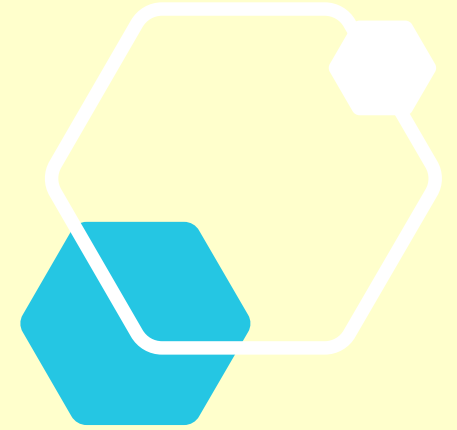# The CSU and Telemedicine

Where we have been...

Where we are going...

Agenda of Telemedicine Presentation

The Chinle Service Unit (CSU)

Previous telemedicine endeavors with IHS and the Chinle Service Unit

Challenges with telemedicine and the CSU

The SAR-CoV-2 "COVID -19" on the Navajo Reservation

The response and current state of telemedicine at the CSU

Future Directions in telemedicine for the CSU

Questions and answers

Presentation By Stephen Neal Chief Of Staff, PA-C, Informatics

Nothing to declare

Chinle Service Unit - Navajo Area IHS

Tsaile Health Center

Chinle Comprehensive Health Care Facility

Pinon Health Center

Life in Chinle

Chinle - Medical Services

- Family Medicine
- Internal Medicine
- Pediatrics
- Emergency Medicine
- Women's Health (OBGYN, Midwifery)
- General Surgery
- Anesthesia
- Counseling Services – Mental Health
- Native Medicine

- Dental
- Optometry
- Podiatry
- Physical Therapy
- Occupational Therapy
- Speech-Language Pathology
- Audiology
- Pharmacy & Lab
- Public Health
- Dietary-Nutrition
- Adolescent School-Based Health

IHS has a long history in providing healthcare

Including telemedicine

IHS and NASA were leaders in the field of Telemedicine

Pending book on experience with IHS-NASA telemedicine collaboration in the 1970's in southern Arizona with the Tohono O'odham tribe and Sells IHS clinic.

IHS Successful Telemedicine Endeavors

- AFHCAN (Alaska Federation Healthcare Access Network) 2001: Asynchronous platform currently used for dermatology at PIMC and ENT in Alaska

- Joselyn Vision Network JVN since 2000

- IHS Tele behavior health center of excellence (TBHCE) 2008

CSU

- Teleradiology contract since 2005 with the University of Arizona and later OnRad for CSU and much of NAO in 2012

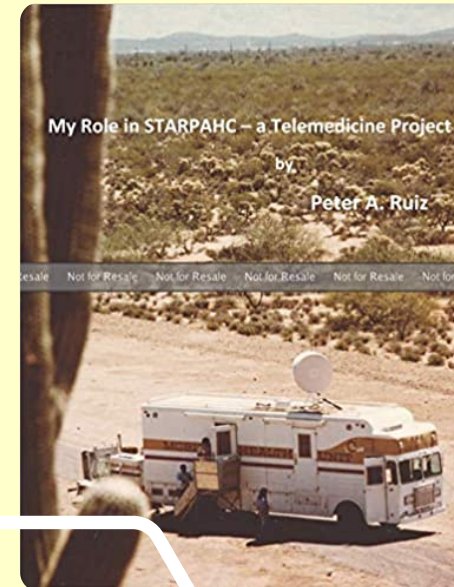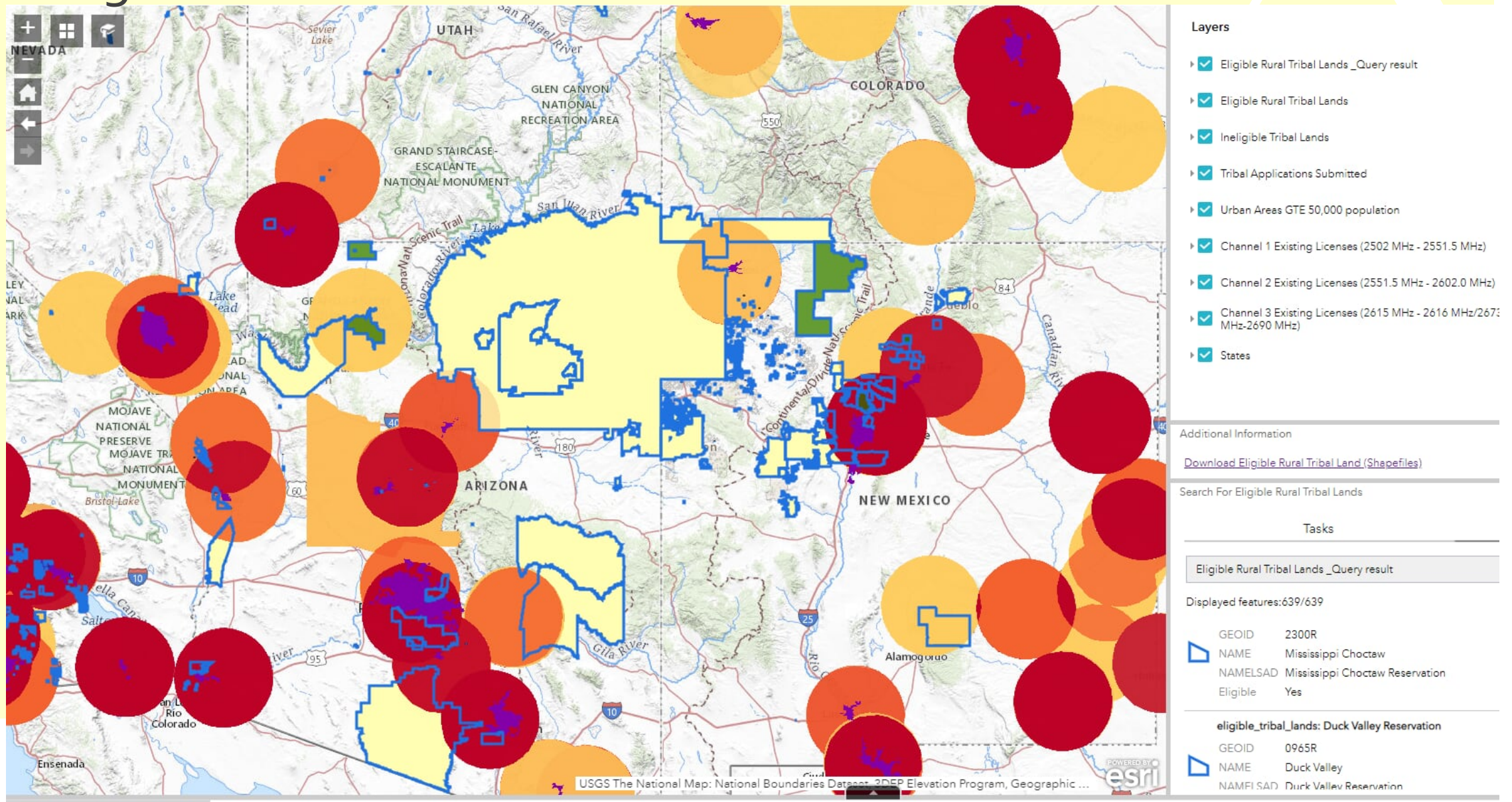- CSU Global med cart partnering with FMC, never pursued to functional operation

My Role in STARPAHC – a Telemedicine Project
by
Peter A. Ruiz

MOBILE HEALTH UNIT

Figure 1. Exterior view of the mobile health unit on location

Challenges with telemedicine and the CSU

Challenges with telemedicine and the CSU

**Challenges of Telemedicine in the CSU:**

- End users lack quality broad band connectivity, which is a significant limitation to a successful telemedicine program.

- Available broadband is Satellite, DSL, Fixed wireless (cellular)
  - All have challenges cost vs lacking functionality issues

- Variability in end user equipment

- Variability in end user technology literacy

- CSU infrastructure challenges:
  - Call manager system (currently upgrading)
  - Staffing/workforce (Data point on IHS Facilities average 40 yo)[1]

> 0.16% of Apache County has access to 25 mps...
> *The next lowest in AZ is la Paz 51.7%*
> *The state average is 79 mps*
> *AZ is #36th State in Broadband coverage in USA* [2]

COVERAGE BY COUNTY

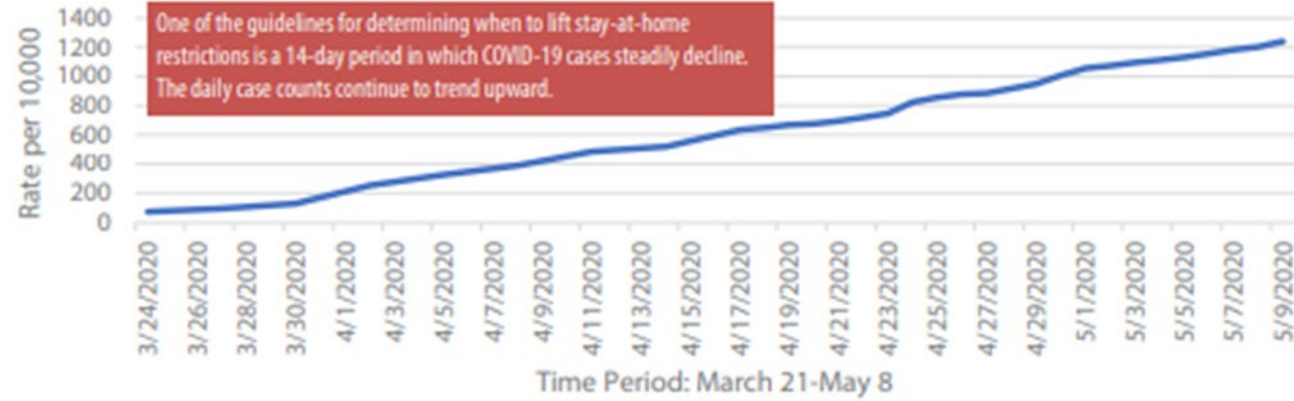| 25+ mbps | 100+ mbps | 1 Gbit |

Embed this map   Customize map
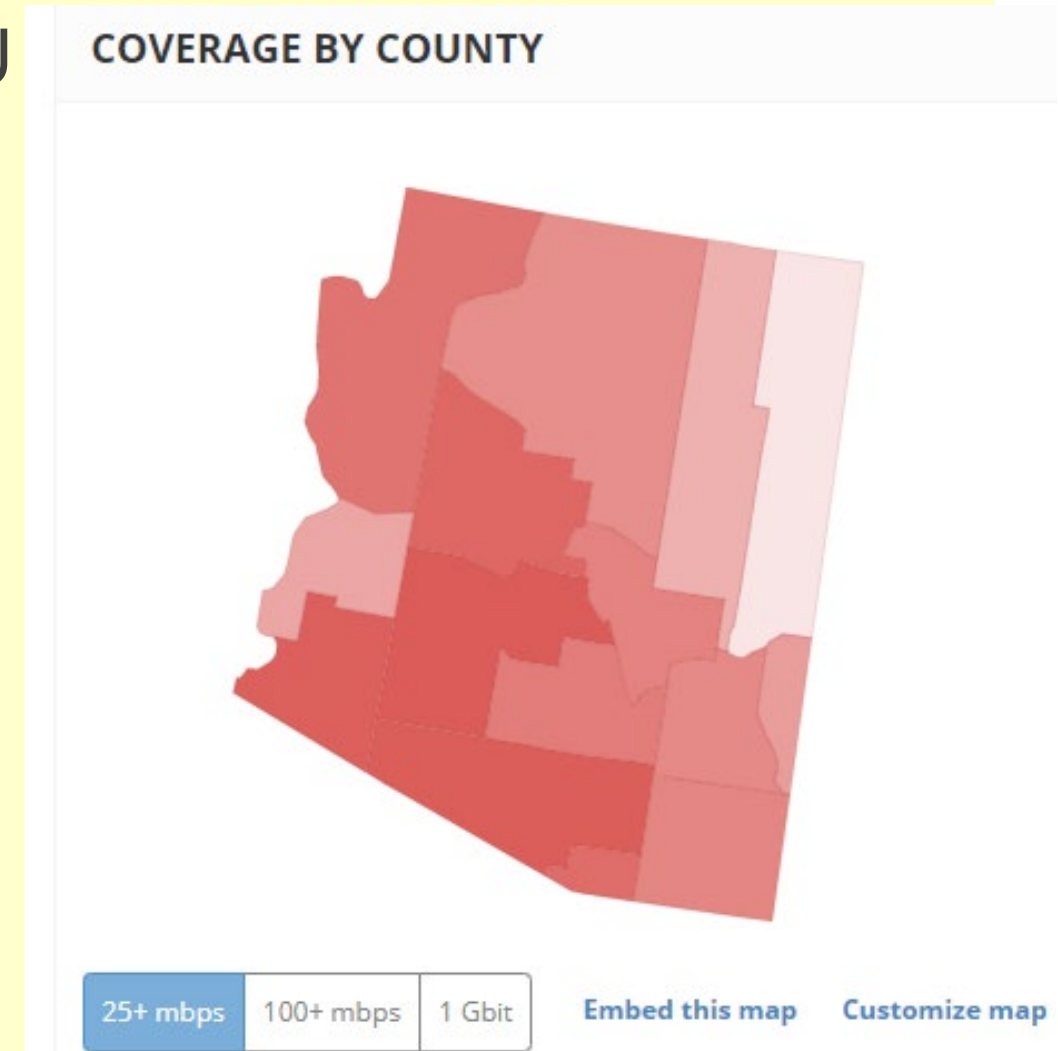
1.https://www.ihs.gov/sites/newsroom/themes/responsive2017/display_objects/documents/RepCong_2016/IHSRTC_on_FacilitiesNeedsAssessmentReport.pdf

2. Cooper, Tyler. "Arizona Internet Service Providers: Availability & Coverage." *Broadband Now*. Broadband Now, 06 Feb. 2020. Web. Accessed 05 Jul. 2020. <https://broadbandnow.com/Arizona>.

Figure 1: Navajo Nation* COVID-19 Crude Incidence Rates
Source: Navajo Epidemiology Center and Navajo Area IHS Collaborative

One of the guidelines for determining when to lift stay-at-home restrictions is a 14-day period in which COVID-19 cases steadily decline. The daily case counts continue to trend upward.

Time Period: March 21-May 8
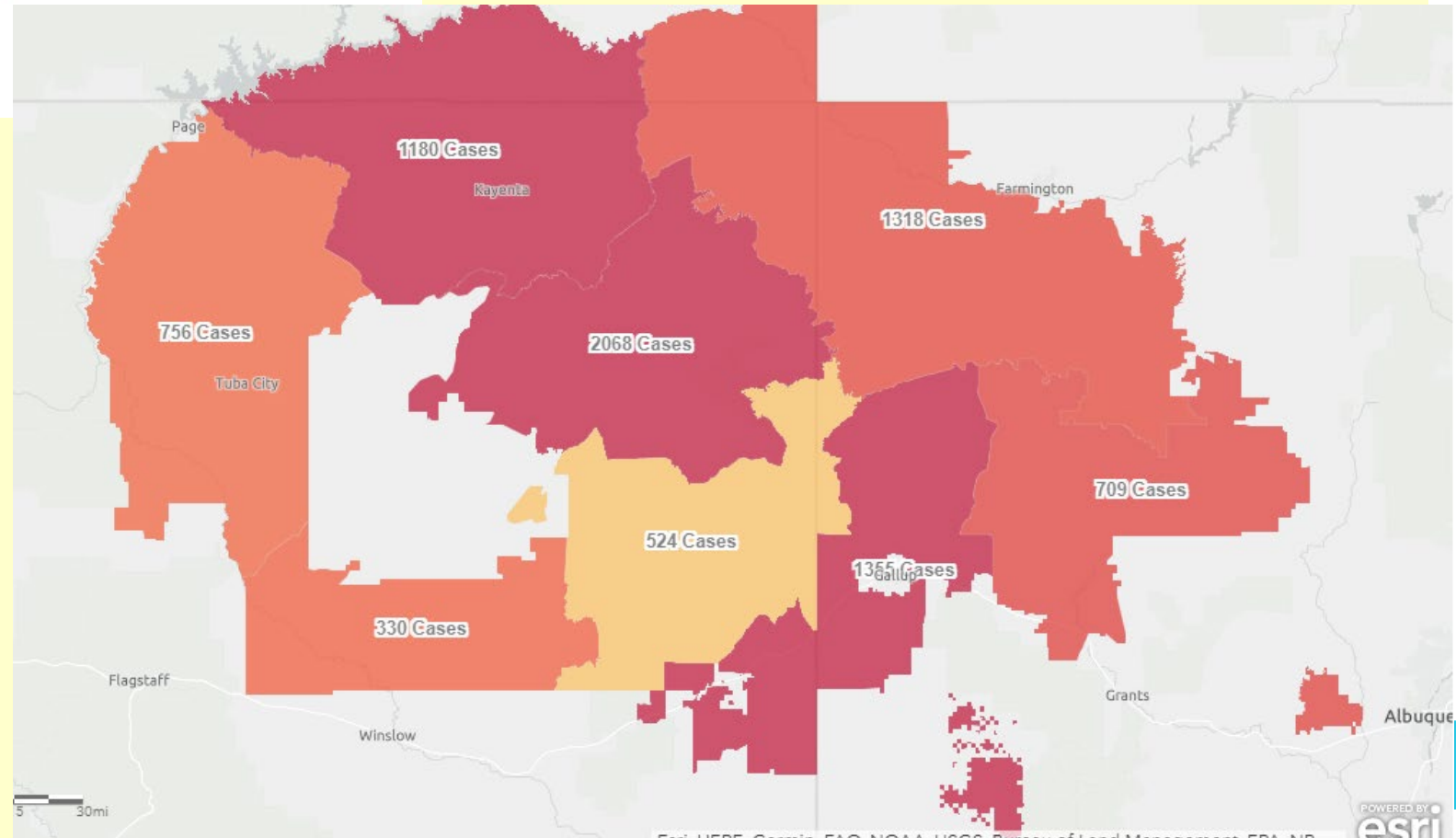
*Does not include data from border towns.

The SAR-CoV-2 aka COVID -19 on the Navajo Reservation

Old data
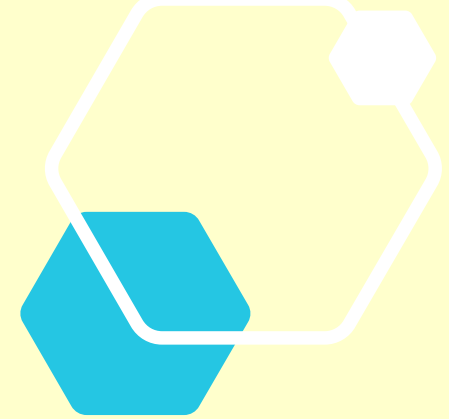
New heat map as of 7/12/2020

1180 Cases
1318 Cases
756 Cases
2068 Cases
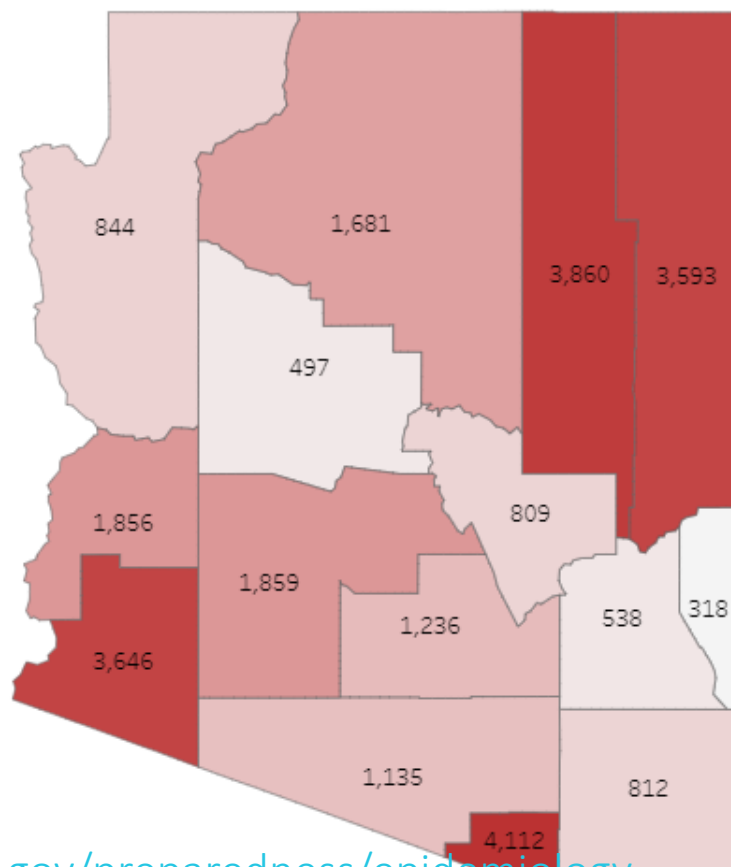524 Cases
709 Cases
1355 Cases
330 Cases

Show case counts or population rates in the map below?

Rates per 100,000 population ▾

Select a county to filter the other numbers.
Deaths will not be shown for counties with fewer than three deaths.

As of 7/13/2020
https://www.azdhs.gov/preparedness/epidemiology-disease-control/infectious-disease-epidemiology/covid-19/dashboards/index.php

Number of Cases	Number of Deaths	Number of COVID-19 Tests
123,824	2,245	899,994

Number of New Cases reported today*	Number of New Deaths reported today*	Number of New Tests reported today*
1,357	8	7,514

Rate of cases, per 100,000 population	Rate of fatalities, per 100,000 population	Total Percent Positive**
1,722.4	31.23	11.9%

Total COVID-19 PCR Tests	New PCR Tests reported today*	PCR Percent Positive**
701,703	6,240	14.2%

Total COVID-19 Serology Tests	New Serology Tests reported today*	Serology Percent Positive**
198,291	1,274	3.7%

*Counts of new cases, deaths, and numbers tested reflect increases in the total numbers compared to the previous day.

Number of Cases

123,824

Hover over the icon to get more information on the data in this dashboard. ⓘ

Select a county to filter the other graphs.
Graphs will not be displayed for counties with fewer than 10 cases.

County values (map)
1,831
2,475
4,355
2,580
1,156
410
446
81,216
5,627
207
33
8,384
11,856
1,062
2,186

COVID-19 Cases by Age Group

Age Group	Cases
Less than 20 years	13,868
20 - 44 years	61,881
45 - 54 years	19,218
55 - 64 years	14,534
65 years and older	14,152
Unknown	171

COVID-19 Cases by Race/Ethnicity

Race/Ethnicity	Percent
White, non-Hispanic	16%
Hispanic or Latino	23%
Native American	6%
Black, non-Hispanic	2%
Asian/Pacific Islander	1%
Other, non-Hispanic	2%
Unknown	50%

COVID-19 Cases by Gender

Gender	Percent
Female	52%
Male	48%

Chronic medical condition

Yes 18%	No 82%

High-risk
(65+ years OR 1+ chronic medical condition)

Yes 25%	No 75%
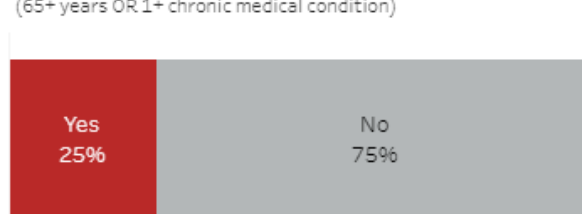
Date updated: 7/13/2020

Chronic medical conditions include diabetes, cardiac disease, hypertension, chronic pulmonary disease, chronic kidney disease, or chronic liver disease.

As of 7/13/2020
https://www.azdhs.gov/preparedness/epidemiology-disease-control/infectious-disease-epidemiology/covid-19/dashboards/index.php
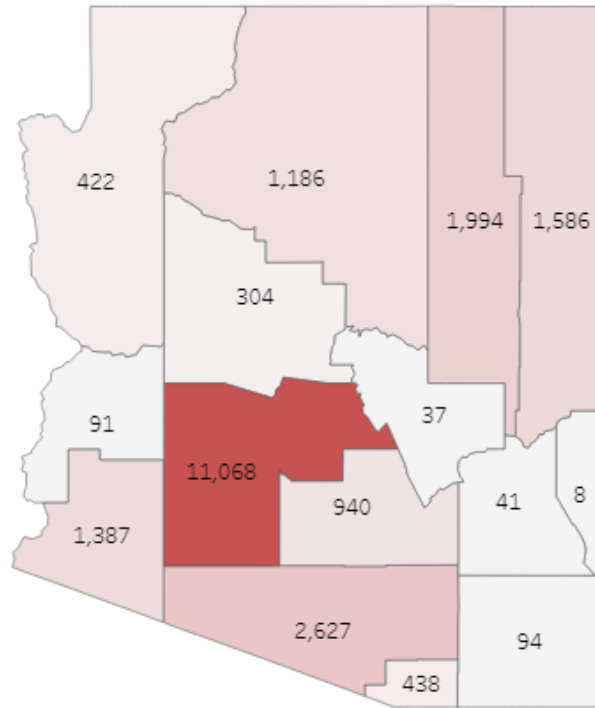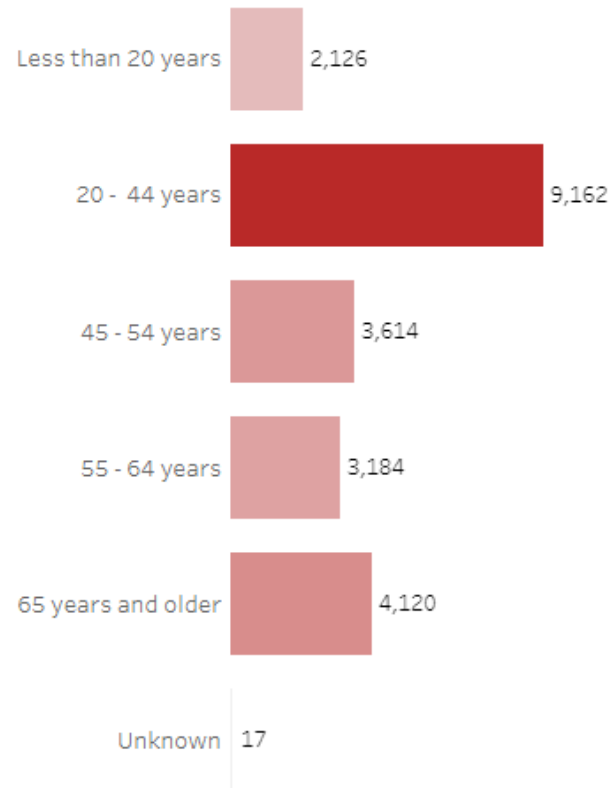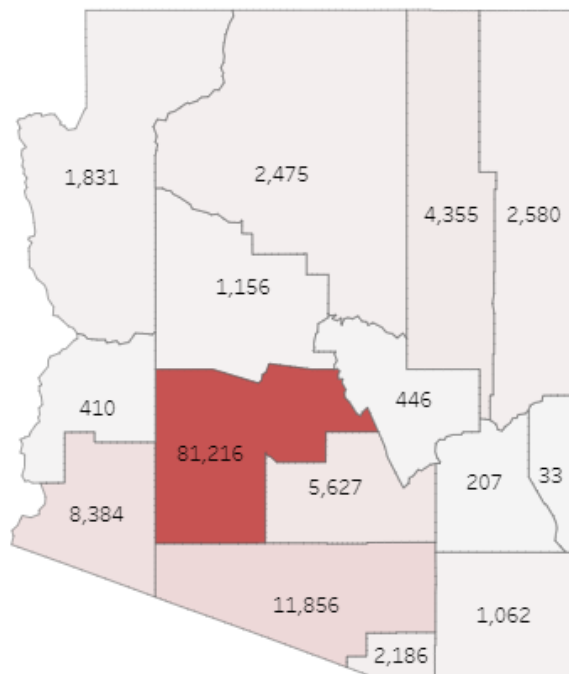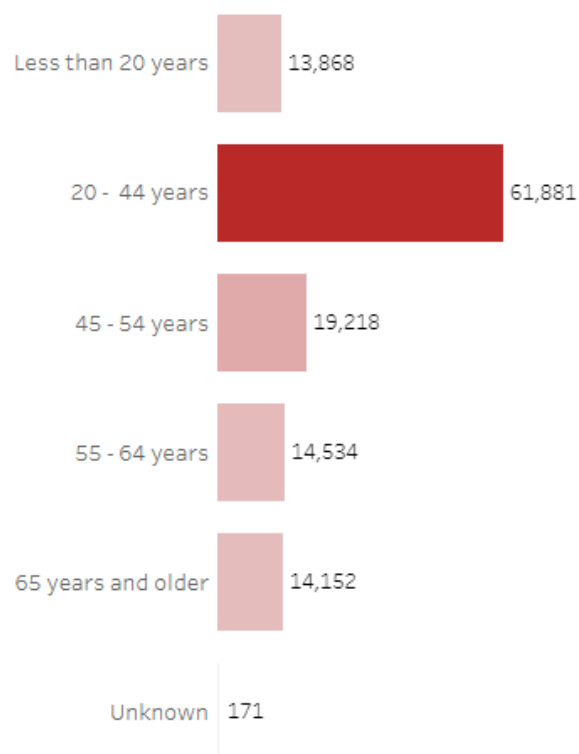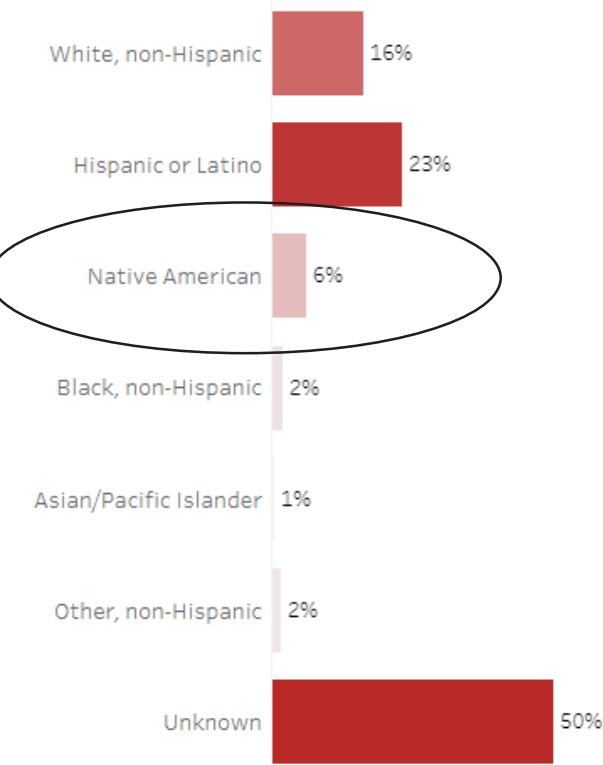
Current status of CSU Telemedicine

Keeping in mind the challenges faced by CSU, we have successfully implemented Telemedicine in...

- *Respiratory clinic* >5100 patients seen

- *RCU* all intubations(>60) Observed via Telemed

- *Emergency Department* has seen 301 patients in negative pressure rooms. April 15-June 30th.

- *Medical staff telemed pilot trial* most departments participated, and now a majority have familiarity with the program and process

- All *Nephrology clinics* since mid April have been via Telemedicine

- *Tablet Pilot Program*

Current status of CSU Telemedicine
Respiratory clinic
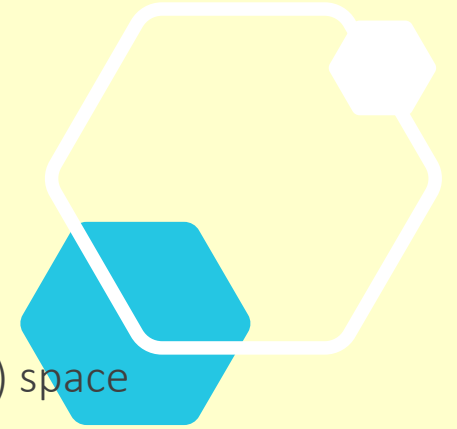
Benefits include

- Able to include higher risk providers for whom we would otherwise limit patient exposure in the setting of the COVID-19 pandemic

- Reduce quarantine probability for providers

- Decrease consumption on PPE (see Matrix below)

- Triage higher acuity patient to the ED/UC rapidly and avoid overwhelming with lower acuity.

- Rapid assessment of large volume of sick patients

- Remote access for providers to beam in (JVN) space optimization

- Able to quantify how many patients are seeking help for respiratory symptoms.

- Indoors for clinic evaluation, outside for specimen collection. Less infrastructure demands for an outside clinic, 24/7.

Type of PPE	Size/ Brand	Total	unit/day (5day moving)	Day remaining	Capacity level	Capacity Level (auto-calc)	True Capacity Level	Priority Ordering (6/14 - 6/22)			
Gray Sani		33	9.8	3	Strict Rationing	Strict Rationing	Strict Rationing	yes			
Purple Sani/Cavi		64	6.6	10	Strict Rationing	Strict Rationing	Strict Rationing	yes			
Bleach Sani		90	0.6	150	Contingency Capacity	Contingency Capacity	Strict Rationing	yes		# of days supply left	pacity level
Blue gowns AAMI 3		5474	35.6	154	Contingency Capacity	Contingency Capacity	Strict Rationing	yes		< 1 days supply	Crisis
Yellow gown		0	0	0	Crisis	Crisis	Crisis			2-14 day supply	Strict Rationing
1860	R	12579	91.8	137	Contingency Capacity	Contingency Capacity	Contingency Capacity			14-28 day supply	Contingency Capac
1860s	S	9080	34	267	Contingency Capacity	Contingency Capacity	Contingency Capacity				
Surgical Masks		50750	239.4	212	Contingency Capacity	Contingency Capacity	Contingency Capacity				
N95 Moldex XS		926	24	39		Contingency Capacity	Strict Rationing	Yes			
N95 Moldex S		9327	51.2	182		Contingency Capacity	Contingency Capacity				
N95 Moldex M/L		22151	53	418		Contingency Capacity	Contingency Capacity				
N95 Moldex LP		1542	20	77	Contingency Capacity	Contingency Capacity	Contingency Capacity	yes			
Peds Mask		5490	60	92	Contingency Capacity	Contingency Capacity	Contingency Capacity	yes			
1870		77	1	77	Contingency Capacity	Contingency Capacity	Strict Rationing	yes			
KN95		2352	28.6	82	Contingency Capacity	Contingency Capacity	Contingency Capacity				
Bouffants		9002	59.8	151	Contingency Capacity	Contingency Capacity	Contingency Capacity				
Shoe Covers		6530	128	51	Contingency Capacity	Contingency Capacity	Contingency Capacity	yes			
Gloves	XS	99	0	Indefinite	Contingency Capacity	Contingency Capacity	Contingency Capacity				
Gloves	S	432	6	72	Contingency Capacity	Contingency Capacity	Contingency Capacity				
Gloves	M	133	12.6	11	Strict Rationing	Strict Rationing	Contingency Capacity	yes			
Gloves	L	226	7	32	Contingency Capacity	Contingency Capacity	Contingency Capacity				
Gloves	XL	54	2.2	25	Contingency Capacity	Contingency Capacity	Contingency Capacity				
Non-covid gowns		240	0	Indefinite		Contingency Capacity	Contingency Capacity				
Half Mask	S	303	4	76		Contingency Capacity	Contingency Capacity				
Half Mask	M	256	4	64		Contingency Capacity	Contingency Capacity				
Half Mask	L	Indefinite	Indefinite	Indefinite		Contingency Capacity	Contingency Capacity				
Faceshields		11610	23.4	496		Contingency Capacity	Contingency Capacity				

Primary Conservation Strategy per Capacity	Contingency Capacity > 14 days, w/out confidence in supply	Strict Rationing: 2 - 14 days supply	Crisis Capacity: < 1 days supply (i.e. effectively out of PPE)
Gowns	Shift use to washable gown where possible	Maximize use of washable gowns.	Maximize use of washable gowns. If washable gowns insufficient, consider a) extended use for patients in adjacent room with same pathogen; b) not donning gown if entering patient room to adjust pump or other activity not requiring direct patient contact; c) prioritizing for higher risk contact; d) suspend gown use for patients with MDR organisms.
N-95 (Direct care staff(	Wear N-95 extended use for duration of shift, then discard	**Time based decontamination and reuse:** Wear N-95 extended use for duration of shift. At shift end, DO NOT DISCARD. Store in brown paper bag for reuse 7 days later.	**Time based decontamination:** and reuse: Wear N-95 extended use for duration of shift. At shift end, DO NOT DISCARD. Store in brown paper bag for reuse 7 days later.
Surgical Masks	Wear extended use for duration of shift, then discard. Prioritize surgical masks for **direct** care staff, in non-covid, outpatient clinics AND **non -direct** care staff in higher risk zones (ER, urgent care, resp clinic, RCU, ACU, SCU, PCU). May use KN95 as surgical mask alternative is sufficiently available.	Wear extended use for duration of shift, then discard. Prioritize surgical masks for **direct** care staff in non-covid, outpatient clinics AND **non-direct** care staff in higher risk zones (ER, urgent care, rasp clinic, RCU, ACU, SCU, PCU). May use KN95 as surgical mask alternative is sufficiently available.	If surgical mask insufficient, do not reuse. Shift to homemade masks (wahsing nightly a home). Consider all sufficiently available mask alternatives including KN95.
Wipes	**Gray Sani Cloth** - May use wipes or Eco spray bottle (or other "quat" spray) with paper towels. Opt for spray for larger surfaces: **Purple Sani, Cavi or other alcohol based wipe**: Reserve for infusion pumps; **Bleach wipes:** Reserve for C. diff care.	**Gray Sani Cloth** - May use wipes or Eco spray bottle (or other "quate" spray) with paper towels. Opt for spray for larger surfaces; **Purple Sani, Cavi or other alcohol based wipe**: Reserve for infusion pumps; **Bleach wipes:** Reserve for C. diff care.	**Gray Sani Cloth** - Use Eco or other quate spray with paper towels instead; **Purple Sani, Cavi or other alcohol based wipe**: Use Eco or other quate spray with paper towels instead; **Bleach wipes:** Use 10:1 bleach solution in spray bottle.
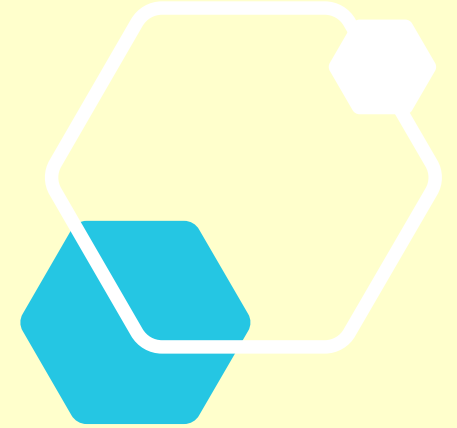
One note use

Thursday, April 2, 2020   12:33 PM

In order to improve communication, we are using One note is an interactive tool to maintain up to date information. It is constantly changing as we try to improve it. Constructive feedback is always welcomed.

You can click the tabs above to the corresponding topic OR click on Hyperlinks below.

Set up process in Respiratory Clinic:
"How to..." set up telemedicine tool,   problem solve,   device numbers
Flow Chart Resp Clinic Triage
Helpful Phone Numbers
Test protocol updated 4/16
Dispo patients to ED/UC or Pharmacy
Optometry Consults in Respiratory Clinic
Pregnant Patients in Respiratory Clinic
COVID vs Hanta Virus
COVID-19 Return to Work Algorithm
Return to Work Note
E.H.R. process:
Charting
Billing and coding
Print label for COVID testing

Schedule:
Scheduling M-F
Weekend 8am-8pm

Inpatient information:
April Anesthesia back up

Personal Protective Equipment:
PPE do's and do nots
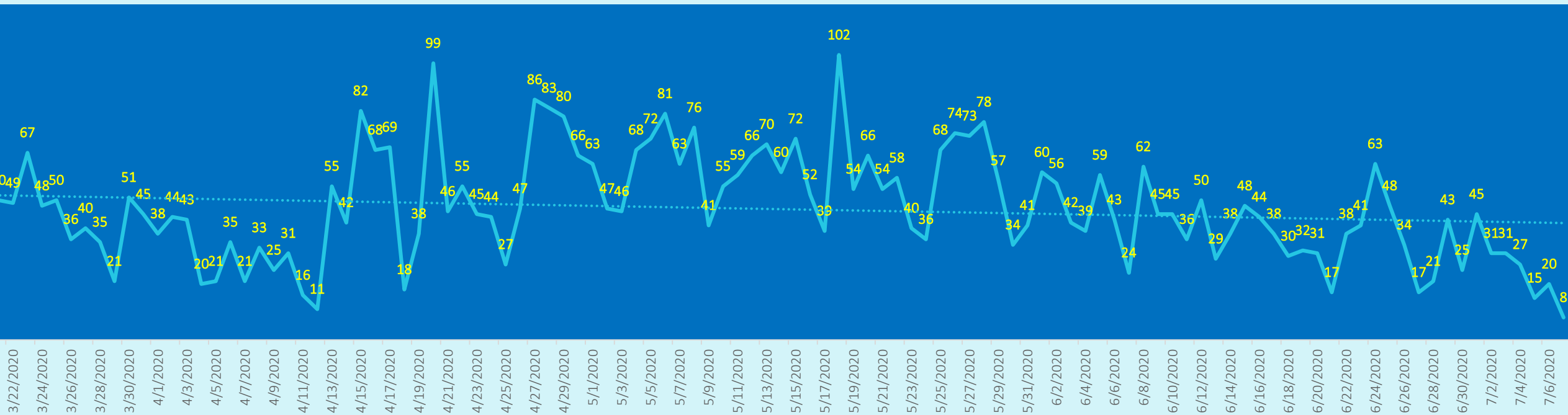Donning mask/eye PPE
Doffing Eye PPE

Other information and links:
Nephrology phone numbers

Add Page

One note use

Daily volume in Respiratory Clinic since March 20ᵗʰ
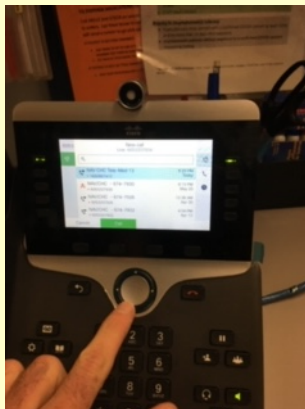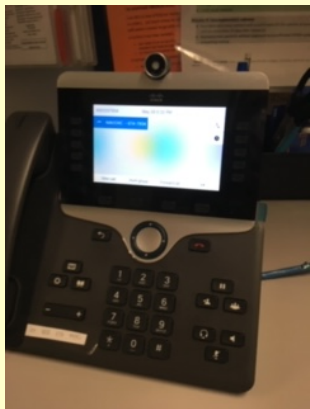## (93% via Telemedicine)

RESPIRATORY CLINIC
Total Encounters = 5,151

Current status of CSU Telemedicine

RCU – Respiratory Care Unit

- All intubations supported with 8865 camera

- Nurses station able to monitor and rapidly switch to other rooms

- Recorder outside the room able to participate and observe in two-way communications

- Decreases number of staff in the room

- Outside staff able to monitor the process

- Potential for family meetings with COVID+ Patients and their often COVID 19 positive families


8865 Cisco Voice Over Internet Protocol (VOIP)

Current status of CSU Telemedicine

The Emergency Department

- Maximize utility of small negative air pressure rooms with poor visibility

- 301 of patients seen in room OB and 6 April 15- June 30. These two rooms reserved for COVID -19 positive patients and intubation

- Able to observe, converse, and monitor without PPE, exposure, and meanwhile maintain room isolation

- Recommended to Oklahoma and PIMC Emergency Departments who have or are working to set up a similar room design at their facilities

- Able to rapidly jump from one room to another from the nurse station. Can monitor both at the same time.

- The CSU ED is a cramped environment, Telemed tools helped maximize space potential

- Simple to use (see previous slide 4 buttons to push)
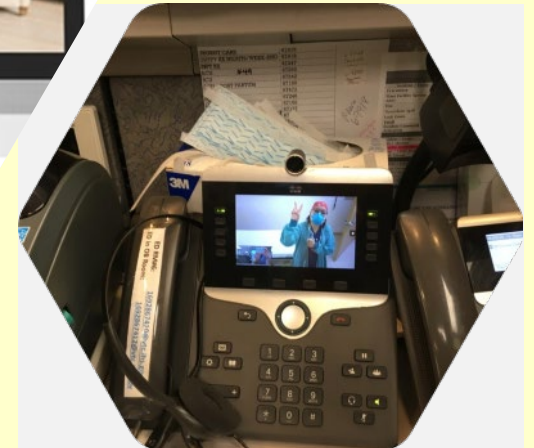
A telehealth program to perform medical screening examinations, Journal of the American Academy of Physician Assistants: July 2020 - Volume 33 - Issue 7 - p 51-53 doi: 10.1097/01.JAA.0000662420.25306.73

WHAT'S NEW IN EMERGENCY MEDICINE

A telehealth program to perform medical screening examinations

Laghezza, Matthew PA-C; Sharma, Rahul MD, MBA, CPE, FACEP; Hsu, Hanson MD; Greenwald, Peter MD, MS, FACEP, EMT-P; Sullivan, Robert PA-C, MS; Eid, Dona Alma Bou MHA Author Information ⊙

Current status of CSU Telemedicine

Medical Staff Pilot test pre-enterprise wide roll out

- In April IHS needed to test out the IHS Cisco meeting platform: Join.meet.ihs.gov and requested Chinle to be a test site. Many on the Medical Staff tested the platform including OT, PT, Optometry, Pediatrics, Family Practice, Internal Medicine, Diabetes Educators, and Dieticians.

- CSU providers logged results and gave feedback to IHS on the telemedicine experience and the challenges faced during the telemedicine visits.

  - Outcome: an environment like Chinle Telemedicine from home base to end user in the field is very hard without supported infrastructure (Broadband).
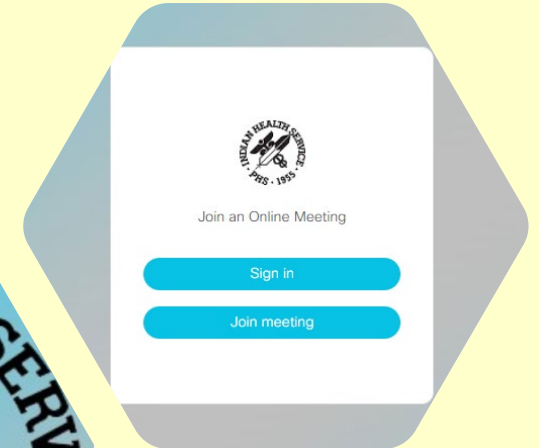
The response and current state of telemedicine at the CSU
A distress signal from IHS
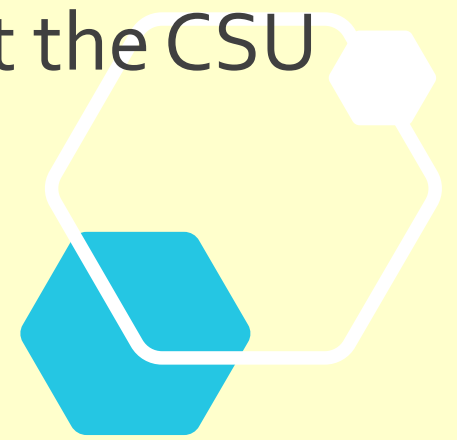
Reply Reply All Forward IM

Wed 4/8/2020 2:09 PM

Thornbrugh, Mitchell (IHS/HQ)

Indian Health Service Expands Telehealth Services During COVID-19 Response

To   IHS ALL

Today the Indian Health Service announced the expansion of Telehealth Services across the agency.

After issuing interim guidance on March 20, on March 27, IHS provided additional guidance that expanded the use of remote communication methods, such as telephone and videoconferencing, to provide continuity of care to the communities we serve. The purpose of this memo is to advise you of the availability of IHS' web conferencing infrastructure for use when face-to-face communication is desired and local bandwidth supports it.

Several years ago, IHS adopted technology supplied by Cisco, which provides end-to-end encryption of video conferences with two or more participants. Anyone with D1 network credentials can set up a meeting and invite others to join, including people who do not have D1 credentials, such as patients. Even though you need D1 credentials to initiate a meeting, you do not have to be inside the IHS network. The communications are still secure because of the encryption. This means that our providers could even provide telehealth services from locations other than our hospitals and clinics, as in the case of self-quarantined clinicians.

The Cisco Meeting infrastructure is already used for telehealth in IHS, most commonly by the Telebehavioral Health Center of Excellence as well as the Great Plains Area, so there is considerable experience with its use. It has been supported by GPA federal staff and contractors in Sioux Falls, but as we expand telehealth services across the agency, most support will transition to the Service Unit and Area levels. Fortunately, the system is reasonably straightforward to use so the added support burden is not expected to be significant.

It is extremely important for all providers and other staff to keep in mind that whether talking on the phone, engaging in a web meeting, or seeing the patient in person, these are all health care encounters that must be conducted and documented as such. This means correct identification of the patient, ensuring privacy and confidentiality, and creating and documenting each visit in RPMS in a timely manner.

There are a few Cisco Meeting Rules of Use. These rules below are current as of March 31, 2020 and are subject to change:

- Send a separate appointment/space invitation for each patient encounter.
- Verify the identity of your patient at the beginning of each encounter.
- Also, verify that there are no uninvited participants.
- DO NOT Record any of the audio or video of the patient encounter.
- Delete the email invitation from your sent items after the patient encounter.
- Obtain verbal consent for a telemedicine session.

IHS will be providing the following resources to assist sites in planning for the expanded use of telehealth by videoconference using Cisco Meeting:

- A "how-to" guide for facility staff to use in setting up Cisco Meetings and scheduling appointments with patients; this includes a short (5 minute) video primer;
- A one-page flyer for patients on how to prepare for a telehealth encounter using a browser or smart device app; this includes a very short (under 2 minutes) video primer;
- A support guide for Service Unit and Area technical staff to reference when fielding questions and issues; this guide will outline the scope of Tier 1 and Tier 2 issues that should be supported
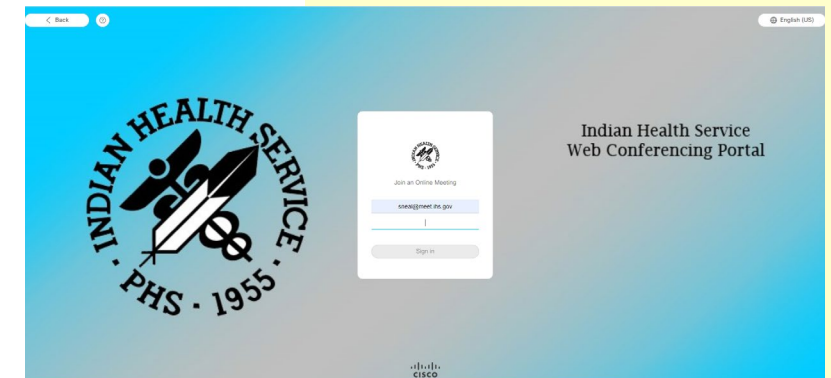
So we tested it out... Along the way we learned a few things...

Session number	Provider last Name	Age of Patient (years)	End user assistance provided by?	CSU Web	Patients Web Bowser	Patients Device	Audio Quality	Video quality	Aprox call length	Local support required	Area support Required	Comments
7	De Silva	2	Parent	Chrome	Safari	Apple Phone	Poor	Poor	5>	No	No	Unable to fully load link on patient's wifi network, visit converted to phone
8	De Silva	2	Parent	Chrome		Laptop PC	Fair	Poor	10	No	No	Video on computer froze, had parents call back on their phone, video quality and audio quality poor--> converted to phone visit. Parents able to call using home wifi and audio/video quality improved to allow continuation of telemed visit
9	Yerman	36	None	Chrome	Safari	Apple Phone	Fair	Poor	20	No	No	Pt did not receive email sent multiple times. Had to send a copy link. Took multiple attempts. Patient used browser rather than app. Initially video was pixelated on and off, then froze x 1, then she was kicked off on her end. It took so much effort to get it started (20+ minutes) that we didn't try again.
10	Neal	37	None	Chrome	Internet Explorer	Laptop PC	Poor	Poor	5>	No	No	Pt has NTUA and even the cellular phone call to set up the appointment was not successful due.
11	Holtkamp	64	None	Chrome		PC Desktop	Fair	Fair	25<	No	No	Not all of computers in PT exam rooms have cameras. Difficulty finding a quiet area with camera capabilities.
12	Morton	42	None		Internet Explorer	Android phone	Poor	Poor	5>			Patient wasn't able to connect with phone and grew frustrated, transferred exam to phone call only.
13	Sharpe	32		Chrome	Internet Explorer	Android phone			5>	No	No	Could not download App with cellular service/ visit converted to phone. Cellular One Service
14	Runyon	46	None	Chrome	Internet Explorer	Apple Phone			5>	No	No	Unable to connect with patient; she ultimately ended up coming in for an issue that I could have easily seen her for over the phone. She was using her son's iPhone who was not interested in downloading another app due to inconvenience, likelihood of infrequent use, and did not want to use up his data for the visit (they weren't at home) but also did not report having WiFi at home.
15	Sharpe	41	None	Chrome	Internet Explorer	Android phone				No	No	Multiple attempts to provide email link. Frustrated with having to download another app. Did reluctantly. Timed out with download after several attempts. Patient reported only cellular no wifi at home. Did convert to phone. Cellular One
16	Sharpe	52	None	Chrome	Internet Explorer	Android phone				No	No	Using sons phone did not want to download or use data - converted to phone encounter. Cellular One
17	neal	52	None	Chrome	Chrome	Laptop PC	Fair	Poor	20	No	No	

- Chinle was an ideal test environment as we were preparing to open our own Telemedicine Program

Current status of CSU Telemedicine

Nephrology Clinics

- Nephrologists on the reservation often have a route and go to several clinic sites and dialysis clinics across the reservation.

- CSU was able to get 3 Nephrology groups to use IHS Telemedicine platform for remote and on-site clinics with patients.

- The process involved training 7 Nephrologist on Telemedcine, obtaining VPN access for them, educating them on telemedicine charting, and trouble shooting systems issues in real time.

- This program allows one of our most high-risk patient populations to still be seen by their providers while minimizing their risk of exposure to COVID-19

Chinle Service Unit
...ajo Area Indian Health Ser...

Current status of CSU Telemedicine

Tablet Pilot Program

- IHS HQ offered the CSU 2 tablets that tap into the cellular FirstNet (First responder network), not on the IHS network and limited web access.

- For several years, CSU has had an intensive case management program BHLC for about 70 patients who have been identified as high risk and in need of more care coordination based on risk algorithms, poor health literacy, and/or high disease burden.

- PCPs helped identify their highest risk patients for the tablet program.

- Health education Navajo Nation Employee takes a tablet to these patients' location and PCP is able to have a telemedicine visit with them

- Results are promising thus far with respect to patient and provider satisfaction and coordination of care

Future potential for the CSU and Telemedicine

Recommended Growth

- The specialty landscape *will* change:
  - Asynchronous Dermatology
  - Rheumatology
  - Endocrinology

Potential Growth (Ideas)

- Tele ICU

- Tele Stroke-Center (similar sized institutions have shown ROI, decrease in LOS, and decrease mortality)

- Lactation

- Hospice

- Remote patient monitoring (CHF, DM, obesity)

- Outfit EMS with Tablets for in the field consults.

Before able to thrive with telemedicine it would be in our best interest to consider …
- Consider increased staffing
- Education growth and opportunity for motivated staff willing to sign on for several years
- Team based approach for management (Global Med historically not optimized)
- Infrastructure
- Data driven approach with strategy, milestones, accountability.
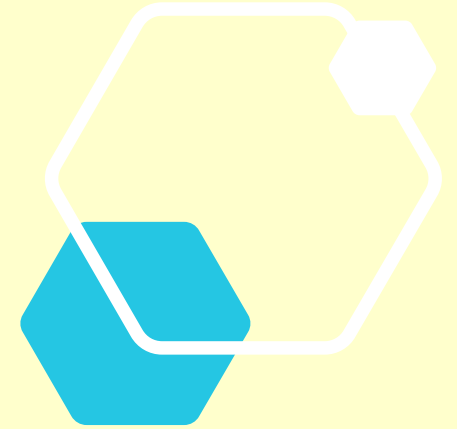
Future potential of CSU and Telemedicine
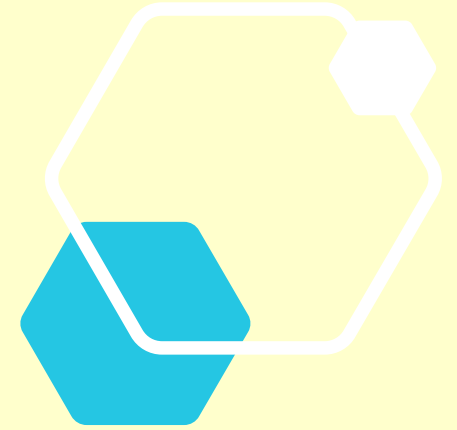
Considerations

- Maybe to early to say but because of COVID-19 it seems that telemedicine is here to stay

- Internet will come to the patients in the CSU... its too critical of an infrastructure item to not too (school, business, telemedicine etc)... just don't know when.

- Probably one of the most dramatic shifts in the healthcare landscape in our lifetimes

- Not a panacea but a lot of opportunity

Remember Distance prevents... including Telemedicine

Thank You

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