Scope of Practice: Summary of Existing Studies

Cost and Quality of Care

Expanding the scope of practice of nurse practitioners and physician assistants may actually increase the cost of care due to inappropriate prescribing, unnecessary referrals to specialists, unnecessary orders for diagnostic imaging studies such as x-rays, and more biopsies performed compared to physicians. Below is a brief summary of these findings.


Based on a robust analysis of data, Hattiesburg Clinic, a multispecialty clinic in Hattiesburg, Mississippi, found that care provided by nonphysicians working on their own patient panels led to higher costs, more referrals, higher emergency department use, and lower patient satisfaction than care provided by physicians. Hattiesburg Clinic is a leading ACO, ranking first in quality in its cohort in 2016 and 2017. The clinic had allowed non-physicians including nurse practitioners and physician assistants to have their own primary care panel of patients. The patients in these panels were less complex than those seen by physicians and the non-physicians had access to a collaborating physician. After compiling and reviewing data on over 300 physicians, 150 non-physicians, 208,000 patient surveys, and cost data on over 3,300 unique Medicare beneficiaries, Hattiesburg Clinic found that care provided by non-physicians resulted in higher costs. Data also found non-physicians had higher rates of utilization including visits to the emergency department and referrals to specialists. Moreover, data showed that physicians performed better in 9 out of 10 quality metrics and received higher patient satisfaction scores. The cost data was compelling. Based on Medicare cost data, the clinic found Medicare ACO patients spend was nearly $43 higher per member per month for patients with a non-physician as their primary care provider compared to those with a physician. These additional costs could translate to an additional $10.3 million in spending annually. Adjusting for patient complexity, this number jumped to over $119 per member per month or $28.5 million more annually. The authors opined, “We believe very strongly that APPs are a crucial part of the care team; however, based on a wealth of information and experiences with them functioning in collaborative relationships with physicians, we believe very strongly that nurse practitioners and physician assistants should not function independently.”


The study found that ambulatory visits involving nurse practitioners and physician assistants more frequently resulted in an antibiotic prescription compared with physician visits.

**“Patient, Provider and Practice Characteristics Associated with Inappropriate Antimicrobial Prescribing in Ambulatory Practices,”** Infection Control & Hospital Epidemiology

The study found that adult patients seen by APPs were 15 percent more likely to receive an antibiotic than those seen by a physician. The rate of prescribing for pediatric patients was similar.
“Comparison of the Quality of Patient Referrals from Physicians, Physician Assistants, and Nurse Practitioners,” Mayo Clinic Proceedings
A 2013 study by the Mayo Clinic found inappropriate referrals to tertiary referral centers by nurse practitioners and physician assistants could offset any potential savings from the increased use of nurse practitioners and physician assistants. The study compared the quality of physician referrals for patients with complex medical problems against referrals from nurse practitioners and physician assistants for patients with the same problems. Blinded to the source of the referrals, a panel of five experienced physicians used a seven-instrument assessment to determine the quality of each referral. Physician referrals received “significantly higher” scores in six of the seven assessment areas. Physician referrals were also more likely to be evaluated as necessary compared to nurse practitioner and physician assistant referrals which were more likely to be evaluated as having little clinical value.

“A Comparison of Diagnostic Imaging Ordering Patterns Between Advanced Practice Clinicians and Primary Care Physicians Following Office-Based Evaluation and Management Visits,” JAMA Internal Medicine
The authors of this study found that nurse practitioners and physician assistants were associated with more ordered diagnostic imaging than primary care physicians following an outpatient visit. The authors noted, the findings suggest that expanding the authority and use of nurse practitioners may alleviate physician shortage, but the increased imaging may have ramifications on care and overall costs.

“National Trends in the Utilization of Skeletal Radiography,” Journal of the American College of Radiology
This study found skeletal x-ray ordering increased substantially – by 441 percent – among non-physician providers, primarily nurse practitioners and physician assistants.

“Biopsy Use in Skin Cancer Diagnosis: Comparing Dermatology Physicians and Advanced Practice Professionals,” JAMA Dermatology
This study compared the number needed to biopsy (NNB) per malignant neoplasm between dermatology physicians and advanced practice professionals (APPs). The dermatologists and APPs in the study practiced in the same institution. APPs treated new and established patients, most of whom were not evaluated by a physician; however, a physician was available in the clinic. The authors found the NNB of any skin cancer for APPs was double that of physicians, and that difference was most pronounced in younger patients and those without a history of skin cancer.

“Accuracy of Skin Cancer Diagnosis by Physician Assistants Compared with Dermatologists in a Large Health Care System.” JAMA Dermatology
This study compared the accuracy of dermatologists with physician assistants in diagnosing skin cancer, finding physician assistants performed more skin biopsies per case of skin cancer diagnosed and diagnosed fewer melanomas in situ, suggesting that the diagnostic accuracy of PAs may be lower than that of dermatologists. The study found, “compared with dermatologists, physician assistants have lower diagnostic accuracy for melanoma.” Authors from the study opined that although the availability of PAs may help increase access to care and reduce waiting times for appointments, these findings have important implications for the training, appropriate scope of practice, and supervision of PAs and other nonphysician practitioners in dermatology.

“Opioid Prescribing by Primary Care Providers: a Cross-Sectional Analysis of Nurse Practitioner, Physician Assistant, and Physician Prescribing Patterns,” Journal of General Internal Medicine
Using 2015 Medicare claims data, the authors conducted a retrospective cross-sectional analysis to determine the opioid prescribing patterns of physicians, nurse practitioners and physician assistants who worked in primary care and prescribed at least 50 prescriptions. Based on their analysis, the authors found a greater number of NPs (8.0%) and PAs (9.8%) overprescribed opioids compared to physicians (3.8%). They also found NPs/PAs in states with independent prescription authority for schedule II opioids were 20 times more likely to overprescribe opioids than NPs/PAs in states with restricted prescription
authority. Of note, the study also found from 2013 to 2017, when almost every medical specialty decreased opioid prescribing, NPs/PAs significantly increased opioid prescribing. The authors opined on potential solutions for reducing NP/PA prescribing, such as implementing mandatory continuing education in safe opioid prescribing and restricting NPs/PAs prescribing authority. Based on their analysis, they also found 6.3 percent of nurse practitioners and 8.4 percent of physician assistants prescribed opioids to more than 50 percent of their patients compared to just 1.3 percent of physicians.

**Workforce Studies**


