Appendix Table 3. Full Regression Results

|  |  |
| --- | --- |
|  | **Visits per FTE NP per Year** |
|  | All | (1)Typical | (2)High advanced practice | (3)High nurse | (4)High other medical |
| **NP SOP** |  |  |  |  |  |
| NP SOP\_lag1 (most authority) | -320.64\* | -124.35 | -222.34 | -583.89\*\* | -41.05 |
|  | (182.10) | (333.03) | (267.05) | (267.89) | (298.34) |
| NP SOP\_lag1 (moderate authority) | 92.91 | -91.12 | 20.37 | 263.68\* | 378.66 |
|  | (127.01) | (204.80) | (217.24) | (138.52) | (373.01) |
| NP SOP\_lag1 (most authority)\*Support staff per clinician | 206.96 | 112.02 | 396.03\* | 430.73 | 17.48 |
|  | (136.03) | (275.60) | (227.72) | (367.97) | (131.75) |
| NP SOP\_lag1 (moderate authority)\*Support staff per clinician | 99.56 | 99.64 | -26.08 | 295.59 | -6.41 |
|  | (127.53) | (185.58) | (433.01) | (215.89) | (252.68) |
| **PA SOP** |  |  |  |  |  |
| PA SOP\_lag1 (most authority) | -133.95 | -256.37 | 422.70 | 56.60 | -491.60\*\* |
|  | (122.89) | (318.56) | (274.73) | (203.63) | (198.83) |
| PA SOP\_lag1 (moderate authority) | -53.98 | -390.45 | 354.88 | 637.58\*\* | -519.10\*\* |
|  | (142.71) | (285.17) | (326.37) | (245.98) | (251.21) |
| PA SOP\_lag1 (most authority)\*Support staff per clinician | 100.59 | 202.28 | -958.95\*\*\* | 271.84 | 294.73\*\*\* |
|  | (84.36) | (271.54) | (218.47) | (211.42) | (94.16) |
| PA SOP\_lag1 (moderate authority)\*Support staff per clinician | 96.71 | 303.52 | -755.40\*\* | -375.42\* | 415.07\*\*\* |
|  | (96.93) | (226.63) | (298.67) | (192.67) | (129.23) |
| **Patient Characteristics** |  |  |  |  |  |
| 19-64 (adults) | 243.49 | 775.34 | 517.54 | -115.06 | -384.08 |
|  | (486.46) | (655.88) | (1,238.02) | (1,489.67) | (908.45) |
| 65 and over (aged) | -197.77 | 1,359.22 | -11,142.00\*\*\* | 1,623.72 | -425.80 |
|  | (1,338.61) | (2,200.44) | (3,526.70) | (1,907.66) | (2,651.27) |
| Female | -784.91 | -1,674.26 | -1,885.19 | 1,478.29 | -33.78 |
|  | (949.14) | (1,509.09) | (2,041.74) | (2,082.92) | (1,665.75) |
| Black | -6.17 | -118.34 | -559.18 | -1,439.69 | 918.57 |
|  | (519.25) | (863.95) | (1,132.03) | (1,101.42) | (914.97) |
| Asian/Pacific Islander | -1,251.61 | -3,176.67 | 2,832.13 | -1,374.50 | -217.67 |
|  | (786.70) | (2,510.34) | (3,994.02) | (2,715.65) | (1,042.55) |
| American Indian/Alaska Native | 2,174.29 | -625.22 | 1,308.14 | 958.55 | 4,869.22\* |
|  | (1,897.87) | (1,377.40) | (2,758.95) | (3,658.02) | (2,826.34) |
| Other/Unknown | 106.28 | 416.96 | -35.75 | -966.31\* | 289.05 |
|  | (166.18) | (282.07) | (338.47) | (491.25) | (230.66) |
| Hispanic  | -263.83 | 683.88 | -1,071.87 | 1,081.40 | -388.02 |
|  | (432.79) | (706.58) | (882.48) | (1,125.17) | (611.26) |
| Medicaid | -368.94 | -633.73\*\* | 263.14 | -980.72 | -439.60 |
|  | (248.38) | (300.07) | (775.04) | (857.45) | (338.97) |
| Medicare | -343.64 | -1,812.27 | 2,790.50 | -2,177.37\* | 611.64 |
|  | (835.83) | (1,444.57) | (2,932.95) | (1,243.34) | (1,745.20) |
| Other public | -1,127.74\*\* | -1,623.75\*\*\* | -3,375.70 | -477.74 | -927.93 |
|  | (502.77) | (520.73) | (2,215.14) | (1,458.48) | (966.36) |
| Private | 197.81 | 131.99 | -873.96 | -598.15 | 1,425.90\* |
|  | (359.34) | (761.64) | (638.45) | (630.69) | (731.67) |
| Patients with limited English proficiency | 132.80 | 124.81 | -157.90 | -2,143.43\*\* | 345.95 |
|  | (241.15) | (461.26) | (567.44) | (865.57) | (296.86) |
| Patients with income 100% and below poverty level | 58.28 | -26.31 | 98.58 | -2.58 | -27.78 |
|  | (121.98) | (256.05) | (292.31) | (245.82) | (191.16) |
| **CHC Characteristics** |  |  |  |  |  |
| Support staff per clinician | 61.43 | 14.33 | 960.31\*\*\* | 171.50 | -207.28 |
|  | (91.86) | (201.54) | (287.90) | (123.69) | (127.61) |
| EHR  | -44.80 | 136.98\* | -153.53 | -240.12\*\* | -23.02 |
|  | (43.75) | (75.38) | (152.65) | (100.99) | (69.39) |
| PCMH | -32.18 | -138.61\*\* | -143.29 | 58.83 | 5.40 |
|  | (39.92) | (53.56) | (94.39) | (90.99) | (76.05) |
| Grant over total revenue | 824.34 | -981.80 | 16,056.04\*\*\* | 1,694.91 | -2,203.70 |
|  | (1,758.05) | (1,278.95) | (3,697.42) | (6,359.38) | (2,835.54) |
| Large size (>median patients) | 123.22 | 212.06\* | 28.88 | 208.52 | 1.51 |
|  | (76.79) | (113.19) | (224.45) | (199.46) | (119.81) |
| **Market (County) Characteristics** |  |  |  |  |  |
| Rural | -123.50\*\*\* | -132.58\*\* | -34.23 | -154.81 | -109.65 |
|  | (47.06) | (60.76) | (349.64) | (155.77) | (75.85) |
| Median household income in $1,000 | 2.09 | 8.29\*\* | 3.57 | -3.38 | -1.35 |
|  | (3.01) | (3.93) | (9.34) | (7.43) | (5.43) |
| Unemployment | 750.38 | 2,084.83 | -7,366.50\*\* | -1,063.33 | 1,640.60 |
|  | (1,130.60) | (1,626.17) | (2,832.66) | (2,283.78) | (2,108.34) |
| NPs with NPI per 1,000 population | 32.76 | 2.57 | -24.84 | -106.32 | 295.45 |
|  | (99.37) | (134.41) | (120.48) | (204.05) | (258.28) |
| PAs with NPI per 1,000 population | -61.56 | 66.18 | 311.79\*\* | -181.83 | -302.32 |
|  | (140.89) | (243.46) | (148.86) | (229.32) | (393.56) |
| Physicians per 1,000 population | -74.70 | -88.35 | -657.61\*\*\* | 26.69 | -17.23 |
|  | (86.81) | (162.39) | (242.46) | (175.60) | (149.12) |
| Constant | 2,816.52\*\*\* | 2,692.70\*\* | 3,765.96\*\* | 2,908.68\* | 2,800.05\*\* |
|  | (731.25) | (1,075.04) | (1,573.76) | (1,674.90) | (1,354.61) |
| Observations | 4,334 | 1,428 | 399 | 944 | 1,563 |
| R-squared | 0.03 | 0.07 | 0.29 | 0.08 | 0.04 |
| Number of CHCs | 739 | 243 | 68 | 162 | 266 |
| CHC FE | YES | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES | YES |

Robust standard errors in parentheses.

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

|  |  |
| --- | --- |
|  | **Visits per FTE PA per Year** |
|  | All | (1)Typical | (2)High advanced practice | (3)High nurse | (4)High other medical |
| **NP SOP** |  |  |  |  |  |
| NP SOP\_lag1 (most authority) | -38.74 | 35.62 | -577.15\* | 233.77 | 6.42 |
|  | (144.84) | (289.90) | (313.14) | (218.28) | (251.40) |
| NP SOP\_lag1 (moderate authority) | -23.23 | 39.02 | 492.74 | -190.29 | -70.62 |
|  | (121.34) | (253.31) | (334.37) | (148.92) | (336.99) |
| NP SOP\_lag1 (most authority)\*Support staff per clinician | 6.53 | -38.67 | -251.37 | -869.74\*\*\* | 82.20 |
|  | (108.06) | (206.60) | (288.27) | (285.27) | (149.72) |
| NP SOP\_lag1 (moderate authority)\*Support staff per clinician | -48.76 | -12.98 | -1,303.78\*\* | 51.92 | 31.18 |
|  | (106.75) | (236.14) | (544.14) | (236.59) | (193.11) |
| **PA SOP** |  |  |  |  |  |
| PA SOP\_lag1 (most authority) | -24.47 | -180.38 | -66.67 | -155.62 | 211.90 |
|  | (141.44) | (340.19) | (267.77) | (239.42) | (268.41) |
| PA SOP\_lag1 (moderate authority) | -205.58 | -52.55 | -248.24 | -325.77 | -299.70 |
|  | (163.10) | (367.45) | (416.99) | (247.73) | (272.63) |
| PA SOP\_lag1 (most authority)\*Support staff per clinician | -75.44 | -12.83 | -248.13 | 118.14 | -146.94 |
|  | (83.72) | (224.45) | (293.57) | (274.04) | (124.56) |
| PA SOP\_lag1 (moderate authority)\*Support staff per clinician | 84.42 | 8.08 | 432.77 | 146.80 | 113.29 |
|  | (112.93) | (256.01) | (427.09) | (260.12) | (152.08) |
| **Patient Characteristics** |  |  |  |  |  |
| 19-64 (adults) | 1,402.98 | -263.80 | 1,120.99 | 3,708.76\*\*\* | 599.53 |
|  | (894.68) | (1,292.33) | (1,897.40) | (1,198.04) | (1,120.40) |
| 65 and over (aged) | -430.60 | -2,237.23 | -103.75 | 4,638.77\* | -2,582.06 |
|  | (1,685.42) | (3,028.42) | (3,687.38) | (2,484.38) | (3,814.39) |
| Female | -1,894.97 | -3,986.64\*\* | 1,571.32 | -1,356.53 | -2,909.69 |
|  | (1,226.13) | (1,805.92) | (1,835.54) | (1,575.71) | (3,045.53) |
| Black | 708.88 | 1,417.11 | -2,146.84\* | 777.24 | 1,008.35 |
|  | (672.43) | (1,344.35) | (1,129.55) | (1,813.35) | (949.93) |
| Asian/Pacific Islander | 1,070.49 | 1,700.14 | -4,701.85 | 2,232.04 | 1,357.60 |
|  | (1,424.16) | (5,544.24) | (4,133.31) | (4,151.35) | (1,227.82) |
| American Indian/Alaska Native | -1,684.33 | -2,694.63 | -4,191.38\* | 57.80 | -610.29 |
|  | (1,214.05) | (2,129.03) | (2,379.48) | (3,654.98) | (1,660.27) |
| Other/Unknown | 73.26 | -245.73 | -703.98 | -249.88 | 395.65\* |
|  | (178.23) | (359.96) | (613.08) | (420.66) | (233.27) |
| Hispanic  | 557.42 | 469.76 | -1,767.53 | -2,153.55 | 1,837.29\*\* |
|  | (627.85) | (1,106.07) | (1,352.16) | (1,366.30) | (750.25) |
| Medicaid | 155.07 | -450.72 | 625.68 | 1,158.81\* | 175.61 |
|  | (278.11) | (436.11) | (630.97) | (657.61) | (414.88) |
| Medicare | 1,026.37 | -512.71 | -2,504.47 | -1,780.11 | 6,444.43\*\*\* |
|  | (1,136.54) | (1,817.11) | (3,379.45) | (1,554.37) | (2,147.98) |
| Other public | 345.41 | 837.94 | -2,994.15 | -2,966.70\*\* | 1,156.01 |
|  | (584.63) | (970.63) | (3,017.26) | (1,437.70) | (885.01) |
| Private | 390.38 | 201.33 | -1,005.64 | 1,445.76\* | -65.55 |
|  | (457.21) | (849.57) | (715.49) | (748.73) | (878.05) |
| Patients with limited English proficiency | -25.85 | 113.22 | 229.49 | 1,679.70 | -288.18 |
|  | (258.66) | (436.14) | (443.30) | (1,323.09) | (356.59) |
| Patients with income 100% and below poverty level | -53.86 | -263.53 | 587.07 | -726.19\* | 64.56 |
|  | (165.88) | (329.71) | (506.69) | (391.90) | (232.54) |
| **CHC Characteristics** |  |  |  |  |  |
| Support staff per clinician | 76.63 | 128.85 | 626.34\*\* | 36.07 | -16.93 |
|  | (98.16) | (170.43) | (308.83) | (265.25) | (148.22) |
| EHR  | -121.18\*\* | -109.03 | -35.99 | -111.08 | -163.91\* |
|  | (54.89) | (89.64) | (133.27) | (149.36) | (88.85) |
| PCMH | -76.12 | -22.38 | -128.32 | -77.85 | -148.03\* |
|  | (48.54) | (83.69) | (110.43) | (103.12) | (79.26) |
| Grant over total revenue | -1,799.30 | -1,930.45 | -4,439.41 | 1,197.20 | 814.48 |
|  | (1,864.90) | (2,254.32) | (6,483.56) | (8,252.67) | (2,382.77) |
| Large size (>median patients) | 341.66\*\*\* | 296.98\*\* | -450.26 | 307.82 | 568.24\*\*\* |
|  | (94.03) | (122.55) | (398.57) | (288.36) | (140.64) |
| **Market (County) Characteristics** |  |  |  |  |  |
| Rural | -111.34 | -153.35 | -1,054.80\*\*\* | -154.05 | 56.43 |
|  | (83.56) | (119.78) | (324.18) | (244.84) | (132.23) |
| Median household income in $1,000 | 3.56 | 2.69 | 15.53 | 0.83 | 4.46 |
|  | (4.13) | (7.20) | (9.89) | (10.19) | (6.91) |
| Unemployment | 811.95 | -687.31 | 1,720.37 | -80.17 | 1,540.70 |
|  | (1,406.16) | (2,276.97) | (3,017.69) | (3,789.54) | (2,066.07) |
| NPs with NPI per 1,000 population | 122.74 | 190.97 | 171.51 | 13.90 | -233.12 |
|  | (120.09) | (214.99) | (194.98) | (281.39) | (222.42) |
| PAs with NPI per 1,000 population | -153.10 | -210.57 | -153.99 | -457.83 | 395.00 |
|  | (203.21) | (393.15) | (190.20) | (399.66) | (401.38) |
| Physicians per 1,000 population | -9.56 | -1.69 | 0.04 | -188.77 | 131.54 |
|  | (118.41) | (247.87) | (242.54) | (253.23) | (165.47) |
| Constant | 1,335.66 | 4,165.29\*\* | 837.72 | -270.66 | 1,611.44 |
|  | (935.28) | (1,623.70) | (1,441.57) | (1,743.94) | (1,748.96) |
| Observations | 4,334 | 1,428 | 399 | 944 | 1,563 |
| R-squared | 0.02 | 0.03 | 0.22 | 0.06 | 0.06 |
| Number of CHCs | 739 | 243 | 68 | 162 | 266 |
| CHC FE | YES | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES | YES |

Robust standard errors in parentheses.

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

|  |  |
| --- | --- |
|  | **Visits per FTE PCP per Year** |
|  | All | (1)Typical | (2)High advanced practice | (3)High nurse | (4)High other medical |
| **NP SOP** |  |  |  |  |  |
| NP SOP\_lag1 (most authority) | 72.67 | 76.16 | 58.51 | -423.25 | 667.38 |
|  | (194.72) | (161.96) | (481.96) | (270.42) | (405.83) |
| NP SOP\_lag1 (moderate authority) | 55.16 | -134.04 | 515.18 | 283.40 | -368.92 |
|  | (128.79) | (168.22) | (320.95) | (233.77) | (259.43) |
| NP SOP\_lag1 (most authority)\*Support staff per clinician | -178.10 | 107.54 | -704.62\*\* | 146.30 | -517.26\*\* |
|  | (141.29) | (116.36) | (273.82) | (354.88) | (224.34) |
| NP SOP\_lag1 (moderate authority)\*Support staff per clinician | -36.92 | 140.20 | -951.66\*\* | -47.07 | 166.09 |
|  | (99.48) | (147.50) | (449.42) | (220.49) | (174.25) |
| **PA SOP** |  |  |  |  |  |
| PA SOP\_lag1 (most authority) | -71.38 | -96.69 | -350.85 | -104.94 | -16.58 |
|  | (100.83) | (169.88) | (341.52) | (164.64) | (177.99) |
| PA SOP\_lag1 (moderate authority) | -13.60 | -168.49 | -148.71 | 167.37 | 102.50 |
|  | (111.67) | (174.89) | (380.66) | (178.88) | (204.56) |
| PA SOP\_lag1 (most authority)\*Support staff per clinician | 60.47 | 37.89 | 184.84 | 229.50 | 39.87 |
|  | (62.81) | (129.99) | (280.78) | (216.55) | (83.87) |
| PA SOP\_lag1 (moderate authority)\*Support staff per clinician | -34.24 | 54.54 | -54.46 | -286.36 | -98.40 |
|  | (84.92) | (126.53) | (346.48) | (194.76) | (138.41) |
| **Patient Characteristics** |  |  |  |  |  |
| 19-64 (adults) | -784.40 | -885.51 | -1,325.71 | -4,514.03\*\*\* | -385.50 |
|  | (666.54) | (655.20) | (1,582.67) | (1,389.21) | (704.72) |
| 65 and over (aged) | 236.22 | -1,146.45 | -5,689.40 | 1,559.08 | 1,398.86 |
|  | (1,283.24) | (1,785.79) | (5,018.05) | (2,149.59) | (2,722.56) |
| Female | 770.82 | 189.80 | 6,608.48\*\*\* | 2,013.54 | -2,483.16\* |
|  | (990.80) | (1,520.79) | (2,396.90) | (2,014.13) | (1,426.48) |
| Black | -581.88 | -1,420.27\* | -2,320.40 | 808.63 | -454.71 |
|  | (562.48) | (845.26) | (1,460.40) | (1,445.96) | (897.76) |
| Asian/Pacific Islander | 134.91 | -210.64 | -7,776.90\* | 4,840.98\* | 322.84 |
|  | (849.19) | (1,306.82) | (4,089.62) | (2,581.45) | (872.55) |
| American Indian/Alaska Native | 1,628.00 | -2,495.86\* | -4,761.68 | 2,141.91 | 4,985.95\* |
|  | (2,147.40) | (1,268.68) | (3,531.64) | (3,987.76) | (2,821.41) |
| Other/Unknown | -176.55 | -440.67\*\* | -948.84\* | -47.76 | 80.60 |
|  | (141.60) | (185.66) | (566.23) | (425.95) | (207.42) |
| Hispanic  | -440.78 | -413.61 | -613.01 | -412.19 | 201.21 |
|  | (383.87) | (455.42) | (1,168.23) | (1,143.45) | (543.04) |
| Medicaid | -441.93\*\* | 70.09 | -1,320.17\*\* | -1,404.83\* | -358.71 |
|  | (218.68) | (314.41) | (606.79) | (739.64) | (275.81) |
| Medicare | 719.50 | 1,023.38 | 5,397.57 | -278.36 | 368.96 |
|  | (818.37) | (1,474.02) | (3,399.11) | (1,235.26) | (1,642.20) |
| Other public | -479.05 | 306.95 | -2,959.92 | -1,968.51 | -448.89 |
|  | (429.27) | (747.74) | (2,140.39) | (1,196.49) | (512.37) |
| Private | -297.47 | -436.47 | -1,469.73 | 414.02 | -409.91 |
|  | (422.99) | (734.36) | (958.23) | (714.50) | (607.69) |
| Patients with limited English proficiency | 108.50 | -90.72 | -178.97 | -998.56 | 374.90\* |
|  | (173.61) | (337.62) | (518.14) | (872.08) | (217.20) |
| Patients with income 100% and below poverty level | -62.57 | 192.98 | -222.29 | -158.31 | -29.15 |
|  | (117.83) | (213.53) | (290.38) | (310.83) | (178.03) |
| **CHC Characteristics** |  |  |  |  |  |
| Support staff per clinician  | 245.65\*\*\* | 142.31 | 694.81\*\* | 84.97 | 381.83\*\*\* |
|  | (70.63) | (100.07) | (302.43) | (178.09) | (106.93) |
| EHR  | -254.98\*\*\* | -276.64\*\*\* | -187.69 | -352.75\*\*\* | -169.22\*\*\* |
|  | (40.28) | (51.65) | (165.54) | (117.70) | (56.87) |
| PCMH | -67.40\*\* | -39.93 | -1.54 | -196.77\*\* | -41.16 |
|  | (32.33) | (41.72) | (129.00) | (84.84) | (53.16) |
| Grant over total revenue | -3,012.60\* | -284.63 | -8,866.84\* | -4,244.97 | -2,249.37 |
|  | (1,795.68) | (766.01) | (4,591.95) | (3,875.06) | (2,868.23) |
| Large size (>median patients) | 145.93\*\* | 143.52\* | 174.30 | -105.05 | 194.90 |
|  | (72.53) | (86.32) | (192.27) | (184.36) | (135.07) |
| **Market (County) Characteristics** |  |  |  |  |  |
| Rural | -1.29 | -56.19 | 144.80 | -381.14\*\*\* | 118.81 |
|  | (50.17) | (68.78) | (445.72) | (103.49) | (74.56) |
| Median household income in $1,000 | 5.93\*\* | 3.52 | 0.14 | 10.63\* | 8.07\*\* |
|  | (2.47) | (3.30) | (11.32) | (6.18) | (3.49) |
| Unemployment | 3,416.96\*\*\* | 4,327.47\*\*\* | -2,691.81 | 1,376.83 | 6,115.62\*\*\* |
|  | (889.34) | (1,390.82) | (3,180.85) | (1,917.13) | (1,377.52) |
| NPs with NPI per 1,000 population | -147.77\*\* | 41.96 | -389.91\*\* | -193.26 | -161.14 |
|  | (73.53) | (104.77) | (191.35) | (146.59) | (172.73) |
| PAs with NPI per 1,000 population | -127.95 | -487.38\*\* | 207.09 | -321.14 | 85.66 |
|  | (134.92) | (240.33) | (255.83) | (223.54) | (288.71) |
| Physicians per 1,000 population | 153.67\*\* | 244.57\*\* | -237.12 | 20.69 | 242.65\*\* |
|  | (77.10) | (109.92) | (304.24) | (164.91) | (114.67) |
| Constant | 2,924.27\*\*\* | 3,613.84\*\*\* | 2,028.87 | 5,262.10\*\*\* | 3,305.50\*\*\* |
|  | (835.53) | (1,105.27) | (1,890.97) | (1,749.42) | (1,190.07) |
| Observations | 4,334 | 1,428 | 399 | 944 | 1,563 |
| R-squared | 0.11 | 0.16 | 0.17 | 0.19 | 0.16 |
| Number of CHCs | 739 | 243 | 68 | 162 | 266 |
| CHC FE | YES | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES | YES |

Robust standard errors in parentheses.

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1