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Nurse Practitioner-Physician Co-management of Patients in Primary Care

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Abstract

Current demand for primary care services will soon exceed the primary care provider (PCP) workforce capacity. As patient panel sizes increase, it has become difficult for a single PCP to deliver all recommended care. As a result, provider co-management of the same patient has emerged in practice. Provider co-management is defined as two or more PCPs sharing care management responsibilities for the same patient. While physician-physician co-management of patients has been widely investigated, there is little evidence about nurse practitioner (NP)-physician co-management. Given the large number of NPs that are practicing in primary care, more evidence is warranted about the PCP perspectives of physicians and NPs co-managing patient care. The purpose of this study was to explore NP-physician co-management in primary care from the perspectives of PCPs. We conducted in-person qualitative interviews of 26 PCPs, including NPs and physicians, that lasted 25–45 minutes, were audio-recorded, and then professionally transcribed. Transcripts were de-identified and checked for accuracy prior to a deductive and inductive data analysis. Physicians and NPs reported that co-management increases adherence to recommended care guidelines, improves quality of care, and increases patient access to care. Effective communication, mutual respect and trust, and a shared philosophy of care are essential attributes of NP-physician co-management. Physicians and NPs are optimistic about co-management care delivery and find it a promising approach to improve the quality of care and alleviate primary care delivery strain. Efforts to promote effective NP-physician co-management should be supported in clinical practice.

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Keywords

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In the United States (US), primary care providers (PCPs) are increasingly strained to deliver high quality patient care to aging populations that often have chronic disease and require complex care management and follow-up (Bodenheimer & Pham, 2010; Lopez, Mathers, Ezzati, Jamison, & Murray, 2006). Organizations and providers have had to move from traditional care delivery models that use a single physician to more team-based and collaborative care in order to ensure that recommended quality-based disease management is completed. The change in how care is delivered has been influenced by a national shift from volume-based (payment dependent on the number of patients that a PCP delivers care to) to value-based payment mechanisms (payment dependent on pre-identified disease specific tasks that must be met for reimbursement to ensure a high standard of care) (Tinetti, Naik, & Dodson, 2016). This shift has prompted health care organizations to reassess their current care delivery models to accommodate increased patient volume and care management complexity by ensuring that workforce resources are allocated effectively (Burwell, 2015).

The demands for primary care services are unlikely to be met by physicians alone especially given decreasing primary care physician workforce supply. Over the past decade, a deficit of physicians has yielded patient panel sizes far greater than what an individual PCP is recommended to manage (Bodenheimer & Pham, 2010; Bodenheimer & Smith, 2013; Mitka, 2007; Murray, 2007). Some researchers estimate that it takes a single physician an unrealistic 21 hours-per-day to complete all recommended care management tasks (Yarnall et al., 2009). In contrast, nurse practitioner (NP) supply is increasing and as of 2017, NPs were the fastest growing workforce in the US trained and ready to take on more PCP roles (AANP, 2017). However, despite the ability for NPs to deliver primary care, the demand for services is greater than an individual PCP, physician or NP, can manage in a given day. As a result, provider co-management of the same patient has informally emerged in practice to help PCPs keep up with the demand for quality-based and timely care.

Co-management is defined as two or more providers that have a joint responsibility to complete all recommended care management tasks for the same primary care patient (Norful, de Jacq, Carlino, & Poghosyan, 2018). There is a substantial amount of evidence about the benefits of physician-physician co-management, including physician perspectives to enable co-management care delivery. Yet, as the number of NPs and physicians that co-manage care increases, the literature lacks PCP perspectives (NPs and physicians) on co-management care delivery. Evidence about such perspectives could shed light on PCP willingness to co-manage, the processes needed to co-manage patients and policies that might best support NP-physician co-management. This study uses a qualitative descriptive design to capture emergent themes about PCP perspectives of NP-physician co-management, its dimensions, processes, and perceived outcomes.

Background

Most researchers have investigated co-management between two physicians such as a primary care physician and a surgeon. There is evidence that physician-physician co-management yields optimal outcomes such as improved efficiency and reduced adverse outcomes (Cheng, 2012; Hinami, Feinglass, Ferranti, & Williams, 2011). However, as the number of PCPs from different professions, such as NPs and physicians, increasingly co-manage patient care together, it is important to understand the impact on patient and practice outcomes to inform future practice, policy and research.

A 2017 systematic review led by the primary author compared NP-physician teams to physician-led care. The review found that patient outcomes of NP-physician co-management are the same or superior to a traditional single physician care delivery model (Norful, Swords, Marichal, Cho, & Poghosyan, 2017). In addition, NP and physician PCPs who were co-managing patient care were significantly more likely to complete recommended care guidelines than their counterparts who worked with other practice management approaches. However, despite promising and significant results, there were variations across studies in the review in terms of how authors defined co-management theoretically and how clinicians implemented co-management in practice. Therefore, given the contributions of different PCP-types, specifically NPs and physicians, the primary author of this study and colleagues performed a conceptual analysis to understand co-management dimensions, processes, and impact. They reviewed more than 150 studies about NP-physician co-management, collaboration, relationships, care delivery models, and strategies to improve interprofessional teamwork. Similar terms such as “teamwork” and “collaboration” which are sometimes used interchangeably with “co-management,” were explored as well. The authors determined that “teamwork” is most applicable to a group of people working interdependently to achieve a common goal (Brush et al., 2015) and “collaboration” is when two providers share knowledge and expertise for the benefit of their own practice (Bridges, 2014). Further, the term “collaboration” in NP literature was often referred to NP policy regulations that require an NP to have a physician designated to oversee some aspect of their practice due to state imposed law. The authors concluded that “co-management” is a separate construct compared to “teamwork” and “collaboration.”

Next, the researchers developed a new theoretical model of “co-management” that included the construct’s dimensions, antecedents, and potential consequences stemming from the findings of the conceptual analysis. The primary dimensions of NP-physician co-management include effective communication, mutual respect and trust, and a shared philosophy of care. Details about each dimension can be found elsewhere (Norful et al., 2018). The researchers determined that quality of patient care could improve based on collective evidence of NP-physician co-management. However, a gap persists whether PCPs prefer to practice in such a care delivery model or whether they prefer to practice independently.

Professional organizations such as the American College of Physicians, National Governor’s Association, and National Academy of Medicine have supported NPs in primary care to increase the quality of care (American College of Physicians, 2009; National Academy of

Medicine, 2016; National Governor's Association, 2012). It remains unclear however if NP-physician co-management is more beneficial than an NP practicing independently. If prior evidence exemplifies the benefits of two physicians co-managing care, what are the potential implications of combining the expertise of two professions, NPs and physicians? Further, there is increasing evidence of the clinical and cost-effectiveness of NP care and some studies have found that outcomes for NP-managed patients are equivalent to those patients managed by physicians (Horrocks, Anderson, & Salisbury, 2002; Lenz, Munding, Kane, Hopkins, & Lin, 2004; Martin-Misener et al., 2015; Stanik-Hutt et al., 2013). However, due to variability of NP scope of practice across states and the lack of evidence of how to best use NPs and physicians together in primary care management, gaps in the literature remain.

Historically, there have been varying perspectives about the role of NPs in primary care. In 2017, the American Medical Association publicly objected to an expanded independent NP role and believe most care should be physician-led (American Medical Association, 2017). On the other hand, national NP organizations, such as the American Association of Nurse Practitioners, are pushing for increases in NP responsibilities and practices that are independent of physician oversight (AANP, 2017).

Nonetheless, unanswered questions remain, such as: (a) How will the nation meet the demands for primary care services given looming physician shortages and growing volumes of patients? (b) What roles do NPs and physicians have when they are co-managing the same patient? and (c) How do NPs and physicians perceive co-management of care? Hence, the purpose of this study is to inductively explore PCP perspectives of NP-physician co-management and deductively investigate each of the previously identified co-management attributes and processes in primary care. The findings of the study might inform policymakers, administrators, researchers, and providers about NP-physician co-management processes, necessary attributes, and potential implications of a co-management care delivery model.

Methods

This study was approved by the Columbia University Irving Medical Center Institutional Review Board. A qualitative descriptive design was used and the researchers recruited a purposive sample of primary care NPs and physicians (Bradley, Curry, & Devers, 2007; Sandelowski, 1995b). In the summer and fall of 2016, the research team e-mailed a flyer containing the details of the study and contact information for the researchers to a randomly selected group of providers and practice managers across several types of primary care practices in New York State through email. New York State was the targeted geographic region due to close proximity to the research team for in-person interviews and also because there is variability of NP scope of practice based on hours of practice experience and different organizational policies.

New York State law states that NPs do not require a written collaborative practice agreement after 3,600 practice hours (New York State Department of Education, 2015). The research team targeted different types of practices such as privately physician-owned, community-based clinics, and hospital-owned clinics to gain PCP perspectives across different types of

primary care institutions. There was no intentional recruitment of PCPs with current or prior co-management practice in order to compare perspectives from PCPs that both co-manage and practice independently. Interested PCPs contacted the researchers via email and phone to set up face-to-face interviews at a convenient time and location for the participant. PCPs were eligible for participating in the study if they were (a) actively practicing as a NP or physician, (b) practicing in a primary care outpatient setting, and (c) able to speak and understand English.

Two researchers developed an interview guide based on existing evidence about co-management care delivery, NP physician relations, co-management dimensions, and outcomes. Open ended questions were used, such as “Can you describe a scenario where you have co-managed care management responsibilities and tasks with another provider?” and “What types of barriers to co-management have you experienced?” Prompts were used, such as “tell me more” or “give me an example” to obtain more detailed information. The primary author, who is a health services researcher and practices as a primary care NP, conducted all interviews. The interviewer created a reflexivity journal prior to the start of the interviews to reduce bias and kept field notes for the duration of the study. Written consent was obtained prior to each interview. Each participant completed a demographic survey about age, years of experience, highest degree, and practice characteristics (e.g., size of practice). Only the interviewer and participant were present. The interviews lasted 25–40 minutes and were audiotaped to ensure descriptive validity. In addition, participants were asked to refer other PCPs to the researchers for participation in the study (snowball technique) (Biernacki & Waldorf, 1981).

Each transcript was imported into NVIVO v11 software for qualitative analysis. The researchers used an inductive and deductive approach to explore emergent themes about new and existing NP-physician co-management theories and care delivery models. Three researchers, including the interviewer, performed the data analysis. Immediately following each interview, the audio recording was immediately transcribed by a professional transcriptionist and sent to the research team for analysis. The unit of analysis was at the clinician level because clinicians within the same practice could have different perspectives about co-managing patients.

First, three researchers read and re-read the transcripts to obtain a general sense of the participant responses. Next, each transcript was coded with unique identifiers and a code book was created to ensure accuracy of the data extraction. Data were analyzed immediately upon transcription to allow the researchers to further explore emergent themes in subsequent interviews (Sandelowski, 1995a). The three researchers met weekly to discuss patterns and commonalities between participant responses and grouped common codes into categories, and categories into emerging themes. Three themes emerged from the data and data rich quotes were extracted to exemplify each emerging theme. Twenty-six PCPs were interviewed before data saturation was reached—no new information was emerging from the interviews after four months, thereby concluding the interview process. Each participant received a \$20 gift card incentive for participation. The results of the study, including themes, quotes, and discussion, were shared with two random participants (1 NP and 1 physician) to ensure interpretive validity.

Results

Participants included 26 PCPs (14 NPs and 12 physicians) (see Table 1). The mean age of all PCPs was 43 years. More than half of participants practiced in an urban setting and the majority of PCPs worked in practices affiliated with hospitals or academic medical centers. One provider practiced in a rural setting. Participants had a mean of 10 years of practice experience. Fifteen PCPs (8 NPs and 7 physicians) were actively co-managing a panel of patients with one other provider. Out of these 15, 2 NPs were co-managing a NP-designated panel together with another NP. Five physicians were practicing independently and without co-management. Four co-managing PCP dyads (n=12 PCPs) worked in the same practice location.

Three themes emerged from the qualitative data: (a) Joint patient care management; (b) Attributes needed for effective co-management; and (c) Potential implications of NP-physician co-management

Joint patient care management

PCPs described the process of NP-physician co-management as having a joint responsibility to complete all care management responsibilities. Co-management is a process where care management tasks are “all pooled together” and “no one has a patient that only he sees or only I see.” For example, one physician working in a suburban practice with two NPs described co-management as, “We divide the work, based on the priority and the need of the patient.” Several PCPs described that although one PCP is designated by insurers as the patient’s PCP there is often more than one PCP who is delivering the necessary patient care. PCPs in three different practices reported that co-management allows both PCPs to see an increased number of patients and enables more care management tasks to be completed in one day.

Co-management, in several primary care practices, occurs as PCPs have learned to adapt to current demands of increased volumes of patients and increased complexity of care management. Although co-management was reported by most PCPs as a common way that they deliver care, it was rare that these practices had a written co-management agreement between the two PCPs. A physician working in a large urban community clinic explained, “We’ve never had a conversation about [co-managing patients]. But it’s the only way I ever knew how to work, is that yes, this panel is mine, but we’re here together, so it’s ours really... if a [patient] comes in and needs something and [the PCP that the patient routinely sees] is not here, it’s yours.”

Attributes need for effective co-management

PCPs identified three key attributes of co-management: (a) effective communication, (b) shared philosophy of care, and (c) mutual respect and trust.

Effective communication—Communication is needed to ensure that all PCPs are aware of changes in patient health status or revisions to the care management plan. The PCPs explained how communication occurs in several ways when co-managing patient care. The most frequent and preferred modes of communication between PCPs during co-management

were face-to-face conversations and telephone calls. In addition, PCPs also communicate through documentation in the electronic health record. An NP working in a private physician-owned practice explained, “we’ll just give each other a report on that patient, and discuss the patient, what they might be coming in for or if they have special issues. After I see the patient, I typically like to give a report back to one of the other providers.”

When PCPs have close proximity to each other during patient visits, such as working in the same office location, and have more time to interact, effective communication is enhanced and enables PCPs to gain a timely second opinion about diagnoses or treatment plans. A physician co-managing over 5,000 patients with an NP explained, “We share an office... we’re sitting at our computer terminals. And then we rotate through exam rooms depending on who is seeing patients at what time. Everybody walks in and says, ‘I have a question with this patient. What do I do?’ ...a rash or something that I would just like a second person to eyeball.”

When communication is not possible immediately in-person, some NPs and physicians rely on telephone calls or electronic communication. Three PCPs described a designated meeting time for patient information exchange and also to provide ample time for mutual decision making regarding patient care. An NP who is co-managing patients with the same physician for over 15 years explained, “We try to periodically have [meetings] together and we’ll exchange things. How about this patient, how about that patient? Did you try this? Did you try that? And we go back and forth.”

Shared philosophy of care—Many PCPs emphasized the importance of having the same philosophy of care regarding care management goals and aligning their clinical treatment plans when they co-manage a patient. Different views on how care should be delivered often leads to conflict and can confuse patients in terms of how to optimally manage care. An NP working in an urban community clinic for seven years explained, “You can’t have somebody who’s conservative and somebody who’s aggressive co-managing the same patient. Because the patient is going to be in the middle, they’re going to be getting conflicting sort of answers from their providers.” She continued with an example, “[A patient] see one provider who will give them an antibiotic, and they’ll see another provider who won’t. And it just can create a lot of tension. So you definitely want providers that at least adopt the same philosophy of treatment.”

When PCPs don’t have the same philosophy of care, NP-physician co-management is hindered. An NP working in a private practice explained, “I often butt heads with other providers who want to get a CT scan every time, even though the patient has had five CT scans already... we don’t want to go down that route, the risk of exposure to radiation because of CT scans or possible false positives.”

While a shared philosophy of care was identified as important for effective co-management, PCPs need not have identical treatment plans, but they do need to exhibit the same patient care goals. A physician working in a large urban clinic said, “I’m not saying we have to be exactly always on the same page, but I think our general philosophy should be similar.” A physician with almost 20 years of experience explained, “I actually wanted to bring her [NP]

on, because she believed in the same philosophy that I believe in. And that makes my life a little bit easier in my head that somebody's thinking the same way that I am thinking."

Mutual respect & trust—PCPs spoke about mutual respect and trust, which includes an appreciation of each other's expertise and experience that can contribute to the quality of care. An NP practicing for 15 years with the same physician said, "I think you have to both accept that you are competent. I think you have to believe that who you're working with knows what they're doing." When PCPs respect each other, trust is enhanced. A new NP co-managing patients with a physician in a private practice described trust as, "supporting each other and respecting each other ... being open to each other, having that dynamic where you're not afraid to say something to someone else."

Trust between PCPs who co-manage patients develops over time. An NP who had been practicing in a physician-owned practice for 6 months said, "I think trust is always hard. It has to be earned, and I think you do that by showing you're committed to patient care; you're committed to sort of the latest evidence that's out there." Compared to physicians, NPs predominantly defined respect as the ability of the physician to recognize NP scope of practice and not hinder NP autonomy. An NP working in a hospital-affiliated clinic with one physician said, "There is a lot of mutual respect, in fact I think that's why she [the physician] doesn't feel that she needs to be hovering over me and reviewing everything because she respects my decisions and my ability to perform... I went to school for this, I have the knowledge. There's no reason why I shouldn't be able to practice to the full extent of my knowledge." Another NP working in a large urban clinic said, "If the physician is respectful of the NP ... being able to practice independently, as an equal, not as taking orders from the physician, ... then [co-management] totally depends on that."

Physicians, on the other hand, believe it is necessary to have close proximity to an NP to build that trust and respect. Close proximity includes frequent interactions, either in-person or via telephone. When NPs and physicians are working at the same place and time, physicians tend to believe that trust is built. A physician working in a rural practice said, "I really need to work closely with my nurse practitioner to learn her strengths and weaknesses, and to see what she feels comfortable with. And then determine how to allocate the panel."

Potential co-management implications

Two potential implications of NP-physician co-management emerged from the interviews:

(a) Improved quality of patient care and (b) Increased patient access to care and follow-up.

Improved quality of patient care

Almost all PCPs reported that combining the expertise and experience of co-managing PCPs enhances the quality of patient care. More specifically, two PCPs are able to combine their knowledge and ensure that the patient is getting the most up-to-date and evidence-based care. A physician who is newly co-managing with an NP said, "if [a patient] comes in to my practice and they have a needle stick and I don't see needle sticks all the time, I might call [the NP] and ask them, am I ordering the right labs or how often do I have to order these labs? Just to kind of refresh my memory, basically to confirm."

Many PCPs thought that the ability to gain timely a second opinion helps to enhance management of complex patient cases and introduces additional PCP expertise to benefit the patient's success with targeted goals. Participants reported that co-management provides PCPs with reassurance that the highest quality of care is being offered to the patient. This, in turn, alleviates PCP strain and prevents PCP burnout. A physician working independently in a large urban community clinic said, "when I have a patient that I've hit a wall with, how nice would it be to have the patient once or twice see another provider, not only would I get a sort of second opinion, which primary care providers don't really get unless they send [the patient] to a specialist, but I could get a break." Another physician who was actively looking to employ an NP in his privately owned practice said, "So, but my goal is to expand where [an NP and I] have equal responsibilities. We do equal things. And we are moving in and out of the office, transiently, to make sure that we treat each patient and the population." Similarly, an NP said that, "when we effectively communicate with each other and respect each other, we realize everything we're doing is for the patient, not for me or for [physician] satisfaction or because I don't want to do the work, we're here together for the patient."

Increased access to care & follow-up

PCPs recognized that patients benefit when they have two PCPs familiar with their diagnoses and care needs to assure continuity of their care. An NP in a private practice said, "Let's say one provider is out for maternity leave or out for vacation, it would be good for [the patient] to see one other central [PCP] instead of just random physicians where the patient might slip through the crack."

In addition, when two PCPs are responsible for the care of a particular patient, then the patient is more likely to have timely access to appointments and followup. A physician in a private practice said that with co-management, "my work time, in terms of some of the things that I actually do, is actually decreased, which will allow me to do a little bit more in other aspects...seeing more patients, the office is able to be run a little bit more efficiently..." Patient follow-up was perceived to also occurs quicker. A physician co-managing in a suburban hospital-affiliated practice explained, "For me to call back twenty patients on that same day is difficult. If I have shared responsibilities, twenty patients get called back." A physician with 20 years experience in primary care and hired an NP to co-manage patients explained, "I'll be able to address every single call on that day. The patients won't have to wait three days for me to put in their medications in the pharmacy. I have a seventy-two-hour wait. I needed somebody to help me with that... I don't let anyone else do it, but the nurse practitioner." Another physician who had previously co-managed patients with an NP but had since moved to a different practice said, "I was definitely more efficient [when co-managing]. I could see way more patients than I see now [practicing independently]."

Discussion

Limitations

This qualitative descriptive study explored PCP perspectives about NP-physician co-management of primary care patients. There are limitations to this study. First, the

researcher recruited a purposive convenience sample of NPs and physicians practicing in New York State. Although 26 is a typical sample size for qualitative designs, it is possible that PCPs outside of this study may have different perspectives about NP-physician co-management. Second, despite New York State law stating that NPs do not require physician oversight after 3,600 practice hours (New York State Department of Education, 2015), the researchers noted that in this sample of NPs, all were not all practicing completely independent of physician oversight. This is attributed to the variability of organizational policies that impose stricter NP practice policies than state laws or regulations, thereby creating variations of NP scope of practice at the organizational level. However, the findings of the study capture a true exemplar of the variabilities of real-world practice settings and demonstrate different ways co-management has been implemented regardless of NP scope of practice. Finally, it remains unclear whether co-management has emerged from the growing strains on healthcare delivery systems or the varying state practice requirements for NPs. However, PCPs in this study perceive co-management as beneficial to both patient and provider outcomes. Future research is warranted to determine a measurable impact.

Practice Implications

There are several practice implications that stem from our findings. NPs and physicians report that they co-manage patients through a division of care responsibilities and shared workload to ensure that all recommended care guidelines are completed. PCPs perceive that time well spent together enables the vital attributes of NP-physician co-management (effective communication; mutual respect and trust; and shared philosophy of care. NP-physician in-person meetings to discuss goals and care plans, as well as transparency in patient documentation, especially in electronic health records, should be encouraged for effective communication. It is crucial for both types of PCPs to have access to a patient's history, laboratory or diagnostic test results, and plans of care, to avoid unnecessary or redundant testing. This will promote continuity of care by avoiding a breach in care management. Next, NPs and physicians are able to remain clinically aligned with care management goals through timely interactions, which PCPs perceive to build respect, trust, and a shared philosophy of care between co-managing providers.

Policy Implications

The more opportunity that NPs and physicians have to interact, the stronger co-management is and could potentially yield more effective and efficient patient care management. Therefore, we recommend that primary care administrators and providers make efforts to allocate ample time and resources for NPs and physicians to discuss patient care information through improved organizational policies that alter processes for more PCP communication. In addition, organizational efforts should include interventions that ensure that PCPs are knowledgeable of each other's training and areas of expertise that can contribute to the care management plan.

Next, at the state and federal level, policymakers and insurers should evaluate the presence of inhibitive regulations on NP-PCPs that may prevent NPs from fully co-managing patient care. PCPs in this study perceived that the ability to combine disciplines may improve the quality of care delivered, especially during scenarios in which either provider may lack

expertise with a particular patient care need. However, reimbursement mechanisms that do not identify NPs as designated panel providers or do not fully reimburse NP services could hinder co-management and the potential for increased quality of care. In addition, some physicians referred to NPs as “my NP” suggesting that NPs are assisting the physician with tasks to manage the physician panel. This may be due in part to long standing reimbursement mechanisms. In 1998, Congress enacted legislation specifying that NPs caring for Medicare patients should be paid 85% of the Medicare physician fee, regardless of site of practice or geographic location (AANP, 2013). As a result, health care delivery administrators have a financial incentive to focus on panels of physicians more than panels of NPs. Moreover, they might prefer to assign NPs to physician panels than allow them to have panels of their own.

Research Implications

The findings in this study prompt questions for future research. First, more evidence is needed about how many PCPs across the country co-manage patient care. In addition, when NPs and physicians are co-managing care in a physician-designated panel, are NP contributions to primary care fully understood? Future research should attempt to capture national statistics about NP practice, designated panels, and payment mechanisms. Further, future empirical studies should investigate varying practice characteristics including care delivery resources, such as communication resources, that may impact NP-physician co-management. Next, while NPs and physicians perceive co-management as a promising approach to achieving high quality of primary care delivery and the potential to increase primary care capacity to larger patient panel sizes, future research should include trials that compare NP-physician co-management care delivery quality and panel capacity alongside varying care delivery models. In summary, the findings of this study present positive PCP perspectives about NP-physician co-management. Large-scale studies, across a wider geographic location, are needed.

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Table 1

Primary care provider interviewee characteristics (Summer/Fall 2016)

Participants (N=26)	
Occupation N (%)	
MD	12 (46)
NP	14 (54)
Age (years)	
Mean (SD)	43.46 (11)
Sex N(%)	
Female	20 (77)
Highest degree N (%)	
Master's	5 (19)
Post-master's certificate	3 (12)
MD	12 (47)
Doctorate (PhD; DNP; PhD/MD) *	7 (27)
Years Experience	
Mean (SD)	10 (8)
Main Practice Site N (%)	
Private practice	5 (19)
University clinic	11 (42)
Hospital-affiliated clinic	9 (35)
Government funded clinic	1 (4)
Geographic location N (%)	
Urban	17 (65)
Suburban	8 (31)
Rural	1 (4)

* Includes 1 physician in the sample that has both a MD and PhD

Table 2

PCP perceptions about NP-physician co-management of primary care patients

Joint patient care management	
Shared responsibility	
Pooled workload	
Attributes needed for effective co-management	
Effective communication	
Timely exchange	
Mutual medical language	
Full access to each other's patient documentation	
Organizational communication policy supports co-management	
Shared philosophy of care	
Complementary practice styles	
Mutual goals for patient care	
Agreement on rationale for care plan	
Mutual respect and trust	
Knowledge of each other's care management expertise	
Trust of each other's care decisions	
Recognition of each other's contributions to patient care	
Mutual respect of professions	
Perceived co-management implications	
Improved quality of patient care	
Increased patient access to care and follow-up	