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Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study.

by

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ABSTRACT

The CanMEDS Project has identified communication as one of the core competencies required for specialist training in Canada. Being an effective communicator is an integral part of every surgeon's skill set; consequently communication skills are essential component of any surgical training program. The primary objectives of this project were to identify the perceptions of communication skills from the perspectives of both orthopaedic surgical residents and program directors, and to understand how these skills are currently taught.

This study utilized a mixed methods design to collect quantitative data from orthopaedic residents using a 30-item questionnaire, and qualitative data through focus groups and interviews with orthopaedic residents and program directors. In total, 119 questionnaires were completed, twelve residents participated in two focus groups, and nine program directors were interviewed. It was found that orthopaedic residents and program directors focus on content, flexibility, and time constraints within communication skills. They value developing communication skills in the clinical environment through experiential learning and role modeling.

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Abbreviation	
AAMC	Association for American Medical Colleges
ACGME	Accreditation Council for Graduate Medical Education
ANOVA	Analysis of Variance
AMS	Associated Medical Services
CanMEDS	Canadian Medical Education Directives for Specialists
CAPER	Canadian Post-MD Education Registry
CFPC	College of Family Physicians of Canada
CME	Continuing Medical Education
CMG	Canadian Medical Graduate
co-Is	Co-Investigators
CORA	Canadian Orthopaedic Resident Association
CORF	Canadian Orthopaedic Resident Forum
FG 1,2	Focus Group 'number'
GMC	General Medical Council
I 1-9	Interview 'number'
IMG	International Medical Graduate
MANOVA	Multivariate Analysis of Variance
MCAT	Medical College Admissions Test
MSOP	Medical School Objectives Project
OR	Operating Room
PGME	Post-Graduate Medical Education
PI	Principal Investigator
PS	Primary Supervisor
R 1-5	Residency 'Year'
RCPSC	Royal College of Physicians and Surgeons of Canada
s.d.	Standard Deviation
UME	Undergraduate Medical Education
WHO	World Health Organization

CHAPTER 1 – INTRODUCTION

> '*Communication in medicine needs to be taught with the same rigor as other core clinical skills such as the physical examination.*'[1]

A surgeon's daily duties regularly involve interactions with patients and patient's families. Surgeons also frequently communicate with other physicians and surgeons, nurses, administrators, residents, medical students, and other members of the health care team. Clear and concise communication within each of these relationships is essential for maximizing the flow of correct and safe information.

The CanMEDS 2005 Project[2] developed by the Royal College of Physicians and Surgeons of Canada (RCPSC) has re-emphasized the necessity of becoming a competent communicator. Training in these skills has been highlighted at the level of undergraduate medical education (UME), at the level of post-graduated medical education (PGME), and also at the level of continuing medical education (CME).[1]

The five key competencies of communication as outlined in the CanMEDS 2005 Project are:

1. *Develop rapport, trust and ethical therapeutic relationships with patients and families;*
2. *Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals;*
3. *Accurately convey relevant information and explanations to patients and families, colleagues and other professionals;*
4. *Develop a common understanding on issues, problems and plans with patients and families, colleagues and other professionals to develop a shared plan of care;*
5. *Convey effective oral and written information about a medical encounter.*

These five objectives outlined by the RCPSC will serve as one of the guides for development of the primary instrument for this study as well as questions for the focus groups and interviews.

The RCPSC is by no means the only medical regulatory body that has recognized the importance of improving communication skills within the medical and surgical community. The College of Family Physicians of Canada (CFPC) has also highlighted communication skills as an essential component of a general practitioner's skills set and are fundamental within the training of a resident[3]. These skills are also noted to be of importance within more than just the doctor-patient relationship. How we communicate with colleagues can significantly affect our professional relationships and the care of patients is highly influenced by inter-professional communication. Similarly, as residents take on additional teaching responsibilities, new communication skills need to be acquired for their new roles.

The RCPSC and CFPC regulate residency education; the Association for American Medical Colleges (AAMC) is responsible for the accreditation of education occurring at the level of undergraduate medical training. The AAMC have recognized communication skills as becoming an integral component of medical education[4]. They have outlined six key aspects of communication skills in medicine in the third edition of their Medical School Objectives Project (MSOP) report:

- *Develop an appreciation of the interpersonal and situational dynamics of medical encounters;*
- *Become oriented to the communication tasks of a physician;*
- *Begin to build a base of skills and strategies associated with these tasks;*
- *Begin to learn to deal with difficult topics and situations encountered in clinical practice;*

- *Develop a base of skills and strategies for working with family members; and*

- *Develop a base of skills and strategies for working with physician colleagues and other members of the health-care team.*[5]

The similarities are not difficult to recognize between these objectives and those outlined by the core competencies of a communicator within CanMEDS. Currently, the AAMC is even exploring the feasibility of assessing communication skills on the Medical College Admissions Test (MCAT).

Similar to the RCPSC, the Accreditation Council for Graduate Medical Education (ACGME) regulates medical and surgical education occurring after medical school in the United States. Reflecting the seven CanMEDS competencies put forth by the RCPSC, the ACGME has six competencies required for all resident trainees of which 'Interpersonal and Communication Skills' is one. Communication directives put forward by the ACGME state that:

> *Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients families, and professional associates.*[6]

The recognition of communication skills as a vital component to a doctor's education is not limited to North America. In Britain, the General Medical Council (GMC) has acknowledged the importance of communication in reference to the doctor-patient relationship, inter-professional relationships, as well as other roles such as the doctor-as-teacher[7]. The World Health Organization (WHO) has taken an even broader approach to the enhancement of communication skills. Being an international organization they recognize that communication skills have an impact at not only the one-to-one individual interactions within medicine, but also at the much larger health systems level between hospitals and the

community at large. Objectives put forward by the WHO address many topics similarly addressed by the other organizations already mentioned, but they also include items to concerned with communication within the global medical community:

- *improving communication within and the culture of the hospital so that they contribute to the quality of life for hospital staff (communication styles used by hospital staff should encourage interprofessional cooperation and mutual acceptance);*

- *enhancing the provision and quality of information, communication and educational programmes and skill training for patients and their relatives;*

- *improving the hospital's communication and cooperation with social and health services in the community, community-based health promotion initiatives and volunteer groups and organizations, and thus helping to optimize the links between different providers and actors in the health care sector.*[8]

Clearly, the awareness of communication skills as a critical tool in the medical community is becoming increasingly prominent in medical schools, post-graduate training, and health organizations around the globe.

This increasing awareness of communication skills by medical regulatory bodies has likely been stimulated by several factors. The medico-legal literature has demonstrated the profound influence of communication skills on medical malpractice, medical error, and litigation rates. In this regard, the development of communication skills is highly relevant to all medical and surgical specialists, as well as general practitioners. The ability to communicate effectively also contributes to the efficacy and efficiency of education in medicine, team building, health outcomes, and healthcare spending, just to name of few. The evidence and literature to support these claims is reviewed in greater detail in the following chapter.

In response to this international demand for improved communication skills amongst physicians and surgeons, educational institutions have been integrating these skills along side other educational opportunities. One of the primary stimuli behind the inception of this research project was the Canadian Orthopaedic Resident Forum (CORF). CORF is a course held annually in Calgary, AB for all graduating Canadian orthopaedic residents, which began in 2003. The concept behind CORF began due to a perceived need to introduce new methods into the realm of continuing medical education (CME). The lack of a review course for final year orthopaedic residents preparing to undertake their RCPSC fellowship examinations provided an ideal testing ground for developing a case-based education model incorporating communication skills training.

When CORF was developed, it was decided that the course would serve a much better function if it dealt with more than the simple review of knowledge and content. A major component of the RCPSC fellowship examinations in orthopaedics is the oral examination. It has been well established in the literature that communication skills play a major role in how a candidate performs on this style of examination[9, 10]. CORF incorporates a significant amount of training in communications skills as they relate to oral examinations. Research suggests that courses focusing on these skills can significantly improve resident performance on 'high-stakes' board oral examinations[11]. It was hoped that by improving communication skills, oral examinations could address a higher taxonomic level[12] of questioning in order to improve the validity of the oral examination[13]. Additionally, it was hoped that some of these skills might be transferable to other forms of communication in the residents' future clinical practice.

CORF represents a step forward in improving the awareness of communication skills of orthopaedic trainees. Why then, are we waiting until the final months of residency to teach these skills? The literature has established the significant benefits of communication skills training. Shouldn't residents be educated at earlier stages in their training in order to utilize these skills on a daily basis during clinical experience? This study seeks to identify if communication skills are currently being taught in orthopaedic residency training programs, and to identify the various methods used across the country. This study also seeks to explore how orthopaedic residents and program directors perceive this construct 'communication skills'.

The purpose of this study was to conduct a mixed methods investigation into the perceptions surrounding the components of communication skills and the current training of these skills within the field of orthopaedics. The main goal was to explore orthopaedic residents' and program directors' understanding of the construct of communication as outlined by the CanMEDS Project. The specific objectives for this study were:

1. To determine orthopaedic residents' and program directors' perceptions of communication skills.
2. To explore how communication skills are currently taught to Canadian orthopaedic residents based on the point of view of both orthopaedic residents and their program directors.

CHAPTER 2 – LITERATURE REVIEW

Communication Skills in Medicine

Regulatory bodies around the world have recognized the importance of improving communication skills within all levels of medical education. This trend has not come about based solely on opinion and hearsay. Fortunately, there already exists a significant quantity of literature to support the continued advancement of communication skills in medicine. While physicians often pride themselves in their ability to interact with patients, the profession as a whole could definitely make improvements. In one study that investigated the practices of physicians providing care to cancer patients, it was found that rarely were more than 60% of patient concerns identified[14]. In other work, it was found that less than 50% of patients' complaints and concerns are commonly addressed[15], and in 50% of visits to physicians the patient and doctor did not agree on the primary presenting problem of the patient[16].

Medical malpractice suits are a significant stressor to practicing physicians and surgeons, as well as patients. They can place many strains on an individual such as time, energy, and others including financial strain. Multiple authors have identified communication, or lack thereof, as a primary factor leading to malpractice claims[17, 18, 19]. Several malpractice insurance companies in the United States award premium discounts to physicians who have attended a communications skills workshop[20]. Moreover, it has been demonstrated that surgeons who take more time with their patients have fewer malpractice suits brought against them[21].

Improved efficiency and effectiveness of communication have been reported to improve overall health outcomes[22, 23]. This is evidenced by research suggesting that doctors

who do a better job of exploring a patient's expectations, beliefs, concerns, and attitudes towards their ailments are more likely to achieve better patient compliance with treatment regiments[24, 25, 26, 27]. Non-compliance is extremely common with an average of 50% of patients either taking prescribed medicine incorrectly or not at all[28]. This equates to wastage of health-care spending of approximately $5 billion per year in Canada[29]. This demonstrates the additional importance of communication skills to the efficiency of the overall health-care system.

Communication skills are important in many aspects of medicine beyond the doctor-patient relationship. Lingard *et al* demonstrated that communication skills play a critical role during conflict amongst the health care team in the operating room, particularly for novices or residents[30]. Analysis of the efficiency with which operating room teams learn new procedures has also provided evidence that ease of communication between the team and the primary surgeon is a key factor in determining the speed with which teams are able to adapt[31]. It has also been reported that residents recognize the fact that the complexities of communication within a large hospital can be a major source of medical error[32].

Medical education itself can also be significantly influenced by the communication skills of both teacher and student. The oral examination, probably the oldest method of assessment of competence in the field of medical education[33], has been shown to have strong biases based on the communication skills of both examiner and examinee[9, 10]. Additionally, in an ethnographic observational study of certifying board oral examinations in Britain, it was found that individuals from ethnic minorities and examinees who had received medical training abroad experienced unique communication difficulties with certain aspects of the

oral exams[34]. This style of examination is still one of the primary methods utilized by the RCPSC to certify Canadian orthopaedic trainees.

Communication Skills in Orthopaedics

Compared with other areas of medicine, such as family medicine and palliative care, very little research has explored the issue of communication skills in orthopaedics until recently. Driven and supported by regulatory bodies such as RCPSC, this subject is receiving increasing amounts of attention from academic and training centers in Canada, and around the world. Slowly but surely, orthopaedic training centers are recognizing the critical role for communication skills in future generations of orthopaedic surgeons[35].

Orthopaedic surgeons tend to rate themselves as good communicators, but patients tend to hold the opposite attitude[4]. Commentaries have noted that increasing workloads and time-pressures strain already busy orthopaedic practices[35, 36]. Indeed, with an active and aging population, waiting lists to see orthopaedic surgeons continue to grow. Many patients can expect wait lists of over a year to see a surgeon and when they do finally reach their appointment, may be limited to less than five minutes[37]. Is good communication possible in this limited time? Does good communication simply equate to spending more time with our patients?

This, in fact, is not the case. Research has shown that good communication can be achieved with orthopaedic patients in consultations lasting under five minutes in busy clinics. In one study, it was shown that orthopaedic surgeons could demonstrate good communication skills in fracture clinic appointments lasting a mean of four minutes[37]. However, rheumatologists that were also assessed in this study spent an average of 22

minutes and scored significantly higher on their communication skills than did the orthopaedic surgeons as evaluated by a communication skills instrument. Clearly, the argument that one doesn't have enough time to communicate effectively needs more focused attention.

While orthopaedic waiting lists continue to climb, steps must be taken to maximize the efficiency of the health-care systems within which patients are cared for. One study demonstrated that improved communication could decrease the length of hospital stay in joint replacement patients by up to and greater than 50% in some instances[22], thereby demonstrating the potential benefit to health care savings. Additionally, orthopaedic surgeons who developed a greater rapport with their patients were subjected to fewer malpractice claims[21].

The more recent literature that does assess aspects of communication skills within orthopaedics has primarily focused on the surgeon-patient relationship[36, 38]. Indeed, this is an extremely important topic given the influence of communication skills on patient outcomes, patient compliance, as well as other factors such as rates of litigation. However, the daily interactions that a surgeon encounters frequently extend far beyond just the patient.

Depending on whether the surgeon is in the OR, clinic, or multiple other potential environments, his/her communication skills must be flexible enough to deal with fellow surgeons and physicians, various nursing staff, other heath-care professionals, hospital staff, secretarial staff, medical trainees all levels of experience, along with many other individuals including medico-legal or administrative personnel. A surgeon's communication skills cannot be limited to face-to-face contacts since many of his/her relationships will be dealt with using written patient notes, consultation letters, e-mail, and telephone conversations.

Moreover, with the continued advancement of technology and the electronic medical record, adaptability is becoming a key component within the realm of communication. It has been shown that most orthopaedic departments significantly underutilize technologies such as the internet to assist with communication[39].

Communication Skills Training

Communication skills can be taught[40, 41], and these learned skills can be retained over time[42]. However, do the current teachers in orthopaedics know what skills to teach and do the learners understand what they are supposed to be learning? Experience tends to reinforce habits, both good and bad[43], and thus is not nearly sufficient unto itself. Consequently, the current experiential model of education in residency could subject residents to both positive and negative role models in the realm of communication. Research has shown that some current methods of training still result in communication skills that are unsatisfactory at the end of residency[44]. Whereas, at the undergraduate level "communication curricula using an established education model significantly improved third-year students' overall communication competence"[45]. Methods for improving communication at the graduate level have been described as a positive experience where residents and fellows were "very enthusiastic" about improving their skills[46].

Despite the varied research into the importance of communication skills, it remains unclear whether orthopaedic residents and educators have a well-defined knowledge of these skills. Perceptions of our own communication skills tend to be inaccurate[1]. Moreover, there exists very little information in regards to how these skills are developed during surgical training. It has been reported that residents perceive a paucity of training in how to construct

consultation and referral letters, the primary mode of inter-physician communication that is currently used[47].

Most surgical residency programs still focus on an experiential style of learning, where medical knowledge and surgical skill acquisition are focused on in the OR and surgical clinics by resident and staff surgeon alike. When a new operative procedure is to be learned, a junior resident doesn't perform the entire procedure on his/her own at first. The task is broken down, each part practiced, and then brought together again. Communication skills sets are similarly complex, and thus need to be broken down into their component parts in order to be properly understood. The Kalamazoo II report also emphasized that these skills need to be "taught and evaluated by trained faculty"[48]. It is unknown at this time what the current level of understanding is in regards to orthopaedic faculty teaching communication skills to their residents.

What the literature does support is the impact of role modeling within the realm of clinical teaching in medicine[49, 50]. The available research is not always clear as to the overall importance of role modeling compared with other teaching modalities[51], and some research suggests that certain student sub-populations, such as females, may be more significantly influenced by role modeling than others[52]. Unfortunately, there exists evidence that current role models are not doing an effective job of teaching communication skills to medical students and residents[32].

Several factors have been associated with individuals described as excellent role models. In fact, one study showed that "being a strong clinician was regarded as necessary but not sufficient for being an exemplary physician role model"[50]. Moreover, the interaction between student and teacher is an important factor when considering role modeling as an

educational tool. Role models are much more effective when the learner can easily identify with the teacher[53]. In this fashion, role models can be more effective when the learners have similar qualities and beliefs, thus making role modeling more difficult in student bodies with a diverse population.

In regards to communication skills, role modeling has been shown to be a valuable tool in teaching such skills as empathy in the clinical setting[54]. However, effective modeling of these skills is best accompanied by explicit debriefing, review, and feedback in order to highlight the important learning issues[54]. Poor role modeling can also affect student perceptions of patient interactions and can lead to negative clinical experiences[55]. While role modeling can influence communication skills, they are also significant in the effectiveness of role models[56]. Preceptors with poor communication skills may face barriers to developing important student-teacher relationships.

Mixed Methodology

The purpose of the mixed methods design is to use qualitative methods to allow a more in-depth exploration of some of the items addressed by quantitative measures. Other authors have utilized similar methods to enhance the rigor of their research. Rennie *et al* used focus groups in combination with a questionnaire to elicit medical student perceptions of whistle blowing[57]. Bhandari *et al* combined interviews and focus groups to obtain individual and group perceptions from residents about the challenges of utilizing an evidence-based medicine approach during their surgical training[58].

Questionnaires are a frequently used and often misused tool in medical education research. Several steps must be taken in order to draw valid and accurate conclusions from

the data gathered[59]. Ideally, a study should use a questionnaire that has already been validated in the published literature for that field. Unfortunately, there currently exists no such instrument for the questions posed in this study, thus a new instrument has to be developed. This development process is a task that needs to be treated with the same scientific rigor as any method. Questions need to be formatted such that there is no confusion on the part of participants. Factors have to be addressed that will optimize response rate in order to help generalize the results. Several guides have been published to aid in the development, distribution, and analysis of questionnaires[60, 61].

Questionnaires can be distributed in several formats such as mail, web-based, or via telephone interview[62], each presenting their own methodological issues. Pre-piloting the questionnaire is an essential step in the initial validation process[60] that improves face validity by testing the questionnaire on subjects similar to those who will actually be recruited for the study. In this study, question development will be guided by the research questions, the core competencies of a communicator as outlined by the CanMEDS 2005 Project, and by the current available literature on communication skills education in medicine.

Participant recruitment is an important aspect of any study. In distributing questionnaires, achieving an acceptable rate of return from study subjects is important in order to minimize bias and to maximize generalizability. Methodological guidelines for studies incorporating questionnaires into the study design recommend setting a goal of an 80% response rate. When conducting a nation-wide survey this can become an extremely difficult goal to achieve, however several strategies can be employed to try and achieve this level of response[62].

Firstly, ensuring that the questionnaire is a manageable length for subjects is important. Secondly, multiple mailings of the questionnaire may be necessary. In this fashion, subjects are given multiple opportunities and reminders to participate. It may also assist if subjects are given multiple options for completing and returning the questionnaire, such as paper copies and electronic versions that can be mailed, faxed, or e-mailed. Some suggest that providing participants with an incentive to complete the questionnaire may also assist with the rate of return. Clearly, if many of the subjects in a study are outside of the primary centre, finding local support in each of the peripheral centers could help overall recruitment.

Focus groups have a long tradition in qualitative research because of their ability to stimulate group interaction, which may produce comments that wouldn't necessarily be brought up in individual interviews[63]. Some researchers feel that focus groups work most efficiently when participants represent a reasonably homogeneous group that can work together to discuss the issues presented[62]. The purposive sampling of orthopaedic residents in this study should serve as a homogeneous group; therefore data saturation should be reached with a relatively small number of focus groups.

Interviews with program directors will introduce a different perspective on the main issues surrounding communication skills. Numerous qualitative studies have investigated the viewpoints of opposing groups such as patients and doctors or educators and students in order to see different sides of the same issue and thereby improve the validity of their results[64, 65, 66]. The resulting data should improve the triangulation of results during analysis.

This review of the current literature on the topic of communication skills demonstrates an absence of knowledge within the field as it directly relates to the objectives

in this study. Based on these objectives, this study attempts to answer several research questions:

1. What are the perceptions of the meaning of communication skills amongst Canadian orthopaedic residents and Canadian orthopaedic residency program directors?
2. What are the psychometric properties, namely reliability and validity, of the instrument developed to assess Canadian orthopaedic resident perceptions regarding communication skills and communication skills training?
3. Are there differences in the perceptions of communication skills amongst various sub-populations within Canadian orthopaedic residents (e.g. – gender differences)?
4. What do Canadian orthopaedic residents and Canadian orthopaedic residency program directors perceive are the key components of communication skills for a current orthopaedic trainee or a practicing orthopaedic surgeon in Canada?
5. How are communication skills currently taught within Canadian orthopaedic residency training programs?

CHAPTER 3 – METHODS

Study Design

This study employed a mixed methods design to obtain both qualitative and quantitative data focused on the objectives previously outlined. The primary instrument for quantitative data collection was in the form of a 30-item questionnaire (Appendix A) and was sent to all orthopaedic residents in Canada. Focus groups with orthopaedic residents were conducted to gain a deeper understanding of themes addressed in the questionnaire. Interviews were conducted with Canadian orthopaedic residency program directors to better understand their points of view as surgical educators.

Study Setting

This study was based in Calgary, Alberta through the Faculty of Medicine at the University of Calgary but represents a cross Canada investigation. This research serves as a continued effort to explore the expanding role of the CanMEDS Project in post-graduate medical education within the Division of Orthopaedics, the Department of Surgery, and the entire Faculty of Medicine.

Quantitative Methods

Study Population

The primary focus of this study was on the perceptions of orthopaedic trainees. Consequently the population defined for investigation was all Canadian orthopaedic residents. It was decided that for quantitative data collection it would be optimal and realistic to try and sample the entire population rather than limit the study to a smaller sample. Thus,

the population to which questionnaires were distributed was all individuals enrolled in a Canadian orthopaedic residency-training program during the academic year of 2005/2006. This population includes a total of 325 registered Canadian orthopaedic residents as per the 2005-2006 CAPER Census[67].

Instrument Development

Development of the questionnaire for this study was guided by a steering committee consisting of the principal investigator and co-investigators. The first step of development consisted of item generation. No instrument was available in the literature that had previously sought to answer the same or similar questions as those proposed in this study. For this reason, in order to achieve the goals of this investigation, items had to be empirically generated. Items were generated based on the goals of this study, the core competencies of a communicator as outlined by the CanMEDS project, and a review of the current literature on communication skills in medicine, and orthopaedics. Previously designed instruments such as the Calgary-Cambridge Guides[1] used to assess communication skills were helpful as aids to item generation. This process produced approximately 50-60 items for review.

Item reduction was subsequently undertaken to reduce the length of the questionnaire to the goal of 30 items. Using a questionnaire format capable of computer scanning for data entry, 30 items plus demographic data can be included on two printed pages. It was felt that the questionnaire should be kept to two pages in order to minimize the time required for participant completion while maintaining sufficient length to allow adequate reliability and validity. It was hoped that minimizing questionnaire length would maximize resident response rate.

Items were also grouped into domains to allow for subsequent evaluation through correlation of items within each domain using a factor analysis. The instrument was constructed to assess five primary domains including: perception of communication ability (items 1, 4, 15, 20), explicit training of communication skills (items 2, 3, 6, 7, 10-12), clinical training of communication skills (items 5, 8, 9 13, 14), utility of communication skills (items 16-19), and importance of communication skills (items 21-30).

The final instrument for quantitative data collection for this project (Appendix A) consists of 30 items graded on a 5-point Likert-type scale. The first 20 items are graded from strongly disagree (1) to strongly agree (5) with a neutral option (3). The last 10 items are graded from never important (1) to very important (5), and contained a neutral option (3). The instrument also collected demographic data including sex, residency level (ie – R1, R2, R3, etc…), current university for residency training, Canadian medical graduate (CMG) vs. international medical graduate (IMG), and university where medical school was attended.

Instrument Assessment

All items of the primary instrument were assessed for readability utilizing Microsoft Word software. Face validity was examined through piloting the questionnaire with a random sample of non-orthopaedics residents at the Foothills Hospital in Calgary, who do not qualify as participants in this study. This process helped to re-word or eliminate questions that residents did not understand or considered confusing or ambiguous. Content validity was assessed through a review of all items with Dr. S. Kurtz, an internationally recognized expert in developing questionnaires and instruments for assessing communication skills.

Instrument Distribution

Questionnaires were sent to all Canadian orthopaedic surgical residents via the 16 university-based program offices. The letter of recruitment to program directors (Appendix E) requested that they distribute the questionnaires to each of their residents. Accompanying each questionnaire was a study information sheet (Appendix F) providing a brief explanation of the study. A postage-paid envelope was included with each questionnaire for mail return. Participants were also able to return completed questionnaires by fax with the fax number provided both on the questionnaire and in the information sheet.

The first mailing of questionnaires took place in December, 2005. A second mailing was conducted in February, 2006. Third and fourth mailings were then conducted due to a continued poor response rate. The third and fourth mailings were sent via e-mail to all residents in March and April, 2006. The questionnaire was also distributed directly to orthopaedic residents at CORF in Calgary, AB on April 7th-10th, 2006, at the Alberta Orthopaedic Resident Research Day in Red Deer, AB on April 21st, 2006, and at the Canadian Orthopaedic Resident Association (CORA) annual general meeting in Toronto, ON on June 1st, 2006.

Data Analysis

Questionnaires were put into a format that was compatible with computer scanning for data entry. All data was entered and analyzed using SPSS computer software. Descriptive statistics were calculated for each item on the questionnaire including mean, range, and standard deviation. Reliability of the instrument was assessed for internal consistency using Cronbach's alpha.

Demographic data was analyzed using descriptive statistics. Item means were also compared using a one-way between-subjects analysis of variance (ANOVA) and a multivariate analysis (MANOVA) using independent variables including sex, residency level of training (R-level), training program, and Canadian medical graduate versus international medical graduate. For the purposes of quantitative analysis residents were analyzed within their individual R-level as well as sub-grouped into junior and senior residents with juniors defined as R1-R3 and seniors defined as R4 and greater. A significant difference was determined based on a *P*-value less than 0.05.

Correlations were run between all items. In order to explore inter-correlations between items grouped into the five domains upon which the questionnaire was constructed, an exploratory factor analysis was conducted. Factor analysis allows one to determine which items actually group together (i.e., are a factor). Individual resident responses to each item on the questionnaire were used as the unit of analysis. Each item was inter-correlated using Pearson product-moment correlations. The correlation matrix was subsequently decomposed into principle components. These components were rotated using varimax and normalization criterion in order to determine the factor structure of the questionnaire. Items were considered to be part of a factor if their primary loading was on that factor. The number of factors extracted was based partly on the Kaiser rule (i.e., eigenvalues >1.0). Reliability of each factor was assessed for internal consistency using Cronbach's alpha.

A summary of the quantitative methods utilized in this study and their relevance to the primary study questions is included in table 1.

Table 1: Outline of the methods used to assess the psychometric properties of the primary instrument of this study.

	Method of Assessment	Relevance to Study
Reliability	Cronbach's alpha – internal consistency	*Question #2*
Face Validity	Piloting with non-orthopaedic residents at the UofC	*Question #2*
Content Validity	Review of all items with supervisory committee and Dr. S. Kurtz	*Question #2*
Construct Validity	Factor Analysis	*Question #2*
Variance between sub-populations	ANOVA / MANOVA	*Question #3*

Qualitative Methods – Orthopaedic Resident Focus Groups

Study Population

For this aspect of the study the population was again defined as Canadian orthopaedic residents. However, it was decided that for the focus groups a convenience sample would be limited to western Canada due to accessibility. Consequently, the inclusion criteria for recruitment for the orthopaedic resident focus groups included Canadian trained orthopaedic residents at the University of British Columbia (UBC), the University of Calgary (UofC), the University of Alberta (UofA), the University of Saskatchewan (UofS), and the University of Manitoba (UofM).

Focus Group Participant Recruitment

A recruitment letter (Appendix E) and study information sheet (Appendix F) were sent to all Canadian trained orthopaedic surgery residents at the UofC and UofA. This provided residents with a brief overview of the project and sought their participation in focus

groups at each location. Program directors at each location were also informed of the focus groups and were asked to encourage their residents to participate.

To assist recruitment, residents were informed that they would receive a financial honorarium in the amount of $75 for their time participating in the focus group. This $75 was based on a 90-minute focus group with an hourly rate of $50, which is what orthopaedic residents are paid to be the in-house doctor during evenings at the local private hospital.

Initial recruitment took place in December 2005 for the UofC and January 2006 for the UofA. Due to a poor response from the UofA, it was decided that additional recruitment should proceed for orthopaedic residents from the UBC, UofA, UofS, and the UofM. In March of 2006 a recruitment letter and information sheet were both mailed and emailed to residents from these four programs. The program directors and residency program secretaries and each location were also contacted to help encourage residents to participate. Due to a continued poor response rate for focus group participation, in April 2006 a third attempt was made to recruit residents from the University of Alberta both through their program secretary and face-to-face at the Alberta Orthopaedic Resident Research Day.

Focus Group Question Development

Focus groups consisted of 6 open-ended questions (Appendix B) aimed at stimulating group interaction in order to explore themes directly related to the primary objectives of the study, namely knowledge of communication skills and perceptions of communication skills training. Questions were empirically developed by the PI through discussion with the co-Is and were based upon the five core competencies of a communicator as previously outlined. Once initial questions were developed, these were reviewed with the moderator hired to

conduct the focus groups. The moderator had extensive prior experience running focus groups and thus was able to provide valuable insight into improving the format of the questions in order to maximize resident participation and interaction during the sessions.

Conducting the Focus Groups

Each focus group consisted of 6 questions posed to participants and was scheduled for approximately 90 minutes. Focus groups were conducted separately for senior and junior residents to help make the groups as homogeneous as possible. This separation was also used to allow junior residents to be as open with their discussion as possible and not be influenced by the contribution of their senior residents. Junior residents were defined as R1-R3 and senior residents as R3-R5. It was felt that R3 residents were appropriate to either group.

The moderator conducted all focus groups. All discussions were audio-recorded and recordings were transcribed verbatim with all identifying information removed. The PI was present for all focus groups and was responsible for keeping rough notes during the sessions. The transcriptionist was also present for the focus groups in order take notes and maximize the accuracy of interpreting the audio-recordings. Neither the PI, moderator, nor transcriptionist contributed to the discussions during the focus groups.

Written informed consent was obtained from each participant (Appendix D). Participants were instructed that they could withdraw consent at any point before, during, or after focus group data has been collected. It is impossible to maintain strict confidentiality in the focus group setting because of the group nature of the activity. However, all participants were encouraged to not divulge any of the material discussed during the focus groups.

Anonymity is maintained in the final report by having all identifying information removed from all data transcripts.

Data Analysis

Audio-recordings of all focus groups were transcribed verbatim with identifying information removed into Microsoft Word files. These word files were subsequently imported into NVivo 7 software for qualitative analysis. Focus group and interview data were analyzed independently. The principal investigator (PI), Kris Lundine (KL) performed initial data coding, and these codes were subsequently reviewed by the primary supervisor (PS), Jocelyn Lockyer (JL). Any disagreements in the coding process were taken back to the raw transcripts for re-analysis.

The first step in qualitative analysis was the open coding of data gathered during the focus groups. Data transcripts from each group were divided into the six questions proposed to participants. The coding process began with the first question from the first focus group. Open coding proceeded in a step-wise fashion through each subsequent question and then onto the next focus group transcript. At the end the conclusion of open coding for each transcript, previously coded transcripts were re-evaluated using a constant comparative technique. In this manner, codes from all transcripts were compared and contrasted to ensure that all data was coded appropriately and consistently.

Focus groups data were collected until data saturation had been achieved. Data saturation is the point at which no new codes emerge from subsequent transcripts. From the point after data saturation, all significant responses were largely repetitious comments already made during prior focus groups.

The next phase of data analysis was the process of axial coding. Axial coding was the process by which all codes developed during the open coding process were categorized according to conceptual similarity. Major themes were developed based upon the two primary goals of this study; namely, perceptions of communication skills and current communication skills training. These themes could subsequently be explored for the major conditions influencing the data. In this fashion, interrelationships could be identified between various codes and themes.

Qualitative Methods – Orthopaedic Program Director Interviews

Study Population

The population defined for this section of the study was all Canadian orthopaedic residency program directors. Again, it was felt to be optimal and realistic to sample the entire population given that there are a total of 16 orthopaedic training programs currently in Canada.

Program Director Recruitment

A recruitment letter (Appendix E) and study information sheet (Appendix F) were sent to all 16 orthopaedic program directors in Canada. This provided program directors with a brief overview of the study and sought their participation in a telephone or face-to-face interview. Program directors were also recruited directly through telephone contact by either Dr. Rick Buckley or Dr. Carol Hutchison, depending on their familiarity with the individual. It was thought that contact from a fellow orthopaedic surgeon would assist recruitment.

Initial recruitment began in January of 2006. In addition to the initial mailing of the study information, program directors that were non-respondents were subsequently contacted via e-mail in March 2006 and again in April 2006. These follow-up e-mails were accompanied by additional contact from Dr. Buckley and Dr. Hutchison. In many instances multiple telephone calls were required to establish contact, and in two cases no direct telephone contact was ever achieved. In two cases recruitment was conducted face-to-face when the program director was directly available to the principlal investigator.

Interview Question Development

Questions for the program director interviews were broken down into demographic information, perceptions of communication skills, and current communication skills training, as outlined by the primary objectives of the study. All questions were empirically developed by the PI according to the core competencies of a communicator, which have been previously mentioned, as well as current literature on communication skills training in post-graduate medical education. Question development was also assisted by data gathered during the orthopaedic resident focus groups. These sessions preceded the program director interviews. All questions were initially reviewed with the Co-Is and were subsequently reviewed with a local communication skills expert to ensure face and content validity.

Conducting the Interviews

In-depth semi-structured interviews were conducted with the orthopaedic program directors. Interviews were held over the phone, or face-to-face when possible. Each interview was scheduled to last approximately 10-20 minutes. Interviews were audio-

recorded using a digital tape recorder and conference-style speakerphone (when necessary). These recordings were transcribed verbatim with all identifying information removed.

Due to unavoidable technical difficulties it was not possible to audio-record one of the telephone interviews. During this interview the interviewer took detailed notes and made additional notes at the conclusion of the interview to ensure completeness of the data.

Interviews consisted of a mixture of open-ended and closed-ended questions (Appendix B) seeking individual opinions directly related to the primary objectives of the study, namely knowledge of communication skills and perceptions of communication skills training. Basic demographic data was also collected during the interview including years in practice, years in an academic centre (an academic centre was considered a hospital directly associated with a medical school where residents and medical students are trained), and years as an orthopaedic program director.

Verbal informed consent was obtained at the time of each interview (Appendix B). Participants were instructed that they could withdraw consent at any time before, during, or after the interview process. The program directors were also informed that strict confidentiality could not be promised as the identities of Canadian orthopaedic program directors is public knowledge. Anonymity was maintained by having all identifying information removed from the data transcripts.

Data Analysis

Audio-recordings of all interviews were transcribed verbatim with identifying information removed into Microsoft Word files. These word files were subsequently imported into NVivo 7 software for qualitative analysis. Focus group and interview data

were analyzed independently. The PI performed initial data coding, and these codes were subsequently reviewed by the primary supervisor (JL). Any disagreements in the coding process were taken back to the raw transcripts for re-analysis. Final codes and themes were then reviewed with the other co-Is.

Analysis of the program director interview data was based on three separate categories: demographic data, perceptions of communication skills, and current communication skills training. Demographic data were analyzed for quantitative descriptive statistics.

Analysis of the qualitative data transcripts acquired from interviews proceeded similarly to the data obtained from the orthopaedic resident focus groups. During the process of open coding the data was separated into the eight primary questions proposed to interviewees. Several of these questions also contained follow-up prompts to help elicit more detailed responses. The constant comparative technique previously described was utilized for open coding to assess for data saturation.

Open coding was followed by axial coding. In this manner, codes were re-explored for new relationships. General themes were developed based within categories founded within the two major goals of this study. Subsequently, interrelationships were explored between codes and themes.

Table 2 summarizes the relevance of the questions asked during the qualitative portion of this study. These questions were directly related to the primary questions proposed by this research.

Table 2: Outline of the purpose and relevance of the focus group and interview questions.

	Purpose of Question	Relevance
Focus Group Questions		
1. What does the term communication skills mean to you?	- broad question aimed at initiating discussion concerning communication skills	*Q - #1*
2. What are the key aspects of communication skills?	- aimed at gaining deeper understanding of what residents feel is important	*Q - #4*
3. What are the differences in the content and process of your communication?	- aimed at getting residents to distinguish between the content and process of communication	*Q - #1*
4. How does your communication differ or how is it the same in your various relationships as a surgical resident?	- aimed at getting residents to explore how their communication changes as the person they're interacting with changes	*Q - #1 & #4*
5. How are communication skills developed in your residency program?	- broad question aimed at how communication skills are currently taught to residents in orthopaedics	*Q - #5*
6. How have your communication skills changed from the end of medical school to now?	- aimed at allowing residents to comment on the effectiveness of their communication skills training	*Q - #5*
Interview Questions		
1. What does the term communication skills mean to you?	- broad question aimed at initiating discussion concerning communication skills	*Q - #1*
2. What are the key aspects of communication skills?	- aimed at gaining deeper understanding of what program directors think is important	*Q - #4*
3. Would you consider excellent communication skills typical of an orthopaedic surgeon?	- very specific question to see if program directors believe these skills are present within their faculty	*Q - #1*
4. What is the attitude of residents and faculty towards CanMEDS?	- to explore the general attitude towards the CanMEDS competencies	*Q - #1 & #4*
5. How are communication skills developed in your residency program?	- broad question aimed at how communication skills are currently taught to residents in orthopaedics	*Q - #5*
6. Can you describe how role modeling contributes to teaching communication skills?	- aimed at exploring an key theme highlighted by the residents during focus groups	*Q - #5*
7. How do you teach dictation skills to your residents?	- aimed at methods used for teaching residents how to dictate	*Q - #5*
8. How do you teach conflict resolution to your residents?	- aimed at methods used for teaching residents how to resolve conflict	*Q - #5*

Data Integration and Triangulation

The quantitative and qualitative portions of this research dealt largely with separate questions proposed within the study. However, both the questionnaire and the questions proposed to residents and programs directors in the focus groups and interviews were based upon the two primary objectives of the study. For this reason, it was deemed important to assess how the quantitative and qualitative data overlapped. The orthopaedic resident focus groups preceded the program director interviews so results from the focus groups helped guide some of the lines of questioning during the interviews.

Firstly, codes and themes were compared between orthopaedic resident focus group data and the orthopaedic program director interview data looking for potential relationships. These overlying themes were compared and contrasted looking for both convergence and divergence of ideas between learners and instructors.

This data was subsequently assessed using results from the study questionnaire. Major themes were compared to factors resulting from the factor analysis. Results of questions found within these factors were analyzed to explore consistencies or inconsistencies within the data. Through consideration of data from multiple sources and through various methods, a deeper understanding of the perspectives questioned in this study was enabled.

Strategies to Ensure Trustworthiness of Qualitative Data

The trustworthiness of the data, data analysis, results, and interpretation of the results was addressed on several levels. The researcher kept detailed notes of all qualitative data collection and analysis to ensure no data was lost and to maintain an accurate temporal

record of events. The researcher met regularly with the primary supervisor during the analysis phase of research to maintain consistent and accurate methods of open coding of the qualitative data.

Transferability of the data was established through rigorous recruitment of residents and program directors from across the country. In this fashion, efforts were taken to establish that the data was representative of orthopaedic training programs across Canada.

Within all three methods used to collect data for this study, participants had the opportunity to provide answers to questions that they felt were the correct answers rather than their true opinions or perspectives. In order to minimize the desire to provide a correct answer, participants were ensured that all data would remain confidential to protect their anonymity. Additionally, during the focus groups, junior and senior residents were separated into different groups in order to minimize the bias of senior residents influencing the opinions provided by junior residents.

Confirmability of the research was established through a process of member checking. This was conducted such that study participants were able to review the preliminary results and interpretation in order to ensure that an accurate summary of the data had been produced. The researcher had the opportunity to present the research findings to the orthopaedic residents and program director of the University of Calgary on March 16th, 2006, and to the orthopaedic residents and program directors of the University of Calgary and the University of Alberta on April 21st, 2006. On each occasion residents and program directors were given an opportunity to question the analysis and interpretation of the data.

Significant Contributors

The principal investigator (PI – KL) is a third year orthopaedic resident conducting this research as a thesis project for an MSc in medical science, medical education at the University of Calgary. The PI conducted all of the interviews with program directors and was present for all of the focus groups. He was also primarily responsible for data analysis and coding.

All qualitative analysis was reviewed with JL. JL holds a PhD in medical education, is the primary supervisor to the PI, and is an Associate Professor in the Dept. of Community Health Sciences at the University of Calgary (UofC). CH is an orthopaedic surgeon and associate professor at the UofC and holds an MEd. RB is an orthopaedic surgeon and associate professor at the UofC with an interest in communication skills. RB and CH assisted with orthopaedic program director recruitment. A single research assistant with focus group experience was hired as the moderator for all focus groups.

Conflicts of Interest and Statement of Biases

At the time of this study the principle investigator was an orthopaedic resident at the University of Calgary. The subjects of this study, as well as the participants, were closely related to the investigators area of clinical practice. Consequently, the investigator's knowledge and experience within this field facilitated a greater understanding of points of view expressed by the participants.

It is imperative that a researcher/interviewer acknowledge his/her biases in order to minimize the influence of these biases during data collection and interpretation. As well as being an orthopaedic resident, during this study the principal investigator was also an

instructor for the Communication Skills Course for Undergraduate Medical Education at the University of Calgary. For this reason, the investigator had to remain vigilant in order to avoid leading questions during interviews that would further bias the resultant data.

The principal investigator had a professional relationship with all focus group participants who were also orthopaedic residents at the University of Calgary. In order to minimize this bias, while the investigator was present during both focus groups, his role was solely as a silent observer to take notes to assist in data collection and interpretation. The moderator and transcriptionist for both focus groups had no known relationships with any of the participants.

Ethics

This study received scientific and ethical approval from the Conjoint Health Research Ethics Board, Faculty of Medicine, University of Calgary.

Funding

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CHAPTER 4 – QUANTITATIVE RESULTS

This study collected data from three independent sources. This data took the form of quantitative results from the questionnaires distributed to Canadian orthopaedic residents, and qualitative results from orthopaedic resident focus groups and orthopaedic program director interviews. These three data sets were initially analyzed separately, but were subsequently analyzed together in order to assess for significant interrelationships. This data triangulation will hopefully allow for a deeper understanding of the data as a whole.

A total of 119 questionnaires were completed by Canadian orthopaedic residents for a response rate of 36.6% (119/325). Demographic data collected by the questionnaire is summarized in Table 3 and is compared with the current demographics of all current Canadian orthopaedic residents as reported by the 2005-2006 CAPER census[67].

Residents from all sixteen orthopaedic training programs across Canada completed questionnaires. The distribution of completed questionnaires compared with the distribution of all Canadian orthopaedic residents is summarized in Table 4. Overall, the trend of completed questionnaires was a moderate over-representation of Western Canada with under-representation from Ontario and Quebec. Representation from the Atlantic provinces was similar in distribution in this study compared with all orthopaedic residents.

Table 3: Descriptive statistics comparing the demographic data of all Canadian orthopaedic residents and Canadian orthopaedic residents who completed a questionnaire for this study.

		Canada*		Study	
		N	%	N	%
Gender					
	Male	256	83.1	92	79.3
	Female	52	16.9	24	20.7
Nationality					
	CMG**	270	83.1	99	84.6
	IMG***	55	16.9	18	15.4
R-level					
	R1	60	22.2	22	18.5
	R2	50	18.5	12	10.1
	R3	62	23.0	16	13.4
	R4	48	17.8	14	11.8
	R5	50	18.5	54	45.4

*All data is taken from the 2005-2006 CAPER census report[67]. It is unknown why the total N for each group is not equivalent.
**Canadian Medical Graduate
***International Medical Graduate

Table 4: The distribution of Canadian medical graduates in orthopaedic training programs in total across Canada and those that completed a questionnaire for this study.

	Medical School	Canada		Study	
		N	%	N	%
Western Canadian Medical Schools					
	UBC	24	8.9	17	14.3
	UofC	20	7.4	18	15.1
	UofA	11	4.1	3	2.5
	UofS	11	4.1	2	1.7
	UofM	14	5.2	16	13.4
	Total	80	29.5	56	47.1
Ontario Medical Schools					
	McMaster	23	8.5	8	6.7
	UWO	21	7.7	2	1.7
	UofT	37	13.7	9	7.6
	UofO	17	6.3	5	4.2
	Queen's	12	4.4	9	7.6
	Total	110	40.6	33	27.7
Quebec Medical Schools					
	McGill	15	5.5	8	6.7
	Montreal	14	5.2	2	1.7
	Laval	13	4.8	2	1.7
	Sherbrook	17	6.3	4	3.4
	Total	59	21.8	16	13.5
Atlantic Medical Schools					
	Dalhousie	11	4.1	5	4.2
	Memorial	11	4.1	4	3.4
	Total	22	8.2	9	7.6

Descriptive statistics for all items on the questionnaire are summarized in Table 5. The mean, range, and standard deviation have been reported for each item. Reliability of the overall questionnaire was assessed using Cronbach's alpha coefficient for internal consistency. Cronbach's alpha was 0.72.

Table 5: Descriptive statistics for questionnaire results.

		mean	s.d.	Range	
				Min.	Max.
Items #1-20 scored on a 5-point scale (1=strongly disagree, 5=strongly agree)					
1	Communication skills are a personality trait.	3.8	.90	1	5
2	Communication skills are learned skills.	3.8	.84	2	5
3	Communication skills can be retained over time.	4.2	.61	2	5
4	Excellent communication skills are a typical trait of a physician/surgeon in my specialty.	2.6	.95	1	5
5	Excellent communication equates to spending more time with an individual.	2.8	1.09	1	5
6	Communication skills were well taught during my undergraduate medical training in medical school.	3.5	1.09	1	5
7	Communication skills are well taught in my residency program.	2.4	.93	1	5
8	During residency I have worked with positive role models for how to communicate effectively.	3.7	1.06	1	5
9	During residency I have worked with negative role models for how to communicate effectively.	4.0	1.04	1	5
10	I have been taught how to effectively communicate using dictation letters.	2.6	1.00	1	5
11	I have been taught how to effectively communicate in a written format (ie – prescriptions, notes, etc…).	3.0	1.04	1	5
12	I have received explicit instructions during residency on how to improve my communication skills.	2.3	1.00	1	5
13	I have learned my communication skills during residency through trial and error.	3.8	.83	1	5
14	Communication skills are primarily taught by role modeling.	3.5	.92	1	5
15	My current communication skills are sufficient.	3.8	.96	1	5
16	Excellent communication skills can improve patient outcome.	4.5	.65	3	5
17	Excellent communication skills can improve healthcare efficiency.	4.6	.60	3	5
18	Excellent communication skills can decrease healthcare spending.	4.2	.87	1	5
19	Excellent communication skills can decrease my risk of litigation.	4.8	.47	3	5
20	I have excellent communication skills.	3.7	.90	1	5
Items #21-30 scored on a 5-point scale (1=never important, 5= very important)					
21	Performing conflict resolution.	4.5	.79	1	5
22	Teaching medical students.	4.4	.68	2	5
23	Discussing treatment options with senior staff.	4.3	.68	2	5
24	Discussing treatment options with a patient.	4.7	.51	3	5
25	Developing a relationship with a patient.	4.6	.55	3	5
26	Writing progress or surgical notes.	4.0	.84	1	5
27	Providing to patients and their families the rationale of treatment.	4.5	.61	2	5
28	Handling transfer of care.	4.4	.68	2	5
29	Coordinating a health care team (ie – nursing, PT, OT, residents, etc….).	4.4	.58	3	5
30	Balancing work and personal life.	4.3	.81	2	5

The demographic data collected on the questionnaires was used to conduct an analysis of variance (ANOVA) of all items on the questionnaire. Independent variables assessed included gender, CMG versus IMG status, and R-level. Resident R-level status was also sub-categorized into junior (R1-R3) and senior (R4-R5) residents for analysis.

In comparing male versus female responses there were a number differences that were statistically significant. In total, 8 items on the questionnaire were significantly different including items 8, 10, 11, 15, 20, 22, 24, and 25. Interestingly, women agreed more strongly than men that they had been exposed to positive role models during residency for how to communicate effectively. As well, looking at items 15 and 20, women were more likely to rank their own communication skills as sufficient or excellent. Overall, women had a general tendency to rank all items higher than men. These results are summarized in table 6.

Table 6: ANOVA – A comparison of questionnaire results in males versus females.

Question #	Male		Female		Significance
	Mean	s.d.	Mean	s.d.	
1	3.8	0.9	3.7	1.1	n.s.
2	3.9	0.8	3.7	0.8	n.s.
3	4.2	0.6	4.0	0.5	n.s.
4	2.7	1.0	2.3	0.7	n.s.
5	2.7	1.1	2.8	1.2	n.s
6	3.4	1.1	3.8	1.0	n.s.
7	2.4	0.9	2.6	0.9	n.s
8	3.5	1.1	4.1	0.7	**$P < 0.01$**
9	4.0	1.0	4.0	1.0	n.s
10	2.5	1.0	3.0	1.0	**$P < 0.05$**
11	2.9	1.1	3.4	0.9	**$P < 0.05$**
12	2.2	1.0	2.5	1.1	n.s.
13	3.8	0.9	3.9	0.5	n.s.
14	3.5	0.9	3.3	1.0	n.s.
15	3.7	0.9	4.1	0.9	**$P < 0.05$**
16	4.5	0.7	4.6	0.6	n.s.
17	4.5	0.6	4.8	0.4	n.s.
18	4.2	0.9	4.4	0.7	n.s.
19	4.8	0.5	4.8	0.4	n.s.
20	3.6	0.7	4.1	0.7	**$P < 0.01$**
21	4.5	0.7	4.5	1.1	n.s.
22	4.3	0.7	4.7	0.5	**$P < 0.01$**
23	4.3	0.7	4.5	0.8	n.s.
24	4.6	0.5	5.0	0.2	**$P < 0.01$**
25	4.5	0.6	4.9	0.4	**$P < 0.01$**
26	4.0	0.9	4.1	0.8	n.s.
27	4.5	0.6	4.6	0.5	n.s.
28	4.4	0.7	4.5	0.7	n.s.
29	4.4	0.6	4.6	0.6	n.s.
30	4.3	0.8	4.3	0.8	n.s.

Table 7 summarizes the comparison of CMGs and IMGs. Items with statistically significant differences included 4, 9, 15, 16, 20, and 21. Similar to women, CMGs ranked their own communication skills as more sufficient and excellent than did IMGs. Of note, IMGs also tended to agree that excellent communication skills are typical of an orthopaedic surgeon while CMGs tended to disagree. Along the same lines, CMGs agreed much more strongly than IMGs that they had been exposed to negative role models for communication skills during residency. While IMGs did agree on several items with the utility of communication skills, they were significantly lower than CMGs on the potential improvement of patient outcomes.

Table 7: ANOVA – A comparison of questionnaire results in Canadian medical graduates (CMGs) versus international medical graduates (IMGs).

Question #	CMG*		IMG**		Significance
	Mean	s.d.	Mean	s.d.	
1	3.8	0.9	3.8	0.7	n.s.
2	3.8	0.8	4.0	0.8	n.s.
3	4.2	0.6	4.3	0.5	n.s.
4	2.5	0.8	3.2	1.4	***P* < 0.01**
5	2.7	1.1	2.9	0.9	n.s.
6	3.6	1.1	3.0	0.8	n.s.
7	2.3	0.9	2.7	1.0	n.s.
8	3.7	1.1	3.4	1.0	n.s.
9	4.1	1.0	3.2	1.1	***P* < 0.001**
10	2.6	1.0	2.6	0.8	n.s.
11	3.0	1.0	2.8	1.1	n.s.
12	2.2	1.0	2.4	1.1	n.s.
13	3.9	0.8	3.5	1.0	n.s.
14	3.5	0.9	3.3	1.1	n.s.
15	3.9	0.9	3.2	1.1	***P* < 0.01**
16	4.6	0.6	4.2	0.8	***P* < 0.01**
17	4.6	0.6	4.4	0.7	n.s.
18	4.3	0.9	3.9	0.8	n.s.
19	4.8	0.4	4.7	0 .6	n.s.
20	3.8	0.8	2.9	1.1	***P* < 0.001**
21	4.6	0.7	4.1	0.9	***P* < 0.05**
22	4.4	0.6	4.3	0.9	n.s.
23	4.3	0.7	4.5	0.6	n.s.
24	4.7	0.5	4.7	0.5	n.s.
25	4.6	0.5	4.5	0.6	n.s.
26	4.0	0.9	4.1	0.8	n.s.
27	4.5	0.6	4.8	0.4	n.s.
28	4.4	0.7	4.5	0.6	n.s.
29	4.4	0.7	4.5	0.5	n.s.
30	4.3	0.8	4.0	0.9	n.s.

*Canadian Medical Graduate

**International Medical Graduate

The results of the ANOVA comparing residents of differing R-levels showed that when comparing the individual R-levels there were no statistically significant differences. This could be due to a lack of power to show a difference based on the poor response rate from R1 – R4 residents. However, even increasing the power by grouping the data into junior versus senior residents, only items 6 and 8 showed significant differences. On both of these items, junior residents agreed more strongly that communication skills had been well taught during medical school and that they had been exposed to positive role models for communicating.

To assess whether any of the independent variables analyzed using ANOVA were actually covariates, a multivariate analysis of variance (MANOVA) was run using the same independent variables. Results indicated that both gender and CMG versus IMG status were significant independent variables with *P-values* of < 0.001 and <0.05 respectively. R-level was not a significant independent variable when analyzed with each R-level individually or as junior versus senior residents. No significant covariates were identified using the MANOVA.

In order to explore relationships between items on the questionnaire, correlations were run between all items. Due to number of items on the questionnaire the resultant correlation matrix was relatively large and difficult to analyze on face value. There were, however, several statistically significant correlations within each item. The correlation matrix of all 30 items is presented in Table 10 (Appendix C).

Inter-correlations between items were assessed using an exploratory factor analysis. This process was used to assess the five domains upon which the questionnaire was constructed. In total, 83% (25/30) of the items loaded with the domains in which they were

grouped during instrument development. Items that loaded in other domains included items 1, 3, 4, 6, and 8. The results of the factor analysis are summarized in Table 8.

This model accounted for 50.4% of the total variance in item responses. Factor 1 (importance of communication skills) accounted for 17.6% of the total variance, Factor 2 (utility of communication skills) accounted for 11.0%, Factor 3 (explicit training of communication skills) accounted for 9.8%, Factor 4 (perception of communication ability) accounted for 6.4%, and Factor 5 (clinical training of communication skills) accounted for 5.6%. The reliability of the five factors was assessed for reliability through internal consistency. The Cronbach's alpha coefficients for all factors was >0.65 with the exception of Factor 5, as shown in Table 8.

Table 8: Factor Analysis – Rotated component matrix with varimax rotation and Kaiser normalization. Only loadings with values >0.30 are shown.

Item	Factor				
	Importance of Communication Skills	Utility of Communication Skills	Explicit Training of Communication Skills	Perception of Communication Ability	Clinical Training of Communication Skills
1	0.34				
21	0.58				
22	0.62				
23	0.74				
24	0.67				
25	0.74				
26	0.57				
27	0.67				
28	0.77				
29	0.75				
30	0.46				
3		0.31			
16		0.87			
17		0.84			
18		0.77			
19		0.69			
2			0.37		
4			0.45		
7			0.66		
10			0.75		
11			0.62		
12			0.70		
6				0.48	0.45
8				0.61	
15				0.80	
20				0.75	
5					0.39
9					0.52
13					0.58
14					0.61
Eigenvalue	5.3	3.3	2.9	1.9	1.7
alpha	0.83	0.79	0.66	0.70	0.39
% of variance	17.6	11.0	9.8	6.4	5.6

CHAPTER 5 – QUALITATIVE RESULTS

Focus Group Results

A total of 60 orthopaedic residents from five separate institutions (UBC, UofC, UofA, UofS, UofM) were invited to participate in focus groups concerning perceptions of communication skills and communication skills training. In the end, twelve residents responded from the UofC and no residents responded from the other institutions despite numerous attempts at recruitment. This produced data from two focus groups, which were both conducted at the UofC. The first focus group (FG1) was conducted with senior (R3-R5) residents on Dec. 15th, 2005. The second focus group (FG2) was conducted with junior (R1-R3) residents on Jan. 12th, 2006. Focus groups lasted approximately 90 minutes.

Focus Group Participant Characteristics

There were six orthopaedic residents who participated in each of the focus groups. Participants consisted of ten male residents and two female residents. There was representation from all R-levels including four R-1s, one R-2, four R-3s, one R-4, and two R-5s. The mean age of participants was 30 years with a range of 25 to 36 years.

Open Coding

During the focus groups, participants had six questions put forward for discussion during the 90 minutes. Discussion concerning these questions resulted in 52 single-spaced transcript pages to be coded. Open coding produced a total of 31 codes. A collection of quotes have been selected to exemplify the codes found within each of the six questions.

Question #1: *What does the term communication skills mean to you?*

This first question was designed to be very broad in nature to allow residents to begin discussing this topic while trying to avoid biasing the discussion by the wording of the question. The two main themes that came out of this discussion were getting your message across, and developing understanding.

Getting Your Message Across

Residents repeatedly emphasized the idea that communication skills are all about having the other party understand what you are trying to say.

> *"It's the ability, at least for me personally, to get your point across."*
>
> *"Right, you being able to get your point across and have the other person understand what you are saying."* (FG1)

Overall, residents focused on what communication is in terms of the exchange of information. They didn't really explore the actual skills that are implicit within this process.

> *"I think you measure the effectiveness of your skills by what the end product is. Whether that's an interactive process or not, that you have the ability to translate an idea that is in your head to somebody else's and have them understand whatever it is,...it's how much of that information gets across to that person that you were speaking to"* (FG2)

Developing Understanding

This idea was closely linked to the first idea in terms of the purpose of communication skills.

> *"I think something that gets overlooked really easily is that you start doing things with people without explaining and you overlook the fact that you need to talk them through what's going on and help them to understand."* (FG2)

Residents also voiced that the concept of understanding is not a unidirectional process but must work both ways to facilitate good communcation.

> *"I guess part of it is like you were saying, it involves listening and two way facilitation."* (FG2)

Question #2: *What are the most important aspects of communication in your daily interactions?*

Residents highlighted three main points in response to what they perceived to be the key features of communicating on a day-to-day basis. These included developing relationships and rapport, being flexible and adaptable, and time.

Developing Relationships and Rapport

Being able to develop a relationship with patients was seen as fundamental component of communicating with them. Residents recognized this skill could help with overall patient compliance.

> *"I think that a skill to learn is how to read the patient you are seeing and read the family and figure out how to best build your alliance. Get them to open up, and how to best open up the lines of communication in both directions."* (FG2)

> *"if you can find a way to relate to the patient or whoever it is, then I think it tends to work better as opposed to just bamboozling them with numbers and stats and fancy words."* (FG1)

Participants also commented that by establishing good rapport with co-workers, communication and work in general became much easier.

> *"once you move up, become senior, people get to know you better and you get more respect and you have more pull, and that makes life a lot easier."* (FG1)

Being Flexible and Adaptable

One of the most important factors identified by participants was the ability to adapt to the various personalities encountered in the hospital. During the discussions, interactions with patients and families, nurses, medical students, fellow residents, staff and other allied health-care workers were identified as commonplace.

> *"Some people only know one way and explain every little detail whereas other people see that it's probably not the best route to go so shift gears and bring things down to a laymen's level or whatever is needed. I think that's when I respect those who can communicate and can recognize different sort of tracks to take."* (FG2)

> *"You have to read the situation right. You have to read the person and see what would work best in that situation."* (FG1)

> *"there are some surgeons that we work with where you can see that some patients like their approach and other patients don't and the surgeons don't seem to adapt. They're like 'that's my style and that's how I'm doing it,' which is maybe why some of them come across as bad communicators"* (FG2)

Important to note as well, it seems that residents perceived their interactions with nurses as frequently the most difficult and stressful. These situations seemed to be one of the primary sources of conflict for residents.

> *"There's such a spectrum of knowledge with nurses, which makes communication difficult."* (FG1)

Time

Residents identified time limitations as both a barrier to good communication and as an excuse often sited by poor communicators.

> *"to be able to communicate at all time of day and night, and when you're tired and have been on-call for a long time"* (FG1)

> *"I think what's important for us is efficiency. I mean, everything should be done efficiently, so if you want to be efficient with patients you have to explain things to them such that they understand. And if you want to be*

> *efficient with staff members you have to deliver whatever you want to talk about quickly, concisely, and use the right terminology."* (FG1)

Time is not just a factor of always being in a rush, but also that one must function at all times of the day due to call requirements.

> *"Some people may just think that they're so busy that they don't put the effort into communicating anymore."* (FG2)

Question #3: *Use the following scenario to help you compare the content and process of communication. You see a patient in a specialty clinic with your staff. You then proceed to dictate a letter to the referring physician. Your staff also asks if you could present the patient at specialty rounds next week. How will the content and process of your communication differ between the dictated letter and the rounds presentation?*

While the intent of this question was to have participants delineate the content of communication (ie – 'What you say.') from the process of communication (ie – 'How you say it.'), the residents were unable to make this distinction.

> *"I think we're trying to make it as two different things, but I think it would be a waste of time to do that."* (FG1)

The two themes that did emerge from this question were a focus on content, and purpose.

Focus on Content

One of the fundamental principles in communication skills education, as outlined previously, is the ability to discern the content and process of communicating. Unfortunately, this question did not produce results demonstrating participants' ability to discern these two points. Instead, throughout the discussion, their appeared to be a much larger focus on the content of communication.

Residents emphasized the perceived importance of knowledge and using the correct terms in various situations. When speaking with patients they noted how important it was to always use *"laymen's language"* (FG1). Conversely, when speaking with medical colleagues and staff surgeons, they felt a need or requirement to use correct academic terminology. In order to do this certain medical knowledge had to be attained. Residents felt the use of accurate medical language demonstrated that they knew what they were talking about which afforded them the respect of their colleagues. This echoes one of the codes in the previous question where respect was an important aspect of developing rapport with coworkers.

> *"It's just a matter of learning the language."* (FG1)

Purpose

While residents found it difficult to make the distinction between content and process, they did use this question to identify how the purpose of one's communication can exert a significant influence over the content.

> *"I guess you have to look at the purpose of the letter to the family physician...those letters are supposed to be somewhat educational. You're doing a little bit of teaching through the letter so that the family doc can explain to the patient what they don't catch in the specialist's office. The family doc can explain to the patient what's going to happen, and I mean they're sort of a second method of communication as well."* (FG2)

> *"Whereas if you are presenting it for rounds, you might spend more time sitting down thinking about exactly what points you want to convey, how you want to convey them, and what you're going to stress. So there might be a different planning that goes into those two things."* (FG1)

Question #4: *How does your communication differ or how is it the same in your various relationships on a day-to-day basis?*

This question was meant to have residents explore the fact that they interact with a wide variety of individuals on a daily basis. They had already identified the importance of adaptability and flexibility in their communication skills. The discussion highlighted three key factors that residents deemed important in how this adaptation was influenced. These were maintain a positive attitude, choice of language, and dependent on interest.

Maintain a Positive Attitude

Regardless of the situation, residents discussed how important it was to stay positive in order to facilitate communication. They mentioned how difficult this could be at times due to factors such as fatigue, time pressure, amongst other negative influences.

> *"I think no matter whether you are talking to patients or their family, staff or nurses, I mean if you are just always friendly and polite and try to keep a smile even when you are pissed off or not happy. I find regardless of what you are talking about it always gives you the best foothold possible to have a good outcome to the communication."* (FG2)

This positive attitude was also highlighted as being an important component of teamwork and maintaining a collegial atmosphere with coworkers.

> *"I just find that I'm a big proponent of multidisciplinary collegiality because everyone has a role to do..."* (FG2)

Choice of Language

This question also brought out the point that depending who you are talking to one must carefully select the type of language to use. Patients can become easily confused and if the choice of language is overly complex. Meanwhile, many residents felt that their professionalism and intelligence was judged according to how they spoke. In an environment where residents are frequently being evaluated, this can be an extremely

stressful situation when one constantly has to switch back and forth between 'medical lingo' and easily understandable terminology.

> *"People judge you based on your use of complex terms and eloquent presentation of your thoughts."* (FG1)

Dependent on Interest

Residents were keen to point out how much their attitude towards communication changed depending on the interest shown in what they were trying to communicate by the other individual. The two groups highlighted in this discussion were nursing staff and medical students. Many of these comments were in marked contrast to maintaining a positive attitude and the subject of perceived disinterest served as one of the greatest barriers to effective communication.

> *"If they don't have any interest in what you're saying then it's very obvious to me and then I'm blunt with patients or nurses and occasionally it comes off rude, but if they have a problem then that's their problem because I don't have the time to waste trying to talk with somebody who doesn't want to listen."* (FG1)

Question #5: *How are communication skills developed in your residency program and is it an implicit or explicit process?*

During discussion on this question, participants had a strong focus on the clinical context of learning that takes place in this domain. Several times it was brought up how once every few months they would receive a lecture on communication skills. These didactic sessions were generally felt to be of very little use, because they often had no clinical context to associate with. Overall, there was a strong negative attitude towards any attempt to teach this material in a non-clinical environment. The following ideas were the primary ways in which residents felt their communication skills had developed during residency. The four

primary themes were experiential learning, role modeling, self evaluation, and communication skills cannot be taught.

Experiential Learning

Residents often feel as though they are simply thrown into new and unfamiliar situations that are not always comfortable.

> *"you just get thrown into situations and you're like 'oh my god, I can't believe I am actually talking about this with someone."* (FG2)

Participants felt they were required to adopt a 'sink or swim' attitude in order to cope with many of the day-to-day chores that a resident must deal with.

> *"It's trial by fire."* (FG1)

> *"I don't know if it's communication. I think you just figure out the system. You figure out the rules and how stuff works..."* (FG1)

Role Modeling

This was also a major theme that came up on several occasions. Residents cited several examples of observing staff interact with patients and coworkers in order to learn what is an acceptable way of communicating. Obtaining informed consent from patients was mentioned as a prime example of how some staff take 30 seconds and say the same exact thing to every patient while other staff take hours with their patients, but still manage to confuse the issue by becoming overly detailed. Residents were quite clear in stating that the role modeling was also very implicit and almost never would a staff surgeon sit down before or after an interaction to explicitly review the important aspects of communication in that situation.

> *"it's partly that you see other people and 'I like that' or 'I think that's ridiculous' and you kind of just find your own way"* (FG1)

Residents also recognized that not all of the role models they are exposed to provide positive reinforcement of certain skill sets. Several residents even warned that to a large extent the role models in surgical education serve as example of what not to do when exemplifying communication skills.

> *"I think the problem here is that we're not exposed to great communicators."* (FG1)

Self Evaluation

Residents felt that due to the lack of explicit instruction it was important maintain a certain level of insight into one's own skills. They thought this served as an important method for trying to avoid any deterioration in their skills while trying to pick up new tricks.

> *"I think the whole self evaluation thing works well."* (FG2)

> *"I think it's still fair that you can evaluate your own communication abilities"* (FG2)

They noticed that many of the individuals they encountered with poor communication skills seemed to be completely oblivious of this fact. Similar to other forms of experiential and apprenticeship types of training, learning from ones mistakes is a key component to success.

> *"You see some staff guys who don't even realize when they have done a bad job communicating and they just totally don't get it. So if you could learn from your mistakes it would be better."* (FG2)

Communication Skills Cannot be Taught

Several of the residents cautioned that, despite the emergence of this new emphasis on communication skills, overall they weren't really sure if these were skills that could actually be taught.

> *"You're either a communicator from the beginning or you're not. You can become slightly better, but if you take someone who is really, really bad...to make them semi-good is....you're fighting a losing battle."* (FG1)

"it's either there or it's not,...you either have it or you don't" (FG1)

Question #6: *How have your communication skills changed from the end of medical school until now?*

Residents brought up several issues related to this question. Four key themes emerged, including negative impact, streamlined, focus on self, and increased confidence. While many felt that their overall communication skills had declined during residency, numerous comments were made about the changes, both positive and negative, that had occurred as a result of significant clinical experience.

Negative Impact

Many of the residents felt that, despite the recent trend towards in increased emphasis on communication skills in medicine and medical education, residency had produced an overall negative impact on these skills.

"I've become very much less tolerant during residency." (FG1)

They noted that while residency has made them much more knowledgeable within their specialty, this knowledge does not necessarily translate into more effective communication.

"I'm not sure I'm a better communicator,...I might be a better 'teller'." (FG2)

Several participants expressed regret that they no longer took the opportunity to develop deeper relationships with their patients. This resulted in them becoming overall less satisfied with work in general.

"I used to sit down and talk to patients. Like, actually talk about just random stuff. I don't do that anymore." (FG1)

Streamlined

Residents appeared to attribute much of the change in their communication skills to having to streamline their conversations in order to conserve time.

> *"I have so much to do on any given day that I am streamlining everything to get the content,...I used to spend 45 minutes, but now I can streamline it down to 15 minutes."* (FG2)

They seemed to accept this change in communication as both unavoidable and regrettable.

> *"I used to take the time with people. I just don't take the time anymore."* (FG1)

Focus on Self

Participants noted that with the progression through residency their daily interactions focused more and more on what they needed from the interaction. When dealing with patients they ask only the question they think are important in order to avoid sifting through what they deemed unnecessary information. In this manner, residents felt they were able to accomplish their own goals during interactions but stated this might not always satisfy the other parties involved in communication.

> *"Well, they* [communication skills] *are better for our purposes."* (FG1)

Instead of having interactions focused on patient goals and expectations, the residents emphasized that most of their communication revolved around what they needed out of the interaction.

> *"Get the information <u>you</u> need and get out."* (FG1)

Increased Confidence

Despite being unsure if their communication skills had actually improved during residency, participants noted that as you become more senior, a resident often becomes more

confident in their daily interactions. Much of this was attributed to an increased academic and medical knowledge as well as comfort with the systems and protocols of the hospital.

> *"I feel, I mean part of it I am sure is knowledge but also just the value of the confidence that comes with that,...I feel way more confident going in and talking to nursing staff about issues that are going on, or how to explain what things I think."* (FG2)

Developing this confidence can also produce positive reinforcement and can 'snowball' as you gain the trust and respect of more and more co-workers.

> *"your comfort level changes when you are new to a unit,....later you know which people you can joke around with and they understand when you are being more serious. You kind of get a better gauge about what's important and what's not."* (FG2)

Axial Coding

In the process of axial coding, new relationships between codes were explored to develop overlying themes to the data. It was discovered that the data could be grouped into two primary categories that represented the two primary goals of this study. These two categories were perceptions of communication skills and communication skills training. Within each of these two categories, broad themes were recognized representing the focus of the discussion put forward by the resident participants.

Perceptions of Communication Skills

During focus group discussions, the data produced three main themes concerning resident perceptions of communication skills. These were an exchange of content using accurate and appropriate language, developing multiple and variable relationships, and time only for one's own purposes. They considered the fundamentals of these skills to be the

ability to accurately exchange information through *"verbal and non-verbal communication"* (FG2). Participants considered these skills to be integral in the development of relationships with the various persons they had to interact with regularly. Making all of this difficult is the extremely busy schedule of residency.

An Exchange of Content Using Accurate and Appropriate Language

Residents perceived communication skills as the ability to achieve an accurate exchange of information between individuals. An essential component of this was considered to be gaining adequate knowledge and utilizing the appropriate language for a given situation.

> *"And you've learned the language too, so you become more efficient communicating with colleagues and other team members."* (FG1)

> *"It's just a matter of learning the language."* (FG1)

Learning this language was deemed important so that when you communicated with patients or nurses or staff you were able to gather and provide the necessary content.

Participants emphasized how important it was when communicating with patients to not use overly complex terms that would confuse the patients and alienate them during their attempt to develop a relationship. At the same time, they feel a constant pressure to use language that demonstrates their knowledge and understanding of orthopaedics.

> *"That's countered by the constant encouragement, and sometimes, the demand to speak 'doctor'."* (FG2)

Developing Multiple and Variable Relationships

Residents emphasized how different many of their interactions were on a day-to-day basis. Being able to transition between these interactions was considered a valuable component to one's communication skills.

> *"being able to switch gears,....I think for me that's when I respect someone who can communicate and can recognize the different sort of tracks to take."* (FG2)

Residents also felt that it wasn't enough to be able to simply interact with patients, families, faculty members, nursing staff and many others. An important aspect of these relationships was the ability to develop a positive rapport in order to develop trust and respect.

> *"I think one of the important points is being able to build an alliance with the patient or family."* (FG2)

Some of the barriers to effective communication noted by the residents were the numerous variables presented by the various individuals they interact with on a daily basis. Much of this stress and conflict seemed to arise from their interactions with nursing staff. Participants voiced the opinion that *"communicating with nurses is impossible"* (FG1). This was attributed to a number of factors.

> *"knowledge, attitude, motivation..."* (FG1)

> *"experience, common sense, work ethic...you name it."* (FG1)

Time Only for One's Own Purposes

Another major stressor to residents is the constant time constraints under which they have to function everyday. They considered the emphasis on communication skills to be in stark contrast to the ever increasing demands of residency. Residents also often considered communication to be of secondary importance compared with other obligations that required much of their time.

> *"It is going to get worse and worse too as there is more emphasis put on communication skills. It's becoming more and more of an issue but I would say the time available is becoming less and less. On one side there is a push to spend more time doing these communication things but there is the other equally strong, even more strong a push to get it done and get your stuff done so it will be tough for us. I mean, that might be a direction that communication skills might have to go in the future, not only how you*

> *communicate but how you communicate effectively within a small time frame."* (FG2)

When considering spending additional time on communication, it seemed that residents just didn't put this high on their list of priorities.

> *"It's time we don't have, not as a resident, no."* (FG1)

Because of these time pressures, residents felt their communication was becoming more and more self-centered. During patient interactions, instead of focusing on the patients' expectations, they would focus their questioning on what information they would consider important. In this fashion, participants felt that overall process of communication could become more efficient for their purposes. The alternative was unrealistic from their point of view.

> *"If you don't focus on what <u>you</u> need, you'd have a 30 hour day."* (FG1)

> *"I want this and that answered and that's all I have time to get. That will be the pertinent information I need so I will ask these questions instead of sitting them down and letting them tell their whole story."* (FG2)

Communication Skills Education

During discussions on how communication skills are taught to orthopaedic residents, teaching in the clinical environment dominated much of the conversation. This theme, implicit learning from experience and role modeling, provided one of the three themes that emerged from this data. The other two themes included current methods are ineffective and communication isn't a problem, and these dealt with the possible inadequacy of current methods of teaching communication skills and the questioning of whether communication skills actually represent a problem amongst practicing physicians and surgeons. Overall, residents portrayed quite a negative attitude towards the sporadic amount of didactic teaching

towards communication skills that was becoming part of residency education. Teaching communication skills outside of the clinical context just didn't seem to make sense to participants.

Implicit Learning from Experience and Role Modeling

Participants recognized the importance of observing the faculty they work with on a daily basis to acquire the skills that are used interacting with patients and co-workers.

> *"just seeing how someone talks to patients or how someone handles a less talented health-care professional or colleague,...you just pick up little tips and say, 'Oh, I kind of like that or I like how that was dealt with'."* (FG1)

They highlighted that this learning was largely implicit in nature, as faculty don't explicitly outline what they are doing when they are in difficult situations.

> *"I think we underestimate the implicit learning. I think the majority of the teaching is implicit. You see staff do things and I think I have definitely learned that there are definitely ways that I don't want to approach things because I have seen them do it. I think you learn from the negative experiences you've seen with staff and that those are things you don't want to include down the line."* (FG2)

Residents warned that it is not always easy to define the learning objectives during observations of their role models. Without any formal or explicit instruction, residents must rely on their own ability to pick out the positive examples to model their skills after.

> *"you learn from good staff and you see staff in good situations and bad situations and you can learn from that standpoint, but I don't think it's formally taught right now,....and I hope you're wise enough to look and see how that interaction went."* (FG2)

Residents also emphasized the influence of negative role models on the development of their communication skills. Many felt that these individuals may actually have a greater influence on the overall behavior of residents by modeling what should not be done in various situations.

"the negative ones are the ones that really stick in your brain." (FG2)

"I probably learn more from the people I don't want to be like." (FG1)

Current Methods are Ineffective

Residents questioned whether current methods of teaching communication skills were actually effective in altering or improving their skills. They considered the teaching to be overly sporadic and inconsistent, which, was pointed out, is not uncommon given the opportunistic nature of clinical teaching. Participants felt that daily reinforcement of appropriate or inappropriate communication was actually necessary to produce a change.

> *"Well, if it would have been on the way, or more frequently. Like, we meet for these communication sessions once every three months. I think it has to be a daily thing by the people around you."* (FG1)

Moreover, residents expressed a desire for more explicit feedback on their clinical interactions than large group didactic sessions that frequently seem to lack clinical relevance.

> *"it would probably be a more effective way to teach us to communicate to actually watch us communicate and then give us feedback instead of trying to get us in a big lecture hall and talk to us about how you're supposed to communicate."* (FG1)

Communication Isn't a Problem

Despite the many barriers to effective communication in the hospital and the difficulty in teaching such skills, many of the residents still argued that communication for the most part really isn't a major problem that needs fixing. They considered most physicians and surgeons to have adequate communication skills and that it was only a rare few with whom communication skills are a legitimate issue. They expressed the opinion that it is these few that set a poor example that is one cannot necessarily generalize to the population as a whole. They, thus, questioned the overall justification for a greater emphasis

for education in communication skills amongst all physicians and surgeons if there really isn't a problem to begin with. In essence, 'if it ain't broke, don't fix it'.

> *"I think physicians are generally good communicators. There are exceptions to everything and those are the ones we hear about in the media, but as a general rule, we're overall good communicators."* (FG1)

Interview Results

A total of 16 orthopaedic program directors from the 16 separate Canadian orthopaedic training centers were invited to participate in interviews concerning perceptions of communication skills and current communication skills training. A total of ten responded, while the remaining six did not reply despite numerous attempts at recruiting. Of the ten program directors that responded, nine were able to participate in the semi-structured interviews. One program director was unable to participate due to repeated scheduling difficulties. Interviews lasted approximately ten minutes each. All interviews were audio-recorded and recordings were transcribed verbatim. Transcriptions had all identifying information removed to protect the confidentiality of participants.

Interview Participant Characteristics

At the beginning of each interview, program directors were asked several questions to collect basic demographic data. Participants had been in clinical practice for a mean of eleven years with of range of 4.5 to 20 years. All participants had spent their entire clinical practice in an academic medical training centre. Participants had been program directors for a mean of 3.6 years with a range of one to seven years. This data is summarized in table 9.

Table 9: Years of experience for orthopaedic program director interviewees.

	Mean	s.d.	Range	
			Min.	Max.
In Practice	11.0	5.8	4.5	20.0
Teaching Centre	11.0	5.8	4.5	20.0
Program Director	3.6	2.0	1.0	7.0

Open Coding

During the interviews, participants had eight primary questions posed to them. Many of these questions were also followed by prompts to explore answers in greater detail. Discussion concerning these questions resulted in 52 transcript pages to be coded. Open coding produced a total of 24 codes. A collection of quotes has been selected to exemplify the codes found within each of the six questions.

Question #1: *What does the term communication skills mean to you?*

This first question was meant to be very broad to allow interviewees to begin to explore this topic without bias introduced from the interviewer. Several different ideas were expressed that often related to other questions later in the interview. Still, two main ideas were frequently expressed by many of the program directors. These two main themes were developing understanding and accurate exchange of information.

Developing Understanding

Program directors felt that communication skills are a matter of being able to create a mutual understanding between two individuals so that both appreciate the perspective and expectations of the other person.

> *"Understanding another person's perspective, understanding what they want; what their expectations are and what their perspective is."* (I1)

The interviewees also noted that this understanding was frequently assessed by both verbal and non-verbal modes of communication. There was no mention of the details of the non-verbal communication that assisted in the development of understanding.

> *"on a level that the person – family member or patient – can understand. And being responsive to both verbal and non-verbal clues that indicate their level of comprehension and understanding."* (I3)

Accurate Exchange of Information

Participants also emphasized the importance of the accuracy of communication between a surgeon and patient, nurse, student, or other health-care professional.

> *"It means using accurate language. It certainly includes using appropriate descriptions of terms, whether that's anatomic terms, clinical diagnoses, or clinical syndromes."* (I1)

Part of this accuracy was felt to be keeping language a simple as possible in order to get across the most important points and to remain unambiguous.

> *"Probably communication of relevant material plainly, clearly, and concisely."* (I3)

Question #2: *What are the key aspects of communication skills for you as a surgeon, and why are they important?*

The surgeons identified two fundamental aspects of communication that they considered essential on a day-to-day basis. The two themes were developing relationships and rapport and enabling and empowering.

Developing Relationships and Rapport

Participants recognized that they work in a largely team-oriented environment. For this reason, developing and maintaining good relationships within the team was deemed crucial to efficacy and efficiency.

> *"We don't work in isolation, we work as a team by and large. So everybody on the team needs to know what the objectives are for that day. Especially in surgery, and then to communicate as the day goes on to make sure everybody stays on the same page."* (I5)

Ensuring that students and residents also felt like important members of the team was something that program directors voiced as an important factor in facilitating a positive educational environment.

> *"it has to be in an environment of teaching and receiving information in a way that does not seem to belittle."* (I7)

Enabling and Empowering

Along with developing positive relationships with patients and co-workers, interviewees established the importance of providing a certain sense of confidence and independence with those around them. They stated that patients need to be able to make informed decisions in order to maximize compliance and get them to realize they are responsible for their own health. Similarly, the program directors recognized that they

needed to instill a similar confidence in the residents and medical students they teach so that these individuals can feel confident in the decisions they make as physicians and surgeons.

> *"I firmly believe that a lot of what we do is sort of offering treatment and enabling people to decide if they are going to avail themselves or not. They can't decide if they don't have enough information to act on, and if you can't communicate the info they need to know they're at a disadvantage."* (I6)

Question #3: *Would you consider excellent communication skills to be typical of a surgeon in your specialty? Why or why not?*

The interviewees appeared largely split on this line of questioning. A number of the program directors did perceive that orthopaedic surgeons were for the most part good communicators. Not withstanding, they made a point of stating that while the communication was probably sufficient, excellent was not the correct adjective to describe these skills in general.

> *"Excellent. No."* (I6)

> *"If I could put it on a scale I would say on average we're a 4/5 with 5 being excellent."* (I3)

Those interviewees who did consider surgeons to be good communicators still recognized there was still significant room for improvement.

On the other hand, during several of the interviews, the trend was towards disagreement that orthopaedic surgeons were excellent communicators. In these instances, the program directors cited their lack of training in these skills as a major contributor. They proposed that communication skills are often weak due to their lack of emphasis during previous residency training. With this said though, they considered the overall trend in

communication skills to be one of improvement from generation to generation due to the increasing awareness.

> *"I think that the new breed is much better than the old breed. I mean, the issue comes from monkey see, monkey do."* (I7)

Question #4: *What is the general attitude of orthopaedic residents and faculty at your institution towards the greater emphasis on communication skills and the other CanMEDS competencies?*

CanMEDS was a topic that seemed to evoke significant stress amongst program directors. Many of them felt as though these were educational directives handed down by the Royal College that they were unsure of how to adequately deal with.

> *"It's becoming more and more prevalent and it's not going to go away."* (I8)

The three main themes that developed from discussions of this question were skepticism, lack of awareness, and growing acceptance.

Skepticism

Program directors felt the attitude of most residents and faculty towards the emerging emphasis on communication skills and the other CanMEDS competencies, other than the medical expert, was one of general skepticism.

> *"I think there's a sort of skepticism in terms of not initially appreciating it and thinking of it as more of touchy, feeling kind of thing."* (I6)

> *"I think most staff realize these skills are important, but there is still a great deal of skepticism."* (I9)

Lack of Awareness

Interviewees also highlighted that many faculty who serve a limited academic role really aren't wholly aware of the concept of CanMEDS and the educational strategies that follow along with this.

> *"There's a couple of the academic faculty who know about them and endorse them. Most of the academic faculty, I think, have no idea what they're all about and I think our community based faculty have little idea what they are."* (I4)

> *"Unfortunately it's still a bit of unknown to them."* (I8)

Similarly, some program directors felt that while residents likely have heard the term CanMEDS on several occasions, the importance of these skills once you're in practice is not fully realized.

> *"Overall, I don't think the residents realize how important those skills really are. In residency you sort of live in a protected environment."* (I9)

Growing Acceptance

Despite these previous two points, program directors still felt that the overall recognition and acceptance of the CanMEDS competencies was generally improving. They recognized CanMEDS as a significant change in education philosophy and that the younger generation are often more adaptable to change and are thus more significantly influenced than the senior faculty.

> *"The young people are picking it up quite nicely, but the old horses are not drinking the water when we lead them to it."* (I7)

> *"I think there probably is a growing acceptance. I think if people have a little insight and reflect a little bit, they would probably realize that they can all probably use some help with it."* (I6)

Question #5: *How are communication skills developed in your orthopaedic residency program? Is it a formal or informal process?*

Program directors perceived that teaching communication skills is currently a largely informal process at the post-graduate surgical education level. They considered that the experience residents received during their clinical training, while sporadic and opportunistic in nature, served as the backbone to developing the interpersonal skills necessary to function as a surgeon. Not withstanding, it also appeared that as we learn more about communication skills, this implicit learning might not always be ideal. With this said, two themes emerged from this data including experiential learning and sporadic teaching.

Experiential Learning

Interviewees felt that for the most part, the experience of working with patients and co-workers on the ward and in the OR was a system of education that has worked for years in surgical education. They were quite ambiguous, however, as to whether they still considered this an acceptable method for education or not. Many expressed a desire to make the teaching more formal and explicit both because of pressures from the Royal College and to ensure that all residents have an equal opportunity to develop these important skills.

> *"Unfortunately nothing extremely formal at the moment. Probably we use the same tried and true method that most training programs have used to date. That is to say, residents have regular interaction with patients and families and they have observation of their interactions by their preceptor, with on the fly advice and correction, hopefully."* (I6)

Sporadic Teaching

Program directors also noted that because of the experiential nature of current communication skills teaching, residents and preceptors have to be very opportunistic with this teaching. Consequently, the education from resident to resident can be very sporadic.

They found that this was often influenced by a negative performance by a resident. If there's a problem, then likely a preceptor might make a comment. However, positive reinforcement of communication done correctly is extremely rare.

> *"It's a mentorship type of program and we never did – nobody ever did – any formal training in the ability to communicate. It was never evaluated appropriately. It was always evaluated subjectively and very little feedback. Unless there was a major problem, nothing was given back to the resident."* (I2)

Several interviewees stated that, while the current process for teaching communication skills has been in effect for years and could be very difficult to change, certain aspects of it need to improve for residents and preceptors to recognize the importance of these skills.

> *"I think it would be better if there was some explicit component it to it as well."* (I8)

Question #6: *Can you describe how role modeling contributes to the development of communication skills in your residents?*

Program directors were all extremely clear on the overall importance of role modeling in the development of resident communication skills. Interviewees repeatedly emphasized the importance of this point in the apprenticeship or experiential model of education currently employed by surgical training programs in Canada.

> *"100%. Well, 98%. Lectures are a waste of time, but I'm forced to do them by the Royal College. That's my opinion. Residents behave as attendings act, that's my little motto."* (I1)

Despite the strong influence of role modeling in current residency training, a number of program directors warned that this currently informal process may be insufficient in the overall development of communication skills amongst trainees.

Question #7: *How do you teach dictation skills in your program?*

While all residents are required to participate in the practice of dictation skills during residency, interviewees noted a lack of any formal system to teach or evaluate these skills. Two themes emerged on this topic, and they were no formal teaching and problem generated feedback.

No Formal Teaching

Without any formal process to develop dictation skills, it was again noted how important experiential learning and role modeling are to provide a certain level of implicit teaching of these skills.

> *"To be honest, that's just sort of learn on the fly."* (I6)

> *"Again, it's not really formally taught. Resident's kind of learn these skills through casual observation."* (I9)

Problem Generated Feedback

Program directors identified that any formal feedback provided to residents was stimulated by problems or concerns noticed by preceptors. In this fashion, feedback provided to residents was generally negative feedback focused on changing errors.

> *"problem generated formal feedback, ...if there is an issue over dictation that comes back to me or if there's a problem when I read them, then I will sort of go over it with them, but otherwise no."* (I6)

> *"Residents might receive feedback from certain staff if there's something in a dictations that the staff see needs to be changed."* (I9)

An important note as well was that along with the focus on negative feedback, participants noted a distinct lack of positive feedback to reinforce anything the residents were doing well in their dictations.

> *"feedback – if they are doing things right, they don't get it..."* (I5)

Question #8: *How do you develop conflict resolution skills in your residents?*

Program directors noted that this was an area of resident education that still received very little attention despite its importance in daily activities. They noted that within their programs skills for conflict resolution were never explicitly taught. The two primary methods by which residents could learn these skills was through observation of their preceptors in daily clinical scenarios, or through the occasional seminars provided by the university which were optional for the residents to attend. Consequently, the two primary ideas brought out through these discussions were role modeling and resources are improving.

Role Modeling

Interviewees highlighted that role modeling served as really the only method through which residents may pick up skills in conflict resolution in clinical setting. However, it was felt that this experience could be extremely variable.

> *"Practically nothing, apart from the role modeling, if they happen to see that, that's about all they get."* (I4)

Resources are Improving

It was pointed out by a couple of program directors that some of their medical schools or universities had courses available to residents to help improve conflict resolution. However, the resident attendance at these seminars was deemed questionable at best given the lack of emphasis currently placed on these topics both at levels of instruction and evaluation.

> *"I think the post-graduate office through the medical school does offer a 1-day seminar on this type of stuff, but I'm not sure many of our residents actually choose to attend these sessions."* (I9)

> *"There is the odd course taught by the university. I know some of the residents have taken it, and one of the topics is conflict resolution."* (I8)

Axial Coding

The process of axial coding permitted the generation of new codes and themes within the data. The question proposed to participants had been designed based on the two primary goals of this study and, consequently, the resulting data fit nicely into these two broad categories: perceptions of communication skills, and communication skills training. Each of these categories contained several main themes, which were further explored.

Perceptions of Communication Skills

Program directors repeatedly highlighted three main points during questions surrounding what communication skills meant to them and what were the important aspects of these skills. These were understanding, adapting to different situations and individuals, and constant time pressure.

Understanding

Interviewees interpreted communication skills as the ability develop a two-way understanding between individuals. They did not go into further detail regarding the components of these skills. What they did emphasize was the use of language that was not ambiguous or overly complex. They repeatedly pointed out that using too much 'medical lingo' could make communication extremely confusing for the other individual.

> *"I think making a point of speaking in terms that the other person will understand is important."* (I9)

This clarity of understanding was deemed essential for getting patients and co-workers all on the same page for investigations and treatment protocols.

> *"to make sure they understand why and how,....and the results of what you are doing."* (I7)

However, participants didn't get into details regarding how this was always accomplished.

Adapting to different situations and individuals

They perceived one of the barriers to effective communication to be the extremely variable conditions and individuals that a surgeon had to interact with on a daily basis. Making the transition from speaking with a patient to speaking with a colleague was noted to be a very important skill within communication.

> *"Communication skills are multiple levels...there's communication with all kinds of staff – nursing, administrative, your colleagues, students, patients. Probably most important is communicating with the patients and their families. The way you have to change your level of....your method of communication, depending on who you're talking to. Explaining a consent to a patient is a lot different from teaching something to a resident or talking at a different level to a colleague about a case."* (I5)

Program directors maintained how difficult, yet vital, it was that residents learn how to develop relationships with all of these separate individuals who can influence both patient care and the ease with which a surgeon's team functions.

Constant Time Pressure

One of the other significant barriers that program directors repeatedly commented upon was the constant time pressure under which they had to function. Having the skills to communicate as efficiently as possible was viewed as a necessity to the busy and hectic life of a surgeon. It was noted that patients have very limited time with a surgeon both in the clinic and the hospital. Likewise, surgeons' interactions with students, colleagues, and healthcare staff are often brief.

> *"I think a lot of it is pressure of time, in particular patient care and the approach to everything we do because we are always in a rush."* (I4)

Interviewees questioned whether effective communication could always be accomplished with such limited resources of time.

Communication Skills Training

When discussing how communication skills are taught in a surgical training program, program directors continually focused on two major points. These primary two themes were preceptor-based model of surgical education and reliance on previous training. They emphasized the importance of teaching in the clinical environment, which was largely dependent on opportunistic experiential learning and role modeling. The other main factor was the expectation that most residents have already developed sufficient communication skills to function within the hospital. Through medical school interviews, clinical elective experience with local residents and faculty, and Canadian Residency Matching Service (CaRMS) interviews, participants hoped they were able to weed out those individuals with poor interpersonal skills.

Preceptor-Based Model of Surgical Education

Program directors repeatedly commented on how residents learn by observing the preceptors they work with on a daily basis. The modeling of these interactions plays a key role for how residents interact with not only patients and families, but it demonstrates how surgeons communicate with learners such as medical students and residents, with members of ward and operating room teams such as nurses and other allied healthcare professionals, and with their medical and surgical colleagues. In this fashion, residents learn from the faculty how to develop the relationships necessary for their daily activities and learn how to take on specific roles such as the doctor-as-teacher.

> *"For the most part, communication skills are still taught as a mentorship type of approach. They watch us communicate with,....they watch staff communicate with residents and allied personnel, nurses, etc., and hopefully we set a good example for that."* (I2)

This model of education seemed to be the basis for most teaching amongst the orthopaedic programs as the same point was repeated on numerous occasions throughout the interviews.

> *"We use a largely apprenticeship model for this type of learning."* (I9)

However, program directors also pointed out that while faculty are continuously serving as role models for their residents, rarely are these skills explicitly or formally reviewed. Residents must rely on the implicit nature of these skills and will hopefully accept the skills of positive role models and reject the demonstrations by negative role models.

Reliance on Previous Training

One of the commonalities that was echoed within all of the program director interviews was the expectation that residents would have a certain level of competence with communication skills upon entering residency. While not overly familiar with the curricula at all of the medical schools across Canada, interviewees expressed a level of confidence that communication was becoming a more emphasized aspect of undergraduate medical education. Program directors felt that part of the admissions process to both medical school and residency permitted a selection of individuals, or more accurately, an exclusion of individuals who lacked the necessary interpersonal skills to be successful in a career where they are so important. Interestingly, program directors did not mention the importance of the maintenance of such skills or that communication skills could worsen or be lost if not continually assessed and evaluated.

> *"Well, first of all, I would hope that some basic communication skills are already there before you get to med school,... I do think they have some communication teaching in each of the med schools in Canada. So I hope that there's a minimum baggage that the residents are coming into the program with. We certainly try not to take somebody in the program that has significant problems in communication skills."* (I5)

Part of the reason that program directors were so adamant that residents begin residency with pre-existing communication skills was the belief that residency was almost too late to *"teach an old dog new tricks"* (I8). They recognized that residents were relatively young and still impressionable, but they also recognized that most residents already had distinct personalities that included how they interacted with patients and co-workers.

> *"I think communication skills need to be taught very early. I mean, residency is almost too late to do it."* (I5)

Program directors recognized that role modeling plays a major role in the education of residents. They also noted that role modeling plays a major role in how medical students and residents decide which field of study they would most like to pursue. They observed that medical students tend to apply to residency programs where their role models have similar qualities and values. If communication skills are not a common quality and not explicitly valued within the orthopaedic community, we may continue to attract individuals who shrug these skills off as something of secondary importance.

> *"Some of it may be the particular specialty attracting, for whatever reason, people who don't communicate very well."* (I4)

Many of the interviews contained inconsistencies, ambiguities, and many mixed messages from the program directors. They recognized the importance of communication skills, but relayed the overall skepticism that currently exists towards the CanMEDS competencies outside of the medical expert. They told us that experiential learning and role modeling serve as the foundation for education during a surgical residency, but also

expressed a need for more explicit training in fields such as communication which have received very little to no emphasis in the past. They considered the available resources to teaching these skills to be improving and that consequently there appeared to be a slowly growing acceptance in the younger generation of surgeons. Despite all this, they still were worried that, by residency, future surgeons had already developed their own interpersonal style and that any additional teaching may be ineffective and fall on deaf ears.

Data Triangulation and Integration

Both residents and program directors believe that communication skills require content (i.e., information). Further, the communicator needs to have flexibility in presentation style and the ability to be concise in his/her presentation of the content. The focus on content as opposed to process skills emerged from the qualitative data collected during focus groups and interviews. The importance of adaptation within one's communication skills was also present throughout discussions with both groups, and was confirmed in the quantitative data by the identification of factors 1 (importance of communication skills) and 2 (utility of communication skills). All items in these two factors had means of 4.0 or greater with the exception of item 1 (mean 3.8), demonstrating the broad reaching impact of communication that residents perceived. Brevity and efficiency of communication were also highlighted during qualitative analysis, but wasn't one of the primary domains assessed by the questionnaire.

In exploring how communication skills are currently taught, the emphasis placed on clinical teaching was consistent throughout focus group discussions and the program director interviews. Both populations placed importance on experience in the hospital and careful

observation of role models in various situations as current methods for learning how to communicate effectively with many individuals in the hospital. These results were similar to those provided by the resident questionnaire. Several items on the questionnaire were grouped in the domain of teaching in the clinical environment. This domain was analyzed as factor 5 (Clinical teaching of communication skills) in the factor analysis. Items in this factor that loaded with a value greater than 0.50 all had means greater than 3.5. Moreover, residents and program directors both noted the lack of formal instruction or feedback regarding resident communication. This was confirmed with quantitative analysis as all but one of the items in factor 3 (Explicit teaching of communication skills) of the questionnaire had means of 3.0 or less.

Regarding the perceptions of ability within communication skills, much of the data provided conflicting results. Residents considered residency to have had an overall negative impact on their communication skills, but felt that poor communication skills were actually a rare quality amongst physicians and surgeons in general. Program directors were quite varied in their responses to questions concerning the quality of communication amongst their residents and colleagues, but felt that the general attitude towards the CanMEDS competencies was one of hesitant acceptance and skepticism. All items in factor 4 (Perception of communication ability) had means of 3.5 or greater suggesting that residents tended not to view communication skills as a quality lacking amongst themselves or their peers.

Summary of Significant Findings

This summary is based upon the five questions that governed the design and analysis of the data in this study.

1. *What are the perceptions of the meaning of communication skills amongst Canadian orthopaedic residents and Canadian orthopaedic residency program directors?*

Participants in the study focused on the content of communication. Residents perceived communication skills to be the acquisition of knowledge so that they would know the correct language to use in the right situation. Program directors considered communication skills to be the use of clear and accurate terminology. Neither group commented on the contribution of process skills in their discussions of communication.

2. *What are the psychometric properties, namely reliability and validity, of the instrument developed to assess Canadian orthopaedic resident perceptions regarding communication skills and communication skills training?*

The analysis of the quantitative data collected in this study provides evidence for both instrument reliability and validity. Reliability was established through the assessment of internal consistency using Cronbach's alpha, which was 0.73. Attention to face and content validity were integral components during instrument development. The questionnaire was constructed to capture five domains including: perception of communication ability, explicit training of communication skills, clinical training of communication skills, utility of communication skills, and importance of communication skills. The factor analysis confirmed these domains with the five-factor model accounting for 50.4% of the variance.

3. *Are there differences in the perceptions of communication skills amongst various sub-populations within Canadian orthopaedic residents?*

Two variables were identified as independent contributors to variance within the questionnaire data. Males and females provided significantly different responses to a number of items, as did CMGs versus IMGs. There were no statistical differences found between residents at different residency levels or residents from different residency training programs across Canada.

4. *What do Canadian orthopaedic residents and Canadian orthopaedic residency program directors perceive are the key components of communication skills for a current orthopaedic trainee or a current practicing orthopaedic surgeon in Canada?*

Orthopaedic residents highlighted the importance of flexibility in one's communication skills. Program directors also considered a key aspect of communication skills to be the ability to adapt to many situations and environments as well as various individuals. The other essential component of communication skills identified by residents and program directors was brevity. The constant time pressure that exists in the lives of both surgeons and residents forces them to be as concise as they deem possible.

5. *How are communication skills currently taught within Canadian orthopaedic residency training programs?*

Residents and program directors stated that their communication skills were learned through role modeling, observation, and experience in the clinical environment. This teaching is implicit in nature and participants emphasized that there is little to no explicit

instruction provided to trainees. Both groups also did not seem to value large-group didactic teaching as an effective method for developing communication skills.

CHAPTER 6 – DISCUSSION

This study examined the perceptions of communication skills and the methods through which communication skills are currently taught. Data was drawn from 119 questionnaires completed by orthopaedic residents across Canada, two focus groups conducted with twelve orthopaedic residents at the UofC, and interviews conducted with nine orthopaedic program directors from across Canada.

Consideration of Study Findings

Three main categories emerged from the data gathered in this study. The first was what orthopaedic residents and program directors believe communication skills to be. The second category was how communication skills are currently taught in Canadian orthopaedic residency training programs. The final category was the psychometric properties of the instrument developed to assess resident beliefs concerning communication skills. This discussion will address each of these three categories of data.

Perceptions of Communication Skills

It was initially quite difficult to get residents and programs directors to elaborate on their beliefs and attitudes concerning this subject. This is not a frequently discussed topic in the field of orthopaedics and required a great deal of probing by the focus group moderator and interviewer. Residents largely viewed communication skills as a matter of medical knowledge. This focus on content may be due to the constant pressure they are under. Residents feel that they must continually demonstrate their knowledge to faculty in order to earn their acceptance within the profession. Likewise, having a mastery of medical

terminology is perceived to be the basis from which residents can earn the respect of nursing staff and other healthcare professionals. Residents recognize that developing rapport is important, but they seem to think that this rapport will be granted by the portrayal of their accumulated knowledge.

This is not an ideal perception of communication skills. Firstly, the most knowledgeable individuals are not necessarily the best communicators in a team environment[31]. Communication skills are much more complex than simply the content of what is said. Both program directors and residents did mention non-verbal communication, but this was more a passing remark on a couple of occasions that was given very little attention. Indeed, much of the time discussing communication skills was spent on what you say rather than how you say it. The process skills involved in communicating are considered as important if not a more important component of communication skills[43].

These process skills would include factors such as empathy, being non-judgmental, clarifying and summarizing patient comments, and exploring patient beliefs and perspectives. All of these skills are outlined on evaluation instruments such as the Calgary-Cambridge Guide[1]. It is these skills that can set the tone for competition and conflict between team members[68] or can facilitate positive interactions and effective team learning[69].

This research supports the idea that if improvements are to be made in communication skills in orthopaedics it is likely to be in the realm of the process of communication rather than the content. Residents and program directors are very aware of the role of medical expert and are thus extremely knowledgeable within their specialty. However, it seems that there isn't a clear comprehension of the best methods or process skills

to get their knowledge across. Facilitating information gathering requires similar process skills.

One of the key components of communication skills highlighted by residents and program directors is the importance of flexibility. Without this skill it would be impossible to interact with the numerous individuals and in the various fashions on a day-to-day basis. The difficulties involved in adapting to the many situations that a surgeon or resident encounters frequently have been recognized in previous studies[38]. Physicians and surgeons must be able to collaborate with other healthcare professionals in order to function in the team-oriented environment of the hospital[1].

While some individuals are good teachers, others are good with patients, and others can function well in a team. It is the ability to take on these many roles that makes someone a truly flexible communicator. Simultaneously, these roles must be conducted with patients, nurses, faculty, students, and more. Surgeons also have the unique task of adapting these skills to multiple environments including the operating room, ward, and classroom, just to name a few. Team relationships in these many situations are highly dependent on the communication skills of the individual team members[30, 31, 68, 69]. Residents also highlighted that they received little to no feedback on alternate forms of communication such as notes and dictated letters, and this is confirmed in other research that medical and surgical trainees receive inadequate instruction regarding the process, purpose, and relevance of such forms of communication[47].

For orthopaedic residents there are many motivations for having effective communication skills. One of the most easily relevant to their identity as learners is the importance of communication skills during oral examinations. While this wasn't a theme

within the qualitative data, it is nonetheless an important factor to consider when justifying communication skills development. The oral examination is a common method of evaluation within surgical training programs and serves as fundamental component for the RCPSC certifying fellowship examinations in the orthopaedics. This style of examination has been shown to be significantly influenced by the communication skills of both examinee and examiner[9, 10].

Another primary motivator for residents and surgeons is the utility of communication skills to aid in the development of relationships with patients and rapport with coworkers. Lingard has done extensive work investigating team interactions in many environments within the hospital[30, 47, 68, 69, 70]. It is evident from that work and this study how communication so greatly impacts the ability for individuals to develop relationships and build rapport with the many team members around them. This inevitably extends to issues such as medical error[32] and thus impacts patient care.

Time is perceived as one of the more difficult barriers to communication. The fatigue experienced by residents has major implications on both their personal and professional life[71]. This stressor often leads to poor communication and relationship building between orthopaedic residents and their coworkers and supervisors[72]. The resident participants in this study echoed these previous findings. They felt as though the constant time pressure prevented them from developing what they perceived to be important relationships and had an overall negative impact on the interactions with others.

While perceived as a barrier, the time constraints placed upon surgeons and residents should serve as a strong motivator to become an efficient communicator. Having excellent communication skills does not necessarily equate to spending more time with an individual.

Research has shown that developing superior communication skills can actually save time[73]. Another study demonstrated that orthopaedic surgeons could display effective communication skills in cast clinic consultations lasting only four minutes[37]. If residents and surgeons could recognize this, there may become a greater stimulus to improve one's communication skills.

Communication Skills Training

Role modeling is an important factor in an educational environment that has been labeled as preceptor-based education, apprenticeship learning, and observational learning amongst others. The influence of role models on communication has been well established in numerous studies[54, 56, 74]. This study reconfirms this fact with a new study population. An important factor in role modeling and observational learning is that this model is a dynamic, interactive, and reciprocal process[75]. The social interaction between teacher and learner plays vital part in this relationship.

Several studies have also explored the qualities of an effective role model[50, 75]. They also attest to the fact that this is a largely untapped resource in modern medical education. Role modeling is not simply a matter of being a competent and knowledgeable clinician[50], but more an acknowledgment of the qualities and attitudes that one is trying to teach. Unfortunately, while role models can affect positive change in learners, negative role models can also produce deleterious and unwanted effects. It is for this reason that the process of role modeling needs to become explicit so that teachers don't send mixed messages to students.

Experiential learning seems to be regarded as another important component to residency training by both orthopaedic residents and program directors. It was agreed upon with the questionnaire, and was a common topic during focus groups and interviews. Experience alone though, has been regarded as a poor teacher for the development of new and improved skills[76, 77]. Without more directed learning, experience serves to reinforce previously established habits and routines, both good and bad. Explicit feedback provided to learners has been shown to be better at changing the desired behaviors such as communication, empathy, and professionalism[1, 78].

In order to achieve this desired feedback, faculty development needs to be undertaken to provide residents with structured objectives and positive role models. In addition to the development of new skills, this feedback is also important in the maintenance and positive reinforcement of already established skills. While communication skills can be taught and retained[42, 79, 80], they can also deteriorate over time[1].

Residents considered a key aspect to the development of communication skills in a experiential and observational environment was the ability to critically evaluate one's own skills. It was considered a reasonable expectation that self-evaluation of communication skills could serve as useful tool and adjunct in their training. Unfortunately, the available research does not support the reliability of self-evaluation in the context of communication[80, 81]. This research provided evidence that both students and faculty are poor at self-evaluating their own communication skills and interpersonal interactions.

Residents do not seem to value the occasional large-group didactic teaching sessions on communication skills that are being introduced into their training programs. Program directors are also skeptical of these sessions that frequently generate poor attendance, but

which they feel pressured by the RCPSC to introduce. Both groups questioned whether this is an effective method at affecting a change in resident behavior. Other publications used to direct communication skills training also support the claim that didactic teaching is not the optimal method to help develop these clinical skills[1]. Therefore, it may be beneficial to devote resources towards the improvement of clinical teaching of communication skills rather than trying to find time to provide lectures on communication to already busy residents.

Instrument Psychometrics

Psychometric analysis of the questionnaire revealed that the reliability as assessed using internal consistency had a Cronbach's alpha of 0.73. This would be considered a fair reliability[82]. A good reliability would be considered any value over 0.80 and an excellent reliability would have a value over 0.90.

Face and content validity were assessed before the instrument was distributed to orthopaedic residents. Face validity is fundamentally the readability of the instrument and the avoidance of ambiguity within the items. By piloting the questionnaire with residents from other specialties, it was hoped that any items that were confusing could be improved before final distribution. Indeed, several of the initial items required re-wording so that respondents could more easily understand the questions. Having an instrument with poor face validity can cause confusion in anyone reading the questionnaire. This misunderstanding can contribute to a poor response rate. Given the poor response rate in this study, it is possible that improving face validity of the instrument could have improved participant recruitment.

Content validity of an instrument is closely related to face validity. Assessing content validity is the process of assuring that an instrument measures what it was intended to measure. For these purposes, the assistance of Dr. S. Kurtz was employed to confirm that the instrument developed for this study contained items that would appropriately assess factors important to communication skills. It was discussions with Dr. Kurtz that led to the decisions that certain factors could not be adequately evaluated using a simple Likert-type scale. It was decided that the factor or domains that could be assessed through the questionnaire were: the perception of communication ability, explicit training of communication skills, clinical training of communication skills, utility of communication skills, and importance of communication skills. Items were thus constructed and grouped based upon these five domains.

Construct validity of the instrument was assessed using a factor analysis to evaluate the five domains upon which the instrument was designed. This five-factor model accounted for just over half (50.4%) of the variance in response to items on the questionnaire. As well, 83% (25/30) of the items loaded within the factors for which they were originally grouped during instrument development.

Analysis of the five-factor model revealed that the reliability of each factor had a Cronbach's alpha of greater than 0.65 with the exception of factor 5 (Clinical Training of Communication Skills). The first four factors ranged from fair to good reliability. The reliability of the fifth factor was 0.39, which would be considered very poor[82]. Clearly items grouping to this factor could be reassessed for improvement. Including additional items on this topic could also improve its reliability. It is possible this item was more effectively

assessed using qualitative methods, as this was a frequent topic during the orthopaedic resident focus groups and program director interviews.

Statistical analysis revealed that males and females had significantly different responses to a number of items on the questionnaire. These findings are consistent with previous research concerning gender differences. Other studies have shown that females tend to have stronger relationships with role models for the development of professional attitude and competencies[52].

Women tended to rate themselves as more sufficient and excellent communicators. They also felt they had received more effective training in alternate forms of communication such as dictation letters and written notes. It is difficult to explain why this would be the case. These factors may be directly related to the perceived increased influence of positive role models among females.

Results from IMGs were significantly different than CMGs on a number of items. Interestingly, two of these items were the same as the items that contained gender differences. CMGs tended to rate themselves as having more sufficient and excellent communication skills than IMGs. This seems somewhat intuitive. For many IMGs, English is not their primary language. For this reason alone, one might assume that they would find communicating in English more difficult than a native English-speaker. The cultural nuances of communication may also make some of the process skills of communication more difficult for IMGs.

Overall, the fact that IMG status was an independent variable in this equation serves as important information to take into consideration when developing education models for residency training. Research has shown that students more readily identify with teachers

who display similar qualities and beliefs[53]. Indeed, data from IMGs showed that they had been exposed to fewer role models, both negative and positive, for communicating during residency. If Canadian training programs are going to continue to train IMGs, it is imperative that educators take into account the unique traits of these learners.

Gender and IMG versus CMG status were the only independent variables identified in the analysis of our data. Both of these variables were identified in the ANOVA analysis. To see if these factors or others were actually co-variates a MANOVA was conducted. In retrospect this analysis was likely superfluous as it was impossible for gender and medical graduate status to be cofactors as all IMG respondents were male.

Distinctive Contributions of the Study

Many studies have investigated the quality of communications skills in medical and surgical specialties. However, no previous research has ever explored what communication skills mean from the point of view of orthopaedic residents and program directors. As well, no one has previously investigated as to how these skills are currently taught in orthopaedic training programs across Canada. The unique contributions of this study are the attitudes and perceptions of the participants who contributed data to this research.

Residents are well aware of the importance of the language they choose to use with patients, staff, nurses, and the many other individuals they interact with daily. Program directors, too, recognize the accuracy of the content of communication to be significant. However, neither group provided indications that they understood the intricacies of the process of communication. They briefly mentioned that non-verbal communication has an impact but wouldn't elaborate on the details of non-verbal communication. Terms such as

empathy and being non-judgmental were not discussed as being important components to a communication skills set. It is seemingly perceived that medical knowledge is still the core component to being an effective communicator.

This study provides evidence that the forum in which to teach residents communication skills is not necessarily the classroom. The clinical setting is perceived to be a much more valued and effective environment for the development of interpersonal interaction. However, residents consider this resource to be inconsistent and focused on poor performance rather than the reinforcement of positive attributes. Additionally, time constraints and negative role models during residency frequently have a negative impact and deleterious effect on residents' communication skills.

Study Limitations

This study contains several limitations that should be noted when considering the results and interpretation of those results. Firstly, the response rate to the quantitative instrument used in this study did not meet the goal of 80%. Secondly, the respondents to the questionnaire were not a perfectly proportional representation of orthopaedic residents in Canada. Thirdly, the recruitment of resident participants for focus groups did not achieve the goals outlined in the methods. These factors can all contribute external bias to study. Additionally, all research contains bias from intrinsic sources, which needs to be acknowledged in order to minimize the influence of such bias. This is particularly so in qualitative research. These points all warrant discussion in greater detail.

The overall response rate from the instrument distributed to all Canadian orthopaedic residents for this study was 36.6% (119/325). This would be considered a poor response rate

given the goal of 80% outlined in the methods and supported by research of questionnaire methodology[62]. The results of the questionnaire data are thus subject to the bias of those residents who did choose to respond. This bias can be directed by other influences and motivations that may not be transparent in the methods of the study or the results[62].

This response occurred despite numerous attempts to improve recruitment. During the study, participant recruitment included repeat mailings and distribution at nationally attended meetings. In support of the questionnaire was the reliability or internal consistency of 0.73 as calculated using Cronbach's alpha coefficient. This is considered a fair reliability and would support that orthopaedic residents represent a fairly homogeneous population to which the results of this study should be generalizable.

From the demographic data collected with the questionnaires, one can see that fifth year residents completed almost half of the questionnaires. This is likely due to participant recruitment at CORF, which all fifth year residents across Canada attended. First year residents came close to proportional representation for this part of the study, while R2-R4 resident data is under-represented.

The bias towards fifth year resident responses is not overly concerning for several reasons. Firstly, fifth year residents are the most senior residents and thus have the most experience with the importance of communication skills in residency and communication skills training within their respective residency training programs. Their opinions are based on the greatest quantity of time spent in clinical situations with interacting and learning from their preceptors. When results of the questionnaire were analyzed for variance between the separate R-levels and between junior and senior residents, no significant differences were noted. This supports the claim that having an over-representation of fifth year residents

should not significantly bias the results to the point where one could not generalize them to all orthopaedic residents.

CORF may have contributed bias to the response from fifth year residents. The recruitment of R5's occurred primarily at CORF and, as previously mentioned, a significant aspect of CORF is increasing resident awareness of the importance of communication skills. This influence was minimized by distributing the questionnaire to residents on the first day of CORF, before most of the communication content was introduced.

The questionnaire data was also moderately over-represented by residents from western Canadian orthopaedic training programs and under-represented by residents from Ontario and Quebec. The ANOVA comparison between the different training programs revealed no significant differences. It is likely that this study was underpowered to show a difference between schools considering the poor response rate from certain institutions. It is unlikely that this introduces significant bias into the results given the relatively consistent methods used to educate orthopaedic residents across Canada.

The distribution of Canadian medical graduates and international medical graduates who completed the questionnaire was quite similar to the overall distribution in orthopaedic training programs (15% versus 17% respectively for IMGs) suggesting that this variable should not have introduced extra bias. Females were only slightly over-represented in the data (21% versus 17% across Canada) again suggesting that this variable should have introduced little bias to the final results.

Recruitment for the orthopaedic resident focus groups was only able to successfully obtain participants for two focus groups at the UofC. It was planned that focus groups would be conducted with junior and senior residents at both the UofC and UofA. It was felt that

about 3-5 focus groups would likely be required to obtain data saturation. If data saturation had not been reached after initial focus groups then further recruitment would be undertaken at the other western Canadian medical schools (UBC, UofS, UofM) due to their ease of access from Calgary.

As the primary researcher for this study was an orthopaedic resident at the UofC, recruitment in Calgary was not overly difficult. Recruitment at the UofA produced no volunteers to participate in a focus group. When recruitment failed at the UofA, orthopaedic residents at UBC, UofS, and UofM were contacted. All methods of recruitment, outlined in the methods section, produced only a single volunteer at one of the institutions, which was insufficient to hold an additional focus group.

The consequences of analyzing data obtained from focus groups with only UofC residents is the results contain more bias than if multiple training programs were represented. With that said, one of the focus group participants received his first two years of residency training in another Canadian orthopaedic training program other than the UofC. This does introduce some opinion based on experience outside of Calgary. Because only two focus groups were conducted, data saturation was not achieved once both focus groups transcripts had been coded. While there were numerous overlapping themes between the two groups, coding of the second transcript did produce new results that were not contained within the first. It is possible that additional focus groups may have provided additional information that is not included within this study.

This study was able to include data from interviews with over half (9/16, 56%) of the orthopaedic program directors from across Canada. The only province with an orthopaedic training program that was not represented in this study was Quebec. It is possible that these

program directors chose not to participate because the primary language spoken in Quebec is French, while all interviews were conducted in English.

Overall, recruitment of the orthopaedic program directors was extremely difficult. Two of the co-supervisors of this study, Dr. R. Buckley and Dr. C. Hutchison, were responsible for initial telephone contact with each of the program directors to outline the goals of the study and recruit them for an interview. It was felt program directors might respond more favorably to Dr. Buckley and Dr. Hutchison as they both orthopaedic surgeons and Dr. Buckley is the former orthopaedic program director at the UofC. This initial contact with program directors was conducted in December of 2005. This initial telephone contact was followed up by telephone calls to the program secretaries and e-mails to the program directors by the primary researcher.

This first round of recruitment led to five interviews with program directors. A second round of recruitment was also conducted to contact all non-respondents. Direct contact was also made with program directors that were present at CORF and the Alberta Resident Research Day.

It was felt that, for the purposes of this study, it would be ideal to interview at least half of the orthopaedic program directors with representation from across Canada. Both of these goals were accomplished. During analysis of the interview transcripts data saturation was achieved before all interviews had been analyzed. In this fashion, during analysis of the final interviews, all comments were repetition of points mentioned in previous interviews. It is doubtful that interviewing any additional program directors would have produced any data that is not included in this analysis.

As with any qualitative research, it is important to acknowledge the potential introduction of bias through the interpretation of data by the researchers. All attempts have been made to be as transparent as possible in making clear the backgrounds and potential biases of all researchers involved in this study. Qualitative analysis was undertaken with the necessary rigor to minimize the introduction of bias. Efforts to remain neutral in the interpretation of data were undertaken by the research team through frequent collaboration during coding of the data transcripts. This process ensured no single individual was solely responsible for analysis and permitted interpretation to proceed from multiple points of view. Research participants were given the opportunity to question the researchers' interpretation of the data. This member checking occurred during presentation of the research findings to orthopaedic residents and program directors from the UofC and UofA.

An important note is that this study represented the primary researchers first attempt at qualitative data collection and analysis. While the researcher is very familiar with interviewing patients in the clinical setting, interviewing program directors for the purposes of this research was a new experience. It was discovered during the course of data collection that there was a significant learning curve in the art of conducting an interview to be able to get program directors to expand on answers provided. The first few interviews were not as productive as the later interviews at exploring the deeper understanding of the questions proposed during the discussions with program directors.

Recommendations for Resident Education

The orthopaedic residents and orthopaedic program directors involved in this study both agreed on the influence of role modeling to the development of communication skills in

a preceptor-based model of education. This is supported by the current literature on communication skills training in the clinical environment[54]. During focus groups, residents highlighted how negative role models are often more memorable than positive examples. The literature has also identified how role modeling can produce a negative impact on learners and can be detrimental to their skills[75]. The choice of role models for the development of communication skills in orthopaedic residents is an important educational strategy. Making these learning objectives and learning opportunities more explicit would assist in the learner identification of effective communication skills. Training programs also need to emphasize the importance of process skills within communication in addition to the content of communication.

Both of the study populations also questioned the value of large group didactic sessions to teach communication skills that occur outside of the clinical environment. These sessions seemed to counter the primarily experiential learning emphasized by learners and teachers. If residents are already feeling pressured by time, why are we taking more of their time away from the hospital if the utility of such sessions is questionable at best? The results of this study suggest that greater efforts should be taken to improve the quality of the experiential learning and role modeling, which both program directors and residents seem to value, and avoid the attempt to force these didactic sessions into an already busy residency curriculum. An important component of this education strategy will be faculty development in the field of role modeling effective communication skills[75].

Recommendations for Further Research

This study focused on the perceptions of Canadian orthopaedic residents and orthopaedic program directors. However, the relevance of communication skills extends to all surgical and medical specialties, not just orthopaedics. Similar research needs to be conducted with other groups to see whether the results of this study are consistent with other educators and learners in other residency training programs. It is impossible to develop effective models for education until we better understand the knowledge and perspectives of the teachers and learners involved in those models.

One of the recommendations from this research is that faculty development will be an essential component to the improvement of teaching communication skills to residents in a preceptor-based education model. Research will be required to determine how this could effectively be accomplished. One possibility is introducing more emphasis on communication skills into currently existing educational courses attended by surgical faculty. Similar to the way that communication skills are an integral part of an exam review course such as CORF, they could also be integrated into other types of CME activities.

This study demonstrates the perceived benefit of developing communication skills in the clinical environment. However, establishing objective methods for evaluating communication skills in residency is necessary to support whether this type of education can actually affect change. In order to evaluate residents, programs must develop detailed learning objectives and reliable and valid evaluation instruments in order to guide learners and provide a template for educators.

Conclusions

Canadian orthopaedic residents and orthopaedic residency program directors perceive the meaning of communication skills to be the exchange of information between individuals through the use of accurate and appropriate language. They emphasized that effective communication needs to be *"clear and concise"* given the constant time constraints under which surgeons and surgical residents must function. Participants focused on the content of communication skills highlighting that with patients one needs to use "*laymen's language*" to avoid confusion, while, with surgical faculty, one needs to use complex terminology to gain respect. Communication skills need to be flexible to allow an individual to develop relationships and establish rapport with numerous individuals through the course of daily work in the hospital.

The reliability of the instrument developed for use in this study had a Cronbach's alpha of 0.73. Analysis of variance indicated that gender and CMG versus IMG status were independent variables for responses to items on the questionnaire. Construct validity of the questionnaire was assessed through a factor analysis, which produced a model containing five principle factors including: 1) Importance of Communication Skills; 2) Utility of Communication Skills; 3) Explicit Training of Communication Skills; 4) Perception of Communication Ability; and 5) Clinical Training of Communication Skills.

Residents and program directors both agree on the current influence of experiential learning and role modeling to the development of communication skills. Teaching in the clinical environment is perceived as an essential component in the preceptor-based model of education in currently employed by orthopaedic residency training programs in Canada. Residents felt that making the training process more consistent and explicit could enhance

the development of better communication skills. The sporadic large-group didactic sessions being introduced to orthopaedic curricula are viewed as ineffective due to their perceived lack of relevance to clinical scenarios. As well, program directors place great value in communication skills training that occurs before entry into residency.

Overall, orthopaedic residents and program directors recognize the importance of communication skills. They value teaching in the clinical environment, but realize that current methods need to be improved upon in order to be effective and avoid negative influences. There still exists a lingering skepticism regarding the introduction of the CanMEDS competencies into the core curriculum of residency training. As well, residents and program directors generally have a positive self-image of themselves as communicators and feel that communication skills are rarely a problematic area that requires greater attention.

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Perceptions of Communication Skills

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

Please rate the statements below based on the following scale: 1 = Strongly Disagree to 5 = Strongly Agree

	Example: ✓ Please use an ink pen	Strongly Disagree 1	2	Neutral 3	4	Strongly Agree 5
1. Communication skills are a personality trait.		○	○	○	○	○
2. Communication skills are learned skills.		○	○	○	○	○
3. Communication skills can be retained over time.		○	○	○	○	○
4. Excellent communication skills are a typical trait of a physician/surgeon in my specialty.		○	○	○	○	○
5. Excellent communication equates to spending more time with an individual.		○	○	○	○	○
6. Communication skills were well taught during my undergraduate medical training in medical school.		○	○	○	○	○
7. Communication skills are well taught in my residency program.		○	○	○	○	○
8. During residency I have worked with positive role models for how to communicate effectively.		○	○	○	○	○
9. During residency I have worked with negative role models for how to communicate effectively.		○	○	○	○	○
10. I have been taught how to effectively communicate using dictation letters.		○	○	○	○	○
11. I have been taught how to effectively communicate in a written format (ie - prescriptions, notes, etc...).		○	○	○	○	○
12. I have received explicit instructions during residency on how to improve my communication skills.		○	○	○	○	○
13. I have learned my communication skills during residency through trial and error.		○	○	○	○	○
14. Communication skills are primarily taught by role modeling.		○	○	○	○	○
15. My current communication skills are sufficient.		○	○	○	○	○
16. Excellent communication skills can improve patient outcome.		○	○	○	○	○
17. Excellent communication skills can improve healthcare efficiency.		○	○	○	○	○
18. Excellent communication skills can decrease healthcare spending.		○	○	○	○	○
19. Excellent communication skills can decrease my risk of litigation.		○	○	○	○	○
20. I have excellent communication skills.		○	○	○	○	○

Perceptions of Communication Skills

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

Please rate the importance of communication skills when performing the following tasks:

	Never Important 1	2	Neutral 3	4	Very Important 5
21. Performing conflict resolution.	○	○	○	○	○
22. Teaching medical students.	○	○	○	○	○
23. Discussing treatment options with senior staff.	○	○	○	○	○
24. Discussing treatment options with a patient.	○	○	○	○	○
25. Developing a relationship with a patient.	○	○	○	○	○
26. Writing progress or surgical notes.	○	○	○	○	○
27. Providing to patients and their families the rationale of treatment.	○	○	○	○	○
28. Handling transfer of care.	○	○	○	○	○
29. Coordinating a health care team (ie - nursing, PT, OT, residents, etc....).	○	○	○	○	○
30. Balancing work and personal life.	○	○	○	○	○

Demographics

I am: ○ Male ○ Female

○ R1 ○ R2 ○ R3 ○ R4 ○ R5 ○ R6

Current University: _____

○ Canadian Medical Graduate ○ International Medical Graduate

University for Medical School: _____

Please return via pre-paid envelope provided, or via fax to (403) 210-8188.
Please return by May 1st, 2006

14841

Perceptions des habiletés de communication

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Exemple: ✓ *Veuillez utiliser un stylo d'encre*

Veuillez évaluer les énoncés ci-dessous selon l'échelle d'évaluation suivante :
1 = pas du tout d'accord à 5 = fortement en accord

	Pas du tout d'accord		Neutre		Fortement en accord
	1	2	3	4	5
1. Les habiletés à communiquer sont un trait de personnalité	○	○	○	○	○
2. Les habiletés à communiquer sont des aptitudes que l'on apprend	○	○	○	○	○
3. Les habiletés à communiquer peuvent être bien conservées au fil du temps	○	○	○	○	○
4. Les habiletés à communiquer adéquatement sont typiques d'un médecin/chirurgien de ma spécialité	○	○	○	○	○
5. Une excellente communication équivaut à passer plus de temps avec un individu	○	○	○	○	○
6. Les habiletés à communiquer ont été bien enseignées lors de mes études de premier cycle à l'école de médecine	○	○	○	○	○
7. Les habiletés à communiquer sont bien enseignées dans mon programme de résidence	○	○	○	○	○
8. Pendant ma résidence, j'ai travaillé avec des " mentors/modèles ou exemples positifs " (positive role models) pour apprendre à communiquer adéquatement	○	○	○	○	○
9. Pendant ma résidence, j'ai travaillé avec des " mentors/modèles ou exemples dits négatifs " (negative role models) pour apprendre à communiquer adéquatement	○	○	○	○	○
10. J'ai été enseigné à communiquer adéquatement par l'utilisation de lettres dictées	○	○	○	○	○
11. J'ai été enseigné à communiquer adéquatement par des moyens écrits (ex., prescriptions, notes d'évolution, etc.)	○	○	○	○	○
12. J'ai reçu des instructions explicites durant ma résidence pour apprendre à améliorer mes habiletés à communiquer	○	○	○	○	○
13. J'ai appris mes habiletés de communication durant ma résidence par l'approche essais-erreurs	○	○	○	○	○
14. Les habiletés à communiquer sont enseignées principalement par des exemples à suivre	○	○	○	○	○
15. Mes habiletés à communiquer actuelles sont suffisantes	○	○	○	○	○
16. D'excellentes habiletés de communication peuvent améliorer les résultats pour le patient	○	○	○	○	○
17. D'excellentes habiletés de communication peuvent améliorer l'efficacité des soins de santé	○	○	○	○	○
18. D'excellentes habiletés de communication peuvent réduire les coûts liés aux soins de santé	○	○	○	○	○

Perceptions des habiletés de communication

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

	Pas du tout d'accord 1	2	Neutre 3	4	Fortement en accord 5
19. D'excellentes habiletés de communication peuvent réduire mon risque de litige	○	○	○	○	○
20. Je possède d'excellentes habiletés de communication	○	○	○	○	○

Veuillez évaluer l'importance des habiletés à communiquer lorsque vous exécutez les tâches suivantes:

	Jamais Important 1	2	Neutre 3	4	Très Important 5
21. Règlement de conflits.	○	○	○	○	○
22. Enseigner aux étudiants en médecine.	○	○	○	○	○
23. Discuter des options de traitement avec les personnes responsables	○	○	○	○	○
24. Discuter des options de traitement avec un patient	○	○	○	○	○
25. Développer un lien avec un patient	○	○	○	○	○
26. Écrire des notes d'évolution	○	○	○	○	○
27. Fournir la justification d'un traitement aux patients et à leurs familles	○	○	○	○	○
28. Traiter les transferts de soins	○	○	○	○	○
29. Coordonner une équipe de soins de santé (p. ex., infirmières, TP, TO, résidents, etc.)	○	○	○	○	○
30. Équilibre travail versus vie personnelle en dehors du milieu médical	○	○	○	○	○

Données démographiques

Je suis: ○ Homme ○ Femme

○ R1 ○ R2 ○ R3 ○ R4 ○ R5 ○ R6

Université actuelle: _____

○ Diplômé Canadien en Médecine ○ Diplômé International en Médecine

École de medicine de l'Université: _____

Veuillez retourner par l'enveloppe affranchie incluse ou par télécopieur au (403) 210-8188
Veuillez le retourner avant le 1er mai 2006

Draft

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

Orthopaedic Resident Focus Group Questions: (90 min.)

Before we begin I'd just like to go over a few points. You have all been provided with an information letter regarding this focus group and this study in general. As well, you have all signed a consent form agreeing to participate. You may withdraw consent at any point before, during, or after the focus group has commenced. As well, it is important to remember that while your anonymity will be maintained in the presentation of any data, it is impossible to guarantee confidentiality in a group setting. Because of this group setting, I'd like to emphasize that you should only say what you are comfortable revealing to the rest of the individuals here today. Are there any questions before we begin?

Questions:

1. What does the term communication skills mean to you?

2. What are the important aspects of communication in your daily interaction?

3. Think about this example. You see a patient in a specialty clinic with your staff. You then proceed to dictate a letter to the referring physician about your findings and a plan for the patient. Your staff then ask if you could present the patient at speciality rounds next week.

   How will the content and the process of the information you present differ between the consultant letter and the rounds presentation?

4. How does your communication differ or how is it the same in your various relationships as a surgeon?

   (i.e., patients and families, nurses, peers, students other members of the health care team)

5. How are communication skills developed in your residency program?

   (*Is it an implicit or explicit process? Describe any positive or negative influences in the development of your communication skills.)*

6. How have your communication skills changed from the end of medical school to now?

   (What has caused this change?)

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

Program Director Interviews: (30 min)

Date: <date>
Interviewer: Kris Lundine
Interviewee: <program director's name>

Telephone or Face-to-Face script

Good morning/afternoon Dr. <name>. Thank-you for giving up some of your time. Before we begin I need to go over a few things in order to obtain informed consent for this study.

I (Kris Lundine) am one of the co-investigators for this study. I'm a third year orthopaedic residents in Calgary and am taking a year to do a Master's degree in medical education. The principal investigator is Dr. Jocelyn Lockyer from the Dept. of Community Health Sciences, and the other co-investigators include Dr. Carol Hutchison and Dr. Rick Buckley who are both orthopaedic surgeons here in Calgary.

The purpose of this study is to investigate the perceptions surrounding the components of communication skills and the current training of these skills within the field of orthopaedics.

Participation on your part is completely voluntary. This interview should last approximately 20-30 minutes. This study should pose no risks to you. You do have the right to withdraw consent at any point during of after this interview process.

All results including recordings and data transcripts will be kept in a locked filing cabinet in my office. The only individuals with access to this information will be the co-investigators and myself.

Along with this interview we'll be sending a package of questionnaires to each orthopaedic program in Canada. We are hoping that you could distribute these questionnaires to all your residents and encourage them to complete the surveys and return them to us. They can be returned either by mail or fax.

Do you have any questions before we begin?
Do you agree to participate?

Opening Questions:

How many years have you been in practice?
Prompts: *All in an academic centre?*

How many years have you been an orthopaedic program director?

Have you had any formal training in how to teach or evaluate communication skills?

Does any of the faculty in your specialty have formal training in this area?

Communication Questions:

1. What does the term communication skills mean to you?

2. What are the key aspects of communication skills for you as a surgeon? Why are these skills important?

3. Would you consider excellent communication skills to be typical of a surgeon in your specialty?

4. What is the general attitude towards the idea of communication skills and the other CanMEDS competencies amongst faculty and residents in your program?

Education Questions:

5. How are communication skills developed in your orthopaedic residency program?

Prompt: a) Is it a formal or informal process?
b) Is the process more implicit or explicit

6. Can you describe how role modeling contributes to resident communication skill development in your program?

7. How do you teach dictation skills in your program?

Prompt: a) Do residents received feedback on their dictations?

8. How do you teach residents skills for conflict resolution?

Table 10: Correlation matrix showing the Pearson correlation coefficients for all items on the questionnaire.

	1	2	3	4	5	6	7	8
1	1	**-0.288****	0.052	-0.092	0.036	-0.049	0.012	-0.069
2	**-0.288****	1	**0.26****	0.086	0.018	-0.005	-0.032	-0.156
3	0.052	**0.26****	1	**0.187***	0.078	0	0.055	-0.098
4	-0.092	0.086	**0.187***	1	0.058	-0.147	**0.392****	**0.217***
5	0.036	0.018	0.078	0.058	1	**0.201***	0.151	-0.028
6	-0.049	-0.005	0	-0.147	**0.201***	1	**0.321***	**0.238****
7	0.012	-0.032	0.055	**0.392****	0.151	**0.321****	1	**0.395****
8	-0.069	-0.156	-0.098	**0.217***	-0.028	**0.238****	**0.395****	1
9	0.162	-0.107	0.041	**-0.355****	0.041	0.156	-0.267	0.07
10	-0.064	0.138	0.037	0.088	0.042	0.129	0.36	0.061
11	0.175	-0.07	0.083	0.083	0.021	**0.191***	**0.293****	0.073
12	-0.101	0.152	0.037	**0.355****	0.028	0.038	**0.516****	**0.218***
13	0.118	0.107	**0.193***	**-0.181***	**0.193***	0.138	**-0.261***	-0.047
14	0.08	-0.027	0.041	0.034	0.003	0.103	0.069	0.162
15	**0.187***	-0.164	0.066	-0.053	-0.031	**0.314****	0.141	**0.339****
16	0.165	-0.105	0.154	**-0.232***	0.124	**0.232***	-0.078	0.035
17	0.106	-0.057	**0.226***	-0.159	0.057	0.149	-0.043	0.071
18	0.159	-0.16	0.137	-0.104	0.101	0.065	-0.043	0.116
19	0.174	-0.085	0.156	-0.111	0.023	0.046	-0.073	0.087
20	0.145	-0.047	0.097	-0.009	-0.062	**0.244****	**0.193***	**0.371****
21	**0.297****	0.032	0.127	-0.051	-0.11	0.054	-0.173	0.037
22	0.157	0.009	-0.005	-0.121	-0.069	0.047	-0.176	0.022
23	**0.185***	0.119	0.086	-0.028	-0.13	-0.018	-0.062	0.037
24	0.048	0.178	0.141	**-0.301****	-0.035	0.161	-0.154	0.169
25	**0.278***	0.01	0.041	**-0.293****	0.035	0.121	-0.104	0.004
26	0.156	0.08	0.003	-0.051	-0.069	0.055	-0.056	0.01
27	**0.284***	-0.002	0.031	-0.158	0.132	0.089	**-0.186***	0.04
28	**0.206***	0.083	0.067	**-0.226***	-0.014	0.112	-0.057	-0.019
29	**0.205***	0.121	0.157	-0.146	-0.024	0.074	-0.006	-0.017
30	**0.235***	-0.078	-0.087	-0.034	-0.03	0.081	0.035	0.028

* $p < 0.05$

** $p < 0.01$

Table 10: Correlation matrix showing the Pearson correlation coefficients for all items on the questionnaire. (cont.)

	9	10	11	12	13	14	15	16
1	0.162	-0.064	0.175	-0.101	0.118	0.08	0.187	0.165
2	-0.107	0.138	-0.07	0.152	0.107	-0.027	-0.164	-0.105
3	0.041	0.037	0.083	0.037	**0.193***	0.041	0.066	0.154
4	**-0.355****	0.088	0.083	**0.355****	**-0.181***	0.034	-0.053	**-0.232***
5	0.041	0.042	0.021	0.028	**0.193***	0.003	-0.031	0.124
6	0.156	0.129	**0.191***	0.038	0.138	0.103	**0.314****	**0.232***
7	**-0.267****	**0.36****	**0.293****	**0.516****	**-0.261****	0.069	0.141	-0.078
8	0.07	0.061	0.073	**0.218***	-0.047	0.162	**0.339****	0.035
9	1	0.009	0.062	-0.142	**0.311****	0.158	0.09	**0.277****
10	0.009	1	**0.622****	**0.34****	-0.109	-0.048	0.066	0.098
11	0.062	**0.622****	1	**0.239****	-0.1	0.111	0.168	0.17
12	-0.142	**0.34****	**0.239****	1	-0.058	0.015	0.025	-0.161
13	**0.311****	-0.109	-0.1	-0.058	1	0.177	-0.166	0.17
14	0.158	-0.048	0.111	0.015	0.177	1	-0.097	0.025
15	0.09	0.066	0.168	0.025	-0.166	-0.097	1	0.31**
16	**0.277****	0.098	0.17	-0.161	0.17	0.025	**0.31****	1
17	0.168	-0.019	0.089	-0.146	0.093	-0.047	**0.185***	**0.835****
18	**0.227***	0.037	0.021	**-0.226***	**0.236****	-0.063	0.159	**0.646****
19	0.153	0.089	0.132	-0.167	0.133	-0.123	**0.2***	**0.587****
20	0.052	0.124	0.079	0.049	-0.009	-0.103	**0.77****	**0.341****
21	0.192	**-0.349****	-0.062	**-0.221***	0.078	**0.304****	0.056	0.099
22	**0.287****	0.029	0.167	**-0.199***	0.135	0.105	-0.037	0.098
23	0.056	0.012	0.036	-0.047	0.047	0.047	-0.101	0.133
24	**0.231***	-0.107	-0.017	-0.179	0.11	0.172	0.037	**0.289****
25	**0.232***	-0.153	-0.059	-0.135	0.157	0.133	0.06	**0.245****
26	0.057	0.1	0.174	0.045	0.164	-0.11	-0.057	0.062
27	**0.19***	-0.054	0.029	-0.158	**0.239***	0.103	0.046	**0.202***
28	0.133	0.113	0.062	0.053	**0.213***	0.149	-0.061	0.055
29	0.158	0.107	**0.191***	0.015	0.015	0.085	0.03	0.114
30	-0.002	0	-0.025	**-0.204***	-0.056	-0.014	0.075	-0.004

* $p < 0.05$

** $p < 0.01$

Table 10: Correlation matrix showing the Pearson correlation coefficients for all items on the questionnaire. (cont.)

	17	18	19	20	21	22	23	24
1	0.106	0.159	0.174	0.145	**0.297****	0.157	**0.185***	0.048
2	-0.057	-0.16	-0.085	-0.047	0.032	0.009	0.119	0.178
3	**0.226***	0.137	0.156	0.097	0.127	-0.005	0.086	0.141
4	-0.159	-0.104	-0.111	-0.009	-0.051	-0.121	-0.028	**-0.301****
5	0.057	0.101	0.023	-0.062	-0.11	-0.069	-0.13	-0.035
6	0.149	0.065	0.046	**0.244****	0.054	0.047	-0.018	0.161
7	-0.043	-0.043	-0.073	**0.193***	-0.173	-0.176	-0.062	-0.154
8	0.071	0.116	0.087	**0.371****	0.037	0.022	0.037	0.169
9	0.168	**0.227***	0.153	0.052	**0.192***	**0.287****	0.056	**0.231***
10	-0.019	0.037	0.089	0.124	**-0.349****	0.029	0.012	-0.107
11	0.089	0.021	0.132	0.079	-0.062	0.167	0.036	-0.017
12	-0.146	**-0.226***	-0.167	0.049	**-0.221***	**-0.199***	-0.047	-0.179
13	0.093	0.236	0.133	-0.009	0.078	0.135	0.047	0.11
14	-0.047	-0.063	-0.123	-0.103	**0.304****	0.105	0.047	0.172
15	0.185*	0.159	**0.2***	**0.77****	0.056	-0.037	-0.101	0.037
16	**0.835****	**0.646****	**0.587****	**0.341****	0.099	0.098	0.133	**0.289****
17	1	**0.652****	**0.541****	**0.237****	0.089	0.143	**0.256****	**0.359****
18	**0.652****	1	**0.427****	**0.277****	0.037	0.136	0.051	0.113
19	**0.541****	**0.427****	1	**0.311****	0.114	0.151	**0.202***	**0.225***
20	**0.237****	**0.277****	**0.311****	1	0.082	0.001	-0.013	0.023
21	0.089	0.037	0.114	0.082	1	**0.354****	**0.24****	**0.452****
22	0.143	0.136	0.151	0.001	**0.354****	1	**0.466****	**0.364****
23	**0.256****	0.051	**0.202***	-0.013	**0.24****	**0.466****	1	**0.52****
24	**0.359****	0.113	**0.225***	0.023	**0.452****	**0.364****	**0.52****	1
25	**0.271****	0.1	**0.31****	0.112	**0.41****	**0.414****	**0.453****	**0.606****
26	0.119	-0.03	0.161	-0.004	0.013	**0.361****	**0.487****	**0.254****
27	**0.249****	0.156	**0.246****	0.042	**0.33****	**0.286****	**0.38****	**0.559****
28	0.083	-0.077	0.149	-0.041	**0.267****	**0.234****	**0.476****	**0.458****
29	**0.191***	0.021	**0.284****	0.018	**0.321****	**0.414****	**0.488****	**0.386****
30	-0.005	0.035	**0.258****	0.168	**0.292****	**0.197***	**0.254****	0.098

* $p < 0.05$
** $p < 0.01$

Table 10: Correlation matrix showing the Pearson correlation coefficients for all items on the questionnaire. (cont.)

	25	26	27	28	29	30
1	**0.278****	0.156	**0.284****	**0.206***	**0.205***	**0.235***
2	0.01	0.08	-0.002	0.083	0.121	-0.078
3	0.041	0.003	0.031	0.067	0.157	-0.087
4	**-0.293****	-0.051	-0.158	**-0.226***	-0.146	-0.034
5	0.035	-0.069	0.132	-0.014	-0.024	-0.03
6	0.121	0.055	0.089	0.112	0.074	0.081
7	-0.104	-0.056	**-0.186***	-0.057	-0.006	0.035
8	0.004	0.01	0.04	-0.019	-0.017	0.028
9	**0.232***	0.057	**0.19***	0.133	0.158	-0.002
10	-0.153	0.1	-0.054	0.113	0.107	0
11	-0.059	0.174	0.029	0.062	**0.191***	-0.025
12	-0.135	0.045	-0.158	0.053	0.015	**-0.204***
13	0.157	0.164	0.239	**0.213***	0.015	-0.056
14	0.133	-0.11	0.103	0.149	0.085	-0.014
15	0.06	-0.057	0.046	-0.061	0.03	0.075
16	**0.245****	0.062	**0.202***	0.055	0.114	-0.004
17	**0.271****	0.119	**0.249****	0.083	**0.191***	-0.005
18	0.1	-0.03	0.156	-0.077	0.021	0.035
19	**0.31****	0.161	**0.246****	0.149	**0.284****	**0.258****
20	0.112	-0.004	0.042	-0.041	0.018	0.168
21	**0.41****	0.013	**0.33****	**0.267****	**0.321****	**0.292****
22	**0.414****	**0.361****	**0.286****	**0.234***	**0.414****	**0.197***
23	**0.453****	**0.487****	**0.38****	**0.476****	**0.488****	**0.254****
24	**0.606****	**0.254****	**0.559****	**0.458****	**0.386****	0.098
25	1	**0.3****	**0.563****	**0.48****	**0.517****	**0.35****
26	**0.3****	1	**0.391****	**0.432****	**0.381****	0.035
27	**0.563****	**0.391****	1	**0.571****	**0.367****	**0.204***
28	**0.48****	**0.432****	**0.571****	1	**0.635****	**0.24****
29	**0.517****	**0.381****	**0.367****	**0.635****	1	**0.248****
30	**0.35****	0.035	**0.204***	**0.24****	**0.248****	1

* $p < 0.05$
** $p < 0.01$

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

STUDY CONSENT FORM

STUDY TITLE *Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study.*

SPONSORS This study is being funded by the Royal College of Physicians and Surgeons of Canada through a CanMEDS Research and Development Grant.

INVESTIGATORS

Principal Investigator –	Jocelyn Lockyer, PhD
Co-Investigators -	Kristopher Lundine, MD
	Carol Hutchison, MD, MSc, FRCSC
	Rick Buckley, MD, FRCSC

This consent form is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, please ask. Take the time to read this carefully and to understand any accompanying information. You will receive a copy of this form.

BACKGROUND

The CanMEDS 2005 Project (http://rcpsc.medical.org/canmeds/index.php) has identified the role of communicator as one of the core competencies required for specialist medical training in Canada. It is unclear what understanding current surgical residents and surgical program directors have concerning communication skills.

This study will utilize a mixed methods design to collect data on the perceptions of communication skills by orthopaedic trainees and orthopaedic educators. Focus groups, interviews, and a survey will be used to obtain both quantitative and qualitative data from participants..

WHAT IS THE PURPOSE OF THE STUDY?

The primary objective of this project will be to identify the perceived key components of a communication skills set from the perspectives of both orthopaedic surgical residents and their program directors, and to better understand if and how these skills are currently taught. It is our goal to explore whether orthopaedic residents and those training them understand and are educated in the critical items of effective communication as outlined by the CanMEDS 2005 project.

WHAT WOULD I HAVE TO DO?

Your role in this study would be to participate in a focus group with fellow orthopaedic residents that would last for approximately 90 minutes. You will receive a $75 honorarium for your time. During the focus group you will be discussing 5-6 questions related to communication skills and

communication skills training. Focus groups will be audio-recorded and these recordings will be transcribed verbatim with all identifying information removed.

WHAT ARE THE RISKS?

Participation in this study poses no risks to you. This study does not represent any form of evaluation of you or your residency program.

WILL I BENEFIT IF I TAKE PART?

You will receive an honorarium of $75 for your participation in the focus group. Additionally, the long-term goal of this study is to improve communication skills amongst orthopaedic surgeons by improving education and awareness in this field. This focus group is not meant to teach any communication skills.

DO I HAVE TO PARTICIPATE?

Participation is voluntary.

WHAT ELSE DOES MY PARTICIPATION INVOLVE?

Your participation involves the focus group, which should last approximately 90 minutes, as well as the study questionnaire to be distributed at the end of the focus group.

WILL I BE PAID FOR PARTICIPATING, OR DO I HAVE TO PAY FOR ANYTHING?

You will be paid $75 for your participation in the focus groups. Snacks will also be provided at the focus groups.

WILL MY RECORDS BE KEPT PRIVATE?

All records including completed questionnaires, recordings, and transcripts will be kept in a locked filing cabinet in the PIs office. Only the PI and Co-Is will have access to this information. Confidentiality is impossible to maintain in a focus group setting. Anonymity will be obtained in the results by having all identifying information removed during transcription.

SIGNATURES

Your signature on this form indicates that you have understood to your satisfaction the information regarding your participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the investigators, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time without jeopardizing your health care. If you have further questions concerning matters related to this research, please contact:

Dr. Kristopher Lundine (403) 270-2887
klundine@ucalgary.ca

If you have any questions concerning your rights as a possible participant in this research, please contact Pat Evans, Associate Director, Internal Awards, Research Services, University of Calgary, at 220-3782.

Participant's Name	Signature and Date
Investigator/Delegate's Name	Signature and Date
Witness' Name	Signature and Date

The University of Calgary Conjoint Health Research Ethics Board has approved this research study.

A signed copy of this consent form has been given to you to keep for your records and reference.

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

Division of Orthopaedic Surgery
Health Sciences Centre
3330 Hospital Drive NW
Calgary, AB, Canada T2N 4N1
T 403.220.3366
F 403.220.1185
W www.ucalgary.ca/~ortho
E ceagles@ucalgary.ca

Dear Resident,

We are currently conducting a study at the University of Calgary entitled:

Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study.

Our goal for this project is to identify the perceived key components of a communication skills set from the perspectives of both orthopaedic surgical residents and their program directors, and to better understand if and how these skills are currently taught.

We would greatly appreciate it if you would agree to participate in a focus group with fellow orthopaedic residents from your program. Each session will last for approximately 90 minutes. One focus group will be held for R1-3s and another with R3-5s. **You will receive a $75 honorarium for your time.** During the focus group you will be discussing 5-6 questions related to communication skills and communication skills training. Focus groups will be audio-recorded and these recordings will be transcribed verbatim with all identifying information removed.

Dinner will be provided. If you would like to take part please contact Kris Lundine at klundine@ucalgary.ca.

Thank you very much for your participation.

Sincerely,

Kristopher Lundine, MD
R3 – Orthopaedics
University of Calgary

Carol Hutchison, MD, MEd, FRCSC
Orthopaedic Surgeon
University of Calgary

Rick Buckley, MD, FRCSC
Orthopaedic Surgeon
University of Calgary

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We would greatly appreciate it if you could take the time to complete this questionnaire and return it to us. The questionnaire should take no more than **5 minutes**. Once complete, you can return the questionnaire two ways:

1. Mail the questionnaire in the pre-paid envelope provided, or
2. Fax the completed questionnaire to (403) 210-8188.

Please return the questionnaire by **Apr. 15th, 2006.**

Also attached is an information sheet with all the details of the study. If you have any further questions please contact Dr. Kris Lundine at klundine@ucalgary.ca.

Thank you very much for your participation.

Sincerely,

Kristopher Lundine, MD
R3 – Orthopaedics
University of Calgary

Carol Hutchison, MD, MEd, FRCSC
Orthopaedic Surgeon
University of Calgary

Rick Buckley, MD, FRCSC
Orthopaedic Surgeon
University of Calgary

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

Monsieur/Madame,

Nous entreprenons présentement une étude à l'Université de Calgary intitulée :

Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study.

L'objectif primaire de cette étude est d'identifier les éléments clés se rapportant aux habiletés à communiquer tant du point de vue des résidents orthopédiques chirurgicaux que de leurs directeurs de programmes, et secondairement de mieux comprendre comment ces habiletés sont présentement enseignées.

Nous apprécierons grandement que vous remplissiez le sondage ci-joint. Ceci ne devrait prendre que de 5 à 10 minutes de votre temps. Une fois rempli, vous pouvez nous retourner le questionnaire par soit :

1. l'enveloppe affranchie incluse; ou
2. le télécopieur au (403) 210-8188

Veuillez nous retourner votre questionnaire avant le 24 février 2006.

Vous trouverez ci-joint, une feuille d'information avec tous les détails de l'étude. Si vous avez des questions, veuillez communiquer avec le docteur Kris Lundine au klundine@ucalgary.ca.

Merci de votre participation.

Sincèrement,

Kristopher Lundine, MD
R3 – Orthopédie
Université de Calgary

Carol Hutchison, MD, MEd, FRCSC
Chirurgien orthopédique
Université de Calgary

Rick Buckley, MD, FRCSC
Chirurgien orthopédique
Université de Calgary

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T 403.220.3366
F 403.220.1185
W www.ucalgary.ca/~ortho
E ceagles@ucalgary.ca

Dear <Program Director>,

We are currently conducting a study at the University of Calgary entitled:

Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study.

Our goal for this project is to identify the perceived key components of a communication skills set from the perspectives of both orthopaedic surgical residents and their program directors, and to better understand if and how these skills are currently taught.

Your participation would involve a telephone interview lasting approximately 20-30 minutes conducted by Dr. Kris Lundine, an orthopaedic residents at the University of Calgary. This study represents Dr. Lundine's Master's thesis in Medical Education. This interview would explore issues surrounding communication skills and communication skills training in orthopaedics. Interviews would be audio-recorded and transcribed. Transcriptions will have all identifying information removed.

We will also be sending a package of questionnaires to each orthopaedic program office in Canada. Our hope is that you could distribute these questionnaires to all of your residents and encourage them to complete the surveys and return them either by mail or fax to us.

If you have any questions regarding the study please contact Dr. Kris Lundine at klundine@ucalgary.ca.

Thank-you very much for your participation.

Sincerely,

Kristopher Lundine, MD
R3 – Orthopaedics
University of Calgary

Carol Hutchison, MD, MEd, FRCSC
Orthopaedic Surgeon
University of Calgary

Rick Buckley, MD, FRCSC
Orthopaedic Surgeon
University of Calgary

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

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Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study

L'objectif primaire de cette étude est d'identifier les éléments clés se rapportant aux habiletés de communication tant du point de vue des résidents orthopédiques que de leurs directeurs de programmes, et secondairement de mieux comprendre comment ces habiletés sont présentement enseignées.

Nous apprécierons grandement votre participation volontaire à une entrevue téléphonique (en anglais) d'une durée de 10 à 20 minutes dirigée par le docteur Kris Lundine, un résident en orthopédie de l'université de Calgary. Cette étude représente le mémoire de maîtrise en Éducation médicale du docteur Lundine. L'entrevue portera sur les questions reliées aux habiletés à communiquer et à la formation en orthopédie de celles-ci. Les enregistrements audio des entrevues seront transcrits et tous les renseignements personnels seront supprimés.

Chaque bureau d'un programme orthopédique au Canada recevra un paquet de questionnaires. Nous vous demandons de distribuer les questionnaires à tous vos résidents et d'encourager ceux-ci à les compléter et à les retourner par le poste ou par télécopieur.

Si vous voulez participer à une entrevue, veuillez communiquer avec le docteur Kris Lundine au klundine@ucalgary.ca pour fixer une date et une heure qui vous conviendront le mieux.

Merci de votre participation.

Sincèrement,

Kristopher Lundine, MD
R3 – Orthopédie
Université de Calgary

Carol Hutchison, MD, MEd, FRCSC
Chirurgien orthopédique
Université de Calgary

Rick Buckley, MD, FRCSC
Chirurgien orthopédique
Université de Calgary

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

STUDY TITLE *Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study.*

SPONSORS This study is being funded by the Royal College of Physicians and Surgeons of Canada through a CanMEDS Research and Development Grant.

INVESTIGATORS Principal Investigator – Jocelyn Lockyer, PhD
Co-Investigators - Kristopher Lundine, MD
Carol Hutchison, MD, MEd, FRCSC
Rick Buckley, MD, FRCSC

BACKGROUND

The CanMEDS 2005 Project (http://rcpsc.medical.org/canmeds/index.php) has identified the role of communicator as one of the core competencies required for specialist medical training in Canada. It is unclear what understanding current surgical residents and surgical program directors have concerning communication skills.

This study will utilize a mixed methods design to collect data on the perceptions of communication skills by orthopaedic trainees and orthopaedic educators. Focus groups, interviews, and a survey will be used to obtain both quantitative and qualitative data from participants..

WHAT IS THE PURPOSE OF THE STUDY?

The primary objective of this project will be to identify the perceived key components of a communication skills set from the perspectives of both orthopaedic surgical residents and their program directors, and to better understand if and how these skills are currently taught. It is our goal to explore whether orthopaedic residents and those training them understand and are educated in the critical items of effective communication as outlined by the CanMEDS 2005 project.

WHAT WOULD I HAVE TO DO?

Your role in this study would be to participate in a focus group with fellow orthopaedic residents that would last for approximately 90 minutes. One focus group will be held with R1-R3s and another with R3-5s. You will receive a $75 honorarium for your time. During the focus group you will be discussing 5-6 questions related to communication skills and communication skills training. Focus groups will be audio-recorded and these recordings will be transcribed verbatim with all identifying information removed.

WHAT ARE THE RISKS?

Participation in this study poses no risks to you. This study does not represent any form of evaluation of you or your residency program.

WILL I BENEFIT IF I TAKE PART?

You will receive an honorarium of $75 for your participation in the focus group. Additionally, the long-term goal of this study is to improve communication skills amongst orthopaedic surgeons by improving education and awareness in this field. This focus group is not meant to teach any communication skills.

DO I HAVE TO PARTICIPATE?

Participation is voluntary.

WILL I BE PAID FOR PARTICIPATING, OR DO I HAVE TO PAY FOR ANYTHING?

You will be paid $75 for your participation in the focus groups. Snacks will also be provided at the focus groups.

WILL MY RECORDS BE KEPT PRIVATE?

All records including completed questionnaires, recordings, and transcripts will be kept in a locked filing cabinet in the PIs office. Only the PI and Co-Is will have access to this information. Confidentiality is impossible to maintain in a focus group setting. Anonymity will be obtained in the results by having all identifying information removed during transcription.

If you have further questions concerning matters related to this research, please contact:

Dr. Kristopher Lundine (403) 270-2887
klundine@ucalgary.ca

If you have any questions concerning your rights as a possible participant in this research, please contact Pat Evans, Associate Director, Internal Awards, Research Services, University of Calgary, at 220-3782.

FACULTY OF | UNIVERSITY OF
MEDICINE | CALGARY

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WHAT WOULD I HAVE TO DO?

A questionnaire has been included in this package. We would greatly appreciate it if you could take the time to answer the questions to the best of your ability. Once completed please return the survey using the envelope provided or fax the completed form to (403) 210-8188.

WHAT ARE THE RISKS?

Participation in this study poses no risks to you. This study does not represent any form of evaluation of you or your residency program.

WILL I BENEFIT IF I TAKE PART?

The long-term goal of this study is to improve communication skills amongst orthopaedic surgeons by improving education and awareness in this field. This focus group is not meant to teach any communication skills.

DO I HAVE TO PARTICIPATE?

Participation is voluntary.

WHAT ELSE DOES MY PARTICIPATION INVOLVE?

Your participation involves the completion of the questionnaire provided. We thank you for taking the time to do this. Please return the completed survey using the pre-paid envelope provided or via fax to (403) 210-8188.

WILL I BE PAID FOR PARTICIPATING, OR DO I HAVE TO PAY FOR ANYTHING?

You will incur no cost by participating in this study.

WILL MY RECORDS BE KEPT PRIVATE?

All records including completed questionnaires, recordings, and transcripts will be kept in a locked filing cabinet in the PIs office. Only the PI and Co-Is will have access to this information.

AGREEMENT TO PARTICIPATE

Your decision to complete and return this questionnaire will be interpreted as an indication of your agreement to participate. In no way does this waive your legal rights nor release the investigators, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time.

If you have further questions concerning matters related to this research, please contact:

Dr. Kristopher Lundine (403) 270-2887
klundine@ucalgary.ca

If you have any questions concerning your rights as a possible participant in this research, please contact Pat Evans, Associate Director, Internal Awards, Research Services, University of Calgary, at 220-3782.

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

TITRE DE L'ÉTUDE *Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study.*

PROMOTEURS Cette étude est financée par le Collège royal des médecins et chirurgiens du Canada par le biais d'une subvention pour la recherche et le développement des compétences CanMEDS.

EXPERTS CLINIQUES Chercheuse principale – Jocelyn Lockyer, PhD
Co-chercheurs - Kristopher Lundine, MD
Carol Hutchison, MD, MEd, FRCSC
Rick Buckley, MD, FRCSC

CONTEXTE

Le projet CanMEDS 2005 (http://crmcc.medical.org/canmeds/index.php) a identifié le rôle du communicateur comme étant une compétence essentielle nécessaire à la formation médicale spécialiste au Canada. Le niveau de compréhension des résidents chirurgicaux et des directeurs de programmes chirurgicaux concernant les habiletés de communication n'est pas bien connu.

Cette étude utilisera un modèle de méthodes mixtes (qualitatif et quantitatif) pour la collection des données ayant trait aux perceptions des habiletés à communiquer des stagiaires et des éducateurs orthopédiques. Les différentes variables statistiques et les données qualitatives seront obtenus par l'utilisation de groupes de discussion, par des entrevues et par sondage ou questionnaire.

QUEL EST L'OBJECTIF DE CETTE ÉTUDE ?

L'objectif primaire de cette étude est d'identifier les éléments clés se rapportant aux habiletés de communication tant du point de vue des résidents orthopédiques que de leurs directeurs de programmes, et secondairement de mieux comprendre comment ces habiletés sont présentement enseignées. Notre but est d'étudier si les résidents orthopédiques et ceux qui en font la formation comprennent et utilisent de façon efficace les points traitant de la communication énoncés par le projet CanMEDS 2005.

QU'EST-CE QUE J'AI À FAIRE POUR PARTICIPER A CETTE ETUDE?

Un questionnaire est inclus avec ce paquet. Nous apprécierons grandement si vous le remplissiez de votre mieux. Une fois compléter, s.v.p. retourner le questionnaire soit par l'enveloppe affranchie incluse, soit par télécopieur au (403) 210-8188.

QUELS SONT LES RISQUES LIES A LA PARTICIPATION ?

Votre participation à cette étude ne constituera aucun risque à vous. De plus, cette étude n'est en aucune sorte une évaluation de vous ou de votre programme de résidence.

EST-CE QUE JE PROFITERAI DES RESULTATS SI JE PRENDS PART A CETTE ETUDE?

Le but à long terme de cette étude est d'améliorer les habiletés de communication parmi les chirurgiens orthopédiques en prenant davantage conscience de l'importance de la formation et de la sensibilisation dans ce domaine. Le groupe de discussion n'a pas pour but d'enseigner les habiletés de communication.

EST-CE QUE JE DOIS ABSOLUMENT PARTICIPER ?

Votre participation est totalement volontaire.

EST-CE QUE MA PARTICIPATION IMPLIQUE AUTRE CHOSE ?

Votre participation demande que vous remplissiez le questionnaire fourni. On vous remercie de prendre le temps nécessaire pour ceci. Veuillez retourner le sondage complété soit par l'enveloppe affranchie incluse, soit par télécopieur au (403) 210-8188.

EST-CE QUE MA PARTICIPATION SERA RÉNUMÉRÉE, OU EST-CE QUE JE DOIS PAYER POUR PARTICIPER A CETTE ETUDE ?

Cette étude n'occasionnera aucune dépense et il n'y aura aucune rémunération.

EST-CE QUE MES REPONSES SERONT ACCESSIBLES A TOUS?

Tous les dossiers, y inclus les questionnaires complétés, les enregistrements et les transcriptions, seront gardés dans le bureau de la chercheuse principale dans un cabinet verrouillé. Seulement la chercheuse principale et les Co-chercheurs auront accès à cette information.

ENTENTE DE PARTICIPATION

Votre décision de compléter et de retourner le questionnaire sera interprété comme un engagement de participation. Il n'est pas question que vous deviez renoncer à vos droits légaux et qu'en plus les chercheurs et les instituts impliqués soient délaissés de leurs responsabilités professionnelles et légales. Vous pouvez vous retirer de cette étude en tout temps.

Si vous avez des questions concernant cette recherche, veuillez communiquer avec :

Docteur Kristopher Lundine (403) 270-2887
klundine@ucalgary.ca

Si vous avez des questions concernant vos droits en tant que participant de cette recherche, veuillez communiquer avec Pat Evans, Directeur délégué, Bourses internes, Services de recherche, l'université de Calgary, au numéro de téléphone (403) 220-3782

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

STUDY TITLE *Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study.*

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Your participation would involve a telephone interview lasting approximately 20-30 minutes conducted by Dr. Kris Lundine, an orthopaedic residents at the University of Calgary. This study represents Dr. Lundine's Master's thesis in Medical Education. This interview would explore issues surrounding communication skills and communication skills training in orthopaedics. Interviews would be audio-recorded and transcribed. Transcriptions will have all identifying information removed.
We will also be sending a package of questionnaires to each orthopaedic program office in Canada. Our hope is that you could distribute these questionnaires to all of your

residents and encourage them to complete the surveys and return them either by mail or fax to us.

WHAT ARE THE RISKS?

Participation in this study poses no risks to you. This study does not represent any form of evaluation of you or your residency program.

WILL I BENEFIT IF I TAKE PART?

The long-term goal of this study is to improve communication skills amongst orthopaedic surgeons by improving education and awareness in this field.

DO I HAVE TO PARTICIPATE?

Participation is voluntary.

WILL I BE PAID FOR PARTICIPATING, OR DO I HAVE TO PAY FOR ANYTHING?

This study will not incur any costs to you.

WILL MY RECORDS BE KEPT PRIVATE?

All records including completed questionnaires, recordings, and transcripts will be kept in a locked filing cabinet in the PIs office. Only the PI and Co-Is will have access to this information. All identifying information removed from the data during transcription.

AGREEMENT TO PARTICIPATE

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If you have any questions concerning your rights as a possible participant in this research, please contact Pat Evans, Associate Director, Internal Awards, Research Services, University of Calgary, at 220-3782.

FACULTY OF MEDICINE | UNIVERSITY OF CALGARY

TITRE DE L'ÉTUDE *Perceptions of Communication Skills Amongst Orthopaedic Residents and Program Directors: A Mixed Methods Study*

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EXPERTS CLINIQUES Chercheuse principale – Jocelyn Lockyer, PhD
Co-chercheurs - Kristopher Lundine, MD
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CONTEXTE

Le projet CanMEDS 2005 (http://crmcc.medical.org/canmeds/index.php) a identifié le rôle du communicateur comme étant une compétence essentielle nécessaire à la formation médicale spécialiste au Canada. Le niveau de compréhension des résidents chirurgicaux et des directeurs de programmes chirurgicaux concernant les habiletés de communication n'est pas bien connu. Cette étude utilisera un modèle de méthodes mixtes (qualitatif et quantitatif) pour la collection des données ayant trait aux perceptions des habiletés à communiquer des stagiaires et des éducateurs orthopédiques. Les différentes variables statistiques et les données qualitatives seront obtenus par l'utilisation de groupe de discussion, par des entrevues et par sondage ou questionnaire.

QUEL EST L'OBJECTIF DE CETTE ÉTUDE ?
L'objectif primaire de cette étude est d'identifier les éléments clés se rapportant aux habiletés de communication tant du point de vue des résidents orthopédiques que de leurs directeurs de programmes, et secondairement de mieux comprendre comment ces habiletés sont présentement enseignées. Notre but est d'étudier si les résidents orthopédiques et ceux qui en font la formation comprennent et utilisent de façon efficace les points traitant de la communication énoncés par le projet CanMEDS 2005.

QU'EST-CE QUE J'AI À FAIRE POUR PARTICIPER A CETTE ETUDE?
Votre participation demandera de participer a une entrevue téléphonique (qui se fera en anglais) d'une durée de 20 à 30 minutes dirigée par le docteur Kris Lundine, un résident orthopédique de l'université de Calgary. Cette étude représente le mémoire de maîtrise en Éducation médicale du docteur Lundine. L'entrevue portera sur les questions reliées aux habiletés de communication et à la formation en orthopédie de celles-ci. Les enregistrements audio des entrevues seront transcrits et tous les renseignements personnels seront supprimés.

Chaque bureau d'un programme orthopédique au Canada recevra un paquet de questionnaires. Nous vous demandons de distribuer les questionnaires à tous vos résidents et d'encourager ceux-ci à les compléter et à les retourner par le poste ou par télécopieur.

QUELS SONT LES RISQUES ?
Votre participation à cette étude ne constituera aucun risque à vous. De plus, cette étude n'est en aucune sorte une évaluation de vous ou de votre programme de résidence.

EST-CE QUE JE PROFITERAI DES RESULTATS SI JE PRENDS PART A CETTE ETUDE?
Le but à long terme de cette étude est d'améliorer les habiletés de communication parmi les chirurgiens orthopédiques en prenant davantage conscience de l'importance de la formation et de la sensibilisation dans ce domaine. Le groupe de discussion n'a pas pour but d'enseigner les habiletés de communication.

EST-CE QUE JE DOIS ABSOLUMENT PARTICIPER ?
Votre participation est totalement volontaire.

EST-CE QUE MA PARTICIPATION IMPLIQUE AUTRE CHOSE ?
Votre participation requiert que vous demandiez si possible de la part de vos résidents de remplir le questionnaire fourni. On vous remercie de prendre le temps nécessaire pour ceci. Veuillez leur dire de retourner le sondage complété soit par l'enveloppe affranchie incluse, soit par télécopieur au (403) 210-8188.

EST-CE QUE MA PARTICIPATION SERA RÉNUMÉRÉE, OU EST-CE QUE JE DOIS PAYER POUR PARTICIPER A CETTE ETUDE ?
Cette étude n'occasionnera aucune dépense et il n'y aura aucune rémunération.

EST-CE QUE MES REPONSES SERONT ACCESSIBLES A TOUS?
Tous les dossiers, y inclus les questionnaires complétés, les enregistrements et les transcriptions, seront gardés dans le bureau de la chercheuse principale dans un cabinet verrouillé. Seulement la chercheuse principale et les Co-chercheurs auront accès à cette information.

ENTENTE DE PARTICIPATION
Votre décision d'accepter de participer a l'entrevue téléphonique est votre entente d'engagement de participation. Il n'est pas question que vous deviez renoncer à vos droits légaux et qu'en plus les chercheurs et les instituts impliqués soient délaissés de leurs responsabilités professionnelles et légales. Vous pouvez vous retirer de cette étude en tout temps.

Si vous avez des questions concernant cette recherche, veuillez communiquer avec :

Docteur Kristopher Lundine (403) 270-2887
klundine@ucalgary.ca

Si vous avez des questions concernant vos droits en tant que participant dans cette recherche, veuillez communiquer avec Pat Evans, Directeur délégué, Bourses internes, Services de recherche, l'université de Calgary, au numéro de téléphone (403) 220-3782