

Oregon Health & Science University  
School of Medicine

**Scholarly Projects Final Report**

**Title** *(Must match poster title; include key words in the title to improve electronic search capabilities.)*

Incentivizing Students to Work in Rural Areas – What Could Work

**Student Investigator's Name**

Liz Quimby

**Date of Submission** *(mm/dd/yyyy)*

3/16/24

**Graduation Year**

2024

**Project Course** *(Indicate whether the project was conducted in the Scholarly Projects Curriculum; Physician Scientist Experience; Combined Degree Program [MD/MPH, MD/PhD]; or other course.)*

Scholarly Projects Curriculum

**Co-Investigators** *(Names, departments; institution if not OHSU)*

n/a

**Mentor's Name**

Dr. Eric Wiser

**Mentor's Department**

Family medicine

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## Concentration Lead's Name

Dr. Buckley

## Project/Research Question

Which financial and financial adjacent incentives will encourage students to work in rural areas in the future?

## Type of Project *(Best description of your project; e.g., research study, quality improvement project, engineering project, etc.)*

Survey Study

## Key words *(4-10 words describing key aspects of your project)*

Financial incentives, financial-adjacent incentives, rural practice, survey, medical students

## Meeting Presentations

*If your project was presented at a meeting besides the OHSU Capstone, please provide the meeting(s) name, location, date, and presentation format below (poster vs. podium presentation or other).*

n/a

## Publications *(Abstract, article, other)*

*If your project was published, please provide reference(s) below in JAMA style.*

n/a

## Submission to Archive

*Final reports will be archived in a central library to benefit other students and colleagues. Describe any restrictions below (e.g., hold until publication of article on a specific date).*

n/a

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## Next Steps

*What are possible next steps that would build upon the results of this project? Could any data or tools resulting from the project have the potential to be used to answer new research questions by future medical students?*

Further data analysis for additional demographics. Increased distribution to other schools and regions to identify possible regional differences. Surveying current residents or attending and compare findings to medical student data.

**Please follow the link below and complete the archival process for your Project in addition to submitting your final report.**

[https://ohsu.ca1.qualtrics.com/jfe/form/SV\\_3ls2z8V0goKiHZP](https://ohsu.ca1.qualtrics.com/jfe/form/SV_3ls2z8V0goKiHZP)

**Student's Signature/Date** *(Electronic signatures on this form are acceptable.)*

*This report describes work that I conducted in the Scholarly Projects Curriculum or alternative academic program at the OHSU School of Medicine. By typing my signature below, I attest to its authenticity and originality and agree to submit it to the Archive.*

**Mentor's Approval** *(Signature/date)*

X

\_\_\_\_\_  
Mentor Name

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**Report:** Information in the report should be consistent with the poster, but could include additional material. Insert text in the following sections targeting 1500-3000 words overall; include key figures and tables. Use Calibri 11-point font, single spaced and 1-inch margin; follow JAMA style conventions as detailed in the full instructions.

## Introduction (≥250 words)

There is a growing shortage of physicians and other care providers in rural areas of the United States. According to the National Rural Health Association, nearly 20% of the US population lives in rural areas, however, only 11% of physicians live in those areas. There are only 13.1 physicians per 10,000 people in rural areas, compared to 31.2 in urban areas. Specialty care is also heavily concentrated in urban areas with 263 specialty providers per 100,000 people, whereas rural areas only have 30 specialists per 100,000 people. Additionally, as the rural physician workforce ages, more physicians will be retiring but with fewer replacements. Fewer younger physicians are practicing in rural areas, with more than half at least 50 years old, and more than a quarter over 60. Patients who live in rural areas are faced with increased barriers to receiving care and often are required to travel great distances to access care. The lack of providers in rural areas leads to worse health outcomes: rural residents are more likely to die from cardiovascular disease, chronic lung disease, and unintentional injury as well as having delays in diagnosis of cancers. Rural residents, when compared to urbanites, are more likely to be uninsured, older, poorer, and have lower life expectancies.

Research shows that students who grow up in rural areas are more likely to return and work in those areas upon graduation. However, with the increasing shortage of physicians, recruitment of students from non-rural backgrounds will be required to prevent further gaps in care. There has been little research specifically on recruiting students from urban/suburban areas and what would incentivize them to work in rural areas.

## Methods (≥250 words)

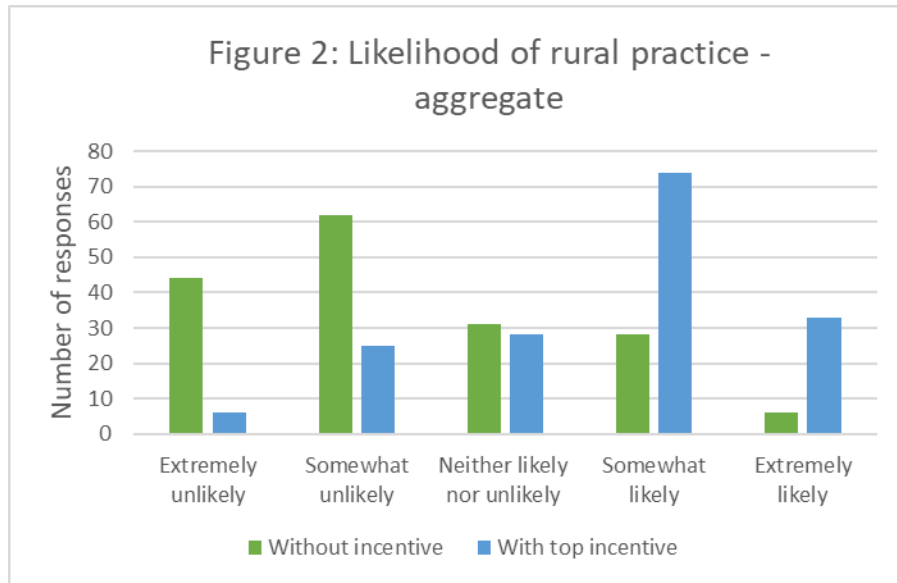
A 15-question adaptive survey was created using the Qualtrix platform. Students were recruited via email invitation to the OHSU SOM listserv. Utilizing Likert scales, participants were asked their likelihoods to practice medicine in the future without incentives. Participants were then asked to select any financial and financial adjacent incentives from a list of 10 that would be influential in their decisions to practice in a rural area. After these selections were made, participants ranked their incentives based on how influential it would be. Free text boxes were provided for any additional financial or financial adjacent incentives not previously listed. Finally, with their top incentive offered, participants were again asked their likelihoods for practicing in rural areas. Demographic data and prior rural experiences were also collected.

## Results (≥500 words)

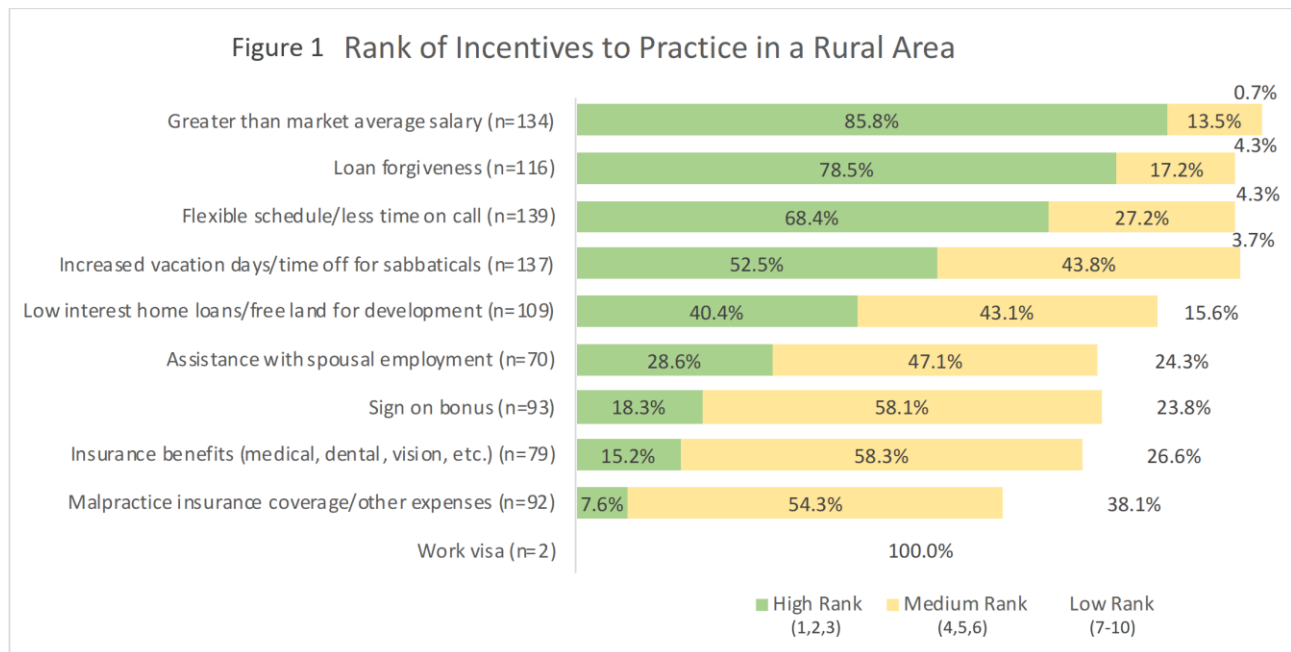
Upon closure of the survey, there were 199 responses. Of those, 48 were from urban areas, 124 suburban areas, and 27 rural areas. The rural participants were excluded from the remainder of the study. Demographic data showed a predominance of female respondents (n=144), versus male (n=41), and non-binary/other gender (5). There was a fairly even distribution of respondents from different class sizes: med24 (n=44), med 25 (n=32), med 26 (n= 48), med27 (36), and prefer not to say (n=2). Respondents identified primarily as Caucasian (n=115), Asian (n=37), multiracial/biracial (n=10), Hispanic/Latino (n=7), other (n=5), black/African American (n=4), Native American/Alaskan Native (n=2), prefer not to answer

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(n=2). The majority of participants did not have any prior rural exposure (n=103), compared to a prior experience in rural area (n=64).



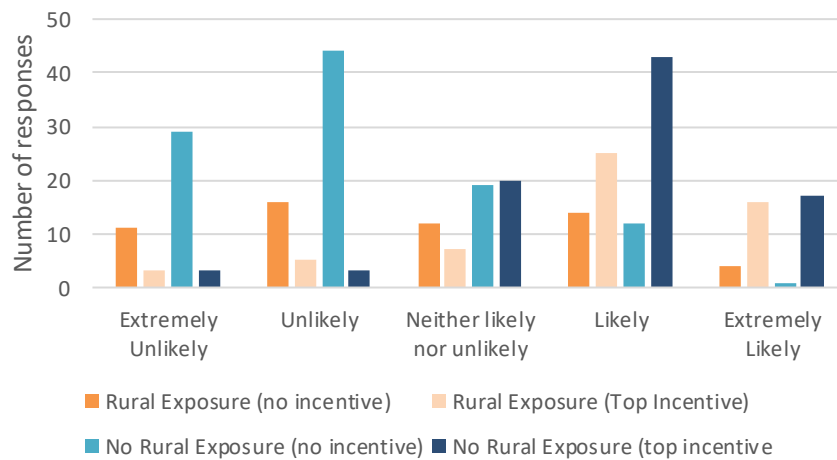
Without an incentive, students were less likely to practice in a rural area in the future. However, with their top incentive, students were significantly more likely to practice in a rural area in the future (p=0.005).



The incentives most frequently ranked highly (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>), were greater than market average salary (85.8%), loan forgiveness (78.5%), and flexible schedule (68.4%). These highly ranked incentives may illustrate the rising costs of medical education and desire for financial stability. However, when looking at the incentives selected the most overall, flexible schedule (n=139) and increased vacation days (n=137). These could indicate a shift in medical culture as a whole, with a focus more on work life balance.

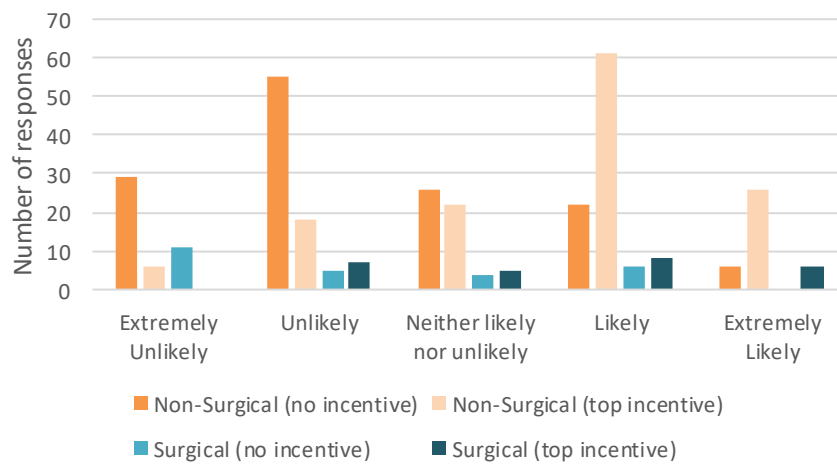
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Figure 3: Likelihood of rural practice based on prior rural exposure



While participants who primarily grew up in rural areas were excluded from the study, there was interest in seeing if shorter term rural exposure had an impact on likelihood of working in a rural area in the future. If participants had prior rural exposures, they free texted where they were and how long they spent. These ranged from a few weeks to several years, both domestically and internationally. Prior rural exposure had a more even distribution of responses without incentive, and demonstrated a rightward shift towards more likely with top incentive. Offering incentives in the prior rural exposure subgroup, was statistically significant ( $p=0.005$ ). A similar rightward shift was seen in the no rural exposure group. Offering top incentive in this subgroup was also statistically significant ( $p=0.01$ ).

Figure 4: Likelihood of rural practice based on anticipated specialty



Additional subgroup analysis was performed based on anticipated specialty. Participants provided free text answers to anticipated specialty. Undecided was an option and included in the non-surgical group. Similar rightward trends were seen in both groups when offered their top incentive. Offering incentives was statistically significant in both the non-surgical group ( $p=0.005$ ) and surgical group ( $p=0.005$ ).

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Table 1. Free texted incentives	Count
Flexible Schedule (time off, telework, longer appointments)	10
Distance to larger cities	10
Affordable Childcare	8
Access to outdoors/natural beauty	8
Access to entertainment, activities, resources	7
Community atmosphere, cultural connections	7
Diversity in community and patient population	7
Research opportunities	6
Proximity to family, friends, spouses	6
Sociopolitical climate	6
Healthy workplace culture	6
Clear partnerships with larger hospitals	5
Housing stipend	4
Good schools for children	4
Location	4
Improved reimbursement rates for procedures and services rendered	3
Moving stipend/relocation bonus	3
Adequate staffing	3
Mentorship available	2
Women's Health Benefits	2
Additional funding for research, community projects, conferences	2
Food stipend	1
Retirement benefits	1
Transportation stipend	1
Ability to participate in academic medicine	1
Safety of city/community	1
Dating opportunities	1
Short commute to workplace	1
Hospital investment in community outreach	1
Increased physician autonomy in healthcare system	1
Good training at institution	1

Free texted incentives, both financial and financial-adjacent provided additional insight into other factors that could influence working in rural areas. Individual responses were sorted into broader categories or related themes, as listed in the above table. Out of the top ten categories, three were related to the workplace, while the remaining seven were related to quality of life. The majority of responses and categories were related to life outside of work. These data indicate that considering the needs of the whole person is important in recruitment, rather than solely focusing on the workplace.

**Discussion** (*≥500 words*)

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Given the significant physician shortage in rural United States, increased recruitment and retention of physicians is crucial to reduce barriers to care and improve rural health outcomes. Current efforts for recruitment and retention are not sufficient in combating the ever-growing shortage of providers in rural areas. Identifying appropriate incentives for providers who are not from rural areas, will be essential for recruitment and retention. Data from this study suggests that quality of life measures and financial-adjacent incentives are being given increasing consideration when pursuing future work environments. While financial incentives such as increased salary and loan forgiveness were ranked highly, this pattern may be more prominent in medical students who are facing increasing financial burdens while obtaining their medical education. Financial considerations may be less important further along in one's medical career. Data from this study is encouraging in that providing a top incentive is highly likely to encourage work in rural areas, irrespective of future specialty or prior rural exposure.

Limitations of this study primarily resolve around the sampled population. Data was from a single, US based medical school. Data could differ dramatically if survey was performed in an international medical school, as work visas could be a significant incentive for those populations. The medical school sampled was in a more liberal city and state; Incentives to work in rural areas could differ significantly compared to other states who have differing rural populations and sociopolitical climates. Additionally, respondents were primarily white and female, which did not provide an accurate representation of all medical students in the United States. The sub group analysis was also based on small data sets, whose statistical significance may differ in a bigger sample size. Finally, medical students were the primary audience for this study. However, residents and attending physicians are more likely to be recruited to rural positions, as current rural residency options remain few at time of data collection. Incentives collected at his stage of education may not represent motivations later on life.

Areas of future research include increased sampling of different medical schools throughout the Pacific Northwest region, greater United States, and internationally. Incentives might have regional and international differences. This study focused on the incentives for physicians, however, there are multiple other healthcare providers that are essential for the overall healthcare system to function properly. Rural needs are not exclusive to medical care only. Obtaining perspectives from other healthcare providers would be useful in having comprehensive care in rural areas.

## Conclusions *(2-3 summary sentences)*

Higher salary and loan forgiveness were the incentives most frequently rated highest, however, flexible schedule and increased vacation days were the most frequently selective incentives. Providing a top-rated incentive was significant in increasing likelihood of rural practice in the future. While financial incentives are important for recruitment, financial adjacent and quality of life incentives should seriously be considered for future recruitment efforts in rural areas.

## References *(JAMA style format)*

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Complexities of Physician Supply and Demand: Projections from 2019

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7. Skinner L, Staiger DO, Auerbach DI, Buerhaus PI. Implications of an Aging Rural Physician Workforce. *N Engl J Med*. 2019;381(4):299-301. doi:10.1056/NEJMp1900808