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
Challenges with telemedicine and the CSU
Challenges with telemedicine and the CSU

Challenges of Telemedicine in the CSU:

- End users lack quality broadband 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


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

New heat map as of 7/12/2020

*Does not include data from border towns.
As of 7/13/2020


<table>
<thead>
<tr>
<th></th>
<th>Number of Cases</th>
<th>Number of Deaths</th>
<th>Number of COVID-19 Tests</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>123,824</td>
<td>2,245</td>
<td>899,994</td>
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<table>
<thead>
<tr>
<th></th>
<th>Number of New Cases reported today*</th>
<th>Number of New Deaths reported today*</th>
<th>Number of New Tests reported today**</th>
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<tr>
<td></td>
<td>1,857</td>
<td>8</td>
<td>7,514</td>
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<table>
<thead>
<tr>
<th></th>
<th>Rate of cases, per 100,000 population</th>
<th>Rate of fatalities, per 100,000 population</th>
<th>Total Percent Positive**</th>
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<tbody>
<tr>
<td></td>
<td>1,722.4</td>
<td>31.23</td>
<td>11.9%</td>
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<table>
<thead>
<tr>
<th></th>
<th>Total COVID-19 PCR Tests</th>
<th>New PCR Tests reported today*</th>
<th>PCR Percent Positive**</th>
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<tr>
<td></td>
<td>701,703</td>
<td>6,240</td>
<td>14.2%</td>
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<table>
<thead>
<tr>
<th></th>
<th>Total COVID-19 Serology Tests</th>
<th>New Serology Tests reported today*</th>
<th>Serology Percent Positive**</th>
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<tbody>
<tr>
<td></td>
<td>198,291</td>
<td>1,274</td>
<td>3.7%</td>
</tr>
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</table>
Early June...Maybe end of May
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.

<table>
<thead>
<tr>
<th>Type of PPE</th>
<th>West Bound</th>
<th>Total</th>
<th>JVN (Day 1)</th>
<th>JVN (Day 2)</th>
<th>JVN (Day 3)</th>
<th>JVN (Day 4)</th>
<th>JVN (Day 5)</th>
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<tbody>
<tr>
<td>Gray gown</td>
<td>33</td>
<td>90</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>Yes</td>
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<tr>
<td>Vaccine Jan/ Feb</td>
<td>64</td>
<td>66</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<td>Realtime tests</td>
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<td>150</td>
<td>Contingency Capacity</td>
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<td>154</td>
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<tr>
<td>DMD</td>
<td>12939</td>
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<td>Contingency Capacity</td>
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<tr>
<td>DMD</td>
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<td>Triage Meals</td>
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<tr>
<td>Respiratory</td>
<td>936</td>
<td>93</td>
<td>102</td>
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<td>Respiratory</td>
<td>22117</td>
<td>13</td>
<td>418</td>
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<td>Respiratory</td>
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<td>Respiratory</td>
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<tr>
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<tr>
<td>Gown</td>
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<td>0</td>
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<td>Contingency Capacity</td>
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<tr>
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<tr>
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<tr>
<td>Gown</td>
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<td>1180</td>
<td>490</td>
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<td>Contingency Capacity</td>
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<tr>
<td>Gown</td>
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<td>97</td>
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<td>Contingency Capacity</td>
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<tr>
<td>Gown</td>
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<td>34</td>
<td>267</td>
<td>Contingency Capacity</td>
<td>Contingency Capacity</td>
<td>Contingency Capacity</td>
<td>Contingency Capacity</td>
</tr>
<tr>
<td>Primary Conservation Strategy per Capacity</td>
<td>Contingency Capacity &gt; 14 days, w/out confidence in supply</td>
<td>Strict Rationing: 2 - 14 days supply</td>
<td>Crisis Capacity: &lt; 1 days supply (i.e. effectively out of PPE)</td>
<td></td>
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</tr>
<tr>
<td><strong>Gowns</strong></td>
<td>Shift use to washable gown where possible</td>
<td>Maximize use of washable gowns.</td>
<td>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.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>N-95 (Direct care staff)</strong></td>
<td>Wear N-95 extended use for duration of shift, then discard</td>
<td>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.</td>
<td>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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Surgical Masks</strong></td>
<td>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.</td>
<td>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.</td>
<td>If surgical mask insufficient, do not reuse. Shift to homemade masks (washing nightly a home). Consider all sufficiently available mask alternatives including KN95.</td>
<td></td>
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</tr>
<tr>
<td><strong>Wipes</strong></td>
<td>Gray Sani Cloth - May use wipes or Eco spray bottle (or other &quot;quat&quot; 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.</td>
<td>Gray Sani Cloth - May use wipes or Eco spray bottle (or other &quot;quat&quot; 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.</td>
<td>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.</td>
<td></td>
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</table>
In order to improve communication, we are using One note as 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
- New Chart Resp Clinic Triage
- Helpful Phone Numbers
- Test protocol updated 4/16
- Oxygen patients to ED/UIC or Pharmacy
- Optometry Consults in Respiratory Clinic
- Pregnant Patients In Respiratory Clinic
- COVID vs Influenza 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:
- Anesthesia back up

Personal Protective Equipment:
- PPE, docs and do note
- Donning mask/eye PPE
- Doffing Eye PPE

Other information and links:
- Nephrology phone numbers
Daily volume in Respiratory Clinic since March 20th
(93% via Telemedicine)
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)

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).
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 RPMIS 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 at those levels and provide the terms of reference that may be provided to the IHS national Help Desk (Tier 3).
So we tested it out... Along the way we learned a few things...

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

<table>
<thead>
<tr>
<th>Session number</th>
<th>Provider test name</th>
<th>Age of Patient (years)</th>
<th>End user assistance provided by?</th>
<th>CHD Web Patients</th>
<th>Web Browser</th>
<th>Patients Device</th>
<th>Audio Quality</th>
<th>Video quality</th>
<th>Appear call length</th>
<th>Local support required</th>
<th>Area support required</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>De Silvio</td>
<td>2</td>
<td>Parent</td>
<td>Chrome</td>
<td>Safari</td>
<td>Laptop PC</td>
<td>Fair</td>
<td>Poor</td>
<td>30</td>
<td>No</td>
<td>No</td>
<td>Video on computer froze, had patient call back on their phone, video quality and audio quality poor - converted to phone visit. Parents able to call using phone and audio quality improved to allow continuation of telemedicine visit.</td>
</tr>
<tr>
<td>9</td>
<td>Yerman</td>
<td>36</td>
<td>None</td>
<td>Chrome</td>
<td>Safari</td>
<td>Apple Phone</td>
<td>Poor</td>
<td>20</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>PI 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 her end. It took so much effort to get it started (20 minutes) that we didn't try again. PI has NTIA and even the cell phone call to set up the appointment was not successful due.</td>
</tr>
<tr>
<td>10</td>
<td>Neal</td>
<td>37</td>
<td>None</td>
<td>Chrome</td>
<td>Internet Explorer</td>
<td>Laptop PC</td>
<td>Fair</td>
<td>Poor</td>
<td>25</td>
<td>No</td>
<td>No</td>
<td>Not all of computers in 37 exam rooms have cameras. Difficulty finding a quiet area with camera capabilities.</td>
</tr>
<tr>
<td>11</td>
<td>Holtsapple</td>
<td>64</td>
<td>None</td>
<td>Chrome</td>
<td>PC Desktop</td>
<td>Fair</td>
<td>Fair</td>
<td>Poor</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Patient wasn’t able to connect with phone and grew frustrated, transferred exam to phone call only.</td>
</tr>
<tr>
<td>12</td>
<td>Morton</td>
<td>42</td>
<td>None</td>
<td>Internet Explorer</td>
<td>Android phone</td>
<td>Poor</td>
<td>Poor</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Could not download App with cellular service/ visit converted to phone. Cellular One Service.</td>
</tr>
<tr>
<td>13</td>
<td>Sharpe</td>
<td>32</td>
<td>Chrome</td>
<td>Internet Explorer</td>
<td>Android phone</td>
<td>S&gt;</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>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.</td>
</tr>
<tr>
<td>14</td>
<td>Runyon</td>
<td>40</td>
<td>None</td>
<td>Chrome</td>
<td>Internet Explorer</td>
<td>Apple Phone</td>
<td>S&gt;</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Multiple attempts to provide email link. Frustrated with having to download another app. Did reluctantly try out with download after several attempts. Patient reported only cellular no wifi at home. Did convert to phone. Cellular One.</td>
</tr>
<tr>
<td>15</td>
<td>Sharpe</td>
<td>41</td>
<td>None</td>
<td>Chrome</td>
<td>Internet Explorer</td>
<td>Android phone</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Using patients phone did not want to download or use data - converted to phone encounter. Cellular One.</td>
</tr>
</tbody>
</table>
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 Telemedicine, 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.
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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