

Utilization and Economic Contribution of Psychiatric Mental Health Nurse Practitioners in Public Behavioral Health Services



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Introduction: Expanded insurance coverage through the Affordable Care Act and parity in behavioral health coverage have increased demand for services. Yet there is a persistent shortage in the behavioral health workforce. Psychiatric Mental Health Nurse Practitioners (PMHNPs) may be part of the solution to shortages but are not yet fully utilized. The purpose of this study was to describe how PMHNPs are utilized, identify barriers to full utilization, and assess PMHNPs' economic contribution in public behavioral health systems.

Methods: This study used a mixed methods approach, selecting counties for use of PMHNPs, geography, population size, rural/urban, and availability of financial data. The authors conducted 1- to 2-day site visits in 2014–2015 including semi-structured interviews with management and clinical leaders and collected PMHNP staffing and billing data. Thematic analysis of interview data was conducted and aggregate staffing and billing data were analyzed to determine net PMHNP financial contribution.

Results: The primary billed service for PMHNPs is medication management. Barriers to full utilization included system-level barriers to hiring PMHNPs, lack of role-appropriate job descriptions, confusion related to scope of practice/supervision requirements, and challenges in recruitment and retention. Fiscal analysis showed a positive net contribution from PMHNP services.

Conclusions: PMHNPs can make a significant contribution to behavioral healthcare delivery, particularly in public mental health settings, yet greater understanding of their role and addressing barriers to practice is needed.

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INTRODUCTION

Recent federal healthcare legislation expanded coverage for behavioral health (mental health and substance use disorder) services, raising hopes of increasing access and treatment for these conditions.^{1–3} Historically, coverage of behavioral health services has been more expensive to subscribers and less comprehensive than coverage for other health conditions.⁴ The Mental Health Parity and Addiction Equity

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Act of 2008 required that private insurers offering group plans (to 51 or more employees) ensure that mental health and substance abuse benefits be no more restrictive than those for medical and surgical care.⁵ In addition, the Affordable Care Act included behavioral health care as one of ten essential health benefits mandated in private insurance coverage and increased Medicaid eligibility in 32 states that expanded their Medicaid programs.^{6,7} These components of the Affordable Care Act were expected to increase access to behavioral health services by expanding coverage in both public and private health insurance.

Although expanded insurance coverage reduced financial barriers to behavioral health care and led to modest increases in treatment,⁸ an increase in the behavioral health workforce is needed to accommodate the numbers of newly covered individuals seeking these services. The Health Resources and Services Administration Bureau of Health Workforce identifies 4,700 Mental Health Professional Shortage Areas with a total population of more than 100 million people. Approximately 62% of Mental Health Professional Shortage Areas are in rural or partially rural areas.⁹ Psychiatrists are in particularly short supply, and their numbers are decreasing. A recent analysis determined that the number of psychiatrists per 100,000 U.S. residents had declined by 10.2% between 2003 and 2013,¹⁰ largely because of a decrease in the number of physicians applying for psychiatric residency training and the high percentage of psychiatrists reaching retirement age.¹¹

Psychiatric Mental Health Nurse Practitioners (PMHNPs) can help address behavioral health workforce shortages. PMHNPs are registered nurses with graduate mental health training whose practice is similar to that of psychiatrists and includes diagnostic assessment, psychotherapeutic and pharmacologic management of psychiatric disorders, and evaluation of physical health conditions.¹² In contrast to the declining numbers of psychiatrists, enrollment in PMHNP programs is growing rapidly. Nationwide, the number of PMHNP students grew from 1,620 to 5,000 between 2010 and 2015, a threefold increase, and the number of PMHNP graduates increased from 377 to 1,057 in the same period.^{13,14}

Several studies found that care provided by PMHNPs is similar to that of psychiatrists, is of high quality, and leads to positive behavioral health outcomes. Feldman and colleagues¹⁵ found that prescribing practices of Psychiatric Advanced Practice Nurses (including PMHNPs) were similar to those of psychiatrists, and that Advanced Practice Nurses provided high-quality behavioral health services. A systematic review of the literature, yielding 14 papers on psychiatric nurses in advanced practice, found that their services yielded positive outcomes, especially in the detection of mental

health needs in non-mental health settings.¹⁶ Baker et al.¹⁷ found that a PMHNP-led mental health clinic for homeless adults reduced the rate of psychiatric hospitalizations by more than half. Alexander and Schnell¹⁸ recently found improved mental health outcomes in states that broadened prescriptive authority for nurse practitioners (NPs).

State regulation of NP practice affects availability of PMHNP-provided services. There are substantial interstate variations in how independently NPs are able to practice. Data indicate that the general NP workforce expands when states grant NPs independent practice authority (i.e., no requirement for physician supervision).¹⁹ In states where NPs are not required to be geographically close to supervising physicians who are often concentrated in urban and suburban areas, NPs are able to increase access to health services in rural areas.¹⁹ A recent analysis of Community Health Center data from the National Ambulatory Medical Care Survey found that NPs were more likely than physicians to provide mental health services to women, racial minorities, rural populations, and individuals with substance use disorders.²⁰ These findings are consistent with previous research demonstrating that NPs are more likely than physicians to serve vulnerable populations, such as racial/ethnic minorities and people with disabilities, and are more likely to work in rural and Health Professional Shortage Areas.²¹ Furthermore, NPs were more than twice as likely to provide mental health services in states where they had independent practice authority.²⁰

Key stakeholder organizations recognize the important contribution that PMHNPs make to the behavioral health workforce supply. The National Council for Behavioral Health acknowledges the importance of PMHNPs as prescribing clinicians and recommends increasing support for training and payment of PMHNPs and removing barriers in federal and state law that restrict them from providing care consistent with their education and training.²²

There is limited research on the financial contribution of PMHNPs in psychiatric practice settings. Condi²³ proposed a theoretic model for determining the profitability of PMHNP services that deducts salary, benefits, and overhead costs from billed revenue, and provides a formula for determining productivity bonus payments. However, this model does not address factors, such as the types of services most commonly billed by PMHNPs, and the costs of physician supervision in states where it is required.

The purpose of this paper is to describe how PMHNPs are utilized, identify barriers to full utilization, and assess PMHNPs' economic contribution in public behavioral health systems. Regulatory and human resource issues

Table 1. Definitions of PMHNP Staffing and Fiscal Data Requested

Term	Definition
Staffing levels	Number of staff, FTEs, full-time/part-time status, employee or contractor status
Services	Type of service provided by PMHNPs
PMHNP costs	Calculated as the total of PMHNP salary; benefits (fringe, retirement, other); overhead; supervision; and other direct costs
Revenue	Amounts billed, and payments received on billings (“Collections” or “Billing Revenue”)
Productivity	Calculated by dividing the number of hours billed by the number of hours paid
Net fiscal contribution	Calculated as total revenue – total cost
Net fiscal contribution per PMHNP	Total cost of all the PMHNPs working in the county was subtracted from the total amount received by the county and divided by the number of PMHNP FTEs working in the county to determine the net contribution per FTE

FTE, full-time equivalent; PMHNP, psychiatric mental health nurse practitioner.

are identified that may be applicable to other states in addressing behavioral health workforce shortages by increasing the use of PMHNPs. Staffing and billing data are presented, suggesting that PMHNPs can be a financially viable staffing resource in behavioral health.

METHODS

This study was conducted in California’s public, county-based mental health delivery system consisting of 58 counties and two cities. The system serves people with serious mental illness through county-operated programs and contracted services provided by community-based organizations. Human subject approval was received from the university’s Committee for Human Research.

Flyers including a project description and a request to recruit county systems as study participants were presented to county behavioral health directors at several statewide meetings. Interested county directors were contacted to determine if the county system met the criteria: current employment of one or more PMHNPs, ability to share data on PMHNP billing and staffing, and willingness to participate in a site visit. Among counties that indicated a willingness to participate, five counties were selected based on geographic region; population size; rural versus urban; and differences in the model of public mental health service delivery (direct services versus contracted services). In each of the five counties, 1- to 2-day in-person site visits were conducted in 2014–2015, with interviews of key informants including the county mental health director, medical director, PMHNPs, human resources manager, quality manager, and financial and billing manager. A few interviews were conducted via telephone with key staff who were not available during the site visit. Interview notes were organized by site and interviewee type and reviewed by three of the study’s research team to code and identify key themes. Thematic analysis was used to identify main and minor themes.

Prior to the site visits, an Excel spreadsheet was distributed to collect data on PMHNP costs, services billed and collections, staffing, and benefits (Table 1 provides definitions of data requested). Counties agreed that they had these data, although there were differences across counties in billing and collections processes. After the site visit, there were follow-up phone and e-mail contacts with each county’s fiscal manager to ask questions

and clarify the data request. Completed spreadsheets were received 2 weeks to 1 month after each site visit.

Fiscal and Staffing Data Collection and Analysis

The general model used to explore PMHNP costs, outlined in Figure 1, used PMHNP-related revenue and subtracted PMHNP-related costs to yield a PMHNP net contribution. The researchers explored whether this model could be used to identify total net contribution across all PMHNPs, and a per PMHNP contribution.

RESULTS

Major themes from the qualitative analysis that are discussed in a previous publication included similarities in role functions between PMHNPs and psychiatrists and the added value provided by PMHNPs because of factors related to their nursing background, such as their whole person approach and value as team players.²⁴

This paper is focused on qualitative interview findings related to workforce and policy. Those themes include (1) workforce supply and demand; (2) system-level barriers to PMHNP employment; (3) the impact of California scope of practice regulations; and (4) challenges in recruitment and retention of PMHNPs.

All the county mental health director interviewees reported an increased demand for services since the

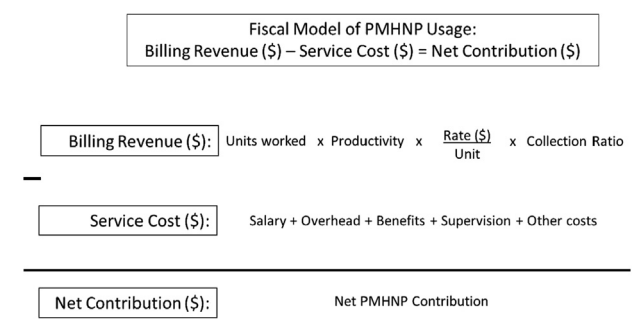


Figure 1. Fiscal model of Psychiatric Mental Health Nurse Practitioner (PMHNP) annual net contribution.

Table 2. Psychiatric Mental Health Nurse Practitioner (PMHNP) Staffing Detail

County	Total FTE PMHNP	Total individual PMHNPs	No. of PMHNPs employed	No. of PMHNPs contracted	No. of full-time PMHNPs	No. of part-time PMHNPs
A	6.5	8	7 (6.25 FTE)	1 (0.25 FTE)	6	2
B	8	8	5 (5 FTE)	3 (3 FTE)	8	0
C	0.62	4	0	4 (0.62 FTE)	0	4
D	1.82	4	0	4 (1.82 FTE)	0	4
E	6	6	6 (0.16 FTE)	NA	6	NA
Total all 5 counties	22.94	30	18	12	20	10

FTE, full-time equivalent; NA, not available; No., number.

Affordable Care Act and improved behavioral health insurance coverage that increased their difficulty in finding an adequate number of psychiatric prescribers. All noted an ongoing shortage of psychiatrists as a factor leading to increased interest in hiring PMHNPs. Counties used a variety of strategies including contracting out services and telehealth visits, yet the demand far exceeded the available workforce.

System-level barriers to hiring PMHNPs were reported in all counties. These included a lack of appropriate job descriptions for the role, lack of county-approved open positions for PMHNPs, and lengthy civil service processes for hiring. These barriers led several counties to hire PMHNPs as contractors or to subcontract with community-based organizations that hired the PMHNPs. PMHNPs worked in contract positions in all five counties, and two counties used exclusively contract positions. These contract positions did not provide employee benefits.

California is designated as having restricted scope of practice for NPs, meaning that state law requires MD supervision for some elements of practice.²⁵ In interviews, county behavioral health directors generally did not understand the details of NP supervision requirements in California's law. Other concerns reported by interviewees included psychiatrists refusing to supervise PMHNPs and questions about supervising psychiatrist liability. PMHNPs and psychiatrists reported various methods of supervision including ad hoc consultation, group or individual scheduled supervision, or a combination of these approaches.

Almost all of the counties reported challenges in recruitment and retention of PMHNPs, even when positions were open and available. This was especially true in rural counties. Although there are no reliable data about the number of graduates from PMHNP programs in the state, the estimate is that it is no greater than 50–75 graduates per year, far short of the actual and potential demand.

Turnover varied significantly across county systems, although it was generally lower in counties with benefitted full-time positions and competitive salaries. In one county, PMHNPs in contract positions without benefits expressed dissatisfaction around the issue of not receiving benefits and incentive payments that contracted psychiatrists received.

Staffing and fiscal findings include full-time equivalent (FTE) data, employment terms, salary, primary services delivered, and a model for assessing the fiscal contribution of PMHNPs.

Each of the five counties provided financial and staffing data, although none were able to provide all the data requested. In one county, five PMHNPs were employed, but only three performed billable services. In another county, no information was available about services provided by the contracted PMHNPs.

Counties engaged PMHNPs in a variety of ways: as employees of the county, as individual independent contractors, through a contracting organization, or a combination of those methods. Table 2 displays staffing data verified by each county post-site visit. In the five counties there were a total of 30 employed PMHNPs, 12 contracted and 18 employed. The number of PMHNPs per county ranged from four to eight. The total PMHNP FTEs ranged from just more than half an FTE (0.62) to \cong 6.5 FTEs. The estimated percentage of county behavioral health clients served by PMHNPs ranged from 6% to 62%, although this broad range may include duplicated clients in three counties because of county data aggregation.

Minimal data were available on psychiatrist staffing. Most counties reported unfilled positions for psychiatrists, and many psychiatrists worked part-time. In one rural county, several psychiatrists lived out of state and provided services via telemedicine. In this context, utilization of PMHNPs was often seen as crucial to maintaining access. One county mental health official reported that the use of PMHNPs had doubled their capacity to provide services.²⁴

As noted in the model, requested cost data included salary, benefits, overhead, physician supervision, and any other employment costs. Salary data were obtained from every county, benefits varied between counties, and overhead was calculated in a different way in each county. The cost of physician supervision was estimated because most counties could not report actual hours of supervision. Most counties did not report “Other Costs.” Overall cost findings for PMHNPs include the following: Average county annual PMHNP salaries ranged from \$94,780 to \$185,120. This range likely reflects differences in regional cost of living. Also, full costs of a PMHNP FTE ranged from \$130,358 to \$269,519. This included salary; benefits (fringe, retirement, other); overheads; supervision; and other direct costs.

Services provided by PMHNPs included medication management, crisis stabilization, crisis intervention, case management, hospital visits billed under a physician’s name, preparation of reports, assessment, and case management. Mental health services with medication management comprised the bulk of services provided by PMHNPs (99.7% of all billings, excluding one contracted site that only billed for crisis stabilization). Medication management had the highest reimbursement rate across counties, \$5.98 per minute (ranging from \$4.10 to \$8.00). Some other services reported to be billable were not actually billed by some counties; most others that were billed represented only a few hundred dollars of annual revenue. This fiscal analysis included only billed activities.

Multiple variables influenced the amount of money counties were able to bill and receive for PMHNP services. Those included PMHNP services provided and productivity, rates counties bill for a service, and payer collection ratio. It was difficult for counties to report the amount received from multiple funding sources because of the length of the reimbursement cycle and different practices within the state. However, because a high percentage of PMHNP billing was to MediCal, the researchers have confidence that those data reported from the counties are reliable in this model. Some counties make up a gap between billing and collections by supplementing with county funds.

The actual annual revenue received was reported by only two counties. A third county was able to give a partial year’s billings, from which the authors estimated full-year figures. With data from those three counties, researchers used the overall model to calculate an approximate, estimated net contribution.

Based on the limited cost and collection information, a positive net contribution per PMHNP FTE was estimated. Annual net contribution per PMHNP FTE ranged from \$49,000 to \$74,000 for the three counties

that reported collections. As might be expected, the net contribution of PMHNPs in contracted positions was higher, largely because the full costs did not include benefits or other employment costs.

DISCUSSION

This study adds to a small body of literature on how PMHNPs contribute to the behavioral health workforce and demands for behavioral health services by investigating specific workforce factors that impact PMHNP practice and financial contribution.^{12,13,23} As in previous literature, study findings indicated that PMHNPs are able to address gaps in access to behavioral health care, particularly in public and rural delivery systems. Yet a lack of awareness,²⁴ restrictions on scope of practice,²⁶ and systemic barriers impede full utilization of these practitioners. Because of their whole person approach, PMHNPs are more likely to focus on preventing and minimizing the adverse health effects of lifestyle factors and treatment effects in this population.²⁷

This study makes a unique contribution by conducting an analysis of the fiscal contribution of PMHNPs in public practice settings. Although only a few sites were able to provide the requested data, findings suggest that PMHNPs can make a net fiscal contribution, in addition to providing needed services. Further research could use the model provided in this paper to examine which components make the biggest difference in net contribution, perhaps extending to cost-effectiveness studies. In addition, the findings suggest that counties should aim to use PMHNPs for billable services at the highest reimbursement rate possible and increase the percentage of clients seen by PMHNPs.

The positive net contribution of PMHNPs is not surprising given that PMHNPs provided similar services to psychiatrists and billing and productivity were similar. Yet, county reported salary information indicated that the pay differential was substantial, generally more than two times greater for psychiatrists. Although the interviewees attributed some pay differential to PMHNPs’ need for supervision, data on the amount of supervision and costs of supervision were difficult to obtain. PMHNPs were well aware of the pay discrepancy, and several PMHNP informants cited this as a reason they planned to leave county services. Given the demand for psychiatric prescribers, PMHNP informants reported confidence that they could obtain employment elsewhere and often had multiple job offers.

Counties and other entities should develop methods to track fiscal information related to PMHNPs in order to develop their own models of productivity and contribution of this group of providers. As future models of

behavioral health care move away from fee-for-service billing toward more alternative payment models, it will still be useful to understand the unique contributions of various types of practitioners in the workforce. Further research on the impact of scope of practice in states with autonomous practice for NPs would also be useful.

Limitations

This study was a convenience sample of counties in only one large state that used PMHNPs in their delivery model. Therefore, it is not possible to assess the challenges or potential resistance to employing PMHNPs in counties that did not participate, or in other states. There were unanticipated difficulties in obtaining consistent billing and staffing data. The counties had not previously tried to answer the question of fiscal contribution of PMHNPs and did not have data in the form requested. Therefore, the fiscal results should be interpreted as suggestive only, and should be more rigorously and systematically investigated in future and larger studies to address the question of net fiscal contribution.

CONCLUSIONS

This paper addresses a workforce solution to problems with access to and quality of behavioral health services. PMHNPs are poised to play a greater role in public mental health settings, yet greater awareness of the regulatory framework for their role and their potential financial and service contributions is needed.

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