EVALUATING THE CLINICAL PREPARATION OF PHYSICIAN ASSISTANT VERSUS NURSE PRACTITIONER STUDENTS AND THE CHARACTERISTICS OF THEIR PRECEPTORS

By

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This thesis is submitted by Robyn Mitchell and has been examined and approved by an appointed committee of the faculty of the School of Graduate Studies of the Medical College of Georgia.

The signatures, which appear below, verify the fact that all required changes have been incorporated and that the thesis has received final approval with reference to content, form, and accuracy of presentation.

This thesis is therefore in partial fulfillment of the requirements for the degree of Master of Health Education.

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INTRODUCTION

A. Statement of the Problem

Physician assistants and nurse practitioners fill a similar niche in today's healthcare system. Both seek to provide greater access to healthcare, and PAs particularly, allow for more appropriate physician utilization by patients. However, the theoretical, curricular, and training backgrounds of these mid-level practitioners differ greatly. Both professions require a certain portion of clinical training to be attained by the respective students, usually with a practicing licensed provider who chooses to participate in the clinical educational process. These individuals are referred to as preceptors, and they may be physicians, nurse practitioners, or physician assistants. Nurse practitioner programs also utilize nurses, social workers, and pharmacists in some instances. This study seeks to determine who typically serves in training these professional students in southeast Georgia, and what their motivations may be. The preceptor role may be better defined, and their preferences for whom they train and why they do may be identified. This research may help educational institutions to form a better understanding of what preceptors need to learn about the respective professions, and to improve the structure of the programs' curricula by compensating for any comparative deficiencies of the students as identified by clinical preceptors.

The nurse practitioner movement began in the 1960s during a period of "health manpower shortage" in order to expand access to primary care as well as to expand the nursing role (Marchione 335). These practitioners started out

primarily acting in a health promotion/screening sense. Today, their roles have expanded greatly to include independent practice and total healthcare. They typically receive masters' degrees, but older programs awarded certificate degrees. Meanwhile, the physician assistant profession began in the mid-1960s at Duke as a physician extender position. Many of the early PAs were medics in the military who upon returning from active duty no longer had a true position in the civilian world. Today, most PA programs are in the process of becoming masters' level degrees if they are not already. Physician assistant philosophy mirrors that of physicians, while the nurse practitioner philosophy assumes more of a holistic, psychosocial approach.

There are many differences among nurse practitioner and physician assistant students. While nurse practitioner students have already achieved RN certification, or more commonly now BSN degrees, physician assistant students have a much more diverse background in medical experience. Some of the more common prior professions of PAs include EMTs, LPNs, nurses, radiology technicians, medics from military divisions, laboratory technicians, and medical assistants of various fields. While nursing has been a traditionally female-dominated field, physician assistant programs have been typically much more balanced in terms of their male: female ratios. However, there is an increasing percentage of females enrolling in PA programs across the country.

In regards to educational structure of PA and NP programs, there are also many differences. PAs usually experience more of an abbreviated form of medical school. Their first year is spent didactically with courses such as Gross Anatomy and Neuroscience, in addition to Physiology, Pharmacology, Physical Diagnosis, Psychosocial, and Clinical Medicine courses. Meanwhile, NP students have more varied experiences with courses such as "Delivery Systems and Models of Care, Pathophysiology, Pharmacology, Theory and Research, and Advanced Health Assessment" as is the outline for the NP program at the Medical College of Georgia. Both programs incorporate differing levels of clinical training, with PAs having at least one full year of rotations in each major area of medicine, while NPs often take a more focused approach, usually with much less inpatient exposure, and fewer clinical hours. However, these advanced nurses may have years of inpatient experience in a nursing setting from their prior careers as practicing nurses. NP programs are typically more specialized, allowing for these providers to choose degrees such as Adult Clinical Nurse Specialist, Community Health Clinical Nurse Specialist, Nurse Anesthetist, Parent-Child Clinical Nurse Specialist, Pediatric Nurse Practitioner, and Women's Healthcare Nurse Practitioner, among others. In turn, PA programs have begun to develop specialized residency programs for graduate PAs in areas such as Emergency Medicine, Urology, and Surgery. Some PA programs are solely devoted to PA anesthesiology or surgery instead of a general PA degree. This study will analyze whether preceptors prefer student providers who are pursuing

specialized NP degrees or PAs who are capable of practicing in any field. The opinions of the preceptors may also demonstrate their thoughts of general clinical preparation of these two providers, particularly specialized versus general medical training.

Additional purposes for this study are to help mid-level providers develop an understanding of the expectations that preceptors possess, as well as the biases or prejudices that exist. There appears to be an inherent competitive nature between the NP and PA professions, and the opinions of preceptors of both types of students may be helpful for these future providers to anticipate when seeking employment. Mid-level practitioners may be able to increase their level of marketability as a result of the outcome of this study, since the data may reveal preconceptions that potential employers possess.

Qualities of the clinical preceptors will be evaluated to better define the role of preceptor, and to help programs target providers to serve in this fashion. The educational experiences and tactics used by the preceptors in instructing students may greatly differ, and this study may help programs establish guidelines for preceptors to follow. Some preceptors assume a mentoring role, while others may act more as an instructor or advisor. Developing a better understanding of the methods utilized by preceptors in addition to these providers' own backgrounds in instructional education may allow for programs to better stratify clinical experiences for their students. The findings of this research may also help

programs expand their existing supplies of preceptors and begin to incorporate less traditional preceptors. Programs will be able to anticipate perceptions of preceptors and better educate them on the roles and abilities of their students.

Previous research has been performed on nurse practitioner clinical experiences in education, but little has been researched at a comparative level of the two professions. It has previously been established in research that there is a need for mid-level practitioners in rural as well as in urban areas. Other studies have examined the rural versus urban distribution of PAs versus NPs; however; this study will expand on the research that has been conducted on the clinical education of NP students, and include a comparison with PA students. Correlations may be drawn between sites of clinical rotations, and where the providers return to practice, impacting the level of availability in underserved areas. The preceptors' views on the two professions will be analyzed, as well as the students' comparative academic preparation versus experience for practicing clinical medicine.

The population primarily studied in this research will be the Southeast Georgia AHEC (Area Health Education Center), which divides the state by county into a regional distribution. These territories, as bounded by the AHECs, are inclusive of both rural and urban areas, as well as sites of at least one PA school and one or more NP schools. Prevalence of nonphysician providers may be linked to vicinity of educational facilities.

The preceptors evaluated will be those utilized by the Magnolia Coastlands AHEC, in addition to those preceptors who are listed at Georgia PA and NP schools to be within this territory. [Figure 1: map of the area studied]

B. Review of Related Literature

The organizational format for reviewing the literature for this topic was primarily through online database searches under the various aspects of this research query. There has been a great deal written about Nurse Practitioners, and there were several recent articles describing their preceptors and clinical training. There also were numerous articles about Physician Assistants, but little was on record in reference to PA student clinical education. Other sources sought were the current status of job availability, particularly in southeast Georgia, which is the region of interest in this study, and education of NPs and PAs. Since this proposal involves a new comparative study of the clinical training of NP and PA students, most of the literature reviewed were journal articles to form a basis for new research.

Much of current literature examines the views of primary care preceptors about Nurse Practitioner students, or the mentoring relationship between preceptors and NP students (Lyon & Peach, 2001; Beauchesne & Howard, 1996). However, little research has been performed in comparison of Physician Assistant and Nurse Practitioner students in a clinical setting. In an article on the role of the clinical coordinator by Sobralske & Naegele, the authors mention: "that competition with other primary care students, namely medical students and

physician assistant students, for limited ambulatory clinical sites decrease available clinical experiences" (2001). This competitive nature, particularly between nonphysician providers can foster a strained relationship between NP and PA students, as noted by Morgan & Trolinger in their studies of the clinical education of primary care NP students (1994).

NP students and PA students undergo differing paths of educational and clinical experiences. NP students only averaged 619 clinical hours as compared with what is typically one full year or over 1500 hours of clinical training for PA students (Morgan & Trolinger, 1994; Fowkes, Gamel, Wilson, & Garcia, 1994). These differences warrant further examination. Of further interest, Morgan and Trolinger also cite that NP "inpatient experience averaged less than one week" (1994). However, NP students may have had years of professional practice in an inpatient setting. Yet, little research has demonstrated the average prior inpatient experiences of nurses before enrolling in NP programs, and whether preceptors see this experience as sufficient for acting as a provider in an inpatient setting. Furthermore, in an article published in the Annals of Internal Medicine, it is stated that "the United States Public Health Service guidelines for nurse practitioners do not call for training in pharmacology"(Sox, et al, 1994), but does their previous pharmacology experience in nursing school sufficiently prepare them for prescriptive authority? Little has been previously emphasized about the significant comparative differences between NP and PA clinical education, or preparation for independent practice (inpatient OR outpatient) and prescriptive authority.

While "PA training programs have close relationships with academic medicine...educational preparation for NPs and CNMs typically takes place within schools of nursing" (Fowkes, Gamel, Wilson, & Garcia, 1994). What do clinical preceptors think of these differences in philosophy? How do the different theoretical backgrounds manifest themselves in clinical training? These questions have not been adequately evaluated in recent literature. As noted by Mittman, Cawley, Fenn, & William, "all physician assistants learn primary care and rotate through the major specialties while in training. Nurse practitioners...have traditionally been trained in one specialty" (2002). How do these differences effect the clinical preparation for nonphysician providers? This study seeks to ask preceptors what their views are in reference to these differences.

While physician assistant students are generally trained by physicians or their PAs, Sobralske & Naegele report from their research that: "all clinical coordinators agreed that experienced FNPs with master's degrees in nursing are the ideal preceptors and the best role models" (2001). However, they also noted that: "physicians who are familiar with and supportive of advanced practice nursing roles and philosophy were viewed as an appropriate option to NP preceptors" (Sobralske & Naegele, 2001). What do the preceptors who train these individuals think about ideal training? Are NP preceptors adequate to prepare these students to become independent providers? This study seeks to address such questions.

There is abundant literature that identifies qualities of an effective mentor or role model in education; "a mentor is someone who takes a special interest in

helping another person develop into a successful professional," which is a realistic goal for clinical preceptors (NAS, et al 1). In a publication by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, it is mentioned that: "good mentors are able to share life experiences and wisdom, as well as technical expertise" (2). In order for students to benefit from this mentoring relationship, we must discover what the existing relationship is between student and preceptor. Knowledge of the preceptors' own education in becoming a clinical educator, and their past experiences is vital for programs to target "good mentors" to become clinical preceptors.

Also, it is important to learn which educational and/or instructional techniques are utilized by clinical preceptors. There are numerous educational techniques for clinical training documented in the literature, but little is described about the NP or PA: preceptor educational strategies. "The clinical environment inevitably shapes the teaching that occurs there, thereby affecting the learning experiences of students" (Evans, 115). Some of the qualities that Evans identifies as successful in clinical education include "active encouragement of questions and discussion, acceptance of imperfect performance, accessibility, knowledge and competence in [student's field] and teaching, respect for students and alleviation of their anxiety, prompt and supportive feedback, willingness to let students work independently when ready, identification and usage of unexpected learning opportunities, warmth, honesty, enthusiasm, and fairness" (115). An article on learning evaluation states that "faculty currently try to teach professional adult students how to learn from their experience, since it is believed this will increase

their efficacy, their autonomy, their accountability, and their adaptability" (Dumas, et al, 252). Another method of clinical instruction as discussed by Hueston, et al, is problem-based learning (PBL). "One of the advantages of PBL over more traditional educational formats is that the learners have flexibility over the choice of learning issues that they wish to explore. Learners are free to build on existing knowledge, rather than passively receive information that conforms to their instructors' presumed understanding of their educational needs" (Hueston, et al, 220). This research may better define the teaching strategies utilized by clinical preceptors of NP and PA students, allowing for other suggestions to be provided to preceptors by the respective programs.

The final question that has not been definitively answered in the existing literature, is what are the effects of preceptorships on fostering employment of new nonphysician graduates in underserved areas? Fowkes, Gamel, Wilson, & Garcia note that: "PA programs offered the most training in underserved sites" (1994). Meanwhile, Strickland and Garretson's research on rural and urban nonphysician providers in Georgia shows that "NPs were significantly more likely to prefer smaller communities, and PAs were significantly more likely to prefer larger communities" (1998). How do locations of preceptor sites influence these demographics? While some studies indicate that there is a perceived shortage of providers, particularly in underserved areas, others indicate that the projected workforce of nonphysician providers is likely to cause a surplus of health care professionals (Cooper, Laud, & Dietrich, 1998; Sekcenski et al, 1994; Leiyu &

Samuels, 1997). The qualitative results of this study may reveal what preceptors view as the current supply and demand of providers in their area of southeast Georgia.

In conclusion, as determined by reviewing the available literature, little research has been performed on the differences in clinical preparation between nurse practitioner and physician assistant students. This study will hopefully demonstrate what the effects of preliminary training have on the clinical performance of these two groups of health professional students. The survey will also demonstrate the preceptors' views of the differing theories in practice, as in that of nursing vs. physician, and provide suggestions as to curricular changes that should be made. This may also reveal the differences in students as a result of specific training in one field, as NPs do, or in each major field, as with PAs. Qualities of the preceptors themselves will be further evaluated, specifically their instructional methods and their own prior training in education. Finally, this study may also evaluate the demographic differences in southeast Georgia in terms of prevalence of providers in underserved areas, and possibly an association with preceptorship location and recruitment of NPPs.

METHODS

The research design for this study was a survey design. This involved a qualitative, naturalistic study of physician assistant and nurse practitioner preceptors in southeast Georgia. This survey assessed the hypothesis that differences exist between nurse practitioner and physician assistant students in their clinical preparation for practice. The different backgrounds of the preceptors also vary amongst these two groups of students. This study may attempted to show which types of practices predominate in the willingness to train differing healthcare professional students, as well as the preceptors' preferences for one of the two professions. The survey inquired about teaching methods utilized by preceptors, as well as any training in education the preceptors had received. This was intended to reveal characteristics of the clinical preceptors. In addition, this study tried to demonstrate a correlation between the region of clinical training of these students and their location of practice upon program completion.

The tool used to collect data for this study was a detailed survey sent to current listings of preceptors for nurse practitioner and physician assistant students as obtained from an area health education center and participating nurse practitioner and physician assistant programs in the state of Georgia. Surveys are often used as nonexperimental designs to evaluate patterns or characteristics of populations of interest, as well as subjective data. Relationships may then be

predicted from the information obtained from the survey responses. Surveys have been shown to be effective for use among large populations. This survey was designed based on suggestions from a committee of health professional educators (both NP and PA), in addition to those of a biostatistician. The survey and cover letter were submitted to the Human Assurance Committee at the Medical College of Georgia for approval for research purposes. The final data results were interpreted using statistical and qualitative analysis, such as a chi square test called Fisher's exact test, which is ideal for use when sample numbers are small. Multiple variables can be assessed using the survey method.

The Fisher's exact test was used in analysis of questions 5, 6, and 21 (clinical competency table) of the survey. Ideally, the "chi-squared test is used to investigate whether proportions of certain categories vary in different groups. The chi-squared test can also be used to compare several groups and several categories of outcome variables: it is not restricted to a 2 by 2 table. However, if more than two groups are compared, the test does not tell us which groups differ from which other groups, merely that there is an overall difference among the groups. A word of warning: the chi-squared test is valid only for large samples. As a general rule of thumb, it should be avoided when any of the cells in the table of expected values is less than 5, unless the total for that group is greater than 40. For this reason, Fisher's exact test provided an alternative for this small sample size. Fisher's exact test evaluated the hypothesis that a proportion of interest differed between the groups" (Johnson, 2004).

Limitations of this method may include low response rates to the survey, poor selection or availability of participants, improper wording of the survey itself, and/or regional variations in results. Since measurement of subjective opinions about clinical preparation and preceptor preference, in addition to the qualities of preceptors were intended, survey analysis appeared to be a reliable and valid method of study. Additional biases pertaining to subjective responses may have been represented if preceptors have had a bad experience with a particular type of student, causing their views to become biased. In order to reduce bias and obtain accurate opinions, this method was likely to have been more effective than personal interviews or telephone survey.

As previously mentioned, the sample population included health educational preceptors as obtained from the Magnolia Coastlands AHEC in Statesboro, GA, in addition to other listings as provided by institutions in the state of GA who wished to participate. The only nurse practitioner and physician assistant programs that chose to do so were from the Medical College of Georgia. Several of the NP preceptors were located in South Carolina. While the study sample is rather systematically stratified and may have been limited due to willingness to participate on the part of nurse practitioner and physician assistant programs, it is likely that an adequate sample group was obtained. The participants were not identified by name or other means of personal recognition in data reporting. The results were solely reported based upon position and region. Anonymity of participants was protected in research publication and reporting of

data. To facilitate urban versus rural questioning, the survey included demographic standards as accepted for demographic screening by the Association of Physician Assistant Programs, as described in the introduction, for differentiating urban versus rural locations of the site of the practice(s) from which the participants could choose as applicable to their location of practice.

The course of study included mailing out the survey in question to the list of preceptors as previously described. This mail-out included a pre-addressed and stamped envelope for the participants to use in response, as well as a cover letter, which briefly described the purpose of the questionnaire and the reason why the preceptor had been chosen to be surveyed. After all surveys were received, they were then statistically interpreted, classifying responses categorically to ensure full reporting of data. The responses that were more subjective and descriptive in nature were reported accordingly.

[Figure 2: Cover Letter] [Figure 3: Survey]

RESULTS

The variables presented in this section are the responses on the surveys as obtained from the responding preceptors previously described. These variables were analyzed by percentages of total responding or means, modes, and medians as applicable. Of the 244 surveys mailed to preceptors in southeast Georgia, 71 completed surveys were returned. Of the 244 sent, 17 were returned to sender and correct addresses were unable to be identified. This was a 31.28% response rate. The responses to the individual questions follow.

The first question of the survey asked for the preceptor's professional credentials as listed in Table 1. The majority (54.93%) were MDs, followed by NPs (15.49%). However, many of the respondents did not appear to list each of their degrees or professional certifications, while others were specific; this mainly applied to the nurse practitioner respondents.

The next question asked respondents to circle their field of practice out of the seven primary fields listed, and comment under "other" any of their specialties not provided. These results are shown in Table 2. The majority of the preceptors who responded identified themselves as Family Practice (43.66%). Numerous fields were listed under "other," but since the preceptors themselves submitted these fields, it is not all-inclusive since those listed were not provided. Some of the preceptors may also practice in the fields listed under "other," but did not specify such.

The third survey question asked preceptors to specify location of their practice and to include multiple locations if applicable, as shown in Table 3. The majority of the locations were cited as small city populations of 10,000-49,999 (40.85%), followed closely by rural populations of less than 10,000 (35.21%). Upon review of the addresses of nonresponders, there did not appear to be any particular pattern as to population of practice location; those who did not respond were from all types of populations.

Table 4 shows the preceptors' number of years working in healthcare. Results were consistent among all main categories of interest (MD, NP, and PA).

Table 5a lists the types of students previously precepted by each of the respondents (total in addition to "other"). The majority had previously precepted NP, med students, and PA students, respectively. Table 5b gives a statistical analysis of students previously precepted according to the professional classification of the respondent as calculated by Fisher's exact test. As shown, there were statistically significant p-values for all categories, except for dental and pharmacy students, with highest values for medical, NP, and PA students.

Table 6a, 6b, and 6c represent whether or not any NPs or PAs work in the preceptor's practice, if so, how many, and do they assist in precepting the students. Table 6b is divided into Table 6bi and 6bii, the first of which represents basic data and the second of which represents the statistical data based on professional category of respondent. As shown in Table 6a, there were a larger total number of nurse practitioners employed by preceptors (63.77%) compared

with PAs (33.33%), with lower percentages of NPs noted by the MD respondents. The p-values for each category of nonphysician provider showed statistically significant associations of more NPs if NPs work in the practice, or more PAs if a PA works in the practice (as calculated by Fisher's exact test). As shown in Table 6bi, this also correlated with a greater total number of nurse practitioners in the practice (sum of 94) as opposed to physician assistants (sum of 38), yet MD respondents again noted lower median numbers of NPs (1). As shown in Table 6c, almost all of these nonphysician providers assisted in training of students.

When asked which types of student the preceptor preferred to train (with a ranking of 1 being highest and 6 the lowest), Table 7 shows that medical students scored the highest, closely followed by physician assistant and nurse practitioner students. There was a much larger gap in preference for all other types of students. Three other types of students were listed under other, but the respondents provided no rankings for them. When asked about incentives for training a particular profession or any preferences they may have, responses included incentives of sharing their experiences & knowledge, the student having a consistent knowledge base with that of the preceptor, advancing healthcare, mentoring fellow associates, the stimulus they receive from students, wanting to teach those responsible for direct patient care, a feeling of professional responsibility, and because they enjoy teaching. Nurse practitioners noted the incentive of gaining continuing education credits toward re-certification for teaching NP students. One served as a paid instructor, others preferred students

trained in the traditional allopathic method rather than NPs, one felt that medical students were more serious and dedicated, while one saw NPs as "under trained and inappropriately independent." One preceptor hoped to gain future employment from these students.

Table 8a depicts the average numbers of medical, NP and PA students precepted by each respondent in addition to the mode, median, and ranges. The greatest numbers of students precepted on average were medical students (14), closely followed by NP (11), with a more significant decrease for PA students (8.8). Table 8b breaks down the median numbers of these students precepted according to classification of provider's position. This shows that respondents appear to teach greater numbers of students of the same type as themselves.

Table 9a shows the number of former NP and PA students who returned to work in the same area as the preceptor responding. A proportionate, significant number of both NPs and PAs returned to a former rotation area for employment. Table 9b specifies the area of practice (if listed) by the former preceptor in reference to their former students. Among those listed, the majority of students (25) returned to work in Family Practice, with relatively equivalent numbers in rural and urban areas. Other main areas of practice were primary care or "general" and Internal Medicine. Most of the respondents did not specify the type of student to which they were referring when answering location and rural/urban specification. As for the specified providers, there were 10 rural NPs, 13 urban NPs, 4 rural PAs, and 6 urban PAs. Table 9c lists the cities cited as location

sites to which former NP and PA students had returned for employment. Of the 61 total specified, approximately 25 were considered rural or small cities, and the rest were all urban sites.

Table 10 shows the parties noted to be responsible for hiring providers in their practice. The majority of respondents selected physicians and since more than one option could be chosen office managers were often secondary. Numerous other parties were also listed to be responsible for this duty.

Table 11 shows the respective numbers of former NP and PA students that practices have hired for later employment. As compared with Table 8a, this appears to be a very small percentage in relation to the total numbers of students precepted. However, many respondents did not answer this question and many of the respondents may have changed practices in the interim between teaching and/or assisting with teaching these nonphysician providers.

Table 12 lists the qualitative responses on the preceptor's views on the differences between the nursing background of NPs and the academic medical training of PAs. For NP students, 12 responded that NP education was "good" or "adequate," while a greater number (sum: 17) cited PA education as "good" or "excellent." Three respondents in each category found the preparation of the two groups to be about the same, with two commenting that PA curriculum is better and one stating that NP education is stronger. Four of the respondents cited that the preparation of NPs depended upon the program where they trained, while this variability was not noted for PAs. Common themes for both groups were a need

for more med-surg or general nursing experience prior to NP school for those students, and a need for more patient care or clinical experience prior to PA school. Several respondents advocated either post-graduate "on-the-job training" or a year of supervised training for PAs. Nine respondents noted that PA education was comparable to that of medical students, with two suggesting more pharmacology and holistic and preventative care training, while NPs were noted by two respondents to be trained in a nursing model, but required to work in a medical role. Deficiencies noted for NP education were need for decision-making ability, need for more time with MDs on rotations, and more pathophysiology, pharmacology and general education background needed.

Table 13 shows the qualitative responses on the negative characteristics of NP and PA students. The majority responded "none" for both groups. However, several respondents noted an inability to recognize limitations or over-independence for the NP students. Four noted that many NP students have insufficient nursing experience and are not all on the same level. Several cited that NP students take too broad of an approach to patient care, looking at too many issues. Four noted areas of lapse in training such as ER, casting/splinting, OB, and Pediatrics for which they will be responsible in practice (FNPs). Negative responses for PAs were much more varied with a majority being individual comments as shown. Two respondents noted lack of prior patient care or medical experience on the part of PA students.

Table 14 lists the qualitative responses on the positive attributes of NP and PA students. The most common positive comments for NPs were their eagerness to learn and work, their prior nursing experience, their holistic approach to patient care with preventative and psychosocial emphasis, their communication and patient education abilities, and their compassion and empathy for patients. There were numerous, varied positive responses for PAs as shown, but the most common were their eagerness to learn and work, their enthusiasm, high motivation, and their strong academic background in science and pathophysiology.

Table 15a represents the number of hours per week that NP and PA students worked on rotations. Nurse practitioners typically worked less than 40 hours per week, while physician assistant students typically worked 40-50 hours per week. However, this question did not specify the hours less than forty, so this represents a wide range for NP students. Table 15 b shows the number of weeks, for which NP students averaged 9.47 weeks, and PA students 5 weeks.

Table 16 lists qualitative response on what changes should be made to existing NP and PA programs. For NP programs, 8 respondents felt that the current programs are adequate as opposed to 13 for PA programs. Several responded that more nursing experience should be required for NPs prior to program entry (one suggested at least three years of med-surg nursing). Seven suggested more clinical time, with three others suggesting additional rotations in fields such as orthopedics, dermatology, surgery, and ENT. One NP preceptor

noted that she had a former student with no didactic OB course prior to her OB rotation. Several respondents advocated less emphasis on the nursing roles and theory in NP school with more basic science and gross anatomy emphasis. Coding classes or training in business skills was advocated for both NPs and PAs. Two respondents recommended another year of training or a clinical residency in their specialty for PAs. Several were proponents for more holistic emphasis for PA programs. Five recommended more background in patient care for PAs, while two felt that these students have a good clinical background.

Question 17 of the survey was intended to be a quantitative answer, as shown in Table 17a, but many respondents provided qualitative answers. Several providers gave specific answers for their area of practice. Roughly equivalent totals were noted for NP and PAs, with all others being either specialties or MDs. Since not all of the respondents identified a specific provider, and some listed more than one, percentages were unable to be accurately calculated. However, Table 17b provides analysis of statistical significance when respondents were broken down by category of profession. This showed that MDs would hire PAs more than they would NPs (32% as opposed to 22% respectively). The p-values for NP and PA students were statistically significant, but not for the MD category.

Table 18 shows responses when preceptors were asked whether nonphysician providers should be trained in all areas of medicine or only one specialty. The majority (78.12%) advocated training in all areas of medicine. Those who advocated one specialty stated that there is too much to learn and one

can be an expert in the field if only one area of specialty is chosen. For those who voted for training in all areas, the most common response was that one must know all the parts to treat the whole and the provider can later specialize once they have learned all the basics

Table 19a depicts whether the respondent had any formal education or training as an educator. 21% of respondents said "yes," however, as for formal education degrees, only six of these qualify, which corresponds to 8.45% of the total surveyed. As shown in Table 19b, many of those who responded "yes," listed faculty positions or employment rather than degrees that they may have. Regardless, the majority of the preceptors who responded to the survey had no formal training in education.

Table 20 shows the average ranking of the teaching methods utilized by preceptors, with 1 being the highest and 7 the lowest. Hands-on instruction, demonstration and question and answer averaged highest, followed closely by mini-lecture. Lesser-used techniques included critique of student and required readings, with formal lectures used least. Other techniques individually noted but unranked were case studies, interactional dialogue, presentations, web-based instruction, and homework on specified topics.

The last portion of the survey asked for clinical competency rankings of medical students, nurse practitioner students, and physician assistant students as shown in Table 21. This table also lists p-values for each competency. Only "understanding of pathophysiology," "explaining diagnostic and therapeutic

procedures," and "communication skills" categories showed statistically significant p-values for the association of type of student and the level of agreement. These findings were that medical students were received significantly higher rankings than NP and PA students in pathophysiology, while NP students had significantly more "strongly agree" responses for communication skills and explaining procedures than medical and PA students.

By category, medical students were scored highest by respondents in "strongly agree" categories of pathophysiology, demonstration of logical thinking, formulation of differential diagnoses and treatment plans, preparation for learning, and pharmacology. They ranked high comparatively in "agree" categories of eliciting comprehensive history and physical exams, demonstration of logical thinking, performance of technical procedures, formulation of differential diagnoses and treatment plans, and collaboration with other healthcare professionals. As for "neutral" responses for medical students, their most responses were in categories of performing technical procedures, motivation and initiative for learning and patient care, formation of differential diagnoses and treatment plans, explaining procedures to patients and their families, collaboration with other healthcare professionals, and communication skills. The highest categories for preceptors' "disagree" responses for medical students were in performing technical procedures, explaining procedures to patients and their families, and communication skills.

The competency rankings of nurse practitioner students revealed highest "strongly agree" categories of eliciting comprehensive history and physical exams, recording data thoroughly, ability to perform technical procedures, preparation for learning, motivation and initiative for learning and patient care, explaining procedures to patients and their families, collaboration with other healthcare professionals, and communication skills. As for "agree" responses, strongest categories for nurse practitioners included: pathophysiology, demonstration of logical thinking, ability to perform technical procedures, and formulation of differential diagnoses and treatment plans. The categories with the most "neutral" responses for NPs were: pathophysiology, demonstration of logical thinking, formulation of differential diagnoses and treatment plans, preparation for learning, and familiarity with pharmacology. The categories for NPs with most "disagree" responses were: pathophysiology, eliciting comprehensive history and physical exams, demonstration of logical thinking, formulation of differential diagnoses and treatment plans, and pharmacology.

The clinical competency rankings for physician assistant students had no statistically significant higher percentages in any "strongly agree" categories as compared with NP and medical students. However, PA students scored highest percentages for "agree" responses in all categories with the exception of collaboration with other healthcare professionals, in which they were second to medical students. As for "neutral" responses, PA students had highest percentages in eliciting comprehensive history and physical exams, formation of

differential diagnoses and treatment plans, preparation for learning, motivation and initiative for learning and patient care, explaining procedures to patients and their families, collaboration with other healthcare professionals, and communication skills. The categories listed with "disagree" responses for PAs included: formulation of differential diagnoses and treatment plans, pharmacology, and collaboration with other healthcare professionals.

Overall, the largest number of "not-applicable" responses for students was for PAs at 22, med students at 19, and lastly NPs at 11. Nurse practitioner students categorically had the higher percentages of "strongly agree" votes, at 8 out of 12, while PA students had the highest "agree" percentages categorically at 10 out of 12, and NP and PA students shared the highest "neutral" percentages by category at 5 out of 12 each, as well as with "disagree" at 3 out of 12 each.

DISCUSSION

While the response rate for this survey was not as high as anticipated, the results of the 71 respondents appeared to be relatively consistent. The majority of preceptors for PAs were MDs, and the majority for NPs were MDs or other NPs. Most respondents practiced in Family Practice and were from rural or small city populations. This appears to be a limitation in the survey design, since more specialists and preceptors who represent larger urban populations were not as well represented and may have different views or perspectives on the respective students. Most preceptors consistently preferred to teach medical students as well as nonphysician providers.

The fact that a large number of students had returned to areas for employment where they had previously had clinical rotations shows the importance of having students work in underserved areas during their training. This exposure may be the only time that students have such experiences and may influence their decisions upon where to seek employment as well as to give them a chance to obtain job opportunities. Since the goals of both nurse practitioner and physician assistant programs are to provide greater access to healthcare, programs need to be aware of this relationship. Also, a significant sum of students had been hired by practices where they worked on rotations, revealing the influential experience those clinical rotations and the relationships formed bear on students as well as on their preceptors.

Most of the preceptors had taught several of each category of providers. When asked who was responsible for hiring nonphysician providers for the practice, most responded that the physicians were, many in conjunction with the office manager. Also, many "other" parties were listed as being responsible for this duty, such as hospital administrators and CEOs. This information is helpful for nonphysician provider students to know whom to contact when the time comes to seek employment.

While more nurse practitioners worked in practices of respondents, there was much less of a response from PA preceptors than from NP preceptors. This may show the supportive role of PAs in medicine and they may work more as a secondary preceptor with the physician as the primary. However, more of the NPs serve as the primary preceptor if they choose to work with clinical students. Nurse practitioners mentioned the added incentive of gaining continuing education hours toward recertification as compensation for precepting nurse practitioner students. While Sobralske and Naegele's research showed that clinical coordinators felt that experienced FNPs with masters training were the ideal preceptors for nurse practitioner students, several respondents to this survey felt that more time should be spent with MDs by these students (2001). While there was not as strong of a comparative response rate from physician assistant preceptors, it appeared that MDs generally serve as the primary preceptor for PA students with additional support from NPs or PAs who work at the rotation site.

When asked about the preceptors' views on the differences in theory and training behind nurse practitioner versus physician assistant programs, most respondents commented more in support of the medical model of training. While the holistic abilities of nurse practitioner students were praised, many respondents, including nurse practitioners, advocated less nursing theory and more pathophysiology and basic science core. Also, Mittman, Cawley, Fenn & William stated in their article in British Medical Journal that PAs learn all areas of primary care medicine as well as rotate through all the major clinical specialties, while NPs have typically had programs structured to one specialty (2002). However, the vast majority of respondents to this survey indicated that nonphysician provider students should be trained in all areas of medicine in order to "treat the whole." This finding shows the need for greater emphasis of all areas of medicine in training of NP students, whether they plan to specialize in fields such as Pediatrics or OB/Gyn or be FNPs.

Most of the positive attributes identified by respondents to this survey in reference to NPs were their strong holistic approach to patient care as well as strengths derived from prior nursing experience. Other strong suits mentioned were their abilities with patient interaction and ability to perform technical procedures. They were noted to be weakest in basic science, pathophysiology and pharmacology. Several respondents advocated a need for more didactic training in areas such as gross anatomy, Orthopedics, and Dermatology for all students in addition to longer rotations with more consecutive hours and time spent with preceptors.

As for positive attributes of PA students, most respondents cited their strong academic background, eagerness to work, and their motivation for learning. Many respondents had taught more experienced PAs, while others felt that more patient care experience prior to school was needed for some. Others advocated postgraduate supervised training for PAs. Physician assistant students were also said to have less of a holistic and preventative treatment approach than NP students.

In clinical competency evaluation, nurse practitioner and physician assistant students were both noted to be in need of improvement in areas of clinical decision-making, differential diagnoses, pharmacology, and pathophysiology as compared with medical students. Several categories showed significantly superior rankings for a particular class of students. Medical students showed a statistically significant ($p<.001$) higher ranking of "strongly agree" for familiarity with pathophysiology as compared with NP and PA students. This association shows greater need for didactic training in pathophysiology for both NP and PA students, although much of the qualitative data in reference to PA students reflected strengths in pathophysiology. As for the other statistically significant associations, NP students were given significantly more "strongly agree" votes for their communication skills ($p=.047$) and their ability to explain diagnostic and technical procedures to patients and their families ($p=.0027$) as compared with medical and PA students. This finding shows that PA and medical students both need greater emphasis in communication skills and explaining procedures. In all other categories as previously shown, NP and PA students were

viewed as highly in competency as medical students, however, these associations showed no statistical significance for stronger performance of one particular category of students. The format of this section was limited in that many of the respondents provided generalized responses for an entire category of students. This was also reflected in the variation in agreement of respondents for each category of student as indicated by the p-values for each competency, which did not reveal a significant difference for any of the groups evaluated. Another limiting factor was the lack of inquiry as to the stage in training of the student, such as whether the preceptors were viewing overall competencies of students that were about to graduate versus students on their first rotation. However, these ratings may give nonphysician provider programs as well as medical schools an idea of areas that need greater reinforcement in the educational process for their students.

Since clinical preceptors often act as mentors and take on a vital role in the education of nonphysician provider students, it is vital to know about their abilities as educators. As cited from the Department of Health in an article by Kirk, Carlisle, and Luker on the subject of higher education for healthcare professionals, ""teachers must be able to demonstrate at an advanced level, a knowledge of the theory and practice... They must be qualified or clinically credible in the area of practice they teach and hold a recognized teaching qualification" (1997). The vast majority of respondents to this survey had no prior degrees in education or courses in adult learning. This finding shows the need for greater emphasis and establishment of programs of adult education in

Trolinger's research findings of significantly fewer hours of clinical training for nurse practitioner as compared with physician assistant students (1994). However, this survey was limited in that hours less than forty were not specified, which makes more accurate hours of training unable to be determined and compared. In addition, the study does not include the total number of hours or weeks required for NP and PA students; while NP students spend a greater number of weeks, the preceptors would have been unable to answer how many rotations or weeks of clinical training the students have in total. Also, this survey did not specify inpatient versus outpatient hours of experience, which could prove to be an important consideration in follow-up study considering the discrepancies noted in previous literature on the subject.

In conclusion, main factors that were determined by this survey appeared to be a greater need for education of preceptors on strategies for instruction as well as principles of adult learning. Other main points were the comparative deficiencies of PA and NP students as cited by respondents and suggestions for programs as to changes that may improve outcomes, particularly for NP and PA students to undergo better pathophysiology training, and for medical students and PA students to work more towards communication skills and explaining procedures to patients and their families. The survey showed that nonphysician providers receive strong training as compared with medical students and are equally preferred as students. This study was limited in its scope of providers studied, but did provide useful information on rarely compared clinical education of nonphysician providers.

SUMMARY

This research project was a survey designed to ask preceptors in southeast Georgia about their views on the clinical preparation of nurse practitioner and physician assistant students. The survey also asked for information about the preceptors themselves to better define them and their practices. The results consistently showed that generally NP and PA students are well prepared for rotations and suggestions for improvement on the part of their respective programs were identified. Also, the responses revealed the need for education of the preceptors themselves on how to best teach adult clinical students how to learn most productively and effectively. This survey sets the stage for possible follow-up research on the issues that were qualitatively identified, and revealed ways to better quantify data in question.

TABLES

Table 1: Question 1: List your professional credentials.

Professional Credentials	Number of Respondents	Percentage of Total Responses (n=71)
MD (Medical Doctor)	39	54.93%
DO (Doctor of Osteopathic medicine)	2	2.82%
EdD (Doctorate in Education)	3	4.23%
PA-C (Physician Assistant-Certified)	5	7.04%
NP (Nurse Practitioner)	11	15.49%
FNP (Family Nurse Practitioner)	7	9.86%
WHNP (Women's Health Nurse Practitioner)	1	1.41%
PNP (Pediatric Nurse Practitioner)	2	2.82%
CNM (Certified Nurse Midwife)	1	1.41%
APRN-PC (Advanced Practice Registered Nurse-Primary Care)	2	2.82%
CS (Clinical Specialist)	3	4.23%
MSN (Master of Science in Nursing)	5	7.04%
DMD (Doctor of Medical Dentistry)	1	1.41%
BSN (Bachelor of Science in Nursing)	2	2.82%
RN (Registered Nurse)	5	7.04%
MMSC	1	1.41%
MS (Master of Science)	1	1.41%
PT (Physical Therapist)	1	1.41%
FACP	1	1.41%

Table 2: List your field of practice. Also specify any other area of practice not provided.

Field of Practice		**Number of Respondents**	**Percentage of Total Respondents (n=71)**
Family Practice		31	43.66%
Internal Medicine		14	19.72%
Pediatrics		11	15.49%
OB/Gyn		11	15.49%
General Surgery		3	4.23%
Emergency Medicine		3	4.23%
Other:	College Health	1	1.41%
	ER (secondary)	2	2.82%
	Psychiatry	2	2.82%
	Ophthalmology	1	1.41%
	Addiction Medicine	1	1.41%
	Nephrology	2	2.82%
	Critical Care	2	2.82%
	Veteran's Administration	1	1.41%
	Dermatology	2	2.82%
	Thoracic Surgery	1	1.41%
	Physical Therapy	1	1.41%
	Health Department Family Practice	1	1.41%
	Pulmonary	2	2.82%
	Adolescent	1	1.41%
	Hematology and Medical Oncology	1	1.41%

Table 3: Specification of Practice Location.

Practice Location		Number of Respondents	Percentage of Total Respondents (n=71)
Rural (population <10,000)		25	35.21%
Small City (population 10,000-49,999)		29	40.85%
Medium City (population 50,000-249,999)		14	19.72%
Large City (population >250,000)		3	4.23%
Multiple Locations:	Rural, Small & Urban	1	1.41%
	Rural & Small	1	1.41%
	Small & Medium	2	2.82%
	Inner City Urban & Rural	1	1.41%
	Rural Outreach	3	4.23%
	Army Post	1	1.41%

Table 4: Preceptor's number of years working in healthcare.

Number of Years in Healthcare	Average	Median	Mode	Range (lowest and highest)
Total for all Respondents	20.56	21	30	Not Calculated
MD/DO	19.85	21	21	5 to 44
NP (Nurse Practitioner) (including subspecialties)	21.72	21	30	6 to 40
PA (Physician Assistant)	20.6	24	24	5 to 32

*(Including subspecialties)

Table 5a: Types of Students Precepted.

Types of Students Previously Precepted		Total Number Identified	Percentage of Total Respondents (n=71)
Medical		46	64.79%
Dental		0	0%
Nursing		31	43.66%
Nurse Practitioner		55	77.46%
Residents		17	23.94%
Physician Assistant		45	63.38%
Pharmacy		3	4.23%
Other	Physical Therapy	1	1.41%
	Medical Office Assistants	1	1.41%
	Undergraduates	1	1.41%

Table 5b: Statistical analysis of students taught listed by category of respondent.

Respondent	n	MD	Dent	Nurse	NP	Res	PA	Pharm
MD	41	38 (93)	0 (0)	15 (36)	31 (76)	15 (37)	30 (73)	3 (7)
NP	23	7 (30)	0 (0)	14 (61)	23 (100)	2 (9)	10 (43)	0 (0)
PA	5	1 (20)	0 (0)	1 (20)	1 (20)	0 (0)	5 (100)	0 (0)
p-value		<.0001		0.092	<.0001	0.021	0.014	

*n then percentage in parentheses.

Table 6a: Do any of the following nonphysician providers work in your practice?

a	NP		
Respondent	**Yes**	**No**	**Total**
	n (%)	**n (%)**	**n**
MD	21 (51)	20 (49)	41
NP	20 (87)	3 (13)	23
PA	3 (60)	2 (40)	5
Total	44 (63.77)	25 (36.23)	69
p=0.014			
b	**PA**		
Respondent	**Yes**	**No**	**Total**
	n (%)	**n (%)**	**n**
MD	14 (34)	27 (66)	41
NP	4 (17)	19 (83)	23
PA	5 (100)	0 (0)	5
Total	23 (33.33)	46 (66.67)	69
p=0.002			

Table 6bi: If yes, how many are employed in your practice?

Type of Provider	Sum	Mean	Median	Mode	Range
NP (Nurse Practitioner)	94	2.1	2	1	1 to 8
PA (Physician Assistant	38	1.7	1	1	1 to 6

Table 6bii: Statistical analysis based on type of provider responding.

Respondent	a. NP	
	Median	**Range**
MD	1	(1, 4)
NP	2	(1, 6)
PA	2.5	(2, 3)
	b. PA	
	Median	**Range**
MD	1	(1, 3)
NP	1	(1, 6)
PA	1	(1, 4)

Table 6c: If yes, do any of these nonphysician providers assist in precepting students (stratified according to type of respondent).

a: NP			
Respondent	**Yes**	**No**	**Total**
	n (%)	**n (%)**	**n**
MD	20 (95)	1 (5)	21
NP	19 (95)	1 (5)	20
PA	2 (67)	1 (33)	3
Total	41 (93.18)	3 (6.82)	44
b: PA			
Respondent	**Yes**	**No**	**Total**
	n (%)	**n (%)**	**n**
MD	13 (93)	1 (7)	14
NP	4 (100)	0 (0)	4
PA	3 (100)	0 (0)	3
Total	20(95.24)	1 (4.76)	21

Table 7: Which types of student due you prefer to assist in training?

Type of Student		Average ranking
Medical		1.55
Dental		5
Nursing		2.75
Nurse Practitioner		1.69
Physician Assistant		1.66
Pharmacy		4.71
Other	Physical Therapy	Unranked
	OR Tech	Unranked
	Residents	Unranked

*[Rank with 1 being the highest and 6 being the lowest.]

Table 8a: Number of Students Precepted.

Type of Student	Sum	Average	Median	Mode	Range
Medical	630	14	5	2	0 to 150
NP (Nurse Practitioner)	581	11	5	2	0 to 100
PA (Physician Assistant)	407	8.8	3	1	0 to 100

Table 8b: Median numbers of students precepted; broken down by type of respondent.

Respondent	Type of Student Precepted		
	MD	NP	PA
MD	6	3.5	3
NP	2	6.5	2
PA	3	7	8

Table 9a: Have any of the following students returned to work in your area?

Type of Provider	YES responses (Sum)
NP (Nurse Practitioner)	41
PA (Physician Assistant)	24

Table 9b: Type of practice to which they (9a) returned.

Type of Practice	Sum	Type unsp **	NP rural	NP urb ***	NP *	PA rural	PA urb ***	PA *
Family Practice	25	12	4			2	2	
Pediatrics	6	2	2					1
Primary Care/ General	10		2		5	1		2
Ortho	4	3			1			
Internal Medicine	7	4	1		1			
OB/Gyn or Women's Health	4	1						
Surgery	3				1	1	1	
Pulmonology	2				1		1	
Emergency Med	3				1		1	1
Cardiology	1							1
"Neuro"	1							1
Geriatrics/ Nursing Home	2		1					
Oncology	1						1	
ENT	1	1						
Hospital	1							
"Private Practice"	3	2						
"Specialty"	1				1			
TOTAL	**75**	**25**	**10**	**12**	**12**	**4**	**6**	**6**

*Location unspecified
**Type of provider unspecified
***Stands for urban

Table 9c: Location of returning students' practices.

State	City	Number (Sum)	Rural/Urban
Georgia	St. Mary's	1	Rural
	Warner Robins	2	Urban
	Brunswick	5	Urban
	Claxton	1	Rural
	Statesboro	9	Urban
	Richmond Hill	2	Rural
	Thomson	1	Rural
	Sandersville	1	Rural
	Swainsboro	1	Rural
	Savannah	12	Urban
	Waycross	3	Rural
	Dublin	3	Urban
	Rincon	2	Rural
	Augusta	1	Urban
	Waynesboro	1	Rural
	Louisville	1	Rural
	Wrens	1	Rural
	Athens	1	Urban
	Lavonia	1	Rural
	Hinesville	2	Rural
	St. Simons Island	1	Urban
	Alma	1	Rural
	Vidalia	1	Rural
	Glennville	1	Rural
	Warrenton	1	Rural
	Darien	1	Rural
	Atlanta	1	Urban
	Barnwell	1	Rural
South Carolina	Batesburg	1	
	Leesville	1	
TOTAL		61	

Table 10: Who is responsible for hiring providers in your practice?

Position		Number (Sum)
Physician		41
Office Manager		21
Nonphysician Providers		5
Other	CEO	5
	Medical Director	5
	Regional Office/Hospital	6
	Nursing Administrators	3
	Executive Board	1
	U.S. Army	2
	NP Owner	1
	Administration	2
	Veteran's Administration	2
	Business Director	1
	Staffing Company	1
TOTAL		96

Table 11: How many of the following types of former students have your practice hired?

Type of Provider	Sum
NP (Nurse Practitioner)	36
PA (Physician Assistant)	11

Table 12: What are your views on the nursing versus academic medical training of NPs and PAs?

Type of Provider	Qualitative Responses	Number of Respondents (Sum)
NP (Nurse Practitioner)	Education "good" or "adequate"	12
	About the same as PAs	3
	Need more med-surg or extended nursing experience prior	3
	Decision-making ability lacking	2
	More holistic in patient care	6
	Better if trained at masters level, but preparation dependent upon program	4
	Curriculum needs more general education, patient education, pharmacology, and pathophysiology	4
	More time spent with MDs in clinical rotations	1
	Core curriculum better than PAs	1
	Trained in a nursing model, but required to work in a medical role	2
PA (Physician Assistant)	Preparation "good" or "excellent"	17
	Education comparable to that of medical students	9
	Would benefit from addition of holistic, preventative & patient education training	2
	About the same as NPs	3
	PA training better than NPs with better science grounding	2
	Need for on-the-job training	2
	Need post-graduate supervised training	1
	Deficient in pharmacology	2
	Need more clinical or patient care experience prior	4
	Need microbiology requirement	1
	PAs should be used in a narrow specialty	1

Table 13: Negative qualitative responses on characteristics of NP versus PA students.

Type of Provider	Qualitative Responses	Number of Responses (Sum)
NP (Nurse Practitioner)	"None"	15
	Insufficient nursing experience or not all on the same level	4
	Lack of confidence in abilities	3
	Inability to recognize limitations or overly independent for the role	5
	Take too broad of an approach to patient care	3
	Lapse in training in ER, casting/splinting, OB, & Peds	4
PA (Physician Assistant)	"None"	16
	Variability depending upon program	1
	Overconfident	1
	Limited health promotion emphasis	1
	Lacking in therapeutic intervention training	1
	Less teaching emphasis	1
	Not masters prepared	1
	Insufficient pharmacology	1
	Poor motivation in some	1
	Poor communication with pts	1
	Too aggressive	1
	Lack of prior patient care or medical experience	2

Table 14: Positive characteristics of NP and PA students.

Type of Provider	Qualitative Responses	Number of Responses (Sum)
NP (Nurse Practitioner)	Eager to learn &/or willing to work	8
	Good clinical experience from prior nursing	8
	Strong holistic, preventative &/or psychosocial skills	9
	Good communication or interaction with patients	6
	Compassion or empathy	3
	Interest in working with rural/underserved populations	1
	Ability to function under own license	1
PA (Physician Assistant)	Eager to learn or work hard	13
	Good clinical experience	6
	Enthusiasm	4
	High motivation	6
	Strong science background, academics, &/or pathophysiology	6
	Critical thinking skills	1
	Professionalism	1
	Good diagnostic skills	1
	Patient-focused care	1
	Rotate through many specialties	1
	Teamwork	1
	Insight	1
	Autonomy	1

Table 15a: Number of hours per week for NP and PA students on clinical rotations.

Type of Provider	Average*	Median*	Mode*	Range*
NP (Nurse Practitioner)	1.16	1	1	1 to 2
PA (Physician Assistant)	1.73	2	2	1 to 4

*1 represented < 40 hours per week; 2 represented 40-50 hours per week; 3 represented 50-60 hours per week; 4 represented >60 hours per week.

Table 15b: Number of weeks of clinical rotation for NP and PA students.

Type of Provider	Average Number of Weeks
NP (Nurse Practitioner)	9.47
PA (Physician Assistant)	5

Table 16: Changes advocated for NP and PA programs.

Type of Provider	Qualitative Responses	Number of Responses (Sum)
NP (Nurse Practitioner)	Current program is adequate	8
	More clinical rotation time	7
	Additional rotations (Ortho, Derm, Surgery, ENT)	3
	More basic science or medical model of training	3
	More prior nursing experience	5
	More clinical hours with MDs	1
	More continuous hours per preceptor	1
	Schools should arrange preceptors with past success in teaching NPs	1
	More Pharmacology	2
	OB course for all prior to clinicals	1
	Gross Anatomy	1
	Less emphasis on roles & theory	1
PA (Physician Assistant)	Current program is adequate	13
	More background in patient care	5
	Additional year of training or clinical residency in specialty	2
	More holistic emphasis	3
	Good clinical background	2
	Case-based approach to learning	1
	Improved training in drug use	1
	More rigid approach to requirements	1
Both NP and PA	Coding classes/business skills	2
	United program for NPs and PAs with same curriculum & training	1

Table 17a: What type of provider would you hire?

Type of Provider	Total Responses (Sum)
NP (Nurse Practitioner)	17
PA (Physician Assistant)	16
MD (Medical Doctor)	5
FNP (Family Nurse Practitioner)	4
PNP (Pediatric Nurse Practitioner)	2
CNM (Certified Nurse Midwife)	1
Medical Student	1

Table 17b: Statistical analysis of respondent to type of provider they would hire.

Respondent		Student type n (%)		
	n	MD	NP	PA
MD	41	5 (12)	9 (22)	13 (32)
NP	23	2 (9)	15 (66)	2 (9)
PA	5	0 (0)	0 (0)	3 (60)
p-value		1	<.0001	0.019

Table 18: Should nonphysician providers be trained in all areas of medicine or one specialty?

Type of Training	Number of Responses	Percentage (n=64)
All areas of medicine	50	78.12%
Specialty	10	15.63%
Both	4	6.25%

Table 19a: Formal Training of Preceptor in Education

	YES	Percentage (n=71)
Total Respondents	15	21%
Degree in Education	6	8.45%

Table 19b: Specification of Educational Training

Type of Training	Number of Respondents (Sum)
EdD (Doctorate of Education)	3
MSN with teaching component (Master of Science in Nursing)	3
Assistant Professor of Medicine	1
Chief Resident in Internal Medicine	1
Yearly Preceptor Meetings	1
Staff Pharmacist for University	1
Military Instructor	1
BCLS/ACLS Instructor (Basic Cardiovascular Life Support/Advanced Cardiovascular Life Support)	1
Business/Marketing training	1

Table 20: Teaching methods utilized by preceptors.

Teaching Method		*Average of Total Responding
Hands-on		1.1
Demonstration		1.3
Question & Answer		1.5
Mini-Lecture		1.76
Critique of Student		2.15
Required Readings		2.21
Formal Lecture		3.31
Other	Case Studies	Unranked
	Interactional Dialogue	Unranked
	Presentations	Unranked
	Web-based instruction	Unranked
	Homework on specified topics	Unranked

*Ranked with 1 being the highest and 7 the lowest.

Table 21: Clinical Competencies and statistical significance of category (p-values)

	[Med Students				][NP Students				][PA Students				]
*Clinical Competency	1	2	3	4	1	2	3	4	1	2	3	4	p-value
Know & understand pathophysiology of common disorders	54%	42%	2%	2%	13.79 %	62.06 %	17.24 %	6.89%	17%	65.96 %	14.8%	2.13%	<.0001
Elicit comprehensive histories & perform appropriate physical exams, making accurate clinical assessments	36%	56%	6%	2%	37.93 %	46.55 %	8.62%	6.89%	23.4%	61.7%	14.89 %	0%	.18
Record data thoroughly	26.53 %	65.3%	8.16%	0%	36.84 %	54.38 %	8.77%	0%	15.55 %	73.33 %	11.11 %	0%	.19
Demonstrate logical thinking	30.61 %	63.26 %	6.12%	0%	18.97 %	62.07 %	17.24 %	1.72%	21.28 %	68.08 %	10.64 %	0%	.38
Able to perform technical procedures (e.g.: throat cultures, venipuncture, etc.)	16.67 %	56.25 %	16.67 %	10.42 %	33.93 %	53.57 %	10.71 %	1.79%	17.78 %	64.44 %	11.11 %	6.67%	.19
Formulate major differential diagnoses & outline plan of action/treatment for each final diagnosis	22%	52%	22%	4%	15.52 %	51.72 %	27.59 %	5.17%	10.64 %	57.45 %	25.53 %	6.38%	.85
Exhibit preparation for learning	32%	64%	4%	0%	32.76 %	58.62 %	8.62%	0%	19.15 %	72.34 %	8.51%	0%	.41
Show motivation & initiative for learning & patient care	42%	48%	10%	0%	55.17 %	39.66 %	5.17%	0%	36.17 %	55.32 %	8.51%	0%	.34
Explain diagnostic & therapeutic procedures to patients/families thoroughly	12.5%	52.08 %	27.08 %	8.33%	39.66 %	41.38 %	18.97 %	0%	10.87 %	56.52 %	28.26 %	4.35%	.0027
Familiar with pharmacology & actions of drugs; relate appropriate usage & avoid adverse reactions & contraindications	22%	64%	12%	2%	17.24 %	48.28 %	29.31 %	5.17%	12.77 %	55.32 %	25.53 %	6.38%	.26
Collaborate with other healthcare professionals	22.45 %	67.35 %	10.20 %	0%	36.84 %	56.14 %	7.02%	0%	26.09 %	60.87 %	10.87 %	2.17%	.51
Exhibit excellent communication skills	26.53 %	55.1%	16.33 %	2.04%	45.61 %	49.12 %	5.26%	0%	21.74 %	60.87 %	17.39 %	0%	.041

- 1 represents "strongly agree," 2 represents "agree," 3 represents "neutral,"
- 4 represents "disagree"

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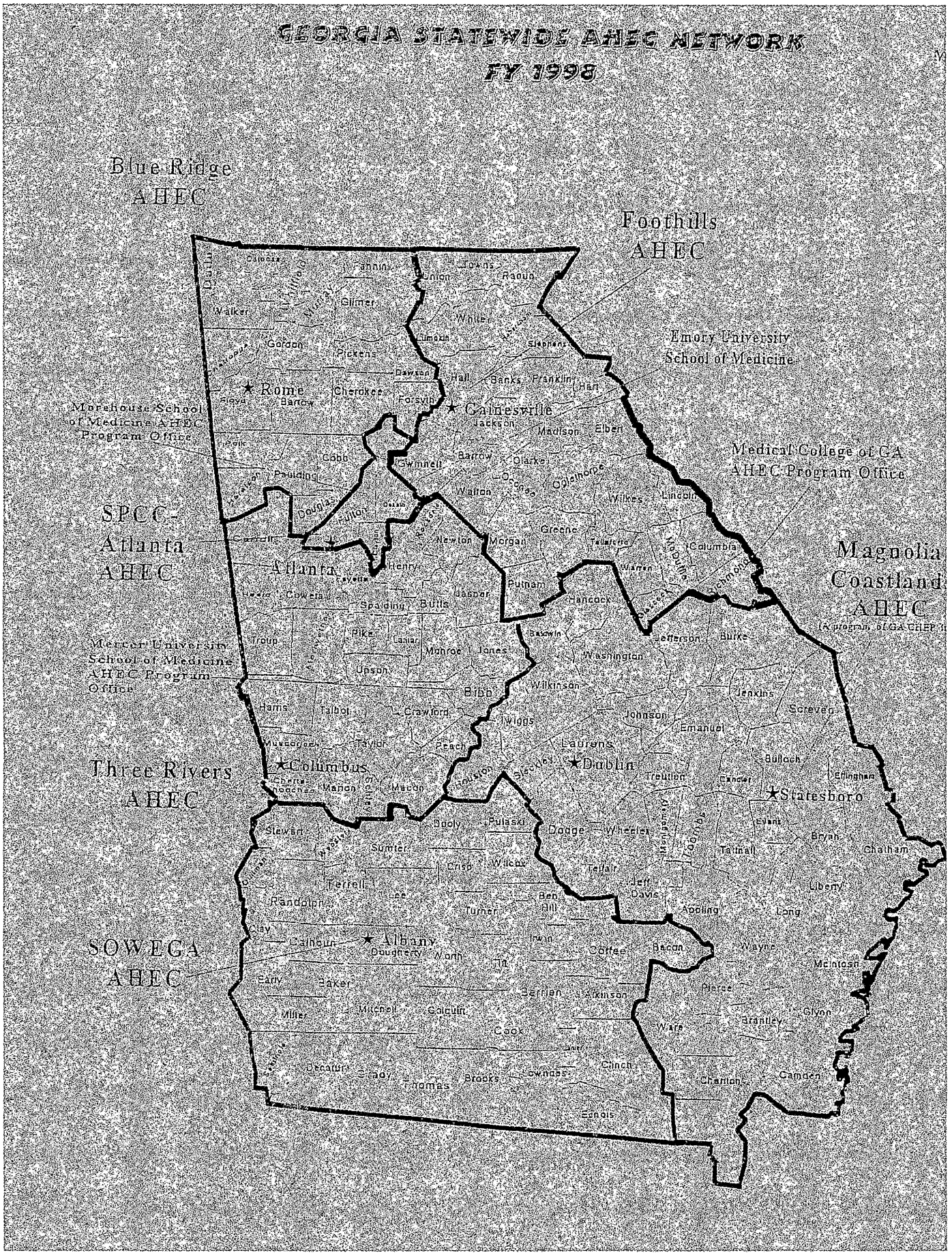
Figure 1


GEORGIA STATEWIDE AHEC NETWORK
FY 1998
Blue Ridge AHEC
Foothills AHEC
Emory University School of Medicine
Morehouse School of Medicine AHEC Program Office
Medical College of GA AHEC Program Office
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Three Rivers AHEC
SOWEGA AHEC
Rome
Gainesville
Atlanta
Columbus
Albany
Dublin
Statesboro

Medical College of Georgia
Augusta, GA 30912
Date

Preceptor Name
Preceptor Address
" "

To Whom It May Concern:

You were selected from a list of clinical preceptors for either Nurse Practitioner or Physician Assistant students in southeast Georgia. The enclosed survey is a series of questions to better define you as a preceptor and to form a better understanding of the needs of the students you mentor. The purpose of this questionnaire is for research purposes only as part of my master's degree requirements. Your anonymity will be protected in any reporting, and the survey should only take a few moments to complete. However, for tracking purposes, I do ask that you list your name and address at the end of the survey. Your response is greatly appreciated and the results may have a significant impact on the educational experiences of nonphysician provider students. This is a time sensitive project and your survey must be returned by {date}. Please take the time to document your much-valued opinions on the enclosed survey and return it in the postage-paid envelope.

Thank you for your participation,

Robyn Mitchell
Master of Health Education Student
Medical College of Georgia

HAC File # 03-11-156
Human Assurance Committee
Approved Research Material
Approval Date 12/3/03

Health-Education Survey

Instructions: Please complete the following survey and submit responses in the attached postage-paid envelope. Answer all questions and include any opinions as deemed appropriate. Circle responses when they are provided. Your anonymity will be completely respected. Thank you for your participation.
(NP=nurse practitioner, PA=physician assistant)

1. Please list your professional credentials (ie. MD, NP, PhD, etc.)

_____

2. What is your area of practice?

Family Practice Internal Medicine Pediatrics OB/Gyn

General Surgery Mental Health Emergency Medicine Academic

Other specialty (specify): _____

3. Please circle whether your practice is located in a rural or urban area or both?

RURAL (pop. < 10,000) Small City (10,000-49,999)

Medium City (pop. 50,000-249,999) Large City (pop. >250,000)

Multiple service areas (specify): _____

4. How many years have you worked in healthcare? (List #) _____

5. What types of professional students have you precepted?

Medical Dental Nursing Nurse Practitioner Residents

Physician Assistant Pharmacy Other (specify): _____

6. a. Do any of the following nonphysician providers work in your practice?

Nurse practitioner YES NO Physician Assistant YES NO

b. If so, how many? NP: _____ PA: _____

c. Do they assist in precepting?

NP: YES NO PA: YES NO

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7. Which type of health care professional student do you prefer to assist in training? (You may circle 1 or more—please denote any order of preference with 1 being highest, 6 being lowest)

___Medical ___Dental ___Nursing ___Nurse Practitioner

___Physician Assistant ___Pharmacy ___Other (specify): _____

Why (any incentive for training a particular profession)? _____

_____

8. Approximately how many of the following students have you precepted?

Medical: _____ NP: _____

PA: _____ Other (specify): _____

9. a. To your knowledge, have any of the following students you have trained come back to work in your region?

NP: YES NO PA: YES NO

b. If yes, what type of practice? _____

c. Please specify location (city name, rural/urban): _____

10. Who is responsible for hiring providers for your practice? (You may circle more than 1—please note who is primarily responsible)

Physician Office Manager Nonphysician providers

Other (specify): _____

11. How many of the following former students has your practice hired?

NP: _____ PA: _____

Please complete the following table. List either "strongly agree," "agree," "neutral," "disagree," or "not applicable (NA)" for how most of the following students compare according to your observations. *Please list "NA" if you have NOT precepted a particular type of student.

Clinical Competency	Medical Students	Nurse Practitioner Students	Physician Assistant Students
Know & understand pathophysiology of common disorders			
Elicit comprehensive histories & perform appropriate physical exams, making accurate clinical assessments			
Record data thoroughly			
Demonstrate logical thinking			
Able to perform technical procedures (eg. Throat cultures, venipuncture, etc.)			
Formulate major differential diagnoses & outline plan of action/ treatment for each final diagnosis			
Exhibit preparation for learning			
Show motivation & initiative for learning & patient care			
Explain procedures (diagnostic & therapeutic) to patients/ families thoroughly			
Familiar with pharmacology & actions of drugs, relate appropriate usage and avoid adverse reactions & contraindications			
Collaborate with other healthcare professionals			
Exhibit excellent communication skills			

What are your views regarding the educational preparation (considering the nursing vs. academic medical training) of nonphysician students?

NP: _____

_____

PA: _____

_____

What negative characteristics have you experienced with the different types of students in their clinical preparation and abilities?

NP: _____

PA: _____

What are the positive attributes you have recognized in various students?

NP: _____

PA: _____

a. Approximately how many hours per week did various students spend with you or your coworkers in clinical training?

NP: <40 40-50 50-60 60-80

PA: <40 40-50 50-60 60-80

b. How many weeks did each of the following students work with you (on average)?

NP: _____ PA: _____

What changes do you believe should be made by NP and PA programs to better prepare the students for clinical training?

NP: _____

PA: _____

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17. If you were to hire a student to work in your practice, please describe what type of provider you would seek. Please also specify profession.

18. (Circle one) Do you feel that it is more important for nonphysician providers to be clinically trained in:

All areas of clinical medicine OR Specialty training (1 field only)
Why? Why?

19. Have you received any formal training as an educator?

YES NO

If yes, what type of degree/training obtained?

20. What sort of teaching methods do you utilize in training students?
(Circle all applicable; include order ranking, with 1 being highest)

___Hands-on Training ___Formal Lecture ___Mini-lecture

___Question/Answer ___Demonstration ___Required Readings

___Critique of student skills ___Other (specify): _____

Please list any additional comments or questions you may have about this study

Please list your name and telephone number so that you may be contacted for future follow-up on this study as well as for survey tracking purposes (this information will be kept strictly confidential).