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# Attitudes toward Healthcare Teamwork between Osteopathic Medical Students in an Interprofessional or Intraprofessional Clinical Education Program

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## Abstract

**INTRODUCTION** Interprofessional education has attempted to positively impact and prepare students for future practice of collaboration among healthcare providers. However, few studies have assessed if short-term positive impacts on attitudes toward interprofessional collaboration can be sustained long-term. Comparing the current attitudes toward health care teams between osteopathic physicians who participated as medical students in an interprofessional clinical education program and those who participated in a similar medical student-only clinical education program, but without instruction in interprofessional education competencies, can help determine if sustained change is possible.

**METHODS** Surveys evaluating the attitude toward interprofessional teamwork of 23 osteopathic physician students who participated in an interprofessional clinical education program and 88 osteopathic physicians who participated in a medical student-only education program between 2003 and 2007 were completed and compared.

**RESULTS** An independent samples *t* test was conducted on subscales of physicians' attitude toward team value, team efficiency, physicians' shared role, as well as physicians' rating of their current proficiency level of interprofessional teamwork skills. The results revealed no statistically significant differences among respondents from the interprofessional program and respondents from the intraprofessional program.

**DISCUSSION** Results of this study point to generally favorable attitudes toward interprofessional collaboration for both groups. It seems that regardless of pre-professional training, over time, a favorable attitude toward interprofessional collaboration is acquired.

**CONCLUSION** Future directions for research should continue to be focused on the long-term effect of interprofessional education on interprofessional practice as well as attitudes toward interprofessional teamwork and knowledge of interprofessionalism.

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## Implications for Interprofessional Practice

- Even if best practices are followed in interprofessional medical education programs, any positive attitudes towards interprofessional practice may not be sustained long-term.
- Healthcare organizations should consider implementing sustained professional development opportunities that promote interprofessional collaboration, which may result in positive attitudes toward interprofessional collaboration over the long-term.
- There is a need for healthcare organizations to monitor their policies and procedures that may serve as barriers and supports to interprofessional collaboration to ensure that favorable attitudes continue to be sustained.

## Introduction

The complex health problems of today, the high cost of healthcare, an information and technology explosion, and a trend toward preventive medicine call for more emphasis on interprofessional medical education and practice (Faresjo, 2006). Also, with multiple healthcare practitioners practicing in numerous settings, the risk of medical errors and unsafe processes is heightened. A fragmented, decentralized healthcare system along with limited attention in medical education to improving interprofessional practice may lead to costly medical errors (Institute of Medicine, 1999). In order to better prepare medical students and practitioners to provide safe, quality care in a patient-centered environment, proficiency in working as a part of interprofessional healthcare teams is now critical (Institute of Medicine, 2009).

The goal of interprofessional education is to improve collaboration and cooperation between healthcare professionals. Health professions students participate in experiential activities to learn the knowledge and skills necessary for collaborative practice in interprofessional teams. Interacting with students from other health professions, they learn to value diverse perspectives, to respect the expertise of other professions, to collaborate for problem-solving, and to communicate as a team to ensure patient safety and patient-centered outcomes (Olenick, Allen, & Smego, 2010; Salfi & Solomon, 2011). Because collaboration between the professions is crucial to improving quality, safety, and access to care,

common interprofessional learning experiences can help prepare future professionals for the team approach to providing care. Interprofessional education programs should specifically provide common experiences in the interprofessional competencies of ethics and responsibility for collaborative practice as well as interprofessional communication and teamwork skills (Inter-professional Education Collaborative Expert Panel, 2011). Although interprofessional education programs vary in terms of content and process, more studies are needed to assess future effects on patient care, as the programs seem to improve students' teamwork knowledge and skills (Reeves, Goldman, Burton, & Sawatzky-Girling, 2010; Reeves, et al., 2010).

## Brief Literature Review

As medical students involved in interprofessional educational experiences during training transition to medical practice, supportive environments for interprofessional practice may be lacking in those medical settings (Pollard, 2009). As an essential element of professional practice, interprofessional practice-based interventions and collaborative practice have the potential to lead to improved medical processes (Zwarenstein, Goldman, & Reeves, 2009) and patient safety (Manser, 2008) as role understanding and team communication may be linked to more positive patient outcomes (Suter et al., 2009). Barriers to collaboration, however, have been reported in primary and community care (Audet, Davis, & Schoenbaum, 2006; Xyrichis &

Lowton, 2008) as well as acute care settings (Hughes & Fitzpatrick, 2007), for example.

Although effectively learning to work in interprofessional teams has the potential to lead to more collaborative practice as medical professionals and possibly affect quality of patient care (Olenick, Allen, & Smego, 2010), there is currently little evidence these short-term changes can become sustained long-term changes (Remington, Foulk, & Williams, 2006). Documentation of long-term impact of interprofessional education on medical practice is limited, although in some cases, attitudinal changes were sustained three months (Bajnok, Puddester, MacDonald, Archibald, & Kuhl, 2012) to one to two years beyond intervention (Pollard & Miers, 2008). Without continuing education, managerial follow-up, and reinforcement, though, this type of change is less likely to be sustained (Henderson, 2012). More longitudinal studies, therefore, have been advocated in regard to interprofessional education (Hansson, Foldevi, & Mattsson, 2010; Remington, Foulk, & Williams, 2006). Barriers to evaluating the effect of interprofessional education on future interprofessional practice also exist and include type of care setting, healthcare and facility policy, and patient perceptions (Henderson, 2012).

The purpose of this study is to compare the current attitudes toward interprofessional teamwork of osteopathic physicians who participated in a home-visit interprofessional clinical educational program during their medical education and those who participated in an intraprofessional, medical student-only home-visit clinical education program during their medical education.

## Methods

### Sample

After IRB approval in June 2014, medical professionals who attended a College of Osteopathic Medicine between 2003 and 2007 were invited to participate in the study. Of the 507 medical professionals from one osteopathic medical school who were invited to participate, 67 participated as medical students in an interprofessional clinical education home-visit program during their medical education, and 440 participated as medical students in an intraprofessional/medical student-only clinical education home-

visit program during their medical education. Both programs followed a similar format, however. Students were either placed in inter- or intra-professional teams for the duration of the programs. All who were asked to participate in the survey had completed either the interprofessional or the intraprofessional medical student-only program seven to 11 years prior and were from 4 different graduating classes.

One hundred twenty-three respondents (24.0%) completed the survey. Due to missing data and respondent inability to recall which clinical education program they participated in, data was analyzed for 111 respondents (23 interprofessional clinical education participants and 88 intraprofessional/medical student-only participants). Sixty respondents were male (54.1%), 48 were female (43.2%), and the majority (92/111, 82.8%) were White/Caucasian. Respondent current practice setting varied as 25 reported working in General Practice (22.5%), and the two largest specialization areas were reported as Anesthesiology (10/111, 9.0%) and Family Medicine (10/111, 9.0%). Further demographic data can be seen in Table 1 (following page).

### Instrument

Based on two standard surveys, the *Attitudes Toward Health Care Teams and Teamwork Skills Survey* (Appendix A) included a modified version of the Attitudes Toward Health Care Teams Scale section, a modified version of the Team Skills Scale section, and a Demographics section. Cronbach's alpha for the total instrument was calculated as 0.693. The three sections follow.

**1. Modified version of Attitudes Toward Health Care Teams Scale Section:** A modified/shortened version of the Attitudes Toward Health Care Teams Scale (ATHCTS) was used to describe respondents' attitudes towards interprofessional healthcare teams on team processes, teamwork, and outcomes of team-based interprofessional educational programs. The ATHCTS has been validated and has also been used in ongoing team-related attitudes research (Leipzig et al., 2002; Fulmer et al., 2005; Hyer, Fairchild, Abraham, Mezey & Fulmer, 2000). The modified version of ATHCTS was composed of 3 subscales including five questions regarding attitudes toward team value, two

**Table 1.** *Description of Demographic Data*

<b>Demographic</b>	<b>Frequency (n)</b>	<b>Percent (%)</b>
<i>House Call Program</i>		
Interprofessional	23	20.5
Medical Student Only	88	78.6
Total	111	100.0
<i>Sex</i>		
Male	60	54.05
Female	48	43.24
Missing	3	2.70
<i>Race</i>		
White/Caucasian	92	82.88
Black/African-American	1	.90
Hispanic or Latino	2	1.80
Asian or Pacific Islander	13	11.71
Other	2	1.80
Missing	1	.90
<i>Current Occupation</i>		
General Practice Doctor	25	22.52
Anesthesiology	10	9.01
Dermatology	6	5.41
Emergency Medicine	6	5.41
Family Medicine	10	9.01
General Surgery	4	3.60
Internal Medicine	3	2.70
OBGYN	6	5.41
Pathology	3	2.70
Pediatrics	8	7.21
Psychiatry	4	3.60
Radiology	6	5.41
Specialized Surgery	4	3.60
Other specialization	16	14.41
Missing	0	.00

questions about attitudes toward team efficiency, and three questions regarding attitudes toward physician's shared role. Construct validity was demonstrated and re-affirmed. Respondents scored each item on a 6-point Likert-type scale ranging from "Strongly Agree" to "Strongly Disagree."

## **2. Modified version of Team Skills Scale Section:**

A modified/shortened version of the Team Skills Scale (TSS) was also administered to respondents to

gain self-assessment information on their current interprofessional teamwork skills proficiency level. This instrument is commonly paired with the ATHCTS (Heinemann & Zeiss, 2002). Two items on a 5-point Likert scale (from "Poor" to "Excellent") asked respondents to rate their current skill level representing their ability to function in an interprofessional team and ability to develop an interprofessional care plan. Three additional items asked respondents about the extent of their current practice in a healthcare team environment.

**3. Demographics Section:** Demographic questions were also used to identify gender, current occupation/practice setting, race, and if the respondent participated in an interprofessional or an intraprofessional/medical student-only clinical medical education program.

### *Procedure*

During spring-summer 2014, after IRB approval, the researcher met with program administrators at a College of Osteopathic Medicine to secure the email and phone contact information of those medical school graduates who participated as medical students in an interprofessional clinical education program and those who participated as medical students in an intraprofessional/medical student-only clinical education program.

Both clinical education programs were similar in format and included four home-visits over one year (2 visits/spring semester, summer off, 2 visits/fall semester) to community-dwelling, well elderly patients. After a two-hour long orientation to the program and clinical assessment instruments, student teams (of four members) in both programs conducted the same comprehensive geriatric physical and socio-emotional assessments of their patients, debriefed and analyzed assessment results in small groups with a clinical facilitator, and provided health education resources to patients on the next visits according to assessment results.

Interprofessional teams, however, received additional assigned readings as well as didactic instruction during program orientation (one hour) and each group debriefing (half hour) focusing on: knowledge of professions and their clinical approaches, interprofessional collaborative education and practice competencies, interprofessional team-based patient care, shared leadership and decision-making, and interprofessional team communication strategies. When debriefing, interprofessional teams also evaluated their interprofessional team process behaviors, level of shared leadership, and collaborative team communication. The interprofessional teams included not only osteopathic medical students but also pre-health professions students in speech-language pathology, nursing, and patient education. Fostering interprofessional knowledge, attitudes, and skills based on social constructivism were the hoped-for learning

outcomes from students learning through interactions with other professions during classroom lessons, clinically-based home visit activities, and follow-up processing and self-assessments.

Because of relatively low response rates by physicians to surveys, it is recommended that surveys sent to physicians be brief or shortened and that a monetary incentive be included in order to improve response rates (Kellerman & Herold, 2001). Therefore, all potential respondents were sent, through email, a pre-contact letter stressing the importance of the study, asking potential respondents to watch their email for a brief survey arriving soon, and that the first 50 respondents would receive a gift card incentive for survey completion. Additionally, those with office phone numbers were contacted by telephone stating the reason for the study and to watch for the survey. Two days after the pre-contact emails and phone calls, the consent form and survey were emailed to the potential respondents through the use of Survey Monkey. A week later, a follow-up reminder email was sent to non-respondents along with another copy of the consent form and survey, which again stressed the importance of completing and returning the survey. Again, a week later, a final follow-up email was sent to non-respondents containing the informed consent and survey. In order to maintain confidentiality, the respondents' names were not linked in any way to their data.

### *Data Analysis*

Descriptive statistics were calculated for all demographic variables. For the modified version of the ATHCTS section, reverse coding was applied to four of the questions (questions 2, 3, 6, and 8). To test for differences among respondents who participated in the interprofessional program and those who participated in the intraprofessional/medical student-only program, an independent-samples *t* test was conducted to determine differences in the mean scores of the three subscale items. For the modified version of the TSS section, likewise, an independent samples *t* test was conducted for those five items.

### **Results**

As seen in Table 2 (following page), results of an independent samples *t* test from subscales on the ATHCTS

**Table 2.** Results of independent samples *t*-test

<b>Modified version of Attitudes Toward Health Care Teams Scale Survey Section</b>										
<i>Subscale/Scale</i>	<i>N</i>	<i>Possible Scores</i>	<i>Grand Mean</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p-value</i>	<i>Mean Difference</i>	
<b>Subscale 1: Attitudes toward team value</b>										
Interprofessional	23	1-30	4.98	24.92	3.59	.883	109	.379	.740	
Medical Student-Only	88	1-30	4.84	24.18	3.58					
<b>Subscale 2: Attitudes toward team efficiency</b>										
Interprofessional	23	1-12	5.01	10.11	2.97	-.236	109	.816	-.154	
Medical Student-Only	88	1-12	5.13	10.26	1.99					
<b>Subscale 3: Attitudes toward physician's shared role</b>										
Interprofessional	23	1-18	3.45	10.35	2.17	-.195	109	.846	-.095	
Medical Student-Only	88	1-18	3.48	10.44	2.07					
<b>Team Skills Scale Survey Total</b>										
Interprofessional	23	1-26	N/A	18.63	3.01	-.043	109	.966	-.033	
Medical Student-Only	88	1-26	N/A	18.67	4.20					

section of the survey designed to assess differences in attitude revealed no statistically significant differences among respondents from the interprofessional program and respondents from the intraprofessional/medical student-only program in attitude toward team value and efficiency as well as physician's shared role.

Also, a total score for the TSS section of the survey was calculated. As seen in Table 2, results of an independent samples *t* test from on the total score for the TSS section of the survey designed to assess current interprofessional teamwork skills proficiency level revealed no statistically significant differences among respondents from the interprofessional program and respondents from the intraprofessional/medical student-only program.

Descriptive statistics were calculated for the ATHCTS section of the survey, and the highest grand mean score for both respondent groups was in subscale 2, attitudes toward team efficiency. The lowest grand mean score

for both respondent groups was in subscale 3, attitudes toward physician's shared role.

## Discussion

As documentation is presently limited (Remington, Foulk, & Williams, 2006), evidence to support any long-term positive impact of interprofessional clinical medical education on future medical practice has been advocated for in the profession (Hansson, Foldevi, & Mattsson, 2010; Remington, Foulk, & Williams, 2006). Osteopathic physicians who participated as medical students during 2003-2007 in an interprofessional or an intraprofessional/medical student-only clinical education program during their medical education responded to a survey about their current attitudes toward healthcare teams and their current level of healthcare teamwork skills. Both the interprofessional and intraprofessional clinical education programs included student teams conducting physical assessments of elderly patients in a home-visit setting.

A debriefing and analysis of the assessment results in small-group format with a clinical facilitator followed. Interprofessional teams, however, were additionally trained and debriefed in interprofessional communication and team-based function and care. Results, however, indicated no statistically-significant differences among respondents from the interprofessional program and respondents from the intraprofessional program in current attitude toward team value, team efficiency, and physician's shared role, as well as rating of their current proficiency level of interprofessional teamwork skills.

It seems that even some short-term positive attitude change toward interprofessional teamwork as a result of an interprofessional education intervention may not be sustained over longer periods of time (Remington, Foulk, & Williams, 2006). Although some studies demonstrated sustained attitude change over a few months to almost two years as a result of an intervention (Bajnok, Puddester, MacDonald, Archibald, & Kuhl, 2012; Pollard & Miers, 2008), this study provided preliminary evidence that no change in attitude toward interprofessional healthcare teams and perception of teamwork skill proficiency resulted from an interprofessional clinical education intervention program for osteopathic physicians seven to 11 years post-medical school. Interprofessional clinical education programs seem to improve teamwork knowledge and skills for medical students (Reeves, Goldman, Burton, & Sawatzky-Girling, 2010; Reeves, et al., 2010) but may not have long-lasting effects for them as seasoned medical professionals.

A possible reason may be that the respondents were working in medical settings that are not conducive to or have very limited environmental supports for interprofessional teamwork and practice (Pollard, 2009) such as primary and community care (Audet, Davis, & Schoenbaum, 2006; Xyrichis & Lowton, 2008) or acute care settings (Hughes & Fitzpatrick, 2007). Another explanation consistent with the literature is that the respondents may have received little, if any, interprofessional skills training during their residency program or any interprofessional teamwork and team-based practice continuing education on their own or at their facility to reinforce what they learned as medical students. The physician's residency programs and/or current facilities could have promoted or demoted

the use of interprofessional collaboration. Although specific questions about residency programs were not asked in the survey, they could also have played a role in attitude toward interprofessional practice. Continued reinforcement of interprofessional competencies is needed to sustain this type of attitude or practice change (Henderson, 2012).

Additionally, it has been proposed that healthcare providers' fears about loss of autonomy may negatively impact their attitudes about interprofessional collaboration (Henderson, 2012). Thus, as physicians acquire more years of experience, and the reality of a high pressure work environment mounts, any gains in attitudes towards interprofessional collaboration made in their pre-professional experiences may erode.

Conversely, it may be that support for interprofessional collaboration may be rather substantial, at least for the participants in this study. It is possible that the group who did not participate in an interprofessional education program has received a significant amount of professional development or other support for interprofessional collaboration since graduation and that both groups now experience similar attitudes. Given that the overall results of this study point to generally favorable attitudes toward interprofessional collaboration for both groups of doctors, it seems that regardless of pre-professional training, over time, a favorable attitude toward interprofessional collaboration is acquired.

While possible explanations for this study's results have been discussed, it is important to note the limitations of the study and their potential impacts on the results. The most significant limitation of this study was that baseline data for both groups of doctors was not available to be analyzed. As such, it cannot be determined if the present day data of either group reflects any differences in attitudes from the time prior to participation in an interprofessional or an intraprofessional/medical student-only clinical education program. The only definitive result is that seven to eleven years after participation in one of the two groups, participants from both groups have statistically similar attitudes. Although measurement of physician attitude in this study is limited to osteopathic physicians and to the subjective nature of their self-report data, osteopathic physicians may be more likely than conventional

medical doctors to integrate progressive concepts like an interprofessionalism into their practices. Additionally, it would be interesting to assess whether other professions as team members agreed with the physicians' self-reported attitudes and if these attitudes did translate to improved patient outcomes.

An additional limitation is the small sample size (n=111), which limits the power of the statistical analysis. Specifically, the number of doctors within the group of physicians who participated in the interprofessional education program (n=23) was very small. While the group of physicians who participated in the intraprofessional program was larger (n=88), it is still a relatively small group. Future studies should be designed to address these limitations.

## Conclusion

Results indicate that over time there is no difference in osteopathic physicians' attitudes toward interprofessional healthcare teams and teamwork skill proficiency in those who did or did not participate in an interprofessional medical education program. It is unclear if the similarities are a result of decreased attitudes over time of those in an interprofessional education program or if favorable attitudes are acquired over time by osteopathic physicians regardless of pre-professional training. Continuing education and healthcare facility promotion of interprofessional collaborative practice is recommended to sustain even any short-term attitude change. Future directions for research should continue to be focused on the long-term effect of interprofessional education on interprofessional practice as well as attitudes toward interprofessional teamwork and knowledge of interprofessionalism. One avenue for future research is to continue to examine the effect of type of practice setting or medical specialization on level of involvement with interprofessional teamwork as some settings may not be supportive of this type of practice (Pollard, 2009). Additionally, it would be advantageous to compare baseline data for pre-professionals involved in interprofessional education programs and those who are not and track both sets of data over time.

## References

- Audet, A. M., Davis, K., & Schoenbaum, S. C. (2006). Adoption of patient-centered care practices by physicians. *Archives of Internal Medicine*, 166(7), 754-759. <http://dx.doi.org/10.1001/archinte.166.7.754>
- Bajnok, I., Puddester, D., Macdonald, C. J., Archibald, D., & Kuhl, D. (2012). Building positive relationships in healthcare: Evaluation of the teams of interprofessional staff interprofessional education program. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 42(1), 76-89. <http://dx.doi.org/10.5172/conu.2012.42.1.76>
- Faresjo, T. (2006). Interprofessional education: To break boundaries and build bridges. *The International Electronic Journal of Rural and Remote Health Research, Education, Practice and Policy*, 6(3), 602. Retrieved from <http://www.rrh.org.au/articles/subviewnew.asp?ArticleID=602>
- Hansson, A., Foldevi, M., & Mattsson, B. (2010). Medical students' attitudes toward collaboration between doctors and nurses—a comparison between two Swedish universities. *Journal of Interprofessional Care*, 24(3), 242-250. <http://dx.doi.org/10.3109/13561820903163439>
- Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (1999). Development of an attitudes toward health care teams scale. *Evaluation & the Health Professions*, 22(1), 123-142. <http://dx.doi.org/10.1177/01632789922034202>
- Heinemann G., & Zeiss A. (2002). *Team performance in health care: assessment and development*. New York: Kluwer Academic/Plenum Publishers. <http://dx.doi.org/10.1007/978-1-4615-0581-5>
- Henderson, Y. (2012). Facilitating change in clinical practice. *Practice Nurse*, 42(17), 36-40.
- Hyer, K., Fairchild, S., Abraham, I., Mezey, M., & Fulmer, T. (2000). Measuring attitudes related to interdisciplinary training: revisiting the Heinemann, Schmitt Farrell 'attitudes toward health care teams' scale. *Journal of Interprofessional Care*, 14(3), 249-258. <http://dx.doi.org/10.1080/713678570>
- Hughes, B., & Fitzpatrick, J. (2010). Nurse-physician collaboration in an acute care community hospital. *Journal of Interprofessional Care*, 24(6), 625-632. <http://dx.doi.org/10.3109/13561820903550804>
- Institute of Medicine (1999). *To err is human: Building a safer health system*. Report brief. Retrieved April 8, 2011 from <http://iom.edu/~media/Files/Report%20Files/1999/To-Err-is-Human/To%20Err%20is%20Human%201999%20%20report%20brief.pdf>
- Institute of Medicine (2009). *Redesigning continuing education in the health professions*. Report brief. Retrieved April 8, 2011 from <http://iom.edu/~media/Files/Report%20Files/2009/Redesigning-Continuing-Education-in-the-Health-Professions/RedesigningCereportbrief.pdf>

- Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, DC: Interprofessional Education Collaborative.
- Kellerman, S., & Herold, J. (2001). Physician response to surveys: A review of literature. *American Journal of Preventive Medicine*, 20(1), 61-67. [http://dx.doi.org/10.1016/S0749-3797\(00\)00258-0](http://dx.doi.org/10.1016/S0749-3797(00)00258-0)
- Leipzig, R. M., Hyer, K., Ek, K., Wallenstein, S., Vezina, M. L., Fairchild, S., ... Howe, J. L. (2002). Attitudes toward working on interdisciplinary healthcare teams: A comparison by discipline. *Journal of the American Geriatrics Society*, 50(6), 1141-1148. <http://dx.doi.org/10.1046/j.1532-5415.2002.50274.x>
- Manser, T. (2008). Teamwork and patient safety in dynamic domains of healthcare: a review of the literature. *Acta Anaesthesiologica Scandinavica*, 53(2), 143-151. <http://dx.doi.org/10.1111/j.1399-6576.2008.01717.x>
- Olenick, M., Allen, L. R., & Smego Jr., R. A. (2010). Interprofessional education: A concept analysis. *Advances in Medical Education and Practice*, 1, 75-84.
- Pollard, K. (2009). Students engagement in interprofessional working in practice placement settings. *Journal of Clinical Health*, 18(20), 2846-2856. <http://dx.doi.org/10.1111/j.1365-2702.2008.02608.x>
- Pollard, K.C. & Miers, M. (2008). From students to professionals: results of a longitudinal study of attitudes to pre-qualify collaborative learning and working in health and social care in the United Kingdom. *Journal of Interprofessional Care*, 22(4), 399-416. <http://dx.doi.org/10.1080/13561820802190483>
- Reeves, S., Goldman, J., Burton, A., & Sawatzky-Girling, B. (2010). Synthesis of systematic review evidence of interprofessional education. *Journal of Allied Health*, 39(1), 198-203.
- Reeves, S., Zwarenstein, M., Goldman, J., Barr, H., Freeth, D., Koppel I., & Hammick, M. (2010). The effectiveness of interprofessional education: Key findings from a new systematic review. *Journal of Interprofessional Care*, 24(3), 230-241. <http://dx.doi.org/10.3109/13561820903163405>
- Remington, T. L., Foulk, M. A., & Williams, B. C. (2006). Evaluation of evidence for inter-professional education. *American Journal of Pharmaceutical Education*, 70(3) 66. <http://dx.doi.org/10.5688/aj700366>
- Salfi, J., & Solomon, P. (2011). *Innovative teaching strategies in nursing and related health professions: Interprofessional education*. Sudbury, MA: Jones and Bartlett Publishers.
- Suter, E., Arndt, J. Arthur, N., Parboosingh, Taylor, E., & Deutschlander, S. (2009). Role understanding and effective communication as core competencies for collaborative practice. *Journal of Interprofessional Care*, 23(1), 41-51. <http://dx.doi.org/10.1080/13561820802338579>
- Xyrichis, A., & Lowton, K. (2008). What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *International Journal of Nursing Studies*, 45(1), 140-153. <http://dx.doi.org/10.1016/j.ijnurstu.2007.01.015>
- Zwarenstein M, Goldman J, Reeves S. (2009). Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, Issue 3. Art. No.: CD000072. <http://dx.doi.org/10.1002/14651858.CD000072.pub2>

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## Appendix A

### Attitudes Toward Health Care Teams and Teamwork Skills Survey

During your time at medical school, you participated in the House Calls program. What was the composition of the team you worked with? Select only one

\_\_\_\_\_ Interdisciplinary House Calls Program where you visited a geriatric patient four times over a calendar year as part of an interdisciplinary team with nursing, speech, or health science students

\_\_\_\_\_ House Calls program Class where you conducted geriatric home assessments as part of a team composed of medical students only

\_\_\_\_\_ I do not remember what type of House Calls program I was in

We would like to know about your attitude toward interdisciplinary health care teams and the team approach to care. By interdisciplinary health care team we mean three or more health professionals (e.g nurse, physician, social worker) who work together and meet regularly to plan and coordinate treatment for a specific patient population.

Please answer the following to the best of your ability:

1. The team approach improves the quality of care to patients

Strongly Disagree

Moderately Disagree

Somewhat Disagree

Somewhat Agree

Moderately Agree

Strongly Agree

No opinion

2. A team's primary purpose is to assist physicians in achieving treatment goals for patients

Strongly Disagree

Moderately Disagree

Somewhat Disagree

Somewhat Agree

Moderately Agree

Strongly Agree

No opinion

3. Patients are less satisfied with their care when it is provided by a team

Strongly Disagree

Moderately Disagree

Somewhat Disagree

Somewhat Agree

Moderately Agree

Strongly Agree

No opinion

4. Developing a patient care plan with other team members avoids errors in delivering care

- Strongly Disagree
- Moderately Disagree
- Somewhat Disagree
- Somewhat Agree
- Moderately Agree
- Strongly Agree
- No opinion

5. Health professionals working on teams are more responsive than others to the emotional and financial needs of patients

- Strongly Disagree
- Moderately Disagree
- Somewhat Disagree
- Somewhat Agree
- Moderately Agree
- Strongly Agree
- No opinion

6. In most instances, the time required for team meetings could be better spent in other ways

- Strongly Disagree
- Moderately Disagree
- Somewhat Disagree
- Somewhat Agree
- Moderately Agree
- Strongly Agree
- No opinion

7. The physician has the ultimate legal responsibility for decisions made by the team

- Strongly Disagree
- Moderately Disagree
- Somewhat Disagree
- Somewhat Agree
- Moderately Agree
- Strongly Agree
- No opinion

8. Physicians are natural team leaders

- Strongly Disagree
- Moderately Disagree
- Somewhat Disagree
- Somewhat Agree
- Moderately Agree
- Strongly Agree
- No opinion

9. The team approach makes the delivery of care more efficient

- Strongly Disagree
- Moderately Disagree
- Somewhat Disagree
- Somewhat Agree
- Moderately Agree
- Strongly Agree
- No opinion

10. The team approach permits health professionals to meet the needs of family caregivers as well as patients

- Strongly Disagree
- Moderately Disagree
- Somewhat Disagree
- Somewhat Agree
- Moderately Agree
- Strongly Agree
- No opinion

11. Please rate your ability to function effectively in an interdisciplinary team

- Poor
- Fair
- Good
- Very Good
- Excellent
- N/A

12. Please rate your ability to develop an interdisciplinary care plan

- Poor
- Fair
- Good
- Very Good
- Excellent
- N/A

13. How often do you work with interdisciplinary teams in your profession?

- Never
- Rarely
- Sometimes
- Often
- Very Often

14. To what extent do you believe that your ability to work in an interdisciplinary team contributes to your personal success?

- Not important
- Of Little Importance
- Moderately Important
- Important
- Very Important

15. In the last five years, how many times have you participated in an interdisciplinary training of some kind?

- Never
- 1-2 times
- 3-4 times
- 5-6 times
- 7-8 times
- 9 + times

Sex:  Male  Female

Current Occupation:

General practice doctor

Specialization (please specify \_\_\_\_\_)

Not currently practicing

Race:

White/Caucasian

Black/African American

American Indian or Alaskan Native

Hispanic or Latino

Asian or Pacific Islander

Other (please specify)