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# Scope-Of-Practice Laws For Nurse Practitioners Limit Cost Savings That Can Be Achieved In Retail Clinics

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**ABSTRACT** Retail clinics have the potential to reduce health spending by offering convenient, low-cost access to basic health care services. Retail clinics are often staffed by nurse practitioners (NPs), whose services are regulated by state scope-of-practice regulations. By limiting NPs' work scope, restrictive regulations could affect possible cost savings. Using multistate insurance claims data from 2004–07, a period in which many retail clinics opened, we analyzed whether the cost per episode associated with the use of retail clinics was lower in states where NPs are allowed to practice independently and to prescribe independently. We also examined whether retail clinic use and scope of practice were associated with emergency department visits and hospitalizations. We found that visits to retail clinics were associated with lower costs per episode, compared to episodes of care that did not begin with a retail clinic visit, and the costs were even lower when NPs practiced independently. Eliminating restrictions on NPs' scope of practice could have a large impact on the cost savings that can be achieved by retail clinics.

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Scope-of-practice regulations for nurse practitioners (NPs) vary across states. Some states permit NPs to practice independently, while others require that they be supervised by or collaborate with physicians. NPs can play an important role in new, innovative care delivery models, but scope-of-practice regulations may limit that role. This article explores the impact of scope-of-practice regulations on costs and health care use associated with retail clinics.

Retail clinics, also called *convenient care clinics*, offer diagnosis and treatment for common, low-acuity conditions in retail settings such as pharmacies, grocery stores, and big-box retailers. In 2010 there were more than 1,200 retail clinics<sup>1</sup> operating in forty-five states.<sup>2</sup> A growing body of evidence finds that retail clinics are efficient care providers and reduce the cost of health care,<sup>3–6</sup> for reasons discussed below.

NPs are the primary providers of health care services in retail clinics.<sup>7</sup> If state regulations limit the scope of their practice, NPs might not be able to fully meet the needs of patients in settings such as these clinics. This could make it more likely that patients have to seek subsequent treatment in traditional settings, producing an overall increase in costs.

The impact of scope-of-practice regulations on the cost savings that can be achieved by retail clinics has not been analyzed previously. This article is designed to fill that gap.

## Background

The first retail clinic opened in 2000 in a grocery store in the Minneapolis–Saint Paul area. The number of clinics operating in the United States has grown substantially since then. Much of the growth in the use of retail clinics can be attributed to their convenient locations

and clearly posted prices.<sup>8-10</sup> About 45 percent of clinic visits are estimated to occur on the weekend or during weekday hours, when physicians' offices are typically closed.<sup>11</sup> Patients who have received services in retail clinics report high levels of satisfaction with their care.<sup>12</sup>

However, retail clinics are not without critics. Some have raised concerns about the potential for conflicts of interest if prescribing and dispensing are vertically integrated, questioned NPs' ability to provide needed care, and noted interruptions in the continuity of patient care caused by visits to clinics.<sup>13-16</sup>

Retail clinics offer a narrow range of services: One study found that ten clinical categories account for more than 90 percent of clinic visits.<sup>17</sup> NPs are ideal providers of care in the clinics because their education and training are focused on the provision of primary care services.<sup>2</sup> Prior research indicates that up to 75 percent of primary care services could be provided by NPs and other advanced-practice nurses.<sup>18</sup>

The use of NPs as the main providers of care in retail clinics contributes to lower health care costs.<sup>2</sup> In addition, retail clinics can provide services to patients who might otherwise visit an emergency department (ED) for low-acuity care. Researchers have estimated that up to 27 percent of ED visits could have been handled appropriately at retail clinics and urgent care centers, offering cost savings of \$4.4 billion per year.<sup>3</sup>

However, retail clinics could increase total costs of care, for several reasons. First, these clinics could complement physician care instead of replacing it, and could simply serve as a first point of contact before a patient visits a physician or ED. Second, if the care provided by retail clinics is of lower quality than that provided by doctors or hospitals, patients may require subsequent emergency care or hospitalization if they visit a clinic first instead of going directly to another source of care. Third, although retail clinics' list prices for services appear low, they may in fact be higher than the reimbursement rates negotiated between traditional providers and insurance companies. Finally, the affiliation between retail clinics and retail sites that also fill prescriptions could create a conflict of interest that promotes unnecessary prescribing.

Research has generally found that patients receiving care at retail clinics are no more likely to have a subsequent visit to a physician's office and have similar rates of receipt of preventive care and disease management, compared with patients who initially obtain care at physicians' offices.<sup>4,6,19-22</sup> Some research indicates that patients who visit retail clinics experience decreased continuity of care.<sup>4,22</sup> Other studies have analyzed both measures of quality of care and

the total costs of care; they consistently report that care at retail clinics costs insurers less than care at physicians' offices.<sup>4-6</sup>

Because NPs are the core providers in retail clinics, regulations governing their practice could affect clinics' operations. For example, state requirements that physicians supervise NP practice force retail clinics in those states to employ physicians, thus increasing costs. However, restrictions on NPs' scope of practice might reduce the inappropriate use of services, such as overuse of tests and medications, and thus protect patients and reduce costs.

There is wide variation in scope-of-practice regulations across states.<sup>23</sup> In twenty-two states, NPs are permitted to provide care independently.<sup>24</sup> Other states do not permit NPs to practice without collaborating with, or being supervised by, a physician. Many of these states require written practice protocols, and they sometimes restrict the number of NPs with whom a physician may collaborate. Still other states allow NPs to practice independently but permit them to prescribe medicines only if they are collaborating with or supervised by a physician.<sup>23</sup> The extent to which variations in scope-of-practice regulations across states affect the costs or quality of retail clinics has not been previously studied.

## Study Data And Methods

**DATA** We used administrative claims data from a large health insurer that covers more than eighty-five million people. These data include information on health care use and actual costs to the insurer and enrollee. We identified a cohort of patients who were continuously enrolled in their health plan in the period 2004-07 and in markets where new retail clinic operations were established during this time. The data span twenty-seven states.

Prior research has demonstrated that the patients who visit retail clinics differ from patients who do not visit clinics.<sup>25</sup> To limit variation in patients' characteristics, we focused our analysis on enrollees who visited a retail clinic at some point in the period 2004-07. We also restricted the sample to patients who visited a retail clinic within fifty miles of their home ZIP code. Our sample contained 9,503 individuals.

**COST AND UTILIZATION OUTCOMES** For each person in our sample, we identified visits to any site or type of provider for the following ten clinical conditions commonly seen in retail clinics: upper respiratory infection, immunization and screening, otitis media, bronchitis, urinary tract infection, eye infection, allergies, viral infection, tonsillitis, and influenza. We then

measured all health care use and costs for a fourteen-day period beginning with the “index visit.” We also measured resource value units for noninpatient services. There were 98,236 fourteen-day periods in our data.

Costs were the allowed amount reported by the health plan, which included both what the insurer paid the provider and the consumer’s out-of-pocket payment. Using this approach, we developed cost metrics for total care, noninpatient care, and prescriptions. We excluded observations with negative or extremely high values (generally those above the 99.5 percentile).

**SCOPE-OF-PRACTICE MEASURES** We reviewed data from the *Pearson Reports* for the period 2004–07, which were purchased directly from Linda Pearson. The *Pearson Report* provides information for each state about regulations that affect NP licensing, credentialing, and scope of practice.<sup>26</sup>

We focused on two aspects of NPs’ scope of practice during our study period. First, we determined whether NPs were permitted to practice independently or were required to have a physician collaborate with or supervise them. Second, we assessed whether NPs were allowed to prescribe medications independently.

In 2007 thirteen of the states in our sample allowed NPs to practice independently, and six of these also permitted independent prescribing (Exhibit 1). The remaining fourteen states required physician collaboration or supervision. A few states changed their scope-of-practice regulations between 2004 and 2007.

**OTHER CONTROL VARIABLES** We measured patients’ demographic and health characteristics using the data provided by the health insurer. Prior research has found that proximity to a retail clinic is a strong predictor of clinic use.<sup>25</sup> We measured distance using latitude and longitude estimates from the Census Bureau for the ZIP codes of patients’ residences and the clinics they used. We used the “great circle formula” to compute distances in miles.<sup>27</sup>

Women, young adults, patients who do not have chronic conditions, and high-income patients are more likely than others to use clinics.<sup>25</sup> The insurance data do not include information about enrollees’ personal incomes, but the other variables are available. We constructed health risk measures according to the Johns Hopkins Ambulatory Diagnostic Groups system to control for differences in the conditions of patients,<sup>28</sup> and we created dummy variables to indicate if the patient had a chronic or psychiatric condition.

We constructed another variable to indicate whether there was a health “shock,” such as a

motor vehicle trauma injury, associated with the index visit or any other visit in the fourteen-day window. The binary health shock variable was based on a combination of Ambulatory Diagnostic Groups that indicate an acute major medical event or trauma.

**DATA ANALYSIS** We began our analysis by comparing the means of fourteen-day episodes for which the index visit was not to a retail clinic (“nonretail episode”) and episodes for which the index visit was to a retail clinic (“retail episode”). We divided the latter group into episodes in which NPs had to be supervised by or collaborate with physicians, those in which NPs were permitted to practice independently but not prescribe independently, and those in which NPs were allowed to practice and prescribe independently. The comparisons were conducted for costs, use of specified types of care, and resource value units, as well as the independent variables.

We next estimated multivariate regression models to control for demographic and health status variables that might be associated with health service use and costs. For the cost-related outcomes, we log transformed the dependent variables and estimated linear models. All observations had at least some costs; observations with no payments for noninpatient services or prescriptions were assigned a logarithmic value of 0 (level value of 1).

For the dependent variables indicating whether a hospitalization or prescription occurred, we estimated linear probability models. The key independent variables were indicators for whether or not the index visit was to a retail clinic and interactions between this variable and whether the NP could practice independently and prescribe independently.

We estimated all regression models with and without individual-level fixed effects, to control for constant individual-level characteristics that were unmeasured. These equations did not include variables for age, sex, and distance to the

**EXHIBIT 1**

**Number Of States In The Study Sample With Each Type Of Nurse Practitioner (NP) Scope Of Practice, 2004–07**

Type of NP practice	2004	2005	2006	2007
NPs practice and prescribe independently	7	7	6	6
NPs practice independently, prescribe only when collaborating with or supervised by a physician	5	6	7	7
NPs practice and prescribe collaboratively with a physician	12	11	10	10
NPs are supervised for practice and prescribing by a physician	3	3	4	4

**SOURCE** Authors’ analysis of data from *Pearson Reports*, 2004–07.

clinic because they were collinear with the fixed effects.

We reestimated our cost regressions using the nonlogarithmic values of payments, including observations with zero payments, to determine whether our findings were sensitive to the exclusion of observations with no payments. We also reestimated our regression equations excluding observations associated with health shocks, chronic conditions, and psychiatric conditions to determine whether our results were sensitive to inclusion of these patients (for regression equation estimates, see the online Appendix).<sup>29</sup>

**LIMITATIONS** We used several strategies to reduce variation resulting from underlying patient characteristics and differences in the need for care at the time of the index visit. First, we limited the analysis to patients who visited a retail clinic at least once. Second, all episodes of care in our analysis were associated with an index visit for one of the ten conditions for which the bulk of retail clinic services are provided. Third, we controlled for differences in patients' health status using Ambulatory Diagnostic Groups<sup>28</sup> and indicators for the presence of chronic and psychiatric conditions, as well as health shocks. Finally, we used individual-level fixed effects to control for unobserved time-constant differences across enrollees.

It is possible that these approaches were not fully adequate to reduce the impact of selection bias on our findings. For example, if the Ambulatory Diagnostic Groups did not sufficiently measure differences in the health characteristics associated with care episodes, then our results would not be accurate. One way to address this would be to limit the analysis to week-end-only visits, when traditional care settings are often closed. However, it was not possible to conduct such an analysis with these data.

The other notable limitation to this analysis was the age of the data, which are from the period 2004–07. This period was selected because it was a time when retail clinics were rapidly expanding, and thus there were growing numbers of patients who visited retail clinics and traditional practices for the same care needs. In addition, this period was not complicated by the economic recession that began at the end of 2007.

Retail clinics have expanded to additional markets since 2007, and changes in the patient populations that visit the clinics and in the competitive marketplace may have altered their use and value. In particular, recent programs in some retail clinics offering management of chronic conditions may have changed their mix of patients as well as their costs since our data were generated.

## Because NPs are the core providers in retail clinics, regulations governing their practice could affect clinics' operations.

### Study Results

**COMPARISONS OF MEANS** Exhibit 2 presents the mean values of the outcome variables, as well as the independent variables, for the four groups described above. We found that for retail episodes, there were lower rates of ED visits, urgent care visits, and hospitalizations, when compared with nonretail episodes. Also, payments were lower for retail episodes than for nonretail episodes.

There were differences in patients' demographic characteristics and health status between the retail episodes and the nonretail episodes (Exhibit 2). For example, the mean Ambulatory Diagnostic Group count<sup>28</sup> was lower for retail episodes, and lower percentages of patients had psychiatric conditions and health shocks, compared with nonretail episodes.

**REGRESSION ANALYSES** Exhibit 3 presents the results from the multivariate regression analyses. The columns in the exhibit provide the coefficients for the indicators of whether the index visit was to any retail clinic, to a retail clinic in a state where NPs could practice independently, and to a retail clinic in a state where NPs could both practice and prescribe independently. Note that these last two indicators are not mutually exclusive. Thus, to assess the impact of an NP's having full independence (as compared with independence in practice only), it is necessary to combine the coefficients in the second and third columns.

These results are similar to those found in the comparisons of mean values (Exhibit 2). We found that retail episodes had significantly lower total payments and total noninpatient payments than did nonretail episodes (Exhibit 3). We also found that expenditures were even lower for retail episodes that occurred in states where NPs could practice independently than in states

**EXHIBIT 2**

**Patients' Service Use, Costs, And Demographics For Fourteen-Day Periods After Index Visits, By Site Of Index Visit And Nurse Practitioner (NP) Scope Of Practice, 2004-07**

Variable	Index visit was not to a retail clinic	Index visit was to a retail clinic		
		No NP independence	NPs have independent practice only	NPs have independent practice and prescribing
Emergency department visit***	0.87%	0.17%	0.16%	0.06%
Urgent care visit***	0.52%	0.00%	0.02%	0.00%
Prescription filled***	38.36%	58.62%	41.09%	53.58%
Hospitalization***	1.02%	0.40%	0.37%	0.30%
Noninpatient resource value units***	3.84	2.13	2.25	2.04
Total payments***	\$676.13	\$365.05	\$273.87	\$304.59
Total noninpatient payments***	\$559.91	\$247.81	\$214.83	\$206.33
Total prescription payments***	\$106.99	\$102.61	\$53.92	\$67.72
Ambulatory Diagnostic Group count <sup>a</sup> ***	3.78	3.12	3.02	2.96
Chronic condition indicator***	22.4%	23.5%	19.9%	19.9%
Psychiatric condition indicator***	9.1%	7.2%	7.2%	8.8%
Health shock indicator***	19.4%	14.4%	15.8%	15.1%
Age (years)***	28.13	30.67	29.54	29.57
Female**	66.4%	66.9%	66.5%	63.2%
Distance to clinic (miles)***	6.63	7.04	6.74	5.35

**SOURCE** Authors' analyses of insurance claims data. **NOTES** Significance denotes differences across the four columns. Health shock indicator is explained in the text. <sup>a</sup>See Note 28 in text. \*\**p* < 0.05 \*\*\**p* < 0.01

where NPs could not practice independently. The relationship was not significant for noninpatient payments when fixed effects were included, however. NPs' ability to prescribe independently was associated with slightly higher expenditures compared to when they could not prescribe independently, but this was significant only for total payments when fixed effects were not included.

Prescription expenditures followed a different pattern than total and noninpatient expenditures did. Prescription spending was significantly higher for retail episodes than for nonretail episodes, but this effect was counteracted when NPs practiced independently. NPs' prescribing independence significantly increased payments for prescriptions.

We estimated linear probability equations to learn whether retail clinic use and NPs' scope of practice were associated with hospitalizations or filling prescriptions. The coefficients indicated that there were significantly fewer hospitalizations for retail episodes compared to nonretail episodes, but this was significant only when fixed effects were not included. NPs' scope of practice had no significant relationship with hospitalizations.

Retail episodes were more likely than nonretail episodes to result in the patient's having a prescription filled. This effect was attenuated in states in which NPs could practice indepen-

**EXHIBIT 3**

**Effects On Fourteen-Day Episode Costs And Service Use Of Retail Clinic Use And Nurse Practitioner (NP) Scope-Of-Practice Regulations, From Multivariate Regression Equations, 2004-07**

Variable	Type of retail index visit		
	All visits	NPs can practice independently	NPs can prescribe independently
<b>TOTAL PAYMENTS</b>			
Ordinary least squares	-0.221***	-0.267***	0.107***
Fixed effects	-0.228***	-0.109***	0.051
<b>TOTAL NONINPATIENT PAYMENTS</b>			
Ordinary least squares	-0.406***	-0.135***	0.021
Fixed effects	-0.377***	-0.040	-0.001
<b>TOTAL PRESCRIPTION PAYMENTS</b>			
Ordinary least squares	0.874***	-0.831***	0.467***
Fixed effects	0.674***	-0.354***	0.156***
<b>HOSPITALIZATION INDICATOR</b>			
Ordinary least squares	-0.003***	-0.0003	-0.0003
Fixed effects	-0.001	-0.003	0.003
<b>PRESCRIPTION FILLED</b>			
Ordinary least squares	0.214***	-0.165***	0.118***
Fixed effects	0.173***	-0.077***	0.044***

**SOURCE** Authors' analyses of insurance claims data. **NOTES** Regression equations also controlled for age, age squared, female, distance (in miles) to clinic, distance squared, presence of chronic medical condition, presence of psychiatric condition, health shock (explained in the text), and thirty-four Ambulatory Diagnostic Group codes (see Note 28 in text). Significance denotes differences between the value in the column and the reference group (the visit not being to a retail clinic). \*\*\**p* < 0.01

dently. However, independent NP prescribing was associated with the higher probability of a prescription's being filled.

When costs were measured in nonlogarithmic form, and the fixed-effects regressions included observations with zero payment values, the results changed only slightly from those presented in Exhibit 3. The decrease in total payments associated with independent NP practice and the increase in prescription payments associated with independent NP prescribing were no longer significant.

The results of multivariate fixed-effects regressions that excluded patients who had a health shock, chronic condition, or psychiatric condition also were consistent with those of Exhibit 3. All significant coefficients remained so, and the magnitudes of the effects were similar.

### Discussion

Our results are consistent with prior research that found that retail clinic care was associated with lower total costs, compared to the cost of care received in other settings such as physician offices, urgent care clinics, and emergency departments,<sup>3-6,11,17</sup> and that there was no indication that these clinics increased subsequent hospitalizations, compared to nonretail clinics. We also found that when NPs were allowed to practice independently, the cost savings of retail clinic episodes were even greater than when they could not practice independently. Compared with nonretail episodes, we found that payments for prescriptions were higher for retail episodes and that a significantly higher share of retail episodes involved a patient's having a prescription filled. However, NP practice independence mitigated the retail clinic effect on the number of prescriptions filled.

The cost per episode associated with visits to a retail clinic was lower than the cost per episode for care provided in other settings. Retail clinics offer convenience to patients, and their numbers are likely to continue to increase.<sup>30</sup> Analysts have predicted that there will be about 5,000 retail clinics by 2015, doubling the number of NPs employed in this setting.<sup>7</sup> One analysis indicates that the national NP workforce will nearly double between 2008 and 2025, providing ample supply for the growing numbers of retail clinics.<sup>31</sup> However, restrictive NP scope-of-practice regulations could attenuate retail clinic expansion by continuing to require physicians' involvement, limiting the number of NPs whom a physician can supervise, and increasing the operational costs of clinics.<sup>2</sup>

Eliminating restrictions on NPs' scope of practice could have a large impact on the cost per

**NPs, when practicing to the full extent of their training, can deliver care that is both of high quality and highly efficient.**

episode that can be achieved by retail clinics. Data from the National Center for Health Statistics indicate that in 2010 there were nearly 137 million visits to physicians' offices, hospital outpatient departments, and hospital EDs for the ten diagnoses most often seen in retail clinics.<sup>32</sup>

The weighted average fourteen-day episode cost in our data set for nonretail visits for these diagnoses, adjusted to 2013 dollars, was \$704. The coefficients from our fixed-effects equations indicate that the average fourteen-day episode cost for a retail visit in a state with no NP independence was \$543, the average in a state where NPs could practice independently was \$484, and the average in a state where they could both practice and prescribe independently was \$509.

It is estimated that retail clinics will account for about 10 percent of outpatient primary care visits in 2015.<sup>33</sup> If NPs do not have any practice independence, the cost savings in that year from retail clinic use would be an estimated \$2.2 billion. Note that this figure is consistent with another economic analysis that estimated that national cost savings from retail clinics could be \$1.8 billion in 2014.<sup>34</sup> According to our calculations, savings would be \$810 million greater if all states allowed NPs to practice independently and \$472 million greater if NPs could both practice and prescribe independently.

Scope-of-practice regulations are often justified on patient protection grounds. However, the evidence in our study and in earlier research indicates that primary care provided by NPs is of similar quality to that provided by physicians.<sup>35-37</sup> Care provided in retail clinics is generally guided by evidence-based protocols, and clinics hire NPs who have the knowledge, interpersonal skills, and confidence to practice with a great deal of independence.<sup>30</sup>

The potential for NPs to increase access to health care while reducing costs is particularly pertinent in regions where there is a shortage of

# 5,000

#### Retail clinics

Analysts have predicted that there will be about 5,000 retail clinics nationwide by 2015, up from 1,200 in 2010. In 2014 they could account for 10 percent of all primary care visits.

primary care providers and patients have difficulty gaining access to services.<sup>38</sup> Our findings document the reality that NPs, when practicing to the full extent of their training, can deliver care that is both of high quality and highly efficient. Although there is some evidence that retail clinic use is associated with less continuity of care,<sup>13-16</sup> such fragmentation of care can be mitigated. Primary care practices should capitalize on the opportunity to leverage NPs' knowledge and skills, and the increased availability of convenient settings for care delivery, to meaningfully expand access to services and focus on improvements in care coordination and integration.

Future research should examine how changes in both state NP scope-of-practice regulations and the insurance coverage of Americans affect the use of and cost savings from retail clinics. Growth in high-deductible health insurance plans, which are now more prevalent than managed care plans,<sup>39</sup> may make patients more sen-

sitive to price and spur increased use of retail clinics. In addition, the expansion of health insurance coverage under the Affordable Care Act is anticipated to exacerbate shortages of primary care services.<sup>40</sup> The extent to which retail clinics could meet care needs should be studied.

## Conclusion

The Institute of Medicine has recommended that all health care professionals be permitted to practice at the highest level of their knowledge.<sup>41</sup> At the same time, continuing and projected shortages of primary care physicians and the emergence of new care delivery models have focused attention on the potential for NPs to play a greater role in improving access to care.<sup>42,43</sup>

Permitting NPs to practice to the greatest extent of their ability—in retail clinics and elsewhere—would contribute to the creation of a health care system that could efficiently meet the needs of all Americans. ■

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## NOTES

- Charland T. Preparing for new growth: 2010 retail clinic market year in review. *Merchant Medicine News*. 2011 Jan 6.
- Howard P. Easy access, quality care: the role for retail health clinics in New York [Internet]. New York (NY): Manhattan Institute for Policy Research; 2011 Feb [cited 2013 Sep 27]. (Medical Progress Report No. 12). Available from: <http://nyshealthfoundation.org/uploads/resources/role-retail-health-clinics-new-york-february-2011.pdf>
- Weinick RM, Burns RM, Mehrotra A. Many emergency department visits could be managed at urgent care centers and retail clinics. *Health Aff (Millwood)*. 2010;29(9):1630-6.
- Mehrotra A, Liu H, Adams JL, Wang MC, Lave JR, Thygeson NM, et al. Comparing costs and quality of care at retail clinics with that of other medical settings for 3 common illnesses. *Ann Intern Med*. 2009; 151(5):321-8.
- Thygeson M, Van Vorst KA, Maciosek MV, Solberg L. Use and costs of care in retail clinics versus traditional care sites. *Health Aff (Millwood)*. 2008;27(5):1283-92.
- Rohrer JE, Angstman KB, Furst JW. Impact of retail walk-in care on early return visits by adult primary care patients: evaluation via triangulation. *Qual Manag Health Care*. 2009;18(1):19-24.
- Deloitte Center for Health Solutions. Retail medical clinics: update and implications—2009 report [Internet]. New York (NY): Deloitte; 2009 [cited 2013 Sep 27]. Available from: [http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us\\_chs\\_RetailClinics\\_111209.pdf](http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_chs_RetailClinics_111209.pdf)
- Wang MC, Ryan G, McGlynn EA, Mehrotra A. Why do patients seek care at retail clinics, and what alternatives did they consider? *Am J Med Qual*. 2010;25(2):128-34.
- Ahmed A, Fincham JE. Physician office vs retail clinic: patient preferences in care seeking for minor illnesses. *Ann Fam Med*. 2010;8(2): 117-23.
- Ahmed A, Fincham JE. Patients' view of retail clinics as a source of primary care: boon for nurse practitioners? *J Am Acad Nurse Pract*. 2011;23(4): 193-9.
- Mehrotra A, Lave JR. Visits to retail clinics grew fourfold from 2007 to 2009, although their share of overall outpatient visits remains low. *Health Aff (Millwood)*. 2012;31(9):2123-9.
- Hunter LP, Weber CE, Morreale AP, Wall JH. Patient satisfaction with retail health clinic care. *J Am Acad Nurse Pract*. 2009;21(10):565-70.
- Kamerow D. Retail health clinics—threat or promise? *BMJ*. 2007; 335(7609):21.
- Future of Family Medicine Project Leadership Committee. The Future of Family Medicine: a collaborative project of the family medicine community. *Ann Fam Med*. 2004; 2(suppl. 1):s3-32.
- Pollack CE, Gidengil C, Mehrotra A. The growth of retail clinics and the medical home: two trends in concert or in conflict? *Health Aff (Millwood)*. 2010;29(5):998-1003.
- Steenhuysen J. AMA to seek probe of retail health clinics. *Reuters* [serial on the Internet]. 2007 Jun 25 [cited 2013 Oct 7]. Available from: <http://www.reuters.com/article/2007/06/26/idUSN2532441820070626>
- Mehrotra A, Wang MC, Lave JR, Adams JL, McGlynn EA. Retail clinics, primary care physicians, and emergency departments: a comparison of patients' visits. *Health Aff (Millwood)*. 2008;27(5):1272-82.
- Sullivan-Marx EM. Lessons learned from advanced practice nursing payment. *Policy Polit Nurs Pract*. 2008;9(2):121-6.
- Rohrer JE, Yapuncich KM, Adamson SC, Angstman KB. Do retail clinics increase early return visits for pediatric patients? *J Am Board Fam Med*. 2008;21(5):475-6.
- Rohrer JE, Garrison GM, Angstman KB. Early return visits by pediatric primary care patients with otitis media: a retail nurse practitioner clinic versus standard medical office care. *Qual Manag Health Care*. 2012;

- 21(1):44-7.
- 21 Rohrer JE, Angstman KB, Garrison G. Early return visits by primary care patients: a retail nurse practitioner clinic versus standard medical office care. *Popul Health Manag.* 2012; 15(4):216-9.
  - 22 Reid RO, Ashwood JS, Friedberg MW, Weber ES, Setodji CM, Mehrotra A. Retail clinic visits and receipt of primary care. *J Gen Intern Med.* 2013;28(4):504-12.
  - 23 Christian S, Dower C, O'Neil E. Overview of nurse practitioner scopes of practice in the United States. San Francisco (CA): University of California, San Francisco, Center for the Health Professions; 2007.
  - 24 National Council of State Boards of Nursing. APRNs in the U.S.: APRN maps [Internet]. Chicago (IL): NCSBN; [updated as of 2012 Jun; cited 2013 Sep 30]. Available from: <https://www.ncsbn.org/2567.htm>
  - 25 Ashwood JS, Reid RO, Setodji CM, Weber E, Gaynor M, Mehrotra A. Trends in retail clinic use among the commercially insured. *Am J Manag Care.* 2011;17(11):e443-8.
  - 26 Pearson LJ. The Pearson Report. *Am J Nurse Pract.* 2009;13(2):8-82.
  - 27 Kern WF, Bland JR. Solid mensuration with proofs. 2nd edition. New York (NY): Wiley; 1948.
  - 28 Weiner JP, Starfield B, Steinwachs DM, Mumford L. Development and application of a population-oriented measure of ambulatory care case-mix. *Med Care.* 1991;29(5):452-72.
  - 29 To access the Appendix, click on the Appendix link in the box to the right of the article online.
  - 30 Newland J. Retail-based clinics a viable resource for primary care. *Nurse Pract.* 2008;33(3):6.
  - 31 Auerbach D. Will the NP workforce grow in the future? New forecasts and implications for healthcare delivery. *Med Care.* 2012;50(7): 606-10.
  - 32 National Center for Health Statistics. Annual number and percent distribution of ambulatory care visits by setting type according to diagnosis group, United States, 2009-2010 [Internet]. Hyattsville (MD): NCHS; [cited 2013 Sep 30]. Available from: [http://www.cdc.gov/nchs/data/ahcd/combined\\_tables/AMC\\_2009-2010\\_combined\\_web\\_table01.pdf](http://www.cdc.gov/nchs/data/ahcd/combined_tables/AMC_2009-2010_combined_web_table01.pdf)
  - 33 Accenture. U.S. retail health clinics expected to double by 2015, according to Accenture [Internet]. Las Vegas (NV): Accenture; 2013 Jun 12 [cited 2013 Sep 30]. Available from: <http://newsroom.accenture.com/news/us-retail-health-clinics-expected-to-double-by-2015-according-to-accenture.htm>
  - 34 Parente ST, Town RJ. The impact of retail clinics on cost, utilization, and welfare. Cambridge (MA): National Bureau of Economic Research; 2010.
  - 35 Horrocks S, Anderson E, Salisbury C. Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *BMJ.* 2002;324(7341): 819-23.
  - 36 Laurant M, Reeves D, Hermens R, Braspenning J, Grol R, Sibbald B. Substitution of doctors by nurses in primary care. *Cochrane Database Syst Rev.* 2005;18(2):CD001271.
  - 37 Newhouse RP, Stanik-Hutt J, White KM, Johantgen M, Bass EB, Zangaro G, et al. Advanced practice nurse outcomes 1990-2008: a systematic review. *Nurs Econ.* 2011;29(5): 230-50.
  - 38 Green LV, Savin S, Lu Y. Primary care physician shortages could be eliminated through use of teams, non-physicians, and electronic communication. *Health Aff (Millwood).* 2013;32(1):11-9.
  - 39 Kaiser Family Foundation, Health Research and Educational Trust. 2012 employer health benefits survey [Internet]. Menlo Park (CA): KFF; 2012 Sep 11 [cited 2013 Sep 30]. Available from: <http://kff.org/report-section/ehbs-2012-section-1/>
  - 40 Heisler EJ. Physician supply and the Affordable Care Act [Internet]. Washington (DC): Congressional Research Service; 2013 Jan 15 [cited 2013 Sep 30]. (Report No. R42029). Available from: [http://assets.opencrs.com/rpts/R42029\\_20130115.pdf](http://assets.opencrs.com/rpts/R42029_20130115.pdf)
  - 41 Institute of Medicine. The future of nursing: leading change, advancing health. Washington (DC): National Academies Press; 2011.
  - 42 Mechanic D. The uncertain future of primary medical care. *Ann Intern Med.* 2009;151(1):66-7.
  - 43 Cooper RA. New directions for nurse practitioners and physician assistants in the era of physician shortages. *Acad Med.* 2007;82(9):827-8.