Driving Improvements in Utah's Health Outcomes: the community health worker solution

Introduction

Utah has been a leader in health care for many years. The state is known for its healthy populations, low cost of health care, and innovative practices. [1] The state, payers, and providers have a common goal to keep its citizens, members, and patients healthy and to provide high quality care. In alignment with this goal, the state has an initiative to increase engagement of community health workers (CHWs) by developing standardized training and a supportive professional development network.

Community health workers are frontline public health workers who serve as a bridge between patients, health care providers, and social service providers. They provide support and implement strategies to improve individuals' health. Organizations within Utah refer to CHWs by a variety of terms, including care guides, care transitionists, community connectors, family service specialists, case managers, advocates, promotoras, and peer support specialists, among others.

As the number of CHWs within the industry grows, their contributions to healthy populations are being increasingly recognized. According to the U.S. Department of Labor, the number of CHWs in the United States has grown by 36 percent since 2012 and is predicted to increase an additional 18 percent by 2026. [2]

Where are Utah's community health workers found?

A recent environmental scan conducted by the Utah Department of Health indicated that many organizations in Utah are seeking to improve health outcomes by employing CHWs. Survey results showed that CHWs are engaged or employed in every county in the state—with Salt Lake, Utah, and Davis counties having the highest concentration—and are found in a variety of setting, including hospitals, medical clinics, health plans, schools, government agencies, and other community-based organizations.

The U.S. Department of Labor estimated that in May 2016 there were 550 CHWs in Salt Lake City and Ogden. [3] However, the number of CHWs is often underreported because of the nature and variability of the position. The lack of standardized training and certification programs, core competencies, and scope of work throughout the state and nation contributes to the difficulty in tracking how many CHWs are employed within their communities.

How do community health workers benefit Utah's communities?

The role of a CHW is unique within each health care community. In Utah, CHWs help the state reach its health care goals and the Triple Aim (improved health, improved care, and reduced costs) by focusing on the needs of individuals. Community health workers provide education about disease prevention and

lifestyle modification, informal counseling and coaching, and extended support to targeted individuals. They have the potential to increase self-sufficiency and build community capacity by acting as a link between patients and their providers and other community resources. Common CHW roles within Utah, as expressed in the recent environmental scan, include promoting health literacy, hosting health education activities, facilitating goal setting and action planning, providing one-on-one and group education and counseling, addressing individual basic needs, supporting care coordination and case management, scheduling health care and community appointments, mentoring, and connecting individuals to community resources.

Community health workers are able to build a relationship of trust that improves interactions and garners successful outcomes because they are often members of the populations and communities with which they are working; they speak a common language, come from a similar culture, and have a deeper understanding of the populations' needs. Duties of CHWs have been implemented across many organizations in Utah. In some cases, the job functions are split up among several staff, such as nurses, social workers, doctors, or other clinical workers. However, many organizations are increasingly engaging specific individuals (CHWs) to carry out the full scope of services.

The individuals best served by CHWs often have diverse and complex needs, requiring a greater degree of care management and support. These needs may be in the form of multiple chronic conditions, non-English-speaking immigrants, functional limitations, behavioral health challenges, or complex social needs, such as lack of housing, food, or supportive personal relationships.[4] CHWs are uniquely trained and positioned to address these social and care management needs of the patients, while allowing nurses, physicians, social workers, and other licensed workers to practice at the top of their license by focusing on diagnosis, treatment, and administration of care.

Outcomes from community health worker interventions

Many studies have been performed in the United States to inform the value that CHWs bring to the health care system and patient experience. Community health worker interventions have been shown to improve outcomes for patients with chronic conditions,[5, 6] enhance disease prevention,[7] reduce 30-day hospital readmissions,[8] improve mental health,[8] promote positive lifestyle behavior change,[9] increase linkages to primary care,[8] decrease hospital costs,[10] and increase patient and provider satisfaction.[11]

Although calculating a return on investment is complicated with this type of intervention, many programs and studies have reported estimated health cost savings associated with CHWs. These savings are often attributed to reduced emergency department use, hospitalizations, readmissions, nursing home placements, and, in some cases, pharmaceutical costs.[12] Estimated savings from CHW interventions range from $1.81 to $5.58 for every $1.00 spent.[12, 13, 14, 15] Another study estimated an expected savings of 7.1 percent in the third year.[16]

Utah's areas of need

Although the state ranks fourth within the nation for overall health, improvements can be made with individuals who need assistance improving their quality of life. By preventing, decreasing the prevalence of, and better managing chronic conditions, patient outcomes improve and costs decrease.

Given the potential savings, positive patient and physician experience, and improved patient outcomes, Utah's health care community can benefit by engaging with CHWs. There are many populations in Utah that could benefit from the services CHWs provide, including those with chronic conditions, high emergency department utilization, limited access to physicians, high rates of uninsured, and minority or limited English speaking groups.

Chronic Conditions

Management of chronic conditions is a growing need across the nation. In 2012, one-quarter of adults had two or more chronic health conditions, and seven of the top ten causes of death in 2014 were chronic diseases.[17] When left unmanaged, these conditions become costly. However, they are also among the most preventable of all health problems.

CHWs are able to make great strides when working with these populations. By engaging individuals in the management of their health, staying in regular contact, and creating a trusted relationship, CHWs help individuals create lifestyle changes better than individuals would on their own or with the limited contact of a physician.

In 2017, the Community Preventive Services Task Force (CPSTF), a panel of public health and prevention experts appointed by the Centers for Disease Control and Prevention director, performed a systematic review of CHW interventions with individuals with diabetes and found that the interventions improved patients' blood sugar control and reduced their health care use. Improvements were also seen in self-reported lifestyle changes. The median intervention cost per person per year was $585, and the median cost per quality adjusted life year (QALY) gained was $38,276—below the $50,000 benchmark for cost-effectiveness.[18]

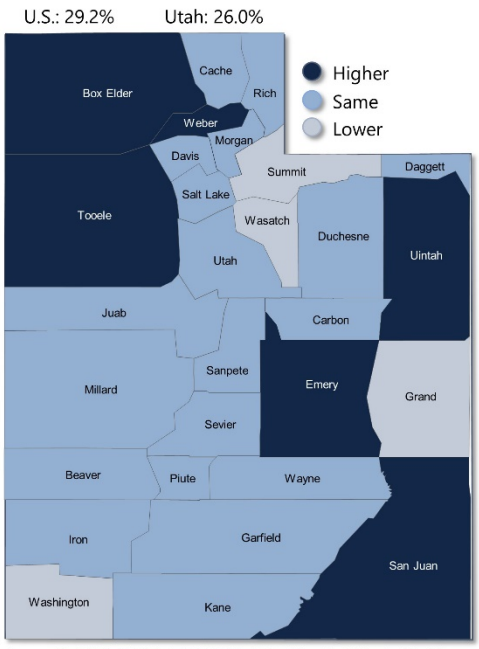
In Mississippi, patients with cardiovascular disease began working with CHWs in 2012. Over a four-year period, the patients decreased their systolic and diastolic blood pressure by an average of 1.3 percent and 1.7 percent, respectively.[19] The CPSTF, in a systematic review, found that CHW interventions for clients at increased risk for cardiovascular disease were very effective in improving blood pressure and cholesterol and moderately effective in improving health behavior outcomes. The median intervention cost per person per year was $329; the median change in health care cost per person per year was $82; the median estimated QALY was $17,670—well below the $50,000 benchmark for cost-effectiveness.[20]

One-quarter of Utah's adult population has high blood pressure and/or is obese. Almost the same number have been diagnosed with depression, and 6–8 percent of the population has been diagnosed with diabetes or coronary heart disease, stroke, or heart attack (See Figures 1–6). The Holy Cross Ministries, operating in Salt Lake and Summit counties, has recently begun providing training to its CHWs, also known as promotoras, to help individuals manage their health and weight through a diabetes prevention initiative. The CHWs will act as coaches and case managers for individuals at high

risk of developing diabetes by providing education, regular check-ins, weight monitoring, and emotional support to guide the individuals toward improved results and better health.

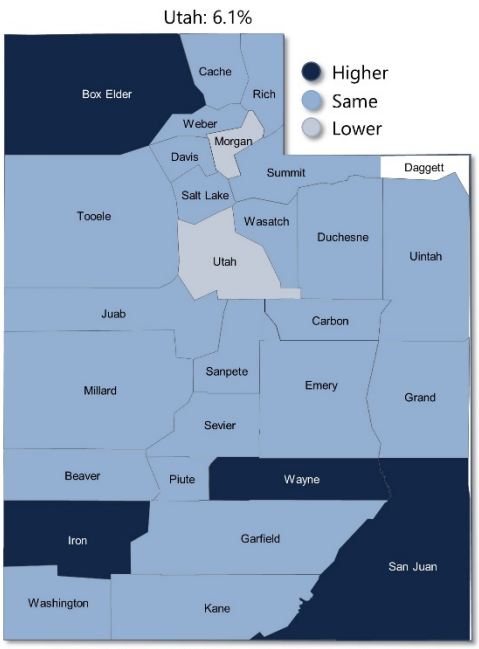
Utah also has one of the highest rates of drug poisoning deaths in the country, ranked seventh.[21] In 2015, 83.8 percent of these deaths were accidental or of undetermined intent, and of these, 77.6 percent involved opioids.[22] This is one example of a public health need in which CHWs may assist in improving outcomes. By making home visits, CHWs can help ensure that individuals understand the importance of taking their medications as directed, thereby reducing the risk of overdose, abuse, and exploitation of prescriptions, especially in the older population.

Figure 1:



Sources: Utah: Utah BRFSS data, 2014-2016, obtained from the UT Dept. of Health; U.S.: BRFSS, 2014-2016, obtained from the UT Dept. of Health

Figure 2:

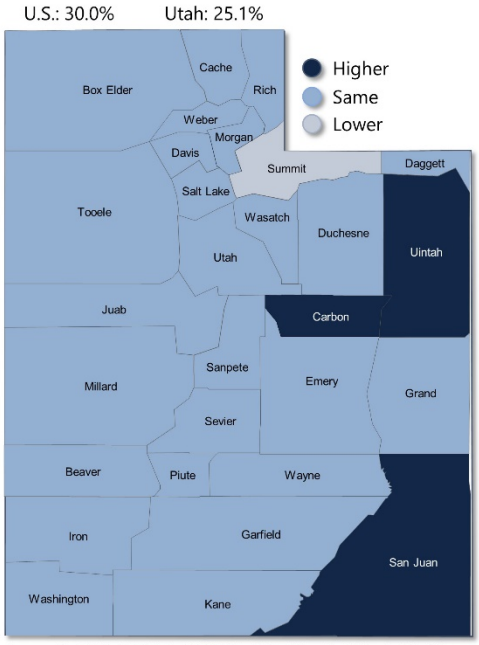


Sources: Utah: Utah BRFSS data, 2014-2016, obtained from the UT Dept. of Health

Figure 3:

High Blood Pressure Prevalence
(Difference from state average)

U.S.: 30.0% Utah: 25.1%

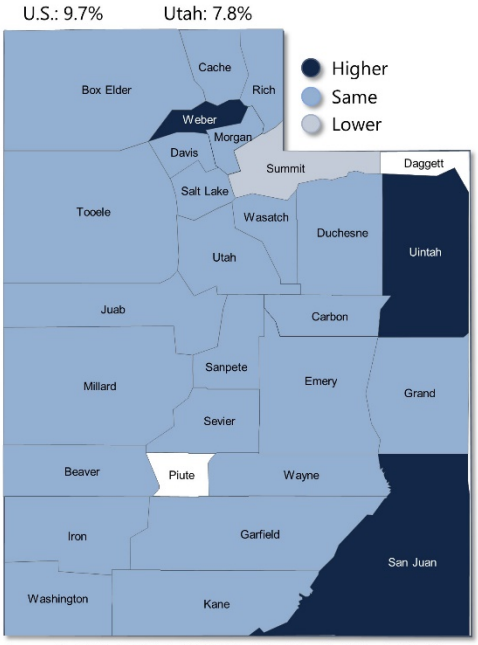


Sources: Utah: Utah BRFSS data, 2014-2015, obtained from the UT Dept. of Health; U.S.: BRFSS, 2014-2015, obtained from the UT Dept. of Health

Figure 4:

Diabetes Prevalence
(Difference from state average)

U.S.: 9.7% Utah: 7.8%

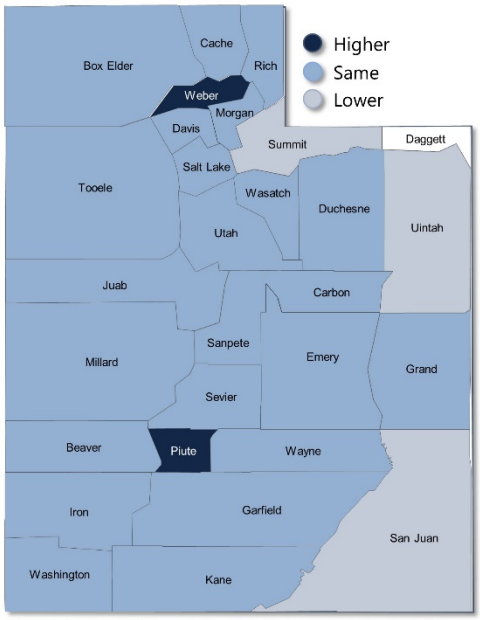


Sources: Utah: Utah BRFSS data, 2014-2016, obtained from the UT Dept. of Health ; U.S.: BRFSS, 2014-2016, obtained from the UT Dept. of Health

Figure 5:

Depression Prevalence
(Difference from state average)

U.S.: 17.7% Utah: 21.0%

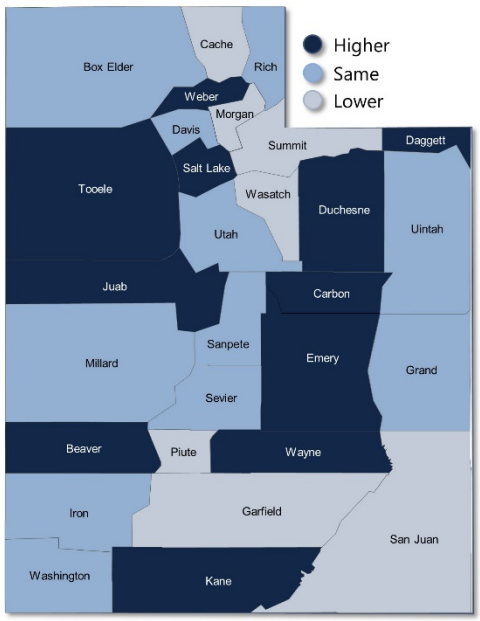


Sources: Utah: Utah BRFSS data, 2014-2016, obtained from the UT Dept. of Health; U.S.: BRFSS, 2014-2016, obtained from the UT Dept. of Health

Figure 6:

Deaths from Drug Poisoning
Per 100,000 population
(Difference from state average)

U.S.: 19.8 Utah: 22.4



Sources: Utah: Leavitt Partners map analysis on NCHS data, 2016; U.S.: NCHS data, 2016

Emergency Department Encounters

Inappropriate use of emergency departments is a topic of concern within health care. Such visits increase costs in the system, decrease efficiency, reduce capacity of the facility, and increase wait times for those who cannot be served elsewhere. Sometimes the emergency department is used as a substitute for primary or urgent care, and sometimes, although an emergency, the visit could have been avoided with proper care management.

Engaging CHWs to provide proper education and health management to high utilizers of the emergency department can reduce encounters, decreasing costs to both the system and patients. In Nevada, the engagement of CHWs decreased emergency room visits by 14 percent, acute care readmissions by 20 percent, and urgent care visits by 6 percent. [13] In a New York City study, patient navigator services decreased the mean number of emergency department visits (among those who had 6–11 visits prior to navigation) from 7.3 to 3.9, a highly significant difference. Those with 3–5 visits in the baseline period dropped from a mean of 3.7 to 2.0 visits after navigation. [23]

Some communities are also developing community paramedicine programs, also known as mobile integrated health care, to decrease unnecessary use of the emergency department. These programs are designed to assist those who use the 9-1-1 system regularly for preventable conditions, are at high risk for hospital readmissions, and/or are chronically ill and require education and support. In some cases, community paramedic teams are developed that consist of both paramedics and CHWs.

Northwell Health Community Paramedicine in New York provides in-home urgent visits for exacerbations of chronic conditions including in-home treatment, telemedicine consultation with physicians, coordination with primary care providers, in-home fall risk assessment, and disease management education. Seventy-eight percent of the patients seen by its community paramedics were treated at home; only nine percent of these were seen in an emergency department within 24 hours; and 90 percent of those who used the community paramedic service stated they would have used traditional 9-1-1 if they didn't have a community paramedic option. Medstar Mobile Health care in Texas has reduced ambulance transports by 60 percent for enrolled patients and 74 percent for superusers; it has also seen a 52 percent reduction in readmissions for a high-risk readmission cohort. [24]

Figures 7–9 indicate how Utah counties rate on emergency department encounters, compared to the state average. In general, many of the counties on the east and west sides of Utah have the highest utilization of the emergency department that could be avoided. Engaging CHWs in these counties could decrease costs to the system, increase efficiency, and improve proper use of the emergency department.

Access to Physicians

Physician shortages result in lower care quality as well as time-constrained patient-physician interactions, leaving little room for additional patient touches that are needed for patients with complex care needs.

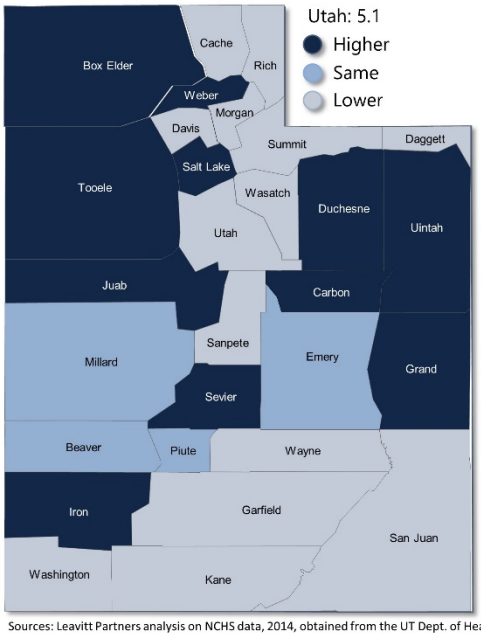
Utah has a physician shortage, ranking 44th in the nation for the ratio of physicians per segment of population. [25] In rural areas, this means traveling a greater distance to a primary care physician (see Figure 10). In metropolitan areas, it means a greater length of time between physician visits and difficulty scheduling an appointment to receive initial care.

Individuals living in most of the rural areas in Utah are challenged with limited access to care. Although approximately 15 percent of the state's population live a rural county, less than 8 percent of the state's physicians work in a rural county. [25] In some cases, individuals travel up to 45 miles to see the nearest primary care physician. Although CHWs do not generally provide clinical care, they can reduce gaps in access by securing transportation to appointments, conducting home visits, providing health education, and assisting in health management between physician visits. They increase the community's health knowledge and self-sufficiency through outreach.

In metropolitan shortage areas, physicians have a high workload and are more susceptible to burnout. However, their caseload can be reduced when they engage CHWs to provide health education and assist patients in managing their health at home. Community health workers enhance the physicians' work and allow them to see more patients, resulting in a positive impact on patients' self-management skills and clinical outcomes, as well as higher satisfaction with overall care from both patients and providers. [11] A study by the Massachusetts Department of Public Health showed that the state's 3,000 CHWs improved both the access to health care and the quality of that care. [26]

Figure 7:

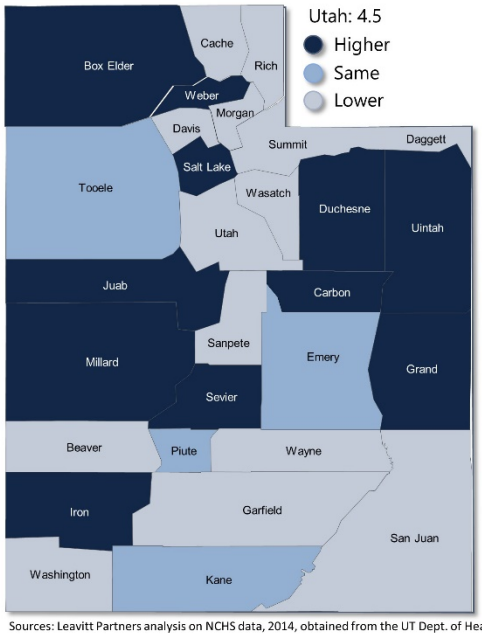
Primary Care Treatable Emergency Department Encounters
Per 100 treat & release encounters
(Difference from state average)



Sources: Leavitt Partners analysis on NCHS data, 2014, obtained from the UT Dept. of Health

Figure 8:

Non-emergent Emergency Department Encounters
Per 100 treat & release encounters
(Difference from state average)

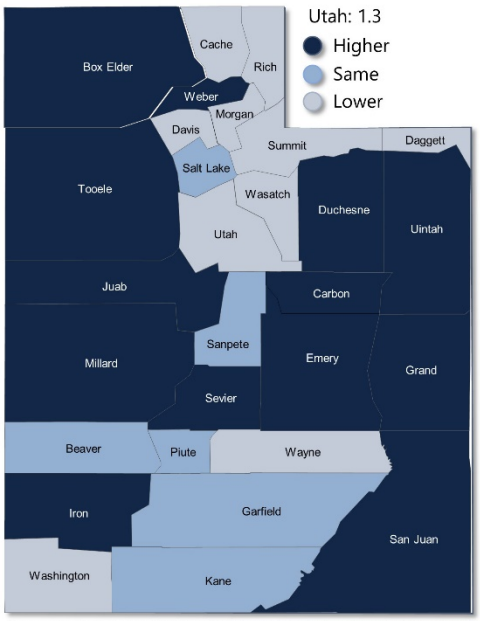


Sources: Leavitt Partners analysis on NCHS data, 2014, obtained from the UT Dept. of Health

Figure 9:

Preventable Emergency Department Encounters

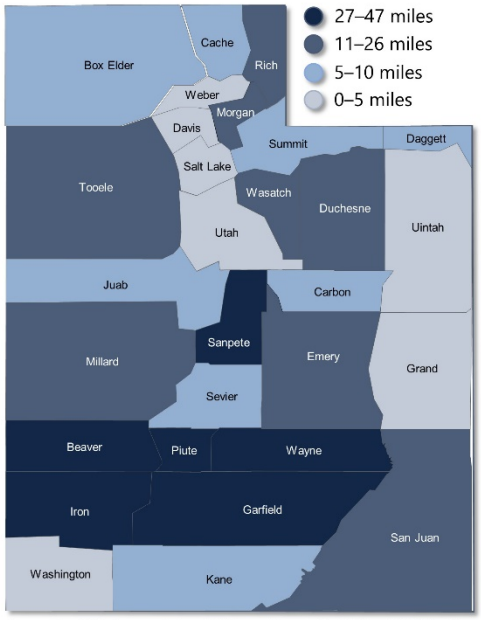
Per 100 treat & release encounters
(Difference from state average)



Sources: Leavitt Partners analysis on NCHS data, 2014, obtained from the UT Dept. of Health

Figure 10:

Patient Distance to a Primary Care Physician



Sources: Leavitt Partners analysis on U.S. Census Bureau data, 2010, and CMS Physician Compare data, 2017

Uninsured Rate and Cost as a Barrier to Care

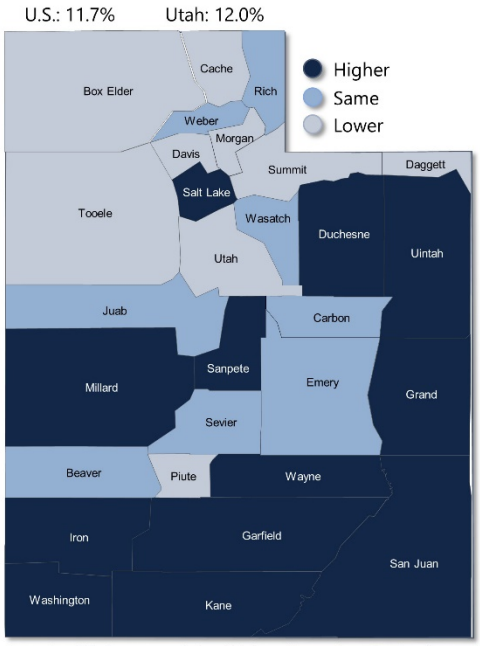
As of 2017, Utah is has a higher percentage of individuals without insurance coverage than most of the nation, at a rate of 9.7 percent.[27] In addition, 11.6 percent of individuals indicate that they are unable to get the care they need because it is too costly (see Figures 11 and 12). The longer individuals are uninsured or unable to obtain care due to cost, the less likely they are to have a usual source of care and to receive wellness visits, immunizations, flu shots, and prescriptions. They are also more likely to delay needed care compared to those with insurance coverage.[28] This may lead to more costly interventions in the future.

Many counties in the southern end of Utah have a significantly higher rate of uninsured, compared to the rest of the state. Many of the same counties indicate a significant cost barrier to care. Because of the financial challenges to receiving health care, these individuals may also have challenges fulfilling other needs, such as stable housing and food, needs that often keep them from taking care of their health. Community health workers can help these individuals reduce many unmet needs by connecting them to needed community resources to improve their living situation as well as their health.

The Association for Utah Community Health has employed five CHWs to serve community health centers in high-need areas across the Salt Lake Valley. These community health centers serve a predominantly uninsured population, and quality measurements indicate that individuals working with CHWs have higher patient activation and patient engagement scores.[29]

Figure 11:

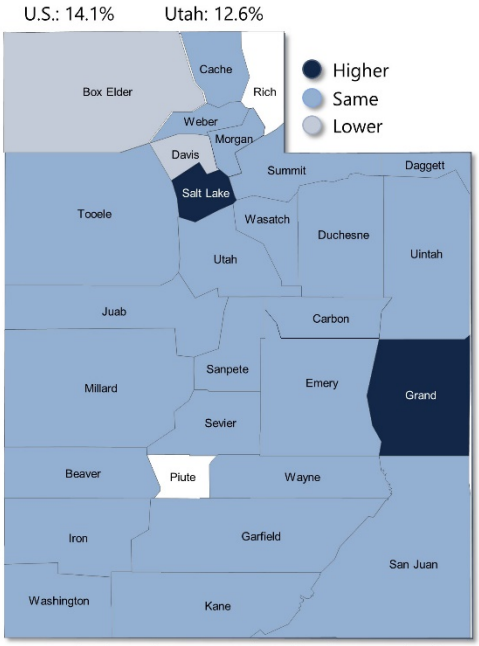
Uninsured Rate
(Difference from state average)



Source: Leavitt Partners map analysis on U.S. Census Bureau, 5-year American Community Survey data, 2016

Figure 12:

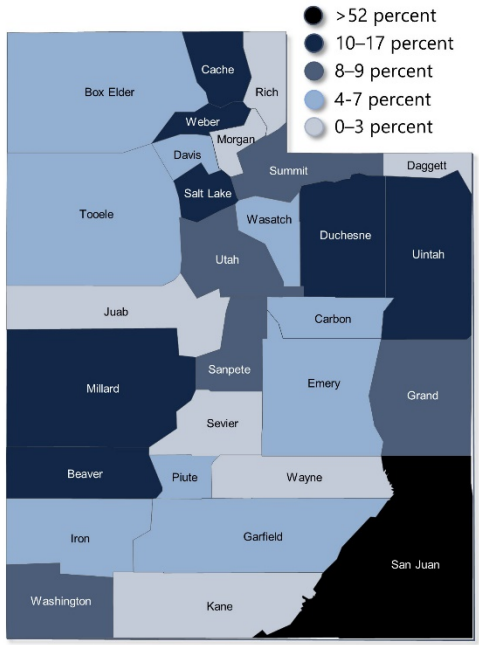
Unable to Get Needed Care Due to Cost
(Difference from state average)



Sources: Utah: Utah BRFSS data, 2014-2016, obtained from the UT Dept. of Health; U.S.: BRFSS, 2014-2016, obtained from the UT Dept. of Health

Figure 13:

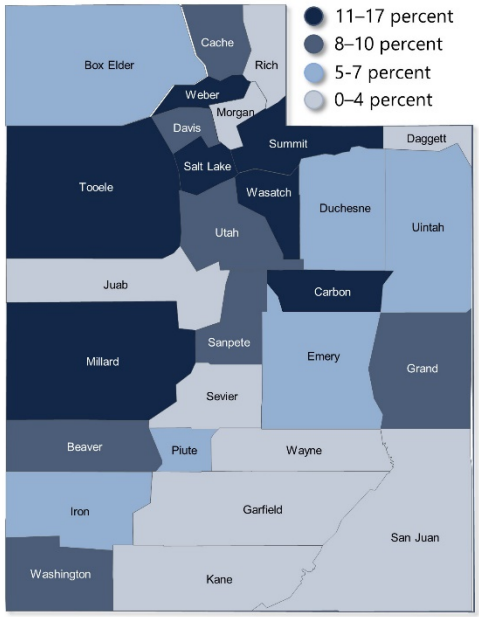
Non-white population, percent



Source: Leavitt Partners map analysis on the U.S. Census Bureau data, 2010

Figure 14:

Hispanic population, percent



Source: Leavitt Partners map analysis on U.S. Census Bureau data, 2010

Minority Populations

Although Utah's population is less diverse than many states across the United States, it is home to Hispanic, Native American, and refugee populations. Many of these individuals speak little or no English, creating a barrier to care and health education. Community health workers can provide a great benefit to these populations by addressing cultural barriers, delivering clinical instructions in the patients' native language, and assisting them in navigating a complex health care system.

San Juan County, which includes Native American reservations, has greater than 50 percent non-white population (see Figure 13). Salt Lake and Weber counties have the next highest non-white populations at greater than 15 percent. Each of these areas indicate a need for greater support in transcending cultural barriers to care.

The Holy Cross Ministries serves many minority, particularly Hispanic, populations in Salt Lake and Summit counties. The organization employs CHWs who assist individuals in obtaining health care coverage and services, navigating the health care system, and improving management of their health and care. Of the individuals referred to its program, the organization assisted 89 percent in obtaining health care coverage or health care services. Holy Cross Ministries finds that CHWs improve the physician-patient relationships and increase patients' trust in the health care system and in the recommendations of their providers.

Utah efforts

A variety of initiatives have been underway to increase the visibility and engagement of CHWs throughout Utah. For example, coalitions and special interest groups have been formed to organize and promote CHWs, surveys and assessments have been conducted with the assistance of the Utah Department of Health (UDOH) to determine the role of CHWs within Utah, a grant has been funded by a local provider to implement a pilot CHW program within Salt Lake County, non-profit organizations have deployed CHWs to increase the health of targeted community populations, and CHW-specific breakout sessions have been included at annual state public health conferences, among others.

The Utah CHW Coalition (CHWC) was formed in 2015 to develop support for policies related to the promotion and advancement of CHWs in the state, as well as facilitate the sharing of ideas and leverage resources for CHW implementations. Forty organizations are represented from public, private, and non-profit sectors. The CHWC is engaged in building the professional identity of CHWs by establishing standardized training and certification and promoting their establishment within the state. A training pilot is currently in progress and is scheduled to be completed in September 2018.

A Special Interest Group (SPIG) for CHWs is also hosted within the Utah Public Health Association (UPHA). The group forms a peer network, offering the potential for CHWs to connect with their peers across the state, as well as provides resources related to professional development, training, networking, and advocacy. As membership and engagement in the SPIG increases, demonstrated viability will allow the group to transition from a special interest group to a defined Section status. The designation will lend greater sustainability for coordination and promotion of training, networking, professional and leadership development, and advocacy opportunities for CHWs in Utah.

In 2016, the UPHA, UDOH, CHWC, and the Association for Utah Community Health (AUCH) were awarded a three-year grant from Intermountain Healthcare to plan and implement a CHW program in five communities of Salt Lake County to address and evaluate access to care barriers and improved use of primary/preventive care resources. Since then, five CHWs have been trained and deployed among Salt Lake County communities.

Some of the challenges faced by Utah organizations that employ CHWs include the development and implementation of training for a small CHW workforce, financial resources for sustainability, and trust of providers in the capabilities and benefits CHWs contribute to the system. The CHWC, UDOH, AUCH, and UPHA are actively making strides to alleviate these challenges, and continued action and support from stakeholders will allow CHWs to become a permanent player on the health care team. This will give individuals and organizations statewide the potential to receive the benefits CHWs bring to the industry.

Conclusion

As Utah's payers, providers, and community organizations seek to improve the quality of care, the inclusion of CHWs should be considered. Evidence shows that targeted CHW interventions enhance the care experience, improve health outcomes, and have potential to reduce the cost of care. When trained to care for the specific needs of each area or population, such as chronic disease management, bridging cultural barriers, or creating community connections, CHWs can make a difference in individual lives and the community as a whole.

There are many areas across Utah that would benefit from the services CHWs provide, and improvements are already beginning to be seen in patient engagement, patient trust in the health system and its providers, better use of health care resources, and alignment of community goals through partnerships with CHW-engaging organizations. Pilots in Salt Lake County are taking root and engaging individuals in the management of their care; physicians and payers in the area are recognizing the benefits and are looking for ways to further engage and sustain the CHWs working among their populations.

The maps within this document can pinpoint specific areas of need within Utah's communities where CHWs may be uniquely positioned to provide support. For example, CHWs can be employed within Weber County to work among individuals with diabetes to improve management of their condition, provide education and support to individuals who often utilize emergency services inappropriately, or assist minority populations in understanding and navigating the health care system. Each of these services addresses a particular need, or indicator, in which Weber County reports rates significantly higher than the state average. Many of these health challenges are created by care gaps that CHWs can bridge.

Payers and health care systems may analyze the geographies and high-risk factors to determine where CHWs should be placed within their member populations. Current efforts to standardize training within Utah will increase the capacity of CHWs throughout the state to serve in each situation as needed and decrease the burden of training development for employers.

By increasing the engagement of CHWs across Utah's communities, we can improve access to care and management of chronic conditions while decreasing pent-up demand for care, cultural barriers, and avoidable use of the emergency department. Costs within the system may decrease, efficiency will increase, and patient and provider satisfaction will improve. Community health workers add fuel to the vehicle that drives improvement and achieves health care goals.

Resources

1. Gardner E. Why Does Utah Rank So High in Health Care? *NEJM Catalyst*. May 2, 2016. https://catalyst.nejm.org/why-does-utah-rank-so-high-in-health-care/. Accessed April 23, 2018.

2. Employment Projections. *U.S. Department of Labor, Bureau of Labor Statistics*. 2016. https://data.bls.gov/projections/occupationProj. Accessed April 23, 2018.

3. May 2016 State Occupational Employment and Wage Estimates. *U.S. Department of Labor, Bureau of Labor Statistics*. May 2016. https://www.bls.gov/oes/2016/may/oes_ut.htm. Accessed April 23, 2018.

4. Blumenthal D, Chernof B, Fulmer T, Lumpkin J, Selberg J. Caring for High-Need, High-Cost Patients—An Urgent Priority. *The New England Journal of Medicine*. September 2016;375:909-911.

5. Kangovi S, Mitra N, Grande D, Huo H, Smith RA, Long JA. Community Health Worker Support for Disadvantaged Patients with Multiple Chronic Diseases: A Randomized Clinical Trial. *American Journal of Public Health*. October 2017;107(10):1660-1667.

6. Kim K, Choi JS, Choi E, et al. Effects of Community-Based Health Worker Interventions to Improve Chronic Disease Management and Care Among Vulnerable Populations: A Systematic Review. *American Journal of Public Health*. April 2016;106(4):e3-e28.

7. Islam NS, Zanowiak JM, Wyatt LC, et al. A Randomized-Controlled, Pilot Intervention on Diabetes Prevention and Healthy Lifestyles in the New York City Korean Community. *Journal of Community Health*. December 2013;38(6):1030-1041.

8. Kangovi S, Mitra N, Grande D, et al. Patient-Centered Community Health Worker Intervention to Improve Posthospital Outcomes: A Randomized Clinical Trial. *JAMA Internal Medicine*. April 2014;174(4):535-543.

9. Elder JP, Ayala GX, Campbell NR, et al. Interpersonal and Print Nutrition Communication for a Spanish-Dominant Latino Population: Secretos de la Buena Vida. *Health Psychology*. January 2005;24(1):49-57.

10. Coleman EA, Parry C, Chalmers S. The Care Transitions Intervention: Results of a Randomized Controlled Trial. *JAMA Internal Medicine*. September 2006;166(17):1822-1828.

11. Otero-Sabogal R, Arretz D, Siebold S, et al. Physician-Community Health Worker Partnering to Support Diabetes Self-Management in Primary Care. *Quality in Primary Care*. 2010;18:363-372.

12. Hostetter M, Klein S. In Focus: Integrating Community Health Workers into Care Teams. *Transforming Care by The Commonwealth Fund*. December 2015.

13. Christiansen E, Morning K. *Community Health Worker Return on Investment Study Final Report*: Nevada Department of Health and Human Services, Division of Public and Behavioral Health; May 2017.

14. University of Pennsylvania School of Medicine. Community Health Workers Lead to Better Health, Lower Costs for Medicaid Patients: IMPaCT Community Health Worker Program Can Reduce Hospitalization and Improve Control of Obesity, Diabetes and Smoking, Study Shows. *ScienceDaily*. August 2017.

15. State of Michigan. *Reinventing Michigan's Health Care System: Blueprint for Health Innovation* January 24, 2014.

16. Moffett ML, Kaufman A, Bazemore A. Community Health Workers Bring Cost Savings to Patient-Centered Medical Homes. *Journal of Community Health*. February 2018;43(1):1-3.

17. National Center for Chronic Disease Prevention and Health Promotion. Chronic Disease Overview. *Chronic Disease Prevention and Health Promotion*. Available at: https://www.cdc.gov/chronicdisease/overview/index.htm. Accessed April 23, 2018.

18. Community Preventive Services Task Force. Diabetes Management: Interventions Engaging Community Health Workers. *The Community Guide*. April 2017. Available at: https://www.thecommunityguide.org/findings/diabetes-management-interventions-engaging-community-health-workers. Accessed April 23, 2018.

19. National Center for Chronic Disease Prevention and Health Promotion. Clinical-Community Health Worker Initiative. *Field Notes*. Available at: https://www.cdc.gov/dhdsp/docs/field_notes_clinical_community_health_worker.pdf. Accessed April 23, 2018.

20. Community Preventive Services Task Force. Cardiovascular Disease: Interventions Engaging Community Health Workers. *The Community Guide*. March 2015. Available at: https://www.thecommunityguide.org/findings/cardiovascular-disease-prevention-and-control-interventions-engaging-community-health. Accessed April 23, 2018.

21. UnitedHealth Foundation. Measure: Drug Deaths. *America's Health Rankings Annual Report*. 2017. Available at: https://www.americashealthrankings.org/explore/2017-annual-report/measure/Drugdeaths/state/ALL. Accessed April 23, 2018.

22. Utah Department of Health. Health Indicator Report of Drug Overdose and Poisoning Incidents. *Public Health Indicator Based Information System (IBIS)*. 1999-2015. Available at: https://ibis.health.utah.gov/indicator/view/PoiDth.html. Accessed April 23, 2018.

23. Garbers S, Peretz P, Greca E, et al. Urban Patient Navigator Program Associated with Decreased Emergency Department Use, and Increased Primary Care Use, Among Vulnerable Patients. *Journal of Community Medicine and Health Education*. June 2016;6:440.

24. Hilton MT. Community Paramedics: Redefining EMS. *Medscape*. February 2018.

25. Utah Medical Education Council. *Utah's Physician Workforce, 2016: A Study on the Supply and Distribution of Physicians in Utah*. Salt Lake City, UT 2016.

26. *Addressing Chronic Disease Through Community Health Workers: A Policy and Systems-Level Approach, 2nd ed.*: National Center for Chronic Disease Prevention and Health Promotion; April 2015.

27. UnitedHealth Foundation. Measure: Uninsured. *America's Health Rankings*. 2017. Available at: https://www.americashealthrankings.org/explore/2017-annual-report/measure/HealthInsurance/state/ALL. Accessed April 23, 2018.

28. Bovbjerg RR, Hadley J. Why Health Insurance is Important. *Health Policy Briefs*. November 2007:DC-SPG no.1.

29. Leavitt Partners. Primary Interview with the Association for Utah Community Health. February 2018.

30. Utah Behavioral Risk Factor Surveillance System (BRFSS). Utah Department of Health, Center for Health Data and Informatics, Indicator-based Information System for Public Health (IBIS). Available at: http://ibis.health.utah.gov/. Accessed April 23, 2018.

31. UnitedHealth Foundation. *America's Health Rankings*. 2016. Available at: www.americashealthrankings.org/. Accessed April 23, 2018.

32. U.S. Census Bureau. *2010 Census*.

33. U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services. *Physician Compare 2015 Reporting*.

34. U.S. Census Bureau. *2012-2016 American Community Survey*.

35. University of Wisconsin Public Health Institute. *County Health Rankings*. 2016. Available at: www.countyhealthrankings.org/. Accessed April 23, 2018.

36. National Center for Health Statistics, Centers for Disease Control and Prevention. Drug Poisoning Mortality in the U.S. 2016. Available at: https://www.cdc.gov/nchs/data-visualization/. Accessed April 23, 2018.