Measuring the Commitment of Health Professions Schools to Rural Primary Care

Collaborative for Rural Primary care Research, Education, and Practice (Rural PREP)

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Background

- A body of research identifies various predictors of rural or primary care practice (person, program, place)
- Study purpose: explore indicators of medical school commitment to rural primary care by identifying:
  1) schools' output of ***rural primary care*** physicians
  2) organizational and educational factors that predict rural primary care output
     - ***Compare multiple factors with statistical controls***

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Methods

- ✓ Determine rural primary care output
  - 146 schools (osteopathic and allopathic)
  - 2001-10 graduates in AMA Physician Masterfile
  - Rural-Urban Commuting Area codes
- ✓ Identify rurally relevant school characteristics from Web searches, literature, other public sources
  (e.g., mission, faculty, rural programs, scholarly output, etc.)
- ✓ Conduct multivariate analysis (logistic regression) of relationships between school characteristics and output
  - Outcome: proportion of graduates in rural primary care practice (top 20% of schools vs. bottom 80%)

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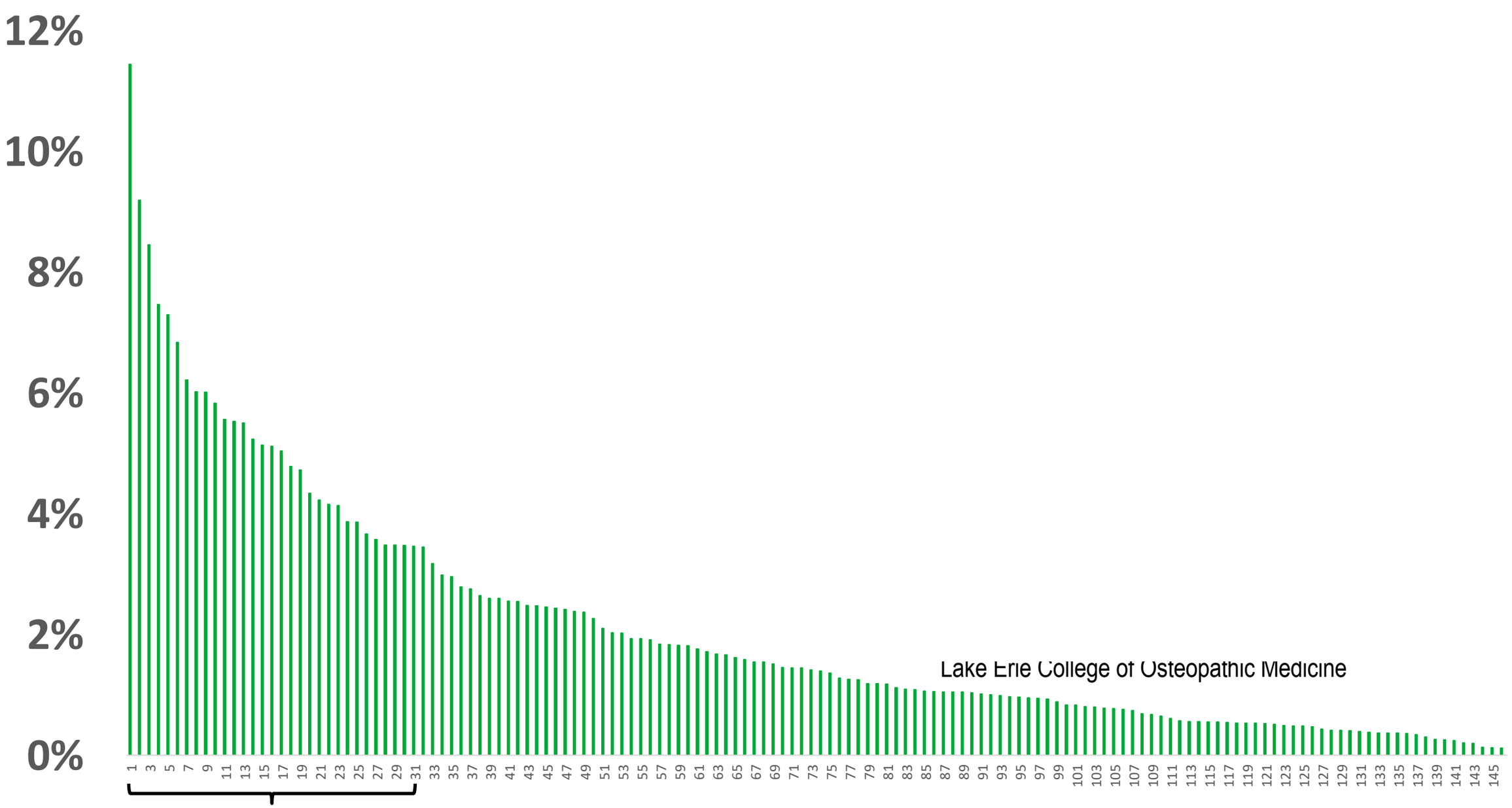
% of Graduates in Rural Primary Care Practice



Top 20% of schools: 3.5% to 11.4% of graduates

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Significant associations with rural primary care output

Potential predictors of % of grads in rural primary care practice	
(significant **bivariate** associations shaded in **green**)	**Value (all schools)**
+ Publicly funded	55.8%
Multiple campuses	34.0%
+ Rural program†	24.5%
Rural curricula	23.8%
+ Rural faculty titles	20.4%
+ Rural leadership titles	20.4%
+ Osteopathic	17.0%
+ Rural clinical experiences	17.0%
Admissions preference - rural interest/intent	10.1%
Admissions preference - rural background	8.2%
+ Stated rural mission	6.8%
Pipeline program - rural students/interest	6.1%
+ Rural location (RUCAs)	4.1%
In-state matriculants	61.5% (median)
- NIH research funding, annual	$7.4 million (median)
+ Rural scholarly output, papers 2000-17‡	1 (median)

†E.g., track, pathway, certificate, longitudinal integrated clerkship, campus

‡Peer-reviewed papers on U.S. ***rural*** primary care, health professions, or population health

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4 significant predictors correctly classified **84.8%*** of schools (top 20% production or not)

Predictor	**Relative risk (CI)**	
Osteopathic	4.79	(2.68-5.82)
Rural location	4.18	(1.30-5.18)
Public	2.68	(1.06-4.59)
Rural scholarly output	1.29 (OR)	(1.11-1.49)

*Concordant: 84.8%; Tied: 4.5%; Discordant: 10.7%

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First thoughts….

- To produce more rural primary care physicians, must we…
  - …**build more schools** that are osteopathic, rural, and public? (long-term investment)
  - …**publish more** rurally relevant papers? (intermediate-term investment)

- What about rurally-oriented infrastructure within the control of the school?

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What characteristics are associated with these 4 predictors?

Variable	Multivariate predictors of top 20% of schools (% of graduates in rural primary care)			
	Osteopathic	**Rural location**	**Publicly funded**	**Rural scholarly output‡**
Rural program†		+	+	+
Rural faculty titles		+	+	+
Rural leadership titles		+	+	+
Stated rural mission	+	+		
Publicly funded	+			+
Multiple campuses			+	+
Rural pipeline program			+	
Osteopathic				-

†E.g., track, pathway, certificate, longitudinal integrated clerkship, campus

‡Peer-reviewed papers 2000-17 on U.S. ***rural*** primary care, health professions, or population health

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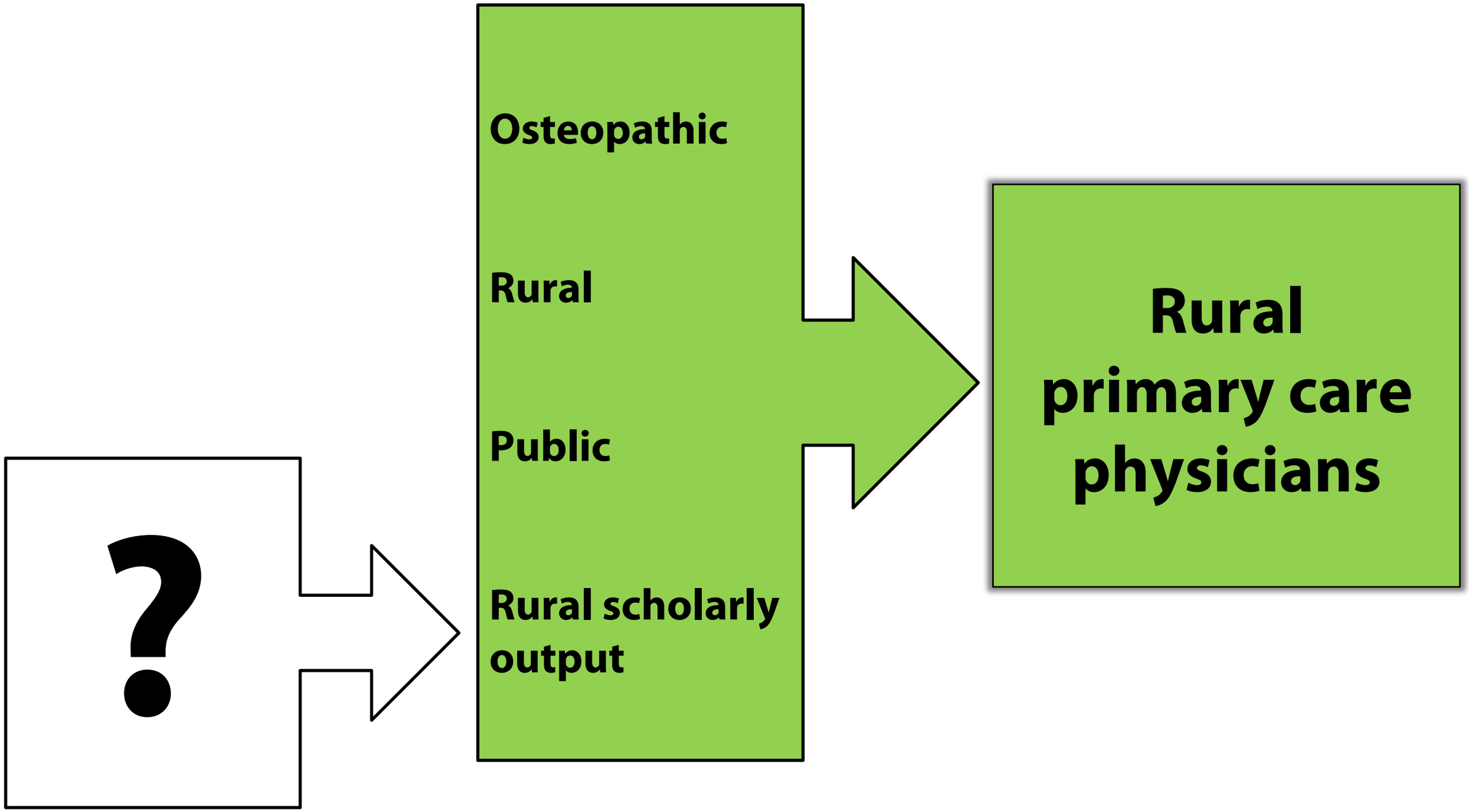
What predicts rural scholarly output?



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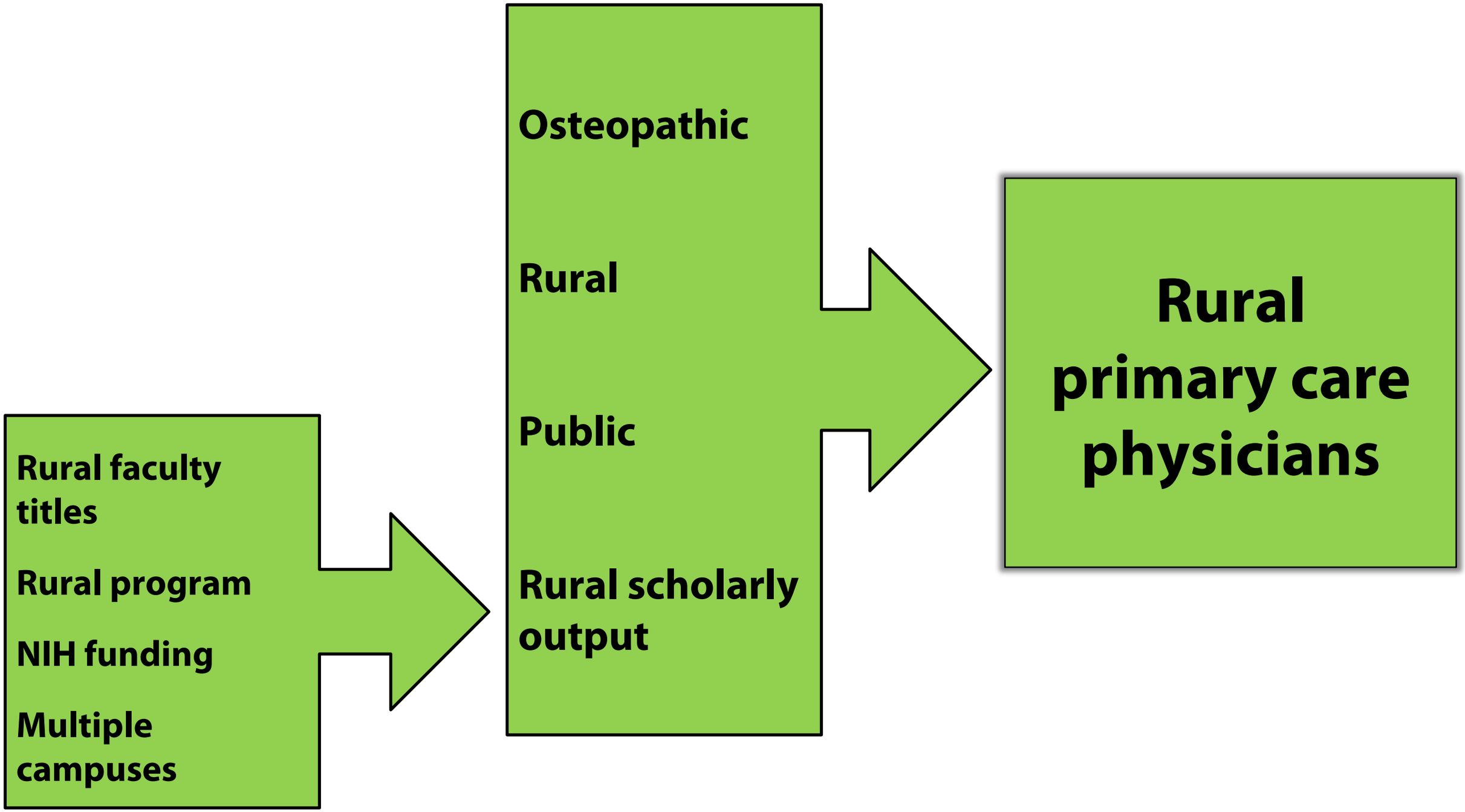
What predicts rural scholarly output?



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Limitations

- Measuring content of practice and rural location are imprecise with AMA Physician Masterfile specialty designations and geographic information.
- Information gathered from the Web may be incomplete.
- We collected data on school characteristics in 2017 to explain practice choices of 2001-10 graduates.
  - Our 4 key predictors are contemporaneous with the 2001-10 period.
  - However, other characteristics may have changed over time: could partially explain why they were less predictive of rural primary care practice in this sample.

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Implications

- Key predictors of rural primary care practice include
  - fixed characteristics of medical schools (osteopathic, rural, public)
  - factors within a school's control to change
- Educational investments to support production of rural primary care physicians could be effectively tailored to region/state/local/school constraints and opportunities:
  - Invest in new osteopathic, public, and rural schools.
  - Existing schools should invest in rurally-oriented infrastructure.

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Thank you!

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Discussion question

- How can we engage stakeholders in conversations about these findings for maximum impact?

  (i.e., target audiences, goals, messages, and format/methods)

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Addendum Slides

Candidates for intervention? (schools just below the top 20%)

- Osteopathic, rural, public (1):
  - Ohio U HCOM
- Osteopathic, urban, public (2):
  - E.g., U of North Texas Health Science Center, TCOM
- Allopathic, urban, high rural scholarly output (18):
  - U of Wisconsin
  - U of Missouri
  - West Virginia U
  - etc.

What is a Rural Program?

Definition for the purpose of this study:

An organized and deliberate medical school strategy to produce physicians to rural practice. Must include:

- A name
- A director or co-directors [e.g. “director,” “assistant or associate dean”]
- A program-specific goal or objective to recruit, nurture, educate, train, or encourage students toward rural practice

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What is a Rural Program?

- A description that explicitly articulates a rural focus
- A structured sequence or group of activities, courses, electives, selectives, or clerkships [e.g. “track,” “pathway,” “certificate,” “area of concentration” or “longitudinal integrated clerkship in a rural community (rural LIC),” even a rural “campus”]

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What is a Rural Program?

Exclusions:

- A scholarship program without a structured sequence or group of activities
- Rural clerkships, even required clerkships, if they are not organized into a program

A rurally located medical school is a “rural school,” not a rural program. A rurally located medical school campus that reports its graduates separately to the AAMC or AOA is a rural school, not a rural program of the larger school.

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What if we look only at factors within the school's control?

- Omitting *osteopathic, rural location, public* yields:
  - **Rural scholarly output +**
  - **NIH funding –**
    - ➢ Correctly classifies 82% of programs
- Omitting *osteopathic, rural location, public, and rural scholarly output* yields:
  - **Rural programs +**
  - **Admissions preference: rural interest/intent +**
    - ➢ Correctly classifies 49% of programs, 40% tied

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What predicts rural scholarly output?

- **Rural faculty titles +**
- **NIH funding +**
- **Multiple campuses +**
- Admissions preference: rural interest/intent + (n.s., .06)

- Omitting *rural faculty titles*:
- **Rural program +**
- **NIH funding +**
- **Multiple campuses +**

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Primary care coding

'FMP' Family Medicine/Preventive Medicine
'FSM' Family Prac/sports Medicine
'FP' Family Practice
'FPG' Family Practice/geriatric Med
'GP' General Practice
'IM' Internal Medicine
'IMG' Internal Medicine - Geriatrics
'IPM' Internal Medicine - Preventive Medicine
'ISM' Internal Medicine - Sports Med
'MPD' Internal Medicine - Pediatrics
'PD' Pediatrics