ROADENING THE SCOPE of primary care practice has different meanings to different observers. For many health care analysts, it means task shifting or task transfer to skilled providers who can manage a wide range of common diagnoses and routine procedures in primary care safely and effectively (Fairman, Rowe, Hassmiller, & Shalala, 2011a; 2011b). The most common recipients of this task shifting are physician assistants (PAs) and nurse practitioners (NPs) (Sibbald, Laurant, & Scott, 2006).

However, while all states regulate the degree of autonomy of PAs and NPs, state laws in select areas of the country still restrict the scope of practice of PAs and NPs. Changing PA and NP scope of practice legislation in Alabama to match states in the upper quartile of collaborative legislation such as Washington and Arizona would increase the employment and distribution of PAs and NPs. Even modest changes in legislation will result in a net savings of $729 million over the 10-year period.

Underutilization of PAs and NPs by restrictive licensure inhibits the cost benefits of increasing the supply of PAs and NPs and reducing the reliance on a stagnant supply of primary care physicians in meeting the needs of its citizens.

EXECUTIVE SUMMARY

“Bending the cost curve” for health care services in the United States challenges policymakers.

A cost analysis was undertaken based on what would occur if more physician assistants (PAs) and nurse practitioners (NPs) per capita were deployed over a 10-year period.

The State of Alabama was used as a case study because it is one of a handful of U.S. states with restrictive legislation impacting the scope of practice of PAs and NPs.

Changing PA and NP scope of practice legislation in Alabama to match states in the upper quartile of collaborative legislation such as Washington and Arizona would increase the employment and distribution of PAs and NPs.

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ROADENING THE SCOPE of primary care practice has different meanings to different observers. For many health care analysts, it means task shifting or task transfer to skilled providers who can manage a wide range of common diagnoses and routine procedures in primary care safely and effectively (Fairman, Rowe, Hassmiller, & Shalala, 2011a; 2011b). The most common recipients of this task shifting are physician assistants (PAs) and nurse practitioners (NPs) (Sibbald, Laurant, & Scott, 2006).

However, while all states regulate the degree of autonomy of PAs and NPs, state laws in select areas of the country still restrict PAs and NPs from practicing to the full extent of their training. In an attempt to model potential cost savings that could result from expanding scope of practice legislation, Alabama was selected as a case study to calculate potential cost savings resulting from expanding the legal scope of these providers. Alabama only recently passed legislation allowing NPs to prescribe Schedule III-V controlled substances and is one of 14 states that still bar PAs from prescribing Schedule II controlled substances. Restrictive legislation can limit the scope of practice and utilization of PAs and NPs. Furthermore, Alabama has the lowest state ratio of physicians to population (206 per 100,000 population) as well as NPs and PAs to population (40 and 8 per 100,000, respectively) of any state (Hooker & Muchow 2014; Kaiser Family Foundation, 2012).

There is evidence that expanding scope of practice for NPs produces more primary care services than in those with restrictive regulations. States with the least-restrictive regulations have a 2.5-fold greater likelihood of patients receiving their primary care from NPs than in the most restrictive states (Kuo, Loresto, Rounds, & Goodwin, 2013).

With fewer medical students

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electing to enter primary care, the future suggests there may be even fewer family medicine physicians available (Petterson et al., 2012). Expanding the role of PAs and NPs via state-based practice policy could be a strategy for addressing the unmet need for primary care, which is growing as coverage expands under the Affordable Care Act (Phillips & Bazemore, 2010).

Increasing evidence suggests efficiency and quality of care are improved when PAs and NPs are added to the primary care team mix (Everett et al., 2013; Roblin, Howard, Ren, & Becker, 2011; Roblin, Howard, Becker, Adams, & Roberts, 2004). For example, a 2009 study by the RAND Corporation noted NPs provide equal quality of care at a lower cost compared to primary care physicians (PCPs), while achieving high levels of patient satisfaction and providing more disease prevention counseling, health education, and health promotion activities than physicians (Eibner, Hussey, Ridgely, & McGlynn, 2009). The combination of high quality and cost effectiveness of PAs and NPs has been echoed in other studies (Chenoweth, Martin, Pankowski, & Raymond, 2005).

Studies also show potential savings from increased use of NPs and PAs (Hansen-Turton, 2005; Martin-Misener, Downe-Wamboldt, Cain, & Girouard, 2009). In 2009, the average cost of an NP visit was 20% less than a visit to a physician. Medicare and Medicaid reimbursement rate for PAs and NPs is 85% of what physicians receive for providing the same services. Due to these lower levels of reimbursement, studies identify that fully utilizing NPs could reduce primary care costs by 20% — an annual national savings of up to $8.75 billion (Florida Coalition of Advanced Practice Nurses, 2008).

The evidence that savings can be realized through greater use of primary care is strong. In one study, people who received primary care had fewer preventable emergency department visits and fewer hospital admissions (O’Malley, Forrest, Politzer, Wulu, & Shi, 2005). Primary care clinicians also perform fewer tests, have lower levels of spending, and are less likely to “over-treat” patients in comparison to specialists. Baicker and Chandra (2004) found that for the Medicare population, “increasing the number of general [primary care] practitioners in a state by 1 per 10,000 population (while decreasing the number of specialists to hold constant the total number of physicians) is associated with a rise in that state’s quality rank of more than 10 places as well as a reduction in overall spending of $684 per beneficiary” (pp. w4-192). More so, “the estimated effect of increasing the fraction of specialists by 1 per 10,000 is a drop in overall quality rank of almost 9 places and an increase in spending of $526 per beneficiary” (Baicker & Chandra, 2004). However, a follow-up analysis argued quality is better in states with more physicians, both specialists and family physicians. Access depends on total physician supply, irrespective of specialty. Population density, per capita income, and regional factors all influence this relationship (Cooper, 2009).

To address the unmet need for primary care and simulate change in the supply of PAs and NPs, an estimated effect of enacting legislation proposed by the American Academy of Physician Assistants and the National Council of State Boards of Nursing was undertaken. The legislation is modeled after PA and NP practice legislation in place in a number of states as of 2013. The model legislation is as follows:

For PA model enabling legislation, changes include the following conditions:

1. When applying for licensure, PAs no longer need to include a signed form by a supervising physician.
2. PAs can carry out or sign a prescription drug order for schedule II-V controlled substances, with some limitations.
3. Constant physician presence is not required; scope of practice broadens under the delegation of a supervising physician.

For NP model enabling legislation, key changes include the following stipulations:

1. Scope of practice broadens and includes diagnosing without physician involvement or documentation.
2. All NPs are authorized to diagnose, institute therapy or referrals, and prescribe schedule II-V controlled substances.
   - The objectives of this aggregated model of PA and NP enabling legislation are:
     - To provide improved access to entry level health services.
     - To permit greater delegation to inter-professional teams.
     - To permit semi-autonomy of PAs and NPs, which will enable increased deployment of primary care practitioners in all areas of the state.

**Method**

To simulate the change in the supply of PAs and NPs by modifying the scope of practice legislation, this study assumed the PA and NP to PCP ratio would increase from the 2012 rate of approximately 51 PAs and NPs per 100 PCPs to 110 by 2022. Figure 1 is a graph of primary care provider supply in Alabama in 2013, projected out to 2022 using growth rates pulled from an internal The Lewin Group/National Center for Health Workforce Analysis study conducted in 2011 for the Health Resources and Services Administration. (For purposes of this study, PCPs are identified as PAs, NPs, and physicians specializing in general internal medicine, family medicine, general pediatrics, or internal medicine with a pediatric focus.) Physician assistant growth year-over-year sits at
11.9% and is significant compared to the projected 2.6% growth in NPs and 0.19% growth in PCPs. Under existing legislation in Alabama, we estimate total primary care provider growth to be roughly 1.6% over the next 10 years.

As of 2013, PAs and NPs make up 33.6% of total primary care providers in Alabama (see Table 1). This ratio is low compared to states with more enabling legislation governing the scope of practice of PAs and NPs. For example, the PA and NP workforce in Arizona and Washington, two states with legislation meeting the standards highlighted earlier, make up 44.3% and 42.4% of primary care providers, respectively.

To evaluate the effect that a change in scope of practice legislation would have on the primary care provider makeup and related expenditures, the demand for primary care services is assumed to be equal to the total number of visits provided by PCPs in the state. To estimate annual demand, the Medical Group Management Association (MGMA) Physician Compensation and Productivity Survey is used to calculate ambulatory and hospital visits provided by PCPs, PAs, and NPs. A summary of the mean number of visits seen by each provider annually is shown in Table 2. Also reported are annual compensation figures observed in the Southern census region reported in the MGMA data. These figures are used as a baseline to project total primary care demand and to estimate the

![Figure 1. Primary Care Provider Supply Projections, 2013-2022](image)

![Table 1. Current Primary Care Provider Supply Projections in Alabama, 2013-2022](table)
costs associated with these visits. Calculations and methods are discussed in the results section.

Results

This analysis assumes the changing composition of primary care providers in Alabama would result in savings generated by the decrease in compensating expenditures per primary care visit. The first step is to identify an annual estimate of total primary care expenditures observed in the state. This total was calculated using provider supply, observed visits by primary care provider type, and the compensation-to-visit ratio calculated for each provider. A snapshot of estimated primary care expenditures in Alabama’s current regulatory environment is shown in Table 3. Total primary care expenditures over the 10-year period from 2013 to 2022 total $17.1 billion.

Assuming Alabama implemented model legislation in 2013, a PA/NP-to-PCP ratio to Alabama’s forecasted primary care provider supply that matches the composite ratio observed in Washington and Arizona is shown in Table 4. Both Washington and Arizona have PA and NP scope of practice legislation in place similar to the model legislation proposed. Furthermore, Arizona has similar population demographics to Alabama and Washington and shares comparable population density characteristics. Next is to use the PA/NP-to-total primary care provider ratio, rather than the PA/NP to PCP ratio, to hold constant the forecasted supply of PCPs. The model does not assume the enactment of model legislation will have a substitution effect (e.g., PA/NPs offsetting physicians); instead, the assumption is that the overall number of primary care providers would increase as PAs and NPs opt to practice in Alabama due to less-restrictive scope of practice laws. These projections work under the postulation legislative reform enacted in 2013 would have a year lag before impacting overall PCP supply. Therefore, 2013 estimates are held constant at current levels and changes to the provider mix and overall supply begin to take effect in 2014. (This assumed lag is also present in our 2014 and 2015 PA/NP calculations. The analysis assumes a build up to the composite Washington/Arizona ratios and set 2014 PA/NP supply at 80% of the Washington/Arizona ratio and set 2015 supply at 90% to account for lags in response to legislative reform.) The changing composition of primary care providers in Alabama would result in savings of $729 million over 10 years.

Table 2:
Average Annual Visits and Compensation by Primary Care Provider, 2013

<table>
<thead>
<tr>
<th></th>
<th>Visits</th>
<th>Median Compensation</th>
<th>Compensation to Visit Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA and NP</td>
<td>2,863</td>
<td>$101,915.62</td>
<td>$35.50</td>
</tr>
<tr>
<td>PCP</td>
<td>4,524</td>
<td>$263,105.49</td>
<td>$58.16</td>
</tr>
</tbody>
</table>

SOURCE: MGMA 2011 (based on 2010 data) projected to 2013

NOTE: For purposes of this study, visit and compensation averages for the following providers were used to calculate a weighted mean based on survey response: PCPs include a composite of general internal medicine, family medicine (without OB), pediatrics, and internal medicine with a pediatric focus; NPs consist of a composite of primary care, pediatric, internal medicine, and family practice (without OB); and PAs include a composite of primary care, family practice (without OB), internal medicine, and pediatric PAs. Visit data were held constant at the observed 2010 average for each provider. Compensation was increased annually at a rate of 4.5%, assuming 2.5% inflation and an additional 2% increase per year for each provider.

Table 3:
Total Primary Care Expenditures under Current Legislation, 2013-2022

<table>
<thead>
<tr>
<th>Compensation/Visit Ratio</th>
<th>2013</th>
<th>2017</th>
<th>2022</th>
<th>10-Year Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA/NP</td>
<td>$35.50</td>
<td>$41.86</td>
<td>$51.33</td>
<td></td>
</tr>
<tr>
<td>PCP</td>
<td>$58.16</td>
<td>$69.36</td>
<td>$86.43</td>
<td></td>
</tr>
<tr>
<td>Total Primary Care Visits</td>
<td>26,478,864</td>
<td>27,804,951</td>
<td>29,926,024</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ratio of Provider to Total Primary Care Provider Supply under Current Legislation</th>
<th>2013</th>
<th>2017</th>
<th>2022</th>
<th>10-Year Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA/NP</td>
<td>0.336</td>
<td>0.369</td>
<td>0.416</td>
<td></td>
</tr>
<tr>
<td>PCP</td>
<td>0.664</td>
<td>0.631</td>
<td>0.584</td>
<td></td>
</tr>
<tr>
<td>Estimated Annual Expenditures</td>
<td>$1,338,265,833</td>
<td>$1,646,112,846</td>
<td>$2,149,498,957</td>
<td>$17,118,139,059</td>
</tr>
</tbody>
</table>
Figure 2. These savings reflect the difference in total costs related to the compensating expenditures of primary care visits delivered by PCPs, NPs, and PAs.

Discussion

This simulation of increasing primary care provider supply suggests significant health care savings could be realized in Alabama by a small policy change. Implementation of improved PA and NP practice legislation (as seen in Washington and Arizona) could increase the PA/NP-to-primary care provider ratio from the 2013 rate of almost 34 PA/NPs for every 100 primary care providers to 53 for every 100 in 2022. This shift could result in net savings of at least $729 million over the 10-year period. The legislation would apply to all Alabama residents regardless of payer source. This means all payers could potentially see savings under the legislation.

A key assumption for this policy option is that Alabama will experience PA/NP to PCP ratio increases similar to Washington and Arizona’s, if proposed model legislation had been implemented in 2013. Improved state legislation has been noted as an influencing effect on deployment of PAs and NPs for 2 decades (Emelio, 1993; Kuo et al., 2013). Given the population demographics and population density characteristics are similar and the proposed policy option is modeled after that of Washington and Arizona, we cite this as the best reference point for determining change.

A second key assumption is that savings resulting from increasing the percent of PA/NP composing total primary care providers will parallel the lower compensation-to-visit ratio of primary care PAs and NPs compared to that seen among PCPs. In this scenario there is an increase in the overall number of primary care providers by (a) recognizing the increase in the number of physicians that would occur over the 10-year period, and (b) projecting an increase in the number of PAs and NPs who would practice in the state due to expanded scope of practice legislation. This increase reflected one of the goals of the scenario, which was to decrease the amount of unmet need for primary care in Alabama.

The third assumption is that PAs and NPs are fungible in the delivery of primary care services – exchangeable in roles, productivity, and compensation. This assumption is evidenced in the Veterans Health Administration (VHA), and in community health centers (Hing, Hooker, & Ashman, 2010; Hing & Hooker, 2011; Morgan, Everett, & Hing, 2014).

Strengths and Limitations

This study is strengthened by mounting experience that NPs and PAs are increasingly present in a multitude of primary care settings including private physician offices, Federally Qualified Health Centers, VHA medical centers, as well as rural hospital clinics (Hing et al., 2010; Hing & Hooker, 2011; Hooker, Benitez, Coplan, &

| Table 4. Impact of Proposed PA/NP Practice Enabling Legislation, 2013-2022 |
|-----------------|-------|-------|-------|-------|
|                  | 2013  | 2017  | 2022  | Total |
| **Ratio of PA/NPs to PCPs in States with PA/NP Practice Enabling Legislation** |       |       |       |       |
| PA/NP to PCP     | 0.764 | 0.898 | 1.105 |       |
| **Increase in the Number of PA/NPs under Proposed Legislation** |       |       |       |       |
| PA/NP Increase   | 0†    | 1,396 | 1,769 |       |
| **Projected Supply of Primary Care Providers in Alabama under Proposed Legislation** |       |       |       |       |
| PA/NP            | 2,244 | 4,011 | 4,985 |       |
| PCP              | 4,429 | 4,466 | 4,513 |       |
| **Ratio of Provider to Total Primary Care Provider Supply under Proposed Legislation** |       |       |       |       |
| PA/NP            | 0.336 | 0.473 | 0.525 |       |
| PCP              | 0.664 | 0.527 | 0.475 |       |
| **Estimated Annual Expenditures** |       |       |       |       |
| $1,338,265,833   | $1,566,721,920 | $2,035,278,914 | $16,388,690,904 |
| **Total Savings‡** | -     | $79,390,926 | $114,220,042 | $729,448,155 |

†2013 estimates are held constant; change to the provider mix and overall supply take effect in 2014
‡Total savings represent the difference between total expenditures under current legislation and total expenditures under proposed legislation
Dehn, 2013; Morgan, Abbott, McNeil, & Fisher, 2012; Morgan et al., 2014). Their role in team-centered care appears to improve quality of care (Everett 2013; Roblin et al., 2004; Roblin et al., 2011). After a half-century of deployment, Americans are experienced with PAs and NPs and are willing to accept them as their care providers (Dill, Pankow, Erikson, & Shipman, 2013).

There are limitations to these findings. First, these analyses are based on health professions shortage areas in Alabama, and an optimal primary care panel size of 2,000. Regional PCP shortages can be attributable to variations in physician supply relative to the population in a given area. Second, the projections point to a future in which the primary care provider supply is adequate in the aggregate but shortages may persist in certain areas, delivery services may vary, and new technology may change care delivery patterns. Third, annual cost estimates rely on provider visit averages and annual compensation metrics observed in the MGMA file as well as estimates of primary care providers pulled from the Optum proprietary Provider 360 Database and the American Medical Association Masterfile. This simulation assumes linear growth in primary care provider supply and does not vary compensation ratios to reflect dissimilar provider work and pay structures. Fourth, the use of Arizona and Washington provider ratios to model changes in Alabama’s primary care provider workforce is based on the assumption Alabama’s health market will adjust to reflect a similar PA/NP makeup under more enabling legislation. As such, this exercise and the resulting projections are exploratory and subject to significant variation.

Conclusion

Primary care is an essential determinant of health system equity, efficiency, and effectiveness (Starfield, Shi, & Macinko, 2005). While PAs and NPs in primary care may be managing slightly less-complex patients as physicians, they are similar in regard to patient and encounter characteristics (Everett, Schumacher, Wright, & Smith, 2009; Hing et al., 2010; Hing & Hooker, 2011; Morgan et al., 2014).

The premise is that if states were to adopt policies that broadened the scope of practice, then supply and distribution of PAs and NPs per capita could increase. A larger cadre of PAs and NPs would improve access to care and decrease over-utilization of expensive emergency services. Even a modest expansion in scope of practice legislation that fits with the experience of other states and improves the deployment of NPs and PAs in Alabama would result in savings of $729 million from 2013 to 2022.
In 2013, 34% of Alabamans lived in a primary care health professional shortage area. Shortages can, to a great extent, be offset by the use of PAs and NPs. The fundamental of this research is that an economic modeling of cost savings with different sets of providers may make the results useful to policymakers, practitioners, and users of health care services. In doing so, the intent was to consider the advantages and limitations of the approach and suggest more empirical research and a wider debate exploring the role of PAs and NPs in state-level primary care health service delivery needs to be undertaken.

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