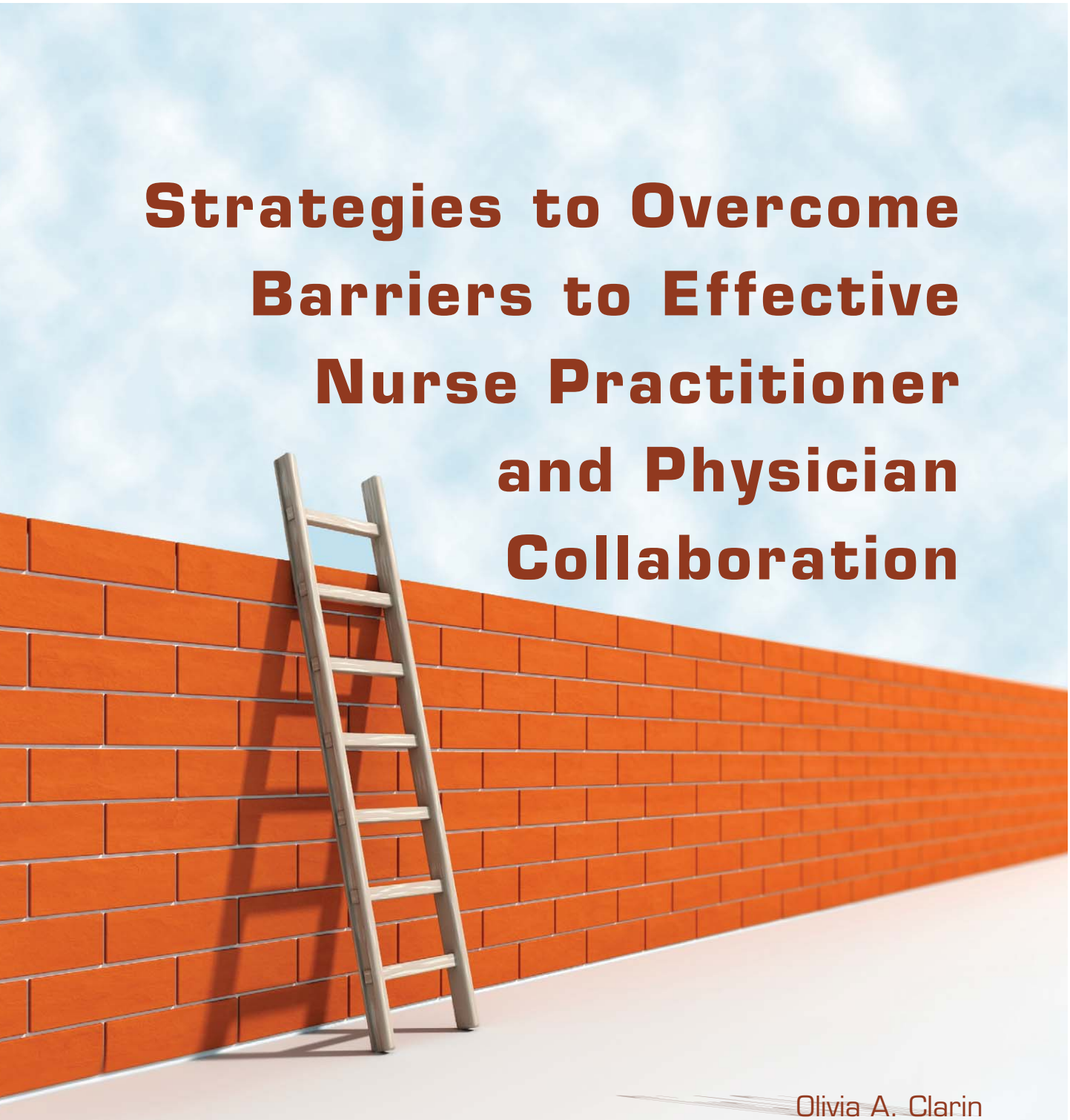
Strategies to Overcome Barriers to Effective Nurse Practitioner and Physician Collaboration



Olivia A. Clarin

ABSTRACT

Nurse practitioners (NPs) are highly used within primary, specialty, and acute care settings. The NP role eventually evolved to one of collaborating provider. However, barriers to NP and physician collaboration continue to exist. Each barrier affects the ultimate goal of all medical institutions: patient care outcomes. Among the most commonly seen in the literature are the lack of knowledge on NP role, lack of knowledge on NP scope of practice, poor physician attitude, lack of respect, and patient reluctance to accept NP care. This article reviews the literature on the barriers and the strategies to overcome those barriers.

Keywords: Collaboration, interdisciplinary relationships, nurse practitioners, physician, scope of practice

Nurse practitioners (NPs) and physicians have worked together to manage patients since the inception of the NP role in the 1960s.[1] Because the underserved and rural areas lacked primary and specialty care physicians, the NP role eventually evolved to one of a collaborating midlevel provider.[2] The integrated use of NPs and physicians together has positively affected the health care system, yet barriers to effective collaboration continue to exist, and this may lead to a reduced level of quality health care for patients. The barriers to effective collaboration between NPs and physicians are important to consider because the main goals of any NP–physician collaborative team are positive patient care outcomes.

Numerous articles have been written on collaboration between NPs and physicians; each giving different perspectives on the barriers to collaboration. Current research examines the experiences of NPs and physicians in collaborative practice and lists the critical components of effective collaborative relationships. Formal orientation to collaborating between health care providers in different disciplines is essential to managing patients efficiently.[3] The use of theoretical frameworks was deemed helpful in developing an effective collaborative practice.[4] The aim of this literature review is to review common barriers to effective NP and physician collaboration to identify the strategies to overcome these obstacles. The hope is that once common barriers are clearly identified and the strategies to overcome these barriers are used, successful collaboration will occur, leading to improved patient outcomes.

Essentially, the role of the NP is similar or equal to that of a physician; therefore, the duties inadvertently overlap. A physician will do the same type of work as a NP but brings more in-depth knowledge and expertise to patient care. In addition, physicians have the ability to perform special procedures or make more advanced clinical decisions and therefore can serve as an excellent resource in practice. Regardless, an NP has had sufficient knowledge and training to accurately assess and treat patients who have common disorders. Sharing similar goals and mirroring each others' practice provides consistent and comparable patient medical management. Together their duties overlap, but ultimately physicians and NPs share the goal of improved or better patient outcomes.[5,6]

The effect of barriers to effective NP and physician collaboration on patient outcomes is depicted in Figure 1. Two circles at the top depict the interprofessional relationship and how many duties overlap. The obstacles of the path to better patient outcomes are the barriers. The common barriers found in the literature are presented as the peach-colored square. The strategies to eliminating the barriers are shown in gray. Because better patient outcomes are the ultimate goal, this concept is illustrated as a barrel to show the open door to improved quality of care provided by the NP and physician collaborative team.

COLLABORATION BARRIERS

Twelve research and other scholarly articles identified the common barriers to NP and physician collaboration and the strategies to eliminate those barriers. Two tables of evidence were developed. Table 1 shows the research studies done on NP and physician collaboration, whereas Table 2 provides the overview articles on NP and physician collaboration. Those articles were obtained through a literary search of the databases PubMED, MEDLINE, CINAHL, Nursing and Allied Health, Cochrane Library, and Academic Search Elite. Key terms used to guide the search were "nurse practitioner," "physician," and "collaboration" together. Inclusion criteria for articles were (1) published within the past 10 years; (2) English language; (3) published worldwide; (4) descriptive studies showing interprofessional relationships of NPs and physicians; and (5) stories of collaboration. Exclusion criteria for the material being researched were (1) articles on nurses and physician collaboration and (2) articles involving NP collaboration with other health care members aside from physicians. Articles were extracted from journals such as the *Journal of Advanced Nursing, Journal of the American Academy of Nurse Practitioners, American Academy of Nurse Practitioners, AACN Clinical Issues, New England Journal of Medicine, and Journal of Pediatric Health Care.*

KNOWLEDGE OF NP SCOPE OF PRACTICE

A commonly found barrier to effective collaboration was the lack of physician knowledge on NP scope of practice.[1–3,6,7,9] Physicians must know the NP scope of practice to appropriately share patient management duties. However, it was found that physicians are often unclear on this concept.[3] There was an overall physician acceptance of NPs, but they were unsure of the NP scope of practice in regard to prescribing, performing physical examinations, and ordering laboratory studies.[6] This can be attributed to

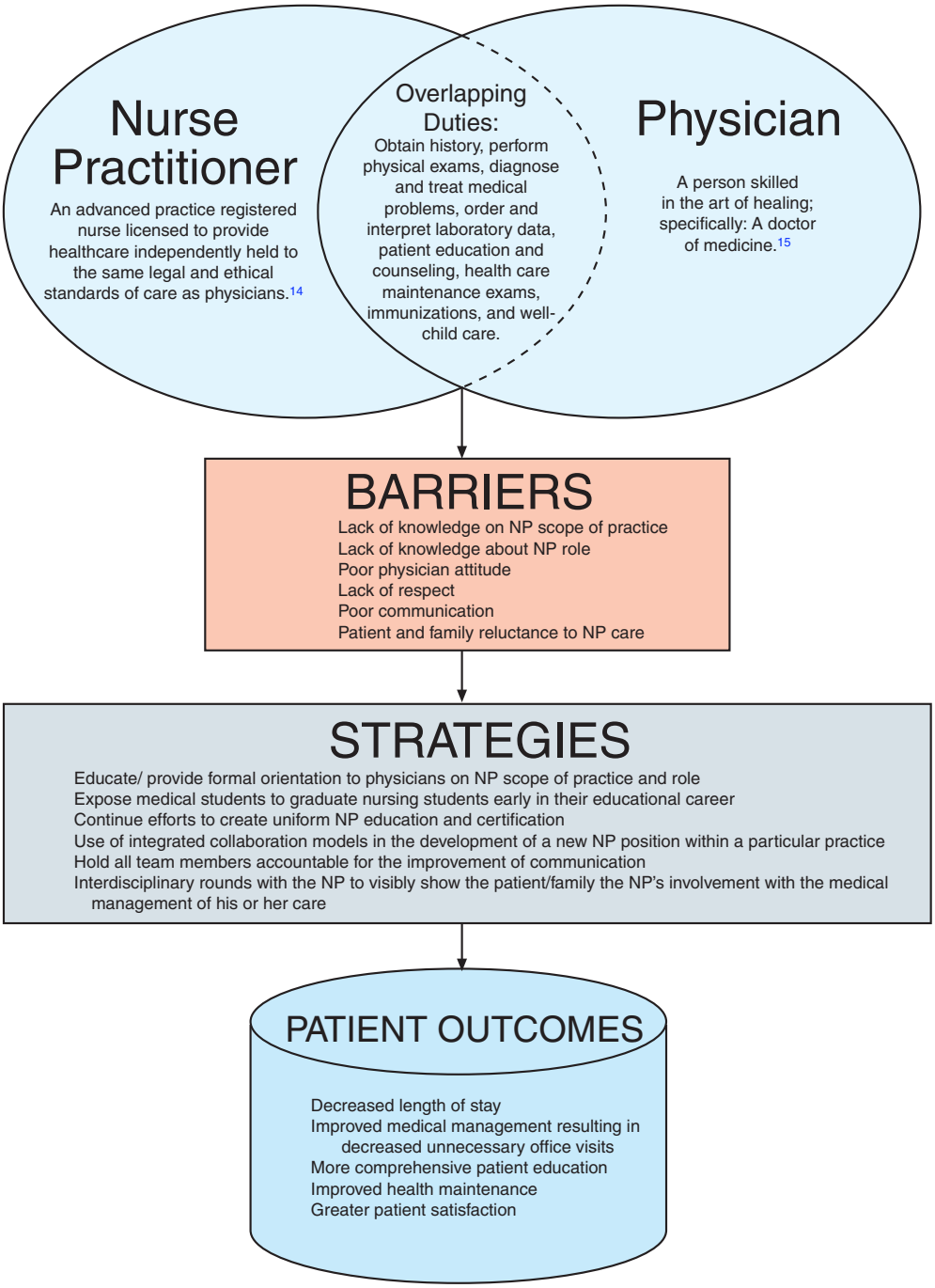


Figure 1. Overview of nurse practitioner (NP) and physician collaboration.

the lack of standardized scope of practice, prescribing, and reimbursements.[1] This creates an obstacle to any other profession attempting to understand the NP role. As a result, collaborating physicians may feel reluctant in their ability about giving NPs complete practice freedom in all aspects of patient management. One study that focused on the specialty area of surgery found that NP scope of practice was unclear. NP duties often overlapped with surgical resident duties, making it difficult for each surgical team member to claim their patient management role.[2]

KNOWLEDGE OF NP ROLE

Another barrier was lack of physician knowledge on the NP role.[2,3,6–8,10,11] Physicians generally accepted NPs but were unsure of the defining characteristics of their role, including their relationship to physician-based medical care and medical doctor licensure.[10] Interestingly, NPs were well aware of physician educational training and background, yet physicians' knowledge of NP education and training was quite limited.[9] This contributes to not truly understanding the NP role. Difficulty in understanding the role was associated with difficulty in understanding the meaning of collaboration.[4] Physicians' ideas of collaboration was that NPs practiced dependently under the physician; whereas, NPs viewed collaboration as more of an independent role with consulting only as needed.[10] Some physicians do understand the NP role as a result of working with one over time. Generally, however, physicians are unsure of NP roles in regard to patient management.[2,3,6–8,10,11] This is related to not truly understanding the concept of NP independence and NP educational background and training.[9] Although this has been known for years, it continues to be a problem that NPs face when collaborating within physician-based practices.

POOR PHYSICIAN ATTITUDES

Poor physician attitude toward NPs is another important barrier to NP–physician collaboration.[4,7,9–13] This third barrier encompasses the first two barriers because physicians must first possess positive attitudes before genuinely attempting to understand the NP role and scope of practice. Indeed, the physician-perceived hierarchal medical structure creates a barrier to successful collaboration.[12] This perception along with not completely understanding "collaboration" with midlevel providers is detrimental to any shared effort. "A prevailing cause of unsuccessful collaboration comes from a result of not trying to understand the practice components of the collaborator."[9,11] Physicians may also view a certain amount of incompetence, thereby creating more negative attitudes toward NPs.[3] As a result of poor physician attitudes, NPs continually face obstacles with autonomy and independent reimbursement. This is evident in political battles over practice and compensation that continue to be fought even today.[1] This is not to discredit the advances that NP organizations have made as far as reimbursement. This only highlights the ongoing struggle with physicians in terms of establishing an NP role as one that is fully capable of managing patient care.

A lack of respect also can create a barrier to effective collaboration.

LACK OF RESPECT

A lack of respect also can create a barrier to effective collaboration.[7,13] A lack of respect was described as being a "red flag" to successful NP and physician collaboration.[7] Examples of showing a lack of respect would be giving condescending remarks about one's educational background, showing a lack of respect toward other health professionals, or expressing feelings of being superior to the NP.[7] Despite a teamwork effort, what continues to exist is a "medically dominant management structure" that prevents creativity of the group as a whole.[12] This hierarchy surrounding a practice can be understood as a lack of respect, resulting in a barrier to collaboration. This has the potential to affect an NP's motivation toward quality of care and possibly job satisfaction.

POOR COMMUNICATION

Poor communication can affect working relationships.[7,9,11,13] Without a shared goal or point of interest, communication suffers, and consequentially teams find it more difficult to collaborate.[12] In this case, the common goal among NP and physician teams should be quality patient care. However, physicians find this difficult when NPs do not share their limitations or concerns.[11] In addition, poor written and verbal communication between providers was implied as a barrier to ineffective collaboration.[7] Because poor communication among medical professionals affects quality of patient care, strategies to avoid communication gaps should be addressed early in the collaborative process.

PATIENT AND FAMILY RELUCTANCE TO ACCEPT NP CARE

Patient and family reluctance to NP care can cause conflict and is an important barrier to NP and physician collaboration.[4,8] One specialist stated that "Perhaps the greatest barrier to effective collaborative practice is the patient and family acceptance of the ONP (Oncology Nurse Practitioner) role."[4] Patients are more familiar with a doc-

Table 1. Research Studies on NP and Physician Collaboration

Citation	Title	Purpose and Area Studied	Sample, Setting, and Method	Finding/Conclusions	Collaboration Barrier Themes	Strategies to Improve Collaboration
Bailey et al[3]	Family physician/ NP: stories of collaboration	Relay experiences of NP and physicians in collaborative practice Examine the impact of education on the interprofessional relationship of NPs and FPs Gain perspective on FP and NP control over practice and roles in health promotion and disease prevention Primary care	13 FPs, 5 NPs from 4 primary care practices in Canada Interviews: narrative analysis of 2 sets of interviews	1. FPs unclear about NP role 2. FPs based NP practice on limited knowledge of NP scope of practice 3. FPs felt less control over own practice 4. More positive perspectives of collaboration within institutions that had formal orientation to collaboration 5. NPs spend more time than FPs on disease prevention and health promotion 6. Need definition and structure to collaborative practice	Lack of knowledge on NP role Lack of knowledge on NP scope of practice	1. Provide structured orientation of a collaborative practice to all involved providers
Cairo[10]	Emergency physicians attitudes toward the emergency NP role: validation versus rejection	Examine emergency physician attitudes of collaboration with NP Examines any misconceptions of NPs Examines how emergency physicians conceptualize NP role Acute care: ED ED	5 emergency physicians in an ED in a city hospital Interviews: open-ended questions	1. Some physician acceptance of NP role 2. Some physicians reluctant to accept NP role 3. Physicians understood collaboration to be more independent 4. NPs viewed a more independent role	Lack of knowledge on NP role Poor physician attitude	1. Increase contact between NP and medical students while still in education 2. Establish collaborative practice agreements
Hallas et al[7]	Attitudes and beliefs for effective pediatric NP and physician collaboration	Explore PNP and physician attitudes and beliefs about collaboration Identify common themes of collaboration Primary care	24 PNP and pediatrician teams PNP (N = 34) Pediatricians (N = 24) Questionnaire: 8 open-ended questions; Likert scale	1. Definition of collaboration defined as working together, consulting, sharing common goals, complementing practice 2. Critical components of a collaborative practice: trust, mutual respect, communication, shared practice, competence and similar vision 3. Red flags to collaboration: lack of respect, territorial issues, poor attitude, incompetence, professional inflexibility, ineffective communication 4. The word consultation versus independent or supervision should be used to describe NP–physician collaboration	Barriers: lack of knowledge on NP role Lack of knowledge on NP scope of practice Poor physician attitudes Lack of respect	1. Incorporate collaborative practice in medical and nursing education programs

Mackay[6]	General practitioners perceptions of the NP role: an exploratory study	Explore perceptions of general practitioners on NP role Explore experiences of nurses in advanced practice Assessed role function and potential problems with NP role Primary care	108 GPs in New Zealand Questionnaire: Likert scale	1. NPs performing patient education perceived as favorable 2. GP uncertainty on NP prescribing role 3. GP uncertainty of NP role 4. Greatest problem is funding of NP services 5. NPs are a cheap option of the government 6. Confusion over role and professional boundaries 7. GPs perceived competition with NPs 8. Overall favorable acceptance of NPs, but ongoing concern about prescribing, physical examinations, ordering laboratory tests, and funding	Lack of knowledge on NP role Lack of knowledge on NP scope of practice	1. More GP education on NP role 2. More information on NP responsibilities 3. GPs with positive experiences overseas with NPs should share their experience with GPs that are incorporating use of NPs into their practice
Martin et al[9]	The collaborative healthcare team: tensive issues warranting ongoing consideration	Relay ongoing issues that MDs and APNs face with interdisciplinary relationships Assessed perceptions of teamwork Explored common issues about collaborative practice Acute care	A single group practice from skilled nursing facilities. 5 MDs and 8 APNs. Interviews: open-ended questions	1. MDs acknowledged their commitment to teamwork, but felt an ultimate responsibility over NP practice 2. MDs not as knowledgeable about NP education and training. 3. MDs and NPs disagree about time commitments for hours worked 4. NPs are open to learning from MDs, but this feeling was not reciprocated 5. Absence of information sharing	Lack of knowledge on NP scope of practice Poor physician attitude Poor communication	1. Introduce informal and formal strategies of communication among collaborating team members 2. General orientation for new NPs and MDs about practice responsibilities 3. During orientation, providers should verbalize their education, backgrounds, area of specialty, and strengths 4. Schedule monthly meetings that discuss effective communication
Shaw, et al[12]	Do primary care professionals work as a team: a qualitative study	Evaluate the use of model PMS in collaborative practice Primary care	Primary care staff in an inner-city of London; 48 staff members from 21 different practices Interviews	Barriers noted 1. Poor teamwork 2. Lack of shared objectives 3. Poor communication 4. Hierarchal structures 5. No common purpose 6. No identifiable shared goals	Poor communication Poor physician attitudes Poor communication	1. Include targeted team development support 2. Involve all practitioners in improving communication 3. Establish shared goals early in the collaborative process 4. Avoid attitudes that may portray a hierarchal practice structure

NP indicates nurse practitioner; PNP, pediatric NP; FP, family physician; GP, general practitioner; ACNP, adult care NP; ED, emergency department; MD, medical doctor; APN, advanced practice nurse; PMS, personal medical services.

Table 2. Overview Articles on NP and Physician Collaboration

Citation	Title	Purpose / Setting	Main components	Collaboration Barrier Themes	Strategies to Overcome Collaboration Barriers
Bush and Watters[4]	The emerging role of the oncology NP: a collaborative model within the private practice setting	Describe the developing role of an oncology NP in private practice Primary care	1. Describes the process and essential components to incorporating ONP role into practice 2. Goals of collaborative agreement are defined by both physician and ONP, possibly by use of models (physician practice model, joint practice, or collaborative model) 3. Restrictions to independent practice (time limitations, little experience of a doctor working with an ONP, scope of practice of ONP)	Poor physician attitude Patient and family reluctance to NP care	1. Use collaboration models when developing a NP role into private practice; one which addresses NP scope of practice, responsibilities, and consulting
Herrmann and Zabramski[8]	Tandem practice model: a model for physician-NP collaboration in a specialty practice, neurosurgery	Describe the benefits of using a model to incorporate physician–NP collaboration into the inpatient setting Acute care Specialty	1. NP practice viewed as physician-supervised 2. Physicians sense competition with NP practice 3. APN legislation restricting full NP practice 4. Patient and family unaware of NP–physician dynamics	Lack of knowledge on NP role Lack of knowledge on NP scope of practice Patient and family reluctance to NP care	1. Use a model when incorporating NPs into acute care practice. 2. Require interdisciplinary rounds with NP and physician to help incorporate NP role
Lee and Pulcini[13]	Barriers to independent practice: mandatory collaboration between nurses and physicians	To relay the barriers that NP and physician face within independent practice Primary care	1. Legal and economical restrictions cause barriers to independent practice 2. Collaboration should not be viewed as supervision under a physician 3. APNs need support for more independent practice separate from physicians	Poor physician attitude Poor communication	1. Ensure critical elements within collaborative practice such as mutual respect, effective communication, and acceptance of a fluid leadership structure

Martin and Coniglio[11]	The acute care NP in collaborative practice	Describe the collaborative process within an academic medical center setting, specifically with patients of head and neck surgery Acute care Specialty	1. Components of a collaborative practice: a) Cooperation b) Assertiveness c) Responsibility d) Communication e) Autonomy f) Coordination 2. Benefits of successful collaboration with NP a) Greater financial rewards from greater patient load b) Greater accessibility for patients c) Physicians can focus on other professional skills 3. Reluctance to accept each collaborators role; ignorance, poor role modeling, previous unsuccessful experiences, ineffective communication 4. Disrespect or inappreciation for each others roles and capabilities	Lack of knowledge on NP role Poor communication Lack of respect Poor physician attitude	1. Promote mutual respect toward one another's contributory role 2. Genuinely believe in each others contributions 3. Develop standardized education, licensure, and certification for APNs
Phillips, et al[1]	Can nurse practitioners and physicians beat parochialism into plowshares?	Identify the current status of NP and physician relationships Identify the barriers to collaborative relationships General	1. NP issues: profession and practice; how collaboration affects patient quality of care 2. Variability of NP scope of practice, prescribing, and reimbursements within the United States 3. Ongoing political battles over autonomy	Lack of knowledge on NP scope of practice	1. Continue fight for NP autonomy 2. Develop models of integrated care 3. Revise payment or reimbursements options to include NPs 4. Define shared authority and accountability 5. Specify NP education and certification requirements
Todd, et al[2]	Challenges of the 80-hour resident work rules: collaboration between surgeons and non-physician practitioners	Determine how the additions of non-physician providers has changed surgical teams Acute care Specialty	1. Descriptions of NPs and PAs 2. Use of a model to facilitate use of NP in surgical teams 3. NPs can be useful in surgical teams; important to delineate tasks to avoid confusion for residents	Lack of knowledge on NP role Lack of knowledge on NP scope of practice	1. Delineate NP & PA roles. 2. Hold mutual respect for each other's contributory role. 3. Resolve authority issues early.

NP indicates nurse practitioner; APN, advanced practice nurse; ONP, oncology NP; PA, physician assistant.

tor making decisions about diagnosis and management. Some may be reluctant to receive care from an NP who may not have as much expertise as a doctor. This was considered a restraining force for the successful integration of the use of an ONP.[4] Patient reluctance to accept NP care may be related to not knowing the NP role.[8] For some patients, the idea that a "nurse" is seeing them for their medical problem is difficult to accept. This not only creates a barrier to collaboration but is also a barrier to fully using professional NPs.

SUMMARY OF COLLABORATION BARRIERS

Most of the articles reviewed provided insight into the concept of collaboration. Three overview articles discussed the use of a model to facilitate collaboration.[2,4,8] The research studies noted collaboration among NPs and physicians in both acute care and primary practice. Many of the barriers to successful collaboration were exposed in the studies. The articles suggested the need for more orientation to the concept of collaboration on the part of physicians and relayed the red flags to collaborative efforts.

A main strength of the reviewed studies was that the researchers interviewed both NPs and physicians about collaboration. By using interviews, each provider was able to express feelings or attitudes about interprofessional relationships. Common themes were discovered and analyzed for conclusions. Another strength of these studies is that the literature focused attention on NPs in a variety of settings that ranged from private practice to acute care. Because common themes were found throughout the literature, this review has greater generalizability to both in-patient and out-patient NP-based settings.

This collaboration barrier issue involves both NPs and physicians, yet a chief weakness of the literature is that most of the articles were written by NPs. Because physicians are involved in the collaborative process, physicians should also focus research on the interprofessional relationships among nonphysician providers, specifically NPs. Another weakness is that many of the studies involved small samples of NP–physician teams.

STRATEGIES TO OVERCOME THE BARRIERS

The most commonly cited barrier was the lack of knowledge on the NP scope of practice.[1,3,6,7,9] Physicians today more likely had limited or no formal education about collaboration with midlevel providers such as NPs. Many of the strategies were related to educating physicians or providing some form of formal orientation that included the NP scope of practice.[3,6,9] Establishing specific NP practice components could help facilitate a smoother collaborative effort. A few of the investigators recommended exposing medical students to graduate nursing students early in their educational career.[7,10] For example, graduate nursing programs that are associated with schools of medicine can devise a class session that involves interaction with medical students. For these medical students, understanding the NP role could help to deter development of poor physician attitudes toward NPs later in their career.

Many of the strategies were related to educating physicians or providing some form of formal orientation that included the NP scope of practice.[3,6,9]

The partial knowledge of the NP scope of practice could also be attributed to varying education, training, and certification of NPs worldwide that has contributed to ambiguous NP roles and responsibilities.[1,11] A strong recommendation was to continue efforts on creating uniform NP education and certification.[1] During an orientation session, NPs could also verbalize their NP educational and training background along with their nursing background and area of specialty to better inform physicians of their potential contributions.[11]

Another strategy was the use of collaboration models to differentiate NP from physician responsibilities when a new NP position is being developed within a particular practice.[2,4,8] This model would include mutually defined goals and collaborative practice agreements.[4] It could eliminate any uncertainty about NP functioning within the interdisciplinary team and could provide a consistent resource for all members to reference.

Communication among team members could be facilitated through monthly meetings that specifically address gaps in communication.[9] In addition, holding all team members accountable for the improvement of communication can help eliminate the "absence of information sharing."[9]

Patient and family reluctance to NP care was related to vague roles of NPs. Many patients do not understand the dynamics surrounding a NP–physician team.[8] Often, patients may view NPs as nurses who are assisting physicians, when actually the NP role compliments traditional medical patient management. Herrmann and Zabramski[8] suggested holding interdisciplinary patient rounds with the NP to show the NP's involvement with the medical management of that patient's health care. The last column of the tables depicts strategies to overcome barriers to collaboration, including suggestions from research (Table 1) and other overview articles (Table 2).

FUTURE IMPLICATIONS

According to these findings, there are many implications for research, education, and practice. Future research could show how a collaborative NP–physician relationship affects patient care outcomes. For instance, a study using patient satisfaction scores as a means of determining effective NP and physician collaboration could be of particular interest. In this example, collaboration would include establishing patient goals or following up with patients on education and health maintenance issues with the aim to attain higher patient satisfaction scores. In addition, more research that addressed collaboration issues could be done on a national scale with surveys distributed to NPs and physicians. Another possible future research aim would be to describe new NP role transition into a collaborative NP–physician practice.

Consistent use of strategies to eliminate barriers can help all practitioners develop lasting interprofessional relationships.

A future educational goal is to begin incorporating classes about collaborative practice into the medical school curriculum. Many of the articles discussed this integration. In addition, new programs that allow both classroom and clinical interactions of both future NPs and future physicians could be considered.

The uncertainty of the NP role is related to the lack of a uniform scope of practice. Establishing a uniform NP scope of practice will not only help to eliminate one barrier to collaboration, but it will also undoubtedly strengthen the NP profession. Future practice implications include continued individual and group efforts toward developing a standard NP scope of practice. For example, the California Association of Nurse Practitioners (CANP) is heavily involved with legislative matters about nurse practitioners. Currently, CANP is working closely with state senators to amend sections in the business and professional code that specify NP scope of practice. Efforts such as these will help to clarify NP scope of practice and role and in turn open new doors to advanced nursing practice.

CONCLUSION

NPs have been used within health care for many years. The profession has grown in recognition as evidenced by prescription and reimbursement privileges. NPs hold a wealth of advanced knowledge that has allowed them to practice in an arena previously restricted to physicians. The ability of NPs to work collaboratively is a reflection on their profession and educational background. The ongoing issue relates to the continuing struggle toward effective collaboration between two notable providers: NPs and physicians. Phillips et al[1] provided the key concept that an effective collaborative workforce could result in improved or better patient care. Another key article by Hallas et al[7] uncovered the attitudes and beliefs of collaboration from NP and physician perspectives and found that some physicians still do not fully understand the concept of collaboration with an NP.

Indeed, the topic of faulty collaboration on the part of NPs and physicians is not new; it is an area that both of these providers face in everyday working relationships. Knowledge and understanding of the barriers and consistent use of the strategies to eliminate the barriers can help all practitioners develop lasting interprofessional relationships that will ultimately positively affect patient outcomes. After all, patients

benefit from a team that accepts and respects each other's role and essentially each other's profession. JNP

References

1. Phillips RL, Harper DC, Wakefield M, Green LA, Fryer GE. Can nurse practitioners and physicians beat parochialism into plowshares? *Health Affairs (Millwood).* 2002;21(5):133-142.
2. Todd BA, Resnick A, Stuhlemmer R, Morris JB, Mullen J. Challenges of the 80-hour resident work rules: collaboration between surgeons and non-physician practitioners. *Surg Clin North Am.* 2004;84(6):1573-1586.
3. Bailey P, Jones L, Way D. Family physician/nurse practitioner: stories of collaboration. *J Adv Nurs.* 2005;53:381-391.
4. Bush NJ, Watters T. The emerging role of the oncology nurse practitioner: a collaborative model within the private practice setting. *Oncol Nurs Forum.* 2001;28(9):1425-1431.
5. Meyer SC, Meirs LJ. Cardiovascular surgeon and acute care nurse practitioner. *AACN Clin Issues.* 2005;16(2):149-158.
6. Mackay B. General practitioners' perceptions of the nurse practitioner role: an exploratory study. *N Engl Med J.* 2003;116:1-8.
7. Hallas DM, Butz A, Gitterman B. Attitudes and beliefs for effective pediatric NP and physician collaboration. *J Pediatr Health Care.* 2004;18(2):77-86.
8. Herrmann LL, Zabramski JM. Tandem practice model: a model for physician-NP collaboration in a specialty practice, neurosurgery. *J Am Acad Nurse Pract.* 2005;17(6):213-218
9. Martin DR, O'Brien JL, Heyworth JA, Meyer NR. The collaborative health care team: tensive issues warranting ongoing consideration. *J Am Acad Nurse Pract.* 2005;17(8):325-330.
10. Cairo MJ. Emergency physician's attitudes toward the emerging NP role: validation versus rejection. *J Am Acad Nurse Pract.* 1996;8(9):411-417.
11. Martin B, Coniglio JU. The acute care NP in collaborative practice. *AACN Clinical Issues.* 1996;7(2):309-314.
12. Shaw A, de Lusignan S, Rowlands G. Do primary care professionals work as a team: a qualitative study. *J Interprof Care.* 2005;19(4):396-405.
13. Lee M, Pulcini J. Barriers to independent practice: Mandatory collaboration between nurses and physicians. *Clin Excell Nurse Pract.* 1998;2(3):172-173.
14. California Association for NPs. NP fact sheet. *Available at: www.canpweb.org/displaycommon.cfm?an=1&subarticlenbr=3.* Accessed March 8, 2006.
15. Merriam-Webster. Merriam-Webster online dictionary. *Available at: www.m-w.com.* Accessed March 28, 2006.
16. Laurent M, Reeves D, Hermens R, Braspenning J, Grol R, Sibbald B. Substitution of doctors by nurses in primary care. *Cochrane Database Syst Rev.* 2005;(2):CD001271.

Olivia A. Clarin, MSN, RN, CCRN, is a graduate from the Family Nurse Practitioner, Masters of Science in Nursing program, at California State University Fullerton.

She would like to acknowledge and thank the contributions of Christine L. Latham, RN, DNSc, a professor in the Department of Nursing at California State University Fullerton & Mary D. Knudston, DNSc, FNP, PNP, BC, Professor & Director, Family Nurse Practitioner Program at University of California Irvine.

Olivia can be reached at olivia.clarin@gmail.com.

In conjunction with national ethical standards, this author reports no relationship with business or industry that represents a conflict of interest.

1555-4155/07/$ see front matter

doi:10.1016/j.nurpra.2007.05.019