

August 9, 2017

Seema Verma
Administrator
Centers for Medicare and Medicaid Services
Department of Health and Human Services
Attn: CMS-5522-P
P.O. Box 8013
7500 Security Blvd
Baltimore, MD 21244-80162

RE: CMS-5522-P-Medicare Program; CY 2018 Updates to the Quality Payment Program (82 FR 30010)

Dear Administrator Verma:

The American Association of Nurse Practitioners (AANP), representing more than 234,000 nurse practitioners (NPs) in the United States, appreciates the opportunity to provide comment in response to the CY 2018 Updates to the Quality Payment Program (82 FR 30010).

NPs are advanced practice registered nurses who are prepared at the masters or doctoral level to provide primary, acute, chronic and specialty care to patients of all ages and walks of life. Daily practice includes: assessment; ordering, performing, supervising and interpreting diagnostic and laboratory tests; making diagnoses; initiating and managing treatment including prescribing medication and non-pharmacologic treatments; coordinating care; counseling; and educating patients and their families and communities. NPs practice in nearly every health care setting including clinics, hospitals, Veterans Affairs and Indian Health Care facilities, emergency rooms, urgent care sites, private physician or NP practices (both managed and owned by NPs), nursing homes, schools, colleges, retail clinics, public health departments, nurse managed clinics, homeless clinics, and home health. NPs hold prescriptive authority in all 50 states and the District of Columbia. It is important to note that 89.2% of NPs are certified in primary care, the majority of whom see Medicare and Medicaid patients. NPs complete more than one billion patient visits annually.

After reviewing the proposed rule, we are pleased that you have maintained provider neutral language throughout, and that you have stated clearly that nurse practitioners will be recognized and fully participate as reimbursable clinicians in the proposed programs.

We thank CMS for taking into consideration the fact that nurse practitioners were not included in the Medicare meaningful use program by exempting NPs from the advancing care information measure in the CY 2017 final rule. We also support the proposal in the CY 2018 proposed rule to extend that exemption for the 2018 performance period, and to allow clinicians to utilize 2014 certified CEHRT in the CY 2018 performance period. These proposals will ease the burden on clinicians that have not been authorized to participate in past Medicare EHR incentive programs.

Increased MIPS Low-Volume Threshold (30023-30026)

We appreciate that CMS is striving to ease the burden of MIPS on clinicians, and we support many of the provisions in this proposed rule. However, we are extremely concerned that the proposed increase in the low-volume threshold will exclude too many practices and clinicians from participating in MIPS. In the proposed rule, CMS stated that one of its primary objectives is to develop a flexible program that is not one-size-fits-all, allowing all clinicians to participate in ways that are best for them, their practice, and their patients.¹ Yet by increasing the low-volume threshold to the specified amounts (\$90,000 Part B allowed charges and 200 Part B patients treated) CMS is depriving many more clinicians of their opportunity to participate in MIPS.

Based on CMS estimates of the impact of the low-volume threshold, 134,000 additional clinicians would be excluded from MIPS.² CMS estimates that only 50,649 nurse practitioners³ would be able to participate in MIPS in 2018. As a comparison, there were 89,732 nurse practitioners who were eligible participants as individuals or groups in PQRS in 2015, and that number has been steadily increasing.⁴ CMS has stated that they want to “build upon the foundation that has been established which provides a trajectory for clinicians to value-based care,”⁵ but it is hard to determine how decreasing MIPS, participation in year two of the program, fulfills this objective. In addition, it is unclear what will happen to clinicians who are exempt from participation as the program moves forward and fee-for-service is phased out. We ask that you explain how clinicians not participating in MACRA will continue to be reimbursed under the Medicare program.

Provider participation in MACRA is supposed to coincide with the end of PQRS, the Medicare EHR incentive program, and the value-based payment modifier. This is made clear in the proposed rule for the CY 2018 Physician Fee Schedule, which states that MACRA consolidates and replaces the three programs, all of which ended after the 2016 reporting period.⁶ Raising the low-volume threshold, as noted above, breaks the links between these programs and MACRA and stifles the transition to value-based reimbursement. The trajectory of PQRS reporting has been steadily increasing. For nurse practitioners, participation grew from 32.6% in 2012 to 67% in 2015.⁷ Under the MACRA legislation, participating providers could receive up to \$500 million yearly in incentive payments under MIPS.⁸ We remain concerned that those clinicians not participating because they did not meet the threshold would forfeit their ability to receive similar yearly payments because other incentive programs phased out with the implementation of MACRA.

¹ 82 FR 30010, 30012.

² *Ibid.*, 30024.

³ *Ibid.*, 30238.

⁴ 2015 PQRS Experience Report, pages 20 and 28. (The total number of eligible NPs including ACO participation was 113,445.)

⁵ 82 FR 30010, 30013

⁶ 82 FR 33950, 34099.

⁷ 2015 PQRS Experience Report, Table A7

⁸ 82 FR 30010., 30232.

CMS has proposed many measures that are meant to ease the burden on clinicians and to assist their transition to value-based reimbursement, but these proposals will have no impact if the clinicians that would benefit from the proposals are excluded from participation in MIPS. Proposals such as increasing the number of submission mechanisms⁹; maintaining the 50% data completeness threshold for quality measures¹⁰; lower reporting thresholds for small and rural practices¹¹; bonuses for small or rural practices¹²; bonuses for complex patients¹³; allowing the use of 2014 certified CEHRT¹⁴; and ACI exceptions¹⁵, all ease the path for small and rural clinicians to participate in MIPS. We support the implementation of these proposals, but are concerned that their impact would be negligible if the low-volume threshold is increased. Clinicians should be supported in ways that assist them to transition and implement value-based reimbursement, and policies should encourage and reward this transition. CMS should not exclude clinicians who are willing and prepared to participate in the program.

We ask CMS to revisit the proposed low-volume threshold increases to ensure that eligible providers can participate in MIPS. We appreciate the efforts of CMS to ease the transition of small providers to MIPS, and we support the scoring proposals that level the playing field for small and rural clinicians. We also support an option for clinicians to “opt-in” to MIPS¹⁶, but we do not believe that the “opt-in” option should be based on the low-volume threshold in this proposed rule and it should be available in 2018. We believe that any clinician who is eligible to participate in MIPS should be given a realistic path to do so and that the focus should be on increasing, not decreasing, participation in MIPS. We request the opportunity to work with CMS to develop ways to ease the burden on practitioners while also encouraging participation in both tracks of MACRA.

Virtual Groups (30027-30034)

As CMS develops parameters for virtual groups, we urge CMS to consider how all eligible clinicians, including NPs, can be treated equally under this program. In doing so, we ask that CMS not impede NP eligibility for and participation in these groups. We support the following proposals for 2018 that you have put forward in this rule:

- Not limiting the number of virtual groups that can combine their MIPS reporting;
- allowing virtual groups to report under a virtual TIN;
- not limiting the number of clinicians in a virtual group for MIPS reporting.

We appreciate that CMS realizes that there are barriers regarding the development of a technical infrastructure required for successful implementation of the virtual groups within MIPS, and we support the proposal to provide technical assistance for the 2018 and 2019 performance years. We request that CMS continue to examine the formation and implementation of virtual groups ensuring equity and taking into account variability in patient case-mix and practice needs.

⁹ *Ibid.*, 30034, 30111.

¹⁰ *Ibid.*, 30015, 30041.

¹¹ *Ibid.*, 30055.

¹² *Ibid.*, 30139.

¹³ *Ibid.*, 30134-30140.

¹⁴ *Ibid.*, 30065.

¹⁵ *Ibid.*, 30075, 30079.

¹⁶ *Ibid.*, 30026.

As CMS identifies requirements for virtual groups and the mechanisms for implementation, we request that NPs be included in all planning and development aspects, particularly as part of the user groups and listening sessions. We believe that NPs must be active participants in the development of the EHR software and be recognized as providers within the EHR software database. This would assist in ensuring that accurate data in relation to outcome measures is captured for the actual clinician who provided the service. This reinforces transparency and enables proper system development and operations certified by CMS for utilization in virtual groups. In this vein, we believe that accurate data and reporting of clinicians will additionally be supported by EHR incentives for Certified EHR technology and interoperability for virtual groups in the MIPS program.

We have concerns related to the 2018 performance period and the short timeframe that clinicians would have to elect to join a virtual group since the parameters of the virtual group process are not yet established. The proposed rule states that a clinician would have to elect to join a virtual group for the 2018 performance period by December 1, 2017; that will provide very little time for a clinician to make an informed decision related to participation. We recommend that CMS move the election deadline back for this year to give clinicians an opportunity to review the virtual group guidelines when they are published, and make informed decisions regarding joining a virtual group. We also ask that CMS include examples of virtual group arrangements and contracts in the sub-regulatory guidance for review prior to the virtual group election deadline.

Advancing Care Information (ACI) (30079)

CMS requested input on how nurse practitioners and other providers exempted from the ACI requirement could be incorporated into the ACI measure. There are barriers within many Electronic Medical Record (EMR) systems that are still geared to the concept that only a physician documents the patient's condition and the services performed, particularly in hospital systems. We suggest that CMS require software products to be "nurse practitioner inclusive" to be certified by CMS. One step toward accomplishing this goal is including nurse practitioners on the Health Information Technology Advisory Committee. We also ask that CMS ensure that there is high-quality, free and low-cost CEHRT for all clinicians, particularly those in small practices, who may not have the financial ability to invest significant money on CEHRT.

Topped Out Measures (30045-30046, 30103-30106)

We have several concerns about the practice of retiring topped out quality measures, particularly those that are indispensable to the treatment of patients with certain conditions. Based on your proposal, it is our understanding that less important quality indicators will replace those currently deemed to be the most important indicators simply because they are being met and used by too many providers. According to your data, a significant proportion of clinicians are already topped out in the most important indicators. In that case, it would appear, according to your suggested scoring, that clinicians are to be penalized for topping out, rather than rewarded for consistently meeting those quality activities in the scoring of their care.

While we believe that clinicians who have not topped out a measure should be able to report on that measure, and have the opportunity to improve and receive a full performance score, we feel it would be counterproductive to lower the scores of clinicians who have met the goal. It is our opinion that topping out should be rewarded, not penalized. Perhaps clinicians who have topped out measures could submit additional less reported measures via some sort of a bonus structure. While we recognize the practicality of a numeric scoring system to evaluate quality, as health care providers we must continue to concentrate on keeping patients well. It is imperative that we clearly focus on measures that reflect the quality of care provided, notwithstanding if they have been topped out.

Facility-Based Measurement (30123-30132)

While we appreciate that the goal of instituting facility-based measurement is to ease the burden on clinicians reporting under MIPS, we have concerns that the proposed methods would provide facility-based clinicians with an unfair advantage over non-facility clinicians. For example, the proposed rule would allow facility-based clinicians to evaluate their score under the facility measurement and under the individual MIPS measurement and select the higher of the two. This is an option not available to other providers. We encourage CMS to continue to explore and implement options to equalize benefits for clinicians in all settings.

Cost Category (30037-30038, 30047-30051)

CMS has asked for comment regarding whether the cost performance category should be weighted at 0% or 10% in the 2018 performance period, with the caveat that cost must be weighted at 30% in the 2021 payment period via statute. We recommend scoring cost at 10% in 2018 to ease that transition, but also note that the Secretary may have additional flexibility to smooth this transition in future years. While section 1848(Q)(5)(i)(II)(aa) of the Act does require a cost performance category weight of 30% beginning with the 2021 payment year, the Secretary is also given the authority to re-weight MIPS performance categories. Section 1848(q)(5)(F) of the Act authorizes the Secretary to re-weight MIPS performance categories if there are not sufficient measures and activities applicable and available to each type of MIPS eligible clinician involved. CMS has utilized this authority to re-weight scoring in the first two years of the program and create scoring exceptions for specific groups of clinicians.

Since CMS is continuing to develop the episode-based measures that will be used for the cost performance category (as required by statute) we suggest the Secretary would have the authority to re-weight the cost category in the 2019 performance period. CMS has noted that feedback on the new measures that are being developed will be available in the summer of 2018, and that CMS will propose to adopt episode-based measures that are currently in development in future rulemaking. Given the complicated nature of the development of these measures, we want to ensure that clinicians have an opportunity to fully understand the cost measures prior to them being used to account for 30% of a clinician MIPS score. Since the sufficiency and applicability of these measures is yet to be determined, and the measures themselves are still in development, we suggest that the Secretary use his flexibility to lower the cost performance score from 30% in the 2019 performance period to create a smoother transition to cost scoring.

“Incident To” Billing

In the interest of accurate evaluating and accountability, we feel it is important to address an overarching practice that can influence outcomes in the MACRA programs. While it is our opinion that “incident to” billing should be discontinued, we also note that the billing guidelines related to “incident to” services could be amended by regulation or guidance to ensure that all practitioners bill under their own billing ID for the services that they provide. In the transition to value-based reimbursement, it is important that the most accurate data is obtained to document and evaluate practitioners.

Current “incident to” billing practices undermine the foundations of value-based reimbursement. Simplifying these billing guidelines to require practitioners to bill under their own billing ID for the services that they perform will lead to administrative simplification and more accurate data, which is essential in the transition to value-based reimbursement. Alternatively, we propose the creation of a billing modifier that would identify the provider of the service being billed to ensure the accuracy of billing and claims data. This solution has recently been adopted by a major insurer on all of their commercial claims.

There is an opportunity to implement this modifier under the MACRA legislation, which states that the Secretary shall develop patient relationship categories and codes that “define and distinguish the relationship and responsibility of a physician or applicable practitioner with a patient at the time of furnishing an item or service.”¹⁷ In the CY 2018 Physician Fee Schedule proposed rule¹⁸, CMS has proposed to begin implementing patient relationship codes, and we believe that the inclusion of this information is an opportunity to create a modifier that would identify the clinician that is actually performing the service.

Alternative Payment Models (30013-30014; 30170-30209)

We encourage you to continue to determine ways that nurse practitioner practices can also be incentivized to participate in the Alternative Payment Models. While many NP practices and clinics are nationally certified Patient Centered Medical Homes (PCMHs) and many more meet the standards for PCMHs, it is important to have more recognition and participation in other APM tracks.

We encourage you to incentivize nurse practitioners to become and to join Accountable Care Organizations (ACOs) and to incentivize ACOs to include nurse practitioners as full clinician partners in their value-based payment programs. For example, in the Shared Savings Program, the Secretary has broad waiver authority which can be utilized to waive the definition of physician and allow assignment of beneficiaries who are only seen by nurse practitioners. We also support the proposal to lower the APM risk amount for small and rural practices to encourage greater participation in the APM track.

As CMS continues to expand the scope of APMs to involve payers other than Medicare, we encourage CMS to ensure that the payers selected to participate are inclusive of all clinicians, and are following all provider non-discrimination rules and regulations. Ensuring that all providers can fully participate in these APMs will increase participation in MACRA and further the goals of value-based reimbursement.

In addition, we disagree with the proposal that Other Payer Advanced APM determinations will be made one year at a time. It is critical that a stable business environment is created for ongoing practice. Clinicians should be assured that when they enter an APM they will be able to do so for a period that is long enough to recognize the benefits for their practice and patients. APMs should be able to implement their guidelines to meet the needs of their patients without the fear that they will not meet the MACRA guidelines on an annual basis.

PTAC (30207-30209)

While we have been assured that the PTAC program includes nurse practitioners and other non-physician providers, material and directives continue to only speak of physicians. We ask that a correction be made to reflect the focus of the program. In that light, we continue to be concerned that advisory committees/commissions do not include nurse practitioners even though nurse practitioners have equal opportunity to provide input into the development and implementation of these programs. The current PTAC does not include any nurse practitioners. We request CMS to be inclusive of all providers when selecting the members of this committee. We know that efforts are being made to be inclusive and ask that you continue these in the final rule so that we can work together to create a high quality, patient centered, cost effective health care system in this country.

¹⁷ Public Law 114-10, 129 Stat. 125.

¹⁸ 82 FR 33950, 34128.

We thank you for the opportunity to comment on this proposed rule. As we look towards the implementation phase of this rule, we urge you to continue to remain cognizant of the critical role that NPs play in our healthcare system. They are the healthcare provider of choice for millions of Americans and must be fully integrated into the evolving value-based reimbursement system. We look forward to an ongoing dialogue to ensure NPs and their patients are able to take full advantage of the programs in this system. The enclosed documents will provide you with additional information to aid in this dialogue. Should you have comments or questions, please direct them to MaryAnne Sapio, V.P. Federal Government Affairs, msapio@aanp.org, 703-740-2529.

Sincerely,

David Hebert
Chief Executive Officer

Enclosures

Scope of Practice for Nurse Practitioners

Professional Role

Nurse practitioners (NPs) are licensed, independent practitioners who practice in ambulatory, acute and long-term care as primary and/or specialty care providers. Nurse practitioners assess, diagnose, treat, and manage acute episodic and chronic illnesses. NPs are experts in health promotion and disease prevention. They order, conduct, supervise, and interpret diagnostic and laboratory tests, prescribe pharmacological agents and non-pharmacologic therapies, as well as teach and counsel patients, among other services.

As licensed, independent clinicians, NPs practice autonomously and in coordination with health care professionals and other individuals. They may serve as health care researchers, interdisciplinary consultants, and patient advocates. NPs provide a wide-range of health care services to individuals, families, groups, and communities.

Education

NPs are advanced practice registered nurses who obtain graduate education, post-master's certificates, and doctoral degrees. Educational preparation provides NPs with specialized knowledge and clinical competency which enable them to practice in various health care settings, make differential diagnoses, manage and initiate treatment plans and prescribe medications and treatment. National NP education program accreditation requirements and competency-based standards ensure that NPs are equipped to provide safe, high-quality patient care from the point of graduation. Clinical competency and professional development are hallmarks of NP education.

Accountability

The autonomous nature of NP practice requires accountability to the public for delivery of high-quality health care. NP accountability is consistent with an ethical code of conduct, national certification, periodic peer review, clinical outcome evaluation, and evidence of continued professional development.

Responsibility

The patient-centered nature of the NP role requires a career-long commitment to meet the evolving needs of society and advances in health care science. NPs are responsible to the public and adaptable to changes in health care. As leaders in health care, NPs combine the roles of provider, mentor, educator, researcher, and administrator. NPs take responsibility for continued professional development, involvement in professional organizations, and participation in health policy activities at the local, state, national and international levels. Five decades of research affirms that NPs provide safe, high-quality care.

Standards of Practice for Nurse Practitioners

I. Qualifications

Nurse practitioners are licensed, independent practitioners who provide primary and/or specialty nursing and medical care in ambulatory, acute and long-term care settings. They are registered nurses with specialized, advanced education and clinical competency to provide health and medical care for diverse populations in a variety of primary care, acute and long-term care settings. Master's, post-master's or doctoral preparation is required for entry-level practice (AANP 2006).

II. Process of Care

The nurse practitioner utilizes the scientific process and national standards of care as a framework for managing patient care. This process includes the following components.

A. Assessment of health status

The nurse practitioner assesses health status by:

- Obtaining a relevant health and medical history
- Performing a physical examination based on age and history
- Performing or ordering preventative and diagnostic procedures based on the patient's age and history
- Identifying health and medical risk factors

B. Diagnosis

The nurse practitioner makes a diagnosis by:

- Utilizing critical thinking in the diagnostic process
- Synthesizing and analyzing the collected data
- Formulating a differential diagnosis based on the history, physical examination and diagnostic test results
- Establishing priorities to meet the health and medical needs of the individual, family, or community

C. Development of a treatment plan

The nurse practitioner, together with the patient and family, establishes an evidence-based, mutually acceptable, cost-awareness plan of care that maximizes health potential. Formulation of the treatment plan includes:

- Ordering and interpreting additional diagnostic tests
- Prescribing or ordering appropriate pharmacologic and non-pharmacologic interventions
- Developing a patient education plan
- Recommending consultations or referrals as appropriate

D. Implementation of the plan

Interventions are based upon established priorities. Actions by the nurse practitioners are:

- Individualized
- Consistent with the appropriate plan for care
- Based on scientific principles, theoretical knowledge and clinical expertise
- Consistent with teaching and learning opportunities

E. Follow-up and evaluation of the patient status

The nurse practitioner maintains a process for systematic follow-up by:

- Determining the effectiveness of the treatment plan with documentation of patient care outcomes
- Reassessing and modifying the plan with the patient and family as necessary to achieve health and medical goals

III. Care Priorities

The nurse practitioner's practice model emphasizes:

- A. Patient and family education
The nurse practitioner provides health education and utilizes community resource opportunities for the individual and/or family
- B. Facilitation of patient participation in self care.
The nurse practitioner facilitates patient participation in health and medical care by providing information needed to make decisions and choices about:
 - Promotion, maintenance and restoration of health
 - Consultation with other appropriate health care personnel
 - Appropriate utilization of health care resources
- C. Promotion of optimal health
- D. Provision of continually competent care
- E. Facilitation of entry into the health care system
- F. The promotion of a safe environment

IV. Interdisciplinary and Collaborative Responsibilities

As a licensed, independent practitioner, the nurse practitioner participates as a team leader and member in the provision of health and medical care, interacting with professional colleagues to provide comprehensive care.

V. Accurate Documentation of Patient Status and Care

The nurse practitioner maintains accurate, legible and confidential records.

VI. Responsibility as Patient Advocate

Ethical and legal standards provide the basis of patient advocacy. As an advocate, the nurse practitioner participates in health policy activities at the local, state, national and international levels.

VII. Quality Assurance and Continued Competence

Nurse practitioners recognize the importance of continued learning through:

- A. Participation in quality assurance review, including the systematic, periodic review of records and treatment plans
- B. Maintenance of current knowledge by attending continuing education programs
- C. Maintenance of certification in compliance with current state law
- D. Application of standardized care guidelines in clinical practice

VIII. Adjunct Roles of Nurse Practitioners

Nurse practitioners combine the roles of provider, mentor, educator, researcher, manager and consultant. The nurse practitioner interprets the role of the nurse practitioner to individuals, families and other professionals.

IX. Research as Basis for Practice

Nurse practitioners support research by developing clinical research questions, conducting or participating in studies, and disseminating and incorporating findings into practice.

Quality of Nurse Practitioner Practice

Nurse practitioners (NPs) provide high-quality primary, acute and specialty health care services across the life span and in diverse settings, including patients' homes, community-based clinics, schools, colleges, prisons, hospitals, and long-term care facilities. All NPs have advanced clinical training and competency to provide health care beyond their initial registered nurse preparation. NPs have graduate education, with masters or doctoral degrees, and they bring a unique perspective to health services in that they emphasize both care and cure. NPs diagnose, treat, and manage acute and chronic illness. NPs focus on health promotion, disease prevention, and health education and counseling, guiding patients to make smarter health and lifestyle choices. Since the NP role was created in 1965, over 50 years of research has consistently demonstrated the excellent outcomes and high quality of care provided by NPs.

The body of literature supports the position that NPs provide care that is safe, effective, patient-centered, timely, efficient, equitable and evidenced based. Furthermore, NP care is comparable in quality to that of their physician colleagues. Patients under the care of NPs have higher patient satisfaction, fewer unnecessary hospital readmissions, potentially preventable hospitalizations, and fewer unnecessary emergency room visits than patients under the care of physicians. This paper summarizes a number of important research reports supporting the quality of nurse practitioner practice. These references are listed as an annotated bibliography.

Annotated Bibliography

Avorn, J., Everitt, D.E., & Baker, M.W. (1991). The neglected medical history and therapeutic choices for abdominal pain. A nationwide study of 799 physicians and nurses. *Archives of Internal Medicine*, 151(4), 694-698.

A sample of 501 physicians and 298 NPs participated in a study by responding to a hypothetical scenario regarding epigastric pain in a patient with endoscopic findings of diffuse gastritis. They were able to request additional information before recommending treatment. Adequate history-taking resulted in identifying use of aspirin, coffee, cigarettes, and alcohol, paired with psychosocial stress. Compared to NPs, physicians were more likely to prescribe without seeking relevant history. NPs, in contrast, asked more questions and were less likely to recommend prescription medication.

Bakerjian, D. (2008). Care of nursing home residents by advanced practice nurses: A review of the literature. *Research in Gerontological Nursing*, 1(3), 177-185. doi: 10.3928/00220124-20091301-01.

Bakerjian conducted an extensive review of the literature, particularly of NP-led care. She found that long-term care patients managed by NPs were less likely to have avoidable geriatric complications such as falls, UTIs, pressure ulcers, etc. They also had improved functional status, as well as better managed chronic conditions.

Borgmeyer, A., Gyr, P.M., Jamerson, P.A., & Henry, L.D. (2008). Evaluation of the role of the pediatric nurse practitioner in an inpatient asthma program. *Journal of Pediatric Health Care*, 22(5), 273-281.

Administrative and electronic medical record data from July 1, 2009, to June 30, 2010, was retrospectively reviewed from the Children's Hospital of Colorado's inpatient medical unit as well as inpatient satellite sites in the Children's Hospital Network of Care. This study evaluated cost and pediatric patient outcomes between a pediatric nurse practitioner (PNP) hospitalist team, a combined PNP/MD team, and two resident teams without PNPs. Adherence to clinical care guidelines was comparable, and there was no significant difference in length of stay between the PNP, PNP/MD teams or resident teams. The direct cost of the PNP patient care was significantly less than the PNP/MD team and resident teams.

Brown, S.A. & Grimes, D.E. (1995). A meta-analysis of nurse practitioners and nurse midwives in primary care. *Nursing Research*, 44(6), 332-9.

A meta-analysis of 38 studies comparing a total of 33 patient outcomes of NPs with those of physicians demonstrated that NP outcomes were equivalent to or greater than those of physicians. NP patients had higher levels of compliance with recommendations in studies where provider assignments were randomized and when other means to control patient risks were used. Patient satisfaction and resolution of pathological conditions were greatest for NPs. The NP and physician outcomes were equivalent on all other outcomes.

Carter, A., Chochinov, A. (2007). A systematic review of the impact of nurse practitioners on cost, quality of care, satisfaction and wait times in the emergency department. *Canadian Journal of Emergency Medicine, 9*(4), 286-95.

This systematic review of 36 articles examines if the hiring of NPs in emergency rooms can reduce wait time, improve patient satisfaction and result in the delivery of cost-effective, quality care. Results showed that hiring NPs can result in reduced wait times, leading to higher patient satisfaction. NPs were found to be equally as competent as physicians at interpreting x-rays and more competent at following up with patients by phone, conducting physical examinations, and issuing appropriate referrals.

Congressional Budget Office. (1979). Physician extenders: Their current and future role in medical care delivery. Washington, D.C.: US Government Printing Office.

As early as 1979, the Congressional Budget Office reviewed findings of the numerous studies of NP performance in a variety of settings and concluded that NPs performed as well as physicians with respect to patient outcomes, proper diagnosis, management of specified medical conditions, and frequency of patient satisfaction.

Cooper, M.A., Lindsay, G.M., Kinn, S., Swann, I.J. (2002). Evaluating emergency nurse practitioner services: A randomized controlled trial. *Journal of Advanced Nursing, 40*(6), 771-730.

A study of 199 patients randomly assigned to emergency NP-led care or physician-led care in the U.K. demonstrated the highest level of satisfaction and clinical documentation for NP care. The outcomes of recovery time, symptom level, missed work, unplanned follow-up, and missed injuries were comparable between the two groups.

Ettner, S.L., Kotlerman, J., Abdelmonem, A., Vazirani, S., Hays, R.D., Shapiro, M., et al. (2006). An alternative approach to reducing the costs of patient care? A controlled trial of the multi-disciplinary doctor-nurse practitioner (MDNP) model. *Medical Decision Making, 26*, 9-17.

A total of 1207 patients were randomized to a standard treatment group or to a physician-NP treatment model in an academic medical center. The physician-NP team achieved significant cost savings during the initial inpatient stay and during post-discharge compared to the control group while the outcomes between the treatment and control group were comparable.

Gracias, V. H., Sicoutris, C. P., Stawicki, S.P., Meredith, D. M., Horan, A. D., Gupta, R., Schwab, C.W. (2008). Critical care nurse practitioners improve compliance with clinical practice guidelines in “semiclosed” surgical intensive care unit. *Journal of Nursing Care Quality, 23*(4), 338-344. doi:10.1097/01.NCQ.0000323286.56397.8c

This study examined adherence to clinical practice guidelines in a critical care setting by an NP team and a non-NP team. Critical care patients were prospectively assigned to a NP or non-NP team, and findings indicate that clinical practice guideline adherence was significantly higher among patients belonging to the NP team.

Horrocks, S., Anderson, E., Salisbury, C. (2002). Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal, 324*, 819-823.

A systematic review of 11 randomized clinical trials and 23 observational studies identified data on outcomes of patient satisfaction, health status, cost, and/or process of care. Patient satisfaction was highest for patients seen by NPs. Comparisons of the results showed comparable outcomes between NPs and physicians. NPs spent more time with their patients, offered more advice/information, had more complete documentation, and had better communication skills than physicians. No differences were detected in health status, prescriptions, return visits, or referrals. Equivalency in appropriateness of diagnostic studies ordered and interpretations of x-rays were identified.

Kuo, Y., Chen, N., Baillargeon, J., Raji, M. A., & Goodwin, J. S. (2015). Potentially Preventable Hospitalizations in Medicare Patients With Diabetes: A Comparison of Primary Care Provided by Nurse Practitioners Versus Physicians. *Medical Care, 53*(9), 776-783. doi:10.1097/MLR.0000000000000406

Potentially preventable hospitalizations of Medicare beneficiaries with a diagnosis of diabetes were analyzed between patients of physicians and NPs. Several statistical methods demonstrated that receipt of care from NPs decreased the risk of potentially preventable hospitalizations. These findings suggest that NPs are exceptionally effective at treating diabetic patients.

Laurant, M., Reeves, D., Hermens, R., Braspenning, J., Grol, R., & Sibbald, B. (2006). Substitution of doctors by nurses in primary care. *Cochrane Database of Systematic Reviews. 2006*, Issue 1. CD001271.

This meta-analysis included 25 articles relating to 16 studies comparing outcomes of primary care nurses (nurses, NPs, clinical nurse specialists, or other advanced practice registered nurses) and physicians. The quality of care provided by nurses was as high as that of the physicians. Overall, health outcomes and outcomes such as resource utilization and cost were equivalent for nurses and physicians. The satisfaction level was higher for nurses. Studies included a range of care delivery models, with nurses providing first contact, ongoing care, and urgent care for many of the patient cohorts.

Lenz, E.R., Mundinger, M.O., Kane, R.L., Hopkins, S.C., & Lin, S.X. (2004). Primary care outcomes in patients treated by nurse practitioners or physicians: Two-year follow-up. *Medical Care Research and Review 61*(3), 332-351.

The outcomes of care in a prior study described by Mundinger, et al. in 2000 are further described in this report, including two years of follow-up data, confirming continued comparable outcomes for the two groups of patients, one seen by NPs, and one seen by physicians. No differences were identified in health status, physiologic measures, satisfaction, or use of specialist, emergency room, or inpatient services. Patients assigned to physicians had more primary care visits than those assigned to NPs.

Lin, S.X., Hooker, R.S., Lens, E.R., Hopkins, S.C. (2002). Nurse practitioners and physician assistants in hospital outpatient departments, 1997-1999. *Nursing Economics, 20*(4), 174-179.

Data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) were used to identify patterns of NP and PA practice styles. NPs were more likely to see patients alone and to be involved in routine examinations, as well as care directed towards wellness, health promotion, disease prevention, and health education than PAs, regardless of the setting type. In contrast , PAs were more likely to provide acute problem management and to involve another person, such as a support staff person or a physician.

Martsof, G., Auerbach, D., Arifkhanova, A. The Impact of Full Practice Authority for Nurse Practitioners and Other Advanced Practitioners in Ohio. Santa Monica, CA: Rand Corporation, 2015.

The researchers identified three high-quality studies addressing the impact that more favorable NP practice environment laws could have on health care access, quality, and costs. Informed by this review of literature, the authors describe the potential effect of removing state practice law restrictions for APRNs in the state of Ohio. Their review of the literature and effect estimates demonstrate that granting APRNs full practice authority would likely increase access to health-care services for Ohioans, with possible increases in quality and no clear increase in costs.

Mundinger, M.O., Kane, R.L., Lenz, E.R., Totten, A.M., Tsai, W.Y., Cleary, P.D., et al. (2000). Primary care outcomes in patients treated by nurse practitioners or physicians: A randomized trial. *Journal of the American Medical Association, 283*(1), 59-68.

The outcomes of care were measured in a study where patients were randomly assigned either to a physician or to an NP for primary care between 1995 and 1997, using patient interviews and health services utilization data. Comparable outcomes were identified, with a total of 1316 patients. After six months of care, health status was equivalent for both patient groups, although patients treated for hypertension by NPs had lower diastolic values, indicating positive trends in blood pressure for NP patients. Health service utilization was equivalent at both 6 and 12 months, and patient satisfaction was equivalent following the initial visit.

Naylor, M.D. and Kurtzman, E.T. (2010). The Role of Nurse Practitioners in Reinventing Primary Care. *Health Affairs, 5*(5), 893-99.

This meta-analysis of studies comparing the quality of primary care services of physicians and NPs demonstrates the role NPs play in reinventing how primary care is delivered. The authors found that comparable outcomes are obtained by both providers, with NPs performing better in terms of time spent consulting with the patient, patient follow-ups, and patient satisfaction.

Newhouse, R. et al (2011). Advanced practice nurse outcomes 1999-2008: A systematic review. *Nursing Economics, 29*(5), 1-22.

The outcomes of NP care were examined through a systematic review of 37 published studies, most of which compared NP outcomes with those of physicians. Outcomes included measures such as patient satisfaction, patient perceived health status, functional status, hospitalizations, emergency department visits, and bio-markers such as blood glucose, serum lipids, blood pressure. The authors conclude that NP patient outcomes are comparable to those of physicians.

Office of Technology Assessment. (1986). Nurse practitioners, physician assistants, and certified nurse midwives: A policy analysis. Washington D.C.: US Government Printing Office.

The Office of Technology Assessment reviewed studies comparing NP and physician practice, concluding that, “NPs appear to have better communication, counseling, and interviewing skills than physicians have,” and that malpractice premiums and rates supported patient satisfaction with NP care, pointing out that successful malpractice rates against NPs remained extremely rare.

Ohman-Strickland, P.A., Orzano, A.J., Hudson, S.V., Solberg, L.I., DiCiccio-Bloom, B., O’Malley, D., et al. (2008). Quality of diabetes care in family medicine practices: Influence of nurse-practitioners and physician’s assistants. *Annals of Family Medicine, 6*(1), 14-22. doi:10.1370/afm.758

The authors conducted a cross-sectional study of 46 practices, measuring adherence to American Diabetes Association clinical guidelines. They reported that practices with NPs were more likely to perform better on quality measures including appropriate measurement of glycosylated hemoglobin, lipids, and microalbumin levels and were more likely to be at target for lipid levels.

Oliver, G. M., Pennington, L., Revelle, S., & Rantz, M. (2014). Impact of nurse practitioners on health outcomes of Medicare and Medicaid patients. *Nursing Outlook*, 62(6), 440-447. doi:10.1016/j.outlook.2014.07.004

The relationship between nurse practitioner practice environment and state-level health outcome measures was analyzed. The authors gathered findings from existing publications on potentially avoidable hospitalizations, hospital readmissions, and nursing home resident hospitalization of Medicare and Medicaid patients. Significant differences existed for all three state-level outcome measures between states with and without full practice authority. Results showed that states with full practice authority have decreased hospitalizations and better overall health outcomes. There were no significant differences in the state-level outcome measures between reduced and restricted states, which suggests that any limit on NP practice may negatively impact patient outcomes.

Prescott, P.A. & Driscoll, L. (1980). Evaluating nurse practitioner performance. *Nurse Practitioner*, 5(4), 28-32.

The authors reviewed 26 studies comparing NP and physician care, concluding that NPs scored higher in many areas. These included: amount/depth of discussion regarding child health care, preventative health, and wellness; amount of advice, therapeutic listening, and support offered to patients; completeness of history and follow-up on history findings; completeness of physical examination and interviewing skills; and patient knowledge of the management plan given to them by the provider.

Ritsema, T. S., Bingenheimer, J. B., Scholting, P., & Cawley, J. F. (2014). Differences in the delivery of health education to patients with chronic disease by provider type, 2005-2009. *Preventing Chronic Disease*, 11E33. doi:10.5888/pcd11.130175

This original Centers for Disease Control and Prevention (CDC) research paper utilizes a large sample of more than 136,000 adult patients with select chronic conditions drawn from the National Hospital Ambulatory Medical Care Survey (NHAMCS). Across all conditions, the study finds that nurse practitioners provide health education to patients more frequently than physicians.

Roblin, D.W., Becker, R., Adams, E.K., Howard, D. H., & Roberts, M.H. (2004). Patient satisfaction with primary care: Does type of practitioner matter? *Medical Care*, 42(6), 606-623.

A retrospective observational study of 41,209 patient satisfaction surveys randomly sampled between 1997 and 2000 for visits by pediatric and medicine departments identified higher satisfaction with NP and/or PA interactions than those with physicians, for the overall sample and by specific conditions.

Sacket, D.L., Spitzer, W. O., Gent, M., & Roberts, M. (1974). The Burlington randomized trial of the nurse practitioner: Health outcomes of patients. *Annals of Internal Medicine*, 80(2), 137-142.

A sample of 1,598 families were randomly allocated, so that two-thirds continued to receive primary care from a family physician and one-third received care from a NP. The outcomes included: mortality, physical function, emotional function, and social function. Results demonstrated comparable outcomes for patients, whether assigned to physician or to NP care.

Safriet, B. J. (1992). Health care dollars and regulatory sense: The role of advanced practice nursing. *Yale Journal on Regulation*, 9(2).

The full Summer 1992 issue of this journal was devoted to the topic of advanced practice nursing, including documenting the cost-effective and high quality care provided, and to call for eliminating regulatory restrictions on their care. Safriet summarized the U.S. Office of Technology Administration study concluding that NP care was equivalent to that of physicians and pointed out that 12 of the 14 studies reviewed in this report which showed differences in quality reported higher quality for NP care. Reviewing a range of data on NP productivity, patient satisfaction, and prescribing, Safriet concludes “APNs are proven providers, and removing the many barriers to their practice will only increase their ability to respond to the pressing need for basic health care in our country.”

Spitzer, W.O., Sackett, D.L., Sibley, J.C., Roberts, M., Gent, M., Kergin, D.J., Hacket, B.D., & Olynich, A. (1974). The Burlington randomized trial of the nurse practitioner. *New England Journal of Medicine*, 290(3), 252-256.

This report provides further details of the Burlington trial, also described by Sackett, et al.. This study involved 2,796 patients being randomly assigned to either one of two physicians or to an NP, so that one-third were assigned to NP care, from July 1971 to July 1972. At the end of the period, physical status and satisfaction were comparable between the two groups. Clinical activities were evaluated and it was determined that 69% of NP management was adequate compared to 66% for the physicians. The conclusion was that “a nurse practitioner can provide first-contact primary clinical care as safely and effectively as a family physician”.

Stanik-Hutt, J., Newhouse, R., (2013). The quality and effectiveness of care provided by Nurse Practitioners. *The Journal for Nurse Practitioners*, 9(8). doi:10.1016/j.nurpra.2013.07.004

Evidence regarding the impact of nurse practitioners (NPs) compared to physicians (MDs) on health care quality, safety, and effectiveness was systematically reviewed. Data from 37 of 27,993 articles published from 1990-2009 were summarized into 11 aggregated outcomes. Outcomes for NPs compared to MDs are comparable or better for all 11 outcomes reviewed. A high level of evidence indicated better serum lipid levels in patients cared for by NPs in primary care settings. A high level of evidence also indicated that patient outcomes on satisfaction with care, health status, functional status, number of emergency department visits and hospitalizations, blood glucose, blood pressure, and mortality are similar for NPs and MDs.

Traczyski, J., Udalova, V. (2013). Nurse Practitioner independence, health care utilization and health outcomes. Retrieved from http://www.lafollette.wisc.edu/research/health_economics/Traczynski.pdf.

The authors examined how state practice laws impact health care utilization and patient outcomes. In states that have fewer unnecessary practice restrictions on NPs, the frequency of routine checkups and preventive health exams increases. More favorable practice environments also were associated with higher patient-reported health status, and less emergency room visits by patients with ambulatory sensitive conditions.

Virani, S. S., Maddox, T. M., Chan, P. S., Tang, F., Akeroyd, J. M., Risch, S. A., & ... Petersen, L. A. (2015). Provider Type and Quality of Outpatient Cardiovascular Disease Care: Insights From the NCDR PINNACLE Registry. *Journal of the American College of Cardiology*, 66(16), 1803-1812. doi:10.1016/j.jacc.2015.08.017

Quality of coronary artery disease (CAD), heart failure, and atrial fibrillation care was compared for care delivered by physicians versus NPs or physicians assistants (PAs) for outpatient visits during a one month period. Quality measures were comparable among both groups, and smoking cessation screening intervention was higher among the NP / PA group for CAD patients.

Wright, W.L., Romboli, J.E., DiTulio, M.A., Wogen, J., and Belletti, D.A. (2011). Hypertension treatment and control within an independent nurse practitioner setting. *American Journal of Managed Care*, 17(1), 58-65.

A cross-sectional, retrospective study of 1,284 propensity score-matched patients with hypertension, one-half of whom were treated by NPs and the other half by physicians, found comparable controlled blood pressure rates among the comparison groups.

Nurse Practitioner Cost-Effectiveness

Nurse Practitioners (NPs) are a proven response to the evolving trend towards wellness and preventive health care driven by consumer demand. A solid body of evidence demonstrates that NPs have consistently proven to be cost-effective providers of high-quality care for almost 50 years. Examples of the NP cost-effectiveness research are described below.

Over three decades ago, the Office of Technology Assessment (OTA) (1981) conducted an extensive case analysis of NP practice, reporting that NPs provided equivalent or improved medical care at a lower total cost than physicians. NPs in a physician practice potentially decreased the cost of patient visits by as much as one third, particularly when seeing patients in an independent, rather than complementary, manner. A subsequent OTA analysis (1986) confirmed original findings regarding NP cost effectiveness. All later studies of NP care have found similar cost-efficiencies associated with NP practice.

The cost-effectiveness of NPs begins with their academic preparation. The American Association of Colleges of Nursing has long reported that NP preparation cost 20-25% that of physicians. In 2009, the total tuition cost for NP preparation was less than one-year tuition for medical (MD or DO) preparation (AANP, 2010).

Comparable savings are associated with NP compensation. In 1981, the hourly cost of an NP was one-third to one-half that of a physician (OTA). The difference in compensation has remained unchanged for 30 years. In 2010, when the median total compensation for primary care physicians ranged from \$208,658 (family) to \$219,500 (internal medicine) (American Medical Group Association, 2010), the mean full-time NP's total salary was \$97,345, across all types of practice (American Academy of Nurse Practitioners [AANP], 2010). A study of 26 capitated primary care practices with approximately two million visits by 206 providers determined that the practitioner labor costs and total labor costs per visit were both lower in practices where NPs and physician assistants (PAs) were used to a greater extent (Roblin, Howard, Becker, Adams, and Roberts, 2004). When productivity measures, salaries, and costs of education are considered, NPs are cost effective providers of health services.

Based on a systematic review of 37 studies, Newhouse et al (2011) found consistent evidence that cost-related outcomes such as length of stay, emergency visits, and hospitalizations for NP care are equivalent to those of physicians. In 2012, modeling techniques were used to predict the potential for increased NP cost-effectiveness into the future, based on prior research and data. Using Texas as the model State, Perryman (2012) analyzed the potential economic impact that would be associated with greater use of NPs and other advanced practice nurses, projecting over \$16 billion in immediate savings which would increase over time.

NP cost-effectiveness is not dependent on actual practice setting and is demonstrated in primary care, acute care, and long term care settings. For instance, NPs practicing in Tennessee's state-managed managed care organization (MCO) delivered health care at 23% below the average cost associated with other primary care providers, achieving a 21% reduction in hospital inpatient rates and 24% lower lab utilization rates compared to physicians (Spitzer, 1997). A one-year study comparing a family practice physician-managed practice with an

NP-managed practice within an MCO found that compared to the physician practice, the NP-managed practice had 43% of the total emergency department visits, 38% of the inpatient days, and 50% total annualized per member monthly cost (Jenkins and Torrisi, 1995). Nurse managed centers (NMCs) with NP-provided care have demonstrated significant savings, less costly interventions, and fewer emergency visits and hospitalizations (Hunter, Ventura, and Keams, 1999; Coddington and Sands, 2009). A study conducted in a large HMO setting established that adding an NP to the practice could virtually double the typical panel of patients seen by a physician with a projected increase in revenue of \$1.28 per member per month, or approximately \$1.65 million per 100,000 enrollees annually (Burl, Bonner, and Rao, 1994).

Chenowith, Martin, Pankowski, and Raymond (2005) analyzed the health care costs associated with an innovative on-site NP practice for over 4000 employees and their dependents, finding savings of \$.8 to 1.5 million, with a benefit-to-cost ratio of up to 15 to 1. Later, they tested two additional benefit-to-cost models using 2004-2006 data for patients receiving occupational health care from an NP demonstrating a benefit to cost ratio ranging from 2.0-8.7 to 1, depending on the method (Chenowith, Martin, Pankowski, and Raymond (2008). Time lost from work was lower for workers managed by NPs, compared to physicians, as another aspect of cost-savings (Sears, Wickizer, Franklin, Cheadie, and Berkowitz, 2007).

A number of studies have documented the cost-effectiveness of NPs in managing the health of older adults. Hummel and Prizada (1994) found that compared to the cost of physician-only teams, the cost of a physician-NP team long term care facility were 42% lower for the intermediate and skilled care residents and 26% lower for those with long-term stays. The physician-NP teams also had significantly lower rates of emergency department transfers, shorter hospital lengths of stay, and fewer specialty visits. A one-year retrospective study of 1077 HMO enrollees residing in 45 long term care settings demonstrated a \$72 monthly gain per resident, compared with a \$197 monthly loss for residents seen by physicians alone (Burl, Bonner, Rao, and Kan, 1998). Intrator (2004) found that residents in nursing homes with NPs were less likely to develop ambulatory care-sensitive diagnoses requiring hospitalizations. Bakerjian (2008) summarized a review of 17 studies comparing nursing home residents who are patients of NPs to others, finding lower rates of hospitalization and overall costs for the NP patients. The potential for NPs to control costs associated with the healthcare of older adults was recognized by United Health (2009), which recommended that providing NPs to manage nursing home patients could result in \$166 billion healthcare savings.

NP-managed care within acute-care settings is also associated with lower costs. Chen, McNeese-Smith, Cowan, Upenieks, and Afifi (2009) found that NP-led care was associated with lower overall drug costs for inpatients. When Paez and Allen (2006) compared NP and physician management of hypercholesterolemia following revascularization, they found patients in the NP-managed group had lower drug costs, while being more likely to achieve their goals and comply with prescribed regimen.

Collaborative NP/physician management was associated with decreased length of stay and costs and higher hospital profit, with similar readmission and mortality rates (Cowan et al., 2006; Ettner et al., 2006). The introduction of an NP model in a health system's neuroscience area resulted in over \$2.4 million savings the first year and a return on investment of 1600 percent; similar savings and outcomes were demonstrated as the NP model was expanded in the system (Larkin, 2003). Boling (2009) cites an intensive short-term transitional care NP program documented by Smigleski et al through which healthcare costs were decreased by 65% or more after enrollment, as well as the introduction of an NP model in a system's cardiovascular area associated with a decrease in mortality from 3.7% to 0.6% and over 9% decreased cost per case (from \$27,037 to \$24,511).

In addition to absolute cost, other factors are important to health care cost-effectiveness. These include illness prevention, health promotion, and outcomes. See Documentation of Quality of Nurse Practitioner Practice (AANP, 2013) for further discussion.

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