January 2018

Behavioral Style Indicators of Communication and Professionalism in a Family Medicine Residency

Jillian Marie Atherton
Eastern Kentucky University

BEHAVIORAL STYLE INDICATORS OF COMMUNICATION AND PROFESSIONALISM IN A FAMILY MEDICINE RESIDENCY

BY

JILLIAN MARIE ATHERTON

DISSERTATION APPROVED:

STATEMENT OF PERMISSION TO USE

In presenting this dissertation in partial fulfillment of the requirements for a Doctorate of Education degree at Eastern Kentucky University, I agree that the Library shall make it available to borrowers under rules of the Library. Brief quotations from this document are allowable without special permission, provided that accurate acknowledgements of the source are made. Permission for extensive quotation from or reproduction of this document may be granted by my major professor. In [his/her] absence, by the Head of Interlibrary Services when, in the opinion of either, the proposed use of the material is for scholarly purposes. Any copying or use of the material in this document for financial gain shall not be allowed without my written permission.

Signature:

X 

Date: 11/19/2018

BEHAVIORAL STYLE INDICATORS OF COMMUNICATION AND PROFESSIONALISM IN A FAMILY MEDICINE RESIDENCY

BY

JILLIAN MARIE ATHERTON

Submitted to the Faculty of the Graduate School of
Eastern Kentucky University
in partial fulfillment of the requirements for the degree of

DOCTORATE OF EDUCATION

2018

DEDICATION

I dedicate this scholarly work to my daughters:

Petra Phoenix, Reese Grey, and Scarlet Valkyrie

ACKNOWLEDGEMENTS

I have sincere gratitude for the support and guidance bestowed by Dr. Charles Hausman, Dissertation Chair, and all committee members.

ABSTRACT

This study examined DiSC behavioral style profiles and their indications of Communication and Professionalism for family medicine residents. DiSC profile reports, and ACGME Milestone Project Communication and Professionalism competency scores were used as predictive variables for the purpose of this study. Data were collected from the University of Kentucky Department of Family & Community Medicine residency program. The analysis of the results revealed that the "I" DiSC profile type scored the lowest Professionalism and Communication milestone scores among all four profile types. Further, "C" DiSC profile types scored the highest among all four profile types in Communication milestone scores; and "S" DiSC profile types scored the highest among all four profile types in Professionalism milestone scores. Recommendations for curricula policy and implications for future research are provided.

TABLE OF CONTENTS

LIST OF FIGURES

FIGURE PAGE

CHAPTER I

INTRODUCTION

In a systems-based world, effective Communication and Professionalism skills are proving to be essential tenets to the success of team efforts. It is within the nuance and subtlety of how individuals interact with each other, and how everyone engages in our everyday work that yields a team's ability to execute goals, thus rendering innovative outcomes. Customers return for business when they value a product or service, AND the overall experience in which they receive their product or service. Competitive markets can produce identical products and services; however, the intangibles of a customer's experience lays within those subtle gestures of delivery. While enhancing a customer's experience via effective Communication and Professionalism could be considered a success for an employee or two; enhancing those dynamics within teams behind-the-scenes of a customer service experience could be considered the hallmark of what makes every member of an average team great.

Evaluating, identifying trends within, and developing these specific skills in resident physicians, while in a family medicine residency program, attempts to meet the challenge of building great teams. The University of Kentucky Family Medicine Residency program endeavors to objectively measure these skills in their resident physicians, using an assessment tool that uses criterion-reference theory and the educational milestone-based model of assessment as the conceptual framework. Specifically, the Accreditation Council for Graduate Medical Education (ACGME) milestone project is referenced as the current and exclusive milestone-based assessment method used in graduate medical education programs. In 2013, all ACGME accredited

residency programs have been required to implement their milestone-based assessment as a means to evaluate developmental core competency skills, bi-annually, for current residents. Two of the six competencies assessed include Professionalism and Communication. Prior to the inception of using Milestone-based evaluation, residency programs typically analyzed resident rotation evaluations. General feedback since incepting the Milestone Project includes that milestone-based development assessment model yields greater discriminatory ability than any previous attempt at resident physician evaluation. This is evidenced by a larger separation in resident scores across all specialties. The impact of using this milestone-based model of evaluation to assess resident physician competencies, especially in the areas of Professionalism and Communication, has significant and positive learning outcomes for the resident.

Further, each resident in the program has completed a behavior style assessment referred to as the DiSC assessment. This tool provides a detailed profile report to each resident, outlining their highest behavior style trend score in the categories of "D" (Dominance), "I" (Influence), "S" (Steadiness), or "C" (Conscientiousness). Because of the pertinence of feedback in this report relating to behaviors relative to professionalism and communication styles, resident DiSC profiles are analyzed to those of Milestone scores, to determine which behavior style(s) is/are indicative of presenting higher professionalism and communication scores in the residency program.

Purpose of the Study

The purpose of conducting this research is to determine if resident physician DiSC behavior style profiles relate to scoring trends in areas of ACGME Milestone Project Communication and Professionalism competencies. This study will describe and

explain the value of using the criterion-focused, developmental ACGME milestone-based model of assessment as the conceptual framework approach for evaluating resident physicians throughout residency, specifically Communication and Professionalism milestone competencies. Furthermore, this study identifies tenets of DiSC behavior style profiles in their application to identifying strengths and deficiencies, as residency programs seek to further develop these two competencies.

Each learner is unique in their personality and behavior style(s). These styles are demonstrated in the healthcare team setting and assessed across six specific ACGME competencies: Patient Care, Medical Knowledge, Systems Based Practice, Practice Based Learning Improvement, Communication, and Professionalism. Identifying and understanding each resident's DiSC behavior style profile provides program faculty and team members the ability to address strategies to improve learner skills and development in the areas of Communication and Professionalism.

Background of the Problem

Issues with Communication and Professionalism competencies (in general) and their sub-competencies (specifically), among graduate medical education learners, continues to be an ongoing problem facing graduate medical education programs. At national conferences targeted for Graduate Medical Education audiences, common dialogues include trends that competency evaluations purport low scores in both of these competency categories at the beginning of- and declining scores throughout residency. Furthermore, faculty express difficulty in identifying effective strategies to address deficiencies in these areas of competency.

Several methods have been utilized across residency programs to address the need for improved demonstration of Communication and Professionalism competencies. This research study proposes a strategy that includes administering the DiSC behavioral style assessment to resident physician learners, in order to provide programs individualized profiles to better understand unique behavior style traits, as they relate to Communication and Professionalism competencies.

The impacts of low- and decreasing resident scoring in these competencies are devastating to quality improvement efforts across healthcare settings. Providing program faculty with strategies to address these issues within their programs permits quality care to ensue throughout all stages of the resident learner's development, and has to potential to launch safer healthcare delivery across the spectrum.

Further, resident physician well-being are considered deficient when ACGME Milestone Communication and Professionalism scores measure low. For example, Professionalism Milestone #4 assesses the resident physician's maintenance of emotional, physical, and mental health. Low scores in relation to this specific Milestone would indicate deficiencies in applying basic principles of physician wellness in life to adequately manage work/life balance.

Family Medicine Milestones

Family medicine contributes to the care of patients at all levels, throughout all stages of life, and is more than a primary care specialty. It is a discipline characterized by its breadth and integrative functions.

Family Medicine physicians are primary care providers who fundamentally focus on each patient's unique preventative and presenting medical needs, inclusive of mental

and physical health, and consideration of social context. These specialists possess skill-sets that lend to taking primary responsibility for, and management of, any biopsychosocial patient issue. They serve as a reliable point of first contact within the health care system for patients, regardless of the type or nature of problems(s), providing a comprehensive set of services that manage and/or resolve a complex host of medical issues. These doctors work within multidisciplinary health care teams, providing a continuity of patient care to panels across extended time-spans and settings. Family physicians interface with all medical specialties and public health systems. As necessary, they rely on community resources to assist individuals, families, and communities in meeting health-related goals. A dedicated focus of the context of each patient, as it relates to the family and community, is vital to the delivery of quality healthcare service. It is essential for family physicians to have in-depth knowledge of a patient as an individual and broad knowledge of medicine to act in the best interest of that patient. The effectiveness of family physicians is reliant on the dependability of their abilities to earn the trust of their patients and sustain relationships throughout the duration of care. Because of the broad scope and breadth of family medicine services within the health care system, family physicians are empowered in their position to critique, positively influence, and lead health care delivery systems in comparison to other medical specialties.

Family medicine residency programs aim to graduate physicians with necessary competencies to serve every community in the world. The Family Medicine Milestones is a document that provides competency-based guidelines for graduate medical education programs to use in their evaluation of family medicine resident physicians as they

progress throughout residency. Milestones are developmentally-based, family medicine-specific competencies that family medicine residents are expected to demonstrate throughout their duration of time in the residency program. Further, faculty are accountable for regularly evaluating resident competencies based on the milestones.

Categorized under each of the six ACGME core competencies (*Patient Care, Medical Knowledge, Practice Based Learning Improvement, Systems Based Practice, Communication, and Professionalism*), each milestone includes an introductory statement that describes the importance and emphasis of the competency within the scope of family medicine practice. For example, Figure 1 illustrates an example of a sample milestone sub-competency within the *Medical Knowledge* competency:

ACGME Report Form

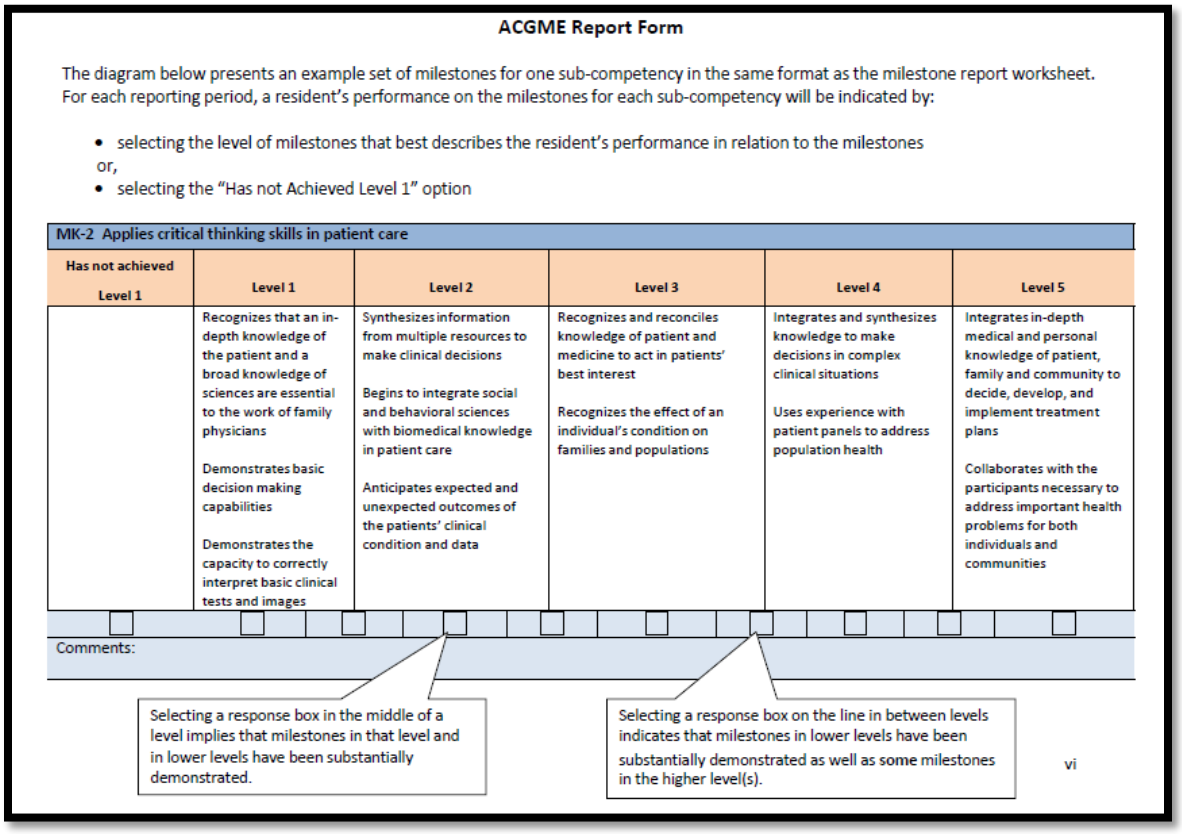

Figure 1. ACGME Report Form. The Accreditation Council for Graduate Medical Education and The American Board of Family Medicine, "The Family Medicine Milestone Project."2013, p. 7.

Family Medicine Professionalism Milestones

The essence of professionalism as a Family Medicine physician, respective to its Milestone, includes the shared belief that health care is best organized and delivered in a patient-centered model emphasizing patient autonomy, shared responsibility, and responsiveness to the needs of diverse populations. Family physicians place the interests of patients first while setting and maintaining high standards of competence and integrity for themselves and their professional colleagues. Professionalization is the developmental process that requires individuals to accept responsibility for learning and maintaining the standards of the discipline, including self-regulating lapses in ethical standards. Family physicians maintain trust by identifying and ethically managing the potential conflicting interests of individual patients, patients' families, society, the medical industry, and their self-interests. To view an actual copy of these four milestones, see Appendices B-E (The Family Medicine Milestone Project – Professionalism Milestones).

Family Medicine Communication Milestone

The essence of communication as a Family Medicine physician, respective to its Milestone, includes the family physician demonstrating interpersonal and communication skills that foster trust, and result in effective exchange of information and collaboration with patients, their families, health professionals, and the public. To view an actual copy of these milestones, see Appendices F-I (The Family Medicine Milestone Project – Communication Milestones).

DiSC Behavior Style Assessment

See Appendix I (TTI Success Insights Performance Management DiSC Assessment)

Research Questions

1. Which DiSC behavioral style profile yields highest/lowest score in Communication milestone competency?
2. Which DiSC behavioral style profile yields highest/lowest score in Professionalism milestone competency?
3. Is there a statistically significant difference in the mean ACGME Milestone Project Communication and Professionalism milestone scores among the four DiSC profile styles in a family medicine residency program?

Definition of Terms

ACGME: This acronym is short for The Accreditation Council for Graduate Medical Education. The ACGME is the accrediting body for most physician graduate medical education training programs in the United States. This is inclusive of all medical specialties. They author each medical specialty's common program requirements, which represents minimum graduate medical education program specifications for ongoing accreditation. Each program submits annual programmatic data to the ACGME, and participates in accreditation site visits to maintain accreditation. The residency program included in this study (University of Kentucky Family & Community Medicine Residency) has maintained ACGME accreditation since the launch of their program, and often serves as a premier example of an exemplary program by way of consultation at annual conferences and workshops.

ABFM: This acronym is short for the American Board of Family Medicine. Founded in 1969, the ABFM is a private, not-for-private organization dedicated to maintaining Family Medicine and its subspecialty's standards within the scope and

practice of Family Medicine. Each practicing family medicine physician is required to successfully pass their initial certification and recertification board examination, developed and proctored by the ABFM. Further, the ABFM provides jurisdiction to oversee family physician reports of unethical and/or illegal malpractice. The ABFM is conveniently located in Lexington, Kentucky, with many of their family medicine physicians serving as part-time faculty within the University of Kentucky's Department of Family & Community Medicine.

Resident Physician: A resident physician is a graduate medical education learner continuing in a residency medical education program with a pursuit to attain board certification in their selected medical specialty. Resident physicians continue to serve in this role throughout the duration of their residency program's specialty. Note: each medical specialty requires its own unique length of training. Participants in this program are family medicine residents in a 3-year residency program at the University of Kentucky.

Family Medicine Specialty: This medical specialty is dedicated to the broad scope of community and patient care inclusive of primary care services. Physicians practicing within this specialty are trained to meet the primary care needs of all patients across the world. Services within this specialty are provided within the inpatient and outpatient clinical settings. The ABFM provides oversight to all standards and expectations for those practicing medicine within this specialty. All subjects in this student are training within the family medicine specialty.

DiSC Assessment: The DiSC Assessment is a behavior style based assessment, including questions designated to categorize subjects as one of four of the following:

"D" (Dominance), "I" (Influence), "S" (Steadiness), or "C" (Conscientiousness). In this study, the DiSC assessment is provided to a total of 50 family medicine residents at the beginning of their residency experience. Afterwards, a detailed profile report is provided to each resident, outlining their highest behavior style trend score. These scores are used in this study to identify predominant resident physician behavior style types and trends.

ACGME & ABFM Milestone Project: The ACGME & ABFM Milestone Project is a joint collaboration between both bodies to provide common program and specialty specific milestone competency benchmarks for family medicine resident physicians. The project launched in 2013, with a total of 22 milestones, spanning 6 core competencies. Each ACGME accredited residency program is required to submit bi-annual milestone evaluative scores for each family medicine resident. Communication and Professionalism core competency milestone scores for each of the 50 subjects are targeted data included in this study. There are 4 milestones in each of the Communication and Professionalism competency sections (8 total).

Summary

The business and practice of medicine requires an array of competencies to be demonstrated by the physician. These broad-ranging competencies assist in maintaining a meeting of the 'bottom-line,' ensuring a continuity of return patients for ongoing clinical needs, and shaping the future of the family medicine specialty – among other effects. Specifically, implications of professionalism and communication skills, while in practice, can directly thread into the tapestry of success at any clinical practice, or professional setting. As a result, developing these skills at the developmental stage of residency education (within the specialty of choice) is a prime opportunity for residency programs

to assess and develop these competencies, in collaboration with the resident physician. The limited time-frame of residency (3 years for family medicine residency) can serve as the foundation for developing a framework for a resident's future practice, post-residency. Frequently told to University of Kentucky family medicine residents: The business of medicine is less forgiving post-residency – residency is the time to make, and learn from your mistakes.

CHAPTER 2

LITERATURE REVIEW

Literature specific to this study was not easily identified. There are pockets of information available regarding DiSC personality profiles and its relation to behaviors in the workplace; however, no research has been published regarding the relation of the DiSC assessment and Communication and Professionalism skills in graduate medical education. Still, information that was located is pertinent to add to the understanding of these topics as graduate medical education programs value the ever increasing roles that Communication and Professionalism competency skills provide the medical community, spanning fiscal outcomes, quality improvement practices, patient care, and resident professional development.

This literature review describes specific Communication and Professionalism milestone model competencies relative to graduate medical learners, as well as identifies tenets of DiSC behavior style profiles in application to developing these two competencies. The DiSC assessment tool is designed to classify users into one of four categories: Dominance, Influencer, Steadiness, and Conscientiousness. Each classification yields traits linked to abilities related to areas of Communication and Professionalism.

Team-Based Learning (Communication and Professionalism)

Graduate medical education learners (resident physicians) work in predominantly multidisciplinary teams, where they are frequently provided opportunities to demonstrate skills in the areas of Communication and Professionalism. Strengths and deficiencies within each of the Communication and Professionalism milestones are assessed and

identified by the resident and department faculty. The formal Accreditation Council of Graduate Medical Education (ACGME) evaluative tool, referred to as the Family Medicine Milestone Project, is used by faculty physicians and residents to determine overall competency in areas of Communication and Professionalism, among other areas of competency.

With almost 90% of physician board complaints relating to Communication and Professionalism competency deficiencies (Khaliq, et al, 2005), improving physician behaviors throughout medical school and residency training remains a core emphasis for program curriculums. (Wyer, 2014; Mellor, et al., 2002; and Lee, et al., 2007) profiled both resident and faculty in qualitative studies to gauge perceptions of professionalism, resulting in agreement that learners and faculty perceive professionalism competencies to easily intersect with communication competencies. Learner and faculty understanding of Communication and Professionalism competencies can vary, even within programs, potentially undermining assessment and training strategies.

In response to the dilemmas surrounding variance amongst understanding of Communication and Professionalism competencies, the Accreditation Council of Graduate Medical Education (ACGME) launched a Milestone Project mandating the skills development of graduate medical learners in six (6) core competencies (Potts, 2016; Lurie, 2009). These six core competencies include development skillsets in the areas of *Patient Care, Medical Knowledge, Systems-Based Practice, Practice-Based Learning and Improvement, Professionalism, and Communication*. The exclusive focus within the ACGME Milestone Project includes Professionalism and Communication competencies, as it relates to graduate medical learner scoring. The remaining four

competencies are certainly of value in residency milestone-based evaluation; however, will not be specifically included in this study.

Academic stakeholders have made multiple attempts to devise innovative strategies to address Communication and Professionalism issues and implement effective training curricula, only to fail in achieving the developmental scoring expectations mandated by the ACGME Milestone Project. Brandler, et al. (2014) measured resident competencies in individual medical settings, resulting in low scores across the board. It was not until Brandler, et al (2014) and Dorotta, et al (2006) began evaluating leaners in team-based settings that competency scoring increased; however, competency scoring increases did not occur among all learners as anticipated. Through this research, academic faculty determined that assessing competencies in team-based settings was favorable to gauging demonstrated skills compared to what could be measured in individual settings. The issue remains, however, of how to address competency deficiencies in team-based settings.

Many graduate medical education faculty have questioned whether or not Communication and Professionalism competencies can be taught. Hochberg (2010), Kayhan (2014), Rider and Keefer (2006), and Carrese, et al., (2015) have determined that it is possible to integrate innovative strategies into curricula to teach these competencies. In these studies, faculty facilitated interactive sessions and workshops for learners to focus on the patient/physician exchange. After completing these workshops, learners scored higher on clinical exam exchanges than their baseline scores. It was determined that a carefully constructed curriculum may result in teaching these two competencies.

Rider and Keefer (2006) provide a Communication skills toolbox for assessing learners in graduate medical education environments. The toolbox expands Communication competencies into subcompetencies, including learners' relationships with patients, communication style with patients, communication styles with their multidisciplinary team, and utilization of technology to optimize communication. Lattore and Lumb (2005) confirm the importance of integrating subcompetencies into their Communication and Professionalism curricula as their learners' scores improved once they integrated subcompetency focuses into their assessments. Using subcompetency definitions under the umbrellas of Professionalism and Communication, along with an analysis of other successful research attempts to increase scoring, results in a determination that team-based learning environments are optimal for assessing learners' competencies (Marrero, et al., 2013).

Considering the team-based focus that most medical education assessment occurs within, determining to use behavioral and personality assessment instruments to enhance curricula is an option. Suman (2009) explores the application of several widely used behavioral and personality assessment instruments, including the DiSC assessment, and concludes that combining these type of instruments with managerial approaches improves the quality of developing effective organizational teams. Slowikowski (2005), Freeman (2009, 2011), and Sugerman (2009) have documented research that asserts the benefits of using the DiSC model to improve communication and professionalism. Findings conclude that using the DiSC behavioral evaluation method permits all team members to better understand oneself and others. Furthermore, knowledge of oneself and team members' behavior styles fosters the potential for developing leadership skills.

Family Medicine Milestone Project

Meaningful evaluation of the ACGME's six core competencies is at the forefront of graduate medical education programs. These six core competencies include Medical Knowledge, Systems Based Practice, Interpersonal Communication, Practice Based Learning Improvement, Communication, and Professionalism. Since the inception of an accreditation system for graduate medical education, these competencies have existed and methods for evaluating them have evolved. Today, ACGME's current (and required) method for evaluating resident competencies include the use of criterion-reference evaluation theory in its application of the milestone-based assessment as a developmental conceptual framework. Programs have begun using this framework approach for evaluation and the results are emerging.

The notable feature of the Milestone Project includes its criterion-focused developmental approach to assessing resident competencies. Additionally, Hicks (2010) further attributes the value of this evaluation approach to the working group that studied the actual development of the tool itself. The Milestone development process included work with consultants and content experts (in each medical specialty) where benchmarks, threats to validity, and potential approaches to reporting each benchmark were explored exhaustively. The work group comprised specialty-specific physicians, education experts, as well as ACGME accreditation reviewers. It was piloted in 2010.

Varney, et al. (2009), Barlett, et al. (2015), and Friedman, et al. (2014) have successfully implemented the milestone-based assessments within their respective programs, which are comprised of varying medical specialties. Each conducted a study that compared scores received via milestone-based assessment versus that of another

previously used assessment tool. The other tools used in each respective study include the Dreyfus Model, Likert-Type, and standard end-of-rotation scale. Neither of these three assessment types are competency-based, nor developmental in design. In each of these three studies, the criterion-reference milestone-based tool yielded greater discriminatory ability in all competency areas. This was evidenced by a larger separation in resident scores across all specialties. An example of this discriminatory ability is rendered in Figure 2 (Friedman, 2014), comparing Dreyfus model versus the Milestone model scores in the areas of Communication and Professionalism:

Dreyfus Model vs. Milestone Model

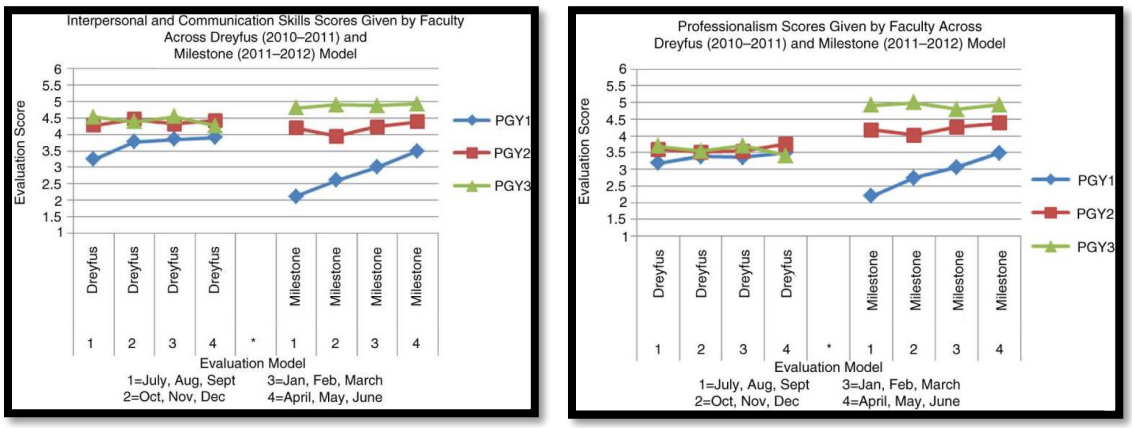

Figure 2. Dreyfus Model vs. Milestone Model. Friedman, K. A., Balwan, S., Cacace, F., Katona, K., Sunday, S., & Chaudhry, S. (2014). "Impact on house staff evaluation scores when changing from a Dreyfus- to a Milestone-based evaluation model: one internal medicine residency program's findings." Medical Education Online, 19, 10.3402/meo.v19.25185. http://doi.org/10.3402/meo.v19.25185

Learners and faculty perceive professionalism competencies intersect with communication competencies – you seemingly cannot address one area without concerning the other. Learner and faculty understanding of Communication and Professionalism competencies can vary, within programs, potentially undermining assessment and training strategies. Mueller (2015) describes the use of the Milestone

method in assessing residents, in comparison to other previously used tools, and asserts that the Milestones provide the most poignant representation of the resident's Professional and Communication profile to date.

Unexpectedly, no study could be found that discredits or undervalues the use of the Milestone method of resident competency evaluation. Each analyzed study complimented the use of a developmental scale, developed by experts within each specialty. One intriguing point made throughout researching this topic included the additional behavioral tools used to assess resident's personality type in several studies. The Milestones are versatile enough to be considered complimentary to other evaluation tools, prompting opportunities for additional research analyses.

In the following chapter, the methods of the study are delineated. Specifically, the following sections include descriptions of the research question, study context, sample, data collection and analyses, and limitations of the study.

CHAPTER 3

METHODS

This study will be performed at the University of Kentucky Department of Family and Community Medicine residency program in Lexington, Kentucky. Data include resident DiSC profiles and ACGME Milestone Project Communication and Professionalism competency scores from 2013-2018. The following sections highlight methodology.

Research Question

The purpose of this study is to examine University of Kentucky Family Medicine resident DiSC profiles to determine if a relationship exists among DiSC profile scores and ACGME/ABFM Communication and Professionalism competency milestone scores. Ultimately, the researcher seeks to determine if a single DiSC profiles yields higher or lower scoring in Communication and Professionalism. With that in mind, specific research questions include:

1. Which DiSC behavioral style profile yields highest/lowest score in Communication milestone competency?
2. Which DiSC behavioral style profile yields highest/lowest score in Professionalism milestone competency?
3. Is there a statistically significant difference in the mean ACGME Milestone Project Communication and Professionalism milestone scores among the four DiSC profile styles in a family medicine residency program?

Context of the Study

The Residency Program

University of Kentucky's Department of Family & Community Medicine residency program is a regional, public university graduate medical education program that is nationally accredited by the ACGME. It has an excellent program that prepares residents for a career in Family Medicine. In 1972, the department was established for the purpose of training family physicians to provide primary care for the state of Kentucky. Since then, the residency program has graduated 276 graduates. The mission of the program is to improve the health of the people of the Commonwealth of Kentucky, and society at large. The goals are to recruit excellent learners, provide exceptional training individualized to each resident's needs, and graduate family physicians who will become well-respected clinicians in their community.

The program's residency training encompasses experiences in a busy tertiary care hospital as well as providing continuity hospital care in a smaller, more patient-centered, community hospital within UK HealthCare. Faculty and staff in Family & Community Medicine recently received designation as a Level III Patient Centered-Medical Home by the National Committee for Quality Assurance (NCQA), which elevates the practice to an elite status, nationally. They also utilize community sites in Lexington and the surrounding rural communities, allowing the program to have the best of both learning environments and to prepare residents for a wide variety of patient care needs. Last, the program has nationally recognized global health, sports medicine, transgender patient care, and residents as teachers academic track opportunities for residents.

The residency program is a 3-year curriculum, recruiting and admitting 6-8 new residents each academic year. At any given time, there are a total of 18-24 resident learners in the residency program, across each post-graduate level year (PGY 1, 2, or 3).

Support for Quality Improvement

As part of a 5-year national HRSA Residency Training grant, the residency program launched a comprehensive quality improvement curriculum with the goals of developing innovative processes to improve quality practices in the medical and teaching environment, as well as to further develop resident and faculty skills in the areas of practice-based learning improvement. The curriculum is dedicated for residents and faculty, including a host of monthly didactic learning sessions focused on evidence-based medicine quality improvement practices, weekly quality improvement project work, annual participation at scholarly conferences to showcase quality improvement projects, delivery and analysis of the DiSC behavioral style profile assessment to each resident, and annual workshops dedicated to integrating DiSC profiles into developing leadership, collaboration, and teamwork among fellow health care team members.

As mentioned, residents complete the DiSC behavioral style assessment within their first month of residency, and are provided a comprehensive profile report. The assessment is available via web-based delivery or paper copy methods, and takes learners approximately 15 minutes to complete. After completing all questions, the proctor tallies each question's response and generates a profile that indicates a resident's natural and adaptive behavioral style in one of the following categories (Dominance, Influencer, Steadiness, and Conscientiousness). The category receiving the highest score reflects the resident's behavioral style. Implications of each category's results in personality traits

relevant to behavioral styles in the workplace and in relationships (personal and professional). As a result, resident DiSC profile results are used in a variety of strategies across the residency curriculum to develop resident leadership, collaboration, and teamwork across medical settings.

Support for Assessing ACGME Milestone-Based Clinical Competencies

The residency program meets all exhaustive requirements for the most elite and prestigious, nationally accredited ACGME status. As part of accreditation maintenance, the residency program is required to deliver a curriculum that is based on- and assesses resident competency in six core competencies: Patient Care, Medical Knowledge, Systems Based Practice, Practice Based Learning Improvement, Communication, and Professionalism. As mentioned in the literature review, residency programs varied in their strategies to implement and assess these competencies into their respective curricula. As a result of variance in curriculum development (and especially in the variance of assessing these competencies) across programs, nationwide, the ACGME partnered with each medical specialties national board and developed the Milestone Project initiative in 2010. The Milestone Project for Family Medicine launched in 2013.

This assessment tool presents milestones designed for programs to use in semi-annual review of resident performance and reporting to the ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME competencies, organized in a developmental framework from less to more advanced. They are descriptors and targets for resident performance as a resident moves from entry into residency through graduation. In the initial years of implementation, the Review Committee will examine milestone performance data for each program's residents as one

element in the Next Accreditation System (NAS) to determine whether residents overall are progressing.

Milestone Reporting

For each reporting period, review and reporting will involve selecting the level of milestones that best describes each resident's current performance level in relation to milestones. Milestones are arranged into levels. Selection of a level implies that the resident substantially demonstrates the milestones in that level, as well as those in lower levels (see Reporting Form diagram below). A general interpretation of Milestone levels for family medicine is below:

Level 1: The resident demonstrates milestones expected of a resident who has had some education in family medicine.

Level 2: The resident is advancing and demonstrating additional milestones.

Level 3: The resident continues to advance and demonstrate additional milestones; the resident consistently demonstrates the majority of milestones targeted for residency.

Level 4: The resident has advanced so that he or she now substantially demonstrates the milestones targeted for residency. This level is designed as the graduation target.

Level 5: The resident has advanced beyond performance targets set for residency and is demonstrating "aspirational" goals which might describe the performance of someone who has been in practice for several years. It is expected that only a few exceptional residents will reach this level.

Once the Milestone Project for Family Medicine launched its newly innovative, criterion-specific and developmental model of each core competency and it's sub-competencies, the University of Kentucky Family Medicine residency program instituted

its first-ever Clinical Competency Committee (CCC). The CCC is comprised of a CCC Chair, Residency Program Director, and other department faculty that work closely with residents. The CCC meets twice/year to review each resident's rotation evaluations, clinic volume numbers, procedure logs, conference attendance, scholarly works, board maintenance of certification requirements, board training examination scores, rotation evaluations, peer evaluations, and the resident's self-evaluations. After all of these documents are reviewed, faculty assign the resident a competency score according to the Milestone Project metric system for each competency.

Sample

This study will use the following decision rules to generate the final sample used in this study:

1) Learners must be contracted as a resident in the University of Kentucky Department of Family & Community Medicine in a minimum of one of the following academic years: 2013-2018,
2) Residents must have completed the DiSC behavioral style assessment while in residency; and
3) Residents must have ACGME Milestone Project competency scores, as determined by the residency program's CCC.

The final sample includes 50 family medicine residents.

All resident study participants have graduated from either an allopathic or osteopathic accredited medical school. The demographic of residents includes a variety range of gender, age, race, nationality, medical school type, and rural vs. urban background. Age range of residents is 28-39. Each resident has graduated from their

respective medical school within 5 years of beginning residency, and at the time of the CCC meeting where competency scores are determined, each resident has already been exposed to working and being observed on inpatient hospital and outpatient clinic services.

Research Design and Data Collection

This study will employ quantitative research designs. This specific study will use data collected directly from University of Kentucky Department of Family & Community Medicine residency program. The data to be pulled from MedHub includes gender, age, medical school type (allopathic versus osteopathic), race, nationality, and background (rural vs. urban). Further, the residency program will provide each resident's comprehensive DiSC profile from each resident portfolio record. Last, resident Milestone Project Communication and Professionalism competency scores will be collected from the ACGME WebADS website.

Data Analysis Procedures

Initially, descriptive statistics including means, modes/frequencies, and standard deviations will be reported. The dependent variable is DiSC profile category (1=Dominance, 2=Influencer, 3=Steadiness, and 4=Conscientiousness). The independent variables are the ACGME Milestone Project Professionalism & Communication competency scores — on a 0-5 scale with .5 interval measurements. Covariates include gender, age, race, nationality, and rural vs. urban background. A one-way ANOVA will determine if there is a statistically significant difference in the mean Communication and Professionalism milestone scores among the four DiSC profile types. The one-way ANOVA compares the Communication and Professionalism means between the DiSC

profile types and determines whether any of those means are statistically significantly different from each other. Post hoc analyses, using t-test: Two Sample Assuming Unequal Variances will be used in the event the ANOVA analyses render statistical significance, in order to determine mean differences within DiSC profile types. SPSS 22 will be utilized for all analyses. Significance will be determined at the .05 level.

The null hypothesis supposes that there will be no correlational significance between DiSC profile behavior styles and ACGME Milestone Project Communication and Professionalism competency scores. The alternate hypothesis is that there will be a significant correlation between DiSC profile and competency scores.

Limitations of Study

There are several notable limitations of this study. This study only examines one family medicine residency program. Furthermore, this study includes only one medical specialty: family medicine. And, due to the small cohort size of each post-graduate year within the residency program since the launch of the ACGME Milestone Project in 2013, the sample size is low (n=50). This limits the generalizability of the findings to other types of institutions, programs, and specialties. Additionally, this limits the statistical power.

CHAPTER 4

RESULTS

Objective

In review, the primary purpose of this study is to determine if there a statistically significant difference in the mean ACGME Milestone Project Communication and Professionalism milestone scores among the four DiSC profile styles in a family medicine residency program, rendering a potential conclusion that specific behavioral styles yield predictive high- or low skills in Communication, and Professionalism in a family medicine residency program. The independent variable is the resident physician DiSC behavior type (D, I, S, or C); dependent variables are resident physician Communication and Professionalism milestone scores.

This quantitative study outlines descriptive statistics, including means, frequencies, percentages, and ranges. Further, ANOVA analyses using post hoc analyses with areas of statistical significance are included to highlight DiSC profile type differences between groups.

Descriptive Statistics

University of Kentucky Family and Community Medicine residents from 2013-2018 (n=50) participated in this study, where the same faculty and staff assessed each resident's DiSC behavior type, and assigned ACGME/ABFM Communication and Professionalism milestone scores throughout the duration of each resident's 3-year residency.

Residents completed a DiSC assessment during their first month of residency. Due to various start dates among all of this study's participants, behavior style type

reports were provided at various dates of the study. Despite a variation in assessment dates, Figure 3 provides the average age of resident participants on their respective dates of assessment was 32.8 years (SD = 3.39). Range of participants' age spans 27-42 years. Note: this is a common age range for learners in any residency specialty, as a majority enter residency, post-medical school, in their late twenties- and early thirties.

Age of Resident Physician on Date of Assessment	
Mean	32.8
Standard Error	0.479795875
Median	32
Mode	32
Standard Deviation	3.392669168
Sample Variance	11.51020408
Kurtosis	1.053663848
Skewness	0.926983049
Range	16
Minimum	27
Maximum	43
Sum	1640
Count	50

Figure 3. Age of Resident Physician on Date of Assessment

Among gender profiles, 46% (n=23) of this study's participants define themselves as female; 54% (n=27) as male (Figure 4). This is a typical representation of family medicine residency physician learners including a split between genders nearly down the middle, 50/50.

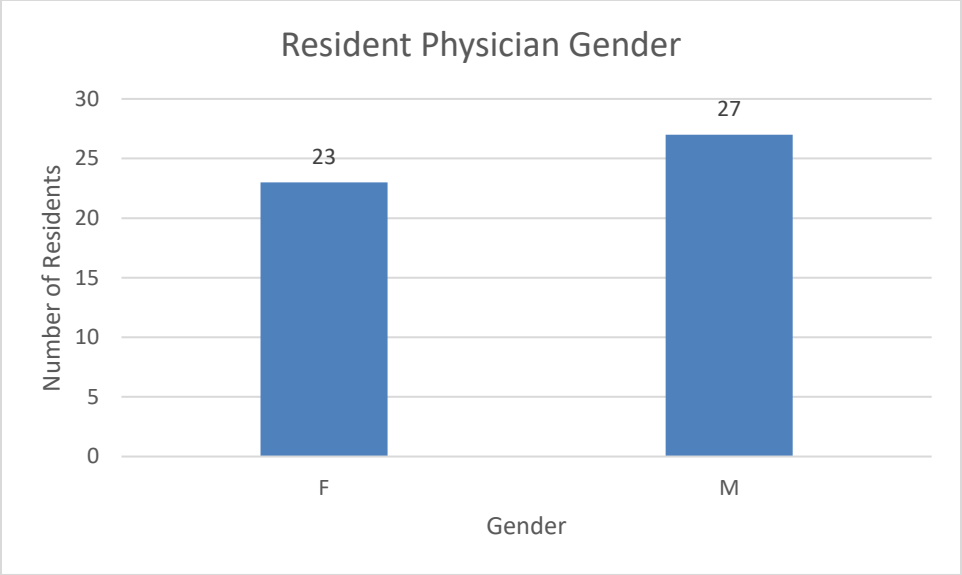

Figure 4. Resident Physician Gender

Further, this study assessed participant's medical school graduation type (allopathic versus osteopathic) (See Figure 5.). 72% (n=36) of this study's participants graduated from an allopathic medical school; 28% (n=14) from an osteopathic medical school. Again, this is a common representation of family medicine residency program learner pools, as allopathic medical programs outnumber osteopathic medical programs, nationally.

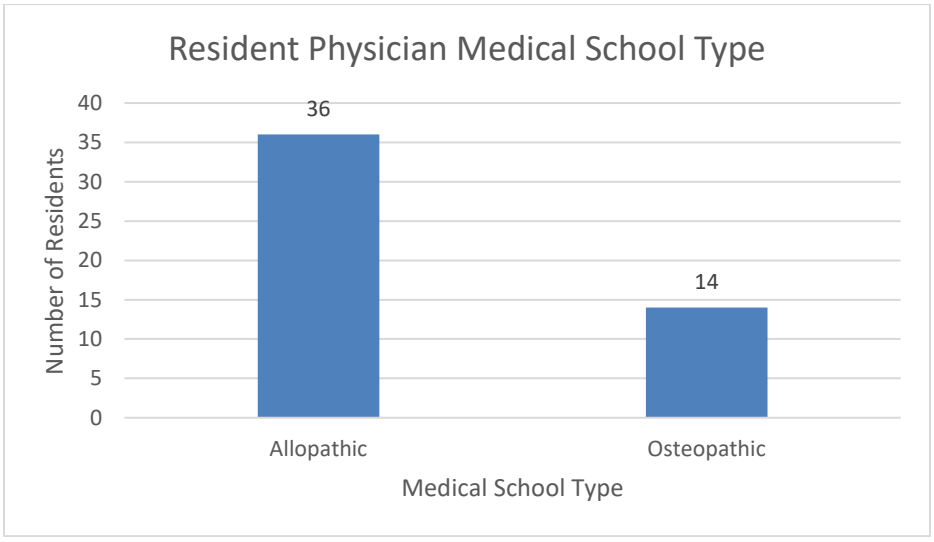

Figure 5. Resident Physician Medical School Type

Study participants reported background data, including ethnicity, nationality, and growing up in rural vs. non-rural environment(s). They self-identified as follows (See Figure 6):

- Study participants included ethnic backgrounds of White and Asian. 88% (n=44) reported White ethnicity; 12% (n=6) reported Asian ethnicity.

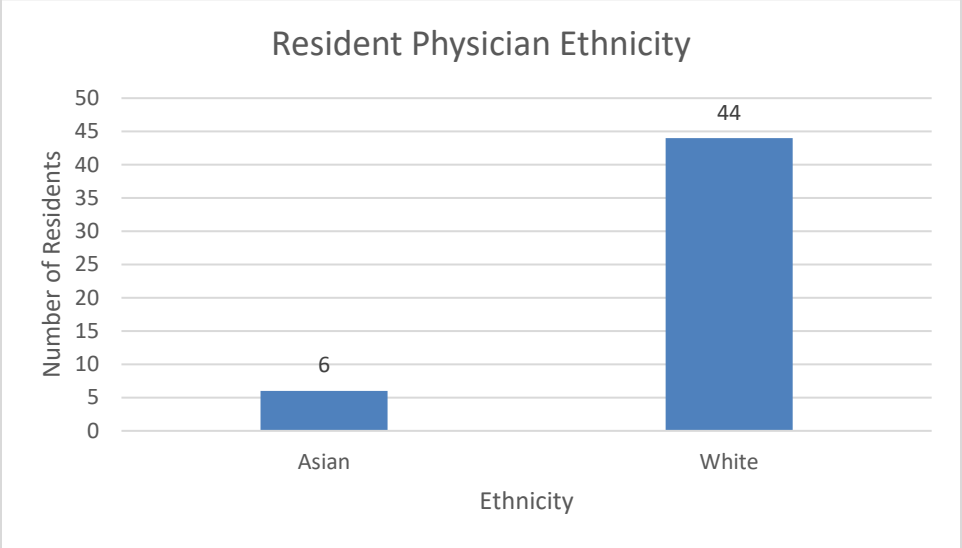

Figure 6. Resident Physician Ethnicity

- Study participants included nationality backgrounds from United States, Canada, or India. 94% (n=47) identify as United States nationality; 4% (n=2) as Indian nationality; 2% (n=1) identify as Canadian nationality (See Figure 7.).

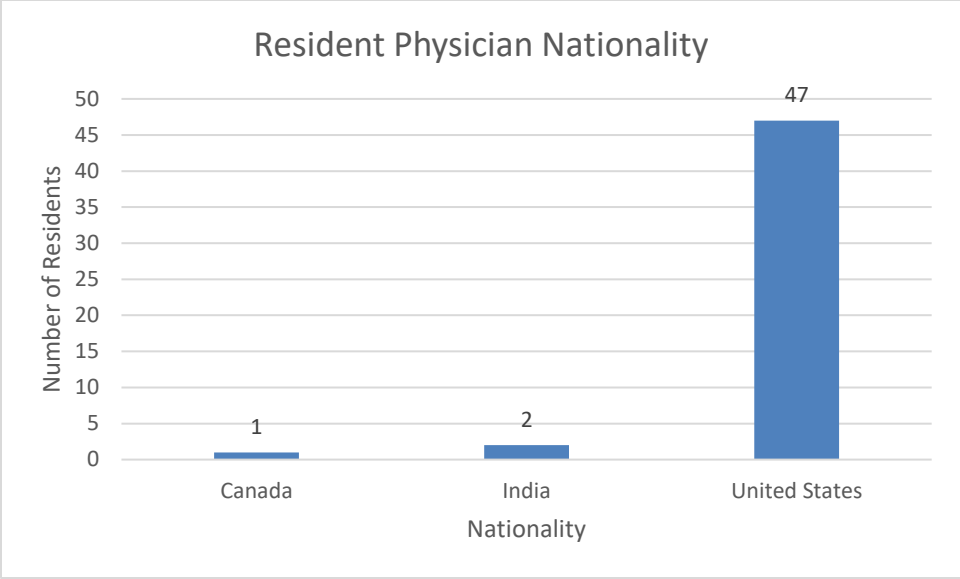

Figure 7. Resident Physician Nationality

- Study participants included both rural and non-rural backgrounds. 72% (n=41) reported growing up in a rural setting; 28% (n=9) reported growing up in non-rural backgrounds (See Figure 8.).

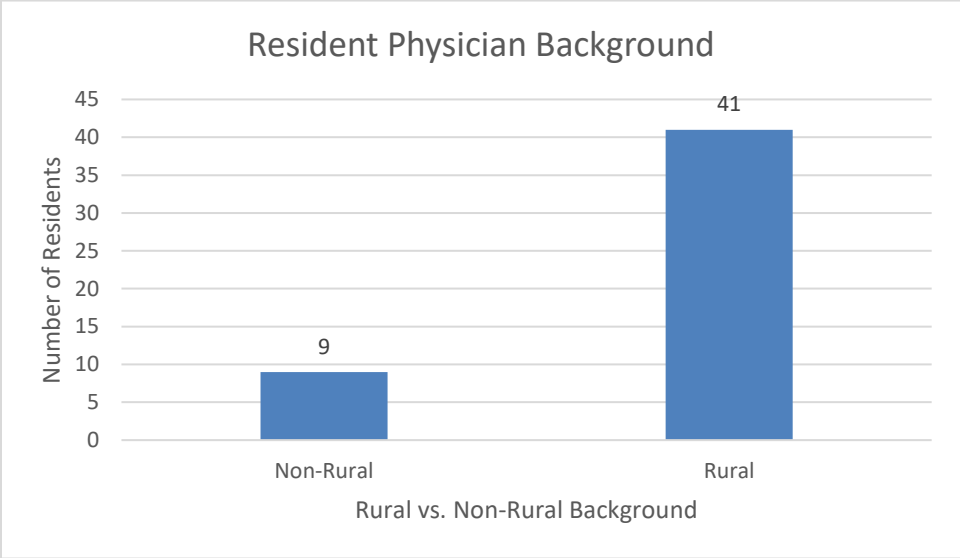

Figure 8. Resident Physician Background

Each resident completed a DiSC assessment within their first month of residency training. Resident reports yielded either a score of D, I, S, or C. Just over half of resident

participants across the span of this study scored “S” at 52% (n=26); 32% (n=16) scored “I”; 12% (n=6) scored a “C”; 4% (n=2) scored a “D” (See Figure 9.).

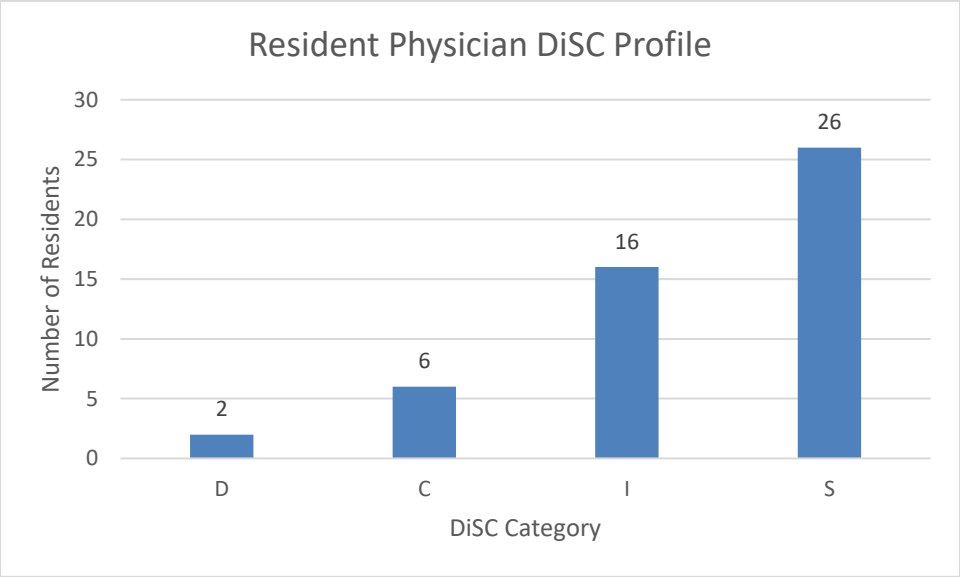

Figure 9. Resident Physician DiSC Profile

Communication and Professionalism Milestone scores are provided to each resident on a scale of 0-5, with .5 interval scoring. The closer a resident is scored to “5,” faculty and staff perceive higher level of skill in that milestone. The closer a resident is scored to “0,” faculty and staff perceive lower level of skill in that milestone. There are four Communication Milestones, and four Professionalism Milestones. The following data represents resident DiSC score means, as they relate to each individual Milestone score (8 total).

Communication Milestone-1: Develops meaningful, therapeutic relationships with patients and families. Residents with a “C” score averaged the highest C-1 milestone score, averaging 3.8; “S” scores averaged a 3.7; “D” scores averaged 3.5; “I” scores averaged 3.2. The average C-1 score among all participants is 3.5 (See Figure 10.).

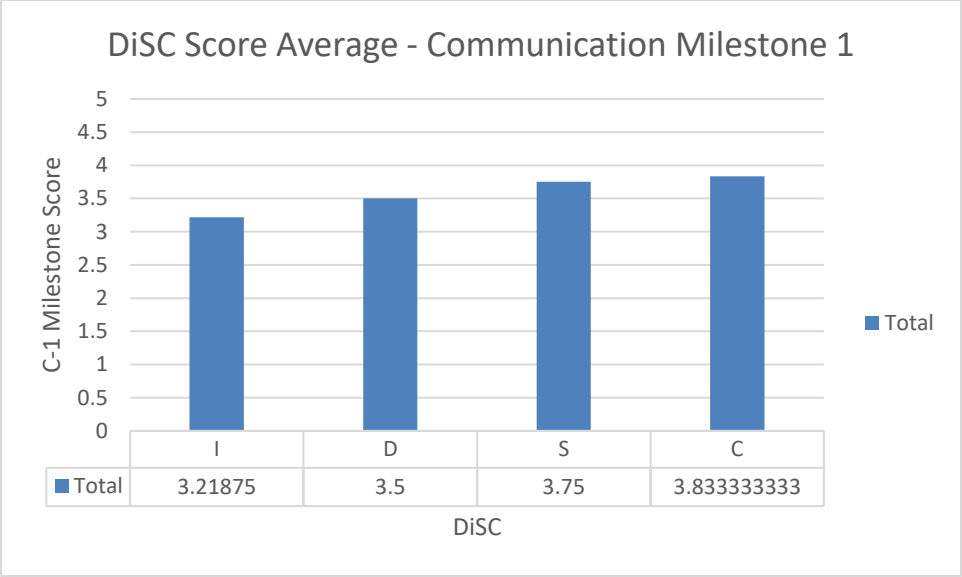

Figure 10. DiSC Score Average – Communication Milestone 1

Communication Milestone-2: Communicates effectively with patients, families, and the public. Residents with a "D" score averaged the highest C-2 milestone score, averaging 3.5; "S" scores averaged a 3.4; "C" scores averaged 3.2; "I" scores averaged 3.0. The average C-2 score among all participants is 3.3 (See Figure 11.).

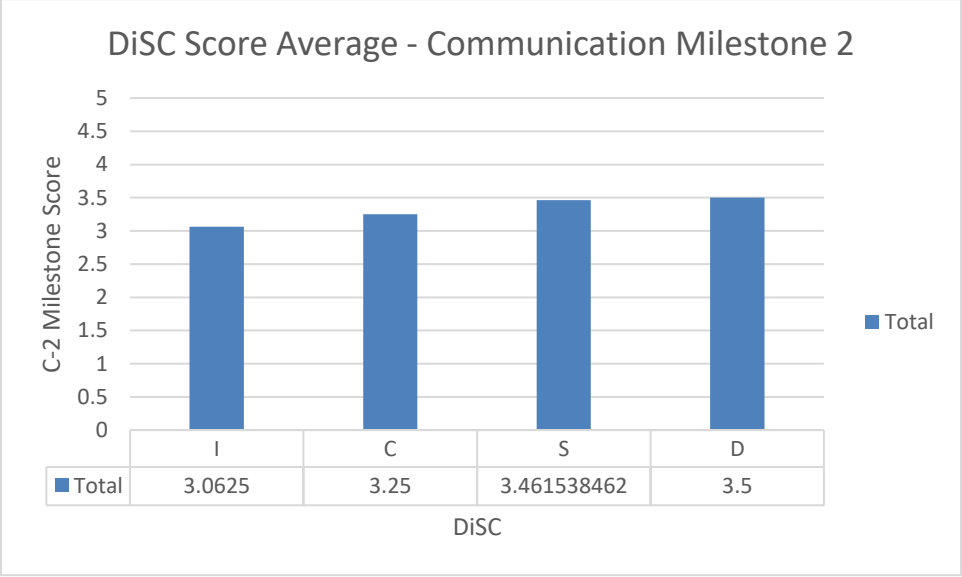

Figure 11. DiSC Score Average – Communication Milestone 2

Communication Milestone-3: Develops relationships and effectively communicates with physicians, other health professionals, and health care teams. Residents with a “C” or “D” score averaged the highest C-3 milestone score, averaging 3.7; “S” scores averaged a 3.4; “I” scores averaged 3.1. The average C-3 score among all participants is 3.4 (See Figure 12.).

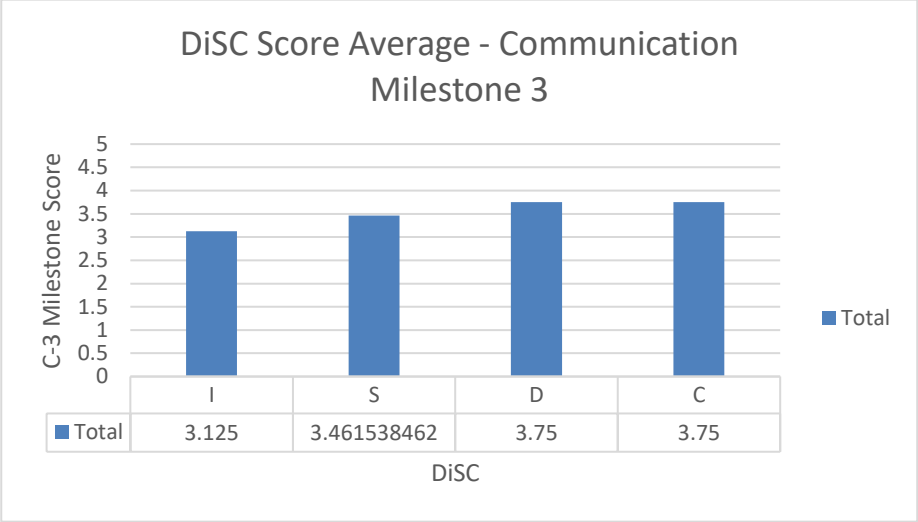

Figure 12. DiSC Score Average – Communication Milestone 3

Communication Milestone-4: Utilizes technology to optimize communication. Residents with an “S” or “C” score averaged the highest C-4 milestone score, averaging 3.6; “I” or “D” scores averaged a 3.0. The average C-4 score among all participants is 3.4 (See Figure 13.).

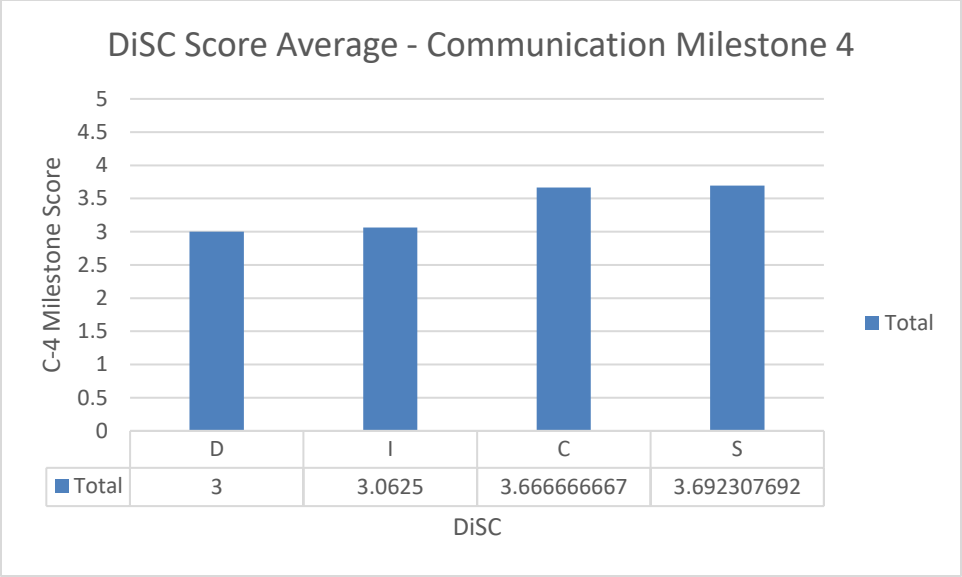

Figure 13. DiSC Score Average – Communication Milestone 4

Professionalism Milestone-1: Completes a process of professionalization. Residents with an "S" or "D" score averaged the highest P-1 milestone score, averaging 3.5; "C" scores averaged a 3.4; "I" scores averaged 2.8. The average P-1 score among all participants is 3.3 (See Figure 14.).

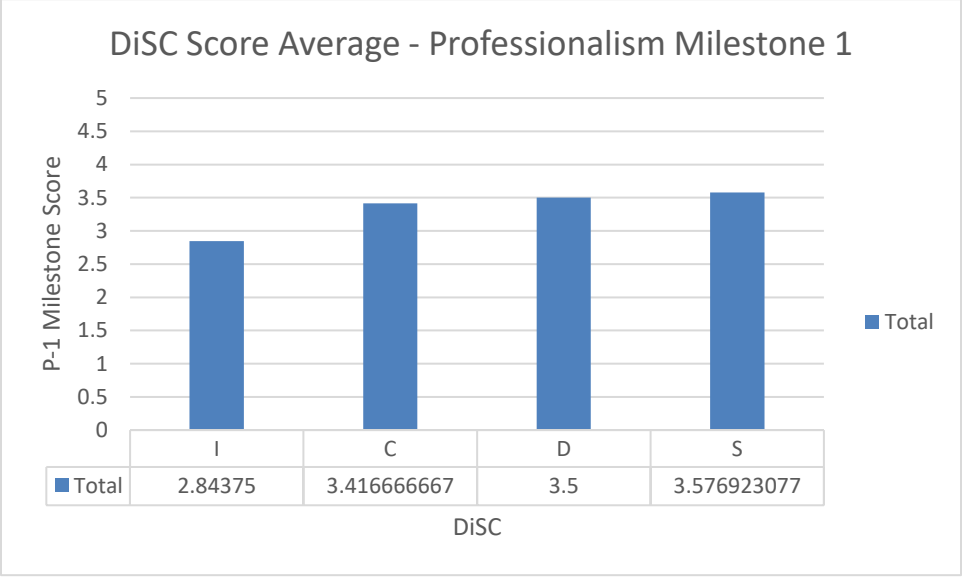

Figure 14. DiSC Score Average – Professionalism Milestone 1

Professionalism Milestone-2: Demonstrates professional conduct and accountability. Residents with an “S” or “D” score averaged the highest P-2 milestone score, averaging 3.5; “C” scores averaged a 3.3; “I” scores averaged 2.7. The average P-2 score among all participants is 3.5 (See Figure 15.).

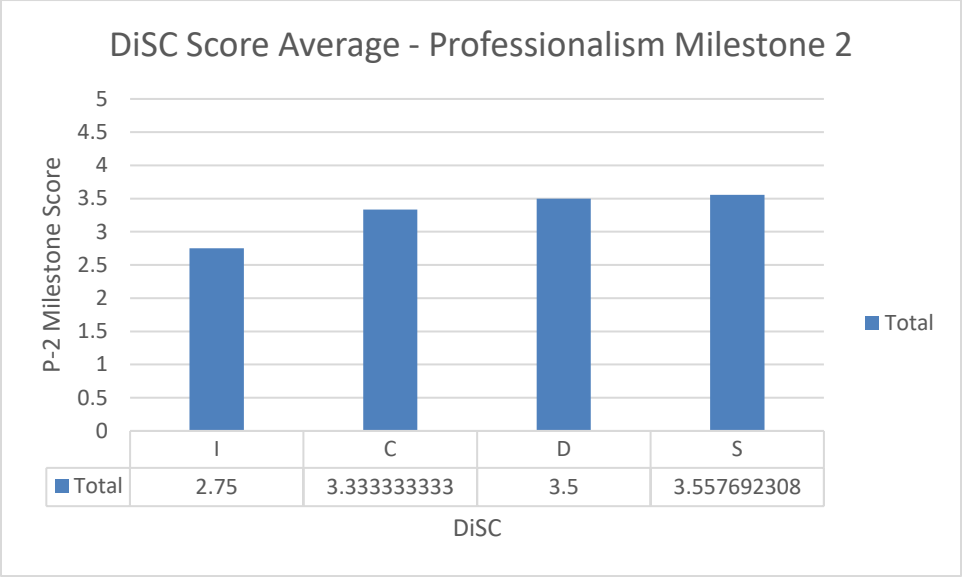

Figure 15. DiSC Score Average – Professionalism Milestone 2

Professionalism Milestone-3: Demonstrates humanism and cultural proficiency. Residents with an “S” or “D” score averaged the highest P-3 milestone score, averaging 3.4; “C” scores averaged a 3.1; “I” scores averaged 2.7. The average P-3 score among all participants is 3.3 (See Figure 16.).

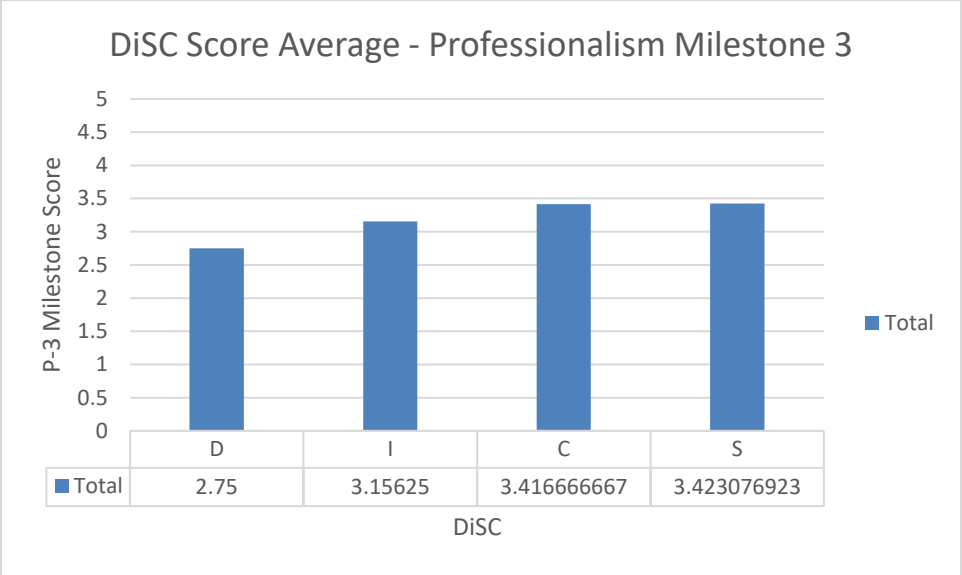

Figure 16. DiSC Score Average – Professionalism Milestone 3

Professionalism Milestone-4: Maintains emotional, physical, and mental health; and pursues continual personal and professional growth. Residents with a "C" or "D" score averaged the highest P-4 milestone score, averaging 3.5; "S" scores averaged a 3.3; "I" scores averaged 2.7. The average P-4 score among all participants is 3.2 (See Figure 17.).

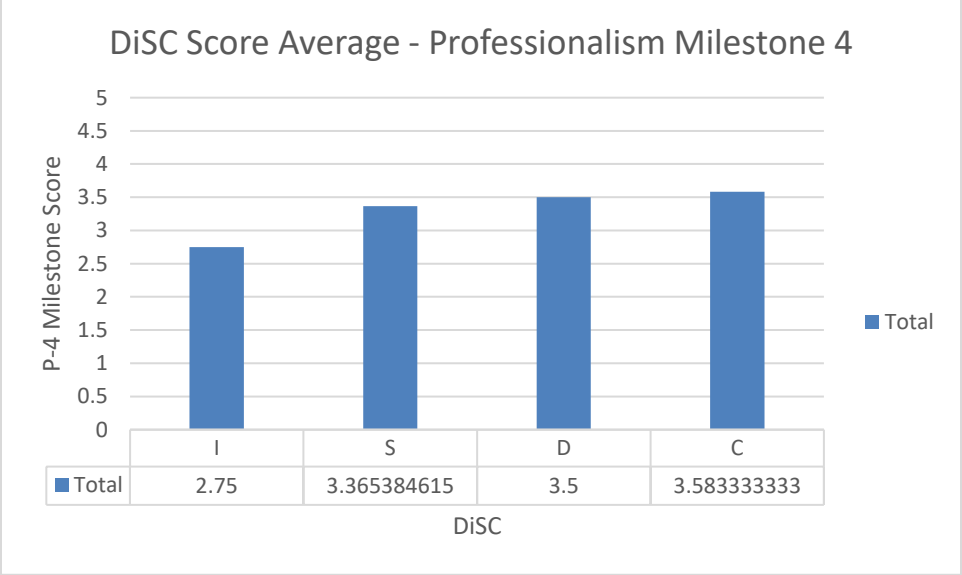

Figure 17. DiSC Score Average – Professionalism Milestone 4

ANOVA and Post-Hoc

Is there a statistically significant difference in the mean Communication and Professionalism milestone scores among the four DiSC profile types? The one-way ANOVA compares the Communication and Professionalism means between the DiSC profile types and determines whether any of those means are statistically significantly different from each other. Specifically, it tests the null hypothesis: where μ = group mean. The ANOVA analysis was completed for each of the four Communication milestones and four Professionalism milestones.

- Hypothesis and level of significance for all eight milestones
  - H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4$
  - H_1: Means are not all equal
  - α=0.05

A one-way between subjects ANOVA was conducted to compare the effect of resident DiSC profile type on Communication #1 milestone score: Resident develops meaningful, therapeutic relationships with patients and families. There was a significant effect of DiSC profile type on Communication #1 milestone score at the $p<.05$ level for the three conditions [$F(3, 46) = 4.99$, $p = 0.004$]. The p-value is less than the .05 alpha level selected; therefore, we reject the null hypothesis. Because a statistically significant result was found, we need to compute a post hoc test.

Post hoc comparisons included use of the t-test: Two Sample Assuming Unequal Variances. After completing the six tests, statistical significance was determined by applying the Bonferroni correction. To account for this, instead of comparing the p-values to an alpha of .05, they are compared to a Bonferroni correct alpha by dividing

alpha/(number of tests performed). For our analysis that is =.05/6 for a corrected alpha of .008. By looking at the 'P(T<=t) two-tail row', each p-value was compared to the Bonferroni corrected alpha. Based on these values, it is determined that "I" (M=3.22) and "S" (M=3.75) DiSC behavior styles significantly differ on the variable of the Communication #1 milestone scores (See Figure 18.)

Milestone: Communication #1

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
D	2	7	3.5	0.5
I	16	51.5	3.21875	0.332292
S	26	97.5	3.75	0.125
C	6	23	3.833333	0.266667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	3.237292	3	1.079097	4.99245	0.004421	2.806845
Within Groups	9.942708	46	0.216146			
Total	13.18	49				

Figure 18. Communication #1 Milestone - ANOVA

A one-way between subjects ANOVA was conducted to compare the effect of resident DiSC profile type on Communication #2 milestone score: Resident communicates effectively with patients, families, and the public. There was not a significant effect of DiSC profile type on Communication #2 milestone score at the p<.05 level for the three conditions [F(3, 46) = 2.27, p = 0.092]. The p-value is more than the .05 alpha level selected; therefore, the results are not significant and the study fails to reject the null hypothesis. Because a statistically significant result was not found, there is no need to compute a post hoc test (Figure 19.).

Milestone: Communication #2

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
D	2	7	3.5	0.5
I	16	49	3.0625	0.329167
S	26	90	3.461538	0.178462
C	6	19.5	3.25	0.275

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.670962	3	0.556987	2.272603	0.092659	2.806845
Within Groups	11.27404	46	0.245088			
Total	12.945	49				

Figure 19. Communication #2 Milestone - ANOVA

A one-way between subjects ANOVA was conducted to compare the effect of resident DiSC profile type on Communication #3 milestone score: Resident develops relationships and effectively communicates with physicians, other health professionals, and health care teams. There was not a significant effect of DiSC profile type on Communication #3 milestone score at the $p<.05$ level for the three conditions [$F(3, 46) = 2.09$, $p = 0.113$]. The p-value is more than the .05 alpha level selected; therefore, the results are not significant and the study fails to reject the null hypothesis. Because a statistically significant result was not found, there is no need to compute a post hoc test (Figure 20.).

Milestone: Communication #3

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
D	2	7.5	3.75	0.125
I	16	50	3.125	0.683333
S	26	90	3.461538	0.218462
C	6	22.5	3.75	0.175

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2.288462	3	0.762821	2.099731	0.11325	2.806845
Within Groups	16.71154	46	0.363294			
Total	19	49				

Figure 20. Communication #3 Milestone - ANOVA

A one-way between subjects ANOVA was conducted to compare the effect of resident DiSC profile type on Communication #4 milestone score: Resident utilizes technology to optimize communication. There was not a significant effect of DiSC profile type on Communication #4 milestone score at the $p<.05$ level for the three conditions [$F(3, 46) = 2.59$, $p = 0.064$]. The p-value is more than the .05 alpha level selected; therefore, the results are not significant and the study fails to reject the null hypothesis. Because a statistically significant result was not found, there is no need to compute a post hoc test (See Figure 21.).

Milestone: Communication #4

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
D	2	6	3	0
I	16	49	3.0625	1.1625
S	26	96	3.692308	0.381538
C	6	22	3.666667	0.066667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	4.610705	3	1.536902	2.58877	0.064269	2.806845
Within Groups	27.30929	46	0.59368			
Total	31.92	49				

Figure 21. Communication #4 Milestone - ANOVA

A one-way between subjects ANOVA was conducted to compare the effect of resident DiSC profile type on Professionalism #1 milestone score: Resident completes a process of professionalization. There was a significant effect of DiSC profile type on Professionalism #1 milestone score at the p<.05 level for the three conditions [F(3, 46) = 3.173, p = 0.032]. The p-value is less than the .05 alpha level selected; therefore, the null hypothesis is rejected. Because a statistically significant result was found, there is need to compute a post hoc test.

Post hoc comparisons included use of the t-test: Two Sample Assuming Unequal Variances. After completing the six tests, statistical significance was determined by applying the Bonferroni correction. To account for this, instead of comparing the p-values to an alpha of .05, they are compared to a Bonferroni correct alpha by dividing alpha/(number of tests performed). For our analysis that is =.05/6 for a corrected alpha of .008. By looking at the 'P(T<=t) two-tail row', each p-value was compared to the

Bonferroni corrected alpha. Based on these values, it is determined none of the DiSC behavior styles significantly differ from one another on the variable of Professionalism #1 milestone scores (See Figure 22.).

Milestone: Professionalism #1

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
D	2	7	3.5	0
I	16	45.5	2.84375	1.023958
S	26	93	3.576923	0.293846
C	6	20.5	3.416667	0.741667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	5.466138	3	1.822046	3.173111	0.032897	2.806845
Within Groups	26.41386	46	0.574214			
Total	31.88	49				

Figure 22. Professionalism #1 Milestone - ANOVA

A one-way between subjects ANOVA was conducted to compare the effect of resident DiSC profile type on Professionalism milestone #2 score: Resident demonstrates professional conduct and accountability. There was a significant effect of DiSC profile type on Professionalism milestone #2 score at the $p<.05$ level for the three conditions [$F(3, 46) = 4.71$, $p = 0.005$]. The p-value is less than the .05 alpha level selected; therefore, the null hypothesis is rejected. Because a statistically significant result was found, there is need to compute a post hoc test.

Post hoc comparisons included use of the t-test: Two Sample Assuming Unequal Variances. After completing the six tests, statistical significance was determined by

applying the Bonferroni correction. To account for this, instead of comparing the p-values to an alpha of .05, they are compared to a Bonferroni correct alpha by dividing alpha/(number of tests performed). For our analysis that is =.05/6 for a corrected alpha of .008. By looking at the 'P(T<=t) two-tail row', each p-value was compared to the Bonferroni corrected alpha. Based on these values, it is determined that "D" (M=3.5) and "I" (M=2.75); and "I" (M=2.75); and "S" (M=3.56) DiSC behavior styles significantly differ on the variable of the Professionalism #2 milestone scores (See Figure 23.).

Milestone: Professionalism #2

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
D	2	7	3.5	0
I	16	44	2.75	0.833333
S	26	92.5	3.557692	0.266538
C	6	20	3.333333	0.466667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	6.608205	3	2.202735	4.713531	0.005963	2.806845
Within Groups	21.49679	46	0.467322			
Total	28.105	49				

Figure 23. Professionalism #2 Milestone - ANOVA

A one-way between subjects ANOVA was conducted to compare the effect of resident DiSC profile type on Professionalism #3 milestone score: Resident demonstrates humanism and cultural proficiency. There was not a significant effect of DiSC profile type on Professionalism #3 milestone score at the p<.05 level for the three conditions [F(3, 46) = 2.385, p = 0.081]. The p-value is more than the .05 alpha level selected; therefore, the results are not significant and the study fails to reject the null hypothesis.

Because a statistically significant result was not found, there is no need to compute a post hoc test (See Figure 24.).

Milestone: Professionalism #3

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
D	2	5.5	2.75	1.125
I	16	50.5	3.15625	0.190625
S	26	89	3.423077	0.193846
C	6	20.5	3.416667	0.041667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.406138	3	0.468713	2.385342	0.08131	2.806845
Within Groups	9.038862	46	0.196497			
Total	10.445	49				

Figure 24. Professionalism #3 Milestone - ANOVA

A one-way between subjects ANOVA was conducted to compare the effect of resident DiSC profile type on Professionalism #4 milestone score: Resident maintains emotional, physical, and mental health; and pursues continual personal and professional growth. There was a significant effect of DiSC profile type on Professionalism #4 milestone score at the $p<.05$ level for the three conditions [$F(3, 46) = 3.139$, $p = 0.034$]. The p-value is less than the .05 alpha level selected; therefore, the null hypothesis is rejected. Because a statistically significant result was found, a post hoc test needs to be computed.

Post hoc comparisons included use of the t-test: Two Sample Assuming Unequal Variances. After completing the six tests, statistical significance was determined by

applying the Bonferroni correction. To account for this, instead of comparing the p-values to an alpha of .05, they are compared to a Bonferroni correct alpha by dividing alpha/(number of tests performed). For our analysis that is =.05/6 for a corrected alpha of .008. By looking at the 'P(T<=t) two-tail row', each p-value was compared to the Bonferroni corrected alpha. Based on these values, it is determined that "D" (M=3.5) and "I" (M=2.75) DiSC behavior styles significantly differ on the variable of Professionalism #4 milestone scores (See Figure 25.).

Milestone: Professionalism #4

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
D	2	7	3.5	0
I	16	44	2.75	0.866667
S	26	87.5	3.365385	0.331154
C	6	21.5	3.583333	0.641667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	5.012821	3	1.67094	3.138918	0.034203	2.806845
Within Groups	24.48718	46	0.53233			
Total	29.5	49				
Total	29.5	49				

Figure 25. Professionalism #4 Milestone - ANOVA

CHAPTER 5

DISCUSSION

Overview

As we function in a systems-based world, effective Communication and Professionalism skills are proving essential tenets to the success of team efforts. It is within the nuance and subtlety of how we interact with each other, and how we engage in our everyday work that yields a team's ability to execute goals, and render innovative outcomes. Professionalism and Communication skills – while not always simple to define, can be easily experienced. These skills can present themselves differently, based on behavior style.

How we interact with one another, and the processes we engage in during daily practices may seem complicated to understand in the context of each person, more so, to understand within numerous team dynamics. Fortunately, behavior style trends lend themselves to offer a better understanding of these specific behavioral granularities. For example, Communication style types can lend themselves to be commonly categorized into behavior style trends, such as Introversion vs. Extroversion. Behavior style-based assessments, such as the DiSC assessment further provides understanding into the world of Communication style idiosyncrasies by providing categorical behavior style trend types (D, I, S, or C). These categorizations provide predictive behavior profiles for understanding team members, individually, as well as how they present themselves in team dynamics.

Creating the most viable team dynamics in a family medicine residency, using the DiSC assessment, and ACGME/ABFM Communication/Professionalism milestone

scores, is the focus of this study. Research that can propose increased understanding and/or a relationship among behavior style types and a predictability of skills in Communication and Professionalism with family medicine resident physicians has the potential to incur progressive changes to the healthcare delivery system, and policy within graduate medical education.

Summary of the Study

This study examined University of Kentucky Family Medicine resident physician DiSC behavior style profiles (n=50) to determine if there is a statistically significant difference in the mean Communication and Professionalism milestone scores among the four DiSC profile types. The one-way ANOVA compares the Communication and Professionalism means between the DiSC profile types and determines whether any of those means are statistically significantly different from each other. Specifically, the interest was to determine if any specific DiSC profile score yields higher or lower scoring in the areas of Communication and Professionalism. At the beginning of residency, each resident physician was administered a DiSC assessment, then provided a score report to indicate the highest scoring category that most resembles their behavioral style. Throughout residency, each resident was further assessed by residency program faculty on 6 core competency skills, two of which included Communication and Professionalism. These skills were defined and designed as developmental Milestones by the ACGME and ABFM. Once Communication and Professionalism milestone scores were assigned, they were analyzed with each resident physician's DiSC profile score. This analysis served as the core of this study, in order to determine a potential relationship between behavioral styles and skills in Communication and Professionalism.

Interpretation of the Results

In review, the primary purpose of this study is to determine if there a statistically significant difference in the mean ACGME Milestone Project Communication and Professionalism milestone scores among the four DiSC profile styles in a family medicine residency program, rendering a potential conclusion that specific behavioral styles yield predictive high- or low skills in Communication, and Professionalism in a family medicine residency program.

Quantitative statistical analyses rendered several statistically significant outcomes found in Communication #1, Professionalism #1, Professionalism #2, and Professionalism #4 milestone scores. Specifically, “I” and “S” DiSC behavior styles reflected the greatest difference in scores within Communication #1 milestone scores; “D” and “I” DiSC, and “I” and “S” scores within Professionalism #2 milestone scores; “D” and “I” DiSC scores within Professionalism #4 milestone scores. No further statistical significance was revealed with post hoc testing within Professionalism #1 milestone scores.

“C” DiSC profile types yielded the highest mean overall Communication milestone scores, whereas “I” DiSC profile types yielded the lowest mean overall Communication milestone scores.

“S” DiSC profile types yielded the highest mean overall Professionalism scores, whereas, “I” DiSC profile types yielded the lowest mean overall Professionalism milestone scores.

Implications for Policy and Practice

Residency recruitment policy and practice includes a process of reviewing thousands of medical student graduate applications, interviewing hundreds of those applicants (for those meeting the program's accreditation and policy requirements), then ranking half of those interviewed – only to fill a vacancy of what is typically 6-10 resident positions, annually. This is a process that favors programs over applicants. Ultimately, this is a complex issue where there is a surplus of medical student graduates and an incredibly lower ratio of available residency positions – a result of zero additional State dollars allocated to funding residency positions at residency-based institutions, paired with a business model approach used to generate additional revenue to College of Medicine programs by increasing medical student class sizes. This "bottle-neck" issue can be considered a potential area for future research in the area of graduate medical education policy study. However, given the current state of incongruence in the number of applicants vs. available resident vacancies, this positions programs to adjust residency program policy and practice to be increasingly selective with applicants, yielding the potential to contract with the highest qualified applicants. Because this study's research suggests specific DiSC behavioral styles pair with a demonstration of higher communication and professionalism competencies in residency, programs can select to adopt institutional policies that permits them to interview and rank applicants that have higher predictability for success in residency. When programs match with applicants having less disciplinary issues to address in residency, they can provide a means for maximizing efficiency with programmatic resources, yielding more opportunities for innovative practices within the program, and an allocation of resources to work with each resident to attain higher levels of personal and professional achievement, including, but

not limited to skills in research, leadership within the discipline, promotion of academic medicine, etc.

The establishment of institutional and programmatic policy surrounding Wellness curricula within a residency has become the newest addition to the ACGME's core program requirements (insert ACGME source). As many programs develop curricula to address this new area of focus, they might benefit to review Professionalism milestone #4 (which was measured and analyzed in this study), as it provides objective language to measure a resident physician's ability to maintain emotional, physical, and mental health; and pursues continual personal and professional growth. Specifically, this milestone targets a resident's application of basic principles of physician wellness and balance in life to adequately management personal, emotional, physical, and mental health; and their ability to balance physician well-being with patient care needs. This dissertation study provides methodology for program's to measure a resident physician's competency, development, and current status of wellness, while further learning more about behavior styles of each resident that renders a correlation for developing the competency for wellness in residency. By assessing a resident's behavior style, and determining their likelihood for competency in the area of wellness, programs can tailor curricula to meet their residents where they currently function with wellness. Further, it provides a means for institutional/program wellness policy evaluation, and promotes annual review to consider potential changes based on current resident needs – ultimately, holding programs accountable and responsible for ensuring wellness of their learners.

This study has further impacted the University of Kentucky's Family Medicine residency program's approach to Leadership and Teamwork curricula design, positively

enhancing institutional policy efforts in these areas. In an era where budget cuts prompt interdisciplinary efforts to maximize resources, resident physicians are working on multidisciplinary teams to meet the needs of patients, and their education. A medical team in today's academic medicine environment commonly includes board-certified physicians, resident physicians, physician assistants, nurse practitioners, patient aides, social workers, clerical staff, and medical student observers. These teams provide a scope of valued services, and varying behavior styles in regards to their engagement (or lack thereof) within their team. The success of patient service is dependent on the ability of each team member to work cohesively within the parameter of their respective role. This study prompted curricula to be developed where resident physicians were provided their DiSC, and Communication/Professionalism scores, and provided workshops and other didactic learning sessions to learn how their behavior style may be considered as an advantage in leadership and team environments, as well as negatively perceived by their clinical teams. These curricula developments prompt resident physicians to think more critically and introspectively about their specific behavior styles in team dynamics, and how varying behavior styles could be better understood and approached to enhance patient care and other institutional services.

Future Research

The DiSC assessment yields numeric scoring in all four of the behavior-style categories. Research related to this study analyzed resident physician DiSC scores as it related to the category that rendered the highest score. Interestingly, several study participants were nearly tied in two of the four categories -- sometimes having a numeric difference of 1 or 2 values below the predominant score. As a result, future study of this

data might yield significance in considering a participant's top-two score combinations (For example, studying a top-two score of "CD", rather than only looking at only a predominant "C" score). Studying the uniqueness of a top-two combination behavior style, as it relates to Communication and Professionalism, may prove valuable for curricula development and the resident physician's personal and professional development. For example, someone scoring a CD may demonstrate a unique set of skills in comparison to someone scoring a CS; however, might not be approached differently without considering the value of their second predominant behavior style.

This study focused exclusively on resident physicians selecting to practice in the medical specialty of Family Medicine. Overall, 85% of the subjects in this study rendered a DiSC score of "S" or "I." Over half (52%) of those were categorized as "S" behavior types. It could be significant if it were statistically deduced that specific DiSC behavior types correlate to selecting specific medical education specialties. For example, might the nature of the specialty of Family Medicine, or any similar primary care focused specialties (Internal Medicine and/or Pediatrics), attract "S" behavior types? Might the specialties of Emergency Medicine or Surgery, and other non-primary care focused specialties attract resident physicians that exhibit other specific DiSC behavior styles? If research were to purport these correlational trends, the impact on graduate medical education curricula development and evaluation would be remarkable. Learning predominant behavior style trends of each specialty's learners would provide faculty and staff of each program the opportunity to design a programmatic infrastructure that caters to the strengths of each behavior type, and professionally develops those areas for growth, too. Further, each specialty's milestone competency evaluation could be

addressed with markers for likelihood of success, and/or struggle, based on strengths/weaknesses of the DiSC behavior type. This knowledge creates the creative flexibility to meet the unique needs of each learner via residency curricula (orientation, workshops, research, wellness activities, board review didactics, etc.).

Resident physician wellness is another area for incorporating potential research opportunities that yield from this dissertation study. As previously mentioned, a new area of graduate medical education accreditation includes language surrounding the required inclusion of resident wellness initiatives into current program curricula. Generally, wellness is a broad-term that could be interpreted in many ways. An accreditation body will expect to see wellness initiatives that extend beyond, "Resident physicians must be able to use time-off to attend medical appointments," and "Resident physicians must not accrue more than 80 duty hours in one week, averaged across the span of a 4-week rotation month." Because the ACGME accreditation body recently required resident physician evaluation in the area of wellness, residents scoring lower in Professionalism Milestone 4 (the wellness milestone) can be more easily identified as predictive of their DiSC score. This knowledge impacts residency programs to preemptively address wellness initiatives and maintenance of wellness goals based on the strengths of each behavior style.

Last, it may be beneficial to conduct pre- and post-research on residency program resource analyses of the time and cost each residency program annually allocates to addressing and providing remedy to disciplinary resident cases, before and after implementing a DiSC behavior style strategy to resident selections (i.e. selecting residents to be a part of the program that predict higher likelihood for demonstrating

Communication and Professionalism skills throughout residency). Doing a time-study of time and finances spent on all aspects of treating a resident disciplinary case may yield tangible benefits of using the DiSC assessment as a strategy to reduce resource waste, and increase of resource efficiency.

Conclusion

The business and practice of medicine requires an array of competencies to be demonstrated by the physician. These broad-ranging competencies assist in maintaining a meeting of the 'bottom-line,' ensuring a continuity of return patients for ongoing clinical needs, and shaping the future of the family medicine specialty – among other effects. Specifically, implications of professionalism and communication skills, while in practice, can directly thread into the tapestry of success at any clinical practice, or professional setting. As a result, developing these skills at the developmental stage of residency education (within the specialty of choice) is a prime opportunity for residency programs to assess and develop these competencies, in collaboration with the resident physician. The limited time-frame of residency (3 years for family medicine residency) can serve as the foundation for developing a framework for a resident's future practice, post-residency. Frequently told to University of Kentucky family medicine residents: The business of medicine is less forgiving post-residency – residency is the time to make, and learn from your mistakes.

BIBLOGRAPHY

Bartlett, K. W., Whicker, S. A., Bookman, J., Narayan, A. P., Staples, B. B., Hering, H., & McGann, K. A. (2015). Milestone-Based Assessments Are Superior to Likert-Type Assessments in Illustrating Trainee Progression. *Journal of Graduate Medical Education*, *7*(1), 75–80. http://doi.org/10.4300

Brandler, T. C., Laser, J., Williamson, A. K., Louie, J., & Esposito, M. J. (2014). Team-Based Learning in a Pathology Residency Training Program. *American Journal Of Clinical Pathology*, *142*(1), 23-28. doi:10.1309/AJCPB8T1DZKCMWUT

Carrese, J. A., Malek, J., Watson, K., Lehmann, L. S., Green, M. J., McCullough, L. B., & Doukas, D. J. (2015). The essential role of medical ethics education in achieving professionalism: The Romanell Report. *Academic Medicine*, *90*(6), 744-752. doi:10.1097/ACM.0000000000000715

Dorotta, I., Staszak, J., Takla, A., & Tetzlaff, J. E. (2006). Teaching and evaluating professionalism for anesthesiology residents. *Journal Of Clinical Anesthesia*, *18*(2), 148-160. doi:10.1016/j.jclinane.2005.07.004

Freeman, V. (2011). Education Leadership: Exploring Personality Styles: DiSC "HIGH I" and Colors. *Review Of Higher Education & Self-Learning*, *3*(11), 54-57.

Freeman, V. (2009). Blue & C--Personality Traits of Leaders. *International Journal Of Educational Leadership Preparation*, *4*(1).

Friedman, K. A., Balwan, S., Cacace, F., Katona, K., Sunday, S., & Chaudhry, S. (2014). Impact on house staff evaluation scores when changing from a Dreyfus- to a Milestone-based evaluation model: one internal medicine residency program's findings. *Medical Education Online*, *19*, 10.3402/meo.v19.25185. http://doi.org/10.3402/meo.v19.25185

Hicks, P. J., Englander, R., Schumacher, D. J., Burke, A., Benson, B. J., Guralnick, S., Carraccio, C. (2010). Pediatrics Milestone Project: Next Steps Toward Meaningful Outcomes Assessment. *Journal of Graduate Medical Education*, *2*(4), 577–584.http://doi.org/10.4300/JGME-D-10-00157.1

Hochberg, M. S., Kalet, A., Zabar, S., Kachur, E., Gillespie, C., & Berman, R. S. (2010). Can professionalism be taught? Encouraging evidence. *American Journal Of Surgery*,*199*(1), 86-93. doi:10.1016/j.amjsurg.2009.10.002

Kayhan, Z. (2014). Teaching Our Students, Our Residents and Ourselves. *Turkish Journal Of Anesthesia & Reanimation*, *42*(1), 1-5. doi:10.5152/TJAR.2014.26121

Khaliq, A. A., Dimassi, H., Huang, C., Narine, L., & Smego, R. A. (2005). Disciplinary action against physicians: Who is likely to get disciplined?. *American Journal Of Medicine*, *118*(7), 773-777. doi:10.1016/j.amjmed.2005.01.051

Lattore, P., & Lumb, P. (2005). Professionalism and interpersonal communications: ACGME competencies and core leadership development qualities. Why are they so important and how should they be taught to anesthesiology residents and fellows?...part one of a two part series. *Seminars In Anesthesia, Perioperative Medicine & Pain*, *24*(3), 134-137 4p.

Lee, A. G., Beaver, H. A., Boldt, H. C., Olson, R., Oetting, T. A., Abramoff, M., & Carter, K.(2007).Teaching and Assessing Professionalism in Ophthalmology Training Programs. *Survey Of Ophthalmology*, *52*(3), 300-314. doi:10.1016/j.survophthal.2007.02.003

Lurie, S.J, Mooney C.J., Lyness, J.M. Measurement of the general competencies of the Accreditation Council for Graduate Medical Education: a systemic review. *Academic Medicine*. 2009; 84:301-309.

Marrero, I., Bell, M., Dunn, L. B., & Roberts, L. W. (2013). Assessing Professionalism and Ethics Knowledge and Skills: Preferences of Psychiatry Residents. *Academic Psychiatry*, *37*(6), 392-397.

Mellor, M. J., Hyer, K., & Howe, J. L. (2002). The Geriatric Interdisciplinary Team Approach: Challenges and Opportunities in Educating Trainees Together from a Variety of Disciplines. S. *Educational Gerontology*, *28*(10), 867-880. doi:10.1080/03601270290099868

Mueller, P. S. (2015). Teaching and Assessing Professionalism in Medical Learners and Practicing Physicians. *Rambam Maimonides Medical Journal*, *6*(2), e0011. http://doi.org/10.5041/RMMJ.10195

Potts, J. 3. (2016). Assessment of Competence: The Accreditation Council for Graduate Medical Education/Residency Review Committee Perspective. *The Surgical Clinics Of North America*, *96*(1), 15-24. doi:10.1016/j.suc.2015.08.008

Rider, E., & Keefer, C. (2006). Communication skills competencies: definitions and a teaching toolbox. *Medical Education*, *40*(7), 624-629 6p.

Slowikowski, M. (2005). Using the DISC behavioral instrument to guide leadership and communication. *AORN Journal*, *82*(5), 835-843 6p. doi:10.1016/S0001-2092(06)60276-7

Sugerman, J. (2009). Using the DISC® model to improve communication effectiveness. *Industrial & Commercial Training*, *41*(3), 151-154. doi:10.1108/00197850910950952

Suman, E. (2009). Role of Behavioral and Personality Instruments in the Improvement of Team Effectiveness in the Organization. *Perspectives Of Innovations, Economics & Business*, *3*(3), 80-82.

The Accreditation Council for Graduate Medical Education and The American Board of Family Medicine, "The Family Medicine Milestone Project."2013, p. 7.

Vanstone, M., Watling, C., Goldszmidt, M., Weijer, C., & Lingard, L. (2014). Resigned Professionalism? Non-Acute Inpatients and Resident Education. *Advances In Health Sciences Education*, *19*(4), 529-539.

Varney, A., Todd, C., Hingle, S., & Clark, M. (2009). Description of a Developmental Criterion-Referenced Assessment for Promoting Competence in Internal Medicine Residents. *Journal of Graduate Medical Education*, *1*(1), 73–81. http://doi.org/10.4300/01.01.0012

Wyer, P. C. (2014). On Carts and Horses: Professionalism and the Crisis in Assessment of Graduate Medical Education. *Annals Of Emergency Medicine*, *63*(1), 68-70 3p. doi:10.1016/j.annemergmed.2013.09.003

APPENDIX

Appendix A:

Institutional Review Board Approval

From: Sponsored Programs
To: Atherton, Jillian M.
Subject: IRB Approval Notification: Protocol Number #1084
Date: Friday, October 20, 2017 11:42:26 AM

Application Management

Hello Jillian Atherton,

Congratulations! The Institutional Review Board at Eastern Kentucky University has approved your **IRB Application for Exemption Certification** for your application entitled, "**Behavior Style Profile Indicators of Communication and Professionalism in a Family Medicine Residency (1084)**." Your approval is effective immediately and expires three years from the approval date.

Exempt status means that your research is exempt from further review for a period of three years from the original notification date if no changes are made to the original protocol. If you plan to continue the project beyond three years, you are required to reapply for exemption.

Principal Investigator Responsibilities: It is the responsibility of the principal investigator to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects and follow the approved protocol.

Adverse Events: Any adverse or unexpected events that occur in conjunction with this study must be reported to the IRB within ten calendar days of the occurrence.

Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a description of those changes must be submitted for IRB review and approval prior to implementation. If the changes result in a change in your project's exempt status, you will be required to submit an application for expedited or full IRB review. Changes include, but are not limited to, those involving study personnel, subjects, and procedures.

Other Provisions of Approval, if applicable: None

Please contact Sponsored Programs at 859-622-3636 or send email to lisa.royalty@eku.edu with questions.

For your reference, we have included feedback on your application that was submitted during the review process.

View Application

Feedback on Your Application

Appendix B:

The Family Medicine Milestone Project Professionalism Milestone 1

Version 9/2013

PROFESSIONALISM

Family physicians share the belief that health care is best organized and delivered in a patient-centered model, emphasizing patient autonomy, shared responsibility, and responsiveness to the needs of diverse populations. Family physicians place the interests of patients first while setting and maintaining high standards of competence and integrity for themselves and their professional colleagues. Professionalization is the developmental process that requires individuals to accept responsibility for learning and maintaining the standards of the discipline, including self-regulating lapses in ethical standards. Family physicians maintain trust by identifying and ethically managing the potential conflicting interests of individual patients, patients' families, society, the medical industry, and their own self-interests.

PROF-1 Completes a process of professionalization					
Has not achieved Level 1	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
	Defines professionalism Knows the basic principles of medical ethics Recognizes that conflicting personal and professional values exist Demonstrates honesty, integrity, and respect to patients and team members	Recognizes own conflicting personal and professional values Knows institutional and governmental regulations for the practice of medicine	Recognizes that physicians have an obligation to self-discipline and to self-regulate Engages in self-initiated pursuit of excellence	Embraces the professional responsibilities of being a family physician	Demonstrates leadership and mentorship in applying shared standards and ethical principles, including the priority of responsiveness to patient needs above self-interest across the health care team Develops institutional and organizational strategies to protect and maintain these principles
☐	☐	☐	☐	☐	☐
Comments:					

Appendix C:

The Family Medicine Milestone Project Professionalism Milestone 2

PROF-2 Demonstrates professional conduct and accountability					
Has not achieved Level 1	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
	Presents him or herself in a respectful and professional manner Attends to responsibilities and completes duties as required Maintains patient confidentiality Documents and reports clinical and administrative information truthfully	Consistently recognizes limits of knowledge and asks for assistance Has insight into his or her own behavior and likely triggers for professionalism lapses, and is able to use this information to be professional Completes all clinical and administrative tasks promptly Identifies appropriate channels to report unprofessional behavior	Recognizes professionalism lapses in self and others Reports professionalism lapses using appropriate reporting procedures	Maintains appropriate professional behavior without external guidance Exhibits self-awareness, self-management, social awareness, and relationship management Negotiates professional lapses of the medical team	Models professional conduct placing the needs of each patient above self-interest Helps implement organizational policies to sustain medicine as a profession
☐	☐	☐	☐	☐	☐
Comments:					

Appendix D:

The Family Medicine Milestone Project Professionalism Milestone 3

PROF-3 Demonstrates humanism and cultural proficiency					
Has not achieved Level 1	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
	Consistently demonstrates compassion, respect, and empathy Recognizes impact of culture on health and health behaviors	Displays a consistent attitude and behavior that conveys acceptance of diverse individuals and groups, including diversity in gender, age, culture, race, religion, disabilities, sexual orientation, and gender identity Elicits cultural factors from patients and families that impact health and health behaviors in the context of the biopsychosocial model Identifies own cultural framework that may impact patient interactions and decision-making	Incorporates patients' beliefs, values, and cultural practices in patient care plans Identifies health inequities and social determinants of health and their impact on individual and family health	Anticipates and develops a shared understanding of needs and desires with patients and families; works in partnership to meet those needs	Demonstrates leadership in cultural proficiency, understanding of health disparities, and social determinants of health Develops organizational policies and education to support the application of these principles in the practice of medicine
☐	☐	☐	☐	☐	☐
Comments:					

Appendix E:

The Family Medicine Milestone Project Professionalism Milestone 4

PROF-4 Maintains emotional, physical, and mental health; and pursues continual personal and professional growth					
Has not achieved Level 1	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
	Demonstrates awareness of the importance of maintenance of emotional, physical, and mental health Recognizes fatigue, sleep deprivation, and impairment	Applies basic principles of physician wellness and balance in life to adequately manage personal emotional, physical, and mental health Balances physician well-being with patient care needs Accepts constructive feedback	Actively seeks feedback and provides constructive feedback to others Recognizes signs of impairment in self and team members, and responds appropriately	Appropriately manages situations in which maintaining personal emotional, physical, and mental health are challenged	Optimizes professional responsibilities through the application of principles of physician wellness to the practice of medicine Maintains competency appropriate to scope of practice
☐	☐	☐	☐	☐	☐
Comments:					

Appendix F:

The Family Medicine Milestone Project Communication Milestone 1

Version 10/2015
COMMUNICATION

The family physician demonstrates interpersonal and communication skills that foster trust, and result in effective exchange of information and collaboration with patients, their families, health professionals, and the public.

C-1 Develops meaningful, therapeutic relationships with patients and families					
Has not achieved Level 1	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
	Recognizes that effective relationships are important to quality care	Creates a non-judgmental, safe environment to actively engage patients and families to share information and their perspectives	Effectively builds rapport with a growing panel of continuity patients and families Respects patients' autonomy in their health care decisions and clarifies patients' goals to provide care consistent with their values	Connects with patients and families in a continuous manner that fosters trust, respect, and understanding, including the ability to manage conflict	Role models effective, continuous, personal relationships that optimize the well-being of the patient and family
☐	☐	☐	☐	☐	☐
Comments:					

Appendix G:

The Family Medicine Milestone Project Communication Milestone 2

C -2 Communicates effectively with patients, families, and the public					
Has not achieved Level 1	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
	Recognizes that respectful communication is important to quality care Identifies physical, cultural, psychological, and social barriers to communication Uses the medical interview to establish rapport and facilitate patient-centered information exchange	Matches modality of communication to patient needs, health literacy, and context Organizes information to be shared with patients and families Participates in end-of-life discussions and delivery of bad news	Negotiates a visit agenda with the patient, and uses active and reflective listening to guide the visit Engages patients' perspectives in shared decision making Recognizes non-verbal cues and uses non-verbal communication skills in patient encounters	Educates and counsels patients and families in disease management and health promotion skills Effectively communicates difficult information, such as end-of-life discussions, delivery of bad news, acknowledgement of errors, and during episodes of crisis Maintains a focus on patient-centeredness and integrates all aspects of patient care to meet patients' needs	Role models effective communication with patients, families, and the public Engages community partners to educate the public
☐	☐	☐	☐	☐	☐
Comments:					

Appendix H:

The Family Medicine Milestone Project Communication Milestone 3

C -3 Develops relationships and effectively communicates with physicians, other health professionals, and health care teams					
Has not achieved Level 1	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
	Understands the importance of the health care team and shows respect for the skills and contributions of others	Demonstrates consultative exchange that includes clear expectations and timely, appropriate exchange of information Presents and documents patient data in a clear, concise, and organized manner	Effectively uses Electronic Health Record (EHR) to exchange information among the health care team Communicates collaboratively with the health care team by listening attentively, sharing information, and giving and receiving constructive feedback	Sustains collaborative working relationships during complex and challenging situations, including transitions of care Effectively negotiates and manages conflict among members of the health care team in the best interest of the patient	Role models effective collaboration with other providers that emphasizes efficient patient-centered care
☐	☐	☐	☐	☐	☐
Comments:					

Appendix I:

The Family Medicine Milestone Project Communication Milestone 4

C-4 Utilizes technology to optimize communication					
Has not achieved Level 1	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
	Recognizes effects of technology on information exchange and the physician/patient relationship Recognizes the ethical and legal implications of using technology to communicate in health care	Ensures that clinical and administrative documentation is timely, complete, and accurate Maintains key patient-specific databases, such as problem lists, medications, health maintenance, chronic disease registries Uses technology in a manner which enhances communication and does not interfere with the appropriate interaction with the patient	Ensures transitions of care are accurately documented, and optimizes communication across systems and continuums of care	Effectively and ethically uses all forms of communication, such as face-to-face, telephonic, electronic, and social media Uses technology to optimize continuity care of patients and transitions of care	Stays current with technology and adapts systems to improve communication with patients, other providers, and systems
☐	☐	☐	☐	☐	☐
Comments:					

Appendix J:

(TTI Success Insights Performance Management DiSC Assessment)

GETTING TO KNOW ME!

For each pair of phrases below, assign a total of 5 points by dividing the points between the two adjectives according to how much they describe you. For instance, if one phrase describes you very well and the other not at all; you would score one phrase with 5 points and the other phrase with 0. If one phrase is just a little more accurate, you would weight that score with 3 points and the other phrase with 2 points.

I want to take action.	☐			
I am considered lively.		☐		
I want to know the details.			☐	
I feel concern for others.				☐
I usually persuade others to my point of view.		☐		
I understand how important it is to show appreciation.				☐
I know that to do things right you have to be logical.			☐	
I want to be memorable.		☐		
I believe that getting along with others is critical.				☐
I believe that hard work always pays off.	☐			
I believe that to do a job right, you have to be precise.			☐	
I believe that you have to stand up for yourself.	☐			
I believe in telling it like it is.	☐			
I believe in relating facts.			☐	
I believe you have to take risks to be successful.	☐			
I believe you have to stay balanced.				☐
I believe that you should never leave a task incomplete.			☐	
I believe that sometimes you should let a problem solve itself.		☐		

GETTING TO KNOW ME!

I believe that someone has to be in charge.	☐			
I believe that someone has to ensure accuracy.			☐	
I believe that charming people have the most influence.		☐		
I believe in strong impressions.	☐			
I believe in always following through.			☐	
I believe in sharing work load and responsibilities				☐
I believe in enabling others to be their best.				☐
I believe in challenging others to excel.	☐			
I believe in waiting for others to come around.				☐
I believe in taking opportunities when they come.		☐		
I believe in taking time to talk.		☐		
I believe that I have to be the best.	☐			
I believe in being there for people when they need you.				☐
I believe in cheering up a tense atmosphere.		☐		
I believe that things always work out for the best.		☐		
I believe that success results from being organized.			☐	
I believe that I have to depend on myself first.	☐			
I believe in giving help to whoever needs it.				☐
	D	I	C	S
TOTAL SCORES	_____	_____	_____	_____

Curriculum Vitae

Jillian Marie Atherton, Ed.D., LPCC

I. General Information

Home Address:	712 Amanda Court, Richmond, KY 40475
Office Address:	2195 Harrodsburg Road, Ste. 125, Lexington, KY 40504
Office Telephone:	859-323-6712
FAX:	859-323-6661
E-Mail:	jmta226@uky.edu
Cell Phone:	859-248-7872
Date of Birth	10/05/1983
Name of Specialty Board(s) Counselors	Kentucky Board of Licensed Professional
Certifications	EEG Biofeedback; Neurofeedback (2004-Present)

II. Education

1/2015 – Present	Eastern Kentucky University
	Doctor of Education-ABD, Educational Leadership and Policy Studies
06/2006 – 01/2011	Capella University
	Doctor of Philosophy-ABD, Human Services and Counseling
8/2004 - 5/2006	Lindsey Wilson College – School of Professional Counseling
	Master of Education, Mental Health Counseling and Human Development
	With Honors, Summa Cum Laude, Alpha Chi Omega
8/2004 – 5/2006	EEG Spectrum

	EEG Biofeedback/ Neurofeedback Certification
1/2002 – 5/2004	Lindsey Wilson College – School of Professional Counseling
	Bachelor of Arts, Mental Health Counseling and Human Services
	With Honors, Summa Cum Laude

III. Professional Experiences

University of Kentucky Department of Family & Community Medicine

12/2015 - Present	Senior Medical Education Specialist, Lexington, KY
	(Graduate Academic Medicine, Accreditation, Curriculum Development)
02/2012 – 12/2015	Family Medicine Residency Program Coordinator, Lexington Campus
	(Graduate Academic Medicine, Accreditation, Curriculum Development)
02/2012 – 12/2015	Family Medicine Residency Program Coordinator, Rural Training Track, Morehead, KY
02/2012 – 12/2015	Family Medicine Sports Medicine Fellowship Senior Medical Education Evaluator, Lexington, KY
02/2012 – 12/2015	Family Medicine 4th Year Medical Student Education Program Coordinator, Lexington, KY
	(Global Health, Academic Medicine, Accreditation, Curriculum Development)

Eastern Kentucky University

01/2015 – Present	Undergraduate/Graduate Faculty
01/2015 – 10/2015	Bluegrass State Intelligence Community Center of Academic Excellence (GRANT), Program Coordinator/Academic Advisor, Richmond, KY

KY-ASAP

2002 - 2008 Community Health Education Director, Researcher & Grant Writer

Lindsey Wilson College

2004 - 2011 Clinical Faculty

2004 - 2011 Supervisor/Clinical Counselor – School of Professional Counseling

IV. Academic Appointments

2015 - Present Undergraduate/Graduate Faculty

Eastern Kentucky University

College of Justice and Safety – Intelligence Studies, Occupational Safety

2006 - 2011 Clinical Faculty

Lindsey Wilson College

School of Professional Counseling

(Columbia, Louisville, London, Hazard, Lexington, Maysville,

Scottsville/Glasgow, Somerset campuses)

V. Clinical Appointments

2004 - 2011 Licensed Professional Clinical Counselor

Lindsey Wilson College

School of Professional Counseling

Columbia, KY

VI. Teaching Activities

Eastern Kentucky University

2015 - Present SSE 880: Research Methods

SSE 885: Statistics

EES 250: Social Intelligence

EES Module: Critical Thinking

GSD 101: Freshmen Seminar

Lindsey Wilson College – School of Professional Counseling

(Human Services & Mental Health Counseling)

2004 - 2011 HS 2903: Introduction to Counseling Theory

HS 2953: Principles & Techniques of Group Counseling

HS 3023: Career Counseling

HS 3103: Life Span Development

HS 3153: Abnormal Psychology

HS 3233: Child Development and Case Management

HS 3503/4943/4953: Practicum I, II, & III

HS 4003: Research Methods & Statistics

HS 4013: Gender Studies

HS 4343: Substance Abuse & Criminal Justice

HS 4893: Mental Health Administration

HS 4243: Creative Counseling

HS 4263: Crisis Intervention

VII. Group and Learner Advising Activities

2012 – Present	Academic Advising, University of Kentucky – Family Medicine/Sports Medicine
2015	Academic Advising, Eastern Kentucky University - Intelligence Studies
2006 - 2011	Academic Advising, Lindsey Wilson College School of Professional Counseling Students

VIII. Administrative Activities and University Service

University of Kentucky

2013 - Present	Family Medicine and Sports Medicine Clinical Competency Committee
2012 - Present	Family Medicine and Sports Medicine Program Evaluation & Curriculum Committee
2012 - Present	HRSA Residency Training Grant Evaluation and Curriculum Committee
2012 - Present	Graduate Medical Education Program Coordinators Committee
2012 - Present	College of Medicine M3/M4 Course Coordinators Committee
2012 – Present	Faculty Development Committee
2012 – Present	Faculty/Department Retreat Committee

Lindsey Wilson College

2006 - 2011	Professional Counseling Faculty Development Committee
2006 - 2011	Professional Counseling Curriculum Committee
2006 - 2011	SACS Accreditation Committee
2004 – 2011	Professional Counseling Program Evaluation Committee
2004 – 2006	Graduate Assistant

IX. Honors and Awards

2008	Emerging Leader, Kentucky Counselors Association
2004 - 2009	Secretary, Treasurer & Conference Coordinator, Kentucky Mental Health Counselors Association
2004 - 2009	Secretary and Treasurer, South Central Kentucky Mental Health Counselors Association
2004 – 2006	President, Alpha Chi Omega, Honor Society in Professional Counseling
2003 - 2004	Vice President, Lindsey Wilson University Senior Class

X. Professional Activity, Public Service and Professional Development

2012 – Present	Society of Teachers in Family Medicine (STFM)
2012 – Present	Accreditation Counsel of Graduate Medical Education (ACGME)
2005 – 2011	American Counselors Association (ACA)
2004 – 2011	Kentucky Counselors Association (KCA)
2004 - 2011	Kentucky Mental Health Counselors Association (KMHCA)
2004 - 2011	South Central Kentucky Mental Health Counselors Association (SCKMHCA)

XI. Scholarly Presentations

Ballard, J.; Moore, W.; Keck, J.; Kudrimoti, A.; Barron, M.; **Atherton, J.;** Elder, W.; Rankin, W. “Resident-Led Initiative to Improve Preventive Care Quality Outcomes Using a Clinical Dashboard.” Society of Teachers of Family Medicine (STFM) Conference on Practice Improvement, Louisville, KY. December, 2017. (Research Poster).

Atherton, J. "Leadership in a Family Medicine Residency: Communication and Professionalism Trends Using DiSC Behavioral Profiles." Society of Teachers of Family Medicine (STFM) Annual spring Conference, San Diego, CA. May, 2017.

Atherton, J. "Developing a Wellness and Resiliency Curriculum in Graduate Medical Education." 2017 Accreditation Council for Graduate Medical Education (ACGME) Annual Education Conference, Orlando, FL. March, 2017.

Rankin, W.; Perez, O.; Evans-Rankin, K.; McGaugh, JM.; Meredith, B.; Nithyanandam, S.; Ballard. J.; **Atherton, J.** "Implementation of standardized controlled substance abuse agreements to improve patient safety and patient/provider satisfaction." Society of Teachers of Family Medicine (STFM) Conference on Practice Improvement, Newport Beach, CA. December, 2016. (Research Poster).

Ballard, J.; Perez, O.; Elder, W.; **Atherton, J.**; Hustedde, C.; Bennett, K.; Smith, B. "Improving behavioral health integration in a family medicine residency through implementing the SBIRT (Screening, brief intervention, and referral to treatment) model." Society of Teachers of Family Medicine (STFM) Conference on Practice Improvement, Newport Beach, CA. December, 2016. (Research Poster).

Rankin, W.; Perez, O.; Evans-Rankin, K.; McGaugh, JM.; Meredith, B.; Nithyanandam, S.; Ballard. J.; **Atherton, J.** "Implementation of standardized controlled substance abuse agreements to improve patient safety and patient/provider satisfaction." 2016 Kentucky Academy of Family Physicians Annual Meeting, Lexington, KY. November, 2016. (Research Poster).

Atherton, J.; Perez, O.; Tovar, E.; Ballard, J. "Developing a 'Residents as Teachers' curriculum track in a family medicine residency program." 2015 Society of Teachers of Family Medicine (STFM) Annual Spring Conference, Minneapolis, MN. April, 2015. (Podium).

Rankin, W.; Perez, O.; Evans-Rankin, K.; McGaugh, JM.; Meredith, B.; Nithyanandam, S.; **Atherton, J**.; Ballard, J. "Implementation of standardized controlled substance agreements to improve patient safety and patient/provider satisfaction." 2016 Society of Teachers of Family Medicine (STFM) Annual Conference on Practice Improvement, Newport Beach, CA. December, 2016. (Poster).

Ballard, J.; Bennett, K.; Elder, W.; **Atherton, J.**; Hustedde, C.; Perez, O. "Improving behavioral health integration in a family medicine residency through implementing the SBIRT (Screening, Brief Intervention, and Referral to Treatment) model." 2016 Society of Teachers of Family Medicine (STFM) Annual Conference on Practice Improvement, Newport Beach, CA. December, 2016. (Poster).

Gearlds, A.; Gottschalk, G.; **Atherton, J.**; King, M.; Barron, M.; Pearce, K.; Perez, O.; Tovar, E.; Ballard, J. "Improving diabetes-related national quality forum clinical quality measures through standardized care management developed by a diabetes quality

improvement team." 2015 Society of Teachers of Family Medicine (STFM) Annual Conference on Practice Improvement, Dallas, TX. December, 2015. (Poster-Accepted).

Ballard, J.; Cardarelli, R.; Smith, B.; Tovar, E.; **Atherton, J.**; King, M.; Perez, O. "Reducing potentially avoidable emergency department visits by improving patient connections with their primary care team in a family medicine residency." 2015 Society of Teachers of Family Medicine (STFM) Annual Conference on Practice Improvement, Dallas, TX. December, 2015. (Paper).

Tovar, E.; **Atherton, J.**; Ballard, J.; Barron, M.; King, M.; Perez, O. "Beyond PBLI – building a framework for clinic-based quality improvement practice teams." 2015 Society of Teachers of Family Medicine (STFM) Annual Conference on Practice Improvement, Dallas, TX. December, 2015. (Paper).

Atherton, J., King, M. "ACGME Accreditation Self-Study Site Visit." 2015 ACGME Conference, San Diego, CA. February, 2015. (SPECIAL INTEREST WORKSHOP)

Atherton, J., King, M. "What to Expect and How to Prepare for an ACGME Site Visit." 2015 GME Program Directors Conference, Tampa, FL. January, 2015. (INVITED EXPERT SPEAKER / SPECIAL INTEREST WORKSHOP)

Tovar, E.; **Atherton, J.**; Gomez, M.; King, M.; Perez, O.; Ballard, J. "Use of DiSC Profile to Facilitate Teamwork, Communication and Professionalism in a Family Medicine Residency Program." 2014 Society of Teachers of Family Medicine (STFM) Annual Conference on Practice Improvement, Tampa, FL. December, 2014. (SPECIAL INTEREST DISCUSSION)

Gonsalves, W.; Pfeifle, A.; **Atherton, J.** "CME: Competencies, Milestones, and EPA's." University of Kentucky Department of Family and Community Medicine Faculty Development, Lexington, KY. July, 2014. LECTURE

Tovar, E., King, M., Perez, O., **Atherton, J.**, Barron, M. "Development and Evaluation of a Quality Healthcare Curriculum: Successes, Pitfalls, and Future Directions." 2013 Society of Teachers of Family Medicine (STFM) Annual Conference on Practice Improvement, San Diego, CA. November, 2013. SPECIAL INTEREST DISCUSSION

Atherton, J. "NAS, Milestones and the Clinical Competency Committee." 2013 Department of Family and Community Medicine Retreat, Slade, KY, May, 2013. PODIUM.

Atherton, J. "Generational Synchronicity." 2013 Department of Family and Community Medicine Retreat, Slade, KY, May, 2013. PODIUM.

Atherton, J. "Professionalism Evaluation in a Family Medicine Residency Program" 2013 Department of Family and Community Medicine Conference, Lexington, KY, April, 2013. PODIUM.

Tovar, E., King, M., Pfeifle, A., Wheeler, K., Perez, O., Ballard, **J., Atherton**, J., Barron, M. "Using Practice Based Learning and Improvement to Prepare Primary Care Physicians for Quality Health Care Grounded in Principles of the Patient Centered Medical Home." 46th STFM Annual Spring Conference, Baltimore, MD. May, 2013. POSTER.

Atherton, J. "Womens Studies and Politics." 2008 American Counselors Association Annual Conference, San Diego, CA, March, 2011. PODIUM

Atherton, J. "Implementing SACS Accreditation Standards into Undergraduate Curriculums." 2008 American Counselors Association Annual Conference, Washington, DC, March, 2010. PODIUM

Atherton, J. "Gender and Pop Culture." 2008 American Counselors Association Annual Conference, Detroit, MI, March, 2009. PODIUM

Atherton, J. "Using Quantitative Evaluative Measures in Graduate Studies." 2008 American Counselors Association Annual Conference, Honolulu, HI, March, 2008. PODIUM

Tauffener, J. "Theories of Application in Criminal Justice." 2007 South Central Kentucky Mental Health Counselors Association Conference, Russell Springs, KY, October, 2007. PODIUM.

Tauffener, J. "Alcohol and Substance Abuse Prevention: Implementing Drug Courts" 2006 KY-ASAP Conference, Columbia, KY, October, 2006. PODIUM.

Tauffener, J. "Riding the Waves: Neurofeedback." 2006 Kentucky Mental Health Counselors Association Conference, Somerset, KY, May 2006. PODIUM. (Published Abstract, *Kentucky Counseling.* June 2006, Volume 42, Sup. 4.)

Tauffener, J. "Treating ADHD Using Neurofeedback." 2005 Kentucky Counselors Association Conference, Louisville, KY, October 2005. PODIUM.

XII. Grant Activity:

2012 - 2017	**Co-Investigator of Evaluation:** ***Health Resources and Services Administration (***HRSA), Project Title: Residency Training Grant in Primary Care.

	Total Award: $712,458.
2012 - 2017	**Grant Coordinator:** ***Health Resources and Services Administration (***HRSA), Project Title: Residency Training Grant in Primary Care.
	Total Award: $712,458.
2015	**Grant Coordinator:** Eastern Kentucky University Bluegrass State Intelligence Community Center of Academic Excellence.
	Total Award: $3,302,000.
2002 - 2008	**Principal Investigator/Program Coordinator**: ***KY-ASAP***, Project Title: Title IV Office of Drug Control Policy.
	Total Award: $300,000.
2004 - 2006	**Principal Investigator:** ***Appalachian Regional Commission,*** Project Title: Washington Center Progressive Student Organization.
	Total Award: $20,000.