Testimony to the Center for Rural Pennsylvania

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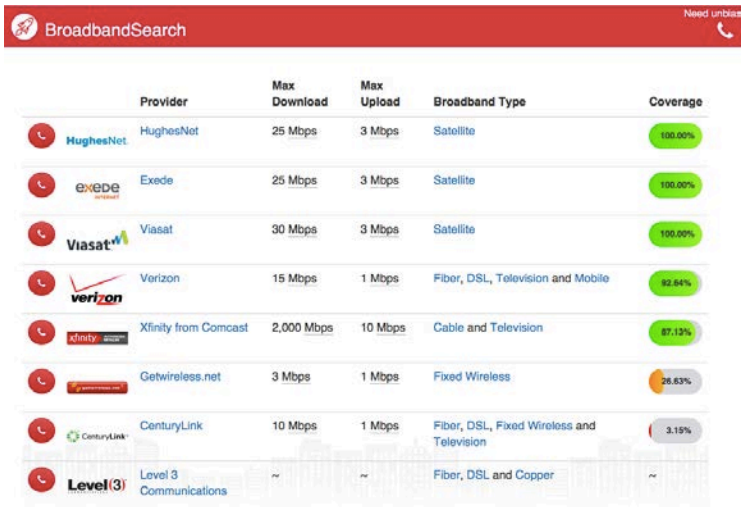
Background:

Internet Access in our Region:

Internet access is limited in our region. Most homes do not have a good option for Internet access at high speed and some at any speed. Service providers and businesses are similarly impaired. The vendors in the area are not providing adequate service except in high density neighborhoods. Resistance to accommodate requests and exorbitant costs are associated with expansion to other areas. The costs include the fiber or cable, other hardware, poles or rights of way, make ready fees, installation fees, and monthly fee for pole access.

A review of the current status and needs in our county is as follows for the town of Huntingdon, a 2 square mile area of close residential homes and businesses. Just outside the town, one finds a rural expanse and occasional factories, farms, and a thriving recreational boating and lodging industry.

For the county, no reliable source of high speed Internet is readily available to us. At J. C. Blair Hospital we find that over half of our patients do not have access to the Internet and most complain about the quality of their wireless service for phone access. We have a similar issue with staff access to wireless or high speed Internet.

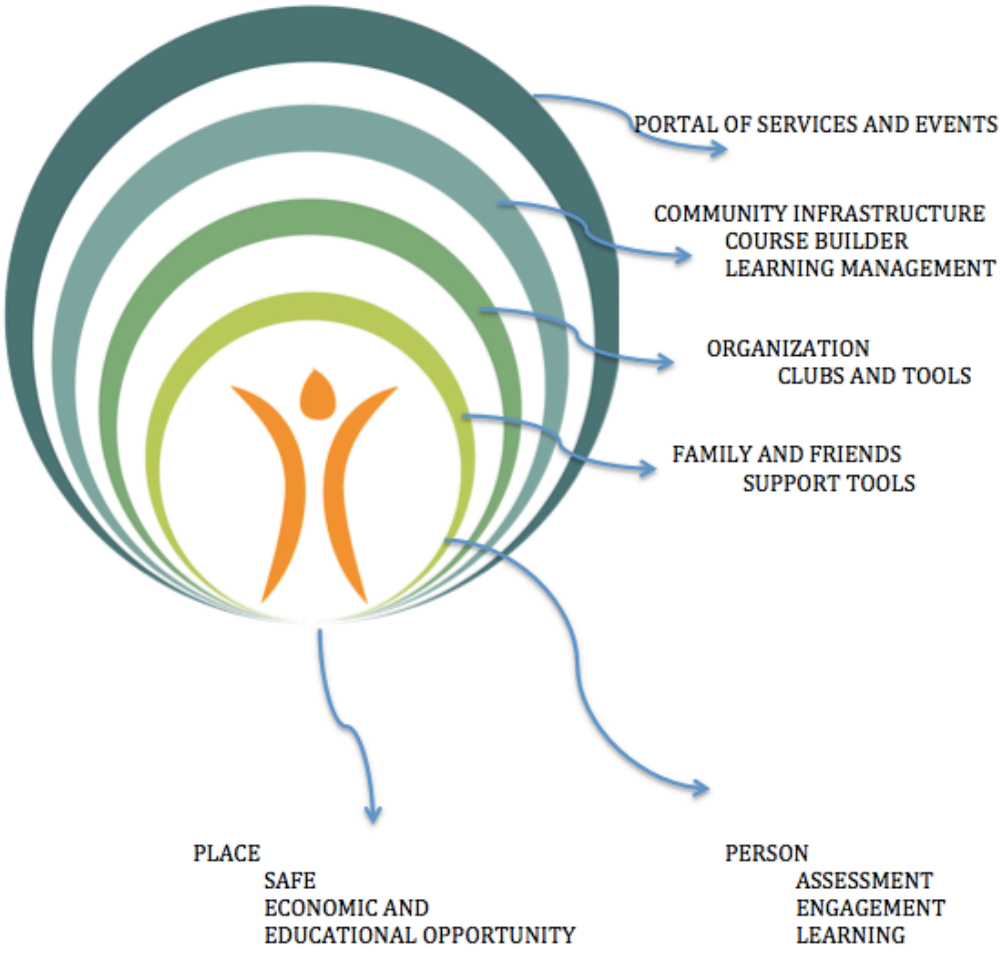


Kinber Network: UP to 10 GB All Fiber

Huntingdon PA Community:

Huntingdon County PA is a designated Appalachian county, in central PA with a population of about 46,000 people, houses one health care system, the J.C. Blair Health System and Broad Top Medical Center, an outpatient FQHC.

J. C. Blair Hospital and Health System with community partners has put in place a program called the Force for Health, to try to empower our residents of all ages to be better advocates for their own health and health literacy and then to expand their knowledge to help others. We use the socio-ecologic model to guide us in providing healthy decision-making support at all levels of the community.



Much of what we do uses Internet and we are limited to schools, workplaces and other areas with access. The Force for Health Program provides the community with a free portal access to a directory of social services resources, events calendar,

coupons, online learning, augmented reality tools for healthy decision and support for teams to form to address improving the social determinants in a community. A wider availability of broadband will allow the creation of an army of health and technology literate individuals with the ability to be force multipliers as additional health care workers or educators for better health and education outcomes and to have a generation that can leverage the broadband into other societal benefits. In New Orleans, teenagers become the care support for their senior neighbors or family members to help avoid hyperthermia, or to be sure blood pressure medications where purchased and taken, and pulse ox and blood pressure were monitored. They became community health workers as part of the health care system. See APPENDIX B.

Personal Case Study:

INTERNET ACCESS REDUCES ABILTIY TO RECRUIT STAFF AND MANAGE PATIENTS

In 2017, I moved to a rural area and tried to find Internet access and cell phone receptivity. The house the hospital arranged for me to rent is just 4 miles from the office. It is just down the road 3 miles in one direction to the largest employer in the region, the local state prison and 3 miles in the other direction on the same street from the Comcast technology offices. As the bird flies, it is less than 2 miles from the county's only hospital and university.

I was unable to have any provider that chose to provide Internet access at a speed usable for telemedicine or education purposes. My wife teaches online for the community college, and I lead the telemedicine and community outreach efforts for my community. There is a jack in my house labeled Verizon ISDN. When I called to activate it or FIOS, I was told "They have one circuit board serving its customers and it is full. FIOS service is not scheduled to come our area." The next-door neighbor finds his ISDN service so slow they went with Hughes satellite. They found this solution even slower and weather dependent.

As a previous home and business Comcast user, I got fast speeds most of the time but was the victim of bait-and-switch pricing practices with automatic renewals without reminders at double the pricing. Notwithstanding, being down the road from Comcast, seemed to be the logical solution. A call there lead to a quote for $100,000 to pull the wire to our neighborhood, and a discount of $1750 per neighbor we could sign up. There are 20 houses in the neighborhood that would be served. Even if everyone signed up, they would charge about $60,000 just to get started. The poles already are there with wires coming into all the houses.

The Verizon store refused to assist with any hardwired solution. I involved the local store manager with the hospital CEO, and requests to management for a discussion of potential future options for telemedicine solutions was ignored other than an

effort to sell use MiFi devices or iPad's with Verizon wireless contracts. The best solution for my use was to buy the MiFi device and "unlimited" service. This 4G device works from the cell towers and is essentially a data phone. "Unlimited" use pricing was offered and the device was purchased with a 2-year contract. It works beautifully if and only if there is 3 or 4 bar access to a cell tower, and it is the first 2 or 3 days of the month. Once 15 GB is used, it drops down to speeds that are a drip of data for the unlimited portion of the rest of the month. It is insufficient to do a Skype session, let alone watch an instructional video, or load a web page in less than a minute between clicks.

My wife and I will drive to the hospital or Sheetz store to get Internet access to host a class or do a clinical or business visit online, or to build online materials for our students and patients.

We love the house and the setting and many of the neighbors, but we are moving because of the lack of broadband. We will also not relocate the staff of our small software company from Lancaster to Huntingdon because of this issue.

I have health issues and seriously question the wisdom of living in this Garden of Eden, far from tertiary health care or even telemedicine access to specialist advice.

For us, it is a necessity and not an entertainment luxury. That is the same for our students, patients, and providers.

Opportunities to use broadband to improve the health of our citizens:

In health care, we have a multitude of use cases that have a significant value for use beyond entertainment. These situations have ROI in terms of reduced costs in transportation, time off work, expanded audiences for expert teachers, and better health outcomes. A series of cases will be briefly outlined.

Point-to-point education and professional development:
There is a lack of resources for continuing medical education in our rural hospitals and doctors' offices. Linkages to distant training with high speed are helpful.

Point-to-point consultation is needed on multiple levels. I helped do this in Africa. Why can't we do this in Huntingdon?

- Patient home...to remote care giver such as visiting nurse, community paramedic, or community health worker.
- Remote worker to physician office
- Physician office to hospital
- Hospital to regional tertiary care center
- Regional center to national or world resource

- Hospital or patient to university for education and agencies for case management.

Due to desperate needs for integrated care of behavioral health and physical health patients, the hospital received a grant that included the use of telemedicine for coordinating care of patients, especially those with physical and behavioral issues. Its use of the grant to advance the program won them a statewide award, but the telemedicine portion is yet to really get started due to broadband infrastructure issues at our provider locations and patient locations.

Products like Synzi are off-the-shelf services, with CEO conversations taking place to use us as a demonstration site to advance the care of our patients. It includes real time translation, face-to-face communication, case management, and clinical monitoring to happen without a drive to a facility. They even work with 3G and 4G wireless, yet getting a project going is challenged by the infrastructure. We need to structure any program with duplicating of home visit, transportation, in addition to a tele-visit.

Case study: Our top 5 chronic case issues include congestive heart failure, COPD (emphysema) exacerbation, diabetes, urinary sepsis, and behavioral health situations. Consider the patient with congestive heart failure patient with multiple admissions as an example. When they are stabilized and discharged home, they need to have their diet, weight, blood pressure, heart rhythm, and fluid status monitored as they change settings and diets and have medications to keep track of. Over half our patients are 30-80 minutes drive to a doctor or the hospital. A tele-visit with visual inspection of ankle swelling, pill bottles and medication use, food choices, and clinical measurements such as a heart ECG rhythm, pulse oximetry, bathroom scale weight, blood pressure or blood sugar all can be done remotely with a 10 minute tele-visit versus a half a day out of the office for a clinician or time off from work for a patient family friend or driver, assuming one is available in our county. We do not have taxi service or UBER. UBER or LYFT need broadband to work well.
The ROI for home management and ER readmissions approaches $50,000 per occurrence if a cardiac catherization or ICU care is avoided due to earlier intervention before the heart attack or other complications. If they are readmitted within 30 days, the hospital has to absorb that cost. That cost does not come out of management bonuses or exotic landscaping; it means we don't have money to maintain our obstetrics or other essential programs.

ROI needs a new calculus: Savings to society, not just subscription revenue

The return on investment is a difficult calculation. It cannot be based on the cost of the service minus the subscription fee for the service.

J.C. Blair Population Health Team, lead by CEO Adam Dimm, estimates a $5 million dollar annual savings in health care costs,
This does not take into account economic benefit for corporate, education, and real estate boost and savings from lost employment productivity, and transportation expenses.

> ***With Deputy Secretary of Health, Dr. Lauren Hughes, we are evaluating the cost and use of care for our county's 46,000 people, with actual data evaluated by her team, as provided by J. C. Blair.***
>
> ***There are over 1000 avoidable inpatient admissions. We believe with better Internet and related services, we could reduce this by 50%. Based on Medicare fee schedule rates this would be $3 million in annual savings.***
>
> ***Additional, 17,000 total visits were evaluated and 38% were shown to be avoidable. With an average cost of $244, this is another $800,000 in savings.***
>
> ***There would also be $1.2 intangible savings from decrease in specialist utilization, temporary staffing of professionals that could provide telemedicine support and discharge home instead of nursing home with care in the home setting with family.***

In healthcare, patient care using broad bandwidth and off the shelf capabilities include:

- Earlier diagnosis
- Care delivery without visit or without distant visit with loss of time from work and travel expense
- Tighter management with detection of failure of therapy, earlier care before complex care issues compound and prolong care needs, and avoidable admission and readmission costs
- Senior independent living care
- Specialist and locum tenan staffing expense
- The outcome economically is reduced cost for the payer, provider, employer, family, and community. The additional benefit is less people with less severe illness with less logistical concerns.
-

<u>Emergency Preparedness Concerns:</u>

<u>Health care needs broadband for ordinary and extraordinary times.</u>
"Been There, Done That... in my past, now limited by broadband issues in 2018"

Dr. Gillio Background:

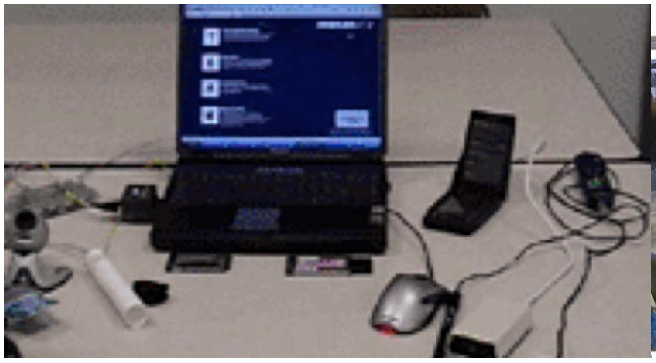
- Trained at Mayo Clinic
- Practiced Pulmonary and Critical Care Medicine for 25 years
- Adjunct faculty at Penn State Hershey Medical Center
- Developed a series of technology solutions for health and education
- Served in volunteer capacities in disaster settings

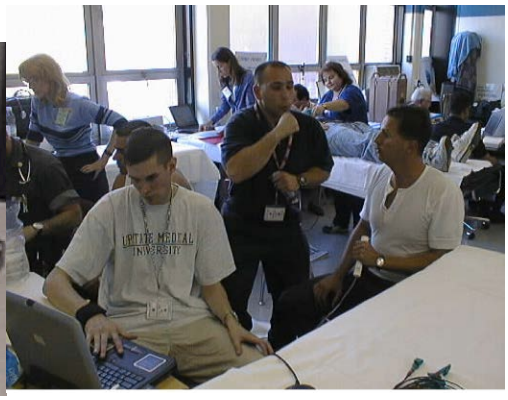
I was personally involved with and helped create and deliver telemedicine and humanitarian responses to a series of disasters: These include:

TELEMEDICINE in 1990's

Mississippi River floods of 1998, with the first deployed use of telemedicine for real time civilian radiologic services in a domestic disaster. This was a store and forward sharing of scanned x-rays on one side of the river with radiologists on the other side when the bridges were out.

GROUND ZERO AFTER 911





Ground Zero Clinic in NY after September 11, 2001 for NYPD health care and environmental monitoring using a laptop, attached clinical and sensor devices, and phone tap with dial up link to Mayo Clinic.

Advised the White House on health and safety issues for mass casualty care and community infrastructure.

Discussing infrastructure and health care with Governor Thomas Ridge in Washington DC October 2001 just after being appointed the first Homeland Security Secretary.

HURRICANE KATRINA

New Orleans recovery after Hurricane Katrina in 2006. Low tech planning in the field, with rapid rebuild of medical records, hospital in the parks, and trained civilians for follow up care. Downtown was wired and that made all the difference.

SCHOOL SHOOTINGS

School Disaster response software portal for administrators and enforcement with real time view of cameras maps and floor plans by EMS and SWAT on way to school for rapid strategic response to violence, explosive or mechanical issues.

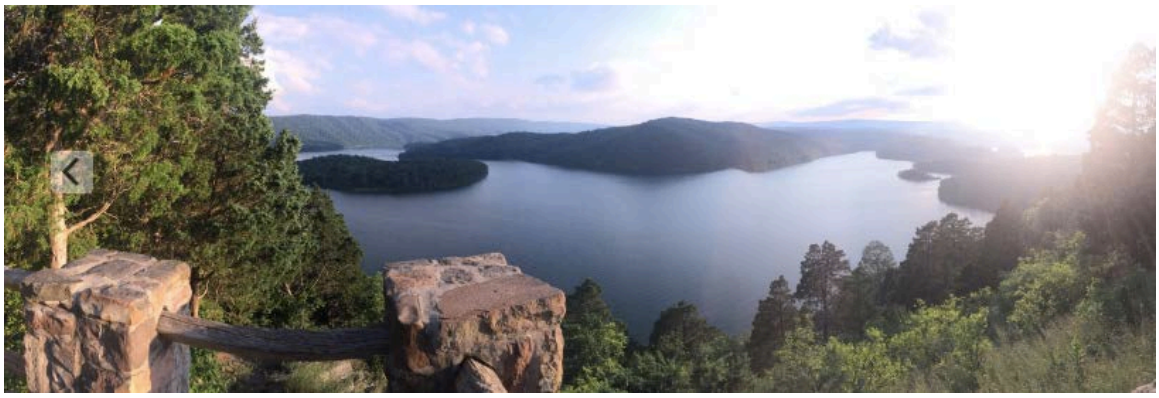
CURRENT LOCAL DISASTER USE CASE:

Risk Assessment:

- Our law enforcement radios are from another era and also10 years behind.
- Our roads are dirt or narrow and we are using bridges built in 1898.
- Cellular telephone service is spotty
- Internet provides real time monitoring of situations, information when and where it is needed

Major Risks:

"Daily Bomb Trains" is the nickname given these 100 plus car trains through our downtowns, mountainous county and along our rivers everyday. Amtrak and Norfolk Southern trains run through he town and cross our county with people and occasionally with massive amounts of oil and other flammable and toxic chemicals.



An earthen dam is holding back 42 miles of water upstream from Lewisburg and Harrisburg. Should the dam fail or be sabotaged, it would create a 50 foot high wall down the valley.

Other ongoing issues we consider:
Drug overdose death epidemic with multiple deaths in a day
School Shooting
Domestic terrorism cell risk

Disaster planning and response is part of health care and broadband dramatically expands the capabilities of planning for, surviving, and recovering from an incident.

Opportunity:

The Kinber Network is very high speed fiber optic and is near us on both sides of the county. The Allied Fiber runs through the center of our county along the Norfolk Southern/ Amtrak line. Both are in Mt. Union, our highest density people with high cost for health care and also with poor Internet availability and reduced health care provider services. One idea is to create a health care dedicated Internet service for this community with an antenna on a tower or the mountain above the town, and light it up with all homes connected. We would provide free nursing teleconsults and support with guidance and referrals as necessary. Let's study the actual economic impact on the community and also its health care. Lets find funding to create a utility to serve rural PA leveraging these paid for assets.

See Appendix A

Necessity:

People are isolated by transportation, access to information, and health care services. We are a sicker population in rural America with more deaths and less opportunity for education, employment and care. We are unable to attract good doctors to our locations in part because of all three of these issues.

Transportation limitations due to geography, weather, distance, lack of public transit, and access to personal vehicles makes remote visits valuable.

The vision of the future with global payment for healthcare and risk ownership by the hospital will necessitate a hospital without walls or limits, using technology to have perpetual communication and monitoring for case management and care intervention.

We are paralyzed in the 1950s with 2018 costs and 2030 expectations.

Requests:

- Wireless telephony and broadband high-speed Internet support soon.
- Consider mandating expanded coverage for the for-profit entities that are only taking an economic and entertainment approach.
- Consider dedicated bandwidth where there is connectivity for high-speed telehealth use (e.g., a channel on the cable TV per home).
- Consider supporting a new or partnered Rural Broadband Company, much like the electrification coops.
- Consider support for Kinber network to be pulled through Huntingdon County and have towers placed along Highway 26, 22, with wireless links.
- Open up the rails to trails right of ways for fiber lines.

- Help us access the dark fiber running right through our dark zone along the Amtrak route.
- Help us create a Force for Health Community Connection Collaborative beginning with Mt. Union, help us create access in at least each of our population centers such as Huntingdon, Orbisonia, , Saxton, and Broad Top. This would allow public access sites for personal use, one less reason not to locate a business here, and would allow a dramatic increase in our ability to serve our doctors, nurses, and patients.
- Everyone that enrolls in Medicaid or Medicare, has access to broadband services and receives an appropriate Care Kit based on their needs and conditions.

APPENDIX A: A Business Model to Consider

Seed the funding across agencies and entities to start up a service, but sustain it with shared profits from services and from contracts with shared savings or increased sales. Please consider the following draft Executive Summary created for Deputy Secretary of Health, Dr. Lauren Hughes.

The Force for Health Connected Communications Cooperative

Executive Summary:

Prepared by Robert Gillio, MD
for
Deputy Secretary of Health: Dr. Lauren Hughes
March 22, 2018

Background:

Lets learn from our past. Indoor plumbing, electricity, telephone use, and access to fresh milk, were all once viewed as unsustainable luxuries or curiosities for the benefit of the wealthy. When they were expanded to rural areas, a cooperative structure with unique business models were allowed and the rural communities and its residents and in fact the entire nation had benefits. A team of youth and young adults at one point were in a program called the CCC or Civilian Conservation Corps to assist in aspects of these activities and others that advanced the desirability to live, work or visit a rural area. They had the secondary benefit of

being exposed across cultures and also had a new employment opportunity. What is suggested is a bold disruptive step to create a new CCC, the Force for Health "Connected Communications Cooperative", to be a model designed to provide the corporate infrastructure, seed funding, management, and services to help the Governor and others with their vision for a connected PA with ubiquitous access to wireless and broadband services. As an outgrowth of the J. C. Blair Hospital Community Health Needs Assessment, a Force for Health Program has begun to take shape in the community, with technology enabled teens and adults, advancing their own health and that of others. They are gaining technology (STEM) and health literacy and designing projects to advance their community infrastructure and social determinants of health issues. They are also gearing up to be patient advocates for healthcare in the hospital and at discharge and beyond, with a network of a new class of CCC volunteers....Force for Health Advocates, some of which who become CHW's or community health workers to help family members, friends, and neighbors.

Service:
Provide a HIPAA compliant broadband and cellular telephony system that is optimized for health care needs for the sickest residents while simultaneously advancing all aspects of healthy living, recreation, employment, and community interaction for all. Where the commercial partners have adequate service, involve and include them. Where they refuse to expand, own the responsibility to improve the service in that region.

Structure:
Create a true cooperative where the stakeholders and customers own the system and the rewards thereof. All profits stay in the cooperative and the cooperative partners for use to improve their network and situations.

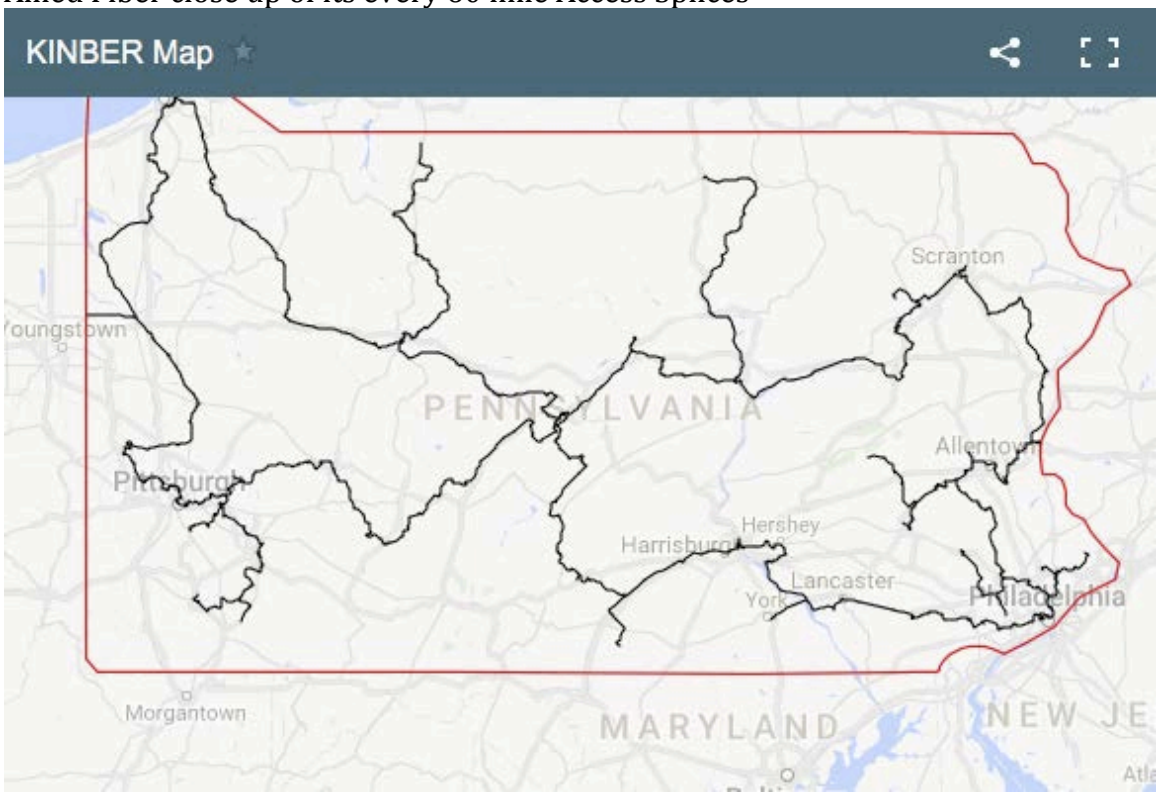
Long Term Goal:
Leverage the installed Kinber and other fiberoptic lines or high quality resources such as poles and rails to trails right of ways to create a service area with medical grade capabilities that would allow telemedicine and a high quality education and commercial opportunities to develop and be facilitated. The demonstration in Huntingdon would be evaluated and expanded as a potential state utility or technical support service of the Center for Rural Health Transformation.

Potential Partners:
All customers
Kinber.org
Rural Valley Electric Cooperative
Allied Fiber along Norfolk Southern right of way
J. C. Blair Foundation
Juniata College
Penn Highlands Community College
Local School Districts

Broadtop Medical Practice, the counties FQHC.
Sunesys or other technology vendor and service provider.
Comcast, Verizon, ATT, Hughes or others.
PA Department of Health or Center for Rural Health Transformation

Installed Infrastructure Maps showing access and also under utilization:

Statewide Kinber map
Huntingdon County close up
Use map showing use of Kinber being way under capacity
Allied Fiber national map
Allied Fiber close up of its every 60 mile Access Splices



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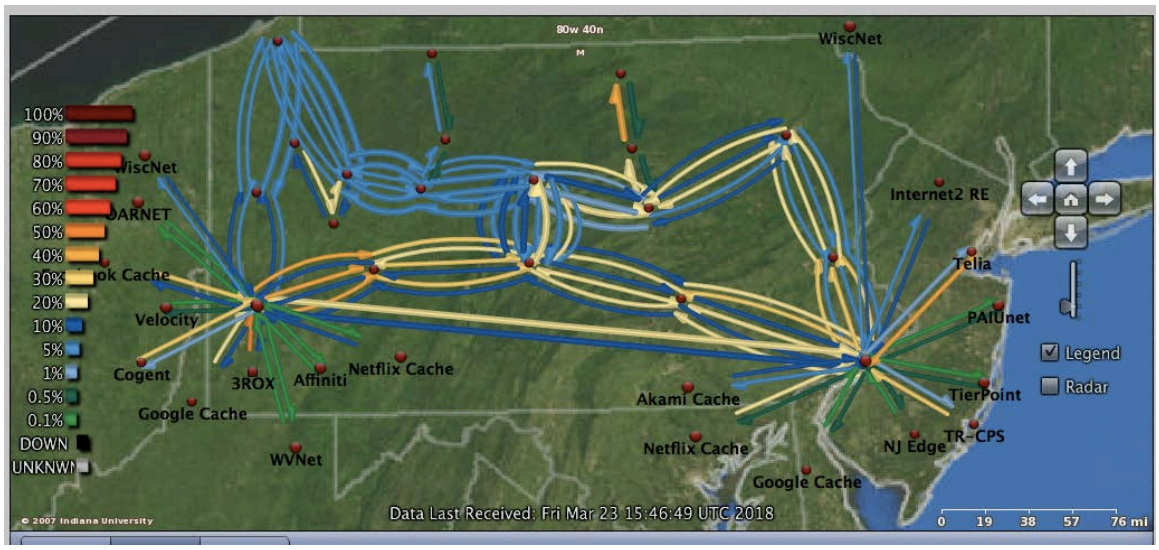
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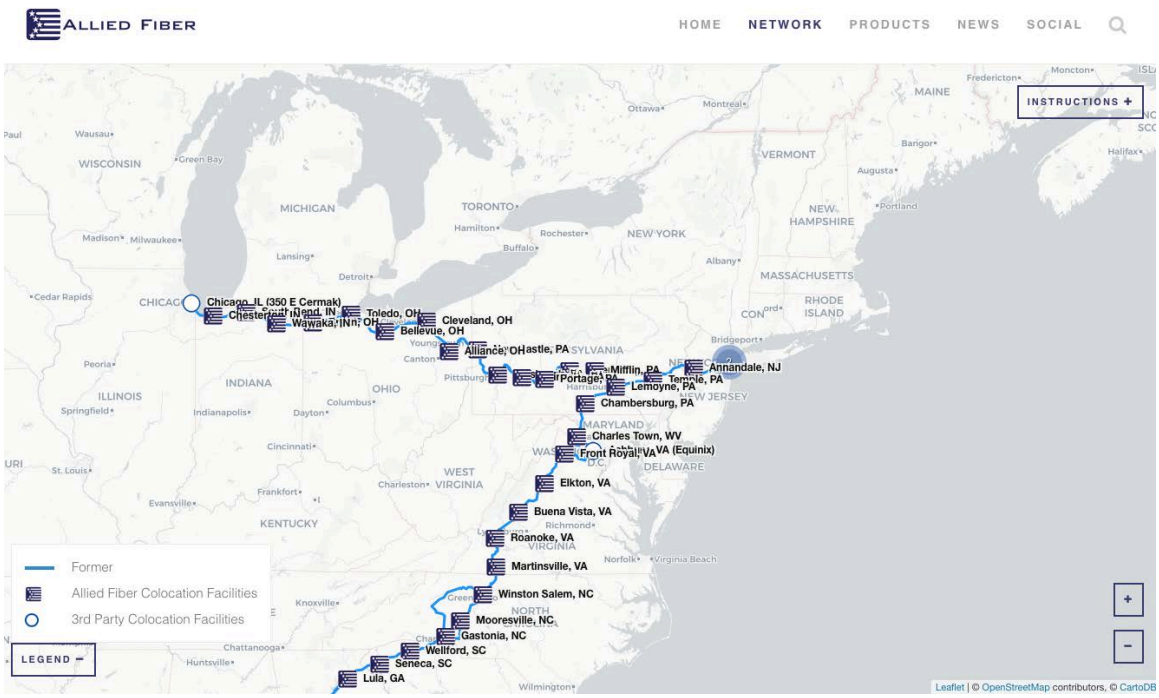
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Chambersburg, PA
Charles Town, WV
Front Royal, VA
Elkton, VA
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Gastonia, NC
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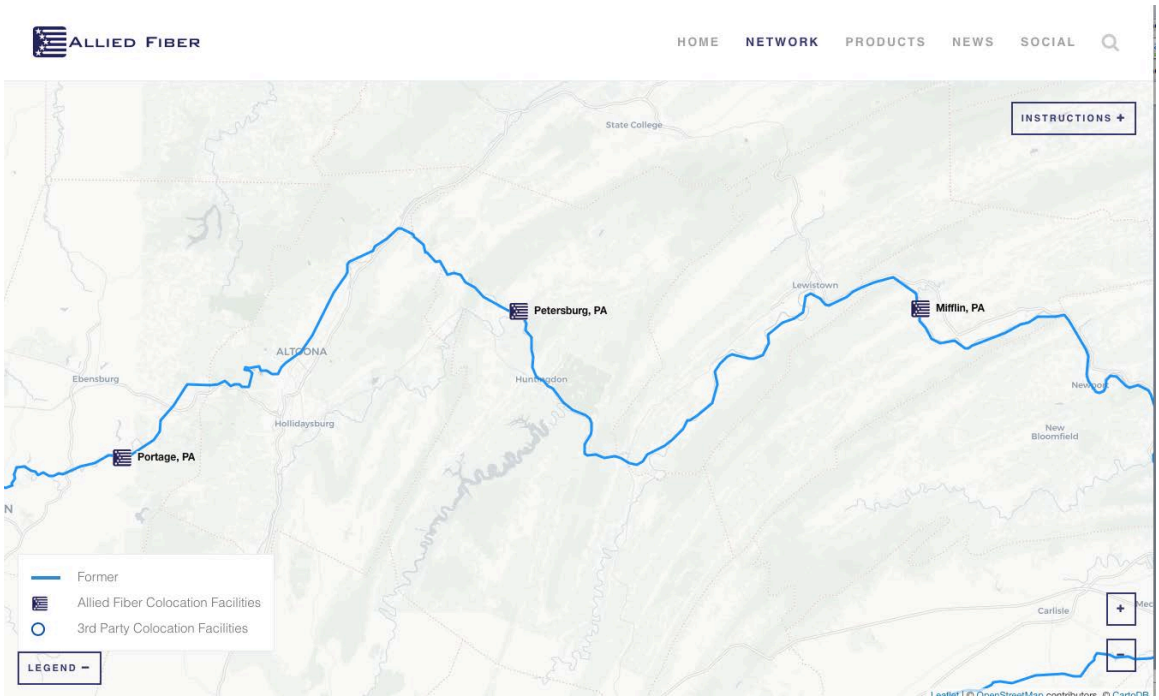

Seed Funding:
Leveraging the Kinber network saves millions of dollars and allows speeds up to 1000 times faster than the fastest Comcast, with all fiber networks.
The Cooperative would be funding with seed funding at the discretion of the Governor in his current competitive grant initiative, and other grants that are being identified.

Community Connect Grants
https://www.rd.usda.gov/programs-services/community-connect-grants

USAC Healthcare Connect Fund
https://www.ruralhealthinfo.org/funding/3745

The Pennsylvania Broadband Investment Incentive program
This is a $35 million dollar fund to extend broadband into all homes in PA

Sustainability
The economics of a conventional model of subscription service does not work with the population density. The costs are too high and the prices are beyond what a customer may chose to pay. It is the authors view that it is important for people to pay something, to value what they have and in fairness to others. The value comes from cost savings in the health care profession over conventional access to care and from increased revenue and local community benefit from taxes and jobs locally. If a new company comes to town in part because of the world class Internet speeds, a portion of that tax revenue should be attributed to the Cooperative. Remember, the

speeds on an all fiber network create capabilities we haven't even imagined yet, but certainly would be a draw for industry and be adequate for telecommuting to work across the country or providing hosting of sites or apps around the world.

What is proposed is a radical disruptive but fair approach to sustain and grow the program:

- Sliding scale subscription for residents based on income and services
- Shared cost savings and revenue contracts with health care and industry and local government.

Regulatory Affairs:

Allow designated areas of service to not be blocked by legacy regulations
Require set aside money we all pay into to our telecom bills to help seed this imitative.
Authorization of the immediate creation of the Center for Rural Health Transformation and empower them to take the lead for the Commonwealth

Return on Investment:

The highest cost is to run the fiber, not to maintain it and service the customers.

The investment is already made and thousands of miles of fiber are installed and dark, not being used inside and adjacent to most areas of the state.

Conventional fees could displace a low bandwidth provider and sustain basic use once fiber is in place.

Significant revenues for saving a readmission to the hospital, or providing the services for a profitable web using business, or a tiny piece of the tax revenue of a new company Coop member moving into the region provide unique and sizable ROI.

Political capital is created when local and regional authorities can improve quality of life.

APPENDIX B: THE FORCE FOR HEALTH PROGRAM OVERVIEW

The Huntingdon County PA

Force for Health Program

A Community Health Needs Assessment Intervention

Provided with seed funding by:

- **J. C. Blair Hospital and Health System**. It is also part of the next phase of the Blair Cares screening program with individualized instruction and support for participants.
- **Juniata College**, with and in-kind support with facility, staff, and student interns
- **Welcoming other community partners**

The program provides technology, content and program support and marketing tools to help support, coordinate, and advance the existing programs in Huntingdon County.

The current goals are to eventually "touch" members of the community at least monthly, with **support for issues such as access to health care, wellness maintenance, addiction avoidance and treatment, and creating a pipeline to professionals beginning with individual health literacy and creating community health worker network across the county.**

The program seeks to create the infrastructure and then engage and involve the communities organizations into a Coalition that collaborates on programs, grants solicitation, and community services and events.

The technology and content tools include:

Force for Health Community Portal

See www.myhealthyhuntingdon.com
Online Directory of all organizations and groups by services
Marketing tools for the organization
Shared calendar and directory for event planning

Force for Health Academy

See www.nuvolaacademy.com
Provides an online university for the community to take courses, receive personalized instruction and create their own courses
Editing of material presented to ensure validated or evidence based content

Force for Health Clubs

See www.beaforceforhealth.net
Support to set up and mentor schools, churches, prison, parks, and workplace groups that become ambassadors to advance health for themselves and their peers and neighborhood

Force for Health Engagement Apps

HealthForce app and augmented reality posters
HealtheThon app for learning and walking competitions and incentives

Force for Health "Health eCoins" Program

Change at restaurants or other sites, becomes available to use for those that can't afford the needed food or clothing.

Force for Health Program Clinical Care Services

Continuity of care across a disease condition from family to hospital, leveraging a unified approach with primary care, hospital, agencies, extended care settings, families, and community health workers leveraging data, content, and tele-medical management, transportation services, and support.

Force for Health Community Connection Collaborative

Proposed potential network for providing or funding broadband and other technical support services.

Why Join:

Support the community programs
Gain tools to advance your own programs and coordinate efforts
Advance the ability to make individual decisions to advance or access health
Create a culture of wellness for your organization and community

How to get involved:

Become a Member as an Individual, Ambassador, Leader, or Trainer
Become a Partner as a non profit, school, church, club or agency
Become a Partner as a company with cash, in-kind, or incentive support

Learn more: Contact rgillio@jcblair.org 717 940-5922