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Systematic review addressing nurse practitioner reimbursement policy: Part one of a four-part series on critical topics identified by the 2015 nurse practitioner research agenda

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ABSTRACT

Background and purpose: The growth and sustainability of nurse practitioners (NPs) requires transparent, fair and equitable reimbursement policies. Complicating this issue is variation in reimbursement policy within and across federal, state, and other payers. Even with explicit regulations, there remain questions on how reimbursement policies are covertly operationalized in practice. This systematic review aims to identify knowledge gaps related to reimbursement policy issues and outlines recommendations for further research.

Methods: Eight major databases were searched using terms including "nurse practitioner," "reimbursement," "policy," and "research," limited to the United States and inclusive of December 2006–September 2017. Articles meeting the inclusion criteria were analyzed for themes and gaps.

Conclusion: The final review includes 17 articles identifying themes including state-determined Medicaid reimbursement and scope of practice legislation shapes NP clinical practice; NPs as identified primary care providers: credentialing and contracting; reimbursement parity; and "incident to" billing. Moreover, there is evidence of discriminatory policies that disadvantage NPs and limit their access to patients, direct billing, and direct reimbursement.

Implications for practice: Future research needs to focus on outcomes of discriminatory, as well as supportive, reimbursement policies in organizations, and their influence on patient access and quality care.

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Background

Introduction

A Research Agenda Roundtable was convened by the Fellows of the American Association of Nurse Practitioners (FAANP) in 2015 setting outcomes-based research priorities for nurse practitioner (NP) research. The focus of interest is in four areas: policy and regulation, workforce, education, and practice (FAANP, 2015). A gap analysis of nurse practitioners' reimbursement policy was undertaken to meet the charge of laying the groundwork for reviewing research priorities for policy and regulation and to identify areas of needed research.

The ability to bill patients as a provider of care and receive reimbursement is based on credentialing, contracting, and empanelment. Credentialing requires the screening of potential providers for admission into a provider network. The credentialing process includes application, confirmation of provider network need, and the verification of the applicant's education, training, and practice background (Hansen-Turton et al., 2006). Contracting is a "legal agreement between a payer and a (n)... individual which specifies rates, performance covenants, the relationship among parties, schedule of benefits and other pertinent conditions" (Academy of Managed Care Pharmacy, 2017, p. 92). Empanelment is determined by each third-party payer and recognizes the ability of the applicant to be designated as a primary care provider and manage an assigned patient load (Yee, Boukus, Cross, & Samuel, 2013). Together credentialing, contracting, and empanelment policies by Medicare, Medicaid, and other

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third-party payers can either facilitate or impede the economic viability of NP practice.

The first breakthrough in advanced practice registered nurse reimbursement occurred in 1977 with the passage of the Rural Health Clinic Service Act (RHCSA). The RHCSA allowed Medicare reimbursement for NPs practicing in federally designated rural and underserved areas. Twenty years later, the RHCSA was expanded to all settings through the Balanced Budget Act of 1997, and the Medicare reimbursement rate of 85% of the physician's rate for NPs billing under their own National Provider Identifier (NPI) number was established (Chapman, Wides, & Spetz, 2010). The lower rate of NPs' reimbursement now persists despite overwhelming evidence that there is no difference in the quality of care provided (Bauer, 2010; Chapman et al., 2010; Poghosyan et al., 2013; VanVleet & Paradise, 2015).

Medicaid reimbursement closely followed the pattern of Medicare, beginning in 1977 with the RHSCA. Medicaid specifically included all family nurse practitioners and pediatric nurse practitioners as reimbursed service providers in 1989. Medicaid covers one in five Americans as it serves as the public insurance program for low-income children, adults, seniors, and people with disabilities (Kaiser Family Foundation, 2017). Presently, NPs' Medicaid fee-for-service reimbursement rates vary among the states and range from 75% to 100% of the physician's reimbursement. However, only a minority of Medicaid reimbursements are through fee-for–service payments as over 70% of Medicaid recipients receive their benefits from managed care insurers (VanVleet & Paradise, 2015). Managed care insurers are able to set policies as to who will or will not be officially recognized to receive payment within the context of the various state rules and regulations (Bellot et al., 2017; Yee et al., 2013). It is clear that payment policies control and limit practice by determining what services are reimbursed, and discriminatory payment policies pose financial disincentives for hiring NPs (Barnes et al., 2016; Currie, Chiarella, & Buckley, 2013; Poghosyan et al., 2013; Yee et al., 2013).

Purpose

Although the state- and federal-mandated payment policies are well defined, more information is needed about the reimbursement policy environment as it is operationalized in the insurance marketplace and at the direct care level, including the effect of national and state regulations on reimbursement policies and actions. Also, little is known about barriers to NP practice that may involve credentialing, contracting, patient panel responsibility, and reimbursement through third-party payers in local and organizational settings. This complex web of policies, some explicit and others hidden, affects NPs in private and group practices, federally qualified health centers, and nurse-managed health centers The article summarizes the current research around NP reimbursement policies at the state and local payer levels, identifies gaps in the current knowledge base, and makes recommendations to address the gaps through future research.

Aims

The aim of the gap analysis is to investigate and synthesize the literature surrounding NP reimbursement policy from a state, as well as payer's and NPs' perspectives across the United States, to determine gaps in knowledge related to reimbursement policies, and to make recommendations for further research related to NP reimbursement policies.

Method

A literature search was undertaken in April 2017 and updated in September 2017. Two authors conducted the search with the assistance of a biomedical librarian. Databases searched included MEDLINE, CINAHL Complete, Academic Search Premier, Health Source: Nursing Edition, Business Source Premier, and Cochrane Database of Systematic Reviews. The search was restricted to U.S. data from January 2006 through September 2017. The following Medical Subject Headings and search terms were used for the MEDLINE Boolean/phrase search: MH "Nurse Practitioners" and (MH "Insurance, Health") OR (MM "Insurance, Health, Reimbursement+"). The search yielded 63 articles. Also, the MH "Nurse Practitioners" was combined with the MH "Policy+," yielding 68 articles. The results of the two searches were combined and 49 unique articles were found. Next, a search of Academic Search Premier identified 31 articles using the delimiter "United States" and the search terms "nurse practitioner," "reimbursement OR payment," and "policy." Using the same terms, CINAHL Complete found 40 articles, Health Source: Nursing Edition yielded 12, Business Source Premier found 4, and ProQuest yielded 12. Last, the Gray Literature Report search yielded 20 citations, and the Think Tank Search along with the American Policy Directory yielded eight reports. Duplicates were removed, and 60 unique articles were assessed for appropriateness to the topic against the inclusion criteria of addressing relevant primary care nurse practitioner service and reimbursement policies from a research- or data-based perspective. Articles addressing only specially NP practice or opinion-based discussion articles were excluded.

Articles (n = 41) were fully read by both authors and screened the against inclusion/exclusion criteria, yielding 11 articles. A standard template including leveling of evidence using the Johns Hopkins Nursing Evidence-based Practice Rating Scale was used to collect study information and results from each article (Newhouse, Derholt, Poe, Pugh, & White, 2005). The remaining articles

(n = 14) were then screened for additional citations. Three additional articles were identified for a final sample of 17 articles for the annotated bibliography and gap analysis.

Results

Seventeen articles met the inclusion criteria and were evaluated to identify data, themes, limitations, and gaps in the current research that focused on NP reimbursement policies at the state and payer level. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) process for applying the inclusion and exclusion criteria used to achieve the results is diagramed in **Fig 1** (Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009). The 17 articles address a wide variety of policies, affecting NP employment and reimbursement. A full-annotated bibliography with individual study results is found in Supplemental Digital Content 1 (available at http://links.lww.com/JAANP/A17).

Data quality and study characteristics

Study quality was assessed using both the Johns Hopkins Nursing Evidence-based Practice Rating Scale (Newhouse et al., 2005) and the JBI Critical Appraisal Tools (Joanna Briggs Institute, 2017). Results are listed in Table 1**.** Of the 17 articles selected for inclusion in this gap analysis, there was one integrative review, four serial mixed-method cross-sectional studies, nine correlational studies using secondary data analysis, two qualitative studies, and one case study report.

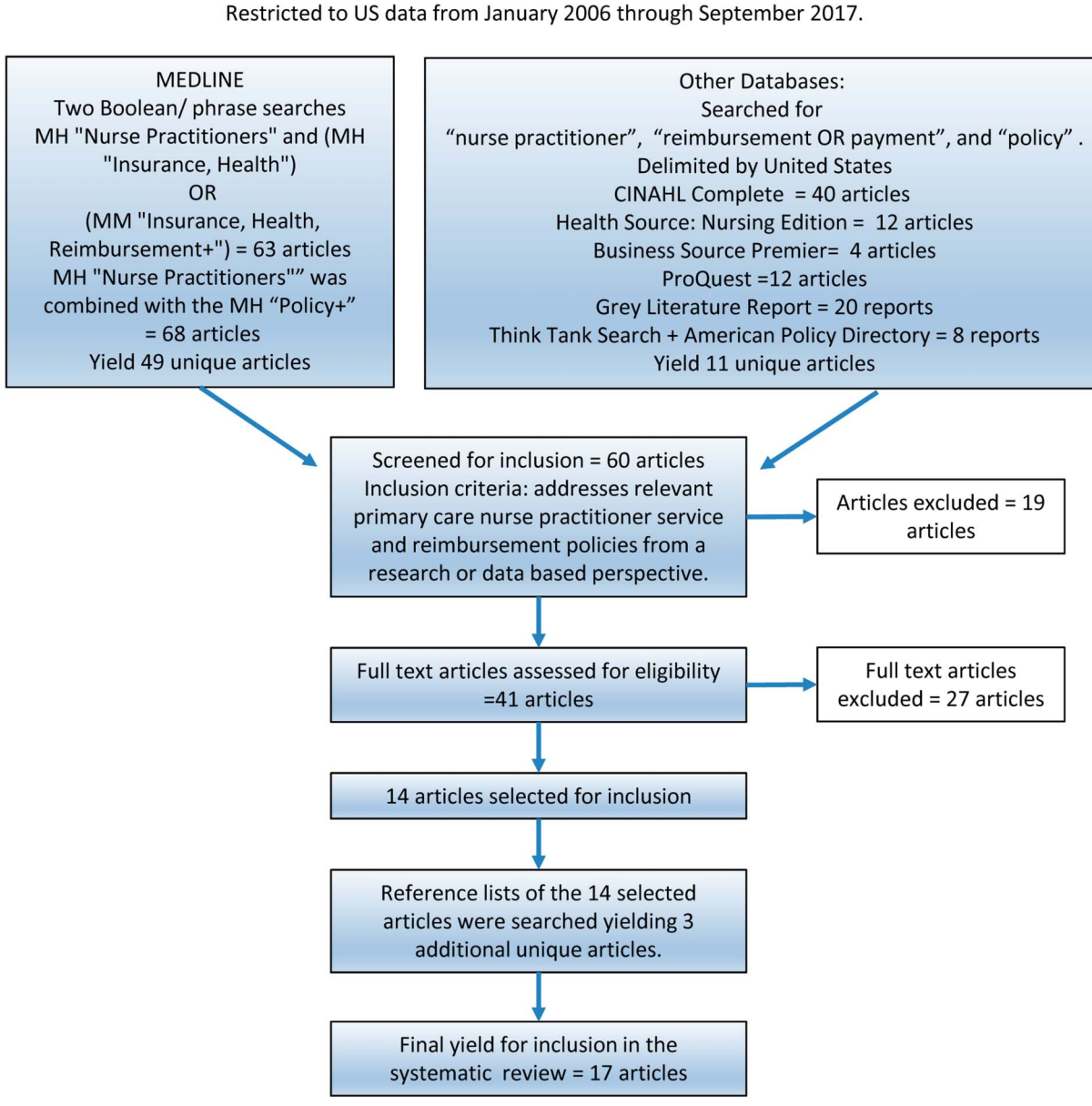

Fig. 1. PRISMA search process.

Table 1. Study characteristics and quality assessments

Author	Purpose	Description	JHNEBP Rating	JBI Rating Notes	Limitations
Bakerjian, & Harrington (2012)	Research effect of payment source on likelihood of NP or PA visits for nursing home patients.	Correlational study involving secondary analysis of Medicare claim data.	Level III, nonexperimental study; Grade C: Low quality and conclusions cannot be drawn	Not able to differentiate between NP, PA, and CNS data.	Secondary analysis of data obtained for another purpose. Data related to PAs, NPs, and CNS visits could not be separated in data source. Scope-of-practice legislation as a variable not accounted for.
Barnes et al. (2016)	Explore the effect of Medicaid reimbursement and scope-of-practice laws on NP practice.	Cross-sectional study using 2012 SK&A marketing research data files.	Level III, nonexperimental study; Grade A: consistent results and sufficient sample size.	Meets all the criteria.	SK & A data are self-reported. Addresses only Medicaid acceptance and reimbursement.
Bellot et al. (2017)	Explore contracting of MCOs with NPs as PCPs for reimbursement and compare trends to the 2012 study.	Two-part, cross-sectional, mixed-method design using survey data from MCOs in 50 states plus DC.	Level III, nonexperimental study; Grade B: reasonably consistent results and sufficient sample size.	Meets all the criteria.	Statistical accuracy likely limited by response bias. Trends reported compared to previous studies likely accurate.
Benitez et al. (2015)	Explore the correlation between payment type and whether a patient would be seen by an MD, PA, or NP.	Retrospective multinomial logistic regression analysis of National Hospital Ambulatory Care Survey (NHAMCS) data.	Level III, nonexperimental study; Grade A: consistent results and sufficient sample size.	Meets the criteria and used data source that was not complicated by "incident to" billing.	Does not address differences in roles of NPs and PAs across settings, and is limited to hospital outpatient departmental data.
Currie et al. (2013)	Identification of international characteristics and barriers to NP practice.	Integrative literature review including 30 articles.	Level IV, opinion based on research evidence and integrative review of the literature; Grade B: fairly comprehensive literature review that includes references to scientific evidence.	Number of independent reviewers not specified, and method of assuring accuracy of thematic analysis not specified.	Research articles not graded for level of research and quality. Not a full systematic review.
DesRoches et al. (2013)	Exploration of Medicare patient characteristics billed by MDs versus NPs.	Cross-sectional study involving secondary analysis of Medicare claims data.	Level III, nonexperimental study; Grade A: consistent results and sufficient sample size.	Meets all the criteria.	Limited to addressing Medicare filing and reimbursement. "Incident-to" billing limits accuracy in in assessing NP Medicare impact.

(*continued*)

Table 1. Study characteristics and quality assessments, *continued*

Author	Purpose	Description	JHNEBP Rating	JBI Rating Notes	Limitations
Hansen-Turton et al. (2006)	Explore third-party policies affecting NP empanelment and reimbursement.	Two-part cross-sectional mixed-method study involving interviews with top MCOs in each state.	Level III, nonexperimental study; Grade B: reasonably consistent results and sufficient sample size.	Meets all the criteria.	Statistical accuracy likely limited by response bias.
Hansen-Turton et al. (2008)	Explore trends in third-party policies affecting NP empanelment and reimbursement compared with the study 2 years before.	Cross-sectional mixed-method study targeting top 10 MCOs in each state and DC.	Level III, nonexperimental study; Grade B: reasonably consistent results and sufficient sample size.	Meets all the criteria.	Statistical accuracy likely limited by response bias, however, trending from study in 2006 strengthens conclusions. MCOs considered desired information proprietary.
Hansen-Turton et al. (2013)	Explore trends in third-party policies affecting NP empanelment and reimbursement compared with the two previous studies.	Cross-sectional mixed-method study using purposive sampling and thematic analysis and comparison to previous statistics from 2006 to 2008.	Level III, nonexperimental study; Grade B: reasonably consistent results and sufficient sample size.	Meets all the criteria.	Statistical accuracy likely limited due to response bias, however, trending from 2006 to 2008 strengthen generalizability of results. MCO changes in structure and policy changes limit comparisons to previous studies some.
Maier and Aiken (2016)	Explore current NP roles and reforms related to NP practice.	Cross-sectional mixed-method research study comparing survey answers from 93 purposively sampled country experts.	Level III/IV, nonexperimental study; Grade A: consistent results and sufficient sample size.	Confounding factors not identified or addressed and researcher bias/influence not addressed.	Survey instrument, extensively piloted, not formally tested for content validity. Limited to official NP practice as regulated by law not actual practice. Limited to primary care setting.
Park et al. (2016)	Explore the extent to which scope of practice laws affected day-to-day practice autonomy.	Cross-sectional survey with a representative sample of NPs from every state derived from the HRSA listings of all actively licensed NPs from each state licensing board.	Level III, nonexperimental study; Grade A: consistent results with sufficient sample size.	Meets all the criteria.	Limitations include self-report and validity of measuring day-to-day autonomy as a new concept. Consistency of results with previous research lends credibility. Variability of practice restrictions within categories of state scope-of-practice laws may also impact results.

(*continued*)

Table 1. Study characteristics and quality assessments, *continued*

Author	Purpose	Description	JHNEBP Rating	JBI Rating Notes	Limitations
Poghosyan et al. (2017)	Investigate NP primary care role within the organizational structure and to understand how work environment and policies affect role.	Cross-sectional survey of NPs recruited from a single-state provider database.	Level III, nonexperimental study; Grade A, consistent results and adequate sample size.	Meets all the criteria.	Limitations to generalizability include single state sample in local restricted by collaborative practice requirements. Limited by self-report possible bias.
Poghosyan et al. (2013)	Exploring effects of scope-of-practice legislation and practice barriers to NPs in primary care in MA.	Qualitative study using a purposive sample.	Level III, qualitative study; Grade B: reasonably consistent results with sufficient sample size.	Researcher bias in qualitative section not addressed.	Limited by purposive sampling, and by setting using only NPs from MA state.
Pohl et al. (2011)	Explore funding and reimbursement differences between NP-run NMHCs and FQHCs.	Retrospective analysis of 4 years of annual data from the National NMHC Survey and 2008 FQHC data in the Uniform Data System.	Level III, nonexperimental study; Grade B: reasonably consistent results with fairly sufficient sample size.	Meets all the criteria.	Limitations included only a small sample of responses by NMHCs and cross over because 2–3 participants each year from NMHCs were also FQHCs.
Sears and Hogg-Johnson (2009)	Evaluation of policies in the NP fight to be empaneled as providers for selection and reimbursement under the WA state workers' compensation program.	Case study report with pilot study.	Level V, case study and individual expert opinion; Grade B: expertise credible.	Meets all the criteria.	Limited by single case report with solutions for single setting, WA state.
Spetz et al. (2015)	Explore estimates of NPs working in primary care and their empanelment as PCPs for third-party reimbursement.	Retrospective data analysis from California and North Carolina licensure data and from the 2012 US National Survey of Nurse Practitioners.	Level III, nonexperimental study; Grade A: consistent results and sufficient sample size.	Meets all the criteria.	Limited by secondary data analysis of data obtained for other purposes, also limited to setting of NC state and CA state. Reimbursement data limited to CA state. All data subject to response bias.
Yee et al. (2013)	Explore scope-of-practice laws, their effect on NP practice, and reimbursement.	Qualitative study including telephone interviews of 30 NPs from six states.	Level III, qualitative study; Grade B: reasonably consistent results with sufficient sample size.	Influence of researcher not addressed.	Limited description of survey instrument and sampling technique. Limited setting to states of MD, AZ, MI, in, MA, and AR.

Note: CNS = clinical nurse specialist; HRSA = Health Resources and Services Administration; PA = physician assistant.

Further information related to specific studies is also listed in Table 1. To structure the discussion, findings of the included studies were reviewed and four themes emerged including state-determined Medicaid reimbursement and scope of practice legislation shapes NP clinical practice; NPs as identified primary care providers: credentialing and contracting; reimbursement parity; and "incident to" billing.

Discussion

State-determined Medicaid reimbursement and scope of practice legislation shapes nurse practitioner clinical practice

The influence of Medicaid reimbursement policy and scope of practice legislation on the utilization of NPs appear prominently in the review of the literature (Barnes et al., 2016; Bellot et al., 2017; Benitez, Coplan, Dehn, & Hooker, 2015; DesRoches et al., 2013; Hansen-Turton, Ritter, & Torgan, 2008; Hansen-Turton et al., 2006; Hansen-Turton, Ware, Bond, Doria, & Cunningham, 2013). Barnes et al, (2016) confirmed with earlier studies which showed that, with full scope of practice authority and Medicaid reimbursement at 100% of the physician's rate, more NPs work in primary care, a higher number of practices employing NPs accept Medicaid, and primary care practices with NPs are more likely to be located in rural and high poverty areas. These findings are notable as the study included 57,148 NPs, of whom 47% worked in primary care. However, only 14.8% of the medical practices surveyed employed NPs, and only 6% of practices were in states with full scope of practice and 100% Medicaid reimbursement. Other work also found that NPs were more likely to see patients with lower reimbursement sources such as Medicaid and self-pay patients than either physician or physician assistants (Benitez et al., 2015). Specifically, Medicaid patients were 32% more likely to be seen by an NP, and patients paying out of pocket were 60% more likely to be seen by an NP than a physician. Beneficiaries assigned to NPs tended to be younger, nonwhite, females, dual enrolled in Medicare and Medicaid, and have a higher level of disability (DesRoches et al., 2013). Overall, research points to NPs taking on more vulnerable and rural populations with lower reimbursement potential than their physician counterparts.

Conversely, in a qualitative study, NPs working in states with restrictive scope-of-practice regulations reported more barriers related to billing and reimbursement from both public and private payers, creating substantial indirect effects on practice opportunities including limiting the development of NP-owned and NP-operated practices (Yee et al, 2013). Maier and Aiken (2016) concluded that lower reimbursement rates for NPs pose a financial disincentive to the hiring of NPs even when nationwide NPs' and physician assistants' full scope of practice authority could decrease U.S. health expenditures by up to 0.5%.

Nurse practitioners as identified primary care providers: credentialing and contracting

Third-party payers often require subscribers to identify a primary care provider (PCP) from a list of contracted providers. The assignment of a patient to a particular provider and care team is known as empanelment. The primary care provider responsible for a patient panel is expected to manage their population's health needs, in addition to meeting the individual care needs of the patients. Whether NPs are recognized as primary care providers who assume the management of a panel of patients is dependent on a variety of idiosyncratic factors. The factors may include local policies at the NP's employment site or their parent health system, state laws and regulations that do or do not require the recognition of NPs as primary care providers, and the vagaries of third-party payer policies, including managed care organization's policies.

Managed care organizations (MCOs) do not have consistent standards for who is or is not a recognized as a primary care provider contracted to provide care to a panel of patients. Instead, the provider credentialing process used by MCOs, along with subsequent contracting standards, vary between and within states, with the percent of MCOs credentialing NPs stable at 74% in 2012 and 75% in 2016 (Bellot et al., 2017; Hansen-Turton et al., 2008; Hansen-Turton et al., 2006; Hansen-Turton et al., 2013). It is important that MCOs contract with fewer NPs as primary care providers in states that require supervision or collaboration (Bellot et al., 2017). However, even in this stable, albeit less than optimal MCO credentialing environment, only 53% of NPs in full scope of practice states manage their own patient panel. The rate drops to 44% of NPs in states with restrictive practice and/or limited prescriptive authority (Park, Athey, Pericak, Pulcini, & Greene, 2016). NP-to-NP and practice-to-practice variability, even within full scope of practice states, suggests that local organizational attitudes, structures, and policies also influence the achievement of PCP status, the uptake of patient panel responsibilities, and reimbursement (Park et al., 2016; Poghosyan, Liu, & Norful, 2017).

As part of a larger study to examine estimates of how many NPs practice in primary care, data from 1,120 NP respondents to a 2010 California Board of Registered Nursing survey were analyzed for NPs' report of insurance company recognition of primary care provider status (Spetz, Fraher, Li, & Bates, 2015). Overall, only 24% reported recognition as a primary care provider by insurance companies. For NPs working in geriatrics or ambulatory/outpatient care, the rate was higher at 34%, and for NPs employed by a health management organization (HMO), 64% were recognized as a primary care provider by private insurance. Only about 32% working in community health centers and 43.7% in long-term care settings had primary care provider recognition.

Bellot et al. (2017) studied MCO contracting practices with the rationale that an NP can be credentialed by an MCO, but for NPs to be independently reimbursed, the NP must individually contract with MCOs. Credentialing rates were similar to the rates reported by Hansen-Turton et al. (2013) at 75%, but about 35% of the MCOs reported placing restrictions on contracting with NPs based on practice location, practice type such as a federally qualified health center, whether the practice would be primarily Medicare, Medicaid, or private, or by requirements for supervisory or collaborative practice. Only 22% of the MCOs reimbursed NPs at the physician level, 22% sometimes provided equal reimbursement, and 35% paid a lower rate.

In 2006 and 2008, the relationship between Any Willing Provider (AWP) and Any Willing Class of Provider (AWCP) laws and MCO contracting was examined. Any Willing Provider/Any Willing Class of Provider laws require MCOs to contract with any licensed provider, or in the case of AWCP, any class of providers, who is willing to provide the service according to the MCO regulations and reimbursement (Hansen-Turton et al., 2008). Although the surveyed MCOs in states with an AWP law were somewhat more likely to have NPs credentialed as primary care providers, overall, the AWP laws provided no real protection to NPs seeking PCP status in MCOs (Hansen-Turton et al., 2008; Hansen-Turton et al., 2006). In subsequent publications that replicated and extended Hansen-Turton and her research team's early work, no updates were provided on the status and influence of AWP or AWCP. Although the percent of MCOs contracting with NPs has just about doubled since 2006, about one quarter of MCOs still do not contract with NPs as primary care providers, limiting NP access to patients and patient choice for NP care (Bellot et al., 2017; Hansen-Turton et al., 2013). State policies should mandate managed care networks to recognize NPs as primary care providers and provide equitable reimbursement rates (Yee et al., 2013).

Reimbursement parity

Reimbursement parity for NPs has been studied as part of the credentialing and contracting research reported in three publications by Hansen-Turton and colleagues (Hansen-Turton et al., 2008; Hansen-Turton et al., 2006; Hansen-Turton et al., 2013) and replicated and extended by another research team in 2017 (Bellot et al., 2017). In 2006, when only 33% of MCOs sample had standard credentialing policies for NPs, 52% of the MCOs reimbursed NPs at the physician's rate (Hansen-Turton et al., 2006). In 2008, the credentialing rate rose to 53% of the participating MCOs and, importantly, 56% of MCOs were reimbursing NPs at the same rate as physicians (Hansen-Turton et al., 2008). However, by 2012, with 74% of 144 surveyed HMOs operated by 98 MCOs credentialing NPs, only 27% of the HMOs were reimbursing NPs at the physician's rate, whereas the same number, 27%, was reimbursing NP services at a lower rate. The remaining 46% of HMOs were reimbursing NPs at a variable rate based on criteria such as rural location or provider shortage areas (Hansen-Turton et al., 2013).

Based on Medicare claims data, states with the highest NP billing and reimbursement rates had the greatest number of Medicare patients and states with the highest rate of NP billing were rural (DesRoches et al., 2013).

Nurse-managed health centers face challenges that are different from standard primary care practices and federally qualified health centers as they are often not recognized in federal and/or state reimbursement policy (Pohl, Tanner, Pilon, & Benkert, 2011). Legislated policy barriers, as well as disadvantageous third-party insurer policies, create financial sustainability issues for NP-managed clinics, causing an increased reliance on soft money such as grant funding and philanthropic donations (Pohl et al., 2011). Currie et al., (2013), in their integrative review of NP private practice models, also found that NPs in nontraditional practice arrangements faced challenges related to reimbursement, which varied by type and locality, scope-of-practice, and model of care requirements within state and federal legislation and regulation. Reimbursement was singled out as a key consideration and barrier affecting sustainability of both nurse-managed clinics and NP private practice. Simply put, NPs need to see more patients per day to cover the same expenses as a physician (Currie et al., 2013). Bellot et al., in 2017, reported that failure of MCOs to contract with nurse-managed health centers limited reimbursement, causing closures.

Incident to billing

Nurse practitioners have been credentialed and accepted as providers for decades, but Medicare and some other MCOs continue to allow practices to bill under the physician when the "incident to" conditions are met. "Incident to" conditions include, but are not limited to, requiring that a physician must be onsite and the visit must address an existing problem. For Medicare services, "incident to" allows the practice to bill 100% of the physician's fee in comparison to the 85% of the usual and customary rate NPs receive for Medicare services. "Incident to" billing hides the work product of NPs under the physician's identity. In a qualitative study of 23 NPs in Massachusetts, NPs report taking on responsibilities similar to their physician colleague but described the financial incentive to use "incident to" billing by the NPs' employers as a barrier to NPs' recognition and empanelment as a primary care provider (Poghosyan et al., 2013). "Incident to" billing seems to be a continuing problem. When 7, 238 NPs participating in a national survey replied to whether they bill under their own provider number,

only 56.4% of NPs practicing in full practice authority states stated they did so. For NPs in restricted practice states, billing under their own provider number fell to 44.3% (Park et al., 2016). The study did not examine the reasons for the low rate of billing under one's own NPI.

Identified gaps

Gaining more insights into how reimbursement challenges and opportunities affect NPs practice requires attention to payers and health systems. Very limited data are available on the process and outcome of credentialing and contracting for reimbursement of NPs by location, setting, or specialty. No empanelment or reimbursement data were found for NPs working in settings such as patient-centered medical homes, retail clinics, urgent care, or specialty care. Although preferred provider networks and/or fee-for-service private insurance payers currently capture most of the private insurance market, no information on NPs as empaneled primary care providers or reimbursement was found for these payers. Overall, NP empanelment and reimbursement data are sparse and has not improved over time.

Limitations

There are important limitations of this review. First, there are very few studies that investigate NP reimbursement and policies at the local organization level. Next, health care policy and regulation are in uncharted waters, with the current federal executive and legislative branches at odds with The Patient Protection and Affordable Care Act of 2010. Predictions as to the future of federal policy on NP roles and reimbursement are difficult to make. In addition, several of the studies reported include qualitative work based on self-report and/or quantitative analysis of self-reported surveys introducing potential bias. There exists a potential for sample bias in the series of studies from 2006, 2008, 2013, and 2017 because of the high rates of participation refusals from MCO representatives. The MCOs who credential, contract, and position NPs as primary care providers may have been more likely to discuss reimbursement policies with surveyors, leading to a false overestimation of actual NP empanelment, credentialing, and contracting. The series of studies also focused strictly on MCOs representing only a small percentage of third-party reimbursement in today's market. Two studies focused solely on the state of Massachusetts, another on Washington, a third only had data from California, and a fourth study included NPs from six states. Because these studies represent limited geographical areas, it is difficult to generalize results from one locality to another or to the national level.

Recommendations

Research related to NP reimbursement and billing policies in all settings is needed. Outcomes research showing the impact of reimbursement policies on NP practice sustainability and NP employment should be a priority area for investigation. Outcomes research also needs to examine the effect reimbursement policies have on patient access and care quality.

Conclusion

The gap analysis has systematically examined what is known about NP reimbursement policy within and across health systems and organizations in the United States. Overall, very little is known about the process of NP credentialing, contracting, and primary care provider status as these related to reimbursement policy within the private insurance market and local health systems. There is, however, evidence of discriminatory policies that disadvantage NPs as providers of care. Discriminatory policies affect sustainability for NP practices and may also affect patient access to care.

Implications for practice

As NPs continue to work toward full practice authority in all 50 states, research highlighting the policy and reimbursement barriers and opportunities will help outline the course of action needed to improve practice sustainability, NP access to patient populations, and patient access to NPs as providers of care.

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