Closing Equity Gaps: Broadband Bootcamp for Health Care Stakeholders

April 12, 2023
Mission

ITUP’s mission is to promote innovative and workable policy solutions that expand health care access and improve the health of all Californians. ITUP implements its mission through policy-focused research and broad-based stakeholder engagement.

Vision

ITUP believes that all Californians should have a fair opportunity to live their healthiest lives.
ITUP Values

ITUP Seeks a Health Care System that is:

**Universal** – All Californians are eligible for comprehensive health coverage and services, including primary, specialty, behavioral, oral, and vision health services, as well as services that address the social determinants of health.

**Equitable** – All Californians receive health care coverage, treatment, and services that address the social determinants of health regardless of health status, age, ability, income, language, race, ethnicity, gender identity, sexual orientation, immigration status, and geographic region.

**Accessible** – All Californians have access to coverage options and services that are available, timely, and appropriate.

**Effective** – Health, health care, and related services that address the social determinants of health are person-centered, value-based, coordinated, and high-quality.

**Affordable** – Coverage and services are affordable for consumers at the point of purchase and care; and, at the health system level for public and private purchasers.
# Closing Equity Gaps: Broadband Bootcamp for Health Care Stakeholders

**Wednesday, April 12th, 2023**  
8:45 a.m. – 4:00 p.m. PT  
[Registration Link](#)

**In-Person:**  
1414 K Street, Suite #500  
Sacramento, CA 95814

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<th>Time</th>
<th>Session</th>
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<tr>
<td>8:45 – 9:00 a.m.</td>
<td>Continental Breakfast</td>
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<td>9:00 – 9:30 a.m.</td>
<td>Welcome and Introductions</td>
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<td>Crispin Delgado, MPP <em>(he/him)</em>, Executive Director, Insure the Uninsured Project (ITUP)</td>
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<td>Chris Mitchell <em>(he/him)</em>, Director, Community Broadband Networks, Institute for Local Self-Reliance</td>
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<tr>
<td>9:30 – 11:30 a.m.</td>
<td>Level Setting: Broadband Basics Workshop</td>
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<td>Chris Mitchell <em>(he/him)</em>, Director, Community Broadband Networks, Institute for Local Self-Reliance</td>
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<tr>
<td>11:30 a.m. – 12:30 p.m.</td>
<td>Networking Lunch</td>
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<tr>
<td>12:30 – 2:00 p.m.</td>
<td>Workshop - Elevating Health Care Connectivity Needs for the State Digital Equity Plan</td>
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<td>Marissa Montano, PhD <em>(she/her)</em>, Director of Policy, ITUP</td>
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<td></td>
<td>Anh Q. Nguyen, MPH <em>(she/her)</em>, Engagement and Operations Manager, Office of Broadband and Digital Literacy, California Department of Technology</td>
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<tr>
<td>2:00 – 2:15 p.m.</td>
<td>Break</td>
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<td>2:15 – 3:45 p.m.</td>
<td>Workshop - Closing the Digital and Health Equity Gaps</td>
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<td>Sunne Wright McPeak, MPH <em>(she/her)</em>, President and Chief Executive Officer, California Emerging Technology Fund</td>
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<td>Kimberly Harris <em>(she/her)</em>, Strategic Partnerships and Program Development Consultant for the Community Broadband Networks Team, Institute for Local Self Reliance</td>
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<td>3:45 – 4:00 p.m.</td>
<td>Takeaways and Wrap Up</td>
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Level Setting: Broadband Bootcamp Basics Workshop

Chris Mitchell
Director, Community Broadband Networks
Institute for Local Self-Reliance
Telehealth Broadband Bootcamp: Broadband 101

Christopher Mitchell
Community Broadband Networks
Institute for Local Self-Reliance
April 12, 2023
@CommunityNets
CommunityNets.org
Agenda

• Basic background resources
• Networking basics
• Fiber optic networks
• Show and Tell
• Short Break
• Fun economics!
• Wireless
• The Future!
• Q&A
Institute for Local Self-Reliance

- Formed in 1974
- Focuses
  - Local Banking
  - Energy Democracy
  - Independent Business
  - Waste to Wealth & Composting
- Community Broadband Networks
  - CommunityNets.org
Access or Availability?

WHO IS NOT CONNECTED?

36 MILLION US HOUSEHOLDS
Do not have wireline broadband connections*
*cable, DSL or fiber

26 MILLION
Households in URBAN Areas

10 MILLION
Households in RURAL Areas

U.S. Census, 2019 American Community Survey 1-Year Estimates, Table B28002
Fact Sheets!

What Is Broadband?

This is one of a series of short explainers about high-speed Internet access issues. The full series is available here.

BACKGROUND

The word “broadband” is an umbrella term that can be used to describe any reliable Internet connection that is always on that can support commonly used applications. In the simplest terms, broadband is high-speed Internet access.

According to a report published by Older Adults Technology Services (OATS) from AARP’s Aging Connected initiative, more than 21 million seniors in the United States lack wireline broadband access to the Internet. Online connectivity for older adults has become a necessity particularly as a result of the pandemic as more services have moved online. Online connectivity is essential for access to public health information, telehealth appointments, grocery shopping, financial security services, and staying connected to loved ones.

Many millions of children lack home broadband Internet access, which is crucial for homework at almost all ages. Additional fact sheets in this series cover some of the reasons why households are not using broadband—including the lack of availability, affordability challenges, access challenges, lacking devices, and the need to develop digital skills.

ILSR.org/exploring-digital-equity-fact-sheets/
Power and Poverty, not Technology

Half of humanity is connected to high-quality Internet access.

The other half will not be connected by the business models that connected the first half.

Financing mechanisms for locally-owned internet infrastructure

ConnectHumanity.fund/report-financing-ccps/
Nationwide Push to Address ACP Anemia
By Sean Gonzales on Mar 15, 2023

The White House, in coordination with the Federal Communication Commission (FCC) and the U.S. Commerce Department, has kicked off a major push to get more of the estimated 52 million eligible households across the nation to take advantage of the Affordable Connectivity Program (ACP).

New Bill Could Make Colorado Friendly State for Municipal Broadband
By Sean Gonzales on Mar 22, 2023

Earlier this month, a new Colorado bill was introduced that, if passed, would end the state of a law designed to protect monopoly Internet service providers (ISPs) from competition.

Building for
Gina Birch Loves Digital Equity at the Ashbury Center in Cleveland
By Sean Gonzales on Mar 17, 2023

In the second episode of our new Building for Digital Equity podcast, Gina Birch talks about how she trained digital navigators at the Ashbury Senior Computer Community Center in Cleveland to help enroll eligible households into the Affordable Connectivity Program, and why working with trusted messengers and organizations is key.

Our Affordable Connectivity Program Dashboard is Back and Better Than Ever

LATEST PODCAST
Lessons from a Rural County - Episode 544 of the Community Broadband Bits Podcast
From grant requests that have gotten short-circuited by a local WISP.

Lewis County Pushes Forward with Open Access Fiber Plan

CommunityNets.org
A weekly podcast featuring interviews with people building community networks and shaping Internet policy.

From officials championing a municipal network in Mont Belvieu, Texas, to farmers building a broadband cooperative in Minnesota, to digital inclusion leaders in San Francisco, we sit down with the folks on the ground working to bring better connectivity to their communities.

MuniNetworks.org/broadbandbits
What is a “network”?

A network is a connection between devices that allows them to communicate and send information to each other.

Attribution: Black Brilliance Research Project, Local Connectivity Lab, UW ICTD Lab (2022)
Adult Digital Stewards Course Materials, Seattle Community Network - https://creativecommons.org/licenses/by-sa/4.0/
What is a “network”?

A network can be very big or very small.

Attribution: Black Brilliance Research Project, Local Connectivity Lab, UW ICTD Lab (2022)
Adult Digital Stewards Course Materials, Seattle Community Network - https://creativecommons.org/licenses/by-sa/4.0/
What is an “internetwork”?
What is an “internetwork”?

Janice wants to talk to Jenny...

Attribution: Black Brilliance Research Project, Local Connectivity Lab, UW ICTD Lab (2022)
Adult Digital Stewards Course Materials, Seattle Community Network - https://creativecommons.org/licenses/by-sa/4.0/
What is an “internetwork”? 

Janice can just connect her house to the internetwork so she can talk to Jenny!

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Adult Digital Stewards Course Materials, Seattle Community Network - https://creativecommons.org/licenses/by-sa/4.0/
Bits

- **The base unit of information (data)**

- A bit represents a choice between 2 states or categories
  - 1 and 0
  - light and dark
  - Yes and No

- **Using an electrical signal (on and off)**

  Ideal signal

![Ideal signal diagram]

Real signal

![Real signal diagram]

Attribution: Black Brilliance Research Project, Local Connectivity Lab, UW ICTD Lab (2022)
Adult Digital Stewards Course Materials, Seattle Community Network - [https://creativecommons.org/licenses/by-sa/4.0/](https://creativecommons.org/licenses/by-sa/4.0/)
Bits: How computers send data

Human-readable data → Bits → Physical signals → Network → Physical signals → Bits → Human-readable data

Attribution: Black Brilliance Research Project, Local Connectivity Lab, UW ICTD Lab (2022)
Adult Digital Stewards Course Materials, Seattle Community Network - https://creativecommons.org/licenses/by-sa/4.0/
Wired Technology – Quick History

- DSL – 1-30 Mbps
  - Reliable
  - Slow
  - Mostly Rural
- Cable – 100-1200 Mbps
  - Decent Download speeds
  - Expensive
  - Monopoly Problem
  - Urban
- Fiber optics – 100-10,000 Mbps
  - Building
  - Topology!
Fiber optics

- Virtually unlimited speed, limited only by the equipment you place on the ends of the fiber
- Can carry signals for long distances
  - Undersea fiber cables go all the way across the oceans (1000s of miles)
  - Will need to re-generate the signal every 60 miles or so
- Low weight
- Very Reliable
Video – Fiber Network Overview!

YouTube.com/watch?v=qr9zjtfHR-w
Central Office Fiber
Aerial Fiber Construction

Courtesy, Dale Smith, NSRC, University of Oregon
Summary of NESC Clearances to Communications Cables
Fiber Optic System Locates

Courtesy, Dale Smith, NSRC, University of Oregon
Fiber Optic Systems Outages

Courtesy, Dale Smith, NSRC, University of Oregon
Fiber Optics Show and Tell

- Then a quick break!
Fiber Optics Economics

- High Upfront Costs
  - Cost to build in Midwestern city, single family homes, directional boring in $/foot
    - Conduit $1
    - Labor $9
    - Fiber $1-$2
    - Permitting $2
    - Handholds, Couplers, Splicing misc, locate wire $2.5
  - **Total**: $17 (roughly at scale, this is super efficient and not California)

- Low Operating Costs
- Additional Cost to Connect a Home:
  - $1000 - urban single family
  - $500 – apartment / condo
  - $3,000 - $5,000 for many rural
Health Care and Broadband

- Is a $2500 one-time cost, with $300-$500 per year in operating expenses, “expensive” in health care?
- Analysis: 10 rural, Black, high-poverty counties in Georgia, Alabama, Mississippi
  - 235k population
  - About $3 billion in annual healthcare spending
  - 20% households no insurance, less than $25k/year income
  - Effective telehealth saves $43 million each year, half from regaining lost productivity, rest from emergency visits, readmissions, admissions
  - Estimated cost to connect 63k households, $80 million one time costs; $2-3 million digital equity investment per year, assumes Affordable Connectivity Plan continues
- Many other benefits that are extremely difficult to quantify – ex: Chattanooga removed racial gap in parental involvement in schools
Wireless Technology

- (Still mostly wired)
- Mobile
  - 4G LTE and 5G
- Fixed
- Wi-Fi
- Satellite
  - Geostationary
  - Low Earth Orbit
- High Operating Expense, Rapid Replacement Schedule

© Justin Smith / Wikimedia Commons, CC-By-SA-3.0
Fixed Wireless Technology

HOW IT WORKS
Fixed Wireless Technology

[Logo: Nextera Communications]

**Broadband**
- **Type**: Residential
- **Technology**: Any Technology
- **Speed**: 25/3 Mbps or greater
- **Data As Of**: Jun 30, 2022 (Last Updated: 11/17/22)

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<tr>
<th>Residential</th>
<th>Business</th>
<th>Availability Challenges</th>
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<tr>
<th>Provider</th>
<th>Technology</th>
<th>Down (Mbps)</th>
<th>Up (Mbps)</th>
<th>Chall.</th>
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<tr>
<td>Nextera Holdings, LLC</td>
<td>Unlicensed</td>
<td>1000</td>
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**Symmetrical service (the same bandwidth for uploads and downloads)**

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<th>1 Year Term</th>
<th>2 Year Term</th>
<th>3 Year Term</th>
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<tr>
<td>2 Mbps</td>
<td>$122</td>
<td>$102</td>
<td>$85</td>
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<tr>
<td>3 Mbps</td>
<td>$180</td>
<td>$150</td>
<td>$125</td>
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**Asymmetrical service (higher download speed/lower upload speed)**

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<th>1 Year Term</th>
<th>2 Year Term</th>
<th>3 Year Term</th>
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<tr>
<td>2/1 Mbps</td>
<td>$85</td>
<td>$70</td>
<td>$59</td>
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<tr>
<td>3/1 Mbps</td>
<td>$122</td>
<td>$102</td>
<td>$85</td>
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Fixed Wireless Technology

We have @TaranaWireless G1 in production in NC and in testing in SC. We often get asked if the claims are 'real'. Here is one of the middle results in our SC tests, and similar to our installs in Western NC. openbb.net @BroadbandIO @jstritzinger

Fall is a great time to deploy fixed-wireless #broadband in Alexander County NC! Better Internet for Your Community, from a 4.8/5 Star Google Rated ISP: openbb.net @alexandercounty @WISPAnews @Tville_Times
The Future: Business as Usual Course

- Over next 5-7 years, rapid improvement in rural Internet access
- Little change in low-income adoption, particularly in rural areas
- Cities, better cable modem service, more fiber in many parts of some neighborhoods
- More competition, then less in moderate-affluent areas due to consolidation
- Little market competition disciplining pricing - $100/month/hh
- Affordable Connectivity Program – high cost to renew funding… ACPDashboard.com
Networking Lunch
Elevating Health Care Connectivity Needs for the State Digital Equity Plan

Marissa Montano, PhD
Director of Policy
Insure the Uninsured Project (ITUP)
The Opportunity: Broadband Investments and the Future of Health

- Federal Broadband $45 Billion Dollars in the Infrastructure, Investment and Jobs Act of 2021 (IIJA)
- $6.5 Billion Investment in California
- Telehealth Flexibilities are Permanent
State-Level Broadband Engagement

- **California Public Utilities Commission (CPUC)**
- **California Department of Technology (CDT)**
- **State Digital Equity Plan (SDEP)**
  - Outcome Area Workgroups (OAWGs)
    - Health OAWG
    - Digital Literacy & Inclusion OAWG
Broadband For All, Digital Equity & BEAD Planning Overview

Anh Q. Nguyen,
Engagement and Operations Manager
Office of Broadband and Digital Literacy
California Department of Technology

April 12, 2023
Access

Affordability

Adoption

Digital Literacy & Inclusion
Infrastructure Investment and Jobs Act (IIJA)

The IIJA invests roughly $65 billion to support broadband deployment and adoption and promote digital equity in states.

Broadband Equity, Access, and Deployment (BEAD) $42.45B

Digital Equity Planning, Capacity, and Competitive Grants $2.75B

BACKGROUND

SDEP AND BEAD Plan Coordination

• CDT administering entity for Digital Equity Planning program
• CPUC administering entity for Broadband Equity, Access and Deployment program
• Planning processes will be coordinated
• Extensive statewide and local engagement and input
• When completed, both plans will be integrated and unlock hundreds of millions of additional dollars to achieve Broadband for All
The Digital Equity Act prioritizes investments for eight “Covered Populations”:

1. **Individuals living in covered households** with an income at or below 150% Federal Poverty Level.
2. **Aging individuals** (60+).
3. **Incarcerated individuals** other than individuals who are incarcerated in a Federal correctional facility.
4. **Veterans**.
5. **Individuals with disabilities**.
6. **Individuals with language barriers** including individuals who are English learners, and have low levels of literacy.
7. **Members of a racial or ethnic minority group**.
8. **Individuals who primarily reside in a rural area**.
9. **Women**.
10. **LGBTQI+** other than individuals who are incarcerated in a Federal correctional facility.

Specifically called out in the BEAD notice of funding opportunity.
The planning process will consist of five components:

- Statewide Planning Group (SPG)
- Outcome Area Working Groups (OAWGs)
- California Digital Equity Survey(s)
- Broadband for All, Digital Equity & BEAD Regional Planning Workshops
- Statewide Public Engagement
The State Digital Equity Planning (SDEP) process will consist of five components:

1. **Education**
2. **Health**
3. **Digital Literacy and Inclusion**
4. **Essential Services, Accessibility and Civic Engagement**
5. **Workforce and Economic Development**
6. **Tribal Collaboration**

**OAWG STAFF**
Scott Adams, Cole Przybyla, Laura Sasaki, Anh Nguyen
Contractors + Graduate Student Assistants
### California State Digital Equity Planning (SDEP) Timeline

**Important milestones for State Digital Equity Planning:**

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<tr>
<th><strong>Stakeholder Mapping</strong></th>
<th><strong>Survey &amp; Ecosystem Mapping</strong></th>
<th><strong>Draft Plan</strong></th>
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<td><strong>Data &amp; Gap Analysis</strong></td>
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<td><strong>Refine Plan</strong></td>
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**Stakeholder Outreach and Engagement**

- **Regional – Local Outreach Events**

**Key Dates:**
- **CDT applied for SDEP funding**
- **Kick-off 10/24**
- **CDT receives SDEP funding**
- **SPG meeting 1/25/23**
- **SPG meeting 4/26/23**
- **SPG meeting 7/26/23**
- **SDEP draft posted for public comments (Open for 30 days)**
- **SPG meeting 10/25/23**
- **Final SDEP submitted to NTIA**
Takeaways/Findings

- Telehealth is a powerful tool, but only if individuals have access to the technology, devices, trainings, and skills to use it effectively.

- Every population has unique needs and challenges, hence it’s important to include the community’s voices in the process of co-designing potential solutions.

- Rural Communities have been left behind when it comes to digital infrastructure, resulting in slower economic growth and fewer investment opportunities.

- Digital equity initiatives can improve health outcomes by partnering with healthcare providers and training digital navigators.
WE NEED YOUR HELP
THE DEEM TOOL IS LIVE!

The Digital Equity Ecosystem Mapping tool tracks Digital Equity programs, plans, services, and resources throughout California. The mapping tool will help identify:

• What programs are being offered, where they're being offered and to whom, and what is missing in each region.

• Barriers to achieving digital equity in every California county.
Visit Bit.ly/DEEMSurvey or scan the QR code using your mobile device.

Make your voice heard!

Millions of Californians do not have access to the internet. Our state wants to work with organizations across California to create a plan to give all Californians the access they need to succeed in the digital age.

Help our state identify and fund programs to close the digital divide for good. Put your organization on the map now.
CDT will distribute a statewide Digital Equity Public Survey in multiple languages to residents of California to identify barriers to digital equity, especially for Covered Populations.

The survey is intended to capture information about internet access, internet affordability, and internet adoption for residents in California households.

**Timeline:** Launch Q2 2023
Broadband for All, Digital Equity and BEAD Regional Planning Workshops

- Friday, April 14, Merced
- Saturday, April 15, Fresno
- Friday, April 21, San Diego
- Thursday, April 27, Chico
- Friday, April 28, Santa Rosa
- Wednesday, May 3, Eureka
- Friday, May 5, San Jose
- Thursday, May 11, Sacramento
- Friday, May 12, Grass Valley
- Tuesday, May 16, Inland Empire
- Friday, May 19, Los Angeles
- Saturday, May 20, Long Beach
- Wednesday, May 24, Santa Ana
- Tuesday, May 30, Tuolumne
- Thursday, June 1, Santa Maria
- Friday, June 2nd, Seaside
- To Be Announced: Oakland

Scan the QR code using your mobile device or visit us at bit.ly/CADigitalEquityPlanEvents
Contact Us

Digital Equity Planning General: digitalequity@state.ca.gov

California Department of Technology
Office of Broadband and Digital Literacy

Anh Q. Nguyen
Engagement and Operations Manager
anh.q.nguyen@state.ca.gov
Thank You

Q&A
Workshop: Breakout Session #1

1. What are the digital barriers to health you’ve encountered in your work and/or what digital barriers to health have the communities you served faced in accessing health care?

2. How do digital barriers to health contribute to, or worsen, health disparities for California communities?

3. What solutions for digital barriers to health care access have you/could you use in your work to make access to health care more accessible for the communities you work with or for?

1. Write out 2-3 barriers on the provided post it notes.

2. Then, as a group, create categories/groupings of the barriers you wrote down.

3. Place the groups post its under the categories you delineated.
Workshop: Breakout Session #2

1. What supports or polices are needed to operationalize the solutions identified for breaking down digital barriers to health care?

2. In what ways can the state digital equity plan help support you in breaking down the digital divide to advance health equity in your work?
15 Minute Break
Closing the Digital Divide and Health Equity Gaps

Sunne Wright McPeak, MPH
President and Chief Executive Officer
California Emerging Technology Fund (CETF)
Thank You!

Follow ITUP on Social Media!

@itup
@InsuretheUninsuredProject
@InsuretheUninsuredProject
www.itup.org