Community Health Improvement in Rural Washington: Learning from Global Health Strategies and Programs

Report Prepared for the Washington State Legislature

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by

Global to Local

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GLOBALTOLOCAL

This report was prepared by Global to Local under contract DOH PRV23420 with the Washington State Department of Health. Global to Local is a 501c3 whose mission is to demonstrate the effectiveness of global health strategies to improve the health status of local communities.

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Glossary of Abbreviations

BMGF: Bill & Melinda Gates Foundation

BRIDGES: Bringing Global Health Expertise to Rural Washington

CBT: cognitive behavioral therapy

CCO: coordinated care organization

CHA: community health assessment

CHIP: community health improvement plan

CHW: community health worker

CUGH: Consortium of Universities for Global Health

DBT: dialectical behavior therapy

DOH: Department of Health

EMS: emergency medical services

G2L: Global to Local

HFCC: Healthy Ferry County Coalition

KCHN: Kittitas County Health Network

LHW: lay health worker

MCO: Managed care organization

mHealth: mobile health

mhGAP: Mental Health Gap Action Programme

MNS: mental, neurological and substance use

NWRHN: Northwest Rural Health Network

PBI: place-based initiatives

PM+: Problem Management Plus

PPP: public-private partnership

PST: problem-solving training

SE WA: Southeast Washington

START: Strategic Analysis, Research & Training

U.K: United Kingdom

UW: University of Washington

WHO: World Health Organization

Executive Summary

BACKGROUND

In response to a legislative directive, in December 2018 the Washington State Department of Health engaged Global to Local (G2L) for a seven-month effort to identify lessons from global health that might assist in overcoming barriers to health in rural Washington communities. The purpose of the Bringing Global Health Expertise to Rural Washington (BRIDGES) project was to provide evidence-based recommendations and training that applies global strategies to reduce health disparities and address root social determinants of health for underserved communities in rural Washington State.

METHODS

G2L engaged with community coalitions in five counties (Kittitas, Ferry, Columbia, Asotin, and Garfield) to explore the applicability of global health strategies to health improvement efforts in rural Washington. After identifying key health concerns from community health assessment (CHA) data and facilitating community engagement events, we scanned the global health literature for ideas and approaches to reduce health disparities in the targeted communities. We conducted literature reviews and interviews with global health experts, and then prepared recommendations linking community needs and identified global health strategies and interventions. To organize its work, G2L applied a strategic framework from a landscape assessment and literature review of global health interventions it commissioned PATH, a Seattle-based global health innovation organization, to prepare in 2017. We also partnered with the Strategic Analysis, Research & Training (START) Center, a research and consulting center housed in the University of Washington Department of Global Health, to supplement our internal capacity.[1]

FINDINGS

Issues concerning access to care as well as low financial security were among the top health barriers identified across all rural communities. Other common health barriers included a lack of behavioral health services despite an increasing demand, and issues among the youth such as bullying, inadequate access to childcare, and obesity. We identified 11 global health strategies that might be adapted or adopted locally. Three of these

"I THINK YOUR RECOMMENDATIONS AROUND CHW, TASK SHARING, AND MOBILE APPS ARE SPOT ON FOR OUR COMMUNITIES"*

– ROBIN READ, EXECUTIVE DIRECTOR OF KITTITAS COUNTY HEALTH NETWORK

*COMMUNITY HEALTH WORKERS

strategies —deployment of community health workers, use of mobile technology, and task shifting or task sharing of services typically provided by physicians, nurses, psychologists, and other highly trained health care professionals – emerged as the most potentially useful and transferable approaches to mitigate the impact of barriers to health identified by the communities. In addition to highlighting general strategies, we provided numerous examples of specific global health programs and interventions that could be adapted to supplement ongoing work in rural Washington, or could serve as inspiration for development of local programs.

While some of these approaches can address the sequelae of financial insecurity and other social determinants of health, global approaches to matters such as poverty and lack of economic development often require enabling legislative and policy support at the regional or national level. Similar support would be helpful in addressing some of the key barriers to health identified by community members at the local level in rural Washington. Selected legislative and state government policies or actions to enable adoption of global health strategies would include implementation of better payment mechanisms for CHWs, rapid deployment of broadband access in rural areas without such access, and additional support for community efforts to address social determinants of health (SDOH) such as employment, childcare, transportation, and housing.

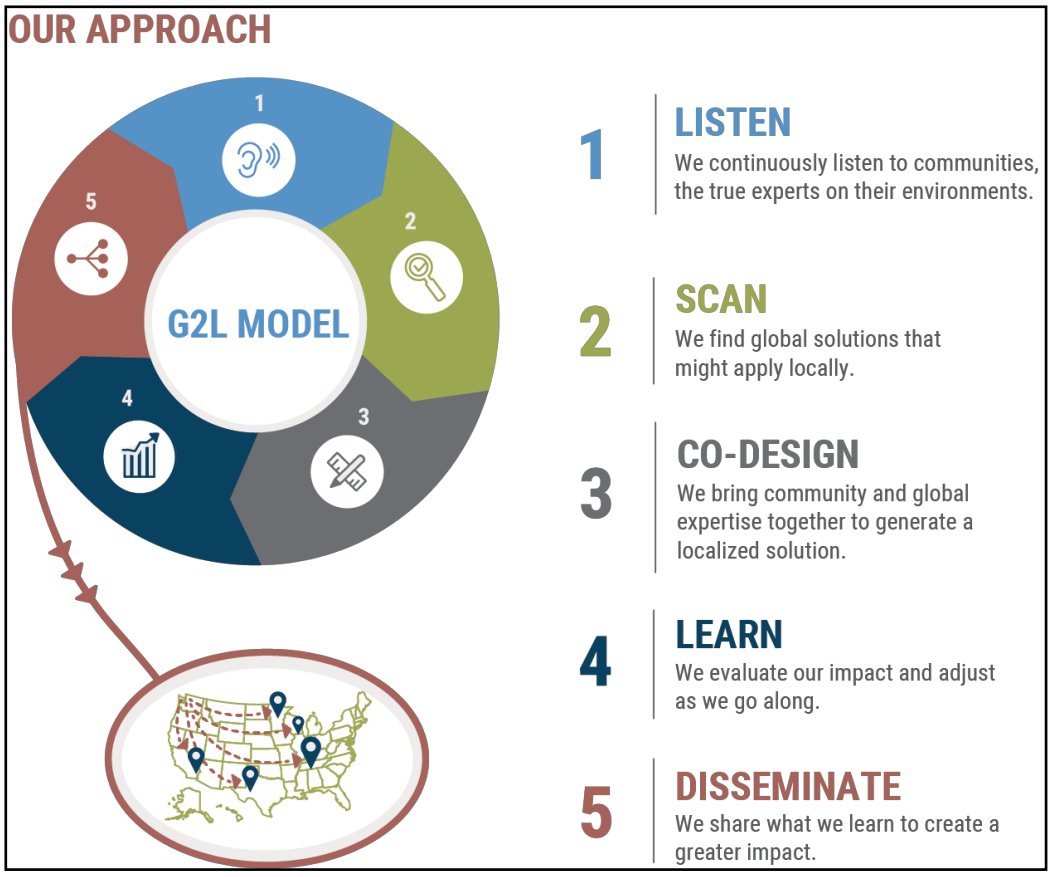
Background

Despite islands of excellence in healthcare delivery and health outcomes, the U.S. lags behind many other nations in overall health status. Lessons about successful health improvement strategies from across the globe may contribute to ongoing community health improvement efforts. Bringing Global Health Expertise to Rural Washington Communities (BRIDGES) is an initiative aimed to help reduce health disparities and improve health for underserved communities in rural Washington State by identifying effective global health strategies for local application. In response to a Legislative directive, the Washington State Department of Health engaged Global to Local (G2L) to 1) identify barriers to health by engaging with leaders and community members through the organization and facilitation of community meetings, and 2) identify lessons from global health that might assist in overcoming those barriers. Data from community health needs assessments and community engagement events were analyzed to develop community-specific global health recommendations intended to enhance ongoing community-led efforts. This report summarizes the process G2L employed to identify potential global health solutions, and provides an overview of selected global health strategies, tactics and programs to assist in reducing or eliminating community-identified barriers to health in rural areas of Washington State.

GLOBAL TO LOCAL

Global to Local (G2L) is a Seattle based nonprofit whose mission is to demonstrate the effectiveness of global health strategies to improve the health status of local underserved communities. For nearly a decade, Global to Local has engaged with communities and partnered with global health experts who have informed its approach to adapting successful global health strategies to meet local needs and priorities in SeaTac and Tukwila. The organization has piloted and iterated several programs that bring global health home to Washington communities.[2] Examples include a culturally-tailored chronic disease prevention and management program, a Connection Desk that integrates social service provision into primary care, a Food Innovation Network that convenes a broad array of partners to support the creation of food businesses and improve access to healthy foods, and a Community Connectors program that builds local leadership to increase community voice and civic participation. Global to Local has developed and applied a unique approach for bringing global health strategies to diverse and under-resourced communities (see Figure 1). This approach has great potential to support rural Washington State communities in adapting global health solutions to reduce health disparities.

Figure 1. Global to Local's Approach



WHAT IS GLOBAL HEALTH?

While there is no universally accepted definition of "global health", the Consortium of Universities for Global Health (CUGH), including representatives from the University of Washington, proposed the following widely accepted definition:

> *Global health is an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care.*[3]

As shown in the following table, global health is related to, but distinct from, the fields of international health and public health.

Table 1. Defining global, international and public health

	Global Health	International Health	Public Health
Geographical reach	*Focuses on issues that directly or indirectly affect health but that can transcend national boundaries*	*Focuses on health issues of countries other than one's own, especially those of low-income and middle-income*	*Focuses on issues that affect the health of the population of a particular community or country*
Level of cooperation	*Development and implementation of solutions often requires global cooperation*	*Development and implementation of solutions usually requires binational cooperation*	*Development and implementation of solutions does not usually require global cooperation*
Individuals/ populations	*Embraces both prevention in populations and clinical care of individuals*	*Embraces both prevention in populations and clinical care of individuals*	*Mainly focused on prevention programs for populations*
Access to health	*Health equity among nations and for all people is a major objective*	*Seeks to help people of other nations*	*Health equity within a nation or community is a major objective*
Range of disciplines	*Highly interdisciplinary and multidisciplinary within and beyond health sciences*	*Embraces a few disciplines but has not emphasized multidisciplinary*	*Encourages multidisciplinary approaches, particularly within health sciences and with social sciences*

Source: Koplan, et al.[3]

In this report, we embrace the CUGH definition of global health. As such, while we emphasize recommendations based on experience from countries other than the United States, we also include occasional examples of approaches that have been developed or implemented domestically—particularly if they are relevant to improving health among disadvantaged or underserved populations. Such an approach is consistent with the commonly expressed observation among global health practitioners that "all health is global health".[4]

While the strategies and programs to improve health in this report are drawn most heavily from work implemented in other nations, it is readily apparent that both the local context and the specific health problems or clinical conditions addressed often differ considerably from those in rural Washington State. Indeed, few of the approaches we highlight will be "plug and play", or immediately ready to adopt without significant modification. In some cases, this is because a promising approach to improving health might have been implemented for a condition such as malaria—which is not endemic in Washington. In others, a community-based program to address a non-communicable disease such as diabetes may be very tightly connected to a health care delivery system that differs in many respects from the system in rural Washington. Despite these differences, though, the global health strategies and approaches we summarize may either be adapted in some way, or serve as inspiration for modifications of existing or planned programs intended to improve health in rural Washington communities.

Methods

COMMUNITY OUTREACH & PARTNERSHIPS

G2L reached out to rural communities across the state to gather interest regarding participation in the BRIDGES initiative. Our community partners in the BRIDGES project included three community coalitions representing five counties: (1) Kittitas County Health Network (Cle Elum/Roslyn & Kittitas/Vantage in Kittitas County), (2) Healthy Ferry County Coalition (Ferry County), and (3) Southeast Washington Health Partnership (Asotin, Garfield and Columbia counties). The following section provides an overview of each community partner and the outreach efforts conducted in each community by G2L. For more details about each community, please see the community reports in the appendices.

Kittitas County Health Network

Global to Local (G2L) collaborated with Kittitas County Health Network (KCHN) to coordinate and schedule four community meetings in two distinct communities, Cle Elum/Roslyn and Kittitas. KCHN has 19 organizational members from behavioral health, business, education, food system, critical access hospitals, housing, local government, managed care, primary care, public health, public safety, social services, and transportation sectors. KCHN exists to improve population health in Kittitas County, Washington through cross-sector collaboration and systems change.[3] KCHN is leading the implementation of the Kittitas County Community Health Improvement Plan.[4]

Northwest Rural Health Network

G2L consulted with rural health experts in Eastern Washington to identify potential communities with whom to partner. Faculty from the Washington State University's Elson S. Floyd College of Medicine recommended that we consult with The Northwest Rural Health Network (NWRHN). NWRHN is a nonprofit, multi-county network of rural health systems in Eastern Washington. It was formed to increase the sharing of resources, promote operational efficiency, and improve health care services for the rural communities they serve.[5] NWRHN's Executive Director, Jac Davies MS, MPH, facilitated introductions to the Healthy Ferry County Coalition (HFCC) and the Southeast Washington Health Partnership (SE WA Health Partnership).

Healthy Ferry County Coalition

G2L met with the Healthy Ferry County Coalition (HFCC) to discuss the BRIDGES project partnership. HFCC is a "collaborative community effort to promote good health…[they] are concerned about mental and physical health, food security, substance abuse prevention, community and economic development, and catalyzing a culture of health and pride in Ferry County."[6] Members include, but are not limited to, hospitals, emergency medical service (EMS) providers, long-term care providers, mental/behavioral health providers, and community health centers. The purpose of the partnership is to, "coordinate the development of opportunities for economic growth, strong health and social service systems, and a healthy population" toward achieving the vision that "Ferry County is consistently among the Top 10 healthiest counties in Washington State".[6]

Southeast Washington Health Partnership

G2L also consulted and collaborated with the SE WA Health Partnership. This coalition consists of representatives from health and human services agencies in Asotin, Columbia, and Garfield counties. The SE WA Health Partnership was particularly interested in how BRIDGES could support their process in developing community health improvement plans for the three counties.

COMMUNITY ENGAGEMENT

G2L partnered with KCHN to identify health barriers in Cle Elum/Roslyn and Kittitas, two distinct communities in the upper and lower parts of Kittitas County. G2L and KCHN co-facilitated four community engagement events-- two in Cle Elum and two in Kittitas. Each community hosted one event tailored for community partners (community leaders and representatives of health and

human services organizations) and one for community residents. We facilitated one bilingual event (Spanish/English) in Kittitas to encourage equitable participation among the local Latinx community.

The community partner meetings consisted of a review of the countywide community health assessment (CHA) with breakout sessions into smaller group discussions. Group facilitators prompted participants by asking them what issues make it hard for people to be healthy and what the main health priorities are within their communities. Responses were recorded on flip charts for future reference and to provide a visual aide throughout the discussion.

The community resident meetings consisted of a poster reflection activity and a group discussion. Six posters were hung around the room, each stating a community health issue derived from the countywide community health assessment. The health barriers were drawn from the 2018 Kittitas County CHA conducted by the Kittitas County Health Department.[5] A seventh poster asked residents to write down any other health-related topics missing.

The HFCC and SE WA Health Partnership groups had already completed a health prioritization process to inform their Community Health Improvement Planning (CHIP) processes. We utilized these community-identified barriers to guide our global health recommendations.

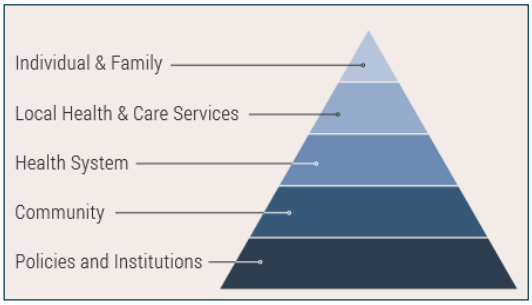
GLOBAL HEALTH RESEARCH

After identifying key concerns from the community engagement events and community-provided health prioritization data, we scanned the global health literature for ideas and approaches to reduce health disparities in the participating communities. We conducted literature reviews and interviews with global health experts, and then prepared recommendations linking community needs and identified global health strategies and interventions. G2L applied the strategic framework from a global health landscape assessment it commissioned from PATH (further described below) to organize its work. We also partnered with the Strategic Analysis, Research & Training (START) Center, a research and consulting center housed in the University of Washington Department of Global Health, to supplement our internal capacity.[1]

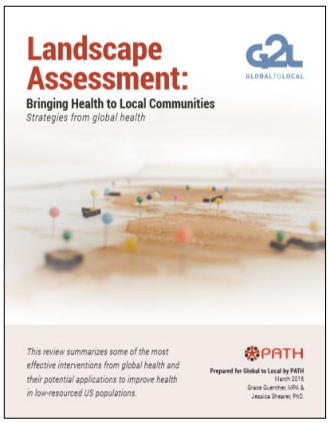
G2L/PATH Framework

In 2017, under a contract from G2L, PATH- a Seattle-based global health innovation organization completed a follow-up landscape analysis and literature review of global health interventions that may be transferable to low-resource populations in the U.S. (The 2017 report was an update to an earlier G2L/PATH landscape analysis from 2010.) The interventions address determinants of health at multiple levels, ranging from governmental and institutional policies to the level of individuals and families (Figure 2).[6] PATH systematically reviewed evidence of interventions from other countries around the world and identified strategies that could be applied in the U.S. Each strategy was chosen based on their (1) effectiveness and cost-effectiveness, (2) ability to have the greatest impact on the most disadvantaged populations (i.e. equity), (3) ability to address social determinants of health, and (4) transferability and feasibility in low-resource domestic settings. G2L used the results of the landscape analysis to guide selection of interventions from other countries that may be adopted or adapted to improve health in rural Washington communities.

Figure 2. Levels of Transferable Strategies



Source: Landscape Assessment[3]



UW START Center

G2L partnered with the University of Washington (UW) Strategic Analysis, Research & Training (START) Center to identify lessons from global health that might be applicable to selected priorities identified by rural Washington communities. The START Center is a research and consulting group established in 2011 by the Bill & Melinda Gates Foundation (BMGF) and the UW Department of Global Health. Since its inception, START's expert researchers have completed more than 150 projects for clients including the BMGF, the World Health Organization (WHO), Boston Scientific, and others. Their primary research tasks for the BRIDGES project included conducting key informant interviews with global health experts and conducting literature reviews to develop summaries of global health strategies that may be adapted to rural Washington communities.[7]

Rural Washington Communities

G2L engaged two communities in Kittitas County, and two coalitions representing four other counties in the BRIDGES initiative:

1. Upper Kittitas County, primarily Cle Elum and Roslyn communities
2. Lower Kittitas County, primarily Kittitas and Vantage communities with less focus on Ellensburg, the largest population center in Kittitas County
3. Ferry County
4. Southeast Washington, including Garfield, Columbia and Asotin counties

The following section of the report provides an overview of each region's demographics, current community-led improvement efforts, and summarizes the key health barriers and social determinants most impacting the health of these communities. For more information about the community engagement process and findings, please see Appendix A-C for the full reports to the communities.

COMMUNITY DEMOGRAPHCS

Table 2. Community Demographics at a Glance

	Kittitas County Health Network[a]				Healthy Ferry County Coalition[b]	Southeast Washington Health Partnership[c]		
	(Upper Kittitas)		(Lower Kittitas)					
	Community 1		Community 2		Community 3	Community 4		
	Cle Elum	Roslyn	Kittitas	Vantage	Ferry County	Garfield County	Asotin County	Columbia County
Population	1,872	893	1,381	70	7,780	2,210	22,535	4,047
Hispanic	6%	2%	13%	84%	5%[d]	6%	4%	8%
Median Household Income	$28K	$35k	$27k	$26k	$42k	$51k	$46k	$42k
% Below Federal Poverty Line	20%	12%	24%	No data	27%	14%	15%	24%

[a]Source: U.S. Census[7]
[b]Source: Demographics & Social Characteristics Ferry County Report, 2018[8]
[c]Source: 2018 CHA county reports[9-11]
[d]Note: American Indian/Alaska Native Population = 16%

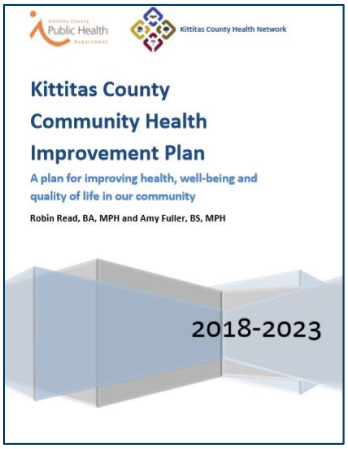
RATIONALE FOR DIVIDING KITTITAS COUNTY INTO TWO REGIONS

The findings from Kittitas County's CHA, published in 2018, along with the 2019-2023 countywide CHIP, were heavily influenced by data from Ellensburg, the most populous town in the county. For instance, certain demographic and health status findings were heavily influenced by the presence of Central Washington University in Ellensburg. To increase health equity across the whole county, KCHN's leadership council was interested in better understanding community-health specific barriers in more isolated parts of Kittitas County, as well as understanding how these barriers differ from the more populated Ellensburg area. For this reason, KCHN's leadership council advised that the BRIDGES project divide Kittitas County geographically by its upper and lower regions. Cle Elum and Roslyn were the selected communities from the upper part of the county and Kittitas and Vantage were the communities selected in the lower half of the county.

SUMMARY OF KITTITAS COUNTY'S CURRENT IMPROVEMENT EFFORTS

In response to the CHA, Kittitas County stakeholders developed a CHIP. This plan includes a comprehensive list of countywide improvement efforts.[12] Below is a list of some ways Kittitas County is addressing their key health needs, as stated in the CHIP:

1. Implement a care coordination system to improve service delivery.
2. Implement trauma-informed policies and practices in organizations.
3. Implement workplace wellness practices and policies
4. Work with cross sector partners to increase childcare options.
5. Sustain collaborative community health improvement efforts and increase cross sector communication by establishing an organizational infrastructure for KCHN which follows the collective impact model and includes backbone support.

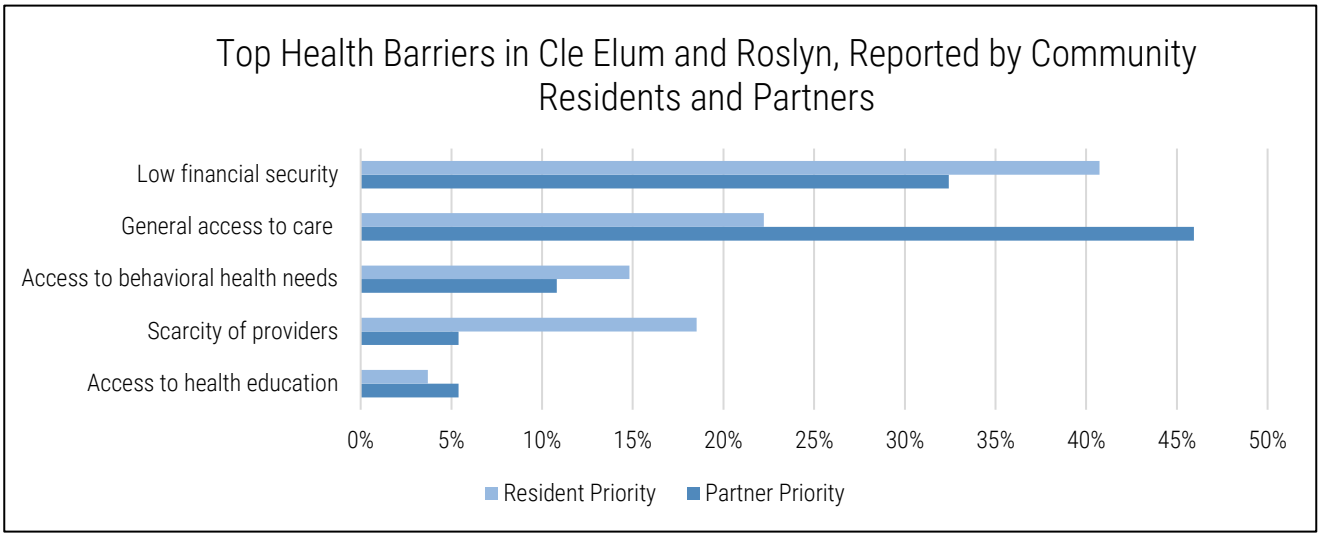


The outcomes of the BRIDGES initiative intends to support and extend the current health equity work in the county.

COMMUNITY 1: UPPER KITTITAS COUNTY'S HEALTH BARRIERS

Findings from Cle Elum/Roslyn

Figure 3. What are the top barriers to health in Cle Elum and Roslyn?



Of all the community resident feedback forms responding to the question, "What are the top three barriers to health in this community?" over half (60%) of the community resident responses were related to issues with access and 40% of health barriers were related to financial insecurity. These results were similar among community partners where two-thirds (68%) identified access as a barrier to health and one-third (32%) identified financial insecurity as a barrier.

The theme "access" encompassed the following six sub-themes: (1) access to behavioral health services (identified among 15% of residents and 11% of partners); (2) access to or scarcity of providers in the area (identified by 19% of residents and 5% of partners); (3) access to health education (identified by 4% of residents and 5% of partners); (4) overall access to care (identified by 11% of residents and 17% of partners); (5) access to transportation (identified by 11% of residents and 27% of partners); (6) access to recreational activities (identified by 3% of partners).

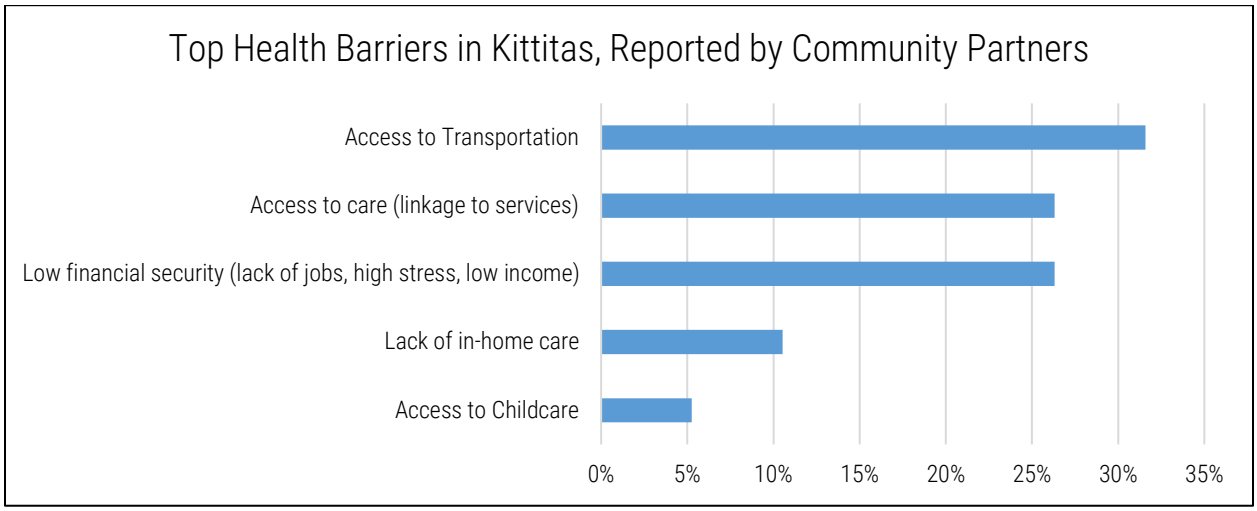
The theme "financial insecurity" encompassed the following five sub-themes: (1) lack of jobs that provide a living wage (identified among 19% of residents and 14% of partners); (2) lack of affordability, including housing and basic needs (identified by 17% of residents and 10% of partners); (3) food insecurity (identified by 4% of residents and 5% of partners); lack of economic development (identified by 3% of partners.

COMMUNITY 2: LOWER KITTITAS COUNTY'S HEALTH BARRIERS

Findings from Kittitas

Among community partners in Kittitas, 74% of health barriers were related to access and 26% were related to financial insecurity. When breaking down the barriers to access, 32% were related to transport, 26% to care, 11% identifying in-home care, and 5% related to childcare. Factors influencing financial insecurity in Kittitas included poverty, especially among children and the elders, as well as due to housing expenses. Due to the small number of feedback forms returned by community residents, we omitted those results from analysis.

Figure 4. What are the top barriers to health in Kittitas?



COMMUNITY 3: FERRY COUNTY'S HEALTH BARRIERS & TOP PRIORITIES

The HFCC provided G2L with a list of health priorities they had previously identified based on their 2018 Community Health Needs Assessment and [Health] Indicators Summary.[13,14] They developed this list as part of their county health improvement planning using Mark Friedman's *Trying Hard is Not Good Enough* "Results Based Accountability" framework.[15] As of June 2019, they are currently in the strategic planning phase of developing a countywide CHIP, and working through each priority using this framework, along with the *Turning Curves* methodology by Mark Friedman.

The coalition's health priorities are listed here, starting with the top priority: (1) healthy physical activities, (2) immunization, (3) smokers/tobacco, (4) bullying, (5) access to and quality of services, (6) diabetes, (7) substance use/abuse, (8) economy/jobs/poverty, (9) food insecurity, (10) housing, (11) public safety, and (12) maternal and child health. G2L utilized this list, along with data from the CHA and results from past community engagement focus groups, to guide their work.

COMMUNITY 4: SOUTHEAST WASHINGTON'S HEALTH BARRIERS & TOP PRIORITIES

The Southeast Washington (SE WA) Health Partnership group consists of three counties: Garfield, Asotin, and Columbia. In May of 2019, SE WA Health Partnership determined their top five health priorities for the region.[9-11] The SE WA Health Partnership utilized results from CHAs completed in Asotin, Columbia, and Garfield counties, as well as results from their four community partnership discussions and a review of 52- health-related indicators in Asotin County to determine the top five health priorities for the region. They used the "Full Analytical Criteria Method" to establish criteria for issue prioritization. They are currently in the strategic planning phase of developing a CHIP for the region. The top health priorities are:

1. Overweight Youth
2. Immunization
3. Substance abuse
4. Bullying
5. Access to healthcare

COMMON HEALTH BARRIERS IN RURAL WASHINGTON STATE

Despite varying geographic, socioeconomic, and demographic trends, stakeholders from all four regions identified similar barriers to health. Issues concerning access to care as well as low financial security were among the top health barriers that all communities identified. Other common health barriers included a lack of behavioral health services despite an increasing demand, and issues among the youth such as bullying, lack of adequate childcare, and obesity.

Multiple factors, including geographical access, availability of providers, affordability of services, and other social determinants of health, contribute to health disparities in rural communities across the state and the nation.[16,17] Understanding these root causes guided our process in identifying global health strategies that may support community efforts to overcome these health barriers.

Global Health Recommendations

To organize its work, G2L applied the strategic framework from the PATH landscape assessment and literature review of global health interventions described above. The PATH landscape assessment commissioned by G2L highlighted eleven global health strategies, ten of which are shown in Table 3, that are potentially transferable to rural Washington.[a]

SUMMARY OF GLOBAL HEALTH STRATEGIES

*Table 3. Selected global health strategies potentially transferable to rural Washington communities**

Strategy	*Level^*	*Transferable?*	*Outcomes*
Community health workers (CHWs)		*Highly transferable*	*Promote healthy behaviors, increase access*
Mobile Health (mHealth)		*Transferability depends on structure of current health system*	*Increase access and coverage to preventative and curative services*
Public-private partnerships (PPPs)		*Transferable*	*Increase efficiency and cost-effectiveness of services*
Promote community asset building through[b] community-based organizations		*Transferable with adaptations*	*Increase access to services*
Social media and mass media health campaigns		*Transferable*	*Promote healthy behaviors, increase access*
Improving economic development and wealth		*Transferable*	*Improve use of health services*
Community mobilization & community leadership development		*Transferable*	*Increase efficiency and cost-effectiveness*
Coordinated and patient-centered primary care		*Transferability depends on structure of current health system*	*Improve the quality of health delivery, improve health outcomes*
Linking primary health care with public health		*Transferability depends on local systems*	*Improve access to social & public health services, strengthen health systems*
Gender integration		*Transferability depends on local context*	*Improve gender equality, improve health*

**Table adapted from PATH's Landscape Assessment[18]*

^See Figure 2 for a description of each level

[a] The remaining strategy- relicensing foreign health professionals- is not likely to be broadly applicable in rural Washington communities.

While each of these strategies has relevance to rural communities in Washington, two- **community health workers** and **mHealth**—emerged as most immediately actionable to address access to care issues identified by communities participating in BRIDGES. In addition to the strategies highlighted in the PATH framework, we identified an additional global health strategy- **task shifting (**also known as **task sharing)**— that may be highly applicable in rural Washington to address high priority concerns related to access to care.

The following section provides a general overview of the three strategies, and includes several examples of specific programs from across the globe that implement these strategies. For a more complete description of the remaining global health strategies and additional examples, see Appendices A-C (Community Reports).

Community health workers

Community health workers (CHWs) are frontline public health workers that are trusted members of a community or who have in-depth knowledge of the communities they serve. CHWs or lay health workers (LHWs) typically require minimal formal training or licensing, and serve as a bridge between health care access and service delivery. CHWs promote health and improve healthy behaviors, increase access to services, reduce costs, and reduce inequities and disparities.[19-22] One way CHWs can improve health equity in rural Washington communities is by supporting care coordination, management of chronic illnesses and promoting healthy activities among hard-to-reach populations.[19-23]

> *"I THINK YOUR RECOMMENDATIONS AROUND CHW, TASK SHARING, AND MOBILE APPS ARE SPOT ON FOR OUR COMMUNITIES."*
>
> – ROBIN READ, EXECUTIVE DIRECTOR OF KITTITAS COUNTY HEALTH NETWORK

Task-sharing/Task-shifting

Task shifting, also known as task sharing, is a frequently used strategy in global health that may be adapted to address unmet health needs in rural and other low-resource areas.[24,25] This approach trains lay people to deliver care to patients with mild to moderate conditions, including mental or behavioral health disorders. Typically, this approach is integrated with the CHW model where trusted members of the community are trained to implement very structured, skill-based interventions to support positive health outcomes in the community.

TASK-SHIFTING EXAMPLE

The Friendship Bench in Zimbabwe is an evidence-based example of training lay workers to support patients presenting with depressive symptoms.[26] This intervention trained grandmothers as Lay Health Workers (LHWs) to use problem solving training (PST) and cognitive behavioral therapy (CBT) in a culturally sensitive manner to improve mental health symptoms. Patients who screened for common mental disorders were referred to the "Friendship Bench" intervention where they received six sessions of individual problem-solving therapy delivered by a trained, supervised LHW. Participants were invited to participate in an optional six-session peer support program. In a cluster randomized clinical trial of 573 randomized patients with common mental disorders with symptoms of depression, the intervention arm of the study had significantly lower symptom scores after six months compared with the control arm that received enhanced usual care.[26]

An adaptation of task-sharing/shifting intervention like The Friendship Bench could be an effective, low-cost way to provide culturally appropriate support in a community setting. Effective task-sharing/shifting approaches provide a "recipe-based approach" where lay health workers can provide more patient-centered care via a manualized/structured program. (Manualized refers to documented in a procedure manual.) This approach is common throughout low-and middle-income countries (LMIC) and could be adapted and implemented in rural Washington communities to increase access to behavioral health care services for patients with mild to moderate common mental health issues.

mHealth and Teleconsultations

mHealth and teleconsultations are another way to bridge the lack of health providers in a local context. However, barriers to these programs, such as lack of insurance coverage of telemedicine, or poor access to broadband services in some remote areas, have added barriers to the expansion of these local programs to some rural Washington communities. We recommend that the State supports rapid expansion of broadband services to these underserved areas.

The following example could increase the availability of services for behavioral health services that were of high need in rural Washington communities, namely to combat the high prevalence of self-harm and suicide, especially among adolescent youth.

MOBILE HEALTH EXAMPLE

A risk-reducing smartphone app, "BlueIce", designed for youth that self-harm or who have suicidal thoughts has been implemented in England.[27] "BlueIce" was tested alongside traditional face-to-face counseling and was shown to help young people manage their emotional distress and urges to self-harm. The app provides a personalized toolbox of strategies founded on evidence-based CBT and dialectical behavioral therapy (DBT) approaches that can be accessed at any time. It includes a mood diary, menu of personalized mood-lifting activities, and automatic routing through safety checks to delay or prevent self-harm. Mood lifting activities include a personalized music library of uplifting music, photo library of positive memories, physical activities, mood-changing activities, audio-taped relaxation and mindfulness exercises, identification and challenging of negative thoughts, a contact list of key people to call or text, and distress tolerance activities (informed by DBT). After using the mood-lifting section, the young person is asked to rerate their mood, and if the urge to self-hard has not reduced, they are automatically routed to emergency numbers they can call. At the end of the study, 88% of the users wanted to keep the app.[27] While this app is currently only available to Child and Adolescent Mental Health Service providers associated with the United Kingdom (U.K.) National Health Service, a similar approach could reduce risks among youth that self-harm in rural Washington communities. An app like this one could be used as resources for social workers, counselors or teachers to recommend for high risk students in schools. However, it is important to recognize that this is supportive when applied in tandem with face-to-face therapy provided by a mental health worker.

A Frequently Identified Concern: Behavioral Health

Despite an abundant need, rural Washington communities are in short supply of trained behavioral health providers. Community partners in all regions identified access to behavioral health (substance abuse and mental health) as a key challenge. The primary strategies described above, either alone or in combination, have been implemented globally to address behavioral health concerns. While these approaches are regularly implemented in the US, lessons from implementation of these strategies or tactics in low-resource

communities elsewhere may contribute to efforts to improve behavioral health in rural Washington communities.

Bullying & Mental Health

Suicidal ideation, suicide attempts, depression and anxiety, and other mental health concerns, are associated with one of Ferry County's and SE WA's health priority areas: bullying. Bullying victimization and suicide attempts are highly prevalent among school-aged children globally. Bullying is also associated with poorer psychosocial adjustment in children.[28] One study from 48 countries found that, "those who were bullied are at approximately 3-fold higher odds for suicide attempts compared with those who were not bullied."[29] However, school-wide bullying campaigns have proven to be effective to prevent bullying. One international meta-analysis of 44 evaluations showed that on average, bullying decreased by 20-23% and victimization decreased by 17-20% upon implementation of anti-bullying programs in schools.[30] This meta-analysis found that more intensive programs (i.e. holding parent meetings, having firm disciplinary methods, and improved playground supervision) tend to be more effective. Peer mediation, peer mentoring, and encouraging bystander intervention, on the other hand, increased victimization and is not a recommended strategy. Policy-makers should draw upon high-quality evidence-based programs when developing new anti-bullying initiatives.

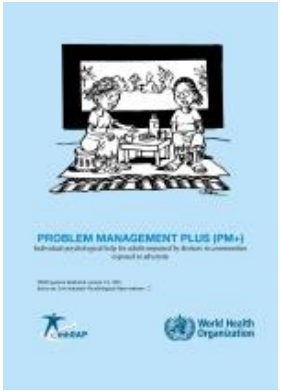
> *"I THINK IT WOULD BE GREAT IF WE COULD FIGURE OUT AN APP. NOT JUST FOR THE KIDS, BUT ALSO FOR THE ADULT POPULATION [AS A SUPPLEMENT TO THE MENTAL HEALTH/FIRST AID TRAININGS FOR YOUTH CURRENTLY HAPPENING]."*
>
> –KITTITAS PARTICIPANT

Integrating Task-Sharing and mHealth

Integrating task-sharing and mHealth is a promising strategy, provided communities have reliable access to broadband services. Incorporating elements of a low-cost technology along with a community or family member who is willing to support each other's health in a structured way could help improve behavioral health outcomes in rural Washington communities. The WHO has developed a set of tools and training manuals (mhGAP described briefly below) for non-specialized health-care providers that could improve and increase access of mental health intervention delivery by non-specialized health workers.

INTEGRATING MOBILE HEALTH & TASK-SHARING EXAMPLES

mhGAP (Mental Health Gap Action Progamme), is a set of tools and training manuals for non-specialized health-care providers to increase access to comprehensive information to help them diagnose and treat a range of mental, neurological and substance use (MNS) disorders including depression, epilepsy and dementia. This evidence-based WHO program is targeted at CHWs, first level referral centers, first points of contact with the healthcare system, and general physicians and nurses. The tools include a training and intervention guide and a mobile app to increase the availability and access to mental health services in low resource settings. The program's objective is to bridge the MNS treatment gap by providing training and tools to non-specialists that can use the tools to assess, manage and follow-up people with MNS conditions. The modules in the app include a description and guidance on assessment and management of these mental health conditions. The mHealth tool can be downloaded free of charge. It is currently available in English and other languages will be available soon.[31]



One example from the mhGap guidelines is called **"Problem Management Plus" or PM+,** a WHO recommended 5-session, psychological intervention program delivered by trained non-specialists that addresses common mental disorders.[32] This intervention uses PST, counseling plus stress management, behavioral activation and social support provided by a trained non-specialist. These tools could support the adoption of mental health task shifting/sharing initiatives in rural Washington communities.

Summary

Three strategies commonly employed in global health —deployment of community health workers, use of mobile technology, and task shifting or task sharing of services typically provided by physicians, nurses, psychologists, and other highly trained health care professionals – emerged as the most potentially useful and transferable approaches to mitigate the impact of barriers to health identified in Kittitas, Ferry, Garfield, Columbia, and Asotin counties

Community health workers

Mobile health technology

Task-sharing/shifting

TOOLS & TRAINING

G2L presented their findings and tailored global health strategies to each community partner (KCHN, HFCC, SE WA Health Partnership) either in person or as a virtual webinar training. For upper and lower Kittitas communities, we presented our findings to the Kittitas community partners. The training included a summary of findings from the community engagement events, a review of the key global health strategies and specific examples, and discussion with attendees.

Each participant was asked to fill out a feedback survey to provide further input for applicability of BRIDGES in the Kittitas region. All participants agreed or strongly agreed that task sharing/task shifting and deployment of CHWs has the potential to improve health and access to care in Kittitas County. The majority of responses (87.5%) also agreed or strongly agreed that mobile health technology has the potential to improve health and access to care in Kittitas County with 12.5% of responses neither agreeing nor disagreeing that it would improve health. All responses also determined

> *"I THINK IT IS REALLY INTERESTING AS SOMEONE WHO HAS WORKED IN OTHER COUNTRIES, WHERE INSTEAD OF THEM LOOKING AT US FOR SOLUTIONS, WE ARE LOOKING AT THEM FOR SOLUTIONS. A LOT OF THIS IS STUFF WE HAVE DONE WHEN I WORKED IN ZAIRE AND NEPAL AND WE COULD DO SOME OF IT HERE."*
>
> -KITTITAS PARTICIPANT

that consultation from outside experts regarding applicability and implementation of global health strategies in Kittitas County either probably or definitely would be helpful.

The key tools provided to the communities include utilizing the 11 strategies as a checklist when developing their CHIPs, open-source manualized interventions, as well as other references to serve as inspiration for adaptation of global health strategies. The community coalitions acknowledged that they plan to use the checklist in future strategic planning processes. The tools regarding manualized interventions were primarily regarding implementation of task-sharing/shifting strategies published by the WHO. The other references included a list of approximately 100 citations to serve as ideas for inspiration when looking to innovative ways to improve health in local areas.

State-Level Policy Considerations

While some of these approaches can address the sequelae of financial insecurity, access to healthcare, and other social determinants of health, global approaches to matters such as poverty and lack of economic development often require enabling legislative and policy support at the regional or national level. Similar support would be helpful in addressing some of the key barriers to health identified by community members at the local level in rural Washington. In many countries, enabling policies such as those related to funding for CHW programs, access to broadband services, government-subsidized childcare, and increasing financial security by implementing job creation and affordable housing strategies, are typically implemented by national or regional governments. Rural communities look to the state for support for such policy changes that would improve health equity on a larger scale.

FUNDING FOR CHW PROGRAMS

Despite widespread evidence that CHWs are effective in both low, middle and high income countries in reducing health disparities and tackling some of the most challenging aspects of health improvement (e.g. facilitating care coordination, increasing access to community-based services, addressing the social determinants of health),[23,33-35] receiving funding for such

> *"WE HAVE DISCUSSED THE POTENTIAL OF COMMUNITY HEALTH WORKERS BUT STALL OUT AT FUNDING AND SUSTAINABILITY. IT IS DISAPPOINTING THAT THE WA PAYERS ARE NOT EMBRACING THIS MODEL MORE PROACTIVELY AND PROPOSING SOME COMMUNITY PILOTS IN OUR STATE."*
>
> –KITTITAS PARTICIPANT

programs is a barrier in Washington State. Concerns around receiving reimbursement for CHW programs was a common issue among all our community partners.

While some states require Medicaid Managed Care Organizations (MCOs) to contract directly with community-based CHW programs or otherwise incent payment through Medicaid, no such provisions are included in Washington's Medicaid managed care contracts. Washington may look to other states that have explicitly included CHWs in their reimbursement systems for examples of policy changes to facilitate reimbursement of CHW programs. For example, Michigan's Medicaid managed care contract requires health plans to "maintain a ratio of at least one full-time CHW per 20,000 covered lives; provide or arrange for the provision of CHW or peer-support specialist services to enrollees with behavioral health issues and complex physical co-morbidities; and establish a reimbursement methodology for CHW work that promotes behavioral health integration."[33]

Other examples of states requiring MCOs to contract with CHW programs include Oregon and New Mexico. Oregon included CHWs in its description of providers for Health Home Services in its State Plan Amendment.[33] Coordinated Care Organizations (CCOs) are required to include "non-traditional healthcare workers" like CHWs on their care teams. CHWs must be certified and supervised in order to qualify for Medicaid reimbursement.[33] New Mexico has facilitated reimbursement for CHW services by leveraging contracts with Medicaid MCOs to support the use of CHWs in serving Medicaid enrollees.[33] Their model embeds CHW salaries, training and service costs into capitated rates paid to Medicaid MCOs as administrative costs. States (e.g. New Mexico) have seen success in CHWs improving access to preventive and social services for high resource-consuming Medicaid enrollees.[36] By supporting evidence-based strategies to improve health outcomes (e.g. task shifting and CHWs), the state would also indirectly stimulate economic development, supporting financial security locally. We advocate that the State adopts a similar approach to secure sustainable funding for CHW programs.

> *"RESOURCES NEED TO BE AVAILABLE TO TRAIN AND SUPPORT COMMUNITY HEALTH WORKER IMPLEMENTATION."*
>
> - SE WA PARTICIPANT

ACCESS TO BROADBAND SERVICES

Another common barrier to implementing some of these global health strategies is access to reliable broadband services. The digital divide is a big issue for rural communities, and increasing access to broadband services could improve access to health services and education, just to name a couple. We hope that the implementation of Senate Bill 5511[37] will support the closing of this gap in access to broadband infrastructure for our rural partners. As noted earlier in the report, mHealth is a key promising strategy to increase access to care in rural Washington communities. However, it will not be actionable for the communities until they have consistent access to broadband services.

> *"BROADBAND IS ONE OF THE BIGGEST BARRIERS TO IMPLEMENTATION…WE ONLY HAVE CELL ACCESS IN [ABOUT] 60-70% OF THE COUNTY. ALL THIS ISN'T APPLICABLE UNLESS THERE'S RELIABLE [BROADBAND SERVICE]."*
>
> - FERRY COUNTY PARTICIPANT

ACCESS TO QUALITY, AFFORDABLE CHILDCARE

Despite the long-term cost savings and benefits, quality, affordable childcare in the United States is lacking. Countries around the world have reformed policies to increase the access of quality, affordable childcare, especially for disadvantaged families in low resource areas. These changes have been justified by the wide range of international literature that demonstrates the long-term savings associated with the provision of intervening early in the lives of children who may be at risk of not meeting developmental milestones and of providing parents with additional supports to provide a positive home-learning environment. For example, a cost-benefit analysis notes that children who participated in child-parent support programs were less likely to have a criminal record and more likely to be in employed than comparable children who did not have access to child-parent support programs.[38-40] This analysis also found that providing quality child and family services generated savings in public expenditure $7.14 per $1 invested, by the time the child was 21 years old.[39] This section provides examples of ways other countries have begun to bridge this gap to provide affordable, accessible childcare to those who need it most. This section should serve as inspiration on the state and national level to increase access to affordable, quality childcare for all.[38-40]

Public-Private Partnerships

Public-private partnerships (PPPs) can be broadly defined as a cooperative, formal agreement between a private enterprise and public entity to provide public assets or services, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance. PPPs or quasi-public-private partnership is one strategy that countries have used to increase the availability of quality, affordable childcare and early education programs. While most of these PPPs are national programs that have required significant policy and systems level changes, they have yielded promising results. Adapting similar programs on a local, state or national level could overcome a great health and economic barrier for many U.S. families. For example, Mexico launched "Federal Daycare Program for Working Mothers" in 2008 that subsidizes community- and home-based daycare to facilitate the employment of low-income mothers. This expands childcare services to working mothers that don't have access to social security-based services. This program was financed by a one percent across the board payroll deduction. The government also provided financial incentives/grants for those interested in starting a day care center.[41]

Subsidies to non-state institutions is another a common practice in Germany, Italy, and the Republic of Korea to increase access to childcare. Subsidies are offered to private for-profit, non-profit and faith-based providers, alongside public childcare systems and/or private (fee-based) to stimulate the development of childcare services.[41]

Chile also utilized PPPs to expand access to childcare via a program called "Chile Crece Contigo" (Chile Grows With You). This national strategy delegated administration of "creches" to non-profits, but the government regulated the program/policy, including payment of the childcare workers as public sector salaried positions.[41]

One other strategy embarked by France is to provide financial support directly to parents (rather than to service providers), to cover part of the costs incurred for the purchase of childcare services. For example, parents in France are compensated through tax allowances or transfers to which they can use to pay for different forms of childcare. This has decreased spending on daycare while increasing resources to flat-rate benefits for parents who stay at home, as well as subsidies for registered stay at home parents and tax-breaks for hiring nannies. However, this strategy may reinforce gender norms and be less equitable for lower income households to access quality care..[41]

Place-Based Initiatives

There is a global trend towards place-based initiatives (PBIs) to break the cycle of disadvantage and promote positive child development. 'PBIs are programs designed and delivered with the intention of targeting a specific geographical location(s) and particular population group(s) in order to respond to complex social problems'.[42] The common elements in the design and delivery of these PBIs are co-production of the model, shared governance, local autonomy, capacity building, joined-up working and flexible delivery.[42] Service integration is a common element of early childhood PBIs in disadvantaged communities, in recognition that children and families experience multiple, complex interrelated challenges that require integrated early childhood services (ECS).[43-46] Canada, the United Kingdom (U.K.) and Tasmania, Australia, are all examples of areas implementing place-based initiatives to increase access to childcare. See the descriptions below for more information and ideas to inspire action in the US.

Canada is creating integrated early learning environments and early childhood staff teams by bringing together kindergarten, childcare and parenting programs into a single program called 'Toronto First Duty'. The project's goals are to support sites to create a high quality-learning environment, provide a continuum of supports and services to all families and children, and support parents' need for childcare whether they are at home or are earning a living.[47]

The U.K. implemented Sure Start, a place-based initiative targeted at parents and children under four years of age living in the most disadvantaged areas. Sure Start projects deliver a wide variety of services designed to support children's learning skills, health and well-being, and social and emotional development.[48]

'Child and Family Centres' were adopted in Tasmania in 2009 to provide early childhood services from pregnancy to age five. This pro-equity, whole-of-government approach to addressing systemic barriers to access and participation in early childhood and family support services have been rated positively thus far. Tasmanian children in Australia live amongst the most disadvantaged communities in Australia. Centres offer universal services (e.g. Child Health and Parenting Service), disability services, counseling for parents, learning services, and nurse home visiting for first time young parents. Services are provided by government, non-government organizations and by the community.[43]

Recommendations to Continue the Project Beyond the Contract's Scope of Work

Our contract with the Department of Health (DOH) requires that we provide recommendations for continuation of the project beyond the contract's scope of work. These next steps are to support the project's capacity in maximizing outreach, education, and preventative strategies to underserved, rural communities in Washington State. Given the fact that this entire project, including recruiting and engaging communities, was completed in less than 7 months, these next steps are critical in maximizing the impact of the project:

1) We recommend that when designing community health improvement interventions, participating communities a) utilize a checklist including the 11 global health strategies to assure that each strategy is considered and b) consider whether the specific global health interventions highlighted in the report have elements that can be adapted or adopted locally.

2) We recommend that additional, ongoing consulting support be provided to participating rural community partners to support planning and implementation of these strategies. For example, as next steps they could be connected with local global health experts and receive consultation and technical assistance regarding adaptation of these strategies to their community health improvement plans and/or detailed action plans. All three community coalitions have requested additional consultation to support implementation of these strategies to reduce health disparities in the region.

3) The local areas look to the state to address larger policy issues such as lack of broadband access, lack of funding mechanisms for CHW programs, lack of affordable childcare, and low financial security.

Summary

G2L engaged with partners in Kittitas, Ferry, Asotin, Columbia, and Garfield counties to identify barriers to health and to identify global health strategies that might assist in reducing health disparities. In all regions, participants identified a broad range of social determinants of health and access to care.

G2L identified 11 global health strategies that might be adapted or adopted locally. Three of these strategies —deployment of community health workers, use of mobile technology, and task shifting or task sharing of services typically provided by physicians, nurses, psychologists, and other highly trained health care professionals – emerged as the most potentially useful and transferable approaches to mitigate the impact of barriers to health identified by the communities. In addition to highlighting general strategies, we provided numerous examples of specific global health programs and interventions that could be adapted to supplement ongoing work in rural Washington, or could serve as inspiration for development of local programs.

The BRIDGES project produced tools and training that provide a sustainable foundation for continuation of the project beyond the contract's scope of work. Evaluations confirmed that the trainings and recommendations were well received. However, common barriers regarding CHW funding mechanisms and access to broadband services were discussed with all regional partners. Local implementation of many effective global health approaches would benefit from significant policy support at the state and national level.

Ongoing consultation and support will enhance the likelihood that the global health strategies and examples provided to participating communities will serve as inspiration for innovative action in local rural Washington communities, and will result in reduced health disparities for the most hard-to-reach populations.

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Appendix A: Community Report to Kittitas County Health Network

Community Health Improvement in Cle Elum, Roslyn, and Kittitas, Washington: Learning from Global Health Strategies and Programs

Report Prepared for Kittitas County Health Network by Global to Local

May 15, 2019

GLOBALTOLOCAL

This report was prepared by Global to Local under contract DOH PRV23420 with the Washington State Department of Health. Global to Local is a 501c3 whose mission is to demonstrate the effectiveness of global health strategies to improve the health status of local communities.

www.globaltolocal.org

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Glossary of Abbreviations

AIMS: Advancing Integrated Mental Health Solutions

BMGF: Bill & Melinda Gates Foundation

BRIDGES: Bringing Global Health Expertise to Rural Washington

CAP: Counseling for Alcohol Problems

CBO: community based organization

CBT: cognitive behavioral therapy

CHW: community health worker

CUGH: Consortium of Universities for Global Health

DBT: dialectical behavior therapy

FIN: Food Innovation Network

G2L: Global to Local

HAP: Healthy Activity Program

HIC: high-income countries

IMNCI: Integrated Management of Newborn and Childhood Illness

KCHN: Kittitas County Health Network

LEAN: Lay health supporters, E-platform, Award, and iNtegration

LHW: lay health worker

LMIC: low- and middle-income countries

mHealth: mobile health

mhGAP: Mental Health Gap Action Programme

MNS: mental, neurological and substance use

NGO: nongovernmental organization

PM+: Problem Management Plus

PPP: public-private partnership

PST: problem solving training

SES: socio-economic status

START: Strategic Analysis, Research & Training

THP: Thinking Healthy Programme

UW: University of Washington

WHO: World Health Organization

WWAMI: Washington, Wyoming, Alaska, Montana, Idaho

Executive Summary

In response to a legislative directive, the Washington State Department of Health contracted Global to Local (G2L) to 1) identify barriers to health by engaging with leaders and community members through the organization and facilitation of community meetings, and 2) identify lessons from global health that might assist in overcoming those barriers.

G2L partnered with Kittitas County Health Network (KCHN) to identify health barriers in Cle Elum/Roslyn and Kittitas, two distinct communities in the upper and lower parts of Kittitas County. G2L and KCHN co-facilitated four community engagement events-- two in Cle Elum and two in Kittitas. Each community hosted one event tailored for community partners (community leaders and representatives of health and human services organizations) and one for community residents.

The highest priority barriers to health in both communities fell into two broad categories: (1) access, and (2) financial insecurity. The "access" domain includes several components related to availability of or access to health care and human services. These include access to behavioral health services, transportation, quality medical care, affordable childcare, home-based care services, and equitable health education opportunities. Financial insecurity includes barriers related to poverty, lack of jobs that provide a living wage, lack of affordable housing and other basic needs, food insecurity, and lack of economic development.

G2L sought to identify general global health strategies, as well as specific programs or approaches, that could be adopted or adapted to address barriers to health identified within the participating communities. Three strategies commonly employed in global health —deployment of community health workers, use of mobile technology, and task shifting or task sharing of services typically provided by physicians, nurses, psychologists, and other highly trained health care professionals – emerged as the most potentially useful and transferable approaches to mitigate the impact of barriers to health identified by the communities. While some of these approaches can address the sequelae of financial insecurity, global approaches to matters such as poverty and lack of economic development are less easily actionable at the local level in rural Washington, as many effective global health approaches would require significant policy support at the state and national level.

Background

Despite islands of excellence in healthcare delivery and health outcomes, the U.S. lags behind many other nations in overall health status. Lessons about successful health improvement strategies from across the globe may contribute to ongoing community health improvement efforts. Bringing Global Health Expertise to Rural Washington Communities, or BRIDGES, is an initiative aimed to help reduce health disparities and improve health for underserved communities in rural Washington State by identifying effective global health strategies for local application. In response to a Legislative directive, the Washington State Department of Health contracted Global to Local (G2L) to 1) identify barriers to health by engaging with leaders and community members through the organization and facilitation of community meetings, and 2) identify lessons from global health that might assist in overcoming those barriers. During a series of community meetings, leaders and residents collaboratively identified barriers to health and basic needs. Information from focus group discussions, evaluations, and feedback were analyzed to develop community-specific global health recommendations intended to enhance ongoing community-led efforts. This report summarizes the process and results of the community engagement activities, the approach G2L employed to identify potential global health solutions, and summarizes selected global health strategies, tactics and programs to assist in reducing or eliminating community-identified barriers to health in Cle Elum/Roslyn and Kittitas.

WHAT IS GLOBAL HEALTH?

While there is no universally accepted definition of "global health", the Consortium of Universities for Global Health (CUGH), including representatives from the University of Washington, proposed the following widely accepted definition:

> *Global health is an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care.* [1]

As shown in the following table, global health is related to, but distinct from, the fields of international health and public health.

Table 1. Defining global, international and public health

	Global Health	*International Health*	*Public Health*
Geographical reach	Focuses on issues that directly or indirectly affect health but that can transcend national boundaries	Focuses on health issues of countries other than one's own, especially those of low-income and middle-income	Focuses on issues that affect the health of the population of a particular community or country
Level of cooperation	Development and implementation of solutions often requires global cooperation	Development and implementation of solutions usually requires binational cooperation	Development and implementation of solutions does not usually require global cooperation
Individuals/ populations	Embraces both prevention in populations and clinical care of individuals	Embraces both prevention in populations and clinical care of individuals	Mainly focused on prevention programs for populations
Access to health	Health equity among nations and for all people is a major objective	Seeks to help people of other nations	Health equity within a nation or community is a major objective
Range of disciplines	Highly interdisciplinary and multidisciplinary within and beyond health sciences	Embraces a few disciplines but has not emphasized multidisciplinary	Encourages multidisciplinary approaches, particularly within health sciences and with social sciences

Source: Koplan, et al.[1]

In this report, we embrace the CUGH definition of global health. As such, while we emphasize recommendations based on experience from countries other than the United States, we also include occasional examples of approaches that have been developed or implemented domestically—particularly if they are relevant to improving health among disadvantaged or underserved populations. Such an approach is consistent with the commonly expressed observation among global health practitioners that "all health is global health".[2]

While the strategies and programs to improve health in this report are drawn most heavily from work implemented in other nations, it is readily apparent that both the local context and the specific health problems or clinical conditions addressed often differ considerably from those in rural Washington State. Indeed, few of the approaches we highlight will be "plug and play", or immediately ready to adopt without significant modification. In some cases, this is because a promising approach to improving health might have been implemented for a condition such as malaria—which is not endemic in Washington. In others, a community-based program to address a non-communicable disease such as diabetes may be very tightly connected to a health care delivery system that differs in many respects from the system in rural Washington. Despite these differences, though, the global health strategies and approaches we summarize may either be adapted in some way, or serve as inspiration for modifications of existing or planned programs intended to improve health in rural Washington communities.

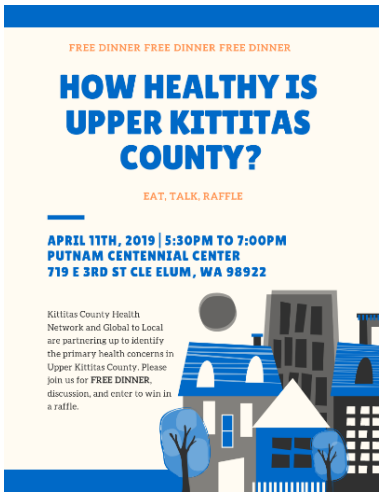
Methods

COMMUNITY ENGAGEMENT PROCESS

Partnership

Global to Local (G2L) collaborated with Kittitas County Health Network (KCHN) to coordinate and schedule four community meetings in two distinct communities, Cle Elum/Roslyn and Kittitas. KCHN has 19 organizational members from behavioral health, business, education, food system, critical access hospitals, housing, local government, managed care, primary care, public health, public safety, social services, and transportation sectors. KCHN exists to improve population health in Kittitas County, Washington through cross-sector collaboration and systems change.[3] KCHN is leading the implementation of the Kittitas County Community Health Improvement Plan.[4]

Figure 1. Outreach flyers



Outreach

KCHN agreed to recruit community members and participants from local organizations. KCHN developed and posted flyers throughout both regions. Flyers were posted in public places (e.g. post offices, gas stations, schools, libraries, stores, coffee shops, hardware stores, banks, etc.) to spread the word about the events (see Appendix A: Outreach Flyers). Students from both school districts, grades K-12, were given flyers to take home to their families. Community partners of KCHN were emailed invitations with a request to distribute the flyer among their networks. KCHN partner invitees were county wide with some being specific to the Cle Elum and Kittitas areas.

Outreach in Cle Elum/Roslyn utilized a number of community gathering spaces to maximize outreach efforts. Flyers for the community member dinner were posted in forty-three different locations throughout the upper county region and an ad was placed in a local newspaper (see Appendix B: Community Resident Outreach Locations). Six community partner organizations from the town of Cle Elum were invited to attend the lunch discussion (see Appendix C: Community Partner Outreach). These organizations included providers from the hospital, school district, City of Cle Elum, police department, Roslyn Library, and the Cle Elum Senior Center.

Given the smaller number of community gathering spaces in Kittitas, KCHN posted flyers at local businesses where residents go for services (food, gas, hardware, etc). Flyers for the resident dinner were also advertised in both Spanish and English to eliminate any language barriers within Kittitas's Spanish-speaking community. Four community partners specific to Kittitas were invited to the lunch discussion, including staff from the town's only food bank (Kittitas Neighborhood Pantry), the Kittitas Police Department, City of Kittitas, and the Kittitas School District.

Description of Community Events

On April 11th and April 18th, 2019, G2L and KCHN co-facilitated four community health engagement events. The events on April 11th were located in Cle Elum, a town in Upper Kittitas County. The events on April 18th were in the town of Kittitas in Lower Kittitas County. Community partners and leaders participated in lunch events, and community residents were invited to dinner events in the early evening.

The community partner meetings consisted of a review of the countywide community health needs assessment with breakout sessions into smaller group discussions (see Appendix D: Community Meeting Agenda). Group facilitators prompted participants by asking them what issues make it hard for people to be healthy and what the main health priorities are within their communities (see Appendix E: Focus Group Guide). Responses were recorded on flip charts for future reference and to provide a visual aide throughout the discussion.

The community resident meetings consisted of a poster reflection activity and a group discussion. Six posters were hung around the room, each stating a community health issue. The health barriers were drawn from the 2018 Kittitas County community health needs assessment conducted by the Kittitas County Health Department.[5] A seventh poster asked residents to write down any other health-related topics missing.

5

Residents were given four sticker dots to place underneath the four health issues they felt were of most concern in their community. The results of this voting activity were then used to lead a group discussion among the residents. All meetings ended with a feedback form for participants to fill out regarding their satisfaction with the event and the top three barriers to health they observe in their community (see Appendix F: Feedback Form).

COMMUNITY DATA

Data Collection

The primary data collection methods included: (1) typed and handwritten notes from each group discussion. (2) quantitative and qualitative data collected from the feedback form that each participant filled out at the end of the event. (3) data regarding health priorities conducted during the poster reflection activity with community residents. (4) data from previously conducted community health needs assessment.[5]

Data Analysis

A mixed methods data analysis was conducted with data from 29 feedback forms (evaluation surveys). The feedback forms included both quantitative data (i.e. 5-point Likert scale) and qualitative data (i.e. open-ended questions). All data was entered into Excel for analysis. Quality assurance processes included reviewing and comparing notes between all four note takers to assure quality control, and peer editing/review of analyses process.

A thematic analysis was conducted from the qualitative data in the feedback form. A total of 29 participant responses to the question, “In your opinion, what are the top three barriers to health experienced in this community today?” were transcribed into Excel. Open coding was conducted based on the topics, ideas, concepts, terms, phrases that emerged from the survey responses. These codes were then grouped into overarching themes based on common patterns, connecting ideas, key words in context, and larger categories of the participant’s take-away ideas. A quantitative analysis was also conducted by calculating proportions based on the frequency of each response provided per question divided by the total.

Discussion group notes were analyzed to further develop and validate the themes identified in the open-ended questions on the feedback form. There were up to four note takers during each break out focus group session. Notes recorded key themes, summaries of topics discussed, and quotes or partial quotes of conversations.

Health Barrier Prioritization Process

We used the results from the feedback surveys to determine the highest priority community-specific barriers to health as perceived by participants. The question respondents answered was, "In your opinion, what are the top three barriers to health experienced in this community today?" This question was answered at the end of the event when participants had time to reflect on everything they heard and discussed throughout the event.

Priorities were determined by how often each health barrier theme was identified on the feedback form per community meeting. All three health barriers from each participant were included in the analysis. Health barriers were grouped together based on key themes identified during qualitative analysis. For example, "poverty" and "jobs" were both coded under the theme of "financial insecurity." The total number of responses per theme were then compared using proportions. Proportions were calculated by summing each number of responses per health barrier category, then dividing that by the total number of health barriers listed from all the feedback forms from that meeting (see Appendix G: Thematic Coding Process).

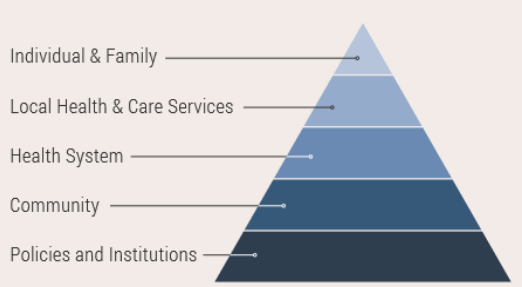
GLOBAL HEALTH RESEARCH

After identifying key concerns from the community engagement events, we scanned the global health literature for ideas and approaches to reduce health disparities in the community. Our primary methods of global health research included conducting literature reviews, interviews with global health experts, and crosswalk analyses of recommendations based on community needs and identified global health interventions. G2L applied the strategic framework from a global health landscape assessment it commissioned from PATH (further described below) to organize its work. We also partnered with a research-consulting group, the University of Washington Strategic Analysis, Research & Training (START) Center to supplement our internal capacity.

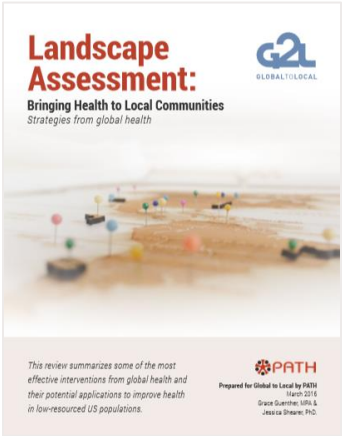
G2L/PATH Framework

In 2017, under a contract from G2L, PATH- a Seattle-based global health innovation organization completed a follow-up landscape analysis and literature review of global health interventions that may be transferable to low-resource populations in the U.S. (The 2017 report was an update to an earlier G2L/PATH landscape analysis from 2010.) The interventions address determinants of health at multiple levels, ranging from governmental and institutional policies to the level of individuals and families (Figure 2).[6]

Figure 2. Levels of Transferable Strategies



Source: Landscape Assessment[3]



PATH systematically reviewed evidence of interventions from other countries around the world and identified strategies that could be applied in the U.S. Each strategy was chosen based on their (1) effectiveness and cost-effectiveness, (2) ability to have the greatest impact on the most disadvantaged populations (i.e. equity), (3) ability to address social determinants of health, and (4) transferability and feasibility in low-resource domestic settings. G2L used the results of the landscape analysis to guide selection of interventions from other countries that may be adopted or adapted to improve health in rural Washington communities.

UW START Center

G2L partnered with the University of Washington (UW) Strategic Analysis, Research & Training (START) Center to supplement their global health research. The START Center is a research-consulting group established in 2011 by the Bill & Melinda Gates Foundation (BMGF) and the UW Department of Global Health. Since its inception, START's expert researchers have completed more than 150 projects for clients including the BMGF, the World Health Organization (WHO), Boston Scientific, and more. Their primary research tasks for the BRIDGES project included conducting key informant interviews with global health experts and conducting literature reviews to develop summaries of global health strategies that may be adapted to rural Washington communities.[7]

Community-Identified Barriers to Health

The two primary health issues that emerged from the community engagement events in both Cle Elum/Roslyn and Kittitas could be assigned to one of two broad categories: "access" and "financial insecurity". Although priorities of the communities differed in some respects, because there was significant overlap we present the results of both communities in a single report. We defined the categories of access and financial security as follows:

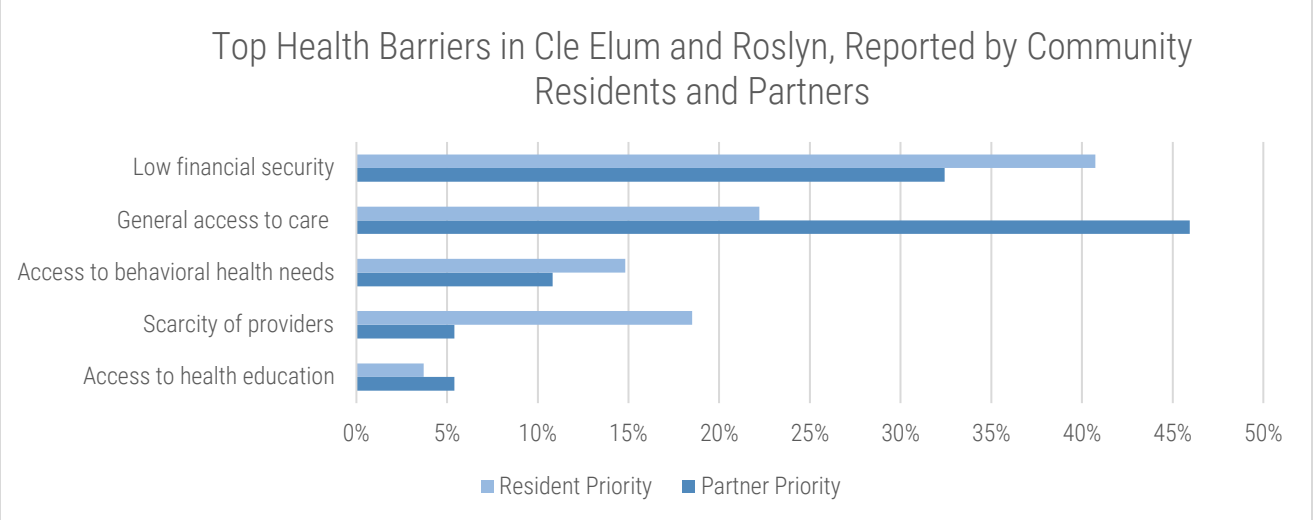
Access is used broadly to encompass access to care. This definition includes, but is not limited to, access to behavioral health services, access to transportation, access to quality, affordable childcare, access to home-based care services, and access to equitable health education opportunities.

Financial insecurity encompasses barriers related to poverty, lack of jobs that provide a living wage, lack of affordable housing and other basic needs, food insecurity, and lack of economic development.

FINDINGS FROM CLE ELUM/ROSLYN

Of all the community resident feedback forms responding to the question, "What are the top three barriers to health in this community?" over half (60%) of the community resident responses were related to issues with access and 40% of health barriers were related to financial insecurity. These results were similar among community partners where two-thirds (68%) identified access as a barrier to health and one-third (32%) identified financial insecurity as a barrier.

Figure 3. What are the top barriers to health in Cle Elum and Roslyn?



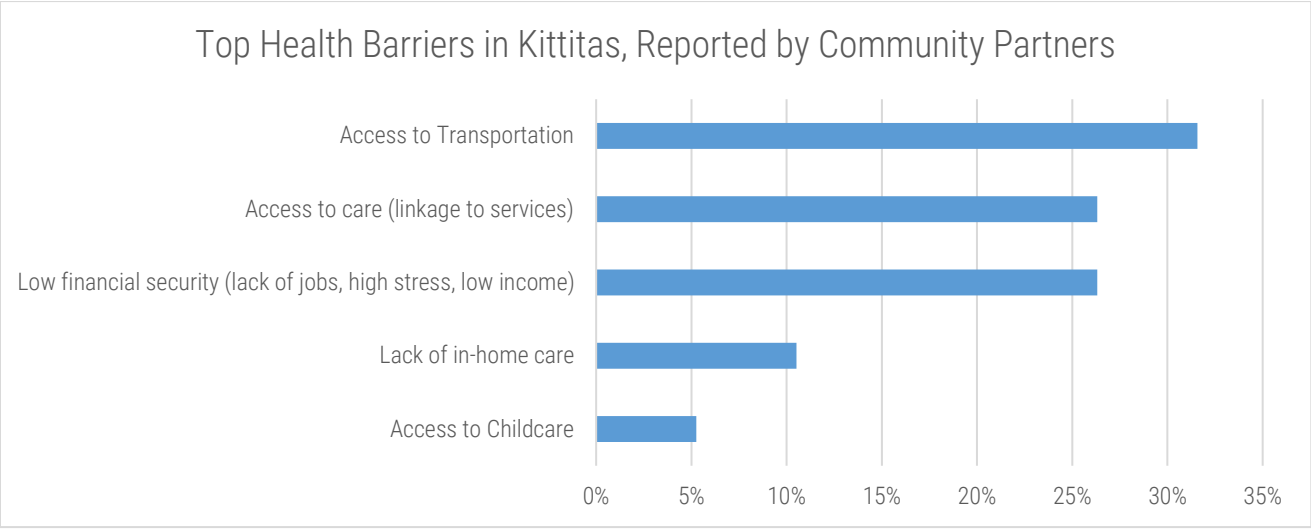
The theme "access" encompassed the following five sub-themes: (1) access to behavioral health services was identified among 15% of residents and 11% of partners. (2) Access to or scarcity of providers in the area was identified by 19% of residents and 5% of partners. (3) Access to health education was identified by 4% of residents and 5% of partners. (4) Overall access to care was mentioned by 11% of residents and 17% of partners. (5) Access to transportation was identified by 11% of residents and 27% of partners. (6) Access to recreational activities was identified by 3% of partners.

The theme "financial insecurity" encompassed the following five sub-themes: (1) lack of jobs that provide a living wage was identified among 19% of residents and 14% of partners; (2) lack of affordability, including housing and basic needs was identified by 17% of residents and 10% of partners; (3) food insecurity was identified by 4% of residents and 5% of partners; lack of economic development was mentioned by 3% of partners.

FINDINGS FROM KITTITAS

Among community partners in Kittitas, 74% of health barriers were related to access and 26% were related to financial insecurity. When breaking down the barriers to access, 32% were related to transport, 26% to care, 11% identifying in-home care, and 5% related to childcare. Factors influencing financial insecurity in Kittitas included poverty, especially among children and the elders, as well as due to housing expenses. Due to the small number of feedback forms returned by community residents, we omitted those results from analysis.

Figure 4. What are the top barriers to health in Kittitas?



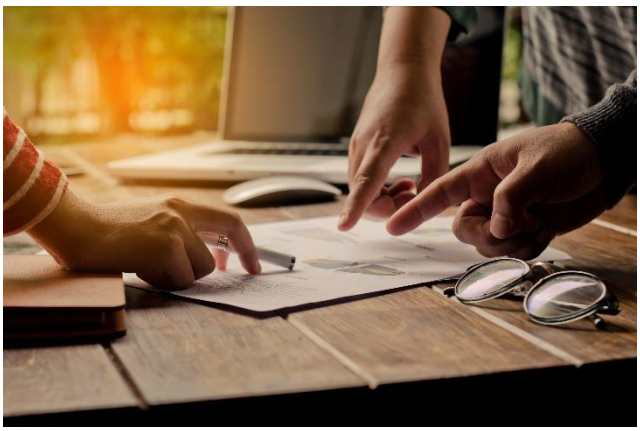
Global Health Strategies and Programs That Might Inform Local Action

The following global health recommendations are divided into three parts:

Part I summarizes each global health strategy and includes a table of resources that provide additional information about each strategy. These assist communities in systematically identifying general approaches that might be applied in addressing local health needs or modifying existing community health improvement plans, regardless of the specific social determinant of health, clinical condition, or public health challenge.

Part II provides examples of specific programs and tactics that can support local efforts in overcoming identified health barriers. In many cases, these programs will need to be significantly modified or adapted in order to be implemented locally. In some cases, the specific conditions addressed globally (malaria, for example) may not be locally relevant, but the approach used might be modifiable for a locally prevalent condition.

Part III provides additional examples of global health approaches that may address other health barriers identified in Cle Elum/Roslyn and Kittitas areas. This section is in the form of a table that provides a summary of each intervention along with a link to each source. These interventions and strategies will also need to be significantly modified or adopted in order to be implemented locally. The table is intended to serve as inspiration for ideas to overcome health disparities identified in the region.



PART I: STRATEGIES

Figure 5. Levels of transferrable interventions

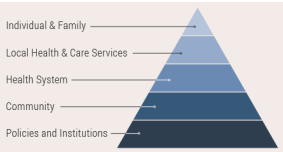


Table 2. Selected global health strategies potentially transferable to rural Washington communities[61]

Strategy	Level	Transferable?	Outcomes
Community health workers (CHWs)		Highly transferable	Promote healthy behaviors, increase access
Mobile Health (mHealth)		Transferability depends on structure of current health system	Increase access and coverage to preventative and curative services
Public-private partnerships (PPPs)		Transferable	Increase efficiency and cost-effectiveness of services
Promote community asset building through community-based organizations		Transferable with adaptations	Increase access to services
Social media and mass media health campaigns		Transferable	Promote healthy behaviors, increase access
Improving economic development and wealth		Transferable	Improve use of health services
Community mobilization & community leadership development		Transferable	Increase efficiency and cost-effectiveness
Coordinated and patient-centered primary care		Transferability depends on structure of current health system	Improve the quality of health delivery, improve health outcomes
Gender integration		Transferability depends on local context	Improve gender equality, improve health

[1] An additional approach not specifically highlighted in the table above- task sharing, or task shifting—can be framed as either a strategy or a tactic. We address task sharing later in this report.

Community Health Workers

Community health workers (CHWs) are frontline public health workers that are trusted members of a community or who have in-depth knowledge of the communities they serve. CHWs or lay health workers (LHWs) typically require minimal formal training or licensing, and serve as a bridge between health care access and service delivery. CHWs promote health and improve healthy behaviors, increase access to services, reduce costs, and reduce inequities and disparities. CHWs in low- and middle-income countries (LMICs) often work within a health facility or local health clinic to provide low-level medical services in the community. CHWs in high-income countries (HICs) tend to work within community-based health programs. They support vulnerable populations within healthcare systems through care coordination and management of chronic illnesses.[8-11]

Implementation of community health worker programs is a key global health strategy that could contribute to improved health in rural Washington communities.

Table 3. Community Health Workers: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Costa EF, et al.	Systematic review of physical activity promotion by community health workers.[8]
Ruddock JS, et al.	Innovative strategies to improve diabetes outcomes in disadvantaged populations.[9]
Sarkar A, et al.	Community based reproductive health interventions for young married couples in resource constrained settings: a systematic review.[12]
Lunsford SS, et al.	Supporting close-to-community providers through a community health system approach: case examples from Ethiopia and Tanzania.[13]
Nguyen TT, et al.	Breast cancer screening among Vietnamese Americans.[14]
Mangham-Jefferies L, et al.	Erratum: Cost-effectiveness of strategies to improve the utilization and provision of maternal and newborn health care in low-income and lower-middle-income countries: a systematic review.[10]

Brown HS, et al.	Cost-effectiveness analysis of a community health worker intervention for low-income Hispanic adults with diabetes.[11]
Johnson SL, et al.	Community health workers as a component of the health care team.[15]
Sprague L.	Community health workers: a front line for primary care?[16]
Naimoli JF, et al.	Strategic partnering to improve community health worker programming and performance: features of a community-health system integrated approach.[17]
Kok MC, et al.	How does context influence performance of community health workers in low- and middle-income countries? Evidence from the literature.[18]
Mutamba BB, et al.	Roles and effectiveness of lay community health workers in the prevention of mental, neurological and substance use disorders in low and middle income countries: a systematic review.[19]
Xavier D, et al.	Community health worker-based intervention for adherence to drugs and lifestyle change after acute coronary syndrome: a multicentre, open, randomised controlled trial.[20]
Galiatsatos P, et al.	Health promotion in the community: impact of faith-based lay health educators in urban neighborhoods.[21]
Rhodes SD, et al.	Lay health advisor interventions among Hispanics/Latinos: a qualitative systematic review.[22]

Mobile Health

Implementation of mHealth is a key global health strategy that could contribute to improved health in rural Washington communities.

Mobile health, or mHealth, is a type of intervention that uses mobile phones and other information technologies to help improve medical care, medication adherence, health education, and promote positive health outcomes. mHealth is particularly useful in increasing access to care by overcoming geographic or financial barriers, as well as using data to inform and improve processes and health outcomes. For example, mHealth is improving immunization delivery in Sub-Saharan Africa with technology that allows collaboration across all levels of healthcare, increasing the efficiency of vaccine administration to children through an electronic immunization registry. This tool is used on mobile devices and keeps track of children who are in need of vaccinations along with which ones they have not received.

mHealth in HICs is commonly utilized for managing chronic diseases and encouraging healthy behaviors through apps that encourage treatment compliance, self-care, and healthy behaviors. With a mobile device, patients can receive ongoing support from text messages, alerts, and reminders. This low cost intervention addresses access barriers and improves health outcomes in low resource areas.[23,24]

Table 4. mHealth: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Hall CS, et al.	Assessing the impact of mHealth interventions in low- and middle-income countries--what has been shown to work?[25]
Alghamdi M, et al.	A systematic review of mobile health technology use in developing countries.[26]
Davey S, et al.	Mobile-health technology: can it strengthen and improve public health systems of other developing countries as per Indian strategies? A systematic review of the literature.[27]
Free C, et al.	The effectiveness of mobile-health technology-based health behaviour change or disease management interventions[28-33] for health care consumers: a systematic review.[34]
Ho K, et al.	Mobile digital access to a web-enhanced network (mDAWN): assessing the feasibility of mobile health tools for self-management of type-2 diabetes.[28]

Bailey J, et al.	Sexual health promotion for young people delivered via digital media: a scoping review.[35]
Turner T, et al.	Prevention and treatment of pediatric obesity using mobile and wireless technologies: a systematic review.[29]
Labrique AB, et al.	mHealth innovations as health system strengthening tools: 12 common applications and a visual framework.[30]
Piette JD, et al.	Mobile health devices as tools for worldwide cardiovascular risk reduction and disease management.[31]
Bloomfield GS, et al.	Mobile health for non-communicable diseases in Sub-Saharan Africa: a systematic review of the literature and strategic framework for research.[32]
Elbert NJ, et al.	Effectiveness and cost-effectiveness of eHealth interventions in somatic diseases: a systematic review of systematic reviews and meta-analyses.[33]

Public-Private Partnerships (PPPs)

Public-private partnerships (PPPs) can be broadly defined as a cooperative, formal agreement between a private enterprise and public entity to provide public assets or services. Leveraging private resources and efficiencies can enhance the capacity of health systems and improve health outcomes. PPPs in LMICs have been used to address a wide range of health care needs, including primary health care and hospitals to maternal child health and tropical disease. PPPs in high-income countries (HIC) tend to support universal access to health systems and services and increase health promotion efforts to combat chronic diseases. Harnessing the expertise and resources of the private sector to solve public-sector challenges and inefficiencies to achieve public health goals is one of the most appealing aspects of PPPs.

Table 5. Public-Private Partnerships: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
World Bank Group.	What are public private partnerships? Public-private partnership in infrastructure resource center website.[36]
Roehrich JK, et al.	Are public–private partnerships a healthy option? A systematic literature review.[37]
Hayes SL, et al.	Collaboration between local health and local government agencies for health improvement.[38]

Promote Community Asset Building through Community-Based Organizations

Community based organizations (CBOs) serve as coordinating bodies for community-based research, communication outlets in hard-to-reach populations, points of contact for service provision, and local advocates and implementers for large health programs. CBOs can increase access and coverage of preventative and curative services, promote well-being of communities through skill building, and increase community self-efficacy. CBOs may support asset building by scaling up prevention and treatment efforts, ultimately maximizing care and health for a target population.

CBOs in LMICs primarily focus on addressing health issues in rural communities, including financial health. Community members have formed CBOs by combining their wealth collectively to form a "financial support group". These funds are used to increase the financial stability of the community based on specific needs. This contrasts with their implementation in HIC. CBOs in HICs are diverse in purpose and structure. Many of them function as "community health centers," providing specific health programs or activities and assist with accessing services.[39]

Table 6. Promote Community Asset Building Through Community-Based Organizations: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Wilson MG, et al.	Community-based knowledge transfer and exchange: Helping community-based organizations link research to action.[40]
Brasington A, et al.	Promoting healthy behaviors among Egyptian mothers: a quasi-experimental study of a health communication package delivered by community organizations.[41]
Griffith DM, et al.	Organizational empowerment in community mobilization to address youth violence.[42]

Social Media and Mass Media Health Campaigns

Mass media campaigns target widespread behaviors that are exacerbating poor health outcomes, and increase health education in a community. This strategy focuses on raising awareness about a specific health issue or behavior, and providing education and information regarding treatment or prevention. For example, in LMICs bed net delivery is a "health service supply campaign" aimed to protect vulnerable populations against malaria.[43] In HICs, however, public health information is delivered to widespread audiences in with the purpose of creating social awareness around health topics such as, smoking, HIV, and preventative health screenings.[44,45]

There are a few key components to leading a successful health campaign. Some successful strategies include (1) understanding the targeted audience, (2) saturating the network with the intended health message, (3) coordinating the campaign with a widespread intervention, and (4) having sufficient funding to sustain the efforts. While mass media campaigns often require many upfront costs, it is seen as a relatively effective way to target a specific health behavior change to a population.

Table 7. Social and Mass Media Health Campaigns: Recommended references for additional information and sources of ideas for adaptation to the local context

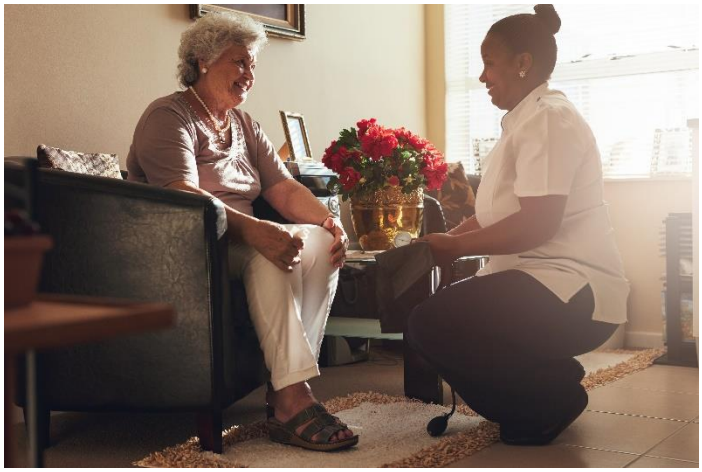
Author	Article Title
Lam E, et al.	Strategies for successful recruitment of young adults to healthy lifestyle programmes for the prevention of weight gain: a systematic review.[46]
Verheijden MW, et al.	Changes in self-reported energy balance behaviors and body mass index during a mass media campaign.[47]

Linking Economic Development and Wealth

Improving access to income and income-generating opportunities can free up household wealth to invest in nutrition and health care, in turn improving household well-being and health outcomes. In low- and middle-income countries (LMICs), health and development programs are often funded by external donors and managed locally by nongovernmental organizations (NGOs) and CBOs. Some examples of global economic development strategies include increasing income from cash transfers, changing the tax system, creating jobs, and providing microfinance and micro-credit interventions. This strategy may contribute indirectly to improved health by reducing anxiety and improving quality of life for communities. G2L's Food Innovation Network (FIN) program is one example of how HICs work to increase economic development by providing financial assistance to individuals who are seeking to start their own food business (www.foodinnovationnetwork.org). Programs such as these in HICs promote economic stability by creating jobs in low-income communities.

Linking Primary Health Care and Public Health

Linking primary health care and public health helps to improve integration and efficiency in health service delivery. It integrates population-based health services with primary-care delivery systems and vice versa. For example, a family may take their child in to the clinic to receive care for asthma, and at that appointment be connected with community resources to conduct home visits to advise on mitigation of environmental factors that exacerbate asthma.



In many LMICs, providing primary health services is the responsibility of the health ministry and there is little to no separation between primary care and public health.[48] However, the American public and private systems have divided responsibilities, often resulting in silos. One way to link public health and primary care in HICs is to have multiservice centers provide routine healthcare and connect individuals to social support programs. Integrating primary care and public health is shown to improve childhood immunization coverage, improve health outcomes for those suffering from chronic diseases, improve access to health care and reduce health disparities. It also supports the capacity and coordination in delivery of preventive and emergency services.

Table 8. Linking Delivery of Primary Health Care with Public Health Services: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Dudley L, et al.	Strategies for integrating primary health services in middle- and low-income countries at the point of delivery.[49]
Kringos DS, et al.	How does an integrated primary care approach for patients in deprived neighborhoods impact utilization patterns? An explorative study.[50]

Coordinated and Patient-Centered Primary Care

Patient-centered primary care improves quality of care and access to care through service integration and innovative service delivery. This work improves the continuity and transition of care through an integrated, patient-centered approach. Coordinated care models improve the utilization and outputs of health care delivery and improve linkage to services for people with chronic illness (e.g. cancer and diabetes). Coordinated care may also increase access to mental health services, improve the patient experience of transitioning between care, and integrate service delivery. Primary care integration models have streamlined health care delivery and improve comprehensive care management, reducing costs to patients and providers and increasing collaboration between health specialists and generalists. For example, LMICs create "a single point of care" that delivers both specialty and primary care to patients with specific health needs, whereas patient navigators in HIC help to coordinate communication between primary, specialty, and social service providers.[51,52]

Table 9. Coordinated and Patient-Centered Primary Care: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Reilly S, et al.	Collaborative care approaches for people with severe mental illness.[53]
Gardiner C, et al.	Exploring the transition from curative care to palliative care: a systematic review of the literature.[54]
Beaglehole R, et al.	Improving the prevention and management of chronic disease in low-income and middle-income countries: a priority for primary health care.[55]
Jenkins R, et al.	Health system challenges to integration of mental health delivery in primary care in Kenya- perspectives of primary care health workers.[56]

Community Mobilization and Community Leadership Development

Community mobilization recognizes the central role that individuals and groups have in becoming leaders and champions of their own health. Communities can define their greatest health challenges and specify their needs to national health systems, donors, and external actors. For example, mobilized communities in LMICs have a significant impact on disease control. Engagement models have empowered communities to promote education, participation, and prevention of diseases such as malaria; similar approaches may be helpful in addressing non-communicable diseases of concern in rural Washington.[57,58] Community mobilization in HICs focus on empowering communities to take charge of their health and promote equity through activism. Interventions vary from being self-lead to program-lead health promotion.[59] This strategy is a cost-effective way to reduce health risks and improve long-term health outcomes among community members, especially when members of disadvantaged communities are engaged in public health initiatives.

Community leadership development can support a community's ability to effectively address its own needs. Leadership can also facilitate problem solving and overcoming challenges within one's community. Bottom-up programming tends to focus on concepts of community empowerment, while top-down programming is more associated with disease prevention efforts by involving groups in key health issues. The types of engagement exist on a spectrum, including informing, consulting, collaborating, partnering, empowering and leadership development. Engaging the community in health interventions tend to have a positive impact on health behaviors, self-efficacy, and perceived social support outcomes across various conditions.

Table 10. Community Mobilization and Leadership Development: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Laverack G.	Improving Health Outcomes through Community Empowerment: A Review of the Literature.[60]
O'Mara-Eves A, et al.	Community engagement to reduce inequalities in health: a systematic review, meta-analysis and economic analysis.[61]
O'Mara-Eves A, et al.	The effectiveness of community engagement in public health interventions for disadvantaged groups: a meta-analysis.[62]
Sallnow L, et al.	Understanding community engagement in end-of-life care: developing conceptual clarity.[63]
Fawcett SB, et al.	Using empowerment theory in collaborative partnerships for community health and development.[64]

Milton B, et al.	The impact of community engagement on health and social outcomes: a systematic review.[65]

Gender Integration

Gender norms, roles and relations are powerful determinants of the health and social and economic well-being of individuals and communities around the world. Gender inequality continues to have a negative impact on many global health outcomes. These power imbalances contribute to unnecessary female mortality and morbidity across the globe.[66] Increasing gender equality and gender equity can strengthen health systems, improve efficiency and efficacy of health providers on issues relating to gender-based violence and can improve women's health outcomes.[18,67] Existing gender-based interventions in LMICs tend to focus on rural communities where social and health resources are limited. For example, mHealth interventions aim to empower women in rural communities by making health information, counselors, and providers more accessible.[68] Some gender integration issues in high-income countries include providing access to abortion, family planning, and sexual education. Hotlines that provide health education and referrals to social and counseling services can also increase gender equity in high-income areas.

Table 11. Gender Integration: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Kok MC, et al.	How does context influence performance of community health workers in low- and middle-income countries? Evidence from the literature.[18]
Samb B.	Reforming country health systems for women's health.[66]
Davies SE.	A gendered human rights analysis of Ebola and Zika: locating gender in global health emergencies.[67]

PART II: SPECIFIC PROGRAMS AND TACTICS

Increasing Access to Care

Access to care is a major barrier to health in rural Washington communities. Multiple factors, including geographical access, availability of providers, affordability of services, and acceptability of services fall under the umbrella term of accessibility. Understanding what influences access to care, such as socio-economic status (SES), environment, and availability of transportation, is important when considering ways to increase access to care in communities.

Implementation of task-shifting/sharing programs is a key global health strategy that could contribute to improved health in rural Washington communities.

This section of the report provides examples of specific programs and tactics used to improve access to care in other countries. It is intended to be used as inspiration to build on already existing community assets. Some of the examples are sourced from the U.S., and are included in the report due to the opportunities to leverage current state or university partnerships and/or expand upon interventions that are already tested as effective with similar target populations. Our recommendations target specific high priority areas that came up during the community engagement events, including increasing access to behavioral health services, transportation, and health education.

Increasing Access to Behavioral Health Services

Despite an abundant need, rural Washington communities are in short supply of trained behavioral health workers. After scanning the literature and interviewing key experts in the field of global mental health, three main tactics rose to the surface as evidence-based practices that have been successful in low resource populations in other countries that could help bridge this gap locally: (1) task-sharing/task-shifting, (2) mHealth and teleconsultations, and (3) integrating task-sharing and mHealth. While these approaches are regularly implemented in the US, lessons from implementation of these strategies or tactics in low-resource communities elsewhere may contribute to efforts to improve behavioral health in rural Washington communities.

(1) Task-sharing/Task-shifting

Task shifting, also known as task sharing, is a frequently used strategy in global mental health that may be adapted to address unmet mental health needs in rural and other low-resource areas.[69,70] This approach trains lay people to deliver care to patients with mild to moderate mental or behavioral health disorders. Typically,

this approach is integrated with the CHW model where trusted members of the community are trained to implement very structured, skill based interventions to support positive mental/behavioral health outcomes in the community.[71]

The Friendship Bench in Zimbabwe is an evidence-based example of training lay workers to support patients presenting with depressive symptoms. This intervention trained grandmothers as LHWs to use problem solving training (PST) and cognitive behavioral therapy (CBT) in a culturally sensitive manner to improve mental health symptoms. Patients who screened for common mental disorders were referred to the "Friendship Bench" intervention where they received six sessions of individual problem-solving therapy delivered by a trained, supervised LHW. Participants were invited to participate in an optional six-session peer support program. In a cluster randomized clinical trial of 573 randomized patients with common mental disorders with symptoms of depression, the intervention arm of the study had significantly lower symptom scores after six months compared with the control arm that received enhanced usual care.[72]

An adaptation of The Friendship Bench approach could be an effective, low-cost way to provide culturally appropriate support in a community setting. Task-sharing/shifting examples provide a "recipe-based approach" where lay health workers can provide more patient-centered care via a manualized/structured program.[71] (Manualized refers to documented in a procedure manual.) This approach is common throughout low-and middle-income countries (LMIC) and could be adapted and implemented in rural Washington communities to increase access to behavioral health care services for patients with mild to moderate common mental health issues.

Thinking Healthy Programme (THP) is an evidence-based psychosocial intervention for perinatal depression that was adapted for peer-delivery. It uses CBT techniques, such as building empathetic relationships, focusing on the present moment, behavior activation and problem solving. The program is fully manualized and was designed to be delivered by LHWs/CHWs who were provided a three-day training along with monthly refresher courses and group supervision. Sessions were organized into five modules covering the period from the third trimester of pregnancy to one year postnatal. Each model focused on the mother's personal health, the mother-infant relationship, and the psychosocial support of significant others. This study demonstrates the feasibility of using peers to provide interventions in two South Asian settings.

Nepal Mental Health and Development program is a community-based model for integrating mental health and development programming. The model, developed by the organization BasicNeeds, works in partnership with governments and has been implemented in nine countries. Services in Nepal started in 2010 with a focus on building capacity within existing systems of treatment through self-help groups, medication, and economic support. The program utilizes community-based health workers who conduct home visits and run follow up clinics to increase access to care within communities.[73]

Counseling for Alcohol Problems (CAP)[74] is a brief, 15 minute, psychological treatment delivered by lay counselors to patients with harmful drinking attending routine primary health-care settings. CAP uses motivational interviewing and general counseling strategies (e.g. open ended questions, showing empathy) as well as problem solving strategies usually delivered at the primary health clinic or at a patient's home. This RCT showed that CAP delivered by LHWs was better than enhanced usual care alone, and may be cost-effective. CAP could be a key strategy to reduce the treatment gap for alcohol use disorders.

Healthy Activity Program (HAP)[75] is a brief psychosocial treatment delivered by LHWs/CHWs for patients with moderately severe to severe depression in primary health-care settings. Findings from this RCT showed that patients in HAP had significantly lower depression symptoms severity and showed better results for the secondary outcomes of disability. HAP could be a key strategy to reduce the treatment gap for depressive disorders in a cost-effective way.

(2) mHealth and Teleconsultations

mHealth and teleconsultations are another way to bridge the lack of behavioral health providers in a local context. While teleconsultations are already occurring locally, such as implementation of collaborative care in the Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI) region via the University of Washington AIMS (Advancing Integrated Mental Health Solutions) Center, lessons from global health can expand and improve access to these technologies. For example, the AIMS Center at UW utilizes task sharing by having Seattle-based psychiatrists provide consultation to a team of care managers in more remote areas.[76,77] However, barriers to these programs, such as lack of insurance coverage of telemedicine, or poor access to broadband services in some remote areas, have added barriers to the expansion of these local programs to some rural Washington communities. To supplement this current ongoing work, we recommend considering applications of mHealth from other countries to bridge the mental health care gap.

Existing and developing mobile health technologies represent an underutilized resource in global mental health. Despite a lack of rigorous evaluations of current technologies, mobile health for mental health care could help bridge the care gap in rural Washington communities, especially when coupled with face-to-face

care. The following examples are strategies that could increase availability of services for behavioral health services that were of high need in rural Washington communities, namely to combat the high prevalence of self-harm and suicide, especially among adolescent youth.

Source 1. www.oxfordhealth.nhs.uk/blueice/research

A risk-reducing smartphone app, "BlueIce", designed for youth that self-harm or who have suicidal thoughts has been implemented in England. "BlueIce" was tested alongside traditional face-to-face counseling and was shown to help young people manage their emotional distress and urges to self-harm. The app provides a personalized toolbox of strategies founded on evidence-based CBT and dialectical behavioral therapy (DBT) approaches that can be accessed at any time. It includes a mood diary, menu of personalized mood-lifting activities, and automatic routing through safety checks to delay or prevent self-harm. Mood lifting activities include a personalized music library of uplifting music, photo library of positive memories, physical activities, mood-changing activities, audio-taped relaxation and mindfulness exercises, identification and challenging of negative thoughts, a contact list of key people to call or text, and distress tolerance activities (informed by DBT). After using the mood-lifting section, the young person is asked to rerate their mood, and if the urge to self-hard has not reduced, they are automatically routed to emergency numbers they can call. At the end of the study, 88% of the users wanted to keep the app.[78]

While this app is current only available to Child and Adolescent Mental Health Service providers associated with the U.K. National Health Service, a similar approach could reduce risks among youth that self-harm in rural Washington communities. An app like this one could be used as resources for social workers, counselors or teachers to recommend for high risk students in schools. However, it is important to recognize that this is supportive when applied in tandem with face-to-face therapy provided by a mental health worker.

mHealth technology has been used to reinforce skills offered in mental health therapies (e.g. CBT & DBT)

Text messaging as an adjunct to CBT, aimed at increasing CBT homework adherence, improving self-awareness, and helping track patient progress using CBT for depression. In this intervention, daily text messages corresponded to themes of a manualized group CBT intervention. mHealth strategies included tracking both positive and negative thoughts, tracking pleasant activities, tracking of positive and negative contacts, and tracking of physical well-being. This intervention has been pilot tested with low-income Spanish and English-speaking patients. The results demonstrated that participants responded at a rate of 65% to text messages, and they reported overall positive experiences.[79]

DBT Diary Card & Skills Coach app, was developed by psychologist and UW professor Marsha Linehan, PhD. This smartphone application was designed to help people live mindfully, manage emotions, improve relationships and tolerate distress. It is recommended for people learning DBT, currently working with a DBT clinician, or former DBT patients. The app provides support and reference materials for users who would like to implement DBT practices into their everyday life. There is a "coaching" section of the app that guides users through common DBT practices such as practicing tolerance skills while experiencing difficult emotions, using strategies to manage relationship tensions and/or conflict, and DBT techniques to manage intense emotions like anger, sadness, loneliness, and feat. The app also provides users with graphics that depict their use of DBT skills over time and is readily available on the iTunes store.[80,81]

Other applications of mHealth in mental health include disease awareness and self-monitoring

The following mHealth approaches may be adapted in rural Washington to support mindfulness and general treatment adherence.

MONARCA system, from Denmark, uses personal health monitoring and a feedback system to address the challenges of self-management of mental illnesses. This system was designed to support treatment adherence and symptom management for patients suffering from bipolar disorder. The MONARCA system lets patients enter self-assessment data, collects sensor data, provides feedback on the data collected, and helps them manage their medicine. The results from a 14-week trial from 12 patients were positive. Compared to paper-based forms, the adherence to self-assessment improved, the system was considered user-friendly, and it was perceived to be very useful.[82]

Source 2: www.imedicalapps.com

Mobilyze, "A therapist in your pocket," provides didactic information, available either over the phone or via a web browser that teaches the patient the kinds of things they would learn from a therapist. It also provides tools that support activities, which are typically prescribed in psychotherapy, such as monitoring activities to see relationships between activities and mood, scheduling positive activities, identifying ways in which the patient avoids engaging in activities that are likely to improve mood, and developing strategies to overcome that avoidance.[83]

(3) Integrating Task-Sharing and mHealth

Integrating task-sharing and mHealth is a promising strategy. Incorporating elements of a low-cost technology that most communities have access to along with a community or family member who is willing to

support each other's health in a structured way could help improve behavioral health outcomes in rural Washington communities. The WHO has developed a set of tools and training manuals for non-specialized health-care providers that could improve and increase access of mental health intervention delivery by non-specialized health workers. This section provides a summary of the WHO evidence-based mhGAP tools, and then gives an example of another intervention implemented that integrates task-sharing and mHealth in rural China.

mhGAP (Mental Health Gap Action Progamme), is a set of tools and training manuals for non-specialized health-care providers to increase access to comprehensive information to help them diagnose and treat a range of mental, neurological and substance use (MNS) disorders including depression, epilepsy and dementia. This evidence-based WHO program is targeted at CHWs, first level referral centers, first points of contact with the healthcare system, and general physicians and nurses. The tools include a training and intervention guide and a mobile app to increase the availability and access to mental health services in low resource settings. The program's objective is to bridge the MNS treatment gap by providing training and tools to non-specialists that can use the tools to assess, manage and follow-up people with MSN conditions. The modules in the app include a description and guidance on assessment and management of these mental health condition. The mHealth tool can be downloaded free of charge. It is currently available in English and other languages will be available soon.[84]

One example from the mhGap guidelines is called "Problem Management Plus" or PM+, a WHO recommended 5-session, psychological intervention program delivered by trained non-specialists that addresses common mental disorders. This intervention uses PST, counseling, plus stress management, behavioral activation and social support provided by a trained non-specialist. This study is evaluating the effectiveness and cost-effectiveness of PM+ in a specialized mental health care facility in Pakistan.[85,86]

LEAN (Lay health supporters, E-platform, Award, and iNtegration), combines both community/lay health workers and mobile technology to improve medication adherence among people with schizophrenia in a resource-poor community in rural China. The two-arm randomized controlled trial of 278 community-dwelling villagers demonstrated that patients engaged in LEAN improved medication adherence by 27% (0.61 versus 0.48 in the control group). Further, there was a substantial reduction in the risks of relapse and re-hospitalization with the intervention.

The LEAN intervention included a lay health worker from either the family or community, an E-platform that texted two daily messages to both the patients and their lay health supports reminders to take their medicine along with occasional messages providing a 14-item checklist about relapse and medication side effects. The

lay health supporter was expected to text back "1" if any item was checked, and then a project coordinator would follow up with a phone call. A group of master's and doctoral students in public health and medicine were tasked to produce the messages, mainly adapting contents from evidence-based sources. A senior psychiatrist reviewed and approved messages for use. Every week the project coordinator prepared a texting report based on the server data that included a list of families who texted back more frequently than the past month to confirm the taking of medication. The mental health administrators used the lists to award this improvement with a token gift (e.g. bar of soap or congratulatory text) on a monthly basis. Texting also served as a communication tool that integrated the efforts of lay health supporters into the existing health system. For example, lay health supporters may text the village doctors if signs of relapse are detected. The project coordinator would then schedule an appointment with the psychiatrist and texted appointment details to the patient's family.[34]

One key element of this intervention is that it a combination of behavior change strategies from the health belief model that combines task sharing (integrating LHWs) and mHealth to increase medication adherence using cues to action. While the target population was people with schizophrenia, this intervention could be adapted for people with other behavioral health disorders like clinical depression, bi-polar disorder, or people with substance use disorders. Overall, a low-cost, low-burden, easy-to-implement and easy-to-use intervention like LEAN could be adapted in rural Washington communities to improve behavioral health treatment adherence.

General Access to Healthcare other than Behavioral Health

In rural Washington communities, the scarcity of health care providers is not restricted to behavioral health. The strategies summarized in this section target the following two community concerns related to access to care: geographical access, and availability of providers.

Geographical Access

Rural communities experience geographical barriers to accessing healthcare due to the lack of locally available services. Costs associated with transporting to and from medical care can be a barrier for rural communities, especially those who are financially insecure. The following approaches are ways to increase access to care by decreasing a transportation cost burden.

Transportation and Service Vouchers

Innovative funding mechanisms, like vouchers, are shown to minimize financial costs of transportation to increase access to care. In Cambodia, vouchers are provided to eligible low-income women. These vouchers are provided as detachable coupons, which entitle them to free health services, transportation costs for five

round trips between her and her home and the health center, and referrals from the health center to the hospital, if complications occur.[87]

Another community-based transportation study to improve access to maternal health services occurred in Uganda from 2009 to 2010. Voucher booklets containing twelve transportation vouchers and seven service vouchers were given to over 12,000 pregnant mothers. The transportation vouchers allowed mothers to arrange local transport from a community member with a motorcycle or bicycle who agreed to participate in the study. Special vouchers were given to pregnant women with high-level complications for taxi or ambulance transport. After transporting a mother to and from healthcare clinics for prenatal, delivery, and/or postnatal care, the contracted transporter could redeem the voucher for payment. The overall result was a dramatic increase in utilization of maternity care and economic benefit within the community of transportation providers. The project showed that low-cost, community-based transportation options are available and can improve the accessibility of maternal services and health outcomes.[88]

mHealth app to organize emergency transport and improve healthcare delivery systems

D-tree is a digital global health company that uses technology to provide an emergency referral system by utilizing existing transportation among community members in Tanzania. When ambulances are unavailable, a 24-hour call center, along with a mobile app, manages referrals for transport to drivers from a database. The call center also has a triage system, which helps to assess what type of responses require elevation to a higher level of care. Drivers are paid through a mobile money system.[89]

Use of mHealth by Community Health Workers

CHWs are a cost-effective way to increase the availability of lower-level health services in communities. CHWs or LHWs are utilized across the world to overcome challenges related to availability of providers. The following approaches provide examples of how CHWs have been integrated into other communities to increase access to care.

India utilizes CHWs trained to conduct home visits to all newborns in the first week of life, counsel mothers on optimal essential newborn care practices, identify illnesses, treat mild illness, and refer newborns with danger signs. This service is provided through a program called Integrated Management of Newborn and Childhood Illness (IMNCI). IMNCI also addresses cultural barriers through community mobilization partnership activities, such as women's group meetings to learn current practices and promote essential newborn care practices among trusted older women in the community. These group meetings enhance health literacy and problem solving, two effective ways of reducing neonatal mortality. The results of the program included improvements in home-based newborn care practices.[90]

Pakistan employs CHWs in rural Pakistan via a program called The Lady Health Worker. The Lady Health Worker program focuses on evidence-based, low-cost interventions for maternal and child health, including oral rehydration solution, immunizations, case management of acute respiratory infections, growth monitoring, and referrals to higher level health facilities. Lady Health Workers provide basic services and family planning, refer patients to nearby clinics, organize health committees for men and women, and increase uptake of public health initiatives. The Lady Health Workers serve as a link between community and clinical settings, subsequently strengthening health-care systems and increasing access to care for remote and low-income communities.[91,92]

Rural Myanmar is filling primary healthcare service gaps in hard to reach areas with volunteer community health workers who are trained through the Global Alliance on Vaccine and Immunizations in an effort to support health system strengthening. The health workers are selected by a village health committee and trained to support primary care providers in midwifery, immunization, sanitation, and health education. In 2013, a questionnaire survey was given to 715 CHWs from 21 townships in Myanmar to assess profiles, program efficacy, and any necessary improvements. The results demonstrated the value of CHWs in improving health and access to care. The study provided recommendations for including CHWs in future strategic plans, including a plan for further training and ongoing support.[93]

Medic Mobile, a toolkit for health workers in rural communities, provides open-source software that supports patient care. The mobile software provides resources, training, and workflows for lay health workers to support community based health programs. The toolkits are specific for case use with antenatal care, postnatal care, childhood immunizations, community care management, malnutrition, managing health worker performance, and outbreak surveillance. Medic Mobile has been used in over twenty countries since 2010.

PART III. ADDITIONAL GLOBAL HEALTH RESOURCES

Strategy: Community Health Workers (CHWs)

Health Barrier: Access to Behavioral Health Services		
Name, Place	Description	Reference
ImpACT, South Africa	Improving AIDS Care after Trauma (ImpACT) is a coping intervention for HIV-infected women with sexual abuse histories that was evaluated for feasibility and potential efficacy in a public clinic in Cape Town, South Africa. In this study, participants were randomly assigned to standard of care (three adherence counseling sessions) or ImpACT (three adherence counseling sessions plus four individual and three group sessions). Preliminary findings suggest ImpACT has the potential to reduce post-traumatic stress disorder symptoms and increase antiretroviral therapy adherence motivation. This study demonstrated that a trauma-focused, culturally-adapted individual intervention delivered by a non-specialist in the HIV care setting is feasible and acceptable.	https://link.springer.com/article/10.1007/s10461-017-2013-1
ALMA, U.S.	Amigas Latinas Motivando el Alma (ALMA) is an asset-based health promotion intervention focused on addressing Latinx mental health. The ALMA intervention uses lay health advisors (LHA), called promotoras, who are indigenous members of a population. Promotoras are trained to provide health promotion activities for other members in their community. This intervention has decreased depressive symptoms and increased stress management among participants.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4137773/pdf/nihms531741.pdf
Task shifting mental health program, India	A task shifting mental health program for an impoverished rural Indian community found that community health workers were able to identify and refer individuals with mental health disorders to a community hospital. This study demonstrated that referred patients who were treated by the existing medical program experienced significant improvement in daily function.	https://www.sciencedirect.com/science/article/pii/S1876201815001331?via%3Dihub
Harm Reduction Strategies		
Mujer Mas Segura (Safer	Mujer Mas Segura (Safer Women), is a harm reduction intervention tested as a randomized control trial in Mexico. The study tested if an	https://www.ncbi.nlm.nih.gov/pmc/

Women), Mexico	interactive harm reduction education session would reduce incidents of HIV/STI and needle sharing among female sex workers. This HIV and sexual risk reducing interactive intervention tested one hour long session of interactive injection risk and interactive sexual risk for women in Mexico who use substances. Of the 584 women in the study, HIV/STD incidence was 62% lower in the group that received the interactive intervention versus the didactic intervention. Overall, the interactive injection risk intervention was associated with declines in receptive needle sharing and injection risk index score.	articles/PMC3681783/
Women-Focused Intervention, South Africa	This women-focused, empowerment-based HIV intervention was designed to reduce sexual risk, substance use, and victimization among at-risk, underserved women. The study tested two private one-hour sessions held within 2 weeks that was intended to equip women with increased knowledge about alcohol and other drug use associated with sexual risk and victimization, increase personal power by reducing substance use, increase condom use competency, increase communication skills with partners, and teach specific violence prevention strategies. Women also completed a personalized action plan to address their individual risk behaviors and develop goals to reduce sexual risk, substance abuse, and victimization. They also received a toiletry kit and referrals to resources. Findings from the study showed that the proportion of women who reported always using male condoms increased in the women-focused group and remained stable in the control group. Participants in the women-focused group also reported fewer sexually transmitted infection symptoms at follow-up than women in the standard group. These results suggest that interventions can address factors related to gender inequality that influence condom use and sexual behaviors.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3129984/
Women's Health CoOp, South Africa	The Women's Health CoOp (WHC) intervention was a four-module intervention conducted over two sessions lasting about 1 hour each. The goal of the intervention was to increase abstinence from drug use and reduce sexual risk behaviors. The study's results showed a lower	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3657672/

	proportion of women in the WHC intervention reported not being impaired during their last sexual encounter compared to the control groups.	
Health Barrier: Access to healthcare		
Tribal Health Initiative (THI), Southern India	This study assessed the implementation of a community-clinic health worker approach to supporting management of hypertension in a remote Indian community. Trained community health workers (CHWs) identified hypertensive patients in the community, referred them for diagnosis and clinical management. The CHWs then followed up with lifestyle interventions and provided medications for the patients. Results from this study showed that a CHW blood pressure screening system linked to a central clinic can improve hypertension control rates.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5752612/pdf/668.pdf
Global Alliance for Chronic Diseases	In 2012, the Global Alliance for Chronic Diseases financed 15 studies in 8 low- and middle income countries to provide evidence of successful task-shifting to non-physician health workers. Throughout the pilot, community health workers managed hypertension in low and middle income countries through routine screenings, education, support, referrals, and monitoring treatment compliance. This study shows the utility of CHWs in managing chronic conditions and non-communicable diseases, especially hypertension and cardiovascular disease.	https://gh.bmj.com/content/3/Suppl_3/e001092
LEAP, Kenya	LEAP is a mobile health platform that supports the training of community health workers (CHWs) in Kenya via a public-private partnership with The African Medical and Research Foundation (AMREF) and the Government of Kenya. Community Health Workers (CHWs) are trained through AMREF's mHealth platform called LEAP, which allows them to learn at their own pace and access training from rural areas. LEAP is a sustainable and scalable mobile learning academy for health workers across Africa. It uses regular updates and peer-to-peer communication to strengthen the skills of health workers. It is intended to complement face to face training, and has shown to improve CHW engagement and reduce attrition. To date, 3,000 CHWs in Kenya have been trained using this platform that has focused on improving immunization and health care delivery.	https://amrefuk.org/uk/en/what-we-do/projects/leap-the-mhealth-platform/

mothers2mothers, Sub-Saharan Africa	Since 2001, mothers2mothers (m2m) has been addressing the pediatric AIDS epidemic in sub-Saharan Africa by training and employing HIV positive mothers as peer mentors. These "Mentor Mothers" work in healthcare facilities and provide education around HIV transmission and prevention to other mothers living with HIV. They also are trained to promote and foster economic empowerment of their clients by improving women's ability to borrow money to finance income generating activities.	https://www.m2m.org/
Marie Stopes International	The Marie Stopes program provides contraceptive services to women's doorsteps. Nurses and midwives serve as the 'Avon Ladies' of sexual and reproductive health by going door-to-door to deliver contraceptive choices to women. Their outreach in remote and rural areas supports women's health in a range of free or subsidized high-quality contraception to those who wouldn't be able to access it in any other way.	https://www.mariestopes.org/
Strategy: mHealth		
Health Issue: Behavioral Health		
Ibobbly, Australia	This pilot study aimed to evaluate the effectiveness of a self-help mobile app (ibobbly) targeting suicidal ideation, depression, psychological distress and impulsivity among indigenous youth in remote Australia. A total of 61 patients received an app which delivered acceptance-based therapy over 6 weeks. Participants in the ibobbly group showed substantial and statistically significant reductions in PHQ-9 (symptoms of distress and depression), but no differences were observed in impulsivity.	https://bmjopen.bmj.com/content/7/1/e013518
Systematic Medical Appraisal Referral and Treatment (SMART) Mental Health project, India	The Systematic Medical Appraisal Referral and Treatment (SMART) Mental Health project trained lay village health workers and primary care doctors to screen, diagnose and manage individuals with common mental disorders using an electronic decision support system. The project increased access to mental health services in rural India with the use of mHealth tools. During the intervention period, there was a significant reduction in the depression and anxiety, demonstrating the feasibility and acceptability of the SMART model.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5370210/

Strategy: Public Private Partnerships		
Health Issue: Food Insecurity		
Global Alliance for Improved Nutrition (GAIN), international	Global Alliance for Improved Nutrition (GAIN) founded in 2002, is a global organization aimed at eliminating malnutrition through public-private partnerships. Their programs include workplace nutrition, adolescent nutrition, improving children's diets, and nutritious foods financing, just to name a few. GAIN's work is a collective approach which channels resources to ensure the world's most vulnerable populations have access to nutritious foods.	https://www.gainhealth.org/
Development in Gardening (DIG), international	Development in Gardening (DIG) provides agricultural resources and support to vulnerable communities in 8 different countries by establishing sustainable gardens. DIG teaches individuals how to grow their own food and how to cook nutritious meals. Their vision is to address malnutrition by increasing agriculture skills, re-purposing unused land into community gardens, and providing cooking demonstrations.	https://reaplifedig.org/
World Food Program, international	The World Food Program (WFP) has established a Home Grown School Feeding initiative in 46 countries to address childhood nutrition. The program provides local farmers with reliable incomes while insuring school aged children receive safe, nutritious meals. This approach connects schools to local farmers to increase the availability of healthy food for school aged children.	https://www1.wfp.org/home-grown-school-meals
The Hunger Project, Senegal	The Hunger Project is promoting food security and sustainability in Senegal through community food banks that allow farmers to store and process their crops. This helps farmers to be able to sell their crops at a better price rather than being forced to sell immediately. Storing crops also prevents food shortages.	https://www.thp.org/our-work/where-we-work/africa/senegal/food-security-senegal/
Health Issue: Access to quality, affordable childcare		
Toronto First Duty, Canada	Toronto First Duty, Canada, is creating integrated early learning environments and early childhood staff teams by bringing together kindergarten, child care and parenting programs into a single program. The project's goals are to support sites to create a high quality learning	https://www.childcarecanada.org/documents/research-policy-

	environment, provide a continuum of supports and services to all families and children, support parents' need for childcare whether they are at home or are earning a living.	practice/03/07/toronto-first-duty-project
Sure Start, U.K.	Sure Start is a place-based initiative targeted at parents and children under four years of age living in the most disadvantaged areas in the U.K . Sure Start projects deliver a wide variety of services designed to support children's learning skills, health and well-being, and social and emotional development.	https://www.education-ni.gov.uk/articles/sure-start
Child and Family Centres, Tasmania	Child and Family Centres, Tasmania, were adopted in 2009 to provide early childhood services for families of children from pregnancy to age five. This pro-equity, whole-of-government approach to addressing systemic barriers to access and participation in early childhood and family support services have been rated positively thus far. Tasmanian children in Australia live amongst the most disadvantaged communities in Australia. Centres offer universal services (e.g. Child Health and Parenting Service), disability services, counseling for parents, learning services, and nurse home visiting for first time young parents. Services are provided by government, non-government organizations and by the community	https://www.tandfonline.com/doi/abs/10.1080/03004430.2017.1297300
Federal Daycare Program for Working Mothers, Mexico	The Federal Daycare Program for Working Mothers began in Mexico in 2007 to subsidize community- and home-based daycare. This program was targeted for low-income mothers who otherwise couldn't afford childcare. It was a more recent expansion of a 1973 Social Security law that allowed access to childcare through a contribution-based entitlement that was financed by a 1 percent across-the-board payroll deduction. To incentivize people to open and run day care centers, the Mexican government offered to subsidize the costs. To qualify for the grant, the candidates are required to pass a psychological test and participate in training courses regarding program rules and basics of childcare. To qualify for the state subsidy, parents must be low-income, working, looking for a job or going to school.	http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/5F0320F46ECBA3BFC1257744004BB4E8/$file/StaabGerhard.pdf

Chile Crece Contigo, Chile	Chile Crece Contigo (Chile Grows With You) is, a strategy to invest in the capabilities and equalize the opportunities of children from low-income families. The policy guarantees access to preschool for children from low-income families. In this partnership, Chile remains the regulatory agency but delegates administration to non-profits, community, faith based and non-governmental organizations.	http://www.crececontigo.gob.cl/
Financial support to parents, France	France provides financial support to parents to help cover the costs of childcare services. Parents in France are compensated through tax allowances or transfers to which they can use to pay for different forms of childcare. This has decreased spending on daycare while increasing resources to parents who stay at home, as well as subsidies for registered (home-based) child caregivers and tax-breaks for hiring nannies. These programs are critiqued, however, due to their probability of reinforcing gender norms.	https://www.americanprogress.org/issues/poverty/reports/2015/11/24/126209/moving-americas-families-forward-lessons-learned-from-other-countries/
Health Issue: Financial Insecurity		
E-Commerce, China	E-Commerce, China, a technology company (Alibaba) in China, has worked with the government to combat China's poverty and improve the country's rural economy. The group set up e-channels to enable rural entrepreneurs to sell their goods online, such as agricultural products, to cities across the nation. Supporting the supply chain through cloud computing helps develop infrastructure, offer financial services, and build a network to help farmers increase their sales. For example, Alibaba along with the UN's World Food Program, helped kiwi farmers launch a cyber store to expand their customer base and help farmers reach a new market that was difficult for them to access in the past. This initiative helps rural farmers increase their entrepreneurship with little fees and create a more favorable environment for investment.	https://www.alizila.com/alibaba-to-combat-poverty-in-china-via-e-commerce/

Summary

The Kittitas County Health Community Health Improvement Plan developed by the Kittitas County Public Health Department and the Kittitas County Health Network lays out an ambitious series of goals for improving health, well-being, and quality of life in Kittitas County. As programs are developed to achieve these goals, some of the global health approaches described in this report may inform program design and implementation in Kittitas County.

Three strategies commonly employed in global health —deployment of community health workers, use of mobile technology, and task shifting or task sharing of services typically provided by physicians, nurses, psychologists, and other highly trained health care professionals – emerged as the most potentially useful and transferable approaches to mitigate the impact of barriers to health identified in the communities of Cle Elum, Roslyn, and Kittitas. Although the context in Kittitas County differs from the context in which many of the programs described in this report, the principles remain applicable.

While some of these approaches can address the sequelae of financial insecurity, global approaches to matters such as poverty and lack of economic development are less easily actionable at the local level in rural Washington. In many countries, enabling policies such as those related to government subsidized childcare, job creation strategies, and improving health by increasing the availability of affordable housing stock are typically implemented by national or regional governments. Local implementation of many effective global health approaches would require significant policy support at the state and national level.

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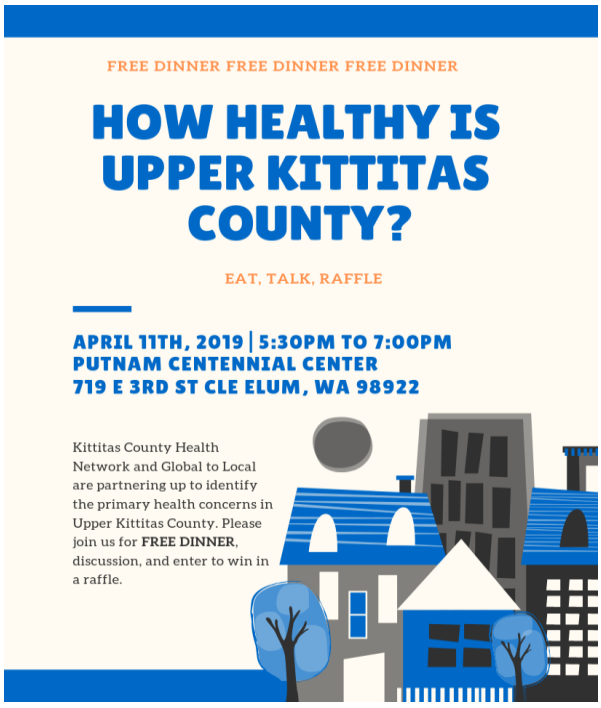
Appendix A: Outreach Flyers

Cle Elum/Roslyn

Community Partner Lunch

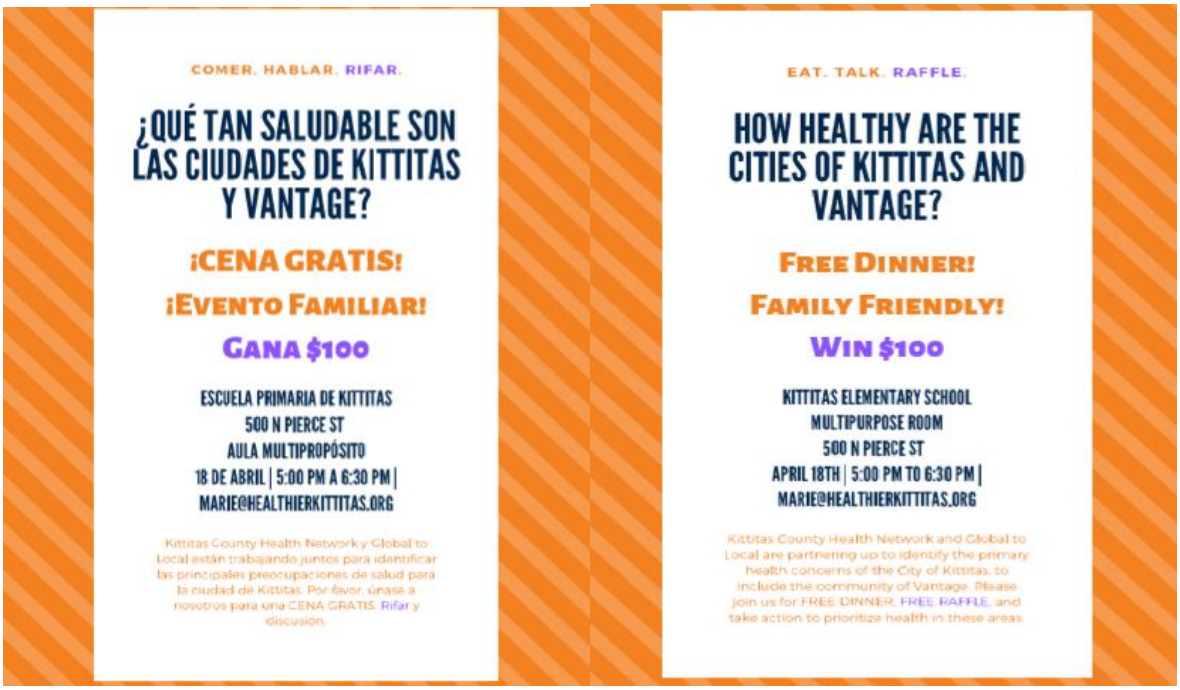
Community Resident Dinner



Kittitas/Vantage

Community Partner Lunch

Community Resident Dinner



Appendix B: Community Resident Outreach Locations

Cle Elum/Roslyn

Cle Elum/Roslyn School District Pre-K-12

Ronald Post Office

South Cle Elum Post Office

Basecamp

Roslyn Post Office

Maggie's

Roslyn Library

Red Bird

Corner Store in Roslyn

Inland

Roslyn Eagles

Lil Explorers Daycare

Pioneer Coffee

Hopesource

Farm and Home

Roslyn Café

Gunnars Café

Local newspaper ad

Downtown Cle Elum

Glendo's

Radio Shack

Cle Elum Bakery

Swiftwater Gym

Bull Durham

Cle Elum Community Church

Cle Elum Chamber

Salon 2021

Senior Center

Mailboxes Unlimited

Cottage Café

Sunset Café

Cle Elum Eagles

Cle Elum Hardware Store

Cle Elum Post Office

Cle Elum Library

Cle Elum City Hall

Owen's

Laundry Mat

Cle Elum Oldschool Barbershop

CPL Financial

Umpqua Bank

Troutwater Flyshop

Washington Federal Bank

Costos Island Construction

Cle Elum Administrator's Office

Kittitas/Vantage

Kittitas

Kittitas School District K-12

Post Office

Time Out Saloon

Johnny's Mart

Gibson Produce

City Hall

Shell Gas Station

Exit 115 Mini-Mart

Country Hardware

Hair Salon

Vantage

Riverstone Resort

Main Street Station

General Store

Blustery's Restaurant

Texaco

Appendix C: Community Partner Outreach

County Wide Invitees:

Kittitas County Public Health Department

Department of Social and Health Services (WIC)

Elmview

Community Health of Central Washington

Kittitas Valley Healthcare

Comprehensive Healthcare

HopeSource

Kittitas Valley Fire & Rescue

Aging and Long Term Care

Open Door Health Clinic

Merit Resource Services

Kittitas County Housing Authority

Youth Services of Kittitas County

Kittitas County Chamber of Commerce

Housing Authority

Cle Elum/Roslyn Invitees:

Hospital District #2

Cle Elum/Roslyn School District

City of Cle Elum

Cle Elum/Roslyn Police Department

Roslyn Library

Cle Elum Senior Center

FISH Foodbank

Central Washington University

Kittitas/Vantage Invitees:

Kittitas Neighborhood Pantry

Kittitas Police Department

City of Kittitas

Kittitas Secondary and Primary School

Appendix D: Community Meeting Agendas

AGENDA

Community Health Discussion

Discusión de salud comunitaria

Kittitas Elementary School
Multipurpose Room | Aula Multipropósito

Thursday, April 18th | 5:00pm – 6:30pm

KEY DISCUSSION QUESTIONS/PREGUNTAS CLAVE DE DISCUSIÓN:

- What makes it hard for people in the cities of Kittitas and Vantage to be healthy?
  ¿Qué le hace difícil para las comunidades de Kittitas y Vantage ser saludable?

- What are the most important health issues experienced here?
  ¿Cuáles son los problemas de salud más importantes aquí?

GOAL/META:

- To identify community specific health priorities
- Identificar las prioridades de salud de la comunidad

5:00PM	**Welcome, Introductions, Dinner** **Bienvenida, Introducciones, Cenar**
5:30PM	**Reflection Activity** **Una actividad de reflexión**
5:45PM	**Community Discussion** **La discusión comunitaria**
6:15PM	**Feedback, Wrap-up, Next Steps** **Evaluación, Concluir, Los próximos pasos**

KITTITAS COUNTY HEALTH NETWORK

GLOBALTOLOCAL

AGENDA

Community Health Discussion

City Hall-Community Hall
207 N Main St, Kittitas, WA 98934

Thursday, April 18th | 11:30am – 1:00pm

KEY DISCUSSION QUESTIONS:

- What makes it hard for people in the cities of Kittitas and Vantage to be healthy?
- What are the health priorities for Kittitas and Vantage?

GOAL:

- To identify community specific barriers to access to care, social determinants impacting community health, and strategies to reduce health disparities.

11:30AM	**Welcome, Introductions, Lunch**
12:00PM	**Review Community Health Assessment**
12:15PM	**Discuss Community Health Priorities**
12:45PM	**Feedback, Wrap-up, Next Steps**

KITTITAS COUNTY HEALTH NETWORK

GLOBALTOLOCAL

AGENDA

Community Health Discussion

Putnam Centennial Center
719 E 3rd St Cle Elum, WA 98922

Thursday, April 11th | 11:30am – 1:00pm

KEY DISCUSSION QUESTIONS:

- What makes it hard for people in Upper Kittitas County to be healthy?
- What are Upper Kittitas County's health priorities?

GOAL:

- To identify community specific barriers to access to care, social determinants impacting community health, and strategies to reduce health disparities.

11:30AM	**Welcome, Introductions, Lunch**
12:00PM	**Review Community Health Assessment**
12:15PM	**Discuss Community Health Priorities**
12:45PM	**Feedback, Wrap-up, Next Steps**

KITTITAS COUNTY HEALTH NETWORK

GLOBALTOLOCAL

AGENDA

Community Health Discussion

Putnam Centennial Center
719 E 3rd St Cle Elum, WA 98922

Thursday, April 11th | 5:30pm – 7:00pm

KEY DISCUSSION QUESTIONS:

- What makes it hard for people in Upper Kittitas County to be healthy?
- What are the most important health issues experienced here?

GOAL:

- To identify community specific health priorities

5:30PM	Welcome, Introductions, Dinner
6:00PM	Sharing your thoughts: Poster activity
6:15PM	Community Discussion
6:45PM	Feedback, Wrap-up, Next Steps

KITTITAS COUNTY HEALTH NETWORK

GLOBALTOLOCAL

Appendix E: Focus Group Guide

Focus Group Guide Example: Moderator Script

Key Discussion Questions for Community Partner Event:

"What makes it hard for people in this community to be healthy?"

"What are the most important health issues facing this community?"

"Welcome everyone! My name is _____. Thanks for taking the time today to talk about the most important health issues facing Upper Kittitas County today. The purpose of today's discussion is to use your feedback to recommend programs that improve the health of people living here (Upper Kittitas County).

There are no right or wrong answers to the questions I will ask. I expect that you will have different points of views so please feel free to share your point of view even if it is different from what others have said. If you want to follow up on something that someone has said or if you want to agree, disagree, give an example, feel free to do that. And don't feel like you have to respond to me all the time. I am just here to ask questions, listen, and make sure everyone has a chance to share.

I am interested in hearing from everybody so if you're talking a lot, I may ask you to give others a chance to share, and if you aren't saying much, I may call on you. I just want to make sure I hear everyone. Feel free to get up and grab more food, and use the restroom as you like.

Your feedback will be anonymous; we will not use your names in any reports. We ask that you also keep the things said in this group private and confidential. That means you can talk about what the questions were, but please do not share any specific comments that were made. If you want to share with your friends information about the questions we were asking or how you felt about the process that is completely fine, just please respect each other's privacy so everyone can feel ok sharing their honest opinions.

We will be taking some notes while we talk so that we can keep track of everything. [note taker's name] is here with me today to help capture all of the discussion today- two sets of ears are better than one!

Your participation is completely voluntary, and you can stop participating at any time. We know that your time is valuable so I will keep us moving along so that we wrap up on time. We will start with a round of introductions, then discuss what are the most important issues facing Upper Kittitas County today. As you know, we have countywide data from the most recent Community Health Needs Assessment, but are particularly interested in learning more about what is pertinent to Upper Kittitas County. Once we're done, we would really appreciate that you fill out a feedback form to see how we did today. Anyone have any questions or concerns before we get started?"

Key Discussion Questions:
"What makes it hard for people in this community to be healthy?"
"What are Upper Kittitas County's health priorities?"

Note: Facilitator may ask the overarching question, however probing questions are below to spark more feedback/participation if needed.

"Our key question for today is 'What makes it hard for people in this community (Upper Kittitas County) to be healthy?' In other words, 'What are the most health important issues facing this community (Upper Kittitas County) today?' / "What are Upper Kittitas County's health priorities?'

To get things started, I'd like to go around the table and if everyone can share your name, what organization you work for, what it does, and what your role is there. Additionally we'd like to put you on the spot off the bat and ask you, in your opinion, what is the most important health issue or barrier to health facing Upper Kittitas County today?

[Note: After finishing introductions, continue with the script below, or allow the discussion to continue naturally as long as it is focused around the key discussion questions.]

Now I know we just finished reviewing health issues that were identified across the county, but we would like to learn more about what issues are most prevalent here. That way we can better tailor health programs for the upper half of Kittitas County. Specifically we are interested in understanding whether or not the results from the community health assessment is applicable here? Further, what are the key differences between upper and lower Kittitas County?

[Read a question from the list below and wait for folks to start chiming in and to start the discussion. Allow the group to do the most of the talking for the remainder of the time. Feel free to read the remaining probing questions one at a time when there is a lull in conversation.]

Probing questions:

1) Of the data you heard about today, what was applicable to this community? What wasn't? Are there any key differences between upper and lower county needs?

2) What are the health issues that are most important in your community?

3) What aspects of the community exist that support people to be healthy?

4) What are key differences between upper and lower Kittitas County?

5) Can you provide specific examples of how (insert health barrier) makes it hard for people upper county to be healthy?

6) Are there any issues or barriers to health that are more prevalent in some upper county towns than others? If so, what are they? Why do you think they are more prevalent in certain areas? Does Roslyn and Cle Elum, for example, have differing barriers to health?

7) What strategies would help overcome some of these barriers to health

Appendix F: Feedback Form

Instructions: Please fill out this form to help us (1) capture who represented the cities of Kittitas and Vantage today, (2) summarize the most pressing issues in the cities of Kittitas and Vantage, and (3) to let us know how we did today.

We sincerely appreciate your feedback. Thank you!

Name (optional):_____ Date:_____

Town of residence (e.g. Kittitas, Vantage, etc.): _____

Age range (circle one): (0-10) (11-19) (20-29) (30-39) (40-49) (50-59) (60-69) (70-79) (80+)

Race: _____

In your opinion, what are the top three barriers to health experienced in the cities of Kittitas and Vantage today?

1. _____
2. _____
3. _____

Was the meeting too long, too short, or an appropriate length of time? _____

Please rate today's meeting on a scale of 1 to 5 with 1 being "**Needs Work**" and 5 being "**Just Right**"

1. Clear purpose for the meeting	1	2	3	4	5
2. We stayed focused on the topic of our discussions	1	2	3	4	5

3. Strengths of the meeting:
4. Weaknesses of the meeting:
5. Ideas to improve the meeting:

Questions/Comments (use the back of this form for more space):

Appendix G: Thematic Coding Process

Question on feedback form: "What are the top three barriers to health in this community?"

Kittitas Community Partners

Health Barrier as Indicated on Feedback Form	Corresponding Theme	Sum (Proportion)
Access	Access to care (linkage to services)	
Access to services (food, HC)	Access to care (linkage to services)	
Access to services (Health, Resources, etc)	Access to care (linkage to services)	
Resources	Access to care (linkage to services)	4 (21%)
Childcare	Access to Childcare	1(5%)
Transportation	Access to Transportation	
Transportation	Access to Transportation	
Transportation	Access to Transportation	
Transportation	Access to Transportation	
Transportation	Access to Transportation	
Transportation	Access to Transportation	6(32%)
Access to affordable health	Lack of affordability	1(5%)
Home safety for elderly	Lack of in-home care	
Lack of home assistance and long term care	Lack of in-home care	2(11%)
Child>Elderly (poverty level)	Low financial security (lack of jobs, high stress, low income)	4(21%)
Providers	Scarcity of Providers	1(5%)
Total		19(100%)

Cle Elum/Roslyn Community Residents

Health Barrier as Indicated on Feedback Form	Corresponding Theme	Sum (Proportion)
Provider access	Access to care (linkage to services)	
Access to mental health	Access to care (linkage to services)	
Lack of local availability of low cost dentists	Access to care (linkage to services)	3(11%)
Transportation	Access to transportation	
Driving difficulty/transportation	Access to transportation	
Transportation	Access to transportation	3(11%)
Increase of substance/mental health in kids and adults.	Behavioral health needs	
Substance abuse/depression	Behavioral health needs	
Youth & adult mental health/substance abuse/depression	Behavioral health needs	
Increasing stress	Behavioral health needs	4(15%)
Access to affordable food	Food insecurity	1(4%)
Medication costs	Lack of affordability	
Over pricing of all services and lab work	Lack of affordability	
Med costs	Lack of affordability	3(11%)
Lack of stable, low cost housing	Lack of affordable housing	
Cost of living (esp. housing)	Lack of affordable housing	2(6%)
Education on food	Lack of health education	1(4%)
Money	Low financial security (lack of jobs, high stress, low income)	
Poverty	Low financial security (lack of jobs, high stress, low income)	
Poverty	Low financial security (lack of jobs, high stress, low income)	
Poverty	Low financial security (lack of jobs, high stress, low income)	
Jobs w/ living wage	Low financial security (lack of jobs, high stress, low income)	5(19%)
Local healthcare providers	Scarcity of providers	
Lack of health providers	Scarcity of providers	
Not enough MD's	Scarcity of providers	5(19%)

Lack of doctors	Scarcity of providers	
Lack of local availability of specialists	Scarcity of providers	
Total		27(100%)

Cle Elum/Roslyn Community Partners

Health Barrier as Indicated on Feedback Form	Corresponding Sub-Theme	Theme	Sum (Proportion)
Lack of access to providers	Access to care (linkage to services)		
Access	Access to care (linkage to services)		
Access (mental health/SUD tx)	Access to care (linkage to services)		
Access to rehab and mental health	Access to care (linkage to services)		
Substance abuse treatment	Access to care (linkage to services)		
Access	Access to care (linkage to services)	Access	6(17%)
Healthy activities	Access to recreational activities	Access	1(3%)
Transportation	Access to transportation		
Transportation	Access to transportation		
Transportation	Access to transportation		
Transportation	Access to transportation		
Transportation	Access to transportation		
Transportation	Access to transportation		
Transportation	Access to transportation		
Transportation	Access to transportation		
Transportation	Access to transportation		
Transportation	Access to transportation	Access	10(27%)
Denial of problem	Behavioral health needs		
Generational drug/alcohol use	Behavioral health needs		
Substance abuse	Behavioral health needs		
Mental health/substance abuse, high suicide rates in youth and adults	Behavioral health needs	Access	4(11%)
Education	Education disparities		
Education	Education disparities	Access	2(5%)
Lack of mental health services	Scarcity of providers		
Lack of desirable primary care doctors/facility	Scarcity of providers	Access	2(5%)
Access to healthy/affordable food	Food insecurity		
Access to healthy foods	Food insecurity	Financial insecurity	2(5%)

Funding/insurance	Lack of affordability		
A viable income to afford health insurance	Lack of affordability	Financial insecurity	2(5%)
Lack of affordable housing	Lack of affordable housing		
Housing dollars consume a large portion of income	Lack of affordable housing	Financial insecurity	2(5%)
Appparent monopoly held by retailers in Upper County	Lack of economic development	Financial insecurity	1(3%)
Poverty	Low financial security (lack of jobs, high stress, low income)		
Income (decrease income>Suncadia)	Low financial security (lack of jobs, high stress, low income)		
Minimum wage earners	Low financial security (lack of jobs, high stress, low income)		
Low income jobs compared to housing costs but monthy income is still too high to qualify for benefits	Low financial security (lack of jobs, high stress, low income)		
Financial	Low financial security (lack of jobs, high stress, low income)	Financial insecurity	5(14%)
Total			37(100%)

Appendix B: Community Report to Healthy Ferry County Coalition

Community Health Improvement in Ferry County, Washington: Learning from Global Health Strategies and Programs

Report Prepared for Healthy Ferry County Coalition by Global to Local

June 20, 2019

GLOBALTOLOCAL

This report was prepared by Global to Local under contract DOH PRV23420 with the Washington State Department of Health. Global to Local is a 501c3 whose mission is to demonstrate the effectiveness of global health strategies to improve the health status of local communities.

www.globaltolocal.org

Recommended citation:

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Glossary of Abbreviations

AIMS: Advancing Integrated Mental Health Solutions

BMGF: Bill & Melinda Gates Foundation

BRIDGES: Bringing Global Health Expertise to Rural Washington

CAP: Counseling for Alcohol Problems

CBO: community based organization

CBT: cognitive behavioral therapy

CHW: community health worker

CUGH: Consortium of Universities for Global Health

DBT: dialectical behavior therapy

FIN: Food Innovation Network

G2L: Global to Local

HAP: Healthy Activity Program

HFCC: Healthy Ferry County Coalition

HIC: high-income countries

IMNCI: Integrated Management of Newborn and Childhood Illness

LEAN: Lay health supporters, E-platform, Award, and iNtegration

LHW: lay health worker

LMIC: low- and middle-income countries

mHealth: mobile health

mhGAP: Mental Health Gap Action Programme

MNS: mental, neurological and substance use

NGO: nongovernmental organization

PM+: Problem Management Plus

PPP: public-private partnership

PST: problem solving training

SES: socio-economic status

START: Strategic Analysis, Research & Training

THP: Thinking Healthy Programme

UW: University of Washington

WHO: World Health Organization

WWAMI: Washington, Wyoming, Alaska, Montana, Idaho

Executive Summary

In response to a legislative directive, the Washington State Department of Health contracted Global to Local (G2L) to identify lessons from global health that might assist in overcoming barriers to health in rural Washington communities. The purpose of the project, Bringing Global Health Expertise to Rural Washington (BRIDGES), was to provide evidence-based recommendations and training that applies global strategies to reduce health disparities and address root social determinants of health for underserved communities in rural Washington State. G2L engaged with community coalitions in Kittitas County, Ferry County and three counties in Southeast Washington (Columbia, Asotin, and Garfield) to explore the applicability of global health strategies to health improvement efforts in rural Washington. This report summarizes the global health strategies offered for consideration in Ferry County.

The Healthy Ferry County Coalition (HFCC) identified the following top health priorities: healthy physical activities, immunization, smokers (tobacco), bullied youth, access to and quality of services, diabetes, substance use/abuse, economy/jobs/poverty, food insecurity, housing, public safety, and maternal and child health. Through their engagement with the larger Accountable Community of Health, "Better Health Together", they are also focusing on bi-directional integration of care, chronic disease prevention and control, community-based care coordination, and addressing the opioid crisis. This report provides a breadth of global health strategies that can support increased health equity specific to these health priorities.

G2L sought to identify general global health strategies, as well as specific programs or approaches that could be adopted or adapted to address barriers to health identified within the participating communities. Three strategies commonly employed in global health —deployment of community health workers, use of mobile technology, and task shifting or task sharing of services typically provided by physicians, nurses, psychologists, and other highly trained health care professionals – emerged as the most potentially useful and transferable approaches to mitigate the impact of barriers to health identified by the communities. While some of these approaches can address the sequelae of financial insecurity, global approaches to matters such as poverty and lack of economic development are less easily actionable at the local level in rural Washington, as many effective global health approaches would require significant policy support at the state and national level.

Background

Despite islands of excellence in healthcare delivery and health outcomes, the U.S. lags behind many other nations in overall health status. Lessons about successful health improvement strategies from across the globe may contribute to ongoing community health improvement efforts. Bringing Global Health Expertise to Rural Washington Communities, or BRIDGES, is an initiative aimed to help reduce health disparities and improve health for underserved communities in rural Washington State by identifying effective global health strategies for local application. In response to a Legislative directive, the Washington State Department of Health contracted Global to Local (G2L) to 1) identify barriers to health by engaging with leaders and community members through the organization and facilitation of community meetings, and 2) identify lessons from global health that might assist in overcoming those barriers. Data from community needs assessments were analyzed to develop community-specific global health recommendations intended to enhance ongoing community-led efforts. This report summarizes the process G2L employed to identify potential global health solutions, and summarizes selected global health strategies, tactics and programs to assist in reducing or eliminating community-identified barriers to health in Ferry County Washington.

WHAT IS GLOBAL HEALTH?

While there is no universally accepted definition of "global health", the Consortium of Universities for Global Health (CUGH), including representatives from the University of Washington, proposed the following widely accepted definition:

> *Global health is an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care.*[1]

As shown in the following table, global health is related to, but distinct from, the fields of international health and public health.

Table 1. Defining global, international and public health

	Global Health	*International Health*	*Public Health*
Geographical reach	Focuses on issues that directly or indirectly affect health but that can transcend national boundaries	Focuses on health issues of countries other than one's own, especially those of low-income and middle-income	Focuses on issues that affect the health of the population of a particular community or country
Level of cooperation	Development and implementation of solutions often requires global cooperation	Development and implementation of solutions usually requires binational cooperation	Development and implementation of solutions does not usually require global cooperation
Individuals/ populations	Embraces both prevention in populations and clinical care of individuals	Embraces both prevention in populations and clinical care of individuals	Mainly focused on prevention programs for populations
Access to health	Health equity among nations and for all people is a major objective	Seeks to help people of other nations	Health equity within a nation or community is a major objective
Range of disciplines	Highly interdisciplinary and multidisciplinary within and beyond health sciences	Embraces a few disciplines but has not emphasized multidisciplinary	Encourages multidisciplinary approaches, particularly within health sciences and with social sciences

Source: Koplan, et al.[1]

In this report, we embrace the CUGH definition of global health. As such, while we emphasize recommendations based on experience from countries other than the United States, we also include occasional examples of approaches that have been developed or implemented domestically—particularly if they are relevant to improving health among disadvantaged or underserved populations. Such an approach is consistent with the commonly expressed observation among global health practitioners that "all health is global health".[2]

While the strategies and programs to improve health in this report are drawn most heavily from work implemented in other nations, it is readily apparent that both the local context and the specific health problems or clinical conditions addressed often differ considerably from those in rural Washington State. Indeed, few of the approaches we highlight will be "plug and play", or immediately ready to adopt without significant modification. In some cases, this is because a promising approach to improving health might have been implemented for a condition such as malaria—which is not endemic in Washington. In others, a community-based program to address a non-communicable disease such as diabetes may be very tightly connected to a health care delivery system that differs in many respects from the system in rural Washington. Despite these differences, though, the global health strategies and approaches we summarize may either be adapted in some way, or serve as inspiration for modifications of existing or planned programs intended to improve health in rural Washington communities.

Methods

IDENTIFYING HEALTH BARRIERS

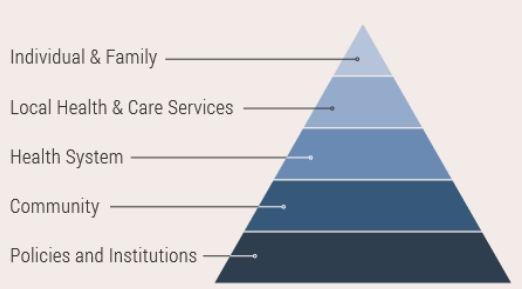
The Healthy Ferry County Coalition provided G2L with a list of health priorities they had previously identified based on their 2018 Community Health Needs Assessment.[3] This list is ranked starting with the top health priority: (1) healthy physical activities, (2) immunization, (3) smokers/tobacco, (4) bullying, (5) access to and quality of services, (6) diabetes, (7) substance use/abuse, (8) economy/jobs/poverty, (9) food insecurity, (10) housing, (11) public safety, and (12) maternal and child health. G2L utilized this list, along with data from the Community Health Needs Assessment and results from past community engagement focus groups, to guide their work.

GLOBAL HEALTH RESEARCH

After identifying key health concerns from community needs assessments and the Healthy Ferry County Coalition's data, we scanned the global health literature for ideas and approaches to reduce health disparities in the community. Our primary methods of global health research included conducting literature reviews, interviews with global health experts, and crosswalk analyses of recommendations based on community needs and identified global health interventions. G2L applied the strategic framework from a global health landscape assessment it commissioned from PATH (further described below) to organize its work. We also partnered with a research-consulting group, the University of Washington Strategic Analysis, Research & Training (START) Center to supplement our internal capacity.[4]

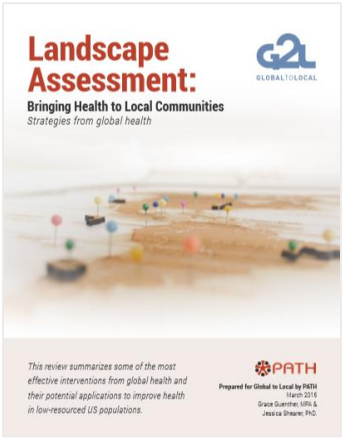
G2L/PATH Framework

Figure 1. Levels of Transferable Strategies



Source: Landscape Assessment[3]

In 2017, under a contract from G2L, PATH- a Seattle-based global health innovation organization completed a follow-up landscape analysis and literature review of global health interventions that may be transferable to low-resource populations in the U.S. (The 2017 report was an update to an earlier G2L/PATH landscape analysis from 2010.) The interventions address determinants of health at multiple levels, ranging from governmental and institutional policies to the level of individuals and families (Figure 2).[5]



PATH systematically reviewed evidence of interventions from other countries around the world and identified strategies that could be applied in the U.S. Each strategy was chosen based on its (1) effectiveness and cost-effectiveness, (2) ability to have the greatest impact on the most disadvantaged populations (i.e. equity), (3) ability to address social determinants of health, and (4) transferability and feasibility in low-resource domestic settings. G2L used the results of the landscape analysis to guide selection of interventions from other countries that may be adopted or adapted to improve health in rural Washington communities.

UW START Center

G2L partnered with the University of Washington (UW) Strategic Analysis, Research & Training (START) Center to supplement their global health research.[4] The START Center is a research-consulting group established in 2011 by the Bill & Melinda Gates Foundation (BMGF) and the UW Department of Global Health. Since its inception, START's expert researchers have completed more than 150 projects for clients including the BMGF, the World Health Organization (WHO), Boston Scientific, and more. Their primary research tasks for the BRIDGES project included conducting key informant interviews with global health experts and conducting literature reviews to develop summaries of global health strategies that may be adapted to rural Washington communities.[4]

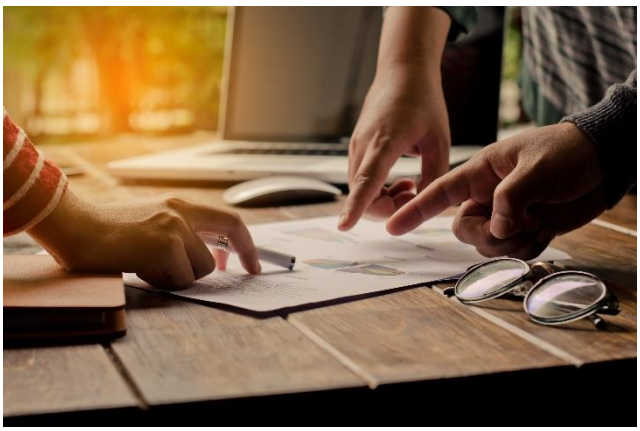
Global Health Strategies and Programs That Might Inform Local Action

The following global health recommendations are divided into three parts:

Part I summarizes each global health strategy and includes a table of resources that provide additional information about each strategy. These assist communities in systematically identifying general approaches that might be applied in addressing local health needs or modifying existing community health improvement plans, regardless of the specific social determinant of health, clinical condition, or public health challenge.

Part II provides examples of specific programs and tactics that can support local efforts in overcoming identified health barriers. In many cases, these programs will need to be significantly modified or adapted in order to be implemented locally. In some cases, the specific conditions addressed globally (malaria, for example) may not be locally relevant, but the approach used might be modifiable for a locally prevalent condition.

Part III provides additional examples of global health approaches that may address other health barriers identified in Ferry County. This section is in the form of a table that provides a summary of each intervention along with a link to each source. These interventions and strategies will also need to be significantly modified or adopted in order to be implemented locally. The table is intended to serve as inspiration for ideas to overcome health disparities identified in the region.



PART I: STRATEGIES

Figure 2. Levels of transferrable interventions

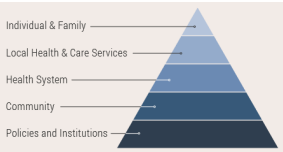


Table 2. Selected global health strategies potentially transferable to rural Washington communities[5]

Strategy	Level	Transferable?	Outcomes
Community health workers (CHWs)		Highly transferable	Promote healthy behaviors, increase access
Mobile Health (mHealth)		Transferability depends on structure of current health system	Increase access and coverage to preventative and curative services
Public-private partnerships (PPPs)		Transferable	Increase efficiency and cost-effectiveness of services
Promote community asset building through community-based organizations		Transferable with adaptations	Increase access to services
Social media and mass media health campaigns		Transferable	Promote healthy behaviors, increase access
Improving economic development and wealth		Transferable	Improve use of health services
Community mobilization & community leadership development		Transferable	Increase efficiency and cost-effectiveness
Coordinated and patient-centered primary care		Transferability depends on structure of current health system	Improve the quality of health delivery, improve health outcomes
Gender integration		Transferability depends on local context	Improve gender equality, improve health

Community Health Workers

Community health workers (CHWs) are frontline public health workers that are trusted members of a community or who have in-depth knowledge of the communities they serve. CHWs or lay health workers (LHWs) typically require minimal formal training or licensing, and serve as a bridge between health care access and service delivery. CHWs promote health and improve healthy behaviors, increase access to services, reduce costs, and reduce inequities and disparities. CHWs in low- and middle-income countries (LMICs) often work within a health facility or local health clinic to provide low-level medical services in the community. CHWs in high-income countries (HICs) tend to work within community-based health programs. They support vulnerable populations within healthcare systems through care coordination and management of chronic illnesses.[6-9]

Implementation of community health worker programs are a key global health strategy that could contribute to improved health in rural Washington communities.

Figure 1. Examples of Community Health Worker Programs that Address Ferry County's Health Priority Areas[10-15]

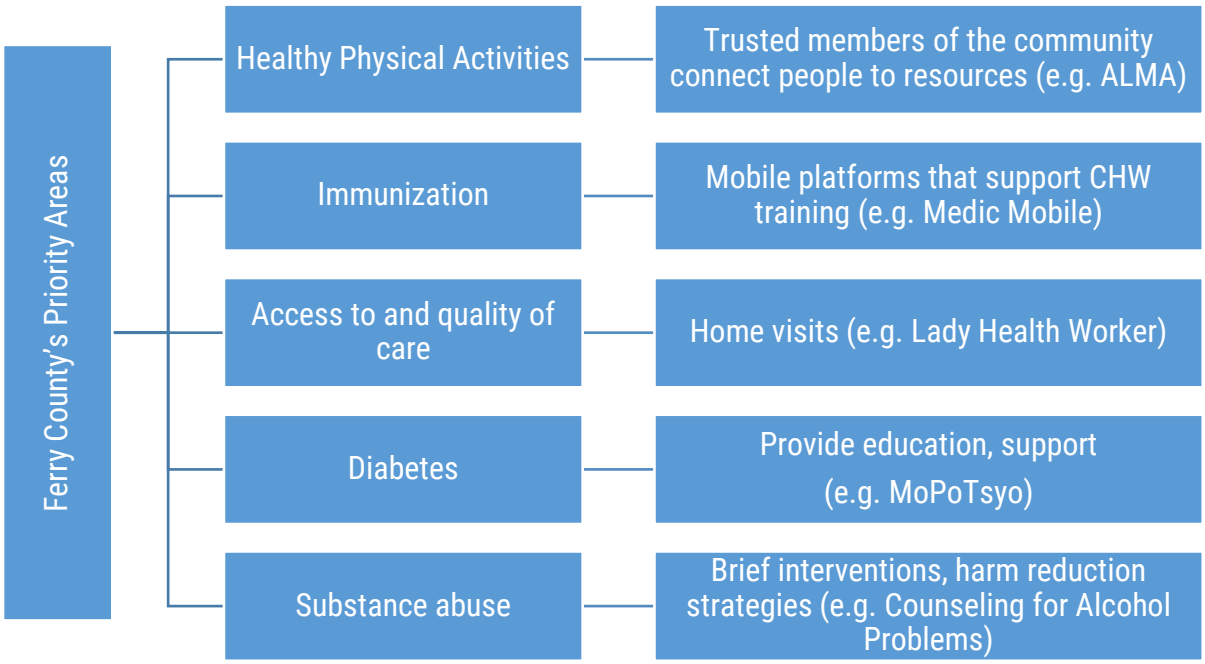


Table 3. Community Health Workers: Recommended references for additional information and sources of ideas for adaptation to the local context[10]

Author	Article Title
Costa EF, et al.	Systematic review of physical activity promotion by community health workers.[6]
Ruddock JS, et al.	Innovative strategies to improve diabetes outcomes in disadvantaged populations.[7]
Sarkar A, et al.	Community based reproductive health interventions for young married couples in resource constrained settings: a systematic review.[16]
Lunsford SS, et al.	Supporting close-to-community providers through a community health system approach: case examples from Ethiopia and Tanzania.[17]
Nguyen TT, et al.	Breast cancer screening among Vietnamese Americans.[18]
Mangham-Jefferies L, et al.	Erratum: Cost-effectiveness of strategies to improve the utilization and provision of maternal and newborn health care in low-income and lower-middle-income countries: a systematic review.[8]
Brown HS, et al.	Cost-effectiveness analysis of a community health worker intervention for low-income Hispanic adults with diabetes.[9]
Johnson SL, et al.	Community health workers as a component of the health care team.[19]
Sprague L.	Community health workers: a front line for primary care?[20]
Naimoli JF, et al.	Strategic partnering to improve community health worker programming and performance: features of a community-health system integrated approach.[21]
Kok MC, et al.	How does context influence performance of community health workers in low- and middle-income countries? Evidence from the literature.[22]
Mutamba BB, et al.	Roles and effectiveness of lay community health workers in the prevention of mental, neurological and substance use disorders in low and middle income countries: a systematic review.[23]
Xavier D, et al.	Community health worker-based intervention for adherence to drugs and lifestyle change after acute coronary syndrome: a multicentre, open, randomised controlled trial.[24]
Galiatsatos P, et al.	Health promotion in the community: impact of faith-based lay health educators in urban neighborhoods.[25]
Rhodes SD, et al.	Lay health advisor interventions among Hispanics/Latinos: a qualitative systematic review.[26]

Mobile Health

Implementation of mHealth is a key global health strategy that could contribute to improved health in rural Washington communities.

Mobile health, or mHealth, is a type of intervention that uses mobile phones and other information technologies to help improve medical care, medication adherence, health education, and promote positive health outcomes. While we understand that access to broadband services is currently suboptimal in Ferry County, we are advocating for the expansion of broadband services to underserved rural communities in our report to the Washington State Legislature. We are optimistic that change is around the corner since Governor Jay Inslee signed a bill into law in May 2019 that creates a competitive grant and loan program to fund broadband programs in rural areas.[27] This Senate Bill (5511) is intended to expand affordable, resilient broadband service in unserved areas across the state. Given the prospect of improvement of broadband access in Ferry County, we are including mobile health technology as a recommended strategy to increase health equity in the area.

mHealth is particularly useful in increasing access to care by overcoming geographic or financial barriers, as well as using data to inform and improve processes and health outcomes. For example, mHealth is improving immunization delivery in Sub-Saharan Africa with technology that allows collaboration across all levels of healthcare, increasing the efficiency of vaccine administration to children through an electronic immunization registry. This tool is used on mobile devices and keeps track of children who are in need of vaccinations along with which ones they have not received.

mHealth in HICs is commonly utilized for managing chronic diseases and encouraging healthy behaviors through apps that encourage treatment compliance, self-care, and healthy behaviors. With a mobile device, patients can receive ongoing support from text messages, alerts, and reminders. This low cost intervention addresses access barriers and improves health outcomes in low resource areas.[28,29]

Figure 2. Examples of Mobile Health Programs that Address Ferry County's Health Priority Areas[30,31]

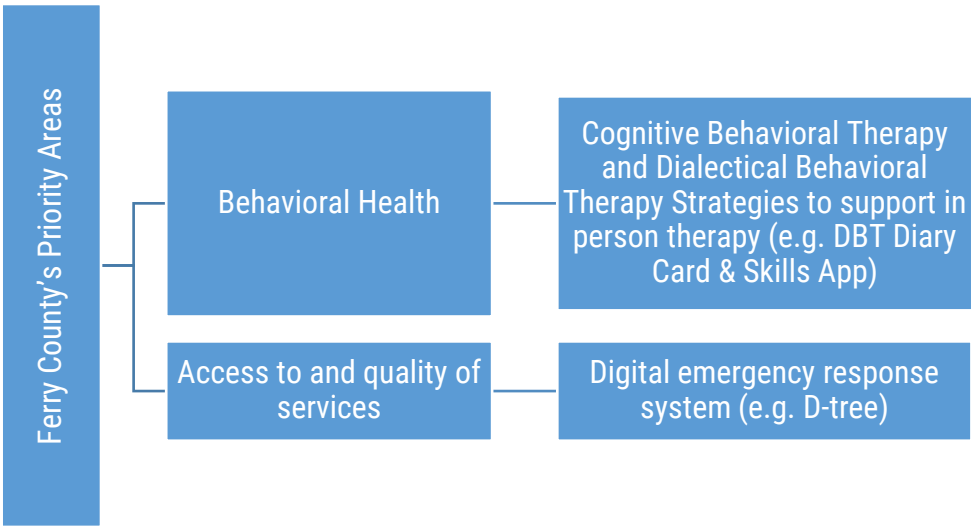


Table 4. mHealth: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Hall CS, et al.	Assessing the impact of mHealth interventions in low- and middle-income countries--what has been shown to work?[32]
Alghamdi M, et al.	A systematic review of mobile health technology use in developing countries.[33]
Davey S, et al.	Mobile-health technology: can it strengthen and improve public health systems of other developing countries as per Indian strategies? A systematic review of the literature.[34]
Xu DR, et al.	The effectiveness of mobile-health technology-based health behaviour change or disease management interventions[28-33] for health care consumers: a systematic review.[35]
Ho K, et al.	Mobile digital access to a web-enhanced network (mDAWN): assessing the feasibility of mobile health tools for self-management of type-2 diabetes.[36]
Bailey J, et al.	Sexual health promotion for young people delivered via digital media: a scoping review.[37]
Turner T, et al.	Prevention and treatment of pediatric obesity using mobile and wireless technologies: a systematic review.[38]
Labrique AB, et al.	mHealth innovations as health system strengthening tools: 12 common applications and a visual framework.[39]

Piette JD, et al.	Mobile health devices as tools for worldwide cardiovascular risk reduction and disease management.[40]
Bloomfield GS, et al.	Mobile health for non-communicable diseases in Sub-Saharan Africa: a systematic review of the literature and strategic framework for research.[41]
Elbert NJ, et al.	Effectiveness and cost-effectiveness of eHealth interventions in somatic diseases: a systematic review of systematic reviews and meta-analyses.[42]

Public-Private Partnerships (PPPs)

Public-private partnerships (PPPs) can be broadly defined as a cooperative, formal agreement between a private enterprise and public entity to provide public assets or services. Leveraging private resources and efficiencies can enhance the capacity of health systems and improve health outcomes. PPPs in LMICs have been used to address a wide range of health care needs, including primary health care and hospitals to maternal child health and tropical disease. PPPs in high-income countries (HIC) tend to support universal access to health systems and services and increase health promotion efforts to combat chronic diseases. Harnessing the expertise and resources of the private sector to solve public-sector challenges and inefficiencies to achieve public health goals is one of the most appealing aspects of PPPs.

Table 5. Public-Private Partnerships: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
World Bank Group.	What are public private partnerships? Public-private partnership in infrastructure resource center website.[43]
Roehrich JK, et al.	Are public–private partnerships a healthy option? A systematic literature review.[44]
Hayes SL, et al.	Collaboration between local health and local government agencies for health improvement.[45]

Promote Community Asset Building through Community-Based Organizations

Community based organizations (CBOs) serve as coordinating bodies for community-based research, communication outlets in hard-to-reach populations, points of contact for service provision, and local advocates and implementers for large health programs. CBOs can increase access and coverage of preventative and curative services, promote well-being of communities through skill building, and increase

community self-efficacy. CBOs may support asset building by scaling up prevention and treatment efforts, ultimately maximizing care and health for a target population.

CBOs in LMICs primarily focus on addressing health issues in rural communities, including financial health. Community members have formed CBOs by combining their wealth collectively to form a "financial support group". These funds are used to increase the financial stability of the community based on specific needs. This contrasts with their implementation in HIC. CBOs in HICs are diverse in purpose and structure. Many of them function as "community health centers," providing specific health programs or activities and assist with accessing services.[46]

Table 6. Promote Community Asset Building Through Community-Based Organizations: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Wilson MG, et al.	Community-based knowledge transfer and exchange: Helping community-based organizations link research to action.[47]
Brasington A, et al.	Promoting healthy behaviors among Egyptian mothers: a quasi-experimental study of a health communication package delivered by community organizations.[48]
Griffith DM, et al.	Organizational empowerment in community mobilization to address youth violence.[49]

Social Media and Mass Media Health Campaigns

Mass media campaigns target widespread behaviors that are exacerbating poor health outcomes, and increase health education in a community. This strategy focuses on raising awareness about a specific health issue or behavior, and providing education and information regarding treatment or prevention. For example, in LMICs bed net delivery is a "health service supply campaign" aimed to protect vulnerable populations against malaria.[50] In HICs, however, public health information is delivered to widespread audiences in with the purpose of creating social awareness around health topics such as, smoking, HIV, and preventative health screenings.[51,52]

There are a few key components to leading a successful health campaign. Some successful strategies include (1) understanding the targeted audience, (2) saturating the network with the intended health message, (3) coordinating the campaign with a widespread intervention, and (4) having sufficient funding to sustain the efforts. While mass media campaigns often require many upfront costs, it is seen as a relatively effective way to target a specific health behavior change to a population.

Table 7. Social and Mass Media Health Campaigns: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Lam E, et al.	Strategies for successful recruitment of young adults to healthy lifestyle programmes for the prevention of weight gain: a systematic review.[53]
Verheijden MW, et al.	Changes in self-reported energy balance behaviors and body mass index during a mass media campaign.[54]

Linking Economic Development and Wealth

Improving access to income and income-generating opportunities can free up household wealth to invest in nutrition and health care, in turn improving household well-being and health outcomes. In low- and middle-income countries (LMICs), health and development programs are often funded by external donors and managed locally by nongovernmental organizations (NGOs) and CBOs. Some examples of global economic development strategies include increasing income from cash transfers, changing the tax system, creating jobs, and providing microfinance and micro-credit interventions. This strategy may contribute indirectly to improved health by reducing anxiety and improving quality of life for communities. G2L's Food Innovation Network (FIN) program is one example of how HICs work to increase economic development by providing financial assistance to individuals who are seeking to start their own food business (www.foodinnovationnetwork.org). Programs such as these in HICs promote economic stability by creating jobs in low-income communities.

Linking Primary Health Care and Public Health

Linking primary health care and public health helps to improve integration and efficiency in health service delivery. It integrates population-based health services with primary-care delivery systems and vice versa. For example, a family may take their child in to the clinic to receive care for asthma, and at that appointment be connected with community resources to conduct home visits to advise on mitigation of environmental factors that exacerbate asthma.

In many LMICs, providing primary health services is the responsibility of the health ministry and there is little to no separation between primary care and public health.[55] However, the American public and private systems have divided responsibilities, often resulting in silos. One way to link public health and primary care in HICs is to have multiservice centers provide routine healthcare and connect individuals to social support programs.

Integrating primary care and public health is shown to improve childhood immunization coverage, improve health outcomes for those suffering from chronic diseases, improve access to health care and reduce health disparities. It also supports the capacity and coordination in delivery of preventive and emergency services.

Table 8. Linking Delivery of Primary Health Care with Public Health Services: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Dudley L, et al.	Strategies for integrating primary health services in middle- and low-income countries at the point of delivery.[56]
Kringos DS, et al.	How does an integrated primary care approach for patients in deprived neighborhoods impact utilization patterns? An explorative study.[57]

Coordinated and Patient-Centered Primary Care

Patient-centered primary care improves quality of care and access to care through service integration and innovative service delivery. This work improves the continuity and transition of care through an integrated, patient-centered approach. Coordinated care models improve the utilization and outputs of health care delivery and improve linkage to services for people with chronic illness (e.g. cancer and diabetes). Coordinated care may also increase access to mental health services, improve the patient experience of transitioning between care, and integrate service delivery. Primary care integration models have streamlined health care delivery and improve comprehensive care management, reducing costs to patients and providers and increasing collaboration between health specialists and generalists. For example, LMICs create "a single point of care" that delivers both specialty and primary care to patients with specific health needs, whereas patient navigators in HIC help to coordinate communication between primary, specialty, and social service providers.[58,59]

Table 9. Coordinated and Patient-Centered Primary Care: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Reilly S, et al.	Collaborative care approaches for people with severe mental illness.[60]
Gardiner C, et al.	Exploring the transition from curative care to palliative care: a systematic review of the literature.[61]

Beaglehole R, et al.	Improving the prevention and management of chronic disease in low-income and middle-income countries: a priority for primary health care.[62]
Jenkins R, et al.	Health system challenges to integration of mental health delivery in primary care in Kenya- perspectives of primary care health workers.[63]

Community Mobilization and Community Leadership Development

Community mobilization recognizes the central role that individuals and groups have in becoming leaders and champions of their own health. Communities can define their greatest health challenges and specify their needs to national health systems, donors, and external actors. For example, mobilized communities in LMICs have a significant impact on disease control. Engagement models have empowered communities to promote education, participation, and prevention of diseases such as malaria; similar approaches may be helpful in addressing non-communicable diseases of concern in rural Washington.[64,65] Community mobilization in HICs focus on empowering communities to take charge of their health and promote equity through activism. Interventions vary from being self-lead to program-lead health promotion.[66] This strategy is a cost-effective way to reduce health risks and improve long-term health outcomes among community members, especially when members of disadvantaged communities are engaged in public health initiatives.

Community leadership development can support a community's ability to effectively address its own needs. Leadership can also facilitate problem solving and overcoming challenges within one's community. Bottom-up programming tends to focus on concepts of community empowerment, while top-down programming is more associated with disease prevention efforts by involving groups in key health issues. The types of engagement exist on a spectrum, including informing, consulting, collaborating, partnering, empowering and leadership development. Engaging the community in health interventions tend to have a positive impact on health behaviors, self-efficacy, and perceived social support outcomes across various conditions.

Table 10. Community Mobilization and Leadership Development: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Laverack G.	Improving Health Outcomes through Community Empowerment: A Review of the Literature.[67]
O'Mara-Eves A, et al.	Community engagement to reduce inequalities in health: a systematic review, meta-analysis and economic analysis.[68]

O'Mara-Eves A, et al.	The effectiveness of community engagement in public health interventions for disadvantaged groups: a meta-analysis.[69]
Sallnow L, et al.	Understanding community engagement in end-of-life care: developing conceptual clarity.[70]
Fawcett SB, et al.	Using empowerment theory in collaborative partnerships for community health and development.[71]
Milton B, et al.	The impact of community engagement on health and social outcomes: a systematic review.[72]

Gender Integration

Gender norms, roles and relations are powerful determinants of the health and social and economic well-being of individuals and communities around the world. Gender inequality continues to have a negative impact on many global health outcomes. These power imbalances contribute to unnecessary female mortality and morbidity across the globe.[73] Increasing gender equality and gender equity can strengthen health systems, improve efficiency and efficacy of health providers on issues relating to gender-based violence and can improve women's health outcomes.[22,74] Existing gender-based interventions in LMICs tend to focus on rural communities where social and health resources are limited. For example, mHealth interventions aim to empower women in rural communities by making health information, counselors, and providers more accessible.[75] Some gender integration issues in high-income countries include providing access to abortion, family planning, and sexual education. Hotlines that provide health education and referrals to social and counseling services can also increase gender equity in high-income areas.

Table 11. Gender Integration: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Kok MC, et al.	How does context influence performance of community health workers in low- and middle-income countries? Evidence from the literature.[22]
Samb B.	Reforming country health systems for women's health.[73]
Davies SE.	A gendered human rights analysis of Ebola and Zika: locating gender in global health emergencies.[74]

PART II: SPECIFIC PROGRAMS AND TACTICS

Access to and quality of services

Access to care is a major barrier to health in rural Washington communities. Multiple factors, including geographical access, availability of providers, affordability of services, and acceptability of services fall under the umbrella term of accessibility. Understanding what influences access to care, such as socio-economic status (SES), environment, and availability of transportation, is important when considering ways to increase access to care in communities.

This section of the report provides examples of specific programs and tactics used to improve access to care in other countries. It is intended to be used as inspiration to build on already existing community assets. Some of the examples are sourced from the U.S., and are included in the report due to the opportunities to leverage current state or university partnerships and/or expand upon interventions that are already tested as effective with similar target populations.

Behavioral Health

Despite an abundant need, rural Washington communities are in short supply of trained behavioral health workers. After scanning the literature and interviewing key experts in the field of global mental health, three main tactics rose to the surface as evidence-based practices that have been successful in low resource populations in other countries that could help bridge this gap locally: (1) task-sharing/task-shifting, (2) mHealth and teleconsultations, and (3) integrating task-sharing and mHealth. While these approaches are regularly implemented in the US, lessons from implementation of these strategies or tactics in low-resource communities elsewhere may contribute to efforts to improve behavioral health in rural Washington communities.

Implementation of task-shifting/sharing programs is a key global health strategy that could contribute to improved health in rural Washington communities.

(1) Task-sharing/Task-shifting

Task shifting, also known as task sharing, is a frequently used strategy in global mental health that may be adapted to address unmet mental health needs in rural and other low-resource areas.[76,77] This approach trains lay people to deliver care to patients with mild to moderate mental or behavioral health disorders. Typically, this approach is integrated with the CHW model where trusted members of the community are trained to

implement very structured, skill-based interventions to support positive mental/behavioral health outcomes in the community.

The Friendship Bench in Zimbabwe is an evidence-based example of training lay workers to support patients presenting with depressive symptoms. This intervention trained grandmothers as LHWs to use problem solving training (PST) and cognitive behavioral therapy (CBT) in a culturally sensitive manner to improve mental health symptoms. Patients who screened for common mental disorders were referred to the "Friendship Bench" intervention where they received six sessions of individual problem-solving therapy delivered by a trained, supervised LHW. Participants were invited to participate in an optional six-session peer support program. In a cluster randomized clinical trial of 573 randomized patients with common mental disorders with symptoms of depression, the intervention arm of the study had significantly lower symptom scores after six months compared with the control arm that received enhanced usual care.[78]

An adaptation of The Friendship Bench approach could be an effective, low-cost way to provide culturally appropriate support in a community setting. Task-sharing/shifting examples provide a "recipe-based approach" where lay health workers can provide more patient-centered care via a manualized/structured program. (Manualized refers to documented in a procedure manual.) This approach is common throughout low-and middle-income countries (LMIC) and could be adapted and implemented in rural Washington communities to increase access to behavioral health care services for patients with mild to moderate common mental health issues.

Thinking Healthy Programme (THP) is an evidence-based psychosocial intervention for perinatal depression that was adapted for peer-delivery. It uses CBT techniques, such as building empathetic relationships, focusing on the present moment, behavior activation and problem solving. The program is fully manualized and was designed to be delivered by LHWs/CHWs who were provided a three-day training along with monthly refresher courses and group supervision. Sessions were organized into five modules covering the period from the third trimester of pregnancy to one year postnatal. Each model focused on the mother's personal health, the mother-infant relationship, and the psychosocial support of significant others. This study demonstrates the feasibility of using peers to provide interventions in two South Asian settings.[79]

Nepal Mental Health and Development program is a community-based model for integrating mental health and development programming. The model, developed by the organization BasicNeeds, works in partnership with governments and has been implemented in nine countries. Services in Nepal started in 2010 with a focus on building capacity within existing systems of treatment through self-help groups, medication, and economic support. The program utilizes community-based health workers who conduct home visits and run follow up clinics to increase access to care within communities.[80]

Counseling for Alcohol Problems (CAP) is a brief, 15 minute, psychological treatment delivered by lay counselors to patients with harmful drinking attending routine primary health-care settings. CAP uses motivational interviewing and general counseling strategies (e.g. open ended questions, showing empathy) as well as problem solving strategies usually delivered at the primary health clinic or at a patient's home. This RCT showed that CAP delivered by LHWs was better than enhanced usual care alone, and may be cost-effective. CAP could be a key strategy to reduce the treatment gap for alcohol use disorders.[12]

Healthy Activity Program (HAP) is a brief psychosocial treatment delivered by LHWs/CHWs for patients with moderately severe to severe depression in primary health-care settings. Findings from this RCT showed that patients in HAP had significantly lower depression symptoms severity and showed better results for the secondary outcomes of disability. HAP could be a key strategy to reduce the treatment gap for depressive disorders in a cost-effective way.[81]

(2) mHealth and Teleconsultations

mHealth and teleconsultations are another way to bridge the lack of behavioral health providers in a local context. Teleconsultations are already occurring locally, such as implementation of collaborative care in the Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI) region via the University of Washington AIMS (Advancing Integrated Mental Health Solutions) Center, and lessons from global health can expand and improve access to these technologies. For example, the AIMS Center at UW utilizes task sharing by having Seattle-based psychiatrists provide consultation to a team of care managers in more remote areas.[82,83] However, barriers to these programs, such as lack of insurance coverage of telemedicine, or poor access to broadband services in some remote areas, have added barriers to the expansion of these local programs to some rural Washington communities. To supplement this current ongoing work, we recommend considering applications of mHealth from other countries to bridge the mental health care gap.

Existing and developing mobile health technologies represent an underutilized resource in global mental health. Despite a lack of rigorous evaluations of current technologies, mobile health for mental health care could help bridge the care gap in rural Washington communities, especially when coupled with face-to-face

care. As mentioned previously, we are optimistic that Senate Bill 5511[27] will expand the availability of broadband services in Ferry County. Therefore, we are including mHealth as a recommended strategy to improve health outcomes in the county. The following examples are strategies that could increase availability of services for behavioral health services that were of high need in rural Washington communities, namely to combat the high prevalence of self-harm and suicide, especially among adolescent youth.

Source 1. www.oxfordhealth.nhs.uk/blueice/research

A risk-reducing smartphone app, "BlueIce", designed for youth that self-harm or who have suicidal thoughts has been implemented in England. "BlueIce" was tested alongside traditional face-to-face counseling and was shown to help young people manage their emotional distress and urges to self-harm. The app provides a personalized toolbox of strategies founded on evidence-based CBT and dialectical behavioral therapy (DBT) approaches that can be accessed at any time. It includes a mood diary, menu of personalized mood-lifting activities, and automatic routing through safety checks to delay or prevent self-harm. Mood lifting activities include a personalized music library of uplifting music, photo library of positive memories, physical activities, mood-changing activities, audio-taped relaxation and mindfulness exercises, identification and challenging of negative thoughts, a contact list of key people to call or text, and distress tolerance activities (informed by DBT). After using the mood-lifting section, the young person is asked to rerate their mood, and if the urge to self-hard has not reduced, they are automatically routed to emergency numbers they can call. At the end of the study, 88% of the users wanted to keep the app.[84]

While this app is currently only available to Child and Adolescent Mental Health Service providers associated with the U.K. National Health Service, a similar approach could reduce risks among youth that self-harm in rural Washington communities. An app like this one could be used as resources for social workers, counselors or teachers to recommend for high risk students in schools. However, it is important to recognize that this is supportive when applied in tandem with face-to-face therapy provided by a mental health worker.

mHealth technology has been used to reinforce skills offered in mental health therapies (e.g. CBT & DBT)

Text messaging as an adjunct to CBT, aimed at increasing CBT homework adherence, improving self-awareness, and helping track patient progress using CBT for depression. In this intervention, daily text messages corresponded to themes of a manualized group CBT intervention. mHealth strategies included tracking both positive and negative thoughts, tracking pleasant activities, tracking of positive and negative contacts, and tracking of physical well-being. This intervention has been pilot tested with low-income Spanish

and English-speaking patients. The results demonstrated that participants responded at a rate of 65% to text messages, and they reported overall positive experiences.[85]

DBT Diary Card & Skills Coach app, was developed by psychologist and UW professor Marsha Linehan, PhD. This smartphone application was designed to help people live mindfully, manage emotions, improve relationships and tolerate distress. It is recommended for people learning DBT, currently working with a DBT clinician, or former DBT patients. The app provides support and reference materials for users who would like to implement DBT practices into their everyday life. There is a "coaching" section of the app that guides users through common DBT practices such as practicing tolerance skills while experiencing difficult emotions, using strategies to manage relationship tensions and/or conflict, and DBT techniques to manage intense emotions like anger, sadness, loneliness, and feat. The app also provides users with graphics that depict their use of DBT skills over time and is readily available on the iTunes store.[30]

Bullying & Mental Health

Suicide ideation, suicide attempts, depression and anxiety, and other mental health concerns, are associated with one of Ferry County's health priority areas: bullying. Bullying victimization and suicide attempts are highly prevalent among school-aged children globally. Bullying is also associated with poorer psychosocial adjustment in children.[86] One study from 48 countries found that, "those who were bullied are at approximately 3-fold higher odds for suicide attempts compared with those who were not bullied."[87] However, school-wide bullying campaigns have proven to be effective to prevent bullying. One meta-analysis of 44 evaluations showed that on average, bullying decreased by 20-23% and victimization decreased by 17-20% upon implementation of anti-bullying programs in schools.[88] This meta-analysis found that more intensive programs (i.e. holding parent meetings, having firm disciplinary methods, and improved playground supervision) tend to be more effective. Peer mediation, peer mentoring, and encouraging bystander intervention on the other hand increased victimization and is not a recommended strategy. Policy-makers should draw upon high-quality evidence-based programs when developing new anti-bullying initiatives. Bullying is a risk factor for adolescent suicides and coordinated approaches to reducing the prevalence of bullying among youth should be a priority for schools and communities worldwide.

Other applications of mHealth in mental health include disease awareness and self-monitoring

The following mHealth approaches may be adapted in rural Washington to support mindfulness and general treatment adherence.

MONARCA system, from Denmark, uses personal health monitoring and a feedback system to address the challenges of self-management of mental illnesses. This system was designed to support treatment adherence and symptom management for patients suffering from bipolar disorder. The MONARCA system lets patients enter self-assessment data, collects sensor data, provides feedback on the data collected, and helps them manage their medicine. The results from a 14-week trial from 12 patients were positive. Compared to paper-based forms, the adherence to self-assessment improved, the system was considered user-friendly, and it was perceived to be very useful.[89]

Source 2: www.imedicalapps.com

Mobilyze, "A therapist in your pocket," provides didactic information, available either over the phone or via a web browser that teaches the patient the kinds of things they would learn from a therapist. It also provides tools that support activities, which are typically prescribed in psychotherapy, such as monitoring activities to see relationships between activities and mood, scheduling positive activities, identifying ways in which the patient avoids engaging in activities that are likely to improve mood, and developing strategies to overcome that avoidance.[90]

(3) Integrating Task-Sharing and mHealth

Integrating task-sharing and mHealth is a promising strategy. Incorporating elements of a low-cost technology that most communities have access to along with a community or family member who is willing to support each other's health in a structured way could help improve behavioral health outcomes in rural Washington communities. The WHO has developed a set of tools and training manuals for non-specialized health-care providers that could improve and increase access of mental health intervention delivery by non-specialized health workers. This section provides a summary of the WHO evidence-based mhGAP tools, and then gives an example of another intervention implemented that integrates task-sharing and mHealth in rural China.

mhGAP (Mental Health Gap Action Progamme), is a set of tools and training manuals for non-specialized health-care providers to increase access to comprehensive information to help them diagnose and treat a range of mental, neurological and substance use (MNS) disorders including depression, epilepsy and dementia. This evidence-based WHO program is targeted at CHWs, first level referral centers, first points of contact with the healthcare system, and general physicians and nurses. The tools include a training and intervention guide and a mobile app to increase the availability and access to mental health services in low resource settings. The program's objective is to bridge the MNS treatment gap by providing training and tools

to non-specialists that can use the tools to assess, manage and follow-up people with MSN conditions. The modules in the app include a description and guidance on assessment and management of these mental health condition. The mHealth tool can be downloaded free of charge. It is currently available in English and other languages will be available soon.[91]

One example from the mhGap guidelines is called "Problem Management Plus" or PM+, a WHO recommended 5-session, psychological intervention program delivered by trained non-specialists that addresses common mental disorders. This intervention uses PST, counseling, plus stress management, behavioral activation and social support provided by a trained non-specialist. This study is evaluating the effectiveness and cost-effectiveness of PM+ in a specialized mental health care facility in Pakistan.[92]

LEAN (Lay health supporters, E-platform, Award, and iNtegration), combines both community/lay health workers and mobile technology to improve medication adherence among people with schizophrenia in a resource-poor community in rural China. The two-arm randomized controlled trial of 278 community-dwelling villagers demonstrated that patients engaged in LEAN improved medication adherence by 27% (0.61 versus 0.48 in the control group). Further, there was a substantial reduction in the risks of relapse and re-hospitalization with the intervention.[35]

The LEAN intervention included a lay health worker from either the family or community, an E-platform that texted two daily messages to both the patients and their lay health supports reminders to take their medicine along with occasional messages providing a 14-item checklist about relapse and medication side effects. The lay health supporter was expected to text back "1" if any item was checked, and then a project coordinator would follow up with a phone call. A group of master's and doctoral students in public health and medicine were tasked to produce the messages, mainly adapting contents from evidence-based sources. A senior psychiatrist reviewed and approved messages for use. Every week the project coordinator prepared a texting report based on the server data that included a list of families who texted back more frequently than the past month to confirm the taking of medication. The mental health administrators used the lists to award this improvement with a token gift (e.g. bar of soap or congratulatory text) on a monthly basis. Texting also served as a communication tool that integrated the efforts of lay health supporters into the existing health system. For example, lay health supporters may text the village doctors if signs of relapse are detected. The project coordinator would then schedule an appointment with the psychiatrist and texted appointment details to the patient's family.[35]

One key element of this intervention is that it a combination of behavior change strategies from the health belief model that combines task sharing (integrating LHWs) and mHealth to increase medication adherence

using cues to action. While the target population was people with schizophrenia, this intervention could be adapted for people with other behavioral health disorders like clinical depression, bi-polar disorder, or people with substance use disorders. Overall, a low-cost, low-burden, easy-to-implement and easy-to-use intervention like LEAN could be adapted in rural Washington communities to improve behavioral health treatment adherence.

General Access to Healthcare other than Behavioral Health

In rural Washington communities, the scarcity of health care providers is not restricted to behavioral health. The strategies summarized in this section target the following two community concerns related to access to care: geographical access, and availability of providers.

(4) Geographical Access

Rural communities experience geographical barriers to accessing healthcare due to the lack of locally available services. Costs associated with transporting to and from medical care can be a barrier for rural communities, especially those who are financially insecure. The following approaches are ways to increase access to care by decreasing a transportation cost burden.

Transportation and Service Vouchers

Innovative funding mechanisms, like vouchers, are shown to minimize financial costs of transportation to increase access to care. In Cambodia, vouchers are provided to eligible low-income women. These vouchers are provided as detachable coupons, which entitle them to free health services, transportation costs for five round trips between her and her home and the health center, and referrals from the health center to the hospital, if complications occur.[93]

Another community-based transportation study to improve access to maternal health services occurred in Uganda from 2009 to 2010. Voucher booklets containing twelve transportation vouchers and seven service vouchers were given to over 12,000 pregnant mothers. The transportation vouchers allowed mothers to arrange local transport from a community member with a motorcycle or bicycle who agreed to participate in the study. Special vouchers were given to pregnant women with high-level complications for taxi or ambulance transport. After transporting a mother to and from healthcare clinics for prenatal, delivery, and/or postnatal care, the contracted transporter could redeem the voucher for payment. The overall result was a dramatic increase in utilization of maternity care and economic benefit within the community of transportation providers. The project showed that low-cost, community-based transportation options are available and can improve the accessibility of maternal services and health outcomes.[94]

mHealth app to organize emergency transport and improve healthcare delivery systems

D-tree is a digital global health company that uses technology to provide an emergency referral system by utilizing existing transportation among community members in Tanzania. When ambulances are unavailable, a 24-hour call center, along with a mobile app, manages referrals for transport to drivers from a database. The call center also has a triage system, which helps to assess what type of responses require elevation to a higher level of care. Drivers are paid through a mobile money system.[31]

(5) Use of mHealth by Community Health Workers

CHWs are a cost-effective way to increase the availability of lower-level health services in communities. CHWs or LHWs are utilized across the world to overcome challenges related to availability of providers. The following approaches provide examples of how CHWs have been integrated into other communities to increase access to care.

India utilizes CHWs trained to conduct home visits to all newborns in the first week of life, counsel mothers on optimal essential newborn care practices, identify illnesses, treat mild illness, and refer newborns with danger signs. This service is provided through a program called Integrated Management of Newborn and Childhood Illness (IMNCI). IMNCI also addresses cultural barriers through community mobilization partnership activities, such as women's group meetings to learn current practices and promote essential newborn care practices among trusted older women in the community. These group meetings enhance health literacy and problem solving, two effective ways of reducing neonatal mortality. The results of the program included improvements in home-based newborn care practices.[95]

Pakistan employs CHWs in rural Pakistan via a program called The Lady Health Worker. The Lady Health Worker program focuses on evidence-based, low-cost interventions for maternal and child health, including oral rehydration solution, immunizations, case management of acute respiratory infections, growth monitoring, and referrals to higher level health facilities. Lady Health Workers provide basic services and family planning, refer patients to nearby clinics, organize health committees for men and women, and increase uptake of public health initiatives. The Lady Health Workers serve as a link between community and clinical settings, subsequently strengthening health-care systems and increasing access to care for remote and low-income communities.[15,96]

Rural Myanmar is filling primary healthcare service gaps in hard to reach areas with volunteer community health workers who are trained through the Global Alliance on Vaccine and Immunizations in an effort to support health system strengthening. The health workers are selected by a village health committee and trained to support primary care providers in midwifery, immunization, sanitation, and health education. In

2013, a questionnaire survey was given to 715 CHWs from 21 townships in Myanmar to assess profiles, program efficacy, and any necessary improvements. The results demonstrated the value of CHWs in improving health and access to care. The study provided recommendations for including CHWs in future strategic plans, including a plan for further training and ongoing support.[97]

Medic Mobile, a toolkit for health workers in rural communities, provides open-source software that supports patient care. The mobile software provides resources, training, and workflows for lay health workers to support community based health programs. The toolkits are specific for case use with antenatal care, postnatal care, childhood immunizations, community care management, malnutrition, managing health worker performance, and outbreak surveillance. Medic Mobile has been used in over twenty countries since 2010.[11]

PART III. ADDITIONAL GLOBAL HEALTH RESOURCES

Strategy: Community Health Workers (CHWs)

Health Barrier: Access to Behavioral Health Services, including Substance Abuse		
Name, Place	Description	Reference
ImpACT, South Africa	Improving AIDS Care after Trauma (ImpACT) is a coping intervention for HIV-infected women with sexual abuse histories that was evaluated for feasibility and potential efficacy in a public clinic in Cape Town, South Africa. In this study, participants were randomly assigned to standard of care (three adherence counseling sessions) or ImpACT (three adherence counseling sessions plus four individual and three group sessions). Preliminary findings suggest ImpACT has the potential to reduce post-traumatic stress disorder symptoms and increase antiretroviral therapy adherence motivation. This study demonstrated that a trauma-focused, culturally-adapted individual intervention delivered by a non-specialist in the HIV care setting is feasible and acceptable.	https://link.springer.com/article/10.1007/s10461-017-2013-1
ALMA, U.S.	Amigas Latinas Motivando el Alma (ALMA) is an asset-based health promotion intervention focused on addressing Latinx mental health. The ALMA intervention uses lay health advisors (LHA), called promotoras, who are indigenous members of a population. Promotoras are trained to provide health promotion activities for other members in their community. This intervention has decreased depressive symptoms and increased stress management among participants.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4137773/pdf/nihms531741.pdf
Task shifting mental health program, India	A task shifting mental health program for an impoverished rural Indian community found that community health workers were able to identify and refer individuals with mental health disorders to a community hospital. This study demonstrated that referred patients who were treated by the existing medical program experienced significant improvement in daily function.	https://www.sciencedirect.com/science/article/pii/S1876201815001331?via%3Dihub
Harm Reduction Strategies		
Mujer Mas Segura (Safer	Mujer Mas Segura (Safer Women), is a harm reduction intervention tested as a randomized control trial in Mexico. The study tested if an interactive harm reduction education session would reduce incidents of	https://www.ncbi.nlm.nih.gov/pmc/

Women), Mexico	HIV/STI and needle sharing among female sex workers. This HIV and sexual risk reducing interactive intervention tested one hour long session of interactive injection risk and interactive sexual risk for women in Mexico who use substances. Of the 584 women in the study, HIV/STD incidence was 62% lower in the group that received the interactive intervention versus the didactic intervention. Overall, the interactive injection risk intervention was associated with declines in receptive needle sharing and injection risk index score.	articles/PMC3681783/
Women-Focused Intervention, South Africa	This women-focused, empowerment-based HIV intervention was designed to reduce sexual risk, substance use, and victimization among at-risk, underserved women. The study tested two private one-hour sessions held within 2 weeks that was intended to equip women with increased knowledge about alcohol and other drug use associated with sexual risk and victimization, increase personal power by reducing substance use, increase condom use competency, increase communication skills with partners, and teach specific violence prevention strategies. Women also completed a personalized action plan to address their individual risk behaviors and develop goals to reduce sexual risk, substance abuse, and victimization. They also received a toiletry kit and referrals to resources. Findings from the study showed that the proportion of women who reported always using male condoms increased in the women-focused group and remained stable in the control group. Participants in the women-focused group also reported fewer sexually transmitted infection symptoms at follow-up than women in the standard group. These results suggest that interventions can address factors related to gender inequality that influence condom use and sexual behaviors.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3129984/
Women's Health CoOp, South Africa	The Women's Health CoOp (WHC) intervention was a four-module intervention conducted over two sessions lasting about 1 hour each. The goal of the intervention was to increase abstinence from drug use and reduce sexual risk behaviors. The study's results showed a lower	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3657672/

	proportion of women in the WHC intervention reported not being impaired during their last sexual encounter compared to the control groups.	
Access to Healthcare		
Tribal Health Initiative (THI), Southern India	This study assessed the implementation of a community-clinic health worker approach to supporting management of hypertension in a remote Indian community. Trained community health workers (CHWs) identified hypertensive patients in the community, referred them for diagnosis and clinical management. The CHWs then followed up with lifestyle interventions and provided medications for the patients. Results from this study showed that a CHW blood pressure screening system linked to a central clinic can improve hypertension control rates.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5752612/pdf/668.pdf
Global Alliance for Chronic Diseases	In 2012, the Global Alliance for Chronic Diseases financed 15 studies in 8 low- and middle income countries to provide evidence of successful task-shifting to non-physician health workers. Throughout the pilot, community health workers managed hypertension in low and middle income countries through routine screenings, education, support, referrals, and monitoring treatment compliance. This study shows the utility of CHWs in managing chronic conditions and non-communicable diseases, especially hypertension and cardiovascular disease.	https://gh.bmj.com/content/3/Suppl_3/e001092
LEAP, Kenya	LEAP is a mobile health platform that supports the training of community health workers (CHWs) in Kenya via a public-private partnership with The African Medical and Research Foundation (AMREF) and the Government of Kenya. Community Health Workers (CHWs) are trained through AMREF's mHealth platform called LEAP, which allows them to learn at their own pace and access training from rural areas. LEAP is a sustainable and scalable mobile learning academy for health workers across Africa. It uses regular updates and peer-to-peer communication to strengthen the skills of health workers. It is intended to complement face to face training, and has shown to improve CHW engagement and reduce attrition. To date, 3,000 CHWs in Kenya have been trained using this platform that has focused on improving immunization and health care delivery.	https://amrefuk.org/uk/en/what-we-do/projects/leap-the-mhealth-platform/

mothers2mothers, Sub-Saharan Africa	Since 2001, mothers2mothers (m2m) has been addressing the pediatric AIDS epidemic in sub-Saharan Africa by training and employing HIV positive mothers as peer mentors. These "Mentor Mothers" work in healthcare facilities and provide education around HIV transmission and prevention to other mothers living with HIV. They also are trained to promote and foster economic empowerment of their clients by improving women's ability to borrow money to finance income generating activities.	https://www.m2m.org/
Marie Stopes International	The Marie Stopes program provides contraceptive services to women's doorsteps. Nurses and midwives serve as the 'Avon Ladies' of sexual and reproductive health by going door-to-door to deliver contraceptive choices to women. Their outreach in remote and rural areas supports women's health in a range of free or subsidized high-quality contraception to those who wouldn't be able to access it in any other way.	https://www.mariestopes.org/
Chronic Disease Management, including Diabetes and Hypertension		
MoPoTsyo, Cambodia	Evaluation of a multi-faceted diabetes care program, including community-based peer educators from 2007-2013.	
Better Hearts Better Cities, Senegal, Mongolia, Brazil	This door-to-door hypertension care intervention was tested to combat the increase of hypertension and other noncommunicable diseases throughout Senegal, Mongolia and Brazil. This intervention, Better Hearts Better Cities, trains CHWs how to properly identify and treat hypertension. The CHWs conduct screenings in the client's homes. They also write referrals to the local health center for those at risk for hyptension.	https://www.intrahealth.org/vital/door-door-hypertension-care-dakar-brings-pervasive-public-health-problem-light
Community-Clinic Health Worker Approach to Hypertension, India	An NGO-Implemented Community–Clinic Health Worker Approach to Providing Long-Term Care for Hypertension in a Remote Region of Southern India. This program trains CHWs to screen, identify and link people with hypertension to a physician clinic. The CHWs also provide chronic disease management support.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5752612/pdf/668.pdf

Evaluation of a training program of hypertension for accredited social health activists, India	Accredited Social Health Activists (ASHAs) were trained to support hypertension control.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5932780/
Strategy: mHealth		
Health Issue: Behavioral Health		
Ibobbly, Australia	This pilot study aimed to evaluate the effectiveness of a self-help mobile app (ibobbly) targeting suicidal ideation, depression, psychological distress and impulsivity among indigenous youth in remote Australia. A total of 61 patients received an app which delivered acceptance-based therapy over 6 weeks. Participants in the ibobbly group showed substantial and statistically significant reductions in PHQ-9 (symptoms of distress and depression), but no differences were observed in impulsivity.	https://bmjopen.bmj.com/content/7/1/e013518
Systematic Medical Appraisal Referral and Treatment (SMART) Mental Health project, India	The Systematic Medical Appraisal Referral and Treatment (SMART) Mental Health project trained lay village health workers and primary care doctors to screen, diagnose and manage individuals with common mental disorders using an electronic decision support system. The project increased access to mental health services in rural India with the use of mHealth tools. During the intervention period, there was a significant reduction in the depression and anxiety, demonstrating the feasibility and acceptability of the SMART model.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5370210/
Strategy: Public Private Partnerships		
Health Issue: Food Insecurity		
Global Alliance for Improved Nutrition (GAIN), international	Global Alliance for Improved Nutrition (GAIN) founded in 2002, is a global organization aimed at eliminating malnutrition through public-private partnerships. Their programs include workplace nutrition, adolescent nutrition, improving children's diets, and nutritious foods financing, just to name a few. GAIN's work is a collective approach which channels	https://www.gainhealth.org/

	resources to ensure the world's most vulnerable populations have access to nutritious foods.	
Development in Gardening (DIG), international	Development in Gardening (DIG) provides agricultural resources and support to vulnerable communities in 8 different countries by establishing sustainable gardens. DIG teaches individuals how to grow their own food and how to cook nutritious meals. Their vision is to address malnutrition by increasing agriculture skills, re-purposing unused land into community gardens, and providing cooking demonstrations.	https://reaplifedig.org/
World Food Program, international	The World Food Program (WFP) has established a Home Grown School Feeding initiative in 46 countries to address childhood nutrition. The program provides local farmers with reliable incomes while insuring school aged children receive safe, nutritious meals. This approach connects schools to local farmers to increase the availability of healthy food for school aged children.	https://www1.wfp.org/home-grown-school-meals
The Hunger Project, Senegal	The Hunger Project is promoting food security and sustainability in Senegal through community food banks that allow farmers to store and process their crops. This helps farmers to be able to sell their crops at a better price rather than being forced to sell immediately. Storing crops also prevents food shortages.	https://www.thp.org/our-work/where-we-work/africa/senegal/food-security-senegal/
Health Issue: Access to quality, affordable childcare		
Toronto First Duty, Canada	Toronto First Duty, Canada, is creating integrated early learning environments and early childhood staff teams by bringing together kindergarten, child care and parenting programs into a single program. The project's goals are to support sites to create a high quality learning environment, provide a continuum of supports and services to all families and children, support parents' need for childcare whether they are at home or are earning a living.	https://www.childcarecanada.org/documents/research-policy-practice/03/07/toronto-first-duty-project
Sure Start, U.K.	Sure Start is a place-based initiative targeted at parents and children under four years of age living in the most disadvantaged areas in the U.K . Sure Start projects deliver a wide variety of services designed to support	https://www.education-

	children's learning skills, health and well-being, and social and emotional development.	ni.gov.uk/articles/sure-start
Child and Family Centres, Tasmania	Child and Family Centres, Tasmania, were adopted in 2009 to provide early childhood services for families of children from pregnancy to age five. This pro-equity, whole-of-government approach to addressing systemic barriers to access and participation in early childhood and family support services have been rated positively thus far. Tasmanian children in Australia live amongst the most disadvantaged communities in Australia. Centres offer universal services (e.g. Child Health and Parenting Service), disability services, counseling for parents, learning services, and nurse home visiting for first time young parents. Services are provided by government, non-government organizations and by the community	https://www.tandfonline.com/doi/abs/10.1080/03004430.2017.1297300
Federal Daycare Program for Working Mothers, Mexico	The Federal Daycare Program for Working Mothers began in Mexico in 2007 to subsidize community- and home-based daycare. This program was targeted for low-income mothers who otherwise couldn't afford childcare. It was a more recent expansion of a 1973 Social Security law that allowed access to childcare through a contribution-based entitlement that was financed by a 1 percent across-the-board payroll deduction. To incentivize people to open and run day care centers, the Mexican government offered to subsidize the costs. To qualify for the grant, the candidates are required to pass a psychological test and participate in training courses regarding program rules and basics of childcare. To qualify for the state subsidy, parents must be low-income, working, looking for a job or going to school.	http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/5F0320F46ECBA3BFC1257744004BB4E8/$file/StaabGerhard.pdf
Chile Crece Contigo, Chile	Chile Crece Contigo (Chile Grows With You) is, a strategy to invest in the capabilities and equalize the opportunities of children from low-income families. The policy guarantees access to preschool for children from low-income families. In this partnership, Chile remains the regulatory agency but delegates administration to non-profits, community, faith based and non-governmental organizations.	http://www.crececontigo.gob.cl/

Financial support to parents, France	France provides financial support to parents to help cover the costs of childcare services. Parents in France are compensated through tax allowances or transfers to which they can use to pay for different forms of childcare. This has decreased spending on daycare while increasing resources to parents who stay at home, as well as subsidies for registered (home-based) child caregivers and tax-breaks for hiring nannies. These programs are critiqued, however, due to their probability of reinforcing gender norms.	https://www.americanprogress.org/issues/poverty/reports/2015/11/24/126209/moving-americas-families-forward-lessons-learned-from-other-countries/
Health Issue: Financial Insecurity		
E-Commerce, China	E-Commerce, China, a technology company (Alibaba) in China, has worked with the government to combat China's poverty and improve the country's rural economy. The group set up e-channels to enable rural entrepreneurs to sell their goods online, such as agricultural products, to cities across the nation. Supporting the supply chain through cloud computing helps develop infrastructure, offer financial services, and build a network to help farmers increase their sales. For example, Alibaba along with the UN's World Food Program, helped kiwi farmers launch a cyber store to expand their customer base and help farmers reach a new market that was difficult for them to access in the past. This initiative helps rural farmers increase their entrepreneurship with little fees and create a more favorable environment for investment.	https://www.alizilla.com/alibaba-to-combat-poverty-in-china-via-e-commerce/

Summary

Three strategies commonly employed in global health —deployment of community health workers, use of mobile technology, and task shifting or task sharing of services typically provided by physicians, nurses, psychologists, and other highly trained health care professionals – emerged as the most potentially useful and transferable approaches to mitigate the impact of barriers to health identified in the communities of Ferry County. Although the context in Ferry County differs from the context in which many of the programs described in this report, the principles remain applicable.

While some of these approaches can address the sequelae of financial insecurity, global approaches to matters such as poverty and lack of economic development are less easily actionable at the local level in rural Washington. In many countries, enabling policies such as those related to government subsidized childcare, job creation strategies, and improving health by increasing the availability of affordable housing stock are typically implemented by national or regional governments. Local implementation of many effective global health approaches would require significant policy support at the state and national level.

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Appendix C: Community Report to Southeast Washington Health Partnership

Community Health Improvement in Southeast Washington: Learning from Global Health Strategies and Programs

Report Prepared for Southeast Washington Health Partnership by Global to Local

June 20, 2019

GLOBALTOLOCAL

This report was prepared by Global to Local under contract DOH PRV23420 with the Washington State Department of Health. Global to Local is a 501c3 whose mission is to demonstrate the effectiveness of global health strategies to improve the health status of local communities.

www.globaltolocal.org

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Glossary of Abbreviations

AIMS: Advancing Integrated Mental Health Solutions

BMGF: Bill & Melinda Gates Foundation

BRIDGES: Bringing Global Health Expertise to Rural Washington

CAP: Counseling for Alcohol Problems

CBO: community based organization

CBT: cognitive behavioral therapy

CHW: community health worker

CUGH: Consortium of Universities for Global Health

DBT: dialectical behavior therapy

FIN: Food Innovation Network

G2L: Global to Local

HAP: Healthy Activity Program

HIC: high-income countries

IMNCI: Integrated Management of Newborn and Childhood Illness

LEAN: Lay health supporters, E-platform, Award, and iNtegration

LHW: lay health worker

LMIC: low- and middle-income countries

mHealth: mobile health

mhGAP: Mental Health Gap Action Programme

MNS: mental, neurological and substance use

NGO: nongovernmental organization

PM+: Problem Management Plus

PPP: public-private partnership

PST: problem solving training

SES: socio-economic status

START: Strategic Analysis, Research & Training

THP: Thinking Healthy Programme

UW: University of Washington

WHO: World Health Organization

WWAMI: Washington, Wyoming, Alaska, Montana, Idaho

Executive Summary

In response to a legislative directive, the Washington State Department of Health contracted Global to Local (G2L) to identify lessons from global health that might assist in overcoming barriers to health in rural Washington communities. The purpose of the project, Bringing Global Health Expertise to Rural Washington (BRIDGES), was to provide evidence-based recommendations and training that applies global strategies to reduce health disparities and address root social determinants of health for underserved communities in rural Washington State. G2L engaged with community coalitions in Kittitas County, Ferry County and three counties in Southeast Washington (Columbia, Asotin, and Garfield) to explore the applicability of global health strategies to health improvement efforts in rural Washington. This report summarizes the global health strategies offered for consideration in Southeast Washington

The Southeast Washington Health Partnership identified the following top health priorities for the region:

1. Overweight youth
2. Immunization
3. Substance abuse (alcohol and marijuana)
4. Bullying
5. Access to health care/preventative services

This report provides a breadth of global health strategies that can support increased health equity specific to these health priorities.

G2L sought to identify general global health strategies, as well as specific programs or approaches that could be adopted or adapted to address barriers to health identified within the participating communities. Three strategies commonly employed in global health —deployment of community health workers, use of mobile technology, and task shifting or task sharing of services typically provided by physicians, nurses, psychologists, and other highly trained health care professionals – emerged as the most potentially useful and transferable approaches to mitigate the impact of barriers to health identified by the communities. While some of these approaches can address the sequelae of financial insecurity, global approaches to matters such as poverty and lack of economic development are less easily actionable at the local level in rural Washington, as many effective global health approaches would require significant policy support at the state and national level.

Background

Despite islands of excellence in healthcare delivery and health outcomes, the U.S. lags behind many other nations in overall health status. Lessons about successful health improvement strategies from across the globe may contribute to ongoing community health improvement efforts. Bringing Global Health Expertise to Rural Washington Communities, or BRIDGES, is an initiative aimed to help reduce health disparities and improve health for underserved communities in rural Washington State by identifying effective global health strategies for local application. In response to a Legislative directive, the Washington State Department of Health contracted Global to Local (G2L) to 1) identify barriers to health by engaging with leaders and community members through the organization and facilitation of community meetings, and 2) identify lessons from global health that might assist in overcoming those barriers. Data from community needs assessments were analyzed to develop community-specific global health recommendations intended to enhance ongoing community-led efforts. This report summarizes the process G2L employed to identify potential global health solutions, and summarizes selected global health strategies, tactics and programs to assist in reducing or eliminating community-identified barriers to health in Asotin, Garfield, and Columbia counties in the southeast region of Washington State.

WHAT IS GLOBAL HEALTH?

While there is no universally accepted definition of "global health", the Consortium of Universities for Global Health (CUGH), including representatives from the University of Washington, proposed the following widely accepted definition:

> *Global health is an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care.*[1]

As shown in the following table, global health is related to, but distinct from, the fields of international health and public health.

Table 1. Defining global, international and public health

	Global Health	*International Health*	*Public Health*
Geographical reach	Focuses on issues that directly or indirectly affect health but that can transcend national boundaries	Focuses on health issues of countries other than one's own, especially those of low-income and middle-income	Focuses on issues that affect the health of the population of a particular community or country
Level of cooperation	Development and implementation of solutions often requires global cooperation	Development and implementation of solutions usually requires binational cooperation	Development and implementation of solutions does not usually require global cooperation
Individuals/ populations	Embraces both prevention in populations and clinical care of individuals	Embraces both prevention in populations and clinical care of individuals	Mainly focused on prevention programs for populations
Access to health	Health equity among nations and for all people is a major objective	Seeks to help people of other nations	Health equity within a nation or community is a major objective
Range of disciplines	Highly interdisciplinary and multidisciplinary within and beyond health sciences	Embraces a few disciplines but has not emphasized multidisciplinary	Encourages multidisciplinary approaches, particularly within health sciences and with social sciences

Source: Koplan, et al.[1]

In this report, we embrace the CUGH definition of global health. As such, while we emphasize recommendations based on experience from countries other than the United States, we also include occasional examples of approaches that have been developed or implemented domestically—particularly if they are relevant to improving health among disadvantaged or underserved populations. Such an approach is consistent with the commonly expressed observation among global health practitioners that "all health is global health".[2]

While the strategies and programs to improve health in this report are drawn most heavily from work implemented in other nations, it is readily apparent that both the local context and the specific health problems or clinical conditions addressed often differ considerably from those in rural Washington State. Indeed, few of the approaches we highlight will be "plug and play", or immediately ready to adopt without significant modification. In some cases, this is because a promising approach to improving health might have been implemented for a condition such as malaria—which is not endemic in Washington. In others, a community-based program to address a non-communicable disease such as diabetes may be very tightly connected to a health care delivery system that differs in many respects from the system in rural Washington. Despite these differences, though, the global health strategies and approaches we summarize may either be adapted in some way, or serve as inspiration for modifications of existing or planned programs intended to improve health in rural Washington communities.

Methods

IDENTIFYING HEALTH BARRIERS

The Southeast Washington Health Partnership provided G2L with a list of health priorities they had previously identified based on the results from community health needs assessments completed in Asotin, Columbia, and Garfield counties, as well as results from four community partnership discussions and a review of 52 health-related indicators in Asotin County.[3-5] This list is ranked, starting with the top health priority:

1. Overweight youth
2. Immunization
3. Substance abuse (alcohol and marijuana)
4. Bullying
5. Access to health care/preventative services

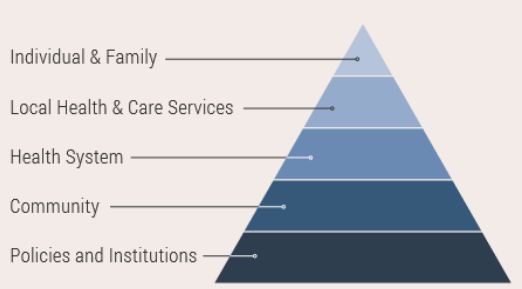
G2L utilized the above list to guide their work.

GLOBAL HEALTH RESEARCH

After identifying key health concerns from community needs assessments and the Southeast Washington Health Partnership's data, we scanned the global health literature for ideas and approaches to reduce health disparities in the community. Our primary methods of global health research included conducting literature reviews, interviews with global health experts, and crosswalk analyses of recommendations based on community needs and identified global health interventions. G2L applied the strategic framework from a global health landscape assessment it commissioned from PATH (further described below) to organize its work. We also partnered with a research-consulting group, the University of Washington Strategic Analysis, Research & Training (START) Center to supplement our internal capacity.[6]

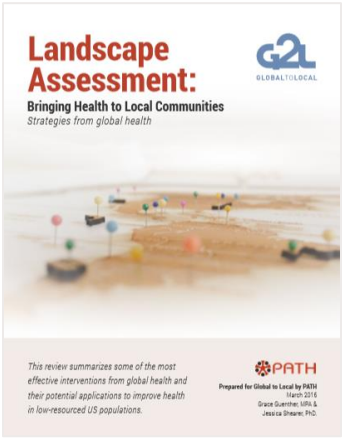
G2L/PATH Framework

Figure 1. Levels of Transferable Strategies



Source: Landscape Assessment[3]

In 2017, under a contract from G2L, PATH- a Seattle-based global health innovation organization completed a follow-up landscape analysis and literature review of global health interventions that may be transferable to low-resource populations in the U.S. (The 2017 report was an update to an earlier G2L/PATH landscape analysis from 2010.) The interventions address determinants of health at multiple levels, ranging from governmental and institutional policies to the level of individuals and families (Figure 2).[7]



PATH systematically reviewed evidence of interventions from other countries around the world and identified strategies that could be applied in the U.S. Each strategy was chosen based on its (1) effectiveness and cost-effectiveness, (2) ability to have the greatest impact on the most disadvantaged populations (i.e. equity), (3) ability to address social determinants of health, and (4) transferability and feasibility in low-resource domestic settings. G2L used the results of the landscape analysis to guide selection of interventions from other countries that may be adopted or adapted to improve health in rural Washington communities.

UW START Center

G2L partnered with the University of Washington (UW) Strategic Analysis, Research & Training (START) Center to supplement their global health research.[6] The START Center is a research-consulting group established in 2011 by the Bill & Melinda Gates Foundation (BMGF) and the UW Department of Global Health. Since its inception, START's expert researchers have completed more than 150 projects for clients including the BMGF, the World Health Organization (WHO), Boston Scientific, and more. Their primary research tasks for the BRIDGES project included conducting key informant interviews with global health experts and conducting literature reviews to develop summaries of global health strategies that may be adapted to rural Washington communities.[6]

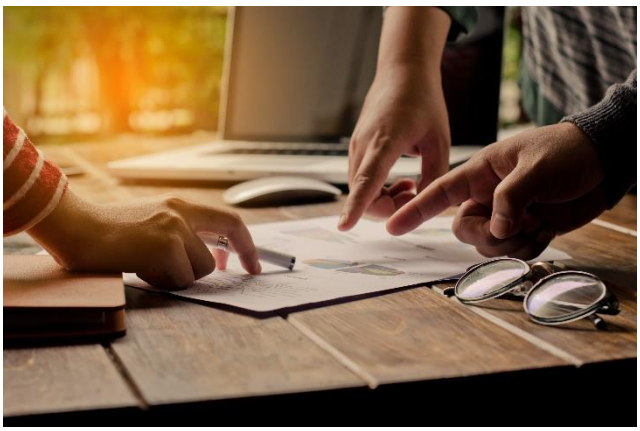
Global Health Strategies and Programs That Might Inform Local Action

The following global health recommendations are divided into three parts:

Part I summarizes each global health strategy and includes a table of resources that provide additional information about each strategy. These assist communities in systematically identifying general approaches that might be applied in addressing local health needs or modifying existing community health improvement plans, regardless of the specific social determinant of health, clinical condition, or public health challenge.

Part II provides examples of specific programs and tactics that can support local efforts in overcoming identified health barriers. In many cases, these programs will need to be significantly modified or adapted in order to be implemented locally. In some cases, the specific conditions addressed globally (malaria, for example) may not be locally relevant, but the approach used might be modifiable for a locally prevalent condition.

Part III provides additional examples of global health approaches that may address other health barriers identified in Southeast Washington. This section is in the form of a table that provides a summary of each intervention along with a link to each source. These interventions and strategies will also need to be significantly modified or adopted in order to be implemented locally. The table is intended to serve as inspiration for ideas to overcome health disparities identified in the region.



PART I: STRATEGIES

Figure 2. Levels of transferrable interventions

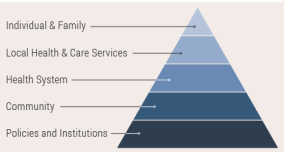


Table 2. Selected global health strategies potentially transferable to rural Washington communities[7]

Strategy	Level	Transferable?	Outcomes
Community health workers (CHWs)		Highly transferable	Promote healthy behaviors, increase access
Mobile Health (mHealth)		Transferability depends on structure of current health system	Increase access and coverage to preventative and curative services
Public-private partnerships (PPPs)		Transferable	Increase efficiency and cost-effectiveness of services
Promote community asset building through community-based organizations		Transferable with adaptations	Increase access to services
Social media and mass media health campaigns		Transferable	Promote healthy behaviors, increase access
Improving economic development and wealth		Transferable	Improve use of health services
Community mobilization & community leadership development		Transferable	Increase efficiency and cost-effectiveness
Coordinated and patient-centered primary care		Transferability depends on structure of current health system	Improve the quality of health delivery, improve health outcomes
Gender integration		Transferability depends on local context	Improve gender equality, improve health

7

Community Health Workers

Community health workers (CHWs) are frontline public health workers that are trusted members of a community or who have in-depth knowledge of the communities they serve. CHWs or lay health workers (LHWs) typically require minimal formal training or licensing, and serve as a bridge between health care access and service delivery. CHWs promote health and improve healthy behaviors, increase access to services, reduce costs, and reduce inequities and disparities. CHWs in low- and middle-income countries (LMICs) often work within a health facility or local health clinic to provide low-level medical services in the community. CHWs in high-income countries (HICs) tend to work within community-based health programs. They support vulnerable populations within healthcare systems through care coordination and management of chronic illnesses.[8-11]

Implementation of community health worker programs are a key global health strategy that could contribute to improved health in rural Washington communities.

Figure 1. Examples of Community Health Worker Programs that Address Southeast Washington's Health Priority Areas[12-17]

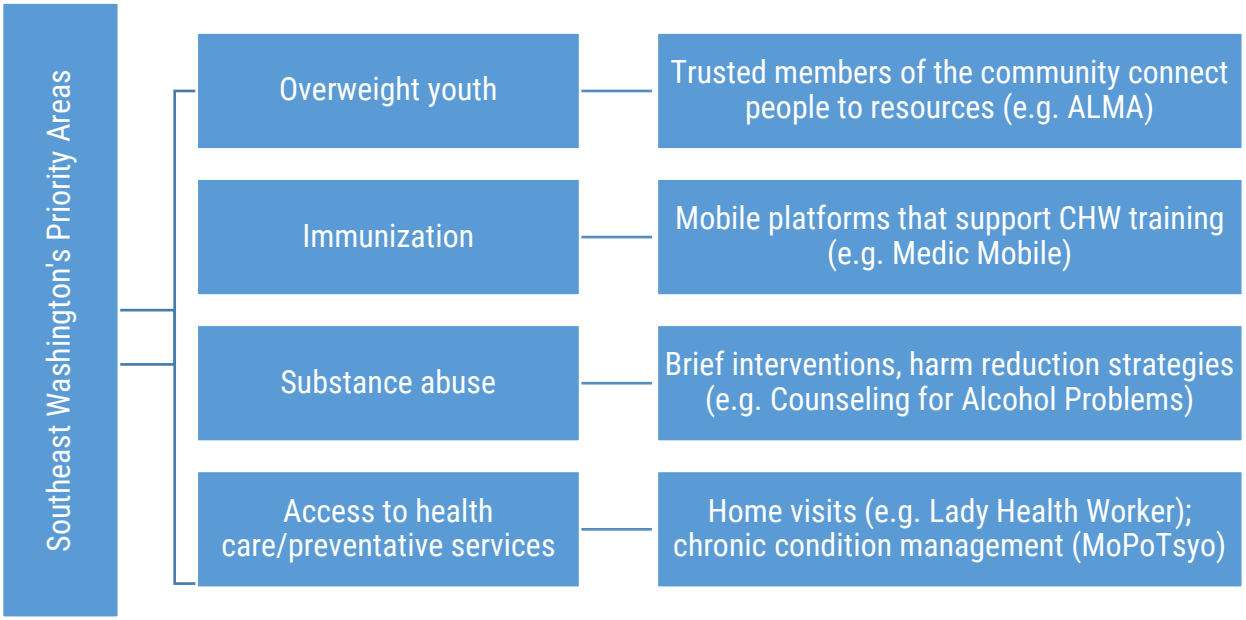


Table 3. Community Health Workers: Recommended references for additional information and sources of ideas for adaptation to the local context[12]

Author	Article Title
Costa EF, et al.	Systematic review of physical activity promotion by community health workers.[8]
Ruddock JS, et al.	Innovative strategies to improve diabetes outcomes in disadvantaged populations.[9]
Sarkar A, et al.	Community based reproductive health interventions for young married couples in resource constrained settings: a systematic review.[18]
Lunsford SS, et al.	Supporting close-to-community providers through a community health system approach: case examples from Ethiopia and Tanzania.[19]
Nguyen TT, et al.	Breast cancer screening among Vietnamese Americans.[20]
Mangham-Jefferies L, et al.	Erratum: Cost-effectiveness of strategies to improve the utilization and provision of maternal and newborn health care in low-income and lower-middle-income countries: a systematic review.[10]
Brown HS, et al.	Cost-effectiveness analysis of a community health worker intervention for low-income Hispanic adults with diabetes.[11]
Johnson SL, et al.	Community health workers as a component of the health care team.[21]
Sprague L.	Community health workers: a front line for primary care?[22]
Naimoli JF, et al.	Strategic partnering to improve community health worker programming and performance: features of a community-health system integrated approach.[23]
Kok MC, et al.	How does context influence performance of community health workers in low- and middle-income countries? Evidence from the literature.[24]
Mutamba BB, et al.	Roles and effectiveness of lay community health workers in the prevention of mental, neurological and substance use disorders in low and middle income countries: a systematic review.[25]
Xavier D, et al.	Community health worker-based intervention for adherence to drugs and lifestyle change after acute coronary syndrome: a multicentre, open, randomised controlled trial.[26]
Galiatsatos P, et al.	Health promotion in the community: impact of faith-based lay health educators in urban neighborhoods.[27]
Rhodes SD, et al.	Lay health advisor interventions among Hispanics/Latinos: a qualitative systematic review.[28]

Mobile Health

Implementation of mHealth is a key global health strategy that could contribute to improved health in rural Washington communities.

Mobile health, or mHealth, is a type of intervention that uses mobile phones and other information technologies to help improve medical care, medication adherence, health education, and promote positive health outcomes. We are advocating for the expansion of broadband services to underserved rural communities in our report to the Washington State Legislature. We are optimistic that change is around the corner since Governor Jay Inslee signed a bill into law in May 2019 that creates a competitive grant and loan program to fund broadband programs in rural areas.[29] This Senate Bill (5511) is intended to expand affordable, resilient broadband service in unserved areas across the state. Given the prospect of improvement of broadband access in rural parts of the state, we are including mobile health technology as a recommended strategy to increase health equity in the area.

mHealth is particularly useful in increasing access to care by overcoming geographic or financial barriers, as well as using data to inform and improve processes and health outcomes. For example, mHealth is improving immunization delivery in Sub-Saharan Africa with technology that allows collaboration across all levels of healthcare, increasing the efficiency of vaccine administration to children through an electronic immunization registry. This tool is used on mobile devices and keeps track of children who are in need of vaccinations along with which ones they have not received.

mHealth in HICs is commonly utilized for managing chronic diseases and encouraging healthy behaviors through apps that encourage treatment compliance, self-care, and healthy behaviors. With a mobile device, patients can receive ongoing support from text messages, alerts, and reminders. This low cost intervention addresses access barriers and improves health outcomes in low resource areas.[30,31]

Figure 2. Examples of Mobile Health Programs that Address Southeast Washington's Health Priority Areas[32,33]

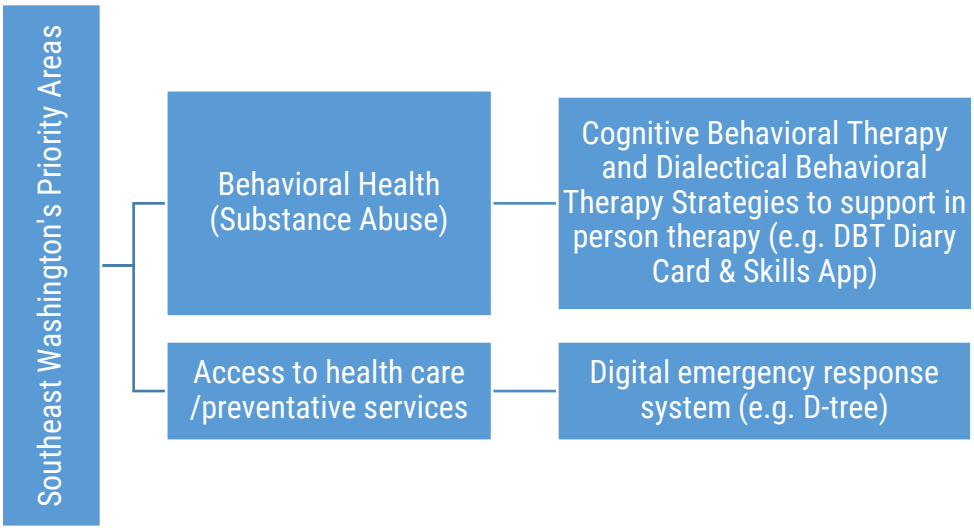


Table 4. mHealth: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Hall CS, et al.	Assessing the impact of mHealth interventions in low- and middle-income countries--what has been shown to work?[34]
Alghamdi M, et al.	A systematic review of mobile health technology use in developing countries.[35]
Davey S, et al.	Mobile-health technology: can it strengthen and improve public health systems of other developing countries as per Indian strategies? A systematic review of the literature.[36]
Xu DR, et al.	The effectiveness of mobile-health technology-based health behaviour change or disease management interventions[28-33] for health care consumers: a systematic review.[37]
Ho K, et al.	Mobile digital access to a web-enhanced network (mDAWN): assessing the feasibility of mobile health tools for self-management of type-2 diabetes.[38]
Bailey J, et al.	Sexual health promotion for young people delivered via digital media: a scoping review.[39]
Turner T, et al.	Prevention and treatment of pediatric obesity using mobile and wireless technologies: a systematic review.[40]
Labrique AB, et al.	mHealth innovations as health system strengthening tools: 12 common applications and a visual framework.[41]

Piette JD, et al.	Mobile health devices as tools for worldwide cardiovascular risk reduction and disease management.[42]
Bloomfield GS, et al.	Mobile health for non-communicable diseases in Sub-Saharan Africa: a systematic review of the literature and strategic framework for research.[43]
Elbert NJ, et al.	Effectiveness and cost-effectiveness of eHealth interventions in somatic diseases: a systematic review of systematic reviews and meta-analyses.[44]

Public-Private Partnerships (PPPs)

Public-private partnerships (PPPs) can be broadly defined as a cooperative, formal agreement between a private enterprise and public entity to provide public assets or services. Leveraging private resources and efficiencies can enhance the capacity of health systems and improve health outcomes. PPPs in LMICs have been used to address a wide range of health care needs, including primary health care and hospitals to maternal child health and tropical disease. PPPs in high-income countries (HIC) tend to support universal access to health systems and services and increase health promotion efforts to combat chronic diseases. Harnessing the expertise and resources of the private sector to solve public-sector challenges and inefficiencies to achieve public health goals is one of the most appealing aspects of PPPs.

Table 5. Public-Private Partnerships: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
World Bank Group.	What are public private partnerships? Public-private partnership in infrastructure resource center website.[45]
Roehrich JK, et al.	Are public–private partnerships a healthy option? A systematic literature review.[46]
Hayes SL, et al.	Collaboration between local health and local government agencies for health improvement.[47]

Promote Community Asset Building through Community-Based Organizations

Community based organizations (CBOs) serve as coordinating bodies for community-based research, communication outlets in hard-to-reach populations, points of contact for service provision, and local advocates and implementers for large health programs. CBOs can increase access and coverage of preventative and curative services, promote well-being of communities through skill building, and increase

community self-efficacy. CBOs may support asset building by scaling up prevention and treatment efforts, ultimately maximizing care and health for a target population.

CBOs in LMICs primarily focus on addressing health issues in rural communities, including financial health. Community members have formed CBOs by combining their wealth collectively to form a "financial support group". These funds are used to increase the financial stability of the community based on specific needs. This contrasts with their implementation in HIC. CBOs in HICs are diverse in purpose and structure. Many of them function as "community health centers," providing specific health programs or activities and assist with accessing services.[48]

Table 6. Promote Community Asset Building Through Community-Based Organizations: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Wilson MG, et al.	Community-based knowledge transfer and exchange: Helping community-based organizations link research to action.[49]
Brasington A, et al.	Promoting healthy behaviors among Egyptian mothers: a quasi-experimental study of a health communication package delivered by community organizations.[50]
Griffith DM, et al.	Organizational empowerment in community mobilization to address youth violence.[51]

Social Media and Mass Media Health Campaigns

Mass media campaigns target widespread behaviors that are exacerbating poor health outcomes, and increase health education in a community. This strategy focuses on raising awareness about a specific health issue or behavior, and providing education and information regarding treatment or prevention. For example, in LMICs bed net delivery is a "health service supply campaign" aimed to protect vulnerable populations against malaria.[52] In HICs, however, public health information is delivered to widespread audiences in with the purpose of creating social awareness around health topics such as, smoking, HIV, and preventative health screenings.[53,54]

There are a few key components to leading a successful health campaign. Some successful strategies include (1) understanding the targeted audience, (2) saturating the network with the intended health message, (3) coordinating the campaign with a widespread intervention, and (4) having sufficient funding to sustain the efforts. While mass media campaigns often require many upfront costs, it is seen as a relatively effective way to target a specific health behavior change to a population.

Table 7. Social and Mass Media Health Campaigns: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Lam E, et al.	Strategies for successful recruitment of young adults to healthy lifestyle programmes for the prevention of weight gain: a systematic review.[55]
Verheijden MW, et al.	Changes in self-reported energy balance behaviors and body mass index during a mass media campaign.[56]

Linking Economic Development and Wealth

Improving access to income and income-generating opportunities can free up household wealth to invest in nutrition and health care, in turn improving household well-being and health outcomes. In low- and middle-income countries (LMICs), health and development programs are often funded by external donors and managed locally by nongovernmental organizations (NGOs) and CBOs. Some examples of global economic development strategies include increasing income from cash transfers, changing the tax system, creating jobs, and providing microfinance and micro-credit interventions. This strategy may contribute indirectly to improved health by reducing anxiety and improving quality of life for communities. G2L's Food Innovation Network (FIN) program is one example of how HICs work to increase economic development by providing financial assistance to individuals who are seeking to start their own food business (www.foodinnovationnetwork.org). Programs such as these in HICs promote economic stability by creating jobs in low-income communities.

Linking Primary Health Care and Public Health

Linking primary health care and public health helps to improve integration and efficiency in health service delivery. It integrates population-based health services with primary-care delivery systems and vice versa. For example, a family may take their child in to the clinic to receive care for asthma, and at that appointment be connected with community resources to conduct home visits to advise on mitigation of environmental factors that exacerbate asthma.

In many LMICs, providing primary health services is the responsibility of the health ministry and there is little to no separation between primary care and public health.[57] However, the American public and private systems have divided responsibilities, often resulting in silos. One way to link public health and primary care in HICs is to have multiservice centers provide routine healthcare and connect individuals to social support programs.

Integrating primary care and public health is shown to improve childhood immunization coverage, improve health outcomes for those suffering from chronic diseases, improve access to health care and reduce health disparities. It also supports the capacity and coordination in delivery of preventive and emergency services.

Table 8. Linking Delivery of Primary Health Care with Public Health Services: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Dudley L, et al.	Strategies for integrating primary health services in middle- and low-income countries at the point of delivery.[58]
Kringos DS, et al.	How does an integrated primary care approach for patients in deprived neighborhoods impact utilization patterns? An explorative study.[59]

Coordinated and Patient-Centered Primary Care

Patient-centered primary care improves quality of care and access to care through service integration and innovative service delivery. This work improves the continuity and transition of care through an integrated, patient-centered approach. Coordinated care models improve the utilization and outputs of health care delivery and improve linkage to services for people with chronic illness (e.g. cancer and diabetes). Coordinated care may also increase access to mental health services, improve the patient experience of transitioning between care, and integrate service delivery. Primary care integration models have streamlined health care delivery and improve comprehensive care management, reducing costs to patients and providers and increasing collaboration between health specialists and generalists. For example, LMICs create "a single point of care" that delivers both specialty and primary care to patients with specific health needs, whereas patient navigators in HIC help to coordinate communication between primary, specialty, and social service providers.[60,61]

Table 9. Coordinated and Patient-Centered Primary Care: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Reilly S, et al.	Collaborative care approaches for people with severe mental illness.[62]
Gardiner C, et al.	Exploring the transition from curative care to palliative care: a systematic review of the literature.[63]

Beaglehole R, et al.	Improving the prevention and management of chronic disease in low-income and middle-income countries: a priority for primary health care.[64]
Jenkins R, et al.	Health system challenges to integration of mental health delivery in primary care in Kenya- perspectives of primary care health workers.[65]

Community Mobilization and Community Leadership Development

Community mobilization recognizes the central role that individuals and groups have in becoming leaders and champions of their own health. Communities can define their greatest health challenges and specify their needs to national health systems, donors, and external actors. For example, mobilized communities in LMICs have a significant impact on disease control. Engagement models have empowered communities to promote education, participation, and prevention of diseases such as malaria; similar approaches may be helpful in addressing non-communicable diseases of concern in rural Washington.[66,67] Community mobilization in HICs focus on empowering communities to take charge of their health and promote equity through activism. Interventions vary from being self-lead to program-lead health promotion.[68] This strategy is a cost-effective way to reduce health risks and improve long-term health outcomes among community members, especially when members of disadvantaged communities are engaged in public health initiatives.

Community leadership development can support a community's ability to effectively address its own needs. Leadership can also facilitate problem solving and overcoming challenges within one's community. Bottom-up programming tends to focus on concepts of community empowerment, while top-down programming is more associated with disease prevention efforts by involving groups in key health issues. The types of engagement exist on a spectrum, including informing, consulting, collaborating, partnering, empowering and leadership development. Engaging the community in health interventions tend to have a positive impact on health behaviors, self-efficacy, and perceived social support outcomes across various conditions.

Table 10. Community Mobilization and Leadership Development: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Laverack G.	Improving Health Outcomes through Community Empowerment: A Review of the Literature.[69]
O'Mara-Eves A, et al.	Community engagement to reduce inequalities in health: a systematic review, meta-analysis and economic analysis.[70]

O'Mara-Eves A, et al.	The effectiveness of community engagement in public health interventions for disadvantaged groups: a meta-analysis.[71]
Sallnow L, et al.	Understanding community engagement in end-of-life care: developing conceptual clarity.[72]
Fawcett SB, et al.	Using empowerment theory in collaborative partnerships for community health and development.[73]
Milton B, et al.	The impact of community engagement on health and social outcomes: a systematic review.[74]

Gender Integration

Gender norms, roles and relations are powerful determinants of the health and social and economic well-being of individuals and communities around the world. Gender inequality continues to have a negative impact on many global health outcomes. These power imbalances contribute to unnecessary female mortality and morbidity across the globe.[75] Increasing gender equality and gender equity can strengthen health systems, improve efficiency and efficacy of health providers on issues relating to gender-based violence and can improve women's health outcomes.[24,76] Existing gender-based interventions in LMICs tend to focus on rural communities where social and health resources are limited. For example, mHealth interventions aim to empower women in rural communities by making health information, counselors, and providers more accessible.[77] Some gender integration issues in high-income countries include providing access to abortion, family planning, and sexual education. Hotlines that provide health education and referrals to social and counseling services can also increase gender equity in high-income areas.

Table 11. Gender Integration: Recommended references for additional information and sources of ideas for adaptation to the local context

Author	Article Title
Kok MC, et al.	How does context influence performance of community health workers in low- and middle-income countries? Evidence from the literature.[24]
Samb B.	Reforming country health systems for women's health.[75]
Davies SE.	A gendered human rights analysis of Ebola and Zika: locating gender in global health emergencies.[76]

PART II: SPECIFIC PROGRAMS AND TACTICS

Access to and quality of services

Access to care is a major barrier to health in rural Washington communities. Multiple factors, including geographical access, availability of providers, affordability of services, and acceptability of services fall under the umbrella term of accessibility. Understanding what influences access to care, such as socio-economic status (SES), environment, and availability of transportation, is important when considering ways to increase access to care in communities.

This section of the report provides examples of specific programs and tactics used to improve access to care in other countries. It is intended to be used as inspiration to build on already existing community assets. Some of the examples are sourced from the U.S., and are included in the report due to the opportunities to leverage current state or university partnerships and/or expand upon interventions that are already tested as effective with similar target populations.

Behavioral Health

Despite an abundant need, rural Washington communities are in short supply of trained behavioral health workers. After scanning the literature and interviewing key experts in the field of global mental health, three main tactics rose to the surface as evidence-based practices that have been successful in low resource populations in other countries that could help bridge this gap locally: (1) task-sharing/task-shifting, (2) mHealth and teleconsultations, and (3) integrating task-sharing and mHealth. While these approaches are regularly implemented in the US, lessons from implementation of these strategies or tactics in low-resource communities elsewhere may contribute to efforts to improve behavioral health in rural Washington communities.

Implementation of task-shifting/sharing programs is a key global health strategy that could contribute to improved health in rural Washington communities.

Task-sharing/Task-shifting

Task shifting, also known as task sharing, is a frequently used strategy in global mental health that may be adapted to address unmet mental health needs in rural and other low-resource areas.[78,79] This approach trains lay people to deliver care to patients with mild to moderate mental or behavioral health disorders. Typically, this approach is integrated with the CHW model where trusted members of the community are trained to

implement very structured, skill-based interventions to support positive mental/behavioral health outcomes in the community.

The Friendship Bench in Zimbabwe is an evidence-based example of training lay workers to support patients presenting with depressive symptoms. This intervention trained grandmothers as LHWs to use problem solving training (PST) and cognitive behavioral therapy (CBT) in a culturally sensitive manner to improve mental health symptoms. Patients who screened for common mental disorders were referred to the "Friendship Bench" intervention where they received six sessions of individual problem-solving therapy delivered by a trained, supervised LHW. Participants were invited to participate in an optional six-session peer support program. In a cluster randomized clinical trial of 573 randomized patients with common mental disorders with symptoms of depression, the intervention arm of the study had significantly lower symptom scores after six months compared with the control arm that received enhanced usual care.[80]

An adaptation of The Friendship Bench approach could be an effective, low-cost way to provide culturally appropriate support in a community setting. Task-sharing/shifting examples provide a "recipe-based approach" where lay health workers can provide more patient-centered care via a manualized/structured program. (Manualized refers to documented in a procedure manual.) This approach is common throughout low-and middle-income countries (LMIC) and could be adapted and implemented in rural Washington communities to increase access to behavioral health care services for patients with mild to moderate common mental health issues.

Thinking Healthy Programme (THP) is an evidence-based psychosocial intervention for perinatal depression that was adapted for peer-delivery. It uses CBT techniques, such as building empathetic relationships, focusing on the present moment, behavior activation and problem solving. The program is fully manualized and was designed to be delivered by LHWs/CHWs who were provided a three-day training along with monthly refresher courses and group supervision. Sessions were organized into five modules covering the period from the third trimester of pregnancy to one year postnatal. Each model focused on the mother's personal health, the mother-infant relationship, and the psychosocial support of significant others. This study demonstrates the feasibility of using peers to provide interventions in two South Asian settings.[81]

Nepal Mental Health and Development program is a community-based model for integrating mental health and development programming. The model, developed by the organization BasicNeeds, works in partnership with governments and has been implemented in nine countries. Services in Nepal started in 2010 with a focus on building capacity within existing systems of treatment through self-help groups, medication, and economic support. The program utilizes community-based health workers who conduct home visits and run follow up clinics to increase access to care within communities.[82]

Counseling for Alcohol Problems (CAP) is a brief, 15 minute, psychological treatment delivered by lay counselors to patients with harmful drinking attending routine primary health-care settings. CAP uses motivational interviewing and general counseling strategies (e.g. open ended questions, showing empathy) as well as problem solving strategies usually delivered at the primary health clinic or at a patient's home. This RCT showed that CAP delivered by LHWs was better than enhanced usual care alone, and may be cost-effective. CAP could be a key strategy to reduce the treatment gap for alcohol use disorders.[14]

Healthy Activity Program (HAP) is a brief psychosocial treatment delivered by LHWs/CHWs for patients with moderately severe to severe depression in primary health-care settings. Findings from this RCT showed that patients in HAP had significantly lower depression symptoms severity and showed better results for the secondary outcomes of disability. HAP could be a key strategy to reduce the treatment gap for depressive disorders in a cost-effective way.[83]

mHealth and Teleconsultations

mHealth and teleconsultations are another way to bridge the lack of behavioral health providers in a local context. Teleconsultations are already occurring locally, such as implementation of collaborative care in the Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI) region via the University of Washington AIMS (Advancing Integrated Mental Health Solutions) Center, and lessons from global health can expand and improve access to these technologies. For example, the AIMS Center at UW utilizes task sharing by having Seattle-based psychiatrists provide consultation to a team of care managers in more remote areas.[84,85] However, barriers to these programs, such as lack of insurance coverage of telemedicine, or poor access to broadband services in some remote areas, have added barriers to the expansion of these local programs to some rural Washington communities. To supplement this current ongoing work, we recommend considering applications of mHealth from other countries to bridge the mental health care gap.

Existing and developing mobile health technologies represent an underutilized resource in global mental health. Despite a lack of rigorous evaluations of current technologies, mobile health for mental health care could help bridge the care gap in rural Washington communities, especially when coupled with face-to-face

care. As mentioned previously, we are optimistic that Senate Bill 5511[29] will expand the availability of broadband services in underserved communities across the state. Therefore, we are including mHealth as a recommended strategy to improve health outcomes in the region. The following examples are strategies that could increase availability of services for behavioral health services that were of high need in rural Washington communities, namely to combat the high prevalence of self-harm and suicide, especially among adolescent youth.

Source 1. www.oxfordhealth.nhs.uk/blueice/research

A risk-reducing smartphone app, "BlueIce", designed for youth that self-harm or who have suicidal thoughts has been implemented in England. "BlueIce" was tested alongside traditional face-to-face counseling and was shown to help young people manage their emotional distress and urges to self-harm. The app provides a personalized toolbox of strategies founded on evidence-based CBT and dialectical behavioral therapy (DBT) approaches that can be accessed at any time. It includes a mood diary, menu of personalized mood-lifting activities, and automatic routing through safety checks to delay or prevent self-harm. Mood lifting activities include a personalized music library of uplifting music, photo library of positive memories, physical activities, mood-changing activities, audio-taped relaxation and mindfulness exercises, identification and challenging of negative thoughts, a contact list of key people to call or text, and distress tolerance activities (informed by DBT). After using the mood-lifting section, the young person is asked to rerate their mood, and if the urge to self-hard has not reduced, they are automatically routed to emergency numbers they can call. At the end of the study, 88% of the users wanted to keep the app.[86]

While this app is currently only available to Child and Adolescent Mental Health Service providers associated with the U.K. National Health Service, a similar approach could reduce risks among youth that self-harm in rural Washington communities. An app like this one could be used as resources for social workers, counselors or teachers to recommend for high risk students in schools. However, it is important to recognize that this is supportive when applied in tandem with face-to-face therapy provided by a mental health worker.

mHealth technology has been used to reinforce skills offered in mental health therapies (e.g. CBT & DBT)

Text messaging as an adjunct to CBT, aimed at increasing CBT homework adherence, improving self-awareness, and helping track patient progress using CBT for depression. In this intervention, daily text messages corresponded to themes of a manualized group CBT intervention. mHealth strategies included tracking both positive and negative thoughts, tracking pleasant activities, tracking of positive and negative contacts, and tracking of physical well-being. This intervention has been pilot tested with low-income Spanish

and English-speaking patients. The results demonstrated that participants responded at a rate of 65% to text messages, and they reported overall positive experiences.[87]

DBT Diary Card & Skills Coach app, was developed by psychologist and UW professor Marsha Linehan, PhD. This smartphone application was designed to help people live mindfully, manage emotions, improve relationships and tolerate distress. It is recommended for people learning DBT, currently working with a DBT clinician, or former DBT patients. The app provides support and reference materials for users who would like to implement DBT practices into their everyday life. There is a "coaching" section of the app that guides users through common DBT practices such as practicing tolerance skills while experiencing difficult emotions, using strategies to manage relationship tensions and/or conflict, and DBT techniques to manage intense emotions like anger, sadness, loneliness, and feat. The app also provides users with graphics that depict their use of DBT skills over time and is readily available on the iTunes store.[32]

Bullying & Mental Health

Suicide ideation, suicide attempts, depression and anxiety, and other mental health concerns, are associated with one of Southeast Washington's health priority areas: bullying. Bullying victimization and suicide attempts are highly prevalent among school-aged children globally. Bullying is also associated with poorer psychosocial adjustment in children.[88] One study from 48 countries found that, "those who were bullied are at approximately 3-fold higher odds for suicide attempts compared with those who were not bullied."[89] However, school-wide bullying campaigns have proven to be effective to prevent bullying. One meta-analysis of 44 evaluations showed that on average, bullying decreased by 20-23% and victimization decreased by 17-20% upon implementation of anti-bullying programs in schools.[90] This meta-analysis found that more intensive programs (i.e. holding parent meetings, having firm disciplinary methods, and improved playground supervision) tend to be more effective. Peer mediation, peer mentoring, and encouraging bystander intervention on the other hand increased victimization and is not a recommended strategy. Policy-makers should draw upon high-quality evidence-based programs when developing new anti-bullying initiatives. Bullying is a risk factor for adolescent suicides and coordinated approaches to reducing the prevalence of bullying among youth should be a priority for schools and communities worldwide.

Other applications of mHealth in mental health include disease awareness and self-monitoring

The following mHealth approaches may be adapted in rural Washington to support mindfulness and general treatment adherence.

MONARCA system, from Denmark, uses personal health monitoring and a feedback system to address the challenges of self-management of mental illnesses. This system was designed to support treatment adherence and symptom management for patients suffering from bipolar disorder. The MONARCA system lets patients enter self-assessment data, collects sensor data, provides feedback on the data collected, and helps them manage their medicine. The results from a 14-week trial from 12 patients were positive. Compared to paper-based forms, the adherence to self-assessment improved, the system was considered user-friendly, and it was perceived to be very useful.[91]

Source 2: www.imedicalapps.com

Mobilyze, "A therapist in your pocket," provides didactic information, available either over the phone or via a web browser that teaches the patient the kinds of things they would learn from a therapist. It also provides tools that support activities, which are typically prescribed in psychotherapy, such as monitoring activities to see relationships between activities and mood, scheduling positive activities, identifying ways in which the patient avoids engaging in activities that are likely to improve mood, and developing strategies to overcome that avoidance.[92]

Integrating Task-Sharing and mHealth

Integrating task-sharing and mHealth is a promising strategy. Incorporating elements of a low-cost technology that most communities have access to along with a community or family member who is willing to support each other's health in a structured way could help improve behavioral health outcomes in rural Washington communities. The WHO has developed a set of tools and training manuals for non-specialized health-care providers that could improve and increase access of mental health intervention delivery by non-specialized health workers. This section provides a summary of the WHO evidence-based mhGAP tools, and then gives an example of another intervention implemented that integrates task-sharing and mHealth in rural China.

mhGAP (Mental Health Gap Action Progamme), is a set of tools and training manuals for non-specialized health-care providers to increase access to comprehensive information to help them diagnose and treat a range of mental, neurological and substance use (MNS) disorders including depression, epilepsy and dementia. This evidence-based WHO program is targeted at CHWs, first level referral centers, first points of contact with the healthcare system, and general physicians and nurses. The tools include a training and intervention guide and a mobile app to increase the availability and access to mental health services in low resource settings. The program's objective is to bridge the MNS treatment gap by providing training and tools

to non-specialists that can use the tools to assess, manage and follow-up people with MSN conditions. The modules in the app include a description and guidance on assessment and management of these mental health condition. The mHealth tool can be downloaded free of charge. It is currently available in English and other languages will be available soon.[93]

One example from the mhGap guidelines is called "Problem Management Plus" or PM+, a WHO recommended 5-session, psychological intervention program delivered by trained non-specialists that addresses common mental disorders. This intervention uses PST, counseling, plus stress management, behavioral activation and social support provided by a trained non-specialist. This study is evaluating the effectiveness and cost-effectiveness of PM+ in a specialized mental health care facility in Pakistan.[94]

LEAN (Lay health supporters, E-platform, Award, and iNtegration), combines both community/lay health workers and mobile technology to improve medication adherence among people with schizophrenia in a resource-poor community in rural China. The two-arm randomized controlled trial of 278 community-dwelling villagers demonstrated that patients engaged in LEAN improved medication adherence by 27% (0.61 versus 0.48 in the control group). Further, there was a substantial reduction in the risks of relapse and re-hospitalization with the intervention.[37]

The LEAN intervention included a lay health worker from either the family or community, an E-platform that texted two daily messages to both the patients and their lay health supports reminders to take their medicine along with occasional messages providing a 14-item checklist about relapse and medication side effects. The lay health supporter was expected to text back "1" if any item was checked, and then a project coordinator would follow up with a phone call. A group of master's and doctoral students in public health and medicine were tasked to produce the messages, mainly adapting contents from evidence-based sources. A senior psychiatrist reviewed and approved messages for use. Every week the project coordinator prepared a texting report based on the server data that included a list of families who texted back more frequently than the past month to confirm the taking of medication. The mental health administrators used the lists to award this improvement with a token gift (e.g. bar of soap or congratulatory text) on a monthly basis. Texting also served as a communication tool that integrated the efforts of lay health supporters into the existing health system. For example, lay health supporters may text the village doctors if signs of relapse are detected. The project coordinator would then schedule an appointment with the psychiatrist and texted appointment details to the patient's family.[37]

One key element of this intervention is that it a combination of behavior change strategies from the health belief model that combines task sharing (integrating LHWs) and mHealth to increase medication adherence

using cues to action. While the target population was people with schizophrenia, this intervention could be adapted for people with other behavioral health disorders like clinical depression, bi-polar disorder, or people with substance use disorders. Overall, a low-cost, low-burden, easy-to-implement and easy-to-use intervention like LEAN could be adapted in rural Washington communities to improve behavioral health treatment adherence.

General Access to Healthcare other than Behavioral Health

In rural Washington communities, the scarcity of health care providers is not restricted to behavioral health. The strategies summarized in this section target the following two community concerns related to access to care: geographical access, and availability of providers.

Geographical Access

Rural communities experience geographical barriers to accessing healthcare due to the lack of locally available services. Costs associated with transporting to and from medical care can be a barrier for rural communities, especially those who are financially insecure. The following approaches are ways to increase access to care by decreasing a transportation cost burden.

Transportation and Service Vouchers

Innovative funding mechanisms, like vouchers, are shown to minimize financial costs of transportation to increase access to care. In Cambodia, vouchers are provided to eligible low-income women. These vouchers are provided as detachable coupons, which entitle them to free health services, transportation costs for five round trips between her and her home and the health center, and referrals from the health center to the hospital, if complications occur.[95]

Another community-based transportation study to improve access to maternal health services occurred in Uganda from 2009 to 2010. Voucher booklets containing twelve transportation vouchers and seven service vouchers were given to over 12,000 pregnant mothers. The transportation vouchers allowed mothers to arrange local transport from a community member with a motorcycle or bicycle who agreed to participate in the study. Special vouchers were given to pregnant women with high-level complications for taxi or ambulance transport. After transporting a mother to and from healthcare clinics for prenatal, delivery, and/or postnatal care, the contracted transporter could redeem the voucher for payment. The overall result was a dramatic increase in utilization of maternity care and economic benefit within the community of transportation providers. The project showed that low-cost, community-based transportation options are available and can improve the accessibility of maternal services and health outcomes.[96]

mHealth app to organize emergency transport and improve healthcare delivery systems

D-tree is a digital global health company that uses technology to provide an emergency referral system by utilizing existing transportation among community members in Tanzania. When ambulances are unavailable, a 24-hour call center, along with a mobile app, manages referrals for transport to drivers from a database. The call center also has a triage system, which helps to assess what type of responses require elevation to a higher level of care. Drivers are paid through a mobile money system.[33]

Use of mHealth by Community Health Workers

CHWs are a cost-effective way to increase the availability of lower-level health services in communities. CHWs or LHWs are utilized across the world to overcome challenges related to availability of providers. The following approaches provide examples of how CHWs have been integrated into other communities to increase access to care.

India utilizes CHWs trained to conduct home visits to all newborns in the first week of life, counsel mothers on optimal essential newborn care practices, identify illnesses, treat mild illness, and refer newborns with danger signs. This service is provided through a program called Integrated Management of Newborn and Childhood Illness (IMNCI). IMNCI also addresses cultural barriers through community mobilization partnership activities, such as women's group meetings to learn current practices and promote essential newborn care practices among trusted older women in the community. These group meetings enhance health literacy and problem solving, two effective ways of reducing neonatal mortality. The results of the program included improvements in home-based newborn care practices.[97]

Pakistan employs CHWs in rural Pakistan via a program called The Lady Health Worker. The Lady Health Worker program focuses on evidence-based, low-cost interventions for maternal and child health, including oral rehydration solution, immunizations, case management of acute respiratory infections, growth monitoring, and referrals to higher level health facilities. Lady Health Workers provide basic services and family planning, refer patients to nearby clinics, organize health committees for men and women, and increase uptake of public health initiatives. The Lady Health Workers serve as a link between community and clinical settings, subsequently strengthening health-care systems and increasing access to care for remote and low-income communities.[17,98]

Rural Myanmar is filling primary healthcare service gaps in hard to reach areas with volunteer community health workers who are trained through the Global Alliance on Vaccine and Immunizations in an effort to support health system strengthening. The health workers are selected by a village health committee and trained to support primary care providers in midwifery, immunization, sanitation, and health education. In

2013, a questionnaire survey was given to 715 CHWs from 21 townships in Myanmar to assess profiles, program efficacy, and any necessary improvements. The results demonstrated the value of CHWs in improving health and access to care. The study provided recommendations for including CHWs in future strategic plans, including a plan for further training and ongoing support.[99]

Medic Mobile, a toolkit for health workers in rural communities, provides open-source software that supports patient care. The mobile software provides resources, training, and workflows for lay health workers to support community based health programs. The toolkits are specific for case use with antenatal care, postnatal care, childhood immunizations, community care management, malnutrition, managing health worker performance, and outbreak surveillance. Medic Mobile has been used in over twenty countries since 2010.[13]

PART III. ADDITIONAL GLOBAL HEALTH RESOURCES

Strategy: Community Health Workers (CHWs)		
Health Barrier: Access to Behavioral Health Services, including Substance Abuse		
Name, Place	Description	Reference
ImpACT, South Africa	Improving AIDS Care after Trauma (ImpACT) is a coping intervention for HIV-infected women with sexual abuse histories that was evaluated for feasibility and potential efficacy in a public clinic in Cape Town, South Africa. In this study, participants were randomly assigned to standard of care (three adherence counseling sessions) or ImpACT (three adherence counseling sessions plus four individual and three group sessions). Preliminary findings suggest ImpACT has the potential to reduce post-traumatic stress disorder symptoms and increase antiretroviral therapy adherence motivation. This study demonstrated that a trauma-focused, culturally-adapted individual intervention delivered by a non-specialist in the HIV care setting is feasible and acceptable.	https://link.springer.com/article/10.1007/s10461-017-2013-1
ALMA, U.S.	Amigas Latinas Motivando el Alma (ALMA) is an asset-based health promotion intervention focused on addressing Latinx mental health. The ALMA intervention uses lay health advisors (LHA), called promotoras, who are indigenous members of a population. Promotoras are trained to provide health promotion activities for other members in their community. This intervention has decreased depressive symptoms and increased stress management among participants.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4137773/pdf/nihms531741.pdf
Task shifting mental health	A task shifting mental health program for an impoverished rural Indian community found that community health workers were able	https://www.sciencedirect.com/

program, India	to identify and refer individuals with mental health disorders to a community hospital. This study demonstrated that referred patients who were treated by the existing medical program experienced significant improvement in daily function.	science/article/pii/S1876201815001331?via%3Dihub
Harm Reduction Strategies		
Mujer Mas Segura (Safer Women), Mexico	Mujer Mas Segura (Safer Women), is a harm reduction intervention tested as a randomized control trial in Mexico. The study tested if an interactive harm reduction education session would reduce incidents of HIV/STI and needle sharing among female sex workers. This HIV and sexual risk reducing interactive intervention tested one hour long session of interactive injection risk and interactive sexual risk for women in Mexico who use substances. Of the 584 women in the study, HIV/STD incidence was 62% lower in the group that received the interactive intervention versus the didactic intervention. Overall, the interactive injection risk intervention was associated with declines in receptive needle sharing and injection risk index score.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3681783/
Women-Focused Intervention, South Africa	This women-focused, empowerment-based HIV intervention was designed to reduce sexual risk, substance use, and victimization among at-risk, underserved women. The study tested two private one-hour sessions held within 2 weeks that was intended to equip women with increased knowledge about alcohol and other drug use associated with sexual risk and victimization, increase personal power by reducing substance use, increase condom use competency, increase communication skills with partners, and teach specific violence prevention strategies. Women also completed a personalized action plan to address their individual	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3129984/

	risk behaviors and develop goals to reduce sexual risk, substance abuse, and victimization. They also received a toiletry kit and referrals to resources. Findings from the study showed that the proportion of women who reported always using male condoms increased in the women-focused group and remained stable in the control group. Participants in the women-focused group also reported fewer sexually transmitted infection symptoms at follow-up than women in the standard group. These results suggest that interventions can address factors related to gender inequality that influence condom use and sexual behaviors.	
Women's Health CoOp, South Africa	The Women's Health CoOp (WHC) intervention was a four-module intervention conducted over two sessions lasting about 1 hour each. The goal of the intervention was to increase abstinence from drug use and reduce sexual risk behaviors. The study's results showed a lower proportion of women in the WHC intervention reported not being impaired during their last sexual encounter compared to the control groups.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3657672/
Access to Healthcare		
Tribal Health Initiative (THI), Southern India	This study assessed the implementation of a community-clinic health worker approach to supporting management of hypertension in a remote Indian community. Trained community health workers (CHWs) identified hypertensive patients in the community, referred them for diagnosis and clinical management. The CHWs then followed up with lifestyle interventions and provided medications for the patients. Results from this study showed that a CHW blood pressure screening system linked to a central clinic could improve hypertension control rates.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5752612/pdf/668.pdf

Global Alliance for Chronic Diseases	In 2012, the Global Alliance for Chronic Diseases financed 15 studies in 8 low- and middle income countries to provide evidence of successful task-shifting to non-physician health workers. Throughout the pilot, community health workers managed hypertension in low and middle income countries through routine screenings, education, support, referrals, and monitoring treatment compliance. This study shows the utility of CHWs in managing chronic conditions and non-communicable diseases, especially hypertension and cardiovascular disease.	https://gh.bmj.com/content/3/Suppl_3/e001092
LEAP, Kenya	LEAP is a mobile health platform that supports the training of community health workers (CHWs) in Kenya via a public-private partnership with The African Medical and Research Foundation (AMREF) and the Government of Kenya. Community Health Workers (CHWs) are trained through AMREF's mHealth platform called LEAP, which allows them to learn at their own pace and access training from rural areas. LEAP is a sustainable and scalable mobile learning academy for health workers across Africa. It uses regular updates and peer-to-peer communication to strengthen the skills of health workers. It is intended to complement face to face training, and has shown to improve CHW engagement and reduce attrition. To date, 3,000 CHWs in Kenya have been trained using this platform that has focused on improving immunization and health care delivery.	https://amrefuk.org/uk/en/what-we-do/projects/leap-the-mhealth-platform/
mothers2mothers, Sub-Saharan Africa	Since 2001, mothers2mothers (m2m) has been addressing the pediatric AIDS epidemic in sub-Saharan Africa by training and employing HIV positive mothers as peer mentors. These "Mentor Mothers" work in healthcare facilities and provide education	https://www.m2m.org/

	around HIV transmission and prevention to other mothers living with HIV. They also are trained to promote and foster economic empowerment of their clients by improving women's ability to borrow money to finance income generating activities.	
Marie Stopes International	The Marie Stopes program provides contraceptive services to women's doorsteps. Nurses and midwives serve as the 'Avon Ladies' of sexual and reproductive health by going door-to-door to deliver contraceptive choices to women. Their outreach in remote and rural areas supports women's health in a range of free or subsidized high-quality contraception to those who wouldn't be able to access it in any other way.	https://www.mariestopes.org/
Chronic Disease Management, including Diabetes and Hypertension		
MoPoTsyo, Cambodia	Evaluation of a multi-faceted diabetes care program, including community-based peer educators from 2007-2013	
Better Hearts Better Cities, Senegal, Mongolia, Brazil	This door-to-door hyptertension care in Dakar was tested to combat the increase of hypertension and other noncommunicable diseases throughout Senegal. Better Hearts Better Cities trains CHWs how to properly identify and treat hypertension. The CHWs stop at people's homes, screens clients and writes a referral for them to go to the local health center if they are at risk for hyptension. They also provide nutrition counseling to their clients.	https://www.intrahealth.org/vital/door-door-hypertension-care-dakar-brings-pervasive-public-health-problem-light
Community-Clinic Health Worker Approach to	An NGO-Implemented Community–Clinic Health Worker Approach to Providing Long-Term Care for Hypertension in a Remote Region of Southern India. This program trains CHWs to screen, identify and link people with hypertension to a physician	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5752612/pdf/668.pdf

Hypertension, India	clinic. The CHWs also provide chronic disease management support.	
Evaluation of a training program of hypertension for accredited social health activists, India	Accredited Social Health Activists (ASHAs) were trained to support hypertension control.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5932780/
Strategy: mHealth		
Health Issue: Behavioral Health		
Ibobbly, Australia	This pilot study aimed to evaluate the effectiveness of a self-help mobile app (ibobbly) targeting suicidal ideation, depression, psychological distress and impulsivity among indigenous youth in remote Australia. A total of 61 patients received an app which delivered acceptance-based therapy over 6 weeks. Participants in the ibobbly group showed substantial and statistically significant reductions in PHQ-9 (symptoms of distress and depression), but no differences were observed in impulsivity.	https://bmjopen.bmj.com/content/7/1/e013518
Systematic Medical Appraisal Referral and Treatment (SMART) Mental Health project, India	The Systematic Medical Appraisal Referral and Treatment (SMART) Mental Health project trained lay village health workers and primary care doctors to screen, diagnose and manage individuals with common mental disorders using an electronic decision support system. The project increased access to mental health services in rural India with the use of mHealth tools. During the intervention period, there was a significant reduction in the depression and	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5370210/

	anxiety, demonstrating the feasibility and acceptability of the SMART model.	
Strategy: Public Private Partnerships		
Health Issue: Food Insecurity		
Global Alliance for Improved Nutrition (GAIN), international	Global Alliance for Improved Nutrition (GAIN) founded in 2002, is a global organization aimed at eliminating malnutrition through public-private partnerships. Their programs include workplace nutrition, adolescent nutrition, improving children's diets, and nutritious foods financing, just to name a few. GAIN's work is a collective approach which channels resources to ensure the world's most vulnerable populations have access to nutritious foods.	https://www.gainhealth.org/
Development in Gardening (DIG), international	Development in Gardening (DIG) provides agricultural resources and support to vulnerable communities in 8 different countries by establishing sustainable gardens. DIG teaches individuals how to grow their own food and how to cook nutritious meals. Their vision is to address malnutrition by increasing agriculture skills, re-purposing unused land into community gardens, and providing cooking demonstrations.	https://reaplifedig.org/
World Food Program, international	The World Food Program (WFP) has established a Home Grown School Feeding initiative in 46 countries to address childhood nutrition. The program provides local farmers with reliable incomes while insuring school aged children receive safe, nutritious meals. This approach connects schools to local farmers to increase the availability of healthy food for school aged children.	https://www1.wfp.org/home-grown-school-meals

The Hunger Project, Senegal	The Hunger Project is promoting food security and sustainability in Senegal through community food banks that allow farmers to store and process their crops. This helps farmers to be able to sell their crops at a better price rather than being forced to sell immediately. Storing crops also prevents food shortages.	https://www.thp.org/our-work/where-we-work/africa/senegal/food-security-senegal/
Health Issue: Access to quality, affordable childcare		
Toronto First Duty, Canada	Toronto First Duty, Canada, is creating integrated early learning environments and early childhood staff teams by bringing together kindergarten, child care and parenting programs into a single program. The project's goals are to support sites to create a high quality learning environment, provide a continuum of supports and services to all families and children, support parents' need for childcare whether they are at home or are earning a living.	https://www.childcarecanada.org/documents/research-policy-practice/03/07/toronto-first-duty-project
Sure Start, U.K.	Sure Start is a place-based initiative targeted at parents and children under four years of age living in the most disadvantaged areas in the U.K . Sure Start projects deliver a wide variety of services designed to support children's learning skills, health and well-being, and social and emotional development.	https://www.education-ni.gov.uk/articles/sure-start
Child and Family Centres, Tasmania	Child and Family Centres, Tasmania, were adopted in 2009 to provide early childhood services for families of children from pregnancy to age five. This pro-equity, whole-of-government approach to addressing systemic barriers to access and participation in early childhood and family support services have been rated positively thus far. Tasmanian children in Australia live amongst the most disadvantaged communities in Australia. Centres offer universal services (e.g. Child Health and Parenting	https://www.tandfonline.com/doi/abs/10.1080/03004430.2017.1297300

	Service), disability services, counseling for parents, learning services, and nurse home visiting for first time young parents. Services are provided by government, non-government organizations and by the community	
Federal Daycare Program for Working Mothers, Mexico	The Federal Daycare Program for Working Mothers began in Mexico in 2007 to subsidize community- and home-based daycare. This program was targeted for low-income mothers who otherwise couldn't afford childcare. It was a more recent expansion of a 1973 Social Security law that allowed access to childcare through a contribution-based entitlement that was financed by a 1 percent across-the-board payroll deduction. To incentivize people to open and run day care centers, the Mexican government offered to subsidize the costs. To qualify for the grant, the candidates are required to pass a psychological test and participate in training courses regarding program rules and basics of childcare. To qualify for the state subsidy, parents must be low-income, working, looking for a job or going to school.	http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/5F0320F46ECBA3BFC1257744004BB4E8/$file/StaabGerhard.pdf
Chile Crece Contigo, Chile	Chile Crece Contigo (Chile Grows With You) is, a strategy to invest in the capabilities and equalize the opportunities of children from low-income families. The policy guarantees access to preschool for children from low-income families. In this partnership, Chile remains the regulatory agency but delegates administration to non-profits, community, faith based and non-governmental organizations.	http://www.crececontigo.gob.cl/
Financial support to	France provides financial support to parents to help cover the costs of childcare services. Parents in France are compensated	https://www.americanprogress.o

parents, France	through tax allowances or transfers to which they can use to pay for different forms of childcare. This has decreased spending on daycare while increasing resources to parents who stay at home, as well as subsidies for registered (home-based) child caregivers and tax-breaks for hiring nannies. These programs are critiqued, however, due to their probability of reinforcing gender norms.	rg/issues/poverty/reports/2015/11/24/126209/moving-americas-families-forward-lessons-learned-from-other-countries/
Health Issue: Financial Insecurity		
E-Commerce, China	E-Commerce, China, a technology company (Alibaba) in China, has worked with the government to combat China's poverty and improve the country's rural economy. The group set up e-channels to enable rural entrepreneurs to sell their goods online, such as agricultural products, to cities across the nation. Supporting the supply chain through cloud computing helps develop infrastructure, offer financial services, and build a network to help farmers increase their sales. For example, Alibaba along with the UN's World Food Program, helped kiwi farmers launch a cyber store to expand their customer base and help farmers reach a new market that was difficult for them to access in the past. This initiative helps rural farmers increase their entrepreneurship with little fees and create a more favorable environment for investment.	https://www.alizila.com/alibaba-to-combat-poverty-in-china-via-e-commerce/

Summary

Three strategies commonly employed in global health —deployment of community health workers, use of mobile technology, and task shifting or task sharing of services typically provided by physicians, nurses, psychologists, and other highly trained health care professionals – emerged as the most potentially useful and transferable approaches to mitigate the impact of barriers to health identified in Asotin, Garfield, and Columbia counties. Although the context in Southeast Washington differs from the context in which many of the programs described in this report, the principles remain applicable.

While some of these approaches can address the sequelae of financial insecurity, global approaches to matters such as poverty and lack of economic development are less easily actionable at the local level in rural Washington. In many countries, enabling policies such as those related to government subsidized childcare, job creation strategies, and improving health by increasing the availability of affordable housing stock are typically implemented by national or regional governments. Local implementation of many effective global health approaches would require significant policy support at the state and national level.

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