

Figure 2: Average MAP Change by Engagement Level

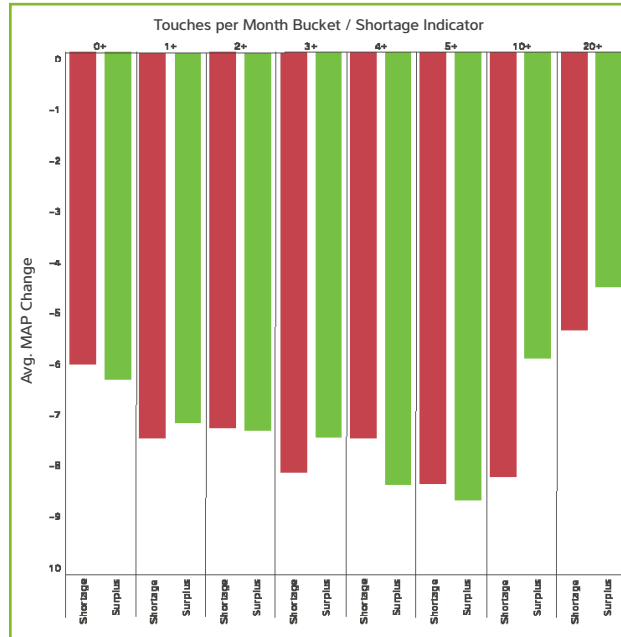


Figure 3: Average Monthly Weight Change by Engagement Level

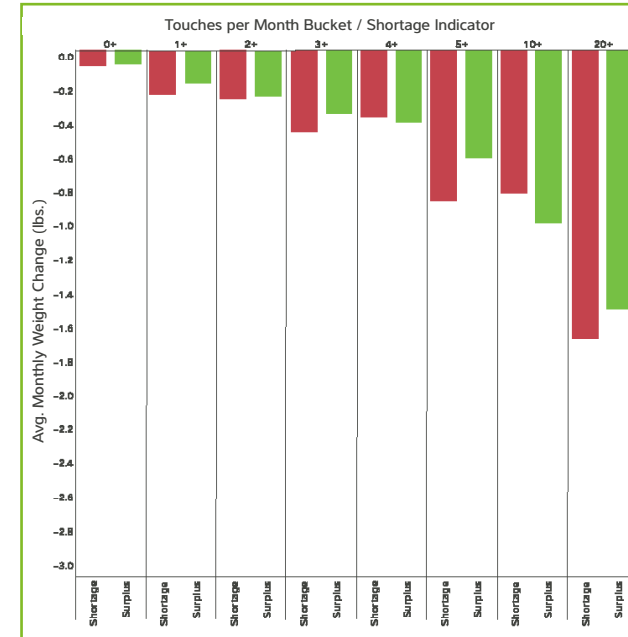
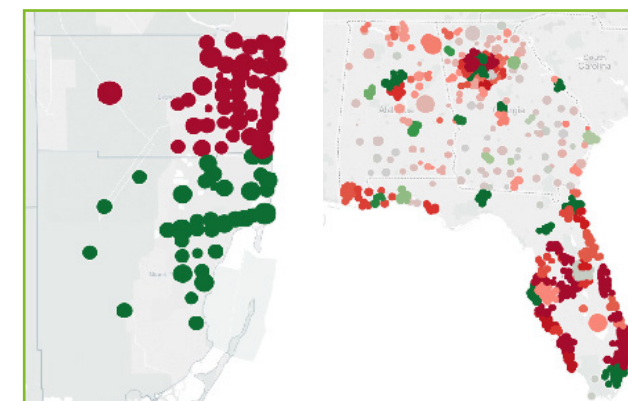


Table 2: Average MAP and Monthly Weight Change

	PCP Shortage	PCP Surplus
Blood Pressure Change		
Avg. MAP Change	-6.35	-6.53
% with any MAP Decrease	71%	71%
% with MAP Decrease to Lower Class	24%	25%
% Ending Normo-Tensive	9%	8%
Weight Change		
Avg. Monthly Weight Change (lbs.)	-0.16	-0.13
% with any Weight Decrease	54%	53%
% with Weight Decrease to Lower Class	11%	10%
% Ending in Normal Weight Class	1%	1%

Figure 4: Average MAP Change in Broward and Miami-Dade Counties (FL)



BE WHERE THEY ARE NOT

ENGAGING AT-RISK AND EMERGING RISK INDIVIDUALS IN AREAS WITH SHORTAGES OF PRIMARY CARE PHYSICIANS

Authors: Khan M. Siddiqui, MD^{1,2}; Ross Goglia, MBA²; Jeff Barkoff, MBA²
¹Johns Hopkins University, Baltimore, MD; ²higi SH llc, Chicago, IL

Background: Shortages within the Primary Care Physician (PCP) community are well documented by government and professional organizations, with projections of the national shortage of practitioners equal to 58.57% of Need Met. Existing analyses indicate shortages are not equally distributed across the country. To date, common approaches to mitigate this issue range from increasing the pay scale for PCPs to increasing the number of post graduate training positions offered to medical students, with acknowledgment that these solutions would only partially solve this problem and still leave pockets of shortages in certain communities.

Objective: Examine the differences in health service utilization and medical outcomes between geographies with and without PCP shortages.

Methods: De-identified historic data from a nationwide health kiosk network (higi SH, llc, Chicago, IL) was analyzed from September 2012 through December 2015, within the tri-state region of Florida, Georgia and Alabama. A total of 1,433 health stations were located at retail pharmacies in this region. During the course of the study 949,865 total registered users, above the age of 18 years, used the platform. This study focused on only adult patients that had blood pressure results in the hypertensive range (n = 45,294) on their first visit, or BMI in the obese range (n = 55,119) on their first visit. Patients with at least two readings in the system were included in the study. Average logins per month was considered the measure of patient engagement on the ambulatory health monitoring platform.

Physician shortages and surpluses were identified using a data extract from the Physician Planning module (Truven Health Analytics, Ann Arbor, MI), with both calculated and estimated data from calendar year 2014. Physician specialties were limited to Internal Medicine and Family Practice. Physician shortages were calculated at the county level by subtracting the estimated demand for physicians from the calculated availability of physician supply, as measured in Physician Full-Time Equivalents (FTEs).

Results:

Access and Utilization

Counties with PCP shortages had fewer stations per county and nearly twice as many PCP visits per day than counties with PCP surpluses (Figure 1, Table 1). However, there was no statistically significant difference in daily station usage in counties with surpluses and those with shortages. Daily sessions per station also averaged higher than PCP visits per day – by more than 1.5x in shortage areas and 3x in surplus areas. At the state level, there was no significant difference in daily station usage across geographies, even with differences in the availability of stations. At the county level, however, counties with PCP surpluses consistently saw higher station utilization than counties with shortages.

Health Outcomes

Consistent with previous research, engagement with ambulatory remote monitoring stations and web and mobile platforms is associated with reductions in blood pressure (mean arterial pressure) and weight (monthly weight change), in both geographies with PCP surpluses and PCP shortages (p< 0.001) (Figure 2 and 3). The most populous counties, each with high station counts, observed decreased average MAP for hypertensive populations with no significant difference in health outcomes by PCP shortage or surplus classification. Neighboring counties Broward and Miami-Dade both saw decreases in MAP, despite Miami-Dade having a PCP surplus (+281 FTE) and Broward County having a PCP shortage (-293 FTE) (Figure 4). Although MAP reduction showed no significant difference overall between surplus and shortage counties, average monthly weight loss proved greater in shortage counties with statistical significance (p<0.02) (Table 2).

Discussion: The common assertion that adding PCP capacity in areas with shortages – addressing the “access” issue – as a foundational step to improving health status may be inaccurate. Using remote ambulatory monitoring stations as a measure of health status illustrates that increased access does not translate into better health status. Increased utilization of stations in counties where access to care is limited – given the shortage of available physicians – may provide multiple community health benefits including: (a) identification of individuals who may require more immediate care than others, and (b) introducing stations into communities where none exist today as a means for evaluating population health status.

Additionally, the volume and presence of pharmacies in each of these three states necessitates inquiry and evaluation of how pharmacists could play a greater role in supporting the care value chain, in particular for communities with PCP shortages to positively impact population health.

Conclusion: No significant correlation exists between PCP shortage and the utilization rate of ambulatory health monitoring stations. Additionally, health outcomes as measured by remote ambulatory health monitoring stations were no better in surplus areas than in shortage areas. Significantly greater improvement in BP and weight is seen with higher engagement on the ambulatory health monitoring platform.

Conflict of Interest: This study was funded by highi SH llc and all authors are full time employees of the company.

Disclosures: Data for use in this publication were supplied by Truven Health Analytics. Any analysis, interpretation or conclusion based on these data is solely that of the authors, and Truven Health Analytics disclaims responsibility for any such analysis, interpretation or conclusion.

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Figure 1 - Station Availability

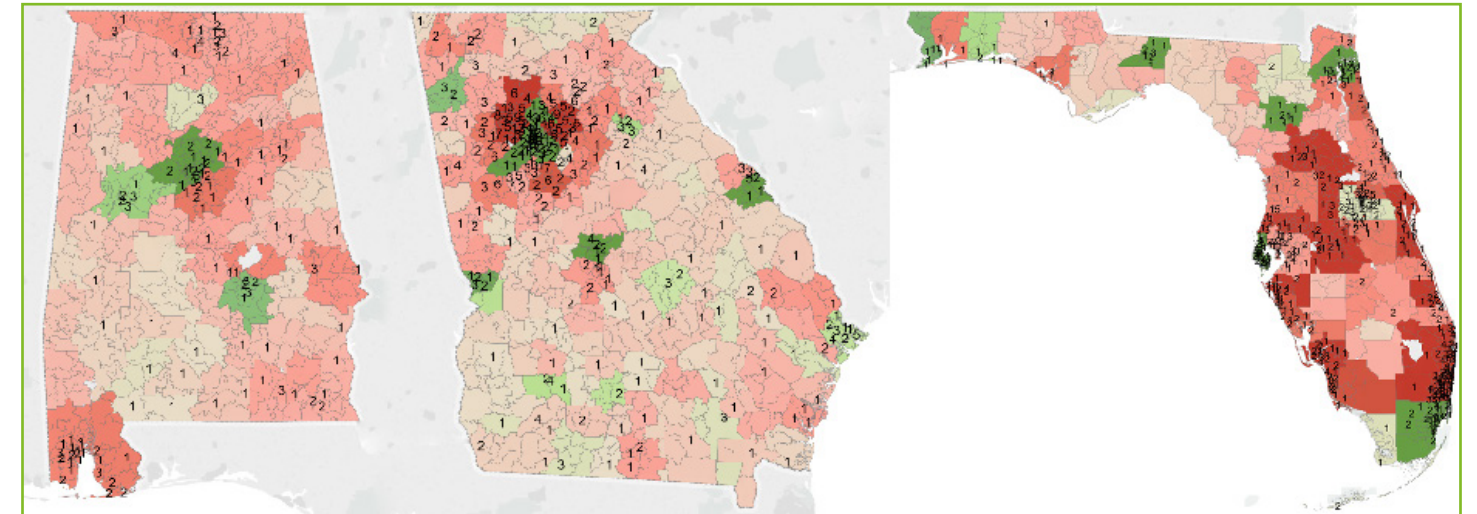


Table 1 - Station Availability and Usage

	PCP Shortage	PCP Surplus
Tri-State Area		
Station Count	977	456
Counties w/ Stations	150	40
% Counties Covered	62%	78%
Stations per County	6.5	11.4
Sessions per Station per Day	17.9	19.4
2014 Visits per Doctor per Day	10.9	5.7
Alabama		
Station Count	125	56
Counties w/ Stations	38	7
Stations per County	3.3	8.0
Sessions per Station per Day	9.0	10.1
Georgia		
Station Count	365	199
Counties w/ Stations	80	23
Stations per County	4.6	8.7
Sessions per Station per Day	11.4	12.8
Florida		
Station Count	488	201
Counties w/ Stations	32	10
Stations per County	15.3	20.1
Sessions per Station per Day	21.4	24.0