Increasing Health Care Access in Rural Colorado:

Community-based Programs to Leverage Electronic Health Interventions

Plan for Intervention

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Throughout rural America, there are nearly 50 million people who face challenges in accessing health care. The past several decades have consistently shown higher rates of poverty, mortality, uninsurance, and limited access to a primary health care provider in rural areas. With the recent economic downturn, there is potential for an increase in many of the health disparities and access concerns that are already elevated in rural communities.

Hard Times in the Heartland, HealthReform.gov[1]

Healthy People 2020 objectives AHS-3, 5 and 6[2] strive toward improved access to health services, especially in rural areas. Specifically the goals most relevant for rural areas are laid out in Table 1. The differences between urban and rural health needs in the area of health care access are well known[3]. Numerous studies emphasize the need for greater access and integrated care in rural health care settings[4,5,6]. According to a US Department of Agriculture report[7], "both farm and rural populations experience lower access to health care along the dimensions of affordability, proximity, and quality, compared with their nonfarm and urban counterparts[8]."

Access to health services, especially in rural areas, derives from four pervasive problems[9,10]:

- Lack of insurance (individual and population)
- Distance/transport to/from the services (population)
- Health care provider availability (population – scarcity of providers)
- Individual barriers (individual perception of need)

The US Agency for Health Care Research and Quality (AHRQ) cites three barriers/facilitators that determine access to effective health care: financial ability (insurance), trusted/usual source of care, and perception of need. Particularly US Hispanic and people of incomes 200% of the Federal Poverty Level (FPL) fall below average in all three of these barrier/facilitator categories.[11] The percent of people in the US at 125% of poverty level and lower by race (Figure 1) shows the extent of health care access disparity risk.

Figure 1. People below 125% of the Federal Poverty Level (FPL), by race.
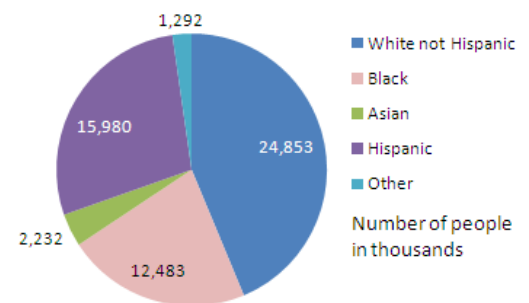
Table 1. Healthy People 2020 goals to improve health care access, especially for rural areas.

| Goal	Target	Baseline	Improvement	Data Source
AHS-1: Increase the proportion of persons with health insurance.				
AHS-1.1 Medical insurance	100 %.	83.2 % of persons had medical insurance in 2008	Total coverage.	
AHS-3: Increase the proportion of people with a usual primary care provider	83.9 %	76.3 % of persons had a usual primary care provider in 2007	10 %	Medical Expenditure Panel Survey (MEPS), AHRQ
AHS-5: Increase the proportion of persons who have a specific source of ongoing care.				
AHS-5.1 All ages.	95.0 %	86.4 % of persons of all ages had a specific source of ongoing care in 2008	10 %	National Health Interview Survey (NHIS), CDC, NCHS
AHS-5.2 Children and youth aged 17 years and under.	100 %.	94.3 % of children and youth aged 17 years and under had a specific source of ongoing care in 2008.	6.0 %.	National Health Interview Survey (NHIS), CDC, NCHS.
AHS-5.3 Adults aged 18 to 64 years.	89.4 %.	81.3 % of persons aged 18 to 64 years had a specific source of ongoing care in 2008.	10 %.	National Health Interview Survey (NHIS), CDC, NCHS
AHS-5.4 Adults aged 65 years and older.	100 %.	96.3 % of persons aged 65 years and older had a specific source of ongoing care in 2008.	3.8 %	National Health Interview Survey (NHIS), CDC
AHS-6: Reduce the proportion of individuals who are unable to obtain or delay in obtaining necessary medical care, dental care, or prescription medicines				
AHS-6.1 Individuals: medical care, dental care, or prescription medicines	9.0 %	10.0 % of all persons were unable to obtain or delayed in obtaining necessary medical care, dental care, or prescription medicines in 2007	10 %	Medical Expenditure Panel Survey (MEPS), AHRQ
AHS-6.2 Individuals: medical care	4.2 %	4.7 % of all persons were unable to obtain or delayed in obtaining necessary medical care in 2007	10 %	Medical Expenditure Panel Survey (MEPS), AHRQ
AHS-6.3 Individuals: dental care	5.0 %	5.5 % of all persons were unable to obtain or delayed in obtaining necessary dental care in 2007	10 %	Medical Expenditure Panel Survey (MEPS), AHRQ
AHS-6.4 Individuals: prescription medicines	2.8 %	3.1 % of all persons were unable to obtain or delayed in obtaining necessary prescription medicines in 2007	10 %	Medical Expenditure Panel Survey (MEPS), AHRQ

Community of Interest: The San Luis Valley

Colorado's rural area makes up over 70% of the state and provides homes to about 20% of Colorado's population, roughly 700,000 people (see Figure 2) [12]. While the poverty rate in rural areas averages about 13%

Figure 2.. Map of Rural/Urban Colorado by County.

compared to 12% in urban areas, many of the rural counties in the southern part of the state register about 20% of its population with incomes at or below the poverty level. Six rural counties with high levels of poverty make up the San Luis Valley (SLV) which lies in south-central Colorado (Figure 3). People living in these six counties (Alamosa, Conejo, Costilla, Saguache, Mineral and Rio Grande) experience difficulty accessing essential resources/services, such as water, power and health care. Particularly, access to health care, especially with regard to ability to pay, availability of services and distance/transport from/to service facilities are priorities noted by the Colorado Health Foundation [13].


Figure 3. SLV Poverty.
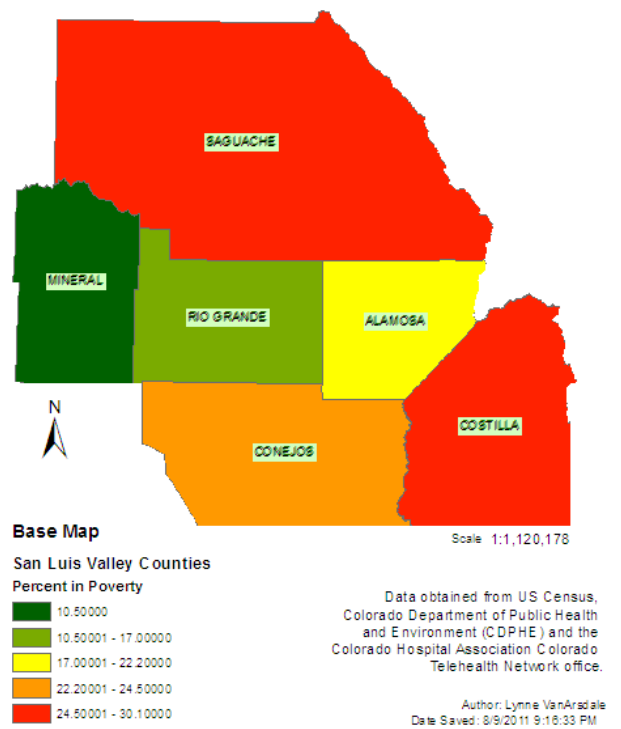
Hispanic population is dominant in the SLV. This characteristic combined with the high poverty

and rural nature of the valley makes this region of Colorado especially susceptible to poor health

care access. Though the valley reflects the strong cultural roots of the large Hispanic population,

racial diversity across the SLV counties (Figure 4) presents challenges in characterizing a local

culture upon which to base an intervention. Besides the substantial Hispanic and White

populations, the SLV encompasses many other cultural groups, such as a significant Mormon

population and a large migrant farm worker group (mostly from Guatemala, but some from

Mexico.

Figure 4. *Racial diversity in the San Luis Valley.*
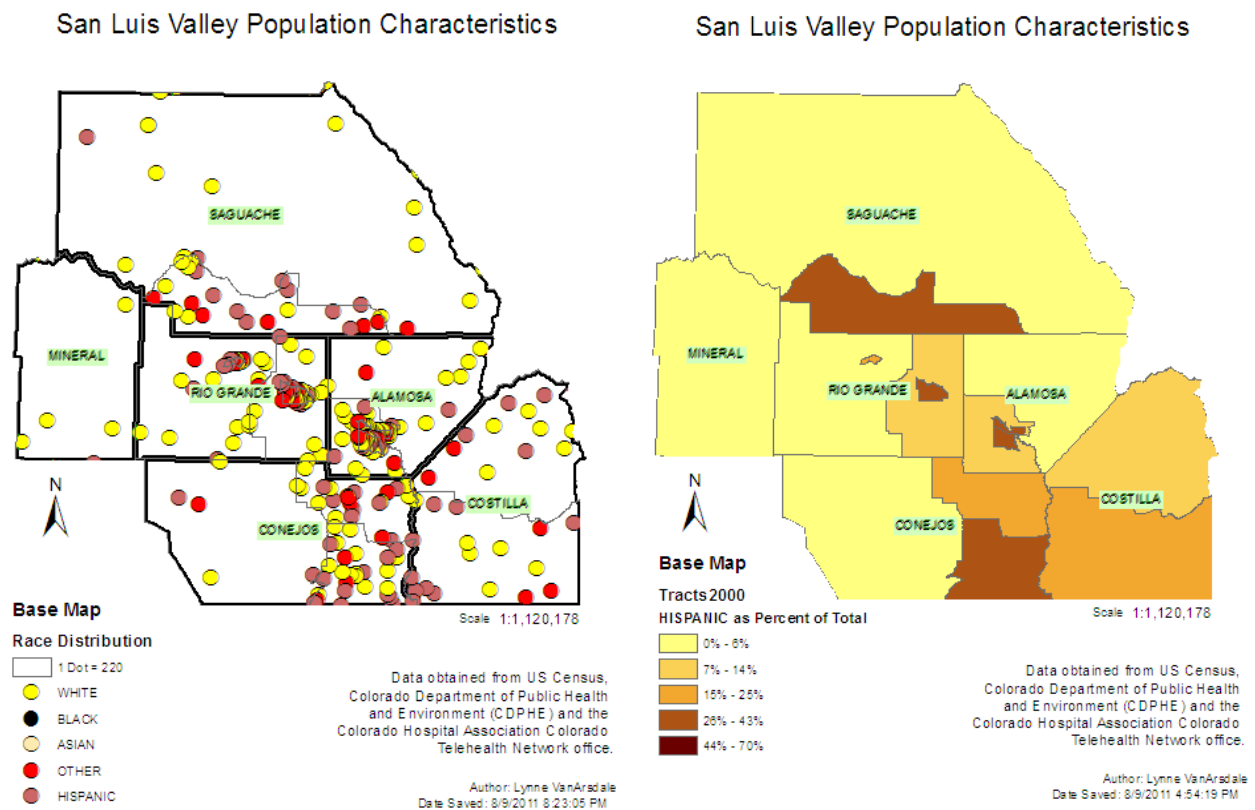
The challenge in choosing a theoretical basis for intervention and conceptual framework

lies in the diversity of the SLV and resulting difficulty to characterize local culture. The

selection of a research framework cannot depend on homogeneity of the community of interest.

Within the substantial Hispanic population in the SLV there is a high degree of social capital[14],

reducing the frequency of substance abuse and other related health conditions, but that cultural

attribute does not pervade the other cultures represented in the valley. Balancing the challenges

of diversity, this community requires Community-based Participatory Research (CBPR) that

discovers the blended nature of the diverse culture of the valley.

One cohesive characteristic of the SLV is that it is a highly collaborative community. As

evidence of this fact, the SLV Regional Medical Center, the largest hospital in the SLV, is active

in the Colorado Rural Health Center's Health Workforce Collaborative, which includes both

physical and mental health entities[15]. In 2007 the Colorado Health Foundation Vice President

Debra Thomas stated, "One thing we've learned in our time here in Alamosa is that they have

very good collaborations in dealing with issues in the health care community." Through the

Colorado Trust they form the Southern Colorado Collaborative[16] where their themes are:

> "Honesty, Hope, Resiliency & Mobilization"
> "We are the parents (ROOTS) of Pueblo and Grand Junction"
> "We get dusty, we shake it off and we GET IT DONE"

The hospitals, public health, Valley-Wide Health System, and the independent providers and

clinics collaborate to do the best job possible to provide access to healthcare, despite a scarcity of

health care workers[17], for their population that struggles with lack of health insurance and ability

to pay. This proposed research intends to leverage the collaborative nature of the SLV culture

and engage as many community constituents in SLV health care as possible for study design,

analysis and interpretation, as well as data collection, cleaning and validation.

The providers in the valley collaborate to address the diversity of health disparities that

the SLV experiences. Those disparities, compared to the average across Colorado, appear in

Table 2. Opinion in the SLV is that better access to care provides an important way to bridge these gaps.

Table 2. *Statistics on health in the San Luis Valley.*[18]

| Health Statistics for the San Luis Valley		SLV	CO State-wide	% SLV/ Colorado
Teen Births - Age 15-17 Years	% of total births born to women age 15-17 years	6.5	3	216.67%
Teen Fertility Rate - Age 15-17 Years	Rate of live births born to women age 15-17 per 1,000 women age 15-17	39.4	21.2	185.85%
Teen Births - Age 18-19 Years	% of total births born to women age 18-19 years	11.2	6.3	177.78%
Teen Fertitlity Rate - Age 18-19 Years	Rate of live births born to women age 18-19 per 1,000 women age 18-19	82.4	57.4	143.55%
Low Birth Weight	% of live births under 2,500 grams	11.9	8.9	133.71%
Infant Mortality Rate	Rate of infant deaths (under 1 year of age) per 1,000 live births	9.8	6.2	158.06%
Medicaid Prenatal Care	% of mothers who were covered by Medicaid for prenatal care	63.2	30.7	205.86%
Gap in Health Insurance Coverage	% of currently insured children age 1-14 who had gaps in insurance in past 12 mos.	15.4	7.8	197.44%
Nutrition - 5 Per Day	% of children 1-14 who ate 5+ servings of fruits and vegetables per day	37.6	27.9	134.77%
Food Insecurity	% of households with children age 1-14 that often/sometimes relied on low-cost foods in past year	36.5	27.1	134.69%
Obese	% of children age 2-14 who were obese	24.4	14	174.29%
Teen Motor Vehicle Accident Hospitalizations	Rate of hospitalizations due to motor vehicle accidents in teens age 15-19	160	124.5	128.59%
Teen Motor Vehicle Accident Deaths	Rate of deaths due to motor vehicle accidents in teens age 15-19	33.7	14.6	230.82%
General Health Status	% of adults who reported that their general health was fair or poor	20.3	12.1	167.77%
Physical Inactivity	% of adults who reported no leisure time physical activity in past 30 days	22.3	17.1	130.41%
Obese	% of adults who were obese (BMI 30+)	23.8	18.7	127.27%
Diabetes Prevalence	% of adults who had been told by a doctor that they have diabetes	7.9	5.4	146.30%
Arthritis Prevalence	% of adults who had been told by a doctor that they have arthritis	30.1	23.7	127.00%
Tuberculosis	Rate of new cases of tuberculosis	3.4	2.3	147.83%
Colon and Rectum Cancer	Age-adjusted incidence rate of colorectal cancer	50.6	42.5	119.06%
Mortality Unintentional Injury	Age-adjusted rate of mortality due to unintentional injury	65.8	45.3	145.25%
Mortality Diabetes Mellitus	Age-adjusted rate of mortality due to diabetes mellitus	25.1	17.6	142.61%
Mortality Chronic Liver Disease	Age-adjusted rate of mortality due to chronic liver disease and cirrhosis	14.1	10.7	131.78%

An illustration of the current state of health care access appears in the combination of Table 3 and Figure 4. A heavily populated area of the SLV in Saguache County has no hospital nearby and few medical care providers. The weather in the SLV can make car transportation difficult at times, exacerbating the detriment of this provider deficiency. Furthermore, though the percent of people who have some kind of health insurance coverage is close to the state average, the percent of children experiencing gaps in coverage is twice the state rate. Lastly the high percentage of adults who report fair or poor health indicates a need for better care.

Table 3. *Economic and Health Belief Model factors that affect health care access.*

		SLV (Region8)	Colorado	% SLV/ Colorado
Health Care Coverage:	% of adults that had any kind of health care coverage	77.1	84.3	91.46%
General Health Status:	% of adults who reported that their general health was fair or poor	20.3	12.1	167.77%
Child Health Insurance:	% of children age 1-14 who had any type of health insurance coverage	88.1	91	96.81%
Gap in Health Insurance Coverage:	% of currently insured children age 1-14 who had gaps in insurance in past 12 months	15.4	7.8	197.44%

Figure 4. *San Luis Valley health care locations, including telehealth sites (city).*

San Luis Valley Population / Health Care Providers
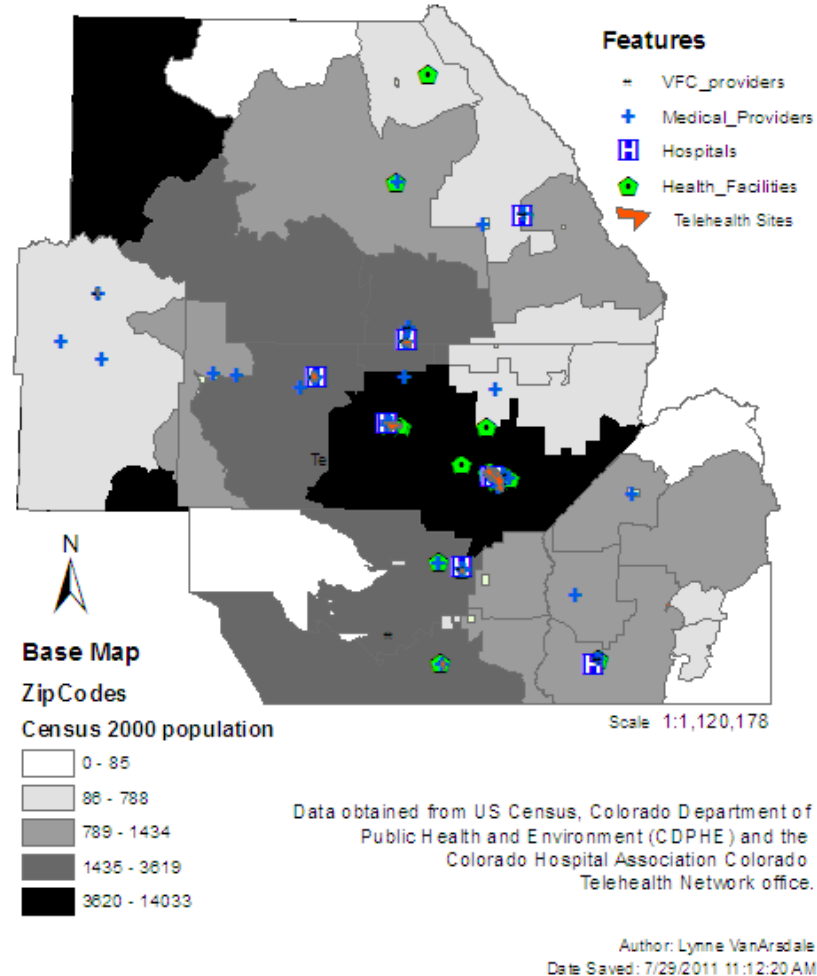
Technology that brings provider expertise closer to the patient at a low cost can improve

access to care. Three new developments in health information technology for the SLV could

enable this type of improvement in care access:

- **EMR**: the implementation of electronic health information systems (EMRs) in the

  SLV hospitals, community health organization (Valley Wide) and major clinics

- **HIE**: connection to the Colorado Regional Health Information Organization (CORHIO) network and services

- **Telehealth**: a high speed, secure telehealth network has been installed in the SLV locations listed in Table 4 and pictured in Figure 4.

Table 4. Installed or planned Colorado Telehealth Network nodes in the SLV.

Location of Colorado Telehealth Node	Address	City
Rio Grande Hospital	0310 County Rd 14	Del Norte
San Luis Valley Regional Medical Center	106 Blanca Ave.	Alamosa
(Valley - Wide Health Systems) Alamosa Dental Clinic 6/10	128 Market St.	Alamosa
(Valley-Wide Health Systems, Inc) Convenient Care	1131 Main St.	Alamosa
(Valley-Wide Health Systems, Inc) Rio Grand Medical Center	95 A West 1st Ave.	Monte Vista
(Valley-Wide Health Systems, Inc) Alamosa Family Medical Center	1710 First St.	Alamosa
Conejos County Hospital Corporation	19021 State Hwy 285	La Jara
(Valley-Wide Health Systems, Inc) Guadalupe Health Center	905 Dahlia	Antonito
Creede Family Practice of Rio Grande Hospital	802 Rio Grand Ave.	Creede
(Valley-Wide Health Systems, Inc) La Jara Dental Clinic	421 Walnut St.	La Jara
(Valley-Wide Health Systems, Inc) San Luis Health Center	233 Main St., Suite B	San Luis
(Valley-Wide Health Systems, Inc) Center Dental Clinic	220 S. Worth St.	Center
(Valley-Wide Health Systems, Inc) Cesar Chavez Family Medical Center	186 N. Hurt St.	Center
San Luis Valley Mental Health Center - Monte Vista	402 4th Ave.	Monte Vista
San Luis Valley Mental Health Center	8745 County Rd. 9 S	Alamosa
San Luis Valley Mental Health Center - Antonito	9th & Dahlia	Antonito
San Luis Valley Mental Health Center - Center	260 Worth St.	Center
San Luis Valley Mental Health Center - La Jara	322 Walnut	La Jara
San Luis Valley Mental Health Center - San Luis	409 Trinchera	San Luis

Major challenges in realizing the value of interventions such as these technology improvements are community-benefitting adoption and direction[19]. Currently there is no strategy or program in place to bridge the healthcare access gaps by using this new technology infrastructure. Various parties in the valley are in the early stages of conducting a needs assessment[20], however a valley-wide effort has not been organized.

Theoretical Basis for Intervention

This plan addresses the opportunity to improve access to healthcare in the San Luis Valley by using a community-based approach to fully leverage and adopt their new health information technology infrastructure. This intervention will be designed to address major causes of poor access to health care which include:

- External/environmental/social influences related to lack of ability to pay

- Shortage of health care professionals

- Distance to health care points of service cause health care access problems.

Telehealth leveraging good information from a solid electronic medical record and the ability to securely share information between providers empowers an effective way to bring health care closer to the patient, addressing the third bullet above, as well as increasing the pool of health care providers by making remote health care providers available to deliver services through telehealth consultations,[21][22]. Telehealth can also improve access to care by providing mechanisms for primary data input to an electronic medical record and health information exchange data warehouse, such as medical device interfacing that enables home care.

Studies in rural areas of Australia[23] and studies by the US Veterans' Administration[24] show that community-based design for telehealth interventions effectively improves two of the three these determiners of access to health care. These community-centric interventions are preferred over those designed without community participation because the community-centric interventions provide locally attractive ways of cutting the cost of care, which improves the likelihood of new technology adoption. This plan therefore proposes community-based interventions, as illustrated in Figure 5.

The community consists of two segments that engage with the new technologies in different ways. Health care providers resist the introduction of technologies for various reasons, many of which relate to disruption of productivity[25]. Health care

Figure 5. *Model of Intervention.*
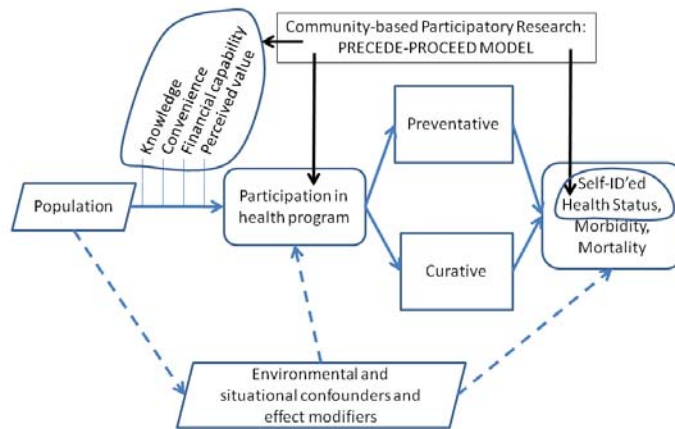
recipients resist new technologies if they don't fit in with cultural norms and needs[26,27]. Both segments may also resist new technologies due to a fear of technology itself[28,29].

The Diffusion of Innovations Theory[30] provides a useful model upon which to base intervention in this context of expected resistance to new technology. This diffusion model explains full productivity/value-realization of an innovation by a series of adoptions by groups that vary in their willingness to accept innovation (see Figure 6).

Figure 6. *Diffusion of Innovations categories.*
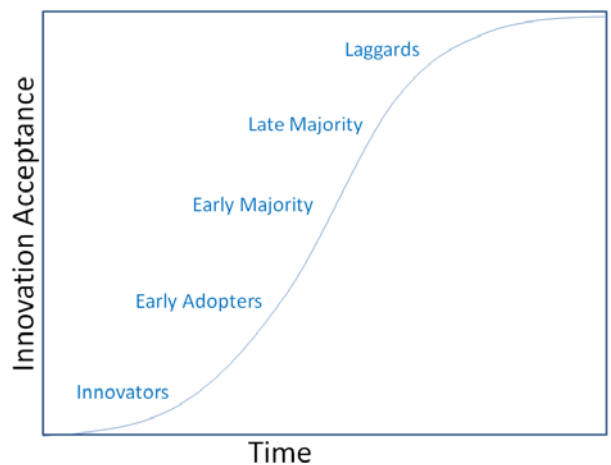
The determinants of adopting the new technologies that address health care access are lack of the five stages of diffusion theory's adoption process:

Knowledge	In general the community needs to know about the benefits that telehealth, EMR and HIE can deliver, as well as the changes that they will need to make in order to realize those benefits
Persuasion	For adoption to occur, those introducing the new technologies to the community must first determine community needs, create stories that convey how the technologies will

	meet those needs and ask for the community to adopt the technologies based on the promised benefits
Decision	The decision to adopt becomes ultimately individual, but communities can drive policies that will influence individual decisions
Trial	The community pilots small programs that reflect the decisions and build knowledge and confidence that will drive increasing success over growing iterations.
Adoption	At a certain point the technologies are as fully used as possible and the measured target benefits are realized.

The plan engages the community in successive groups: innovators and early adopters first to get a sense of community needs with minimal resistance noise. This initial community engagement would take a qualitative approach and address the providers (vs. the recipients) first. This first step will accumulate success stories and value propositions in order to engage the other three adopter categories. This step will identify tipping points, connectors and mavens as identified in Gladwell's book, *The Tipping Point*[31]. This critical first step lays the groundwork for the five stages of the diffusion theory as described above.

Proposed Intervention

Key stakeholder involvement to create tangible results that matter to intended adopters proves critical to effective and efficient diffusion[32]. The evidence in the literature supports a Community-based Participatory Research (CBPR) approach. One such approach commonly used in technology adoption programs is the PRECEDE-PROCEED methodology[33]. The proposed intervention uses this methodology to frame the intervention the diffusion of telehealth, EMR and CORHIO technologies for improvement in access to quality healthcare. With this methodology, many of the key elements of each of the diffusion stages become adopter-driven and a natural part of the design and implementation process. Key SLV stakeholder groups to engage in this process are:

- Primary care providers
- Medical centers and hospitals
- Valley Wide managed care
- SLV Mental Health Center
- Medical, behavioral and dental clinics
- Social workers and health care system navigator organizations
- Wellness organizations and professionals
- Health care recipients, especially the following segments:
  - Hispanic
  - Low SES
  - Elderly
  - Youth and adolescents with their parents
 - Migrant workers

Plan Framework

Researching the effectiveness of electronic health care systems to improve care access, integration and outcomes has proven challenging. In an article by a practiced researcher in this area[34], Dr. Guss Schrijvers, he states, "research and service innovation should run conjointly as party of a continuous process of innovation and improvement." This observation suggests an iterative, stakeholder-focused approach to research on electronic health care systems and integrated care. Agile program management provides a construct for such an iterative approach. Therefore the proposed intervention will employ the PRECEDE-PROCEED model using Agile program management. The PRECEDE-PROCEED planning approach[35] and Agile[36] program management are both proven methods for healthcare interventions.

Methods

The research team will consist of a core work team, including students, faculty and community members, and a stakeholder team that will serve as the Agile Product Owner's source for user requirements and preferences. The PRECEDE-PROCEED model follows the eight phases shown in Figure 6.

*Figure 6.* PRECEDE-PROCEED model flow chart.
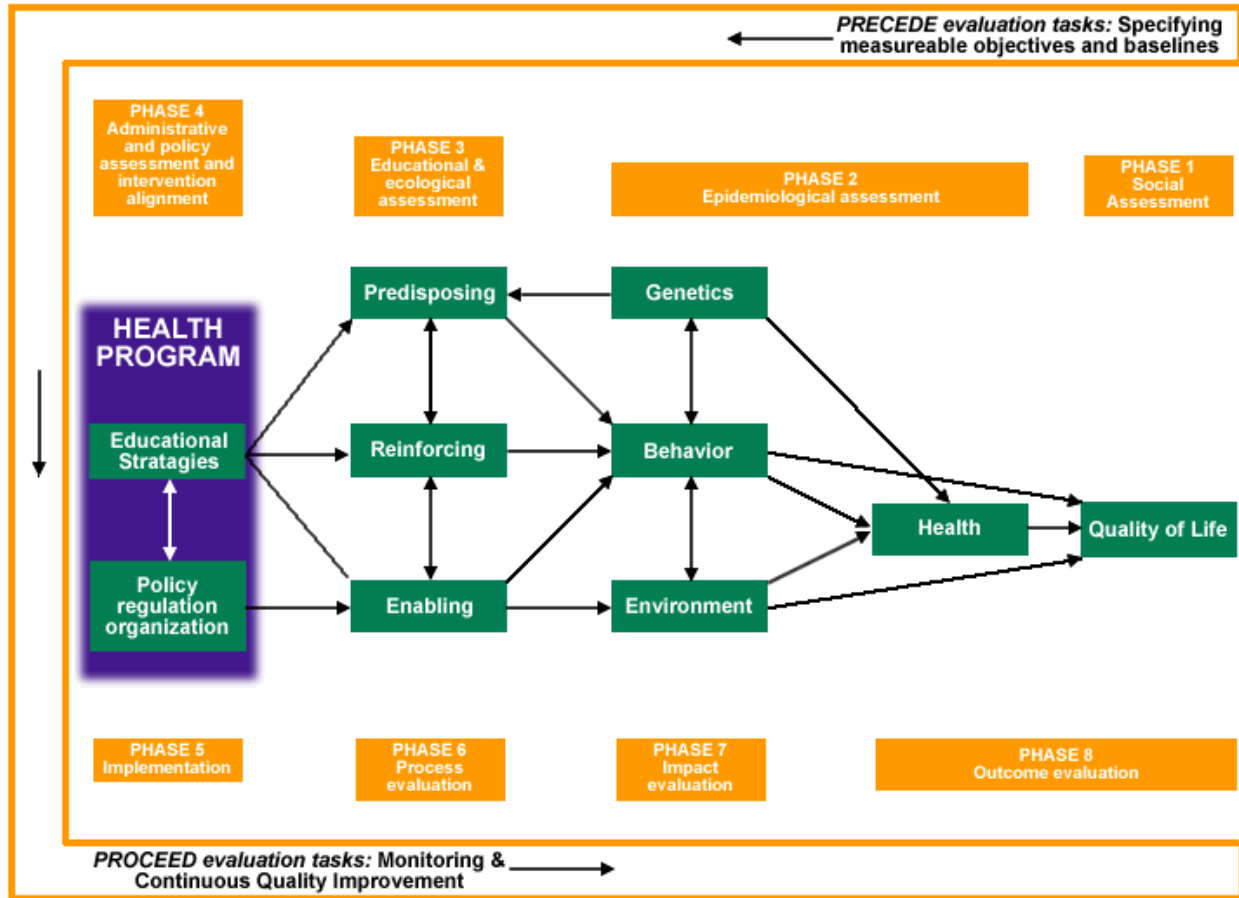
The research process initially focuses on creating a baseline for the research, which will

inventory the use of and plans for:

- EMRs in place and those being installed
- CORHIO connections
- Telehealth facilities (CTN, Centura and any others)

Simultaneously the next step will be to train the program and stakeholder groups on the

PRECEDE-PROCEED model, as well as provide a "light" training on Agile methods. Agile

methods enable knowledge accumulation and immediate application by addressing project work

in sprints or iterations that build on one another. As the project team learns they incorporate the

learning into all future sprints. Agile prescribes a series of sprints or iterations that follow the

process depicted in Figure 7.   The result of each sprint is a potentially shippable product of the

work effort. At the end of each sprint a retrospective collects the knowledge gained during the

sprint for use in improving the next iteration(s).

Figure 7. *Agile sprint process.*
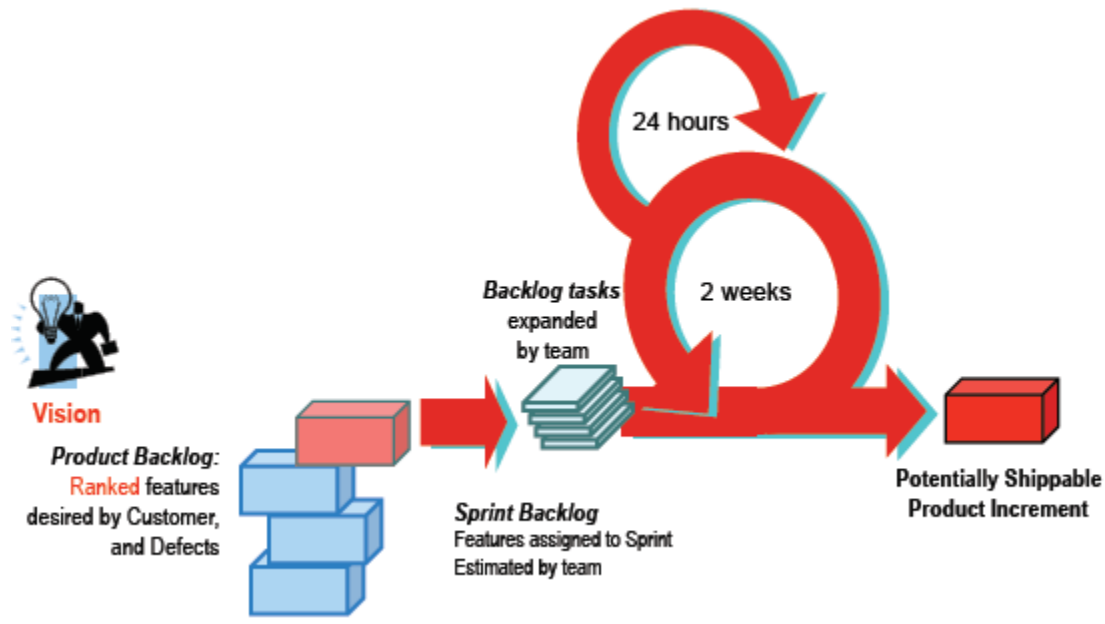
Using these constructs the next step will be to assess and determine the project vision, then

begin moving toward the interventions.

        The plan calls for three years of effort. Two major planned checkpoints toward the end of

each calendar year in years 1 and 2 of the project enable interim feedback from the granting and

policy/decision making bodies. The final report at the end of year 3 will include

recommendations for further action and research.

        This participatory approach offers critical benefits in terms of increasing efficiency and

effectiveness of technology improvements for access to quality health care. As the U.S. moves

toward models like Accountable Care Organizations and Medical Neighborhoods, leveraging

community participation into increased productive use of electronic health resources to improve

integration of care across providers and institutions can position rural health systems for

success[37]

Evaluation of Program Effectiveness

Access to healthcare depends on physical ability to be in the right location for the right

care at the right time. This study assumes that changes in the ratio of number of health care

recipients served and the incidence of disease indicate changes in health care access. Geospatial

analysis of this ratio change provides one key focus for this research.

Health care access also contains an heuristic and social aspect related to the perception of

service affordability and other personal judgments and choices. Therefore this study will also

monitor and analyze changes in access via a geographically-keyed (based on residence for health

care recipients and primary point of care served for providers) survey. Health care integration

similarly will be measured with a survey instrument that is geographically keyed. Meaningful

results can be measured as changes in health outcomes combined with survey-measured

improvements in health care access and integration[38]. Potential confounders or effect modifiers

that will be geospatially monitored according to points of care include:

- Proximity / Access characteristics
  - Patient distance to providers
  - Provider internet access
- Health professional training, proficiency and adoption
  - Numbers of users/roles
  - Proficiency
  - Adoption
  - Breadth of functions used
- Community characteristics (health care recipients)
  - SES
  - Education
  - Race
  - Age
  - Disease / comorbidities

Main outcome metrics are those listed in Healthy People 2020 AHS-6. Surveys of

providers and recipients using phone interviews and online questionnaires (starting with a

baseline) provide the data to calculate these metrics. The metrics will be designed as a result of

key performance indicators designed from knowledge gained during the PRECEDE-PROCEED

process. Additional effectiveness metrics that would indicate positive results are

- A decrease in the percent of the SLV population reporting that they are in fair or poor health
- Improvements in other metrics appearing in Tables 1 and 2
- New technology being used (e.g. count frequency of APCD codes for telehealth and correlate to positive health outcomes and compare to SLV baseline and national / state averages

Potential sources of data for comparison appear in Table 5.

Table 5. *Data Sources for base-lining and evaluating program effectiveness.*

Description	Data Provider	Website	Potential Error	Risk Mitigation Plan
US 2010 Census Data	US Government	www.census.gov	Standard census data error	Verify with community members in the SLV
Non-Federal Providers	HRSA	www.hrsa.gov	Addresses may not reflect all points of access	Verify with SLV community members
Health status	CDPHE	www.cdphe.gov	County-level only; potential data collection errors and conflicts (multiple	Obtain more detailed data as a supplement from SLV community and other Colorado

Description	Data Provider	Website	Potential Error	Risk Mitigation Plan
			sources used)	sources (CORHIO?); yearly updates may need to be collected by the project
Health status	UC Denver Colorado Health Survey	Not available online	New data source	Work with team to refine data
Colorado Telehealth Network (CTN) points of presence	Colorado Hospital Association	www.cha.com	Installation and changes are happening rapidly	Work closely with the CTN to obtain updates
Survey on care access and integrated care (including CORHIO, EMR and CTN usage)	This project	To be published on the web at the Colorado Foundation's discretion	Survey to be designed and implemented as a part of the project	Design to minimize risk in areas important to the project
CORHIO usage	CORHIO	www.corhio.org	Usage data may not reflect relevant usage	Determine ways to process the data as needed; revert to a survey if needed
EMR usage survey (including use with CTN and CORHIO)	Health care providers using EMRs	Various TBD	These metrics will likely be heuristic	Qualify methods and accuracy of data
Other integrated care metrics	SLV regional health care providers and health advocacy groups	Various TBD	Data may not exist and may need to be extrapolated from existing	Accurately represent all data manipulations and the ramifications for analysis and results
Local public health supplemental data	County public health departments	Not available online	Various levels of accuracy	Use for verification and fine tuning primarily

Ethical Considerations

The project contains elements of research with respect to the surveys, especially, and should be under the control and guidance of COMIRB. While the community-based approach of PRECEDE-PROCEED inherently addresses community needs, checks and balances need to be introduced to ensure that individuals maintain a fair and balanced freedom to make personal choices. Driving toward objective metrics for success and strategic direction as laid out in Healthy People 2020 must be free of conflict of interest in order to guide the project effort in a

way that ensures that goals will deliver benefits to the entire community as opposed to any single

individual or group of individuals. Since funding for programs in the SLV is very low, costs for

this program should be kept to a minimum, utilizing data and resources that would be freely

available or available at a very low cost. Maximizing efficient and effective use of volunteers

would be essential to success. Continual evaluation of expenditures vs. cost savings of health

improvements should drive the longevity of the program. These elements need to be standard

topics of consideration during the retrospective of each sprint: personal freedom, progress toward

HealthyPeople 2020 objectives, spending/vendor objectivity and fairness reviews,

effective/efficient use of volunteers and cost/benefit. These elements should also be reported to

decision-makers and other key stakeholders, including COMIRB at least annually, to solicit

feedback and any needed course correction.

Footnotes

[1] Hard Times in the Heartland, Health Care and the Rural Economy (2011). Accessed from http://www.healthreform.gov/reports/hardtimes/ on 8/9/11.

[2] US Dept. of Health and Human Services. Healthy People 2020 website. Accessed on 8/9/11 at http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=1#

[3] Higgs, Gary. "Investigating trends in rural health outcomes: a research agenda," *Geoforum*, v. 30, 1999, pp. 203-221

[4] Hore, Craig T; William Lancashire, John B Roberts and Rob Fassett. "Integrated critical care: an approach to specialist cover for critical care in the rural setting," *Medical Journal of Australia*, Vol 179, 21 July 2003, pp. 95-97.

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[6] Moscovice, I., A. Wellever, et al. (1997). "Understanding integrated rural health networks." *Milbank Q* 75(4): 563-588.

[7] Jones, Carol Adaire, Timothy S. Parker, Mary Ahearn, Ashok K. Mishra, and Jayachandran N. Variyam (2009). Status and Health Care Access of Farm and Rural Populations. *USDA Economic Information Bulletin No. (EIB-57)* 72 pp, August 2009. Obtained from http://www.ers.usda.gov/publications/eib57/ on 8/2/2011.

[8] Jones, et al.

[9] Notes from informal interviews with Freddie Jaquez, Director of the San Luis Valley Area Health Education Center (SLVAHEC) and Jamie Colwell, Director of Lab Operations (leading the EMR installation for the medical center) at the San Luis Valley Regional Medical Center (SLVRMC), summer of 2011.

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