

## The Impact of National Health Service Corps and Non-Corps Clinician Staffing on Financial Costs in Community Health Centers

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### BACKGROUND

The National Health Service Corps (NHSC) is an important source of clinician staffing for community health centers (CHCs). In Year 5, researchers from our team compared the marginal productivity (measured as visits per additional staff) for NHSC and non-NHSC clinicians in CHCs, and found that productivity for NHSC clinicians is similar to that of non-NHSC clinicians in primary care but is higher for NHSC clinicians in mental health care. However, whether NHSC staffing reduces total costs of care in CHCs remains unknown. In the present study, we examined the marginal effect of NHSC and non-NHSC clinician staffing on medical and mental health care costs and administrative costs in CHCs.

### METHODS

Using 2013-2017 data from the Uniform Data System (UDS) and the NHSC administrative database, we constructed multivariate linear regression models to examine the financial impact of NHSC and non-NHSC staffing in 1,022 CHCs. In the model, the dependent variable was each of the financial outcomes and the key explanatory variables were the number of staff full-time equivalents for both NHSC and non-NHSC clinicians. Control variables included facility and patient characteristics, county poverty, and uninsured rates, as well as health center and year fixed-effects. Standard errors were clustered at the center-level to account for autocorrelation within centers.

### FINDINGS

Each additional NHSC primary care staff was significantly associated with a reduction of \$1.03 in medical care costs per visit in urban centers. Each additional NHSC mental health staff was significantly associated with a reduction of \$4.24 in mental health costs per visit in CHCs, more specifically, a reduction of \$3.73 dollars in urban centers and \$8.55 in rural centers. Each additional NHSC primary care staff was also significantly associated with a reduction of \$0.35 in administrative costs in CHCs (\$0.36 in urban CHCs). In comparison, each additional non-NHSC primary care staff was significantly associated with an increase of \$0.68 dollars in medical care costs per visit in CHCs (\$0.73 dollars in urban CHCs). Increases in non-NHSC mental health staff was not significantly associated with cost reductions in mental health care. In addition, increases in non-NHSC staffing were also significantly associated with increases in administrative costs in urban CHCs.

### CONCLUSION

Increases in NHSC staffing were associated with reduced total care costs and administrative costs in CHCs, while increases non-NHSC staffing were associated with increases in total care costs and administrative costs in CHCs. These findings are notable because we studied clinicians who are supported by the NHSC and those who are not and analyzed their impact on CHCs from a cost-effective perspective. It provides further evidence to justify the effectiveness of the NHSC on enhancing the capacity of CHCs.

### KEY FINDINGS

1. Increases in NHSC clinician staffing were significantly associated with reduced total costs of medical care and mental health care in CHCs
2. Increases in NHSC primary care clinician staffing were significantly associated with reduced administrative costs in CHCs.
3. The cost savings due to NHSC staffing could be used to expand services such as substance use disorder treatments or chronic care management, or other outreach activities that enhance CHCs' patient care.
4. These findings also suggest that increasing the number of NHSC clinicians in CHCs is especially beneficial in rural areas.

## POLICY IMPLICATIONS

This study complement our previous findings that NHSC clinicians are similar or more productive compared to non-NHSC clinicians. It suggests that NHSC staffing can effectively improve patient care capacity without increasing total costs of care in CHCs. The cost savings associated with NHSC staffing could be used to expand services such as substance use disorder treatments or chronic care management that enhance CHCs' patient care. Findings also suggest that increasing the number of NHSC clinicians in CHCs is especially for rural CHCs. Future study should evaluate the impact of NHSC and non-NHSC staffing on care quality in CHCs. Findings on productivity, costs, and quality provide comprehensive evidence on the role of the NHSC in enhancing CHCs' capacity and serve to inform future policies and staffing strategies.

**Table 1. Regression Estimates of Each Additional NHSC and Non-NHSC Staff FTE on Total Clinical Services Costs in Community Health Centers**

	Medical Care Costs Per Visit			Mental Health Care Costs Per Visit		
	All CHC	Urban	Rural	All CHC	Urban	Rural
<b>Primary Care</b>						
NHSC staff FTE	-0.621 (0.389)	-1.029** (0.476)	-0.616 (0.770)			
Non-NHSC staff FTE	0.677*** (0.209)	0.731*** (0.220)	0.421 (0.486)			
<b>Mental Health Care</b>						
NHSC staff FTE				-4.236*** (1.608)	-3.734** (1.785)	-8.554*** (2.949)
Non-NHSC staff FTE				0.570 (0.575)	0.857 (0.875)	0.028 (0.832)
Observations	5,357	2,767	2,590	5,357	2,768	2,589
R-squared	0.232	0.221	0.290	0.043	0.050	0.061
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1						

**Table 2. Regression Estimates of Each Additional NHSC and Non-NHSC Staff FTE on Total Administrative Costs and Staff in Community Health Centers**

	Administrative Costs Per Visit			Administrative Staff FTEs Per 1,000 Visits		
	All CHC	Urban	Rural	All CHC	Urban	Rural
<b>Primary Care</b>						
NHSC staff FTE	-0.353* (0.205)	-0.360* (0.218)	-0.437 (0.464)	-0.001 (0.001)	-0.000 (0.001)	-0.004** (0.002)
Non-NHSC staff FTE	0.111 (0.131)	0.283*** (0.093)	-0.300 (0.437)	0.001 (0.001)	0.002*** (0.001)	-0.001 (0.001)
<b>Mental Health Care</b>						
NHSC staff FTE	-0.612 (0.558)	-0.226 (0.403)	-1.073 (1.577)	-0.000 (0.002)	0.001 (0.003)	0.001 (0.003)
Non-NHSC staff FTE	0.054 (0.120)	0.304*** (0.104)	-0.485 (0.330)	0.001 (0.001)	0.001* (0.001)	-0.002 (0.001)
Observations	5,411	2,787	2,624	5,411	2,787	2,624
R-squared	0.086	0.110	0.162	0.059	0.062	0.178
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1						