in knowledge, implementation proved more challenging for healthcare providers in the acute care setting. The authors attributed the variability in outcomes to the medical focus in acute care, team dynamic setbacks, and limited generalizability of training materials to the acute care setting (Simmons-Mackie et al., 2007).

Harper and Wadsworth (1992) trained medical students, residents, nurses, and nursing assistants in communication strategies specific to individuals with congenital and acquired neurological damage resulting in cognitive impairments, including those with dementia and other individuals with limited verbal skills. Training involved giving participants a text manual with an accompanying video presentation which detailed characteristics of individuals with cognitive impairments, attitudes that influence patient provider interactions, and methods to enhance

communication. A qualitative analysis, using pre-determined categories based on training material, measured performance in videotaped examinations of participants caring for a simulated patient. Outcomes revealed differences between pre and post training implementation of skills. All groups increased their application and retention of most communication strategies immediately after training, and skills were maintained when re-tested 6 weeks later. The results from Harper & Wadsworth (1992) promote training programs as a beneficial tool to support PPC for individuals vulnerable to communication breakdowns.

A systematic review done by Simmons-Mackie, Raymer, Armstrong, Holland, and Cherney (2010) assessed communication partner training for individuals with aphasia. Based on the current literature, the authors suggest partner training appears to be an effective method for improving the communication skills of partners of individuals with aphasia. Both familiar and unfamiliar partners showed improvements following training. Unfamiliar partners included volunteers and more notably, healthcare providers. The authors recommend partner training as a means to not only improve partner skills but consequently to facilitate communication for the individuals with aphasia.

Lastly, Parr, Pound, & Hewitt (2006), formed an advisory panel, consisting of service providers and individuals with aphasia, to design a hypothetical training program for healthcare providers. The rationale for designing a training program was to provide environmental support for individuals with communication disorders by improving PPC and ultimately establishing communicative access and participation in healthcare settings. The panel proposed an overall design of a training program to include elements which promote the understanding and knowledge of communicative access for individuals with communication disorders, provide

knowledge of barriers faced by those with communication disorders in healthcare settings, and provide practical changes through communication strategies and tools (Parr et al., 2006). Aside from the recommendations for a training program, no experimental design or outcomes were reported.

Purpose

In summary, individuals with communication disorders are exposed to numerous barriers to effective PPC in the healthcare setting, making them especially vulnerable to poor health outcomes resulting from ineffective communication. Effective PPC for individuals with communication disorders is supported by recent standards from The Joint Commission (The Joint Commission, 2010a). Furthermore, a call to action to address the specific vulnerability of individuals with communication disorders has been noted by healthcare disciplines. One method of addressing the communication barriers faced by individuals with communication disorders is through training healthcare providers how to communicate more effectively with patients with communication disorders. Prior research has demonstrated that training of healthcare providers in general PPC skills has been implemented, with positive participant reactions. A limited number of studies have suggested gains in knowledge, skills, and perceptions of healthcare providers following training in how to communicate with patients with communication disorders; however, such studies limit their focus primarily to aphasia rather than the broader range of communication disorders. Additionally, there has been limited follow-up of these studies demonstrating the impact of training on PPC on actual healthcare outcomes. This study is expected to address some of these limitations and to add to the current body of literature by examining the impact of patient-provider communication skills training. Specifically, this study

focuses on how to communicate with patients with a broad range of communication disorders and on the confidence, attitudes, and knowledge of medical students regarding working with these populations.

The purpose of this study was to examine the impact of a training program titled "Patient-provider communication for patients with communication disorders" (PPC-CD) on the self-reported confidence, attitudes, and knowledge of medical students regarding interactions with individuals with communication disorders. The following questions was addressed in this study:

1. What is the effect of the PPC-CD training on the following self-reported constructs in fourth-year medical students regarding communicating with patients with communication disorders?:
    a. confidence,
    b. attitudes,
    c. knowledge of communication strategies
2. Are there differences between medical students who do and do not receive PPC-CD training in their confidence, attitudes, and knowledge of strategies for communicating with patients with communication disorders?

Methods

A repeated-measures, between-groups research design was employed to compare pre- and post-training scores of an experimental group that received PPC-CD training to a control group that did not receive the PPC-CD training. Questionnaires for documenting confidence, attitudes, and knowledge of communication strategies were used to obtain baseline and post-training measures. The participants, training, and measures are described below. The methods were reviewed and approved by the Institutional Review Board of the UW. The study described here is a modification and extension of methods initiated in the academic year 2010 – 2011, the first year of implementing the PPC-CD seminar here at the UW (Gattuccio, 2011).

Participants

Inclusion and exclusion criteria. Participants were at least 18 years of age and were fourth-year medical students enrolled in the Chronic Care Clerkship at the UW School of Medicine program, either on-site in Seattle or in the Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI) program at the time of the study. Medical students who were not fourth year medical students enrolled in the Chronic Care Clerkships at the UW School of Medicine or WWAMI program were excluded from this study. Students were designated as belonging in either the experimental or control groups for this study by their prior assignment to the different training programs within the school of medicine. No assignment of students to groups was conducted by the researchers on this project.

Experimental group. The experimental group consisted of fourth year medical students enrolled in the Chronic Care Clerkship onsite in Seattle. In the Chronic Care Clerkship students spent one month working in one of the following areas: rehabilitation, chronic pain, palliative care, or geriatrics. During this month they also attended a range of didactic sessions. One of those sessions was the seminar that is the treatment condition for this study, "Patient-Provider Communication for Patients with Communication Disorders" (PPC-CD). This seminar is discussed in further detail below. Approximately 15 students are enrolled in each clerkship rotation of the Chronic Care Clerkship at the UW in Seattle. There are eight rotations per year. Approximately 120 students participate in the PPC-CD seminar per year and were therefore considered the experimental group.

Control group. The control group consisted of fourth year medical students at the UW in the WWAMI program enrolled in the Chronic Care Clerkship. These students are exposed to

similar patients and populations in their Chronic Care Clerkship experience, but they do not receive the same didactic series as the students in experimental group nor do they receive any additional communication disorders training. They do not attend the PPC-CD seminar which is the training condition for the study. There are fewer students enrolled in the WWAMI program chronic care clerkships, approximately 3 – 5 per rotation. There are eight rotations per year. Approximately 24 – 40 students participate in the PPC-CD seminar per year and were therefore considered part of the control group.

Procedures

PPC-CD training consisted of a three hour seminar across two weeks. The seminars were divided into two 1.5 hour sessions for each of two days separated by one week. The seminars were part of the required Chronic Care Clerkship series of the medical students' curriculum; however, attendance was not mandated nor was the seminar graded. Seminars were led by speech pathologists in the Department of Rehabilitation Medicine (Carolyn Baylor and Michael Burns). The presenters and researchers conducting the study were not involved in grading or evaluating the students in their other coursework or clinical experience. The seminars were conducted within the UW Medical Center in a classroom setting.

The seminar content and procedures were guided by literature review, clinical experience of the presenters, and feedback from past participants regarding instruction duration and type. The main purpose of the seminar was to familiarize students with strategies in patient-provider communication for individuals with communication disorders and to provide opportunities to practice such strategies. Seminar instruction consisted of lectures, videos, demonstrations, and role play exercises.

The seminar included didactic and interactive components. The didactic portion addressed: a) the importance of patient-provider communication with individuals with communication disorders, specifically relating to the communicative vulnerability of individuals with communication disorders in healthcare settings, b) a review of the main categories of speech and voice, language, cognitive-communication, and hearing disorders, c) a demonstration of strategies for communicating with individuals presenting with a variety of communication difficulties, and d) a facilitated discussion of effective communication strategies following videos and demonstrations. Information in the didactic section was presented along with a mnemonic referred to as "FRAME" to help medical students 'frame' conversation strategies for PPC with individuals with communication disorders. For example one of the strategies in the mnemonic is to "Familiarize" yourself with the communication needs of the patient. The full FRAME mnemonic can be found in more detail in Appendix A.

The interactive component involved "standardized patient" simulations requiring students to utilize learned strategies. The classes were divided into three small groups for the "standardized patient" simulation, each with their own student actor. Actors in the simulation exercises were upper level speech pathology students who portrayed individuals with communication disorders. During the simulation exercises the medical students were encouraged to use learned strategies to determine a message the standardized patient was trying to convey. The actors provided informal post-exercise feedback to the participants regarding effective and ineffective communication strategies implemented during the simulation. The actors were not involved any other part of the research process. In addition to the didactic and interactive

components, participants were given handouts summarizing the communication strategies and a review of communication disorders if needed.

Data collection. Qualitative and quantitative data were collected before and after training to make comparisons within and between groups. Data were obtained through pre- and post-training web-based questionnaires. Questionnaires were available through WebQ on Catalyst, a UW web- based survey tool. A login was required for UW authentication upon logon to the Catalyst system. Participants in the experimental group were contacted by email by a third party Clerkship Coordinator and asked to complete the pre- and post- questionnaire within a two week time frame before the training and then a two week time frame after training. Participants who did not receive training (WWAMI students) were also asked by the Clerkship Coordinator to complete the pre- and post-training questionnaire during the same period of time as the participants who received training. Participants were informed that participation in the questionnaire was strictly voluntary and that the answers to the questionnaires were not used in any way for student grading or evaluation. Participants were informed that all students in a rotation (experimental and control) who completed both pre- and post- questionnaires were entered in a drawing for a $25 amazon.com gift card for each rotation. Questionnaires were used to collect data regarding demographic information, confidence ratings, knowledge of communication strategies, and attitudes of the participants regarding communicating with individuals with communication disorders in the healthcare setting. Specific questions are described below; however, see Appendices B-D for the complete pre and post-training questionnaire items.

Demographic information. Demographic information was requested only in the pre-training questionnaire. The demographic information was used to describe the participants involved in the study and to compare the composition of the experimental and control groups. Participants answered questions regarding gender, age, area of practice to which they are applying for residency, and level of prior experience interacting with individuals with communication disorders.

Confidence items. Participants were asked about their confidence in their knowledge and skills regarding interacting with patients with communication disorders to determine any impact of the training on self-efficacy. Three confidence questions were on the questionnaire. Participants were asked to rate their self-perceived confidence using a 10 point ordinal scale patterned after self-efficacy scales recommended in other self-efficacy research (Bandura, 2006). For example, questions included, "Please indicate on a scale of 1-10 how confident you are that you can change the way you communicate to help people with communication disorders understand you." The 10 point confidence scales ranged from 1, "not certain", to 10, "highly certain." The confidence items are available in Appendix B.

Attitude items. The attitudes of the students with regards to interacting with individuals with communication disorders were assessed with a set of semantic differential items with anchors on each end. A total of six attitude items addressing the constructs of effort, stress, frustration, enjoyment, and provider responsibility for communication interactions were included in the questionnaire. Participants were asked to rate their own attitudes by choosing a point along a 10 point ordinal scale that best represented his or her view with the statement. The positive (e.g., favorable end) to negative direction of the rating scales was determined, and the positive

end was scored as 10 and the negative end scored as 1. Items which were reverse scored are marked accordingly in Appendix C.

Attitude items 5 and 6 measured attitudes regarding who bears the responsibility for communication in interactions with patients with communication disorders (question 5) and with patients without communication disorders (question 6). The "provider" was set on one end of the scale, the "patient" on the other, and "patient and provider equally" in the middle. The nature of attitude items 5 and 6 did not allow for positive or negative ranks on polar ends of the attitude item scale because the researchers considered the preferred outcome to be near the middle of the scale indicating shared responsibility (although on item #5 for patients with communication disorders, the students as providers were encouraged to assume perhaps more responsibility than usual for communication). A complete list of the attitude items is available in Appendix C.

Knowledge of communication strategies. In order to explore changes in knowledge of strategies for communicating with individuals with communication disorders, participants were given three communication scenarios depicting common communication breakdowns in healthcare settings. For each scenario, participants were asked to list strategies to help with communication. The scenarios involved helping a patient with aphasia comprehend and express information, establishing an augmentative system for a nonverbal patient, and accommodating a patient with severe dysarthria. Answers were expected to be given in short answer form (e.g., 2-3 sentences or bullet points). The communication scenarios and questions are available in Appendix D.

Data analysis. Data were available from Catalyst WebQ in an excel download format. Data were de-identified by assigning participants numeric identifiers that do not bear

resemblance to their names. Descriptive and inferential statistical analyses were conducted with excel and SPSS Statistics Base version 17.0 (SPSS Inc., 2007).

Demographic information. In order to examine the composition of the experimental and control groups, a descriptive analysis of the demographic variables was performed. Unequal sample sizes between the experimental and control groups limited inferential tests of demographic differences between the groups. As a result, only descriptive analyses are provided of demographic data.

Within group differences.

Confidence items. The Wilcoxon Signed Rank Test was used to measure research question 1a, the within group difference between pre- and post- training confidence ratings of the experimental group. The Wilcoxon Signed Rank Test is a test of comparison used for repeated measures, nonparametric ordinal data. Each item of the three confidence ratings was analyzed separately to better examine the difference between pre- and post- training ratings on the different topics represented by the items. The Bonferroni correction was used to control for Type 1 error due to conducting multiple tests. Statistical significance levels were determined by dividing the alpha (.05) by the number of questions tested (including both confidence and attitude questions). The corrected statistical significance level for the 7 combined confidence and attitude items (1 through 4) was .007.

Attitude items. To answer research question 1 b), regarding differences in attitude ratings across time, inferential analyses were performed on attitude items 1 through 4, addressing difficulty, frustration, enjoyment, and levels of stress communicating with individuals with communication disorders. Similar to the confidence ratings described above, the individual

items for attitudes (items 1-4) were analyzed using the Wilcoxon signed rank test with a significance value of .007.

As mentioned prior, attitude items 5 and 6 which ask who bears the responsibility for communication in the healthcare encounter were scored differently. On these items, the middle of the scale is likely ideal indicating shared responsibility between the patient and provider. The Wilcoxon was not used for inferential analysis for these items. Instead, descriptive tables were created to inspect the changes across and within these two items. The tables were visually inspected for a shift between pre and post ratings.

Knowledge of communication strategies. Complete analysis of the qualitative data across scenarios was not feasible given the time constraints of this thesis but will be addressed in future research. Analysis is underway to be submitted as a part of future manuscript publication.

Between group differences. Due to limited participation of the control group (n=6), research question 2, a between groups analysis of pre- and post- differences, was originally proposed but not completed. Only pre- and post- changes for the experimental group were analyzed for the purposes of this study. Between group differences will be addressed in future research, participant response rate permitting.

Results

Participant Demographics

Data collection spanned across the 2011-2012 academic year. A total of 174 fourth-year medical students were enrolled in the clerkship during this time. All 174 students were sent descriptions of the study, invitations to participate and links to the WebQ pre- and post-questionnaire. A total of 134 Seattle-based students were enrolled in the clerkship and were

therefore eligible for the experimental group, and of those students, 24 completed both pre- and post- questionnaires for a response rate of 17.9%. A total of 40 WWAMI students were enrolled in the clerkship and were therefore eligible for the control group, and of those students, 6 participated for a response rate of 15.0%. It should be noted that a total of 40 (29.9%) combined participants completed the pre- questionnaire but did not complete the post- questionnaire, and 4 (3.0%) completed the post- but did not complete the pre- questionnaire.

The remainder of this paper will focus on the 24 participants in the experimental group who completed the pre- and post-questionnaires. Two-thirds of the experimental group participants were female, and the average age was 28.1 years (SD 2.45). Over half of the participants reported they had had experience with fewer than five patients with communication disorders, and 29.2% reported having either occasional or regular contact with family members with communication disorders. Additional demographic information can be found in Table 1.

Table 1. Summary of demographic information reported by participants

Gender		
Male	33.3%	(8/24)
Female	66.7%	(16/24)
Age		
Average	28.1	
SD	2.45	
Median	28	
Range	25-33	
Area of Practice		
Internal Medicine	20.8%	(5/24)
Family Medicine	16.7%	(4/24)
Pediatrics	12.5%	(3/24)
Anesthesiology	12.5%	(3/24)
General Surgery	8.3%	(2/24)
Other: orthopedic surgery, radiology, emergency medicine, psychiatry, radiation oncology, ophthalmology, ob/gyn	29.2%	(7/24)
Experience with individuals with communication disorders		
Fewer than 5 patients	54.2%	(13/24)
Greater than 5 patients	33.3%	(8/24)
Family - occasional	12.5%	(3/24)
Family - regular	16.7%	(4/24)

Note: Participants could choose more than one category when marking their area of practice and experience working with individuals with communication disorders. Therefore, the total numbers in these areas were equal or greater than the total number of participants

Within group differences

Confidence Items. The first experimental question, part 1a, asks about the effect of PPC-CD training on self-perceived confidence as reported by participants who received training. A significant difference between pre- and post- scores was found for each of the three confidence items ($p=0.000$ for all comparisons). Table 2 presents a summary of the data for the individual confidence items. Further details for the confidence questions are presented in contingency tables, available in Appendix E.

Table 2. Summary of results for confidence items

Item	*P*-Value	Pre-Post changes**	N
How confident you are that you can…			
Recognize different types of communication disorders	0.000*	Post>Pre	19
		Post<Pre	0
		Post=Pre	5
Change the way you communicate to help people with communication disorders understand you	0.000*	Post>Pre	21
		Post<Pre	1
		Post=Pre	2
Change the way you communicate to help people with communication disorders express themselves	0.000*	Post>Pre	21
		Post<Pre	2
		Post=Pre	1

*significance = p<.007 with Bonferroni correction
** On the scale of 1-10 used in this study, higher scores are better. A ”>” sign indicates higher post scores than pre and suggests scores improved with treatment. A ”<” sign indicates lower post scores than pre, and suggests scores decreased. An equal sign indicates pre and post scores stayed the same.

Attitude Items. For the individual attitude questions regarding effort, frustration, enjoyment, and levels of stress communicating with individuals with communication disorders, only one item , the item asking whether interacting with patients is easy-difficult, neared statistical significance with the Bonferroni correction (p=.024). Table 3 presents a summary of the data for the individual attitude items. Further details for the attitude questions are presented in contingency tables, available in Appendix E.

Table 3. Summary of results for attitude items

Item	*P*-Value	Pre-Post changes	N
In general, interacting with patients with communication disorders is…			
Difficult to Easy	0.024	Post>Pre	16
		Post<Pre	5
		Post=Pre	3
Frustrating to Not frustrating	0.255	Post>Pre	13
		Post<Pre	7
		Post=Pre	4
Not enjoyable to enjoyable	0.185	Post>Pre	12
		Post<Pre	7
		Post=Pre	3
Stressful to Not stressful	0.414	Post>Pre	11
		Post<Pre	7
		Post=Pre	6

*significance = p<.007 with Bonferroni correction
** On the scale of 1-10 used in this study, higher scores are better. A ”>” sign indicates higher post scores than pre and suggests scores improved with treatment. A ”<” sign indicates lower post scores than pre, and suggests scores decreased. An equal sign indicates pre and post scores stayed the same.

Descriptive tables for attitude items 5 and 6 are presented in Table 4 and Table 5, respectively. Visual analysis for attitude item 5 (communication responsibility with patients with communication disorders) revealed a negligible shift from pre- to post-. Similarly, a negligible shift with training was observed on attitude item 6 (responsibility for communication with patients without communication disorders). .

Although little change was seen with training on either of these items, it is interesting to note a different pattern of responses when comparing these two items to each other. More participants placed communication responsibility towards the “provider” end of the continuum for attitude item 5 (patients with communication disorders). In contrast, on the item addressing communication responsibilities with patients without communication disorders, half of the participants placed responsibility slightly across the midline towards the “patient” end of the

scale. This comparison suggests the participants did recognize that the healthcare provider bears more responsibility for ensuring successful communication with patients with communication disorders than with patients who do not have special communication needs.

Table 4. Communication Responsibility Ratings – Working with individuals with communication disorders

		Rating									
Responses		**1***	**2**	**3**	**4**	**5***	**6**	**7**	**8**	**9**	**10***
	Pre-Training	1	3	8	5	3	4	0	0	0	0
	Post-Training	0	3	8	8	1	4	0	0	0	0

*1 = Provider; 5 = Patient-Provider equally; 10 = Patient

Table 5. Communication Responsibility Ratings – Working with the general population

		Rating									
Responses		**1***	**2**	**3**	**4**	**5***	**6**	**7**	**8**	**9**	**10***
	Pre-Training	0	0	3	5	4	12	0	0	0	0
	Post-Training	0	0	1	7	5	11	0	0	0	0

*1 = Provider; 5 = Patient-Provider equally; 10 = Patient

Exploration of participants whose scores shifted in the reverse direction. One of the unexpected observations was that some participants moved in the negative direction on attitude items after the training (e.g., frustration increased). Perhaps one factor that caused participants to report poorer attitudes was that they had less clinical experience and thus less exposure to working with individuals with communication disorders before the training. One possible hypothesis is that through the training they may have become more aware of some of the challenges and issues working with this population that they had not known about before, and that this increased awareness may have actually worked to increase their stress or anticipated

frustration. If this were the case, there still might be benefit from the increased awareness provided by the training even if the desired outcomes in terms of reducing stress or frustration were not observed. An additional descriptive analysis was completed to examine the level of prior experience working with patients with communication disorders among those participants who had worsening ratings on attitudes items after training. This was not done with confidence items due to the small number of participant responses that moved in the negative direction.

Between 5 – 7 participants had worse attitudes ratings after training on each item. These were not the same participants across all items. A total of 13 participants had responses which moved in the negative direction across all items. Of those 13, 6 participants had responses shift in the negative direction across 2 or more items (e.g., both attitude item #1 and #3). Of these 13 participants, 8 (61.5%) reported they had worked with fewer than five patients with communication disorders prior to this training seminar, 3 (23.1%) reported working with greater than five patients with communication disorders, 1 (7.7%) reported occasionally working with a family member with a communication disorder, and 1 (7.7%) did not respond to the experience question. Table 6 presents further detail about the experience levels of participants whose attitude ratings moved in the negative direction for each item.

Table 6. Participants who reported worsening attitudes after training on attitude items 1-4

Item:	**Experience with communication disorders:**		
Interacting with patients with communication disorders is…			
Easy-Difficult			
	<5 Patients	100.0%	(5/5)
	>5 Patients	0.0%	(0/5)
	Other (no response, family-occasional)	0.0%	(0/5)
Not frustrating-Frustrating			
	<5 Patients	57.1%	(4/7)
	>5 Patients	28.6%	(2/7)
	Other (no response, family-occasional)	14.3%	(1/7)
Enjoyable-Not enjoyable			
	<5 Patients	71.4%	(5/7)
	>5 Patients	28.6%	(2/7)
	Other (no response, family-occasional)	0.0%	(0/7)
Not Stressful-Stressful			
	<5 Patients	71.4%	(5/7)
	>5 Patients	14.3%	(1/7)
	Other (no response, family-occasional)	14.3%	(1/7)

Discussion

The primary purpose of this study was to examine the effects of patient-provider communication training on self-reported attitudes, confidence, and knowledge of strategies in fourth year medical students regarding communicating with patients with communication disorders. The secondary question was if there was a difference between students who received training compared to those who did not receive training on self-reported measures. The secondary question was not addressed in this thesis due to a small non-treatment group size.

The results showed a significant change in confidence from pre- to post- training in all of the confidence questions, addressing one's ability to recognize different types of communication disorders, change communication style to help patients understand, and change communication style to help patients express themselves. In general, improvements were observed in attitudes

questions asking about effort, frustration, enjoyment, and levels of stress communicating with individuals with communication disorders; however, no statistically significant changes were observed from pre- to post- training. One attitude item addressing the ease of interactions with individuals with communication disorders, would have been significant if we had used a .05 significance level instead of using the Bonferroni correction for multiple tests. The items asking about who bears responsibility for communication in medical encounters between provider and patient did not show any notable change with training, although a comparison across these two items suggested that participants placed more responsibility for communication on the provider when communicating with patients with communication disorders than when communicating with patients without communication disorders.

The results of this study are in line with, and expand upon, earlier research in this area. This study is a modification of earlier work (Gattuccio, 2011), in which an older version of the questionnaire was used to assess changes in medical students' self-rated competence and attitudes. Similar to Gattuccio (2011), statistically significant improvements were observed across all confidence questions. Furthermore, and comparable to this study, all of the attitude items demonstrated improvements from pre- to post-training, with only a small number of attitude questions reaching statistical significance. For the purpose of this study, modifications were made (removing social bias from questions) to account for the lack of significant findings for a majority of the attitude items. Possible reasons for the lack of significant findings on the attitudes items in this study are discussed later.

Previous research on partner communication training is limited and largely focused on specific populations, such as individuals with aphasia (Legg et al., 2006; Simmons-Mackie et al.,

2007) and non-healthcare providers (Simmons-Mackie et al., 2010). This study served as an extension to previous research by addressing communication training programs for healthcare providers (medical students) for working with individuals across a broader range of communication disorders. Similar to this study, previous studies demonstrated improvements in providers' perceptions of the interview process and attitudes from pre- to post- performance after receiving skills training, regarding individuals with aphasia (Legg et al., 2006; Simmons-Mackie et al., 2007).

While the improvements in confidence in participants as a result of the training are encouraging, there may be several reasons why the changes in attitudes did not reach statistical significance. One possibility is that the small sample size led to inadequate statistical power to detect significant changes. Nevertheless, while the degree of change was not statistically significant, improvements from pre- to post- training were noted across all attitude items. It is hypothesized that an increase in sample size would reveal statistically significant results favoring changes in attitudes following training.

Another interesting finding was the possible association between prior clinical experience with patients with communication disorders and attitudes worsening from pre- to post-. Thirteen participants reported less favorable attitudes after training, and the majority of these participants reported having past experience with fewer than five patients with communication disorders. One possible explanation is that prior to training these participants had little awareness of the challenges associated with interacting with individuals with communication disorders. Following the training the students may have become more aware of the challenges and thus reported higher stress or frustration based on anticipated problems interacting with these patients. If this is

the case, the training may still have had a valuable impact in terms of increasing the knowledge and awareness of issues regarding this patient population for the participants even though the training did not reduce stress, frustration or similar concerns.

The confidence items which demonstrated statistically significant change suggest the patient-provider communication training is capable of altering confidence in interacting with individuals with communication disorders. In addition, the overall improvement in scores from pre- to post- on attitude items is evidence of improvement following training in at least some participants. These findings are encouraging, such that the patient-provider communication training may be a useful tool for changing provider confidence and attitudes in order to better address the healthcare needs of individuals with communication disorders. Specifically, such changes may likely occur when the study is modified for addressing limitations.

While the overall effects of the training appeared positive, there were several limitations to the study. The main limitation of this study was the low response rate for participants, specifically when compared to previous research on this training (Gattuchio, 2011). Several hypotheses may account for the low response rate. One possibility is that students may have seen that it was the same questionnaire from pre- to post- training and therefore decided not to complete the questionnaire a second time. Another possibility is that participants opted to not complete the questionnaire when they were aware it was for research purposes. Announcing this project as a research project was a major difference in the recruitment procedures when compared to the previous year regarding the same training and questionnaire.

The low response rate also affected the analysis of differences between participants who received the training compared to those who did not receive the training. We were not able to

complete analysis of this question. Future research should expand analysis between experimental and control groups to provide for stronger evidence regarding the effectiveness of the training.

Furthermore, although qualitative analysis to assess knowledge of communication strategies was not completed for this study, future research should continue to examine changes in knowledge from pre- to post- communication skills training.

Further limitations for this study exist in the measurement of outcomes. First, an important outcomes measure that should be considered is the perspective of the patients with communication disorders and their experiences interacting with healthcare providers. This study is limited by the lack of measures of the effects of the provider training on patient-related outcomes. Adding such outcomes measures is a significant goal because not only are we interested if the providers change their communication behaviors following training, but more importantly if the patients are experiencing meaningful changes (e.g., satisfaction with the interaction; ease of communication) as a result of training the providers. A means to assess the influence of training on patient outcomes, such as a self-perception scale for individuals with communication disorders is suggested for future studies. Additionally, further research such as patient interviews or focus groups may be informative in order to tailor the training toward targeting specific concerns of individuals with communication disorders. Some research exists in this area, but is limited to individuals with aphasia and is not related to a specific communication training program (Parr et al., 2006).

Second, the providers were evaluated on their knowledge of strategies in a questionnaire format, but it is unknown whether or how the knowledge of strategies will carry over into clinical practice. Other investigators have demonstrated improvements in communication skills

following partner training for individuals with aphasia or cognitive communication disorders (Harper & Wadsworth, 1992; Legg et al., 2006; Simmons-Mackie et al., 2010). It is hypothesized that the analysis of knowledge of strategies, as proposed in this study, will demonstrate improvements in knowledge. However, knowledge of strategies may differ from the actual implementation of strategies in patient encounters. In order to measure implementation of trained strategies, future studies may include measurements of the students using these strategies in role play scenarios or through telepractice with an actual or standardized patient.

Lastly, this study is limited to the effects of the training on medical students as the healthcare providers. However, individuals with communication disorders interact with a wider range of healthcare providers (e.g., nurses, rehabilitation therapists, etc.) in the healthcare setting. Future studies may consider expanding the training to a wider variety of healthcare professionals to address improving patient outcomes across the continuum of care.

In summary, the PPC-CD training is designed to improve the knowledge and strategies of medical students to better prepare them to interact effectively with patients with communication disorders. This study suggests such a training program may be valuable in medical student education. Furthermore, this study supports current research on provider communication training addressing the associated barriers to healthcare access for individuals with communication disorders. As the design continues to be modified to adjust for limitations, the project will continue to address and expand on improving PPC for individuals with communication disorders based on patient-centered needs.

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APPENDIX A – PPC-CD training "FRAME" mnemonic

F: Familiarize

- What communication strategies does the patient use?
  - Is there a reliable yes/no response?
  - Is comprehension reliable?
  - How do they express themselves?
  - Do you need new strategies?
- What communication style does the patient prefer?
  - Do they like you to guess at messages or not?
  - Do they want family involved or not?
- What information is available from Speech Pathology?
- Are hearing aids/glasses/assistive devices in place?

R: Reduce Rate

- Slow down your speech
  - Shorter sentences – one idea at a time
  - Frequent pauses
  - Keep tone/intonation natural
- Allow extra time for patient to respond
  - Wait patiently
  - Stay focused on patient
- Allow longer times for appointments (or more frequent appointments)
  - Document need in the chart

A: Assist with Message Construction

- Help the patient construct the message
  - Restructure questions to be easier to answer (yes/no/multiple choice)
  - Suggest use of different communication strategies
  - Review information for patient to confirm or correct
- Let the patient know what you understand and where you are confused
- Acknowledge communication breakdowns and suggest strategies to overcome them
- Accept and work with the information the patient can give you even if it is imperfect or incomplete

M: Mix Communication Modalities

- To help the patient understand you
  - Supplement what you say with pictures, simple drawing, writing key words
  - Use meaningful gestures, body language, facial expression
  - Use context and environment around you
  - Show rather than tell
- To help the patient express himself/herself
  - Offer and encourage communication methods in addition to speech, including existing augmentative devices
  - Have paper and pens ready for patient
  - Have pictures of common vocabulary in your setting

E: Engage patient first

- Talk directly with the patient
- Involve the patient in discussion and decision making
- Show respect for patient and his/her autonomy
- Use family or caregivers as interpreters when needed but do not exclude the patient from discussion

APPENDIX B – Questionnaire: Confidence items

Confidence Items

Instructions: Please indicate on a scale of 1-10 *how confident you are that you can do* the following:

a. Recognize different types of communication disorders

   Not certain 1-----2-----3-----4-----5 Moderately certain ------6-----7-----8-----9-----10 Highly certain

b. Change the way you communicate to help people with communication disorders *understand you*

   Not certain 1-----2-----3-----4-----5 Moderately certain ------6-----7-----8-----9-----10 Highly certain

c. Change the way you communicate to help people with communication disorders *express themselves*

   Not certain 1-----2-----3-----4-----5 Moderately certain ------6-----7-----8-----9-----10 Highly certain

APPENDIX C – Questionnaire: Attitude items

Attitude Items

Instructions: Please indicate on a scale of 1-10 *how do you feel* about the following situations

a. *In general, interacting with patients who have communication disorders is:

Easy 1-----2-----3-----4-----5------6-----7-----8-----9-----10 Difficult

b. *Interacting with patients who have communication disorders is:

Not frustrating 1-----2-----3-----4-----5------6-----7-----8-----9-----10 Frustrating

c. Interacting with patients with communication disorders is:

Not enjoyable 1-----2-----3-----4-----5------6-----7-----8-----9-----10 Enjoyable

d. *Interacting with patients with communication disorders is:

Not stressful 1-----2-----3-----4-----5------6-----7-----8-----9-----10 Stressful

e. When interacting with patients who HAVE communication disorders, the responsibility for good communication between the patient and healthcare provider belongs to:

Provider 1-----2-----3-----4-----5 patient, provider equally -----6-----7-----8-----9-----10 Patient

f. When interacting with patients who DO NOT have communication disorders, the responsibility for good communication between the patient and the healthcare provider belongs to:

Provider 1-----2-----3-----4-----5 patient, provider equally -----6-----7-----8-----9-----10 Patient

* = items were reverse coded

APPENDIX D – Questionnaire: Communication scenarios

Communication Scenarios

Scenario 1: You are a family practice physician in a community medical center. The next patient on your schedule for the day is a new patient who has recently moved to your town and has been referred to you for primary care. The chart review reveals that the patient had a stroke about four months ago. The patient completed inpatient rehabilitation and now has moved to your community to live near his daughter who will assist him. He is able to live semi-independently but does need assistance due to residual impairments after the stroke. The goal of your visit today is to establish care with this patient with a general interview and examination. You will be sure he is stable on medications, up to date with prescriptions, etc. According to the chart, the patient has mild-moderate expressive and receptive aphasia due to the stroke. Additional detail about his communication is not available. The medical assistant who has checked the patient into a room and taken his vital signs reports that the patient is difficult to communicate with. He seems to have difficulty understanding instructions and his speech doesn't always make sense. His daughter, who had hoped to be here for the appointment to assist the patient was unexpectedly called away to pick up her child who suddenly became ill at school today. The daughter dropped her father off at the doctor's office and will be back in about 20 minutes but will not be able to stay long with a sick child. You are concerned about how to conduct a productive interview and examination with this patient who has aphasia.

Question 1a: Please list two strategies you might use to help this patient understand your questions so that you can go ahead with the interview and examination

Question 1b: Please list two strategies you might use to help this patient express himself so that he can answer your questions or express his own questions/concerns during the interview and examination

Scenario 2: You are working in the ICU when a patient with a head injury is admitted. The patient has negligible movement in her upper extremities. She can lift her arms slightly and move her fingers weakly but cannot grip anything strong enough to hold it. She is intubated so is unable to voice or talk. She is in a cervical collar so head movement is limited and clearly uncomfortable. She is awake at times but her level of orientation is unknown. You would like to examine the patient to determine if her level of orientation and ability to understand what people are saying can be assessed. You see in the chart that other staff have been encouraging the patient to use eye blinks to communicate such as one blink for yes and two blinks for no, but the patient appears to be inconsistent with this system and cannot seem to use it for very long. Staff are assuming, therefore, that the patient has considerable confusion.

Question 2a: Please list two examples of strategies that would be appropriate to establish reliable communication with this patient so that you can go on to test her orientation and understanding:

Scenario 3: You are a neurologist who is meeting with a new patient referred to you with ALS. The dysarthria associated with ALS is quite advanced, and the patient's speech intelligibility is very low. The patient is in a wheelchair. He has some limited gross movement of his arms and hands in that he can lift them and use them for some pointing or vague gestures (e.g. such as waving an arm); but he does not have enough fine motor control or strength to grip a pencil to write or make a fine-motor gesture such as the "thumbs up" sign. You have been interviewing the patient for about 15 minutes and have found that the patient seems to answer yes/no questions consistently by signaling yes and no with head nods/shakes accompanied by different voice inflections. This seems to be about the only obvious way to communicate with this patient. However, the patient is clearly becoming fatigued. As you prepare to wrap up the appointment you ask the patient if he has any other questions or concerns he would like to bring up and he indicates "yes" he does. You start to ask more yes/no questions to try to determine what he would like to ask, but he clearly is getting more fatigued and quite frustrated at not being able to get right to the point of what he wants to ask.

Question 3a: What are two other strategies you could try with the patient to help him express what he wants to communicate?

APPENDIX E – Contingency tables: confidence and attitude questions

Confidence Item 1: Recognize different types of communication disorders

Pre \ Post	1	2	3	4	5	6	7	8	9	10
1							1			
2					1					
3						1		1	1	2
4						1	1	3		
5					2		2	3	1	
6								1		
7							2			
8								1		
9										
10										

*On the scale of 1-10 used in this study, higher scores are better. 1 = "not certain", 10 = "highly certain"

Confidence Item 2: Change the way you communicate to help people with communication disorders understand you

Pre \ Post	1	2	3	4	5	6	7	8	9	10
1							1			
2						1			2	
3							1	1	1	1
4							3		1	
5							2	3		
6						1				
7								2		1
8								1	1	
9									1	
10										

*On the scale of 1-10 used in this study, higher scores are better. 1 = "not certain", 10 = "highly certain"

Confidence Item 3: Change the way you communicate to help people with communication disorders express themselves

		Post									
		1	2	3	4	5	6	7	8	9	10
Pre	**1**							2			
	2							1			
	3							2	1	1	1
	4							1	4	1	
	5							2	3		
	6				1			1			
	7										1
	8										
	9								1	1	
	10										

*On the scale of 1-10 used in this study, higher scores are better. 1 = "not certain", 10 = "highly certain"

Attitude Item 1: Difficult-Easy

		Post									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Pre	**1**	1	2	3							
	2				2						
	3	2		2	4		1				
	4			1	1		1				
	5				1			2			
	6								1		
	7										
	8										
	9										
	10										

*On the scale of 1-10 used in this study, higher scores are better. 1 = "difficult", 10 = "easy"

Attitude Item 2: Frustrating - Not frustrating

Pre \ Post	1	2	3	4	5	6	7	8	9	10
1	1		1	1						
2		1								
3			1	2		1				
4				2	1	3				
5				2			1			
6				1				2		
7			1		1		1	1		
8										
9										
10										

*On the scale of 1-10 used in this study, higher scores are better. 1 = "frustrating", 10 = "not-frustrating"

Attitude Item 1: Not Enjoyable - Enjoyable

Pre \ Post	1	2	3	4	5	6	7	8	9	10
1								1		
2						1				
3			1	1				2		
4			1		2					
5				1	2	2	1	1		
6			1					1		
7					1	2				
8		1								
9										
10										

*On the scale of 1-10 used in this study, higher scores are better. 1 = "not-enjoyable", 10 = "enjoyable"

Attitude Item 1: Stressful - Not-stressful

Pre \ Post	1	2	3	4	5	6	7	8	9	10
1	1		1							
2				1	1					
3			1	2	1					
4			1	3	2	1				
5		1	1		1			1		
6			1		1			1		
7										
8								1		
9								1		
10										

*On the scale of 1-10 used in this study, higher scores are better. 1 = "stressful", 10 = "not-stressful"