

## The Influence of Loan Repayment and Scholarship Programs on Healthcare Provider Retention in Underserved Kansas

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### ABSTRACT

**Background.** In an effort to redistribute healthcare providers to underserved areas, many states have turned to financial incentive programs. Despite substantial research on these programs on a national scale, little is known about the success of such programs in Kansas. The purpose of this study was to provide insight into the relationship between financial incentive programs and provider retention in Kansas.

**Methods.** A cross-sectional telephone survey was conducted in April and May of 2011 with participants who had completed their obligations to the Kansas State Loan Repayment Program (SLRP), the National Health Service Corps (NHSC) Loan Repayment program, or the National Health Service Corps Scholarship program in Kansas between January 2006 and January 2011.

**Results.** Of the 112 providers included in the study, 54.4% (n = 61) had left their program sites sometime after finishing their commitment, with the mean length of stay after the obligation period ended being 7.3 (median = 3) months. Of the 54 participants who had left their program sites and whose current locations were known, 33.3% (n = 18) were located in new Health Professional Shortage Areas (HPSA), 25.9% (n = 14) were in a new non-HPSA, and 40.7% (n = 22) had left the state. Family satisfaction with the community and attending a professional school in Kansas were associated statistically with retention of physicians in Kansas.

**Conclusions.** Nearly half of all participants had remained at their sites even after their obligation period ended, with family satisfaction with the community appearing to be the strongest predictor for retention among those who had stayed. Efforts to match a provider's family with the community successfully and to support the family through networking may improve future provider retention. *KS J Med* 2016;9(1):6-11.

### INTRODUCTION

In 2011, more than 50 million Americans lacked access to healthcare.<sup>1</sup> To meet such a need would require the addition of 27,000 primary care providers.<sup>1</sup> In 2004, 65% of rural counties in the United States were underserved, qualifying as Health Professional Shortage Areas (HPSAs).<sup>2</sup> There are 5,900 primary care HPSAs, 4,600 dental HSPAs, and 3,800 mental health HPSAs in the United States.<sup>3</sup>

In its 2012 report on underserved areas, the Kansas Primary Care Office specified 101 primary care HPSAs in Kansas.<sup>4</sup> In addition, the state had 98 designated dental care HPSAs and 106 mental health HPSAs.<sup>4</sup> It was estimated in 2011 that Kansas needed an additional 74 primary care providers, 87 dentists, and 29 mental health providers.<sup>5</sup>

In an effort to redistribute healthcare workers to underserved areas, many states have turned to financial incentive programs such as loan repayment and scholarship programs. In return for monetary awards toward educational loans, or payment of stipend and tuition, participants care for patients in federally designated HPSAs for a minimum of two years.<sup>4</sup> Financial incentive programs are effective in the recruitment of healthcare providers to underserved areas because they ease or erase the education-debt of providers. However, the effect of such programs on the retention of providers in underserved areas is less understood, with prior studies suggesting contradictory findings.<sup>6-9</sup>

The purpose of this research was two-fold: 1) to determine the retention rates of healthcare professionals after the completion of their obligations in Kansas HPSAs, and 2) to investigate demographic, professional, and satisfaction factors that may be associated with the retention of healthcare workers in Kansas HPSAs.

### METHODS

This study was approved by the Human Subjects Committee at the University of Kansas School of Medicine-Wichita.

**Participants and Instrument.** Healthcare (medical, nursing, dental, and allied health) professionals (N = 112) who participated in the Kansas State Loan Repayment Program, the National Health Service Corps Loan Repayment program, or the National Health Service Corps Scholarship program in Kansas and completed their obligation between January 2006 and January 2011 were eligible to participate in this study.

The instrument was a 16-item phone survey which included demographic items, Likert-type items prompting respondents to report the importance of loan repayment on their decision of practice site, overall individual satisfaction with the practice and community, and family satisfaction with the community. Additionally, open-ended items prompted respondents to report their intent to remain at their practice site and likelihood of re-enrollment if they were to make the decision again.

**Procedures.** This was a cross-sectional telephone survey conducted in April and May of 2011. Participants were identified by the Primary Care Office at the Kansas Department of Health and Environment (KDHE). The Primary Care Office also

provided the original site locations, provider-type, and assignment start and end dates for the healthcare providers.

**Analysis.** Retention was defined in two ways: 1) as a dichotomous variable measuring whether or not the provider stayed at the original program site, and 2) as the length of stay (months) at the original program site. Healthcare providers who were not retained were classified further into either working in a different HPSA in Kansas, working in a non-HPSA in Kansas, or working outside of Kansas.

To come to a consensus when qualitatively analyzing results, several raters defined themes and discussed them. However, interrater reliability was not assessed.

Cox proportional hazard regression was utilized to predict the retention of healthcare providers in HPSAs. Eight candidate predictors were considered for the Cox regression analysis: gender, ethnicity, program influence on decision to practice in an underserved area, attendance of residency in or out of Kansas, attendance of professional school in or out of Kansas, provider satisfaction with the practice, provider satisfaction with the community, and family satisfaction with the community.

The aggregate data were analyzed using SPSS Version 18.0 and NVIVO8. Cox proportional hazard regression analysis was conducted to analyze healthcare provider retention. All statistical analyses were two-sided. P-value greater than 0.05 was considered to be statistically significant.

### RESULTS

A total of 112 healthcare providers from 54 sites were included in the final analysis. Of the 112 healthcare providers, 11.6% (n = 13) were SLRP participants, 84.8% (n = 95) were NHSC Loan Repayment participants, and 3.6% (n = 4) were NHSC Scholarship Program participants.

**Retention rates of healthcare providers in Kansas HPSAs.** A Chi-square analysis was conducted to identify the association between the three programs and whether the respondents still worked at the original program sites. Participants of the NHSC scholarship program (n = 4) and respondents with unknown responses to survey questions were excluded from analysis. Forty-five percent of the providers continued to work at their original program sites (Table 1). Among the 54 providers who left their original site, one-third (33.3%, n = 18) of the providers who left their original program sites and had a current known location were located in a different HPSA in Kansas, 25.9% (n = 14) were in a non-HPSA in Kansas, and 40.7% (n = 22) had left the state and their status in a HPSA or non-HPSA area was unknown. The program type was not associated with whether the participants remained in the original worksite (p = 0.5238) nor the final destination (p = 0.2718).

**Table 1. Final location of healthcare providers.\***

	SLRP (n = 13)	NHSC Loan Repay- ment (n = 95)	NHSC Scholar- ship (n = 4)	Combined Programs (n = 112)	P- value
<b>Remain at original KS worksite</b>					<b>0.5238</b>
No	8 (61.5%)	49 (51.6%)	4 (100%)	61 (54.5%)	
Yes	5 (38.5%)	45(47.4%)	0	50 (44.6%)	
Unknown	0	1 (1.1%)	0	1 (0.9%)	
<b>Final Destination</b>					<b>0.2718</b>
Original site	5 (38.5%)	45 (47.4%)	0	50 (44.6%)	
Left state	5 (38.5%)	15 (15.8%)	2 (50%)	22 (19.5%)	
New HPSA	1 (7.7%)	17 (17.9%)	0	18 (16.1%)	
New non-HPSA	2 (15.4%)	12 (12.6%)	0	14 (12.5%)	
Unknown	0	6 (6.3%)	0	8 (7.1%)	

\* The p-values calculated from the Chi-square analyses were based on the exclusion of the NHSC scholarship category and unknown responses to each question, due to very few responses to these questions.

The length of retention after service completion was known for 89 participants. For those who were still at their sites following their obligation period (n = 50), their length of service ranged from 3 to 59 months, with a mean of 30.0 and median of 31.5 months. Retention of those who subsequently had left their program sites following their obligation periods (n = 39) ranged from -13 months (due to one participant leaving the program site prior to service completion) to 40 months with a mean of 7.3 and median of 3 months at their practice site before leaving.

Seventy-five participants had completed their service obligations at least one year prior to completing the survey, and of those participants, thirty-seven (37) completed their obligation at least three years prior to completing the survey. Of all programs combined, 62.6% (n = 47) were still at their program sites one year post-completion, and this percentage decreased to 46% at three years (Figure 1).

**Demographics of healthcare providers.** Seventy-three (73) participants completed the phone survey, for a response rate of 65.2%. More than half of the respondents (57.5%, n = 42) were female, between 30 and 39 years (50.7%, n = 37), and had attended professional school out of state (64.4%, n = 47; Table 2). The majority of respondents were white (94.5%, n = 69) and married (82.2%, n = 60).

**Factors associated with retention of healthcare providers in Kansas HPSAs.** The 73 healthcare providers who completed the phone survey were queried regarding satisfaction with the practice and their family's satisfaction with the community (Table 3). There were 37 participants who stayed in their original program site and 36 participants who left their original program site. Among the 36 survey participants who stayed at their original program sites (and provided responses to the items in

in the survey), 97.2% (n = 35 of 36) reported being “very satisfied” or “somewhat satisfied” with the practice, 91.6% (n = 33 of 36) reported being “very satisfied” or “somewhat satisfied” with their community, and 96.7% (n = 29 of 30) of respondents reported their families were “very satisfied” or “somewhat satisfied” with their community.

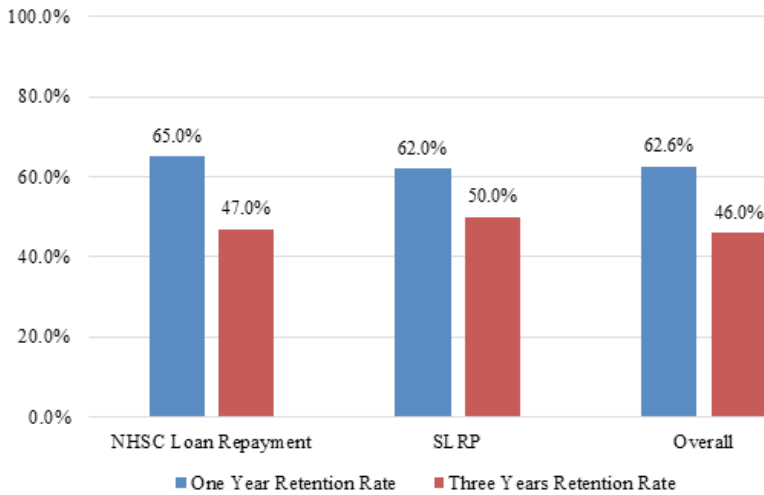


Figure 1. Retention at original Kansas program site at one and three years post-obligation.\*

\*Due to small total numbers (n = 2), NHSC scholarship program respondents were excluded from figure.

Of the 37 survey participants who had left their original program sites (and provided responses to the items in the survey), 67.5% (n = 25 of 37) reported being “very satisfied” or “somewhat satisfied” with the practice, 83.8% (n = 31 of 37) reported being “very satisfied” or “somewhat satisfied” with their community, and 62.1% (n = 18 of 29) reported their families were “very satisfied” or “somewhat satisfied” with the community. Of the 72 responding providers, 94% (n = 68) reported they would enroll again in the program if they were to do it again. For both groups combined, sex, age, race, and marital status were not associated with whether survey participants left their original program site (Table 3).

Cox proportional hazard analysis was conducted to identify factors associated with retention of healthcare providers in the original program sites. Both attendance of professional school in Kansas and family satisfaction with the community were significant predictors of retention. Those providers who attended professional school somewhere other than Kansas had a hazard ratio of 3.11 (p = 0.0474), suggesting they were more than three times as likely to leave their original program site compared to those who attended professional school in Kansas. Additionally, compared to healthcare providers whose families were very satisfied with their communities, those providers whose families reported being very unsatisfied had a hazard ratio of 6.752 (p = 0.019), suggesting they were nearly seven times as likely to leave their original

Table 2. Demographics of healthcare provider survey respondents (N = 37).\*

	SLRP (n = 13)	NHSC Loan Repayment (n = 95)	NHSC Scholarship (n = 4)	Total (N = 73)
<b>Provider</b>				
Physician	3 (37.5%)	11 (17.5%)	0	14 (19.2%)
Nurse Practitioner	2 (25%)	8 (12.7%)	0	10 (13.6%)
Physician Assistant	1 (12.5%)	10 (15.9%)	1 (50%)	12 (16.4%)
Nurse Midwife	0	1 (1.6%)	0	1 (1.4%)
Dentist	0	1 (1.6%)	1 (50%)	2 (2.7%)
Dental Hygienist	2 (25%)	3 (4.8%)	0	5 (6.8%)
Psychologist	0	19 (30.2%)	0	19 (26%)
Therapist	0	4 (6.3%)	0	4 (5.5%)
Social Worker	0	6 (9.5%)	0	6 (8.2%)
<b>Sex</b>				
Male	4 (50%)	26 (41.3%)	1 (50%)	31 (42.5%)
Female	4 (50%)	37 (58.7%)	1 (50%)	42 (57.5%)
<b>Age</b>				
< 30 years	4 (50%)	4 (6.3%)	1 (50%)	9 (12.3%)
30-39 years	3 (37.5%)	33 (52.3%)	1 (50%)	37 (50.7%)
40-49 years	0	15 (23.8%)	0	15 (20.5%)
≥ 50 years	1 (12.5%)	11 (17.5%)	0	12 (16.4%)
<b>Race/Ethnicity</b>				
White, Non-Hispanic	7 (87.5%)	61 (96.8%)	1 (50%)	69 (94.5%)
Black, Non-Hispanic	0	0	1 (50%)	1 (1.4%)
Black, Hispanic	0	1 (1.6%)	0	1 (1.4%)
Hispanic	1 (12.5%)	0	0	1 (1.4%)
Unknown	0	1 (1.6%)	0	1 (1.4%)
<b>Marital Status</b>				
Married	7 (87.5%)	52 (82.5%)	1 (50%)	60 (82.2%)
Not Married	1 (12.5%)	11 (17.5%)	1 (50%)	13 (17.8%)
<b>Medical School</b>				
In State	4 (50%)	22 (34.9%)	0	26 (35.6%)
Out of State	4 (50%)	41 (65.1%)	2 (100%)	47 (64.4%)
<b>Physician Specialty</b>				
Family Medicine	2 (66.7%)	8 (72.7%)	0	10 (71.4%)
Internal Medicine	1 (33.3%)	0	0	1 (7.1%)
OB/GYN	0	1 (9.1%)	0	1 (7.1%)
Pediatrics	0	1 (9.1%)	0	1 (7.1%)
Psychiatry	0	1 (9.1%)	0	1 (7.1%)
<b>Residency</b>				
In State	3 (100%)	5 (45.5%)	0	8 (57.1%)
Out of State	0	6 (54.5%)	0	6 (42.9%)

\*The column percentage may not add up to 100 due to rounding.



**Table 3. Providers' perceptions of experiences in the programs (N = 73).**

	Left original program site (n = 37)	Stayed at original program site (n = 36)	p-value
<b>Sex</b>			<b>0.7358</b>
Male	15 (40.5%)	16 (44.4%)	
Female	22 (59.5%)	20 (55.6%)	
<b>Age</b>			<b>0.8156</b>
30-39 years	20 (54.1%)	17 (47.2%)	
40 - 49 years	6 (16.2%)	9 (25%)	
< 30 years	5 (13.5%)	4 (11.1%)	
≥ 50 years	6 (16.2%)	6 (16.7%)	
<b>Race/Ethnicity</b>	<b>Missing = 1</b>		<b>0.3894</b>
White, Non-Hispanic	34 (94.4%)	35 (97.2%)	
Black, Non-Hispanic	1 (2.8%)	0	
Black, Hispanic	0	1 (2.8%)	
Hispanic	1 (2.8%)	0	
<b>Marital Status</b>			<b>0.3879</b>
Married	29 (78.4%)	31 (86.1%)	
Not Married	8 (21.6%)	5 (13.9%)	
<b>Satisfaction with Practice</b>			<b>0.0116</b>
Very Unsatisfied	1 (2.7%)	0	
Somewhat Unsatisfied	1 (2.7%)	1 (2.8%)	
Neutral	10 (27%)	0	
Somewhat Satisfied	8 (21.6%)	9 (25%)	
Very Satisfied	17 (46%)	26 (72.2%)	
<b>Satisfaction with Community</b>			<b>0.8082</b>
Very Unsatisfied	2 (5.4%)	1 (2.8%)	
Somewhat Unsatisfied	1 (2.7%)	0	
Neutral	3 (8.1%)	2 (5.6%)	
Somewhat Satisfied	8 (21.6%)	8 (22.2%)	
Very Satisfied	23 (62.2%)	25 (69.4%)	
<b>Family Satisfaction with Community</b>	<b>Missing = 14</b>		<b>0.0177</b>
Very Unsatisfied	3 (10.3%)	0	
Somewhat Unsatisfied	2 (6.9%)	0	
Neutral	6 (20.7%)	1 (3.3%)	
Somewhat Satisfied	8 (27.6%)	9 (30%)	
Very Satisfied	10 (34.5%)	20 (66.7%)	
<b>Would Enroll Again</b>	<b>Missing = 1</b>		<b>1</b>
Yes	34 (94.4%)	34 (94.4%)	
No	2 (5.6%)	2 (5.6%)	

program sites as those who did not report being very unsatisfied. Compared to the very satisfied families, the hazard ratios for those providers whose families were somewhat unsatisfied, neutral, or somewhat satisfied were 4.379 ( $p = 0.070$ ), 3.378 ( $p = 0.041$ ), and 2.381 ( $p = 0.086$ ), respectively.

**Healthcare providers' main motivations for changing practice sites.** Healthcare providers who had left their original program sites were asked to provide their main motivators for doing so. Through a qualitative analysis of the responses provided, three themes emerged: family reasons, poor fit, and attractive opportunity.

Most providers responded that their main motivator for changing practice sites was due to family reasons, most often desiring to be "closer to family." One provider reported moving to "care for aging parents," and another respondent reported following their spouse with a new job. "Family needs" and "family's desire to move" also were stated by providers as motivators for changing their practice sites.

A second theme that emerged from the providers' responses was that the original program site was not a good fit, and many reported frustrations with the hospital or administration. One provider reported, "The administration was poor at my site in Kansas. It was unorganized, and I didn't agree with some of the policies." Another provider shared that "unethical practices" was the motivation to find new employment. Additional hospital or administrative motivators for leaving included a "lack of support from the hospital and partners," a contract dispute, a practice transitioning through many changes, "hospital administration issues", and decreasing salaries and benefits within a changing administration. Additionally, other 'poor fit' examples included the community not being "very welcoming to outsiders," and that "demand was just overwhelming," and they were "looking for a less-stressful environment."

Finally, many providers left their original practice site because a different job was too attractive to decline. Several reported that they anticipated receiving increased pay at their new job sites, and this was their main motivator for leaving their original practice sites. Others stated they wanted to own their practices; many shared that they believed owning their own practice would lead to increased pay.

## DISCUSSION

**Retention.** At the time this study was conducted, fewer than half of the study participants (45.6%) were retained at their original program sites. Retention rates from prior studies were difficult to compare, as the definition of retention varies considerably from study to study. In the literature, the rate of provider retention has been reported from 12 to 90%.<sup>6</sup> A 2010 study of loan repayment participants in Colorado reported that 55% of providers remained at their original program sites at the time of the study.<sup>10</sup> A 2003 cohort study of family physicians from three family medicine residency programs affiliated with the University of Kansas School

of Medicine-Wichita (KUSM-W) suggested that more than half of the physician graduates (63%) continued to work at their original practice sites.<sup>11</sup>

The current study revealed a similar rate to the Colorado and KUSM-W studies, with 62.6% of the providers who had completed their obligations a year or more prior to taking the survey had remained at their original program sites at one year post-completion. The retention declined at three years post-completion, with 46.0% of participants who had completed their obligations three years or more prior to taking the survey still at their program sites. This differed somewhat from a 2012 retention study conducted by the NHSC which reported that 82% of providers continued to practice in underserved communities up to one year after service completion.<sup>12</sup> Furthermore, the same study reported that 55% of providers were retained 10 years after service completion.<sup>12</sup>

Despite the large proportion of participants who left their program sites in the current study, a slightly greater percentage of participants relocated to a new HPSA site (16.1%) than to a new non-HPSA site (12.5%), which resulted in 60.7% of the total participants continuing to practice in underserved areas. The finding is not supported by a previous study in Kansas, which suggested physicians in underserved rural counties are more likely to move to less-underserved urban counties than to other rural counties.<sup>11</sup> The current study appeared to support similar findings that participants of financial incentive programs are more likely than non-obligated providers in general to practice in underserved areas in the long-term.<sup>6</sup>

**Professional school.** The greatest percentage of providers who left their original program sites actually left Kansas altogether (41%,  $n = 22$ ). This finding may be related to the large proportion of participants who had attended professional school outside of Kansas (nearly two-thirds). This study suggested that providers who attended professional school outside of Kansas were more likely to leave their original program sites. Such participants may have had ties to other communities outside of Kansas and returned to them after their obligations.

**Family satisfaction and motivation to leave.** In the current study, the majority of the healthcare providers responded that they were satisfied with their practices (88%) and communities (88%) while in the financial incentive programs, and most (80%) reported their families were also satisfied with their communities. Additionally, 94% of participants reported they would enroll in the program if offered the opportunity again. Despite such high indicators of satisfaction, many providers moved from their original program sites.

Family satisfaction with the community was a strong predictor of retention in this study. The majority of providers indicated that they moved for family reasons, in particular to be "closer to family." These findings are consistent with prior studies<sup>10,13</sup> and suggested that an increased effort is needed to support the

provider's family, particularly the spouses, to improve retention. Treating the spouse as an equally important team member in providing healthcare to an underserved population may decrease the family's perceived barriers to remaining at the healthcare provider's original program site. One other study suggested that rural roots of the individual practitioners might be an important factor in retaining providers.<sup>14</sup> The current study revealed more support for the primacy of spousal satisfaction and familial fit in retaining providers. This is a new contribution to the literature, and attention to the providers' families should be investigated in future retention studies. An additional consideration for future research is to explore the quality of healthcare providers enrolled in a loan repayment or scholarship program.

**Limitations.** This study had several potential limitations, including limited geographic scope, small sample size, and the cross-sectional nature of the study. As with any cross-sectional telephone survey conducted at a single point in time, response bias was possible. However, the response rate in this study was relatively high, with 73 of 112 (65.2%) healthcare providers participating in the study, and 54 of 62 (87.1%) of the site contacts participating. Therefore, the risk of response bias in this study was minimized.

Information biases, such as interviewer bias or recall bias, may have played a role in this study. While the risk of this was diminished in this study, as only one interviewer conducted all the phone surveys, it is possible that the interviewer unconsciously influenced the participants. In addition, participants were asked to recall their experiences in the financial incentive programs they had completed. Participants who more recently participated in the financial incentive programs likely would have a better memory of their experiences than participants who had completed their obligations several years prior to completing the survey.<sup>15-16</sup> The current study also combined health practitioner professions together such as nurse practitioners, dentists, and physicians, each of which may exhibit their own retention dynamics independent of other professional classifications.<sup>14,17-18</sup> However, the purpose of this study did not seek to parse out differences between individual healthcare occupations; instead it sought to provide a holistic picture of healthcare providers shortages in general.

Finally, this study was conducted in just one rural state and also had a relatively small sample size, with 112 total participants, which potentially could limit future generalizability. However, other similar studies also have focused on just a single state.<sup>10,11,19</sup> Small sample sizes reduce the power of a study to identify real differences between groups. As such, this study was unable to analyze differences between the financial incentive programs included in the study.

## CONCLUSIONS

Participants of financial incentive programs were more likely than non-obligated providers to practice in underserved areas in the long-term. Important dynamics exist within the decisions made by those individual

providers to practice long-term in underserved areas. At the time the study was conducted, fewer than half of the study participants were serving at their original program sites. Despite the large proportion of participants who left their program sites, nearly half had remained and a majority continued to practice in other underserved areas, suggesting serving in any underserved area is not necessarily a factor in individual practitioners' decisions to remain or leave their practice site. Rather, family appeared to be the driving factor in providers' decisions, as not only was the family's satisfaction with the community a strong predictor of provider retention, but so was the desire to be closer to their own extended families. Thus, efforts to support families within their matched communities are important and working to match providers with geographically favorable sites to their families is an important objective to explore.

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