ARIZONA'S PHYSICIAN SHORTAGE:
Monitoring Rural Physician Retention and Relocation

Arizona has a shortage of 560 primary care physicians (PCPs) and will require an additional 1,941 by 2030 as due to population increases, higher rates of chronic disease and aging.[1-2] Physician supply is unevenly distributed between rural and urban areas within the state, and these disparities are growing.[3] Accurately predicting future physician supply and demand is critical to ensuring Arizonans meet their healthcare needs in the future. Critical indicators of physician workforce capacity are given below.

INDICATORS

Background

- **Younger physicians**, those born in **metropolitan areas** and **female physicians** are less likely to go into rural practice.[4-6]
- Medical students or Residents who grew up in a rural area are up to 4 times as likely to practice in a rural setting.[6]

Physician Age

- In a healthy workforce, **approximately 25% of physicians should be 56 years of age or older**.[7] Areas wherethis proportion is significantly greater than physicians less than 39 years old suggests retiring physicians will cause a gap in service.[7,8]
- The AMA Masterfile can be inaccurate in determining whether a physician is active or retired, and the Current Population Survey is limited in value because it provides retirement rates for all licensed professionals, which includes lawyers, accountants, etc.[9] Directly surveying physicians of their intent to retire provides greatest accuracy. **Of physicians who say they will stay at their practice location, approximately 80% stay**.[10]

Education

- **Attending Undergraduate (UME)** or **Graduate Medical Education (GME)** in-state can predict future practice in Arizona, though GME may be more predictive (42-55% retention).[11,12] North Carolina reported a 67% retention rate for who completed both UME and GME in the same state.[11]
- Physicians who are part of a specific rural training cohort during their UME are significantly more likely to practice in a rural setting than their peers.[13]
- **Physicians are likely to practice near where they complete residency**, yet 96% of the state's GME slots areconcentrated in Maricopa and Pima Counties.[14,15] **Residency matches within the state today can predict physician supply in 10 years**.[7,16]
- "One-Two" residency programs—one year in an urban, academic hospital followed by two years in a rural area are effective in rural recruitment, while providing the amenities of academic residency programs centered around large, academic hospitals.[7,12,14]
- The literature is unclear as to whether scholarships and loan repayment programs offered to incentivize rural practice are effective in retaining physicians, or if they are a recruitment tool only.[17] Some programs have shown retention success. The **National Health Service Corps (NHSC) reports greater than 81% of recent participants remained in rural areas** after completion of their service agreements, suggesting such programs could be effective.[18]

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Structural Factors

- Counties with no hospital and low PCP supply see higher rates of attrition, suggesting that physician support networks are critical.[5]
- The increased autonomy of non-physician providers (NPPs) may negatively impact the supply of primary care physicians in the state, as physicians may view specialist positions as more secure.[4]

RECOMMENDATIONS FOR EFFECTIVE PHYSICIAN SURVEYS

In 2018, legislation was passed to create the state's first centralized Health Professionals Workforce Database. The Workforce Database survey already collects relevant indicators such as intent to retire, gender, and whether or not the respondent is a primary care provider. Below are recommendations to expand on these efforts.

Recommendation #1: Add Questions on Medical Training to the Workforce Database Survey

To provide a better understanding of recruitment and retention efforts, the survey should be expanded to include:

1. **Site of Undergraduate Medical Education** (Medical School)
2. **Site of Graduate Medical Education**
3. **Specialty**
4. Participation in **National Health Service Corps, PCP Scholarship, State Loan Repayment Programs**, or **other loan repayment program.**

Recommendation #2: Consider the Effect of Commutes on Physician Relocation

It may be worthwhile to **collect the zip code of healthcare professionals' primary residence** as well. Literature on commute length as it relates to retention rates is lacking, and this data point may also serve as a proxy forcommunity integration.

Recommendation #3: Mailing Surveys Saves Personnel Resources

Phone and personal interview surveys were not statistically more likely to increase response rates over mailed surveys.[19] Printed, mailed surveys can be an effective way to save time and expenses associated with in-person interviews.

Recommendation #4: Use Only Stamped Mail

Mailed surveys should be sent in stamped, non-metered envelopes.[19,20] Varying the color and shape of envelope may also increase response rates, as it is less likely to be perceived as junk mail.[21]

Recommendation #5: Use Pre-Paid Incentives to Capture Non-Respondents

Inclusion of small, $1-5 **prepaid incentives with the survey can dramatically increase response rates** of initial non-respondents.[19,20] Promissory incentives, such as raffles or checks mailed for returned surveys, do not increase response rates.[19,22]

Recommendation #6: Collect Purposive Samples from Rural Physicians

Identify rural physicians based on their reported zip codes in the State Healthcare Professionals Workforce Database and ask rural physicians for their interest in preceptor opportunities. Use open-ended questions to evaluate how best to support teaching opportunities in rural areas to increase medical student exposure.

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