

# RURAL HEALTHCARE WORKFORCE A SYSTEMATIC REVIEW

Los Angeles Evidence-based  
Synthesis Program (ESP) Center  
West Los Angeles VA Medical Center

# Acknowledgements

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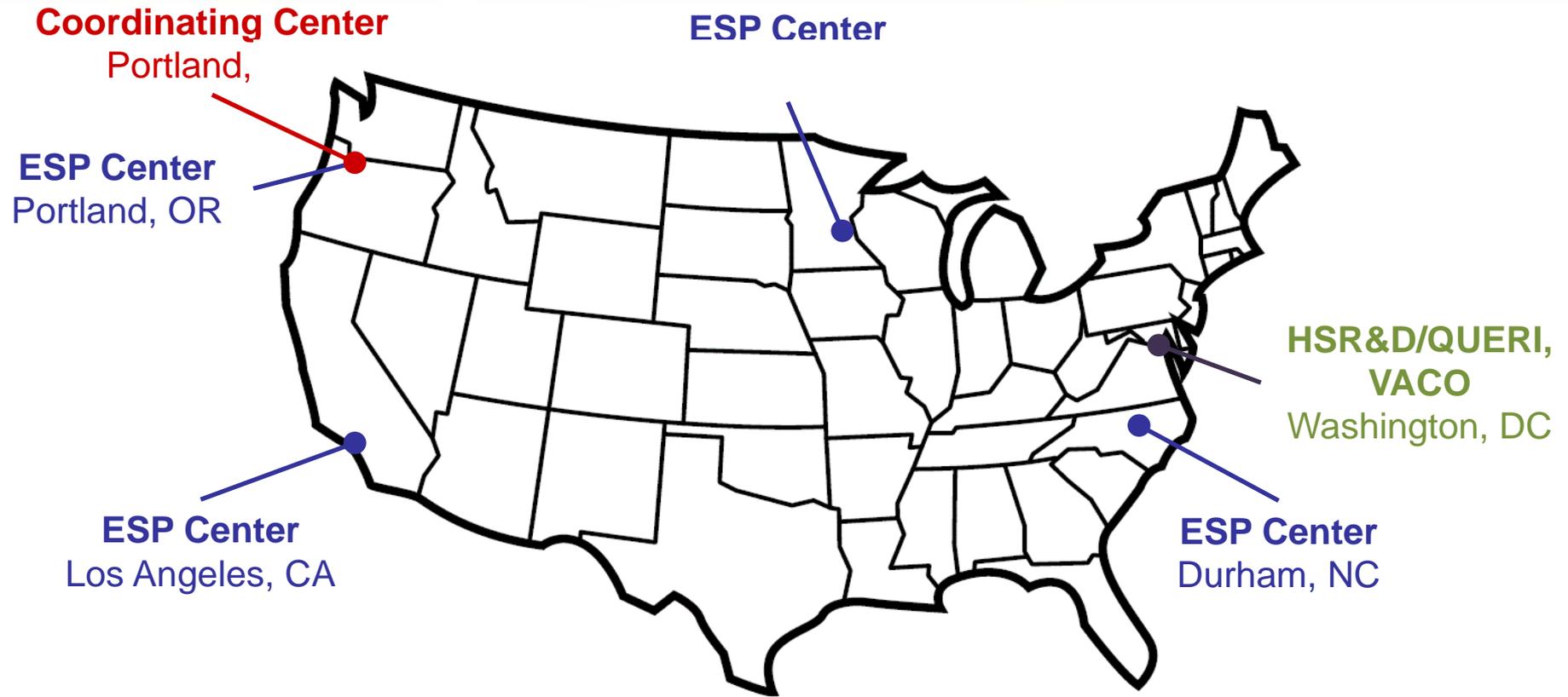
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# Disclosure

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# VA Evidence-based Synthesis Program (ESP) Overview

- Sponsored by VA Office of Research and Development and the Quality Enhancement Research Initiative (QUERI)
- Established to provide timely and accurate syntheses/reviews of healthcare topics identified by VA clinicians, managers, and policy-makers, as they work to improve the health and healthcare of Veterans.
- Reports conducted by internationally recognized VA clinician methodologists
- Builds on staff and expertise already in place at the Evidence-based Practice Centers (EPC) designated by AHRQ. Four of these EPCs are also ESP Centers, as shown on the following map.



# VA Evidence-based Synthesis Program (ESP) Overview

- Provides evidence syntheses on important clinical practice topics relevant to Veterans. These reports help:
  - develop clinical policies informed by evidence;
  - the implementation of effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures; and
  - guide the direction of future research to address gaps in clinical knowledge.
- Broad topic nomination process – *eg*, VACO, VISNs, field staff – facilitated by the ESP Coordinating Center (Portland) through an online process:

<http://www.hsrd.research.va.gov/publications/esp/TopicNominationForm.pdf>

**Current report**

# **RURAL HEALTHCARE WORKFORCE: A SYSTEMATIC REVIEW**

(December 2015)

Full-length report available on ESP website:

<http://www.hsrd.research.va.gov/publications/esp/reports.cfm>

# Background

- ~ 20% of the US total population lives in rural areas
  - ~1/3 of the VA enrolled population
- Rural areas are underserved regarding healthcare access
- ESP topic nomination
  - Office of Rural Health
  - Primary Care Services
  - VHA Healthcare Talent Management Office
  - Office of Academic Affiliations

# Background

- The complexity of rural healthcare provision requires
  - Systematic evaluation of individual contributing factors
- We conducted a systematic review of the current literature
- ESP topic nomination
  - To collect empirical evidence
  - To quantify healthcare provider needs
  - In the context of today's rural environment
  - In the context of ongoing efforts to improve access
  - To identify approaches that are applicable to US settings

# Key Questions

1. What are the current versus projected healthcare provider needs by numbers and disciplines in rural areas?
2. What factors influence healthcare providers' geographic choices for practice?
3. What interventions have been shown to increase rural healthcare provider recruitment?
4. What interventions have been shown to increase rural healthcare provider retention?
5. What is the efficacy of rural-specific resident and healthcare profession student training efforts?

# Methods

- Sources
  - PubMed, CINAHL, Web of Science, SCOPUS, PsycINFO, ERIC, WordCat, Grey Literature Report searched in February 2015
  - Online resources [www.raconline.org](http://www.raconline.org), <http://bhpr.hrsa.gov/healthworkforce>, [www.ruralhealthresearch.org](http://www.ruralhealthresearch.org)
  - Reference mining and consulted with experts
- Inclusion criteria
  - Physicians, nurse practitioners, physician assistants; rural health clinic staff
  - Practicing in rural areas in 2005 or more recent
  - US settings
- Results
  - 5,756 citations screened
  - 446 obtained as full text
  - 59 studies met inclusion criteria

## KQ 1: Provider Need – Evidence Base

- 11 US studies quantified need, reported on rural and urban regions
  - 2 primary care provider, 2 psychiatrist and mental health professional, 2 general surgeon, 1 Ob-Gyn, 1 psychiatric mental health APRN studies
  - 3 studies predicted future healthcare provider demand
- Defined and reported on *need*
  - E.g. vacancy rates, benchmarks, patient-provider ratios, HRSA-designated shortage area
- Studies used employer surveys, state or national provider-specific records, national provider membership rosters, existing datasets
- Estimates for specific provider types, time periods, geographic regions

## KQ 1: Provider Need - Findings

- All included studies report current unmet healthcare provider needs that worsen with increasing rurality
  - Isolated rural areas have 1/4 ratio of primary care physicians per capita compared to urban areas
  - 77% of US counties have severe shortage of psychiatrists, rurality and per capita income were best predictors of unmet need
  - 449 additional general surgeons required in 2012 in Texas counties to keep up with population increase
- Studies predicted future unmet provider needs for rural healthcare
  - ~1700 additional primary care physicians needed in Kentucky by 2020
  - Assuming 2.5% attrition, board-certified EP supply would satisfy workforce needs in 2038; worst-case scenario: supply will never meet demand
  - Rural hospitals need to recruit (on average) 1 full-time surgeon about every 3 years from 2011-2030 to meet demand and compete with urban hospitals

## KQ 2: Provider Geographic Choices – Evidence Base

- 24 quantitative and qualitative studies
  - Assessed strength of association
- Exploring reasons in interviews and surveys or identifying predictors of the choice of practice location in empirical datasets
  - Provider characteristics: proxy for rural background, gender, family, age, marital status, race/ethnicity, international medical graduate, exposure
  - Training history: rural rotation in training or residency, primary care and family medicine focus, osteopathic degree
  - Financial aspects: student loan or scholarship, salary
  - Setting characteristics: scope of practice, recreation activities, lifestyle
- Few multivariate analyses to estimate the relative importance of factors

## KQ 2: Provider Geographic Choices – Findings

- Rural background showed overwhelming positive association with choice to practice in rural area
  - 17 studies assessed rural background of providers
  - Statistically significant association with ‘rural high school’ and ‘being raised in rural area’ predictor variables in 2 multivariate analyses
    - However, majority of rural providers did not grow up in small town
- Rural tracks or rotations as part of healthcare provider training also appear to increase the likelihood of practicing in a rural community
  - 11 studies assessed the variable, 7 reported a positive association
  - Statistically significant association of rural residency training in multivariate analysis controlling for rural upbringing and rural programs increase odds in addition to being raised in a rural community
- Conflicting evidence in particular for
  - Gender (8 studies), marital status (3 studies), international medical graduate (2 studies), student loan (6 studies), salary (5 studies), scope of practice (5 studies)

## KQ 3: Recruitment Interventions – Evidence Base

- 5 evaluations
  - Poorly reported
- Assessed J-1 visa waiver program and state-wide loan forgiveness or supplemental funding programs
  - Survey data or program evaluations
  - Response rate 55-80%
  - All rated as high risk of selection bias
- All post-only study design
  - No concurrent or historic comparator to compare effectiveness

## KQ 3: Recruitment Interventions – Findings

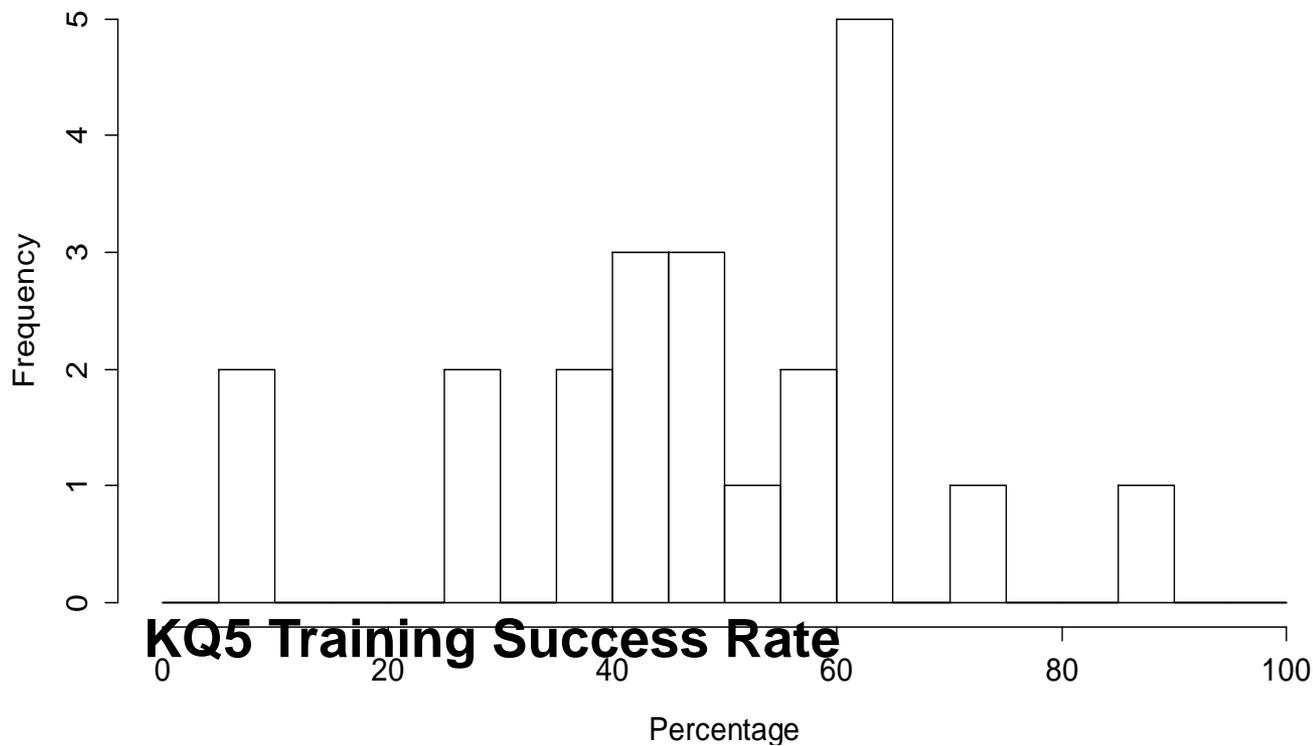
- A J-1 visa program evaluation reported that 37% of program recipients completed their obligations in rural areas
- Across 3 loan repayment evaluations, 80 to 86% of surveyed respondents continued medical practice in rural areas after completing their service obligation
  - Duration only specified in 1 study (at least 1 additional year)
- 1 study highlighted 74% of recipients were already working in or intended to work in an eligible community when they were made aware of the loan repayment program

## KQ 4: Retention Interventions – Evidence Base

- 0 studies
  - We identified no study that evaluated the effectiveness of an intervention that was exclusively directed at retaining fully-trained providers practicing in US rural healthcare

## KQ 5: Provider Training Approaches – Evidence Base

- 23 included studies
- Evaluations of training programs for healthcare providers in training
  - All included studies reported on medical students or residents
- 15 evaluated training programs at a single institution
  - Training capacity ranged from 2 to 60 trainees per year
- 8 reported data across multiple training institutions
- Primary outcome: practicing in rural communities after training completion



% recruited to rural healthcare

## KQ 5: Provider Training Approaches – Findings

- Across approaches, median success rate 53%
  - 20 studies reporting on % trainees choosing rural practice
  - Mean 49%
- Reported success rate varied from 7 to 86%
  - Most studies reported results between 35 and 65%
- We identified no systematic differences between approaches
  - Similar results when restricting to medical resident programs or stratifying by duration of cumulative rural training time
  - 1 study reported on rural programs with preferential admission of students likely to practice in rural areas and a required rural curriculum (success rate 63%)

# Future research

- More empirical data quantifying shortages
  - Predictions need to take e.g. changing demographics into account
- Multivariate analyses predicting the choice of geographic practice
  - To determine the relative importance of individual factors
- Research studies evaluating the effectiveness of interventions to recruit fully-trained healthcare providers
  - Visa programs, loan forgiveness programs, financial incentives
- Research studies evaluating interventions to retain healthcare providers
  - Ongoing support and education, professional networks, telehealth innovations for providers to facilitate collaborative care
- Analyses identifying factors affecting success rates of training programs
  - Format, location of training institution, duration of rural rotation

## More Information

### ESP Program

<http://www.hsrd.research.va.gov/publications/esp>

### Office of Rural Health

<http://www.ruralhealth.va.gov/>

### Office of Academic Affiliations

<http://www.va.gov/oaa/>

## Discussion

# Questions?

If you have further questions, please feel free to contact:

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Full-length report and cyberseminar available on ESP website:

<http://www.hsrd.research.va.gov/publications/esp/>