



Rural Texas Pediatric Tele-Connectivity Resource Program

House Bill 1697

85th Legislature, 2017

Health and Human Services

Commission

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Executive Summary

This is the first biennial report to the Texas Governor and the Texas Legislature regarding the implementation of House Bill (H.B.) 1697, 85th Legislature, Regular Session, 2017 (Government Code, Chapter 541), which established a Pediatric Teleconnectivity Resource Program for Rural Texas. The purpose of the program is to award grants to nonurban healthcare facilities for the implementation of telemedicine services that connect these rural healthcare facilities to pediatric specialist and pediatric subspecialist medical services.

While funding was not appropriated to implement the legislation's grant program, the Health and Human Services Commission (HHSC) utilized existing resources to explore the potential benefits of telemedicine to support rural pediatric healthcare needs.

HHSC invited stakeholders to participate in a workgroup to explore aspects of the bill requirements. As a result, a workgroup of over 30 stakeholders met regularly throughout the interim period.

In spring 2018, the workgroup determined that conducting a pediatric telemedicine pilot at one or two selected regional hospitals would best inform HHSC on the program's operational requirements and demonstrate the feasibility of the grant program.

This report provides a view of HHSC's collaboration with stakeholders to support the availability of pediatric specialty services in rural communities through telemedicine. It covers the educational, technical, and planning considerations involved with achieving positive outcomes and effecting meaningful knowledge transfer. The experience gained through the pilot project helps inform the design of any future initiatives to support improved access to specialty services in Texas' rural communities.

1. Introduction

H.B. 1697 (85th Legislature, 2017) directed HHSC to establish and administer a pediatric telemedicine grant program to enable nonurban healthcare facilities to obtain pediatric telemedicine services. The grant program is to provide financial assistance to enable eligible, nonurban healthcare facilities to connect with pediatric specialists who provide telemedicine services and to cover related expenses, including necessary equipment.

The Texas Legislature did not appropriate funding for this grant program in the 2018-2019 biennium, but instructed HHSC to seek alternative funding options and to collaborate with stakeholders in the development and implementation of this program. H.B. 1697 allows HHSC to establish a workgroup to assist with the development and implementation of the grant program. HHSC exercised this authority to develop the telemedicine pilot program discussed in this report.

H.B. 1697 also requires HHSC to submit a report to the Texas Governor and to the Texas Legislature by December 1st of each even-numbered year that covers grant program activities. HHSC must report on:

- activities of the program;
- any grant recipients; and
- results and outcomes of any grants awarded.

The report highlights the role that telemedicine services can play in supporting rural healthcare providers and in extending healthcare services to clients. Finally, the report covers activities completed by HHSC and the workgroup to support development of the grant program, as well as technical and operational considerations for grantees.

2. Background

Texas is a large and diverse state. Although 92 percent of Texans reside in metropolitan areas, a considerable number of the state's counties are sparsely populated, and the nearly three million Texans who live in these rural areas comprise more than the total population of 14 U.S. states. An uneven distribution of healthcare resources across Texas affects many children, families, and individuals served by the state's medical systems. Among Texas' 254 counties, 189, in mostly rural areas, are at least partially designated as a primary care Health Professions Shortage Area (HPSA). Finding efficient, patient-centered approaches to deliver high quality healthcare services to underserved rural regions is a critical issue for Texas.

Rural Texas communities have been challenged in recent years by the declining availability of services connected to hospitals. When hospitals close, rural communities lose access to inpatient and emergency care, as well as preventive and specialty services, as local physicians may relocate out of the impacted region. Between 2013 through 2017, the U.S. Government Accountability Office (GAO) reports 64 closures of rural hospitals across the nation.¹ Fourteen of the hospitals, or about 22 percent, were Texas facilities, including a cluster of hospitals in the northeastern region of the state.² Data collected for Texas via the American Hospital Association Annual Survey of Hospitals indicates that non-metro Texas counties lost about 10 percent of staffed and licensed hospital beds over roughly the same period as the GAO study.

Studies indicate rural hospital closures stem from a mix of demographic, social, and economic pressures. These underlying trends include high poverty and lower rates of private insurance in rural communities, loss of population, lower average

¹ GAO, Rural Hospital Closures, August 2018: <https://www.gao.gov/assets/700/694125.pdf> (accessed October 22, 2018)

² See <https://www.google.com/maps/d/viewer?mid=14JRLTb-C3ptk8tgGG3bUdKISZIA&ll=33.8590834871279%2C-99.956968625&z=6> (accessed October 22, 2018) for data compiled by the University of North Carolina Rural Health Research Program: <http://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/> (accessed October 22, 2018).

incomes, and declining perceptions about rural hospital quality. Evolving Medicare and Medicaid payment and service delivery models may also play a role.³

What Constitutes a Rural Hospital?

Hospitals are considered rural if they are: a) in a nonmetropolitan county or b) in a metropolitan county but in an area, that has a Rural Urban Community Area (RUCA) code of 4 or greater. Inclusion of some hospitals in metropolitan counties as rural hospitals broadens the definition of rural and captures hospitals located in less populated areas of otherwise urban counties. This is also the Federal Office of Rural Health Policy's preferred way to define rural.

Rural hospitals are further divided into three levels of rurality:

- Large Rural Areas — hospitals in areas with a RUCA code less than 7
- Small Rural Areas — hospitals in areas with a RUCA code of 7, 8, or 9
- Isolated Rural Areas — hospitals in areas with a RUCA code of 10

Telemedicine Initiatives

The expansion of telemedicine services, defined as those delivered by a physician, and telehealth services, defined as those delivered by a non-physician practitioner, provides one solution adopted by Texas policy makers to help improve access to care in rural Texas. The 85th Texas Legislature, 2017, passed a number of bills to leverage technology to benefit rural residents including (but not limited to):

- [S.B. 1107](#) creates a clearer regulatory structure for telemedicine services in the state, including a new framework for establishing a valid practitioner-patient relationship.
- [S.B. 922](#) directs HHSC to establish policies that permit reimbursement to select telehealth services providers under Medicaid for services to children with special health care needs in a school-based setting.
- [H.B. 1697](#) establishes a pediatric health tele-connectivity resource program for rural Texas.

³ Wishner J, Solleveil P, Rudowitz R, Paradise J, and Antonisse L. A look at Rural Hospital Closures and Implications for Access to Care: Three Case Studies. Kaiser Family Foundation, July 7, 2016: <https://www.kff.org/report-section/a-look-at-rural-hospital-closures-and-implications-for-access-to-care-three-case-studies-issue-brief/> (Accessed October 22, 2018).

H.B. 1697 has important implications for providing appropriate care to newborns in rural areas and supporting the hospitals and physicians that deliver them. According to the Department of State Health Services, over 98 percent of births in Texas occur in a hospital setting. In 2016, 220 Texas hospitals recorded a total of 50 or more births each, with 64 (about 30 percent) of these facilities located in a non-metro county. Only 29 of these rural facilities reported providing a basic (Level 1) neonatal intensive care unit (NICU) service, four of which can provide up to Level II services. Level II services are defined as specialty care for newborns at 32 weeks' gestation or more and weighing 1,500 grams or more with problems expected to resolve rapidly or who are convalescing from a higher level of intensive care.⁴

The H.B. 1697 workgroup design a pilot to assist facilities that lack advanced NICU capabilities make appropriate and rapid medical decisions for the care of their newborns, including decisions on whether transfer to a higher level NICU is in the best interests of the newborn.

⁴ 2016 American Hospital Association Annual Survey of Hospitals, Texas Supplement. DSHS.

3. Implementation of H.B. 1697

H.B. 1697 Workgroup

In fall 2016, HHSC convened a stakeholder workgroup to assist in the development and implementation of the grant program. The workgroup assisted HHSC by:

- providing provider, health plan, and telemedicine perspectives;
- identifying possible funding sources, program costs, telemedicine equipment needs, facility eligibility criteria, and provider enrollment processes and procedures; and
- recommending HHSC facilitate telemedicine pilot programs for NICUs in two select nonurban healthcare facilities to demonstrate the need, effectiveness, and benefits of telemedicine in rural areas of the state.

The workgroup initially convened on November 16, 2017, and met on five additional occasions. Membership included representatives from key stakeholders including Children's Health System of Texas (CHST), Children's Hospital Association of Texas, the University of Texas Virtual Health Network (UT-VHN)/University of Texas Medical Branch (UTMB), the Texas e-Health Alliance, Superior Health Plan, Texas Tech Health Sciences Center and several other pediatric, medical, and rural/community health focused organizations. A complete membership list is provided as Appendix A.

Pilot Program Recommendation

At the January 2018 workgroup meeting, a representative from CHST presented information on a highly successful telemedicine pilot program implemented at 24 Texas sites. Workgroup members recommended establishing a similar pilot program at two nonurban healthcare facilities in Texas.

In collaboration with the UT-VHN, CHST, other medical organizations, and related non-profit organizations, the workgroup established the Collaborative Rural Texas Pediatric Telemedicine Pilot Project (pilot). HHSC coordinates pilot program activities and reports progress to the Texas Legislature and the Texas Governor.

Identification and Selection of Potential Pilot Sites

Two primary sources informed the recruitment and selection of rural hospital pilot sites. The first source was a survey developed through a collaboration between Children's Medical Center of Dallas, the Texas Organization of Rural and Community Hospitals (TORCH), and the Texas Tech University Health Science Center's Rural and Community Health (TTUHSC RCH) program, to enable rural hospitals to share their experiences, capabilities, and interest in telemedicine. The survey's sample included hospitals in counties with a population of 60,000 or less, or Critical Access Hospitals (CAH), Sole Community Hospitals (SCH), and Rural Regional Clinics (RRC) in a non-Metropolitan Statistical Area (MSA).

Fifty-seven hospitals responded out of 163 surveyed. A majority of respondents reported cost as the biggest challenge for adoption or expansion of telemedicine services followed by concerns about the technology's reliability. TelePsyche and TeleStroke were the most reported current telemedicine service types.

HHSC connected information from the telemedicine survey to the data set collected through the American Hospital Association (AHA) Annual Survey of Hospitals. Nationwide, the AHA survey represents a consistent and comprehensive data source for nearly 6,300 hospitals. For Texas, reporting is mandatory and all acute and psychiatric hospitals (currently over 600) must respond each year. The AHA survey includes the number of births, self-reported NICU level, number of transfers out of the hospital, and experience with electronic data exchange and information technology among its many data elements.

Using the AHA survey data in conjunction with the telemedicine survey, HHSC identified hospitals in non-metro counties to begin assessing overall suitability for the pilot. Together, the surveys offered a detailed view of hospital characteristics, current telemedicine landscape, hospital perceptions about telemedicine, and what could be leveraged in terms of existing capacity.

As of this report writing, one pilot site, Navarro Regional Hospital in Corsicana, has joined the TeleNICU pilot project. Navarro, with 570 births and 162 licensed beds in 2016, is above average in size for a rural hospital and should provide sufficient scale to serve as an effective TeleNICU pilot site. While Navarro does not currently participate in any telemedicine services, it has an in-house information technology team and supports a full electronic health records system. This demonstrates significant capability to work with a distant site telemedicine provider. This report

outlines the activities completed to date to establish a partnership with this rural hospital.

Joint Commission - Credentialing

One of the many aspects to providing services in a hospital setting is the review and approval process for granting the privilege to work to a given medical provider for a specific hospital (“privileging”). This is an application process analogous to licensing, whereby an application and significant documentation must be received and reviewed by the hospital, in what is often a months-long process. This can limit the number of medical providers available in a hospital, especially in the area of telemedicine. Recognizing this issue, many entities such as the Centers for Medicare and Medicaid Services (CMS) and the Joint Commission on Accreditation of Healthcare Organizations (Joint Commission) have created alternative privileging models for telemedicine practice. Anecdotally, providers express concerns about incurring liability by relying on these new options as a limiting factor to adoption.

4. Stakeholder Collaboration and Contributions to Pilot

UT-VHN and CHST in Dallas partnered to provide planning and training for the pilot, while working with physicians at UT Southwestern to provide the care. Using funding made available by UT Systems, the UT-VHN provided the on-site equipment necessary to support the pilot at Navarro Regional Hospital in Corsicana.

Technical Requirements Workgroup

The technical requirements sub-workgroup aimed to ensure program participants would maximize the resources made available for the pilot. Emphasis was placed on ensuring telemedicine equipment purchases would not limit the rural hospital's ability to receive pediatric specialty or subspecialty services from multiple sources; the images during telemedicine sessions were high quality audio and video; and telemedicine transmissions were HIPAA compliant, and met minimum specifications and communications standards.

The workgroup produced a set of technical specifications and requirements to inform the pilot and for any future grant program. Adherence to these standards maximizes the security and interoperability of the telecommunications exchange of the participating rural hospitals. Both rural hospital and specialty provider hospitals will need to comply with the standards and requirements. Standards compliance will be a major factor in the awarding or allocation of a future grant-based program. The H.B. 1697 Technical Specifications and Requirements are provided as Appendix B.

Pilot Site Contacts and Introductions

The H.B. 1697 workgroup members leveraged their contacts with the rural hospitals selected for the pilot, and HHSC provided pilot project materials to facilitate the hospital's decision making process. Hospitals received a description of the pilot, the measures that would be used to assess pilot effectiveness, a copy of the Joint Commission's recent ruling on delegated credentialing and telemedicine, and a copy of H.B. 1697.

Workgroup communications with each of the potential pilot sites was done through scheduled conference calls and site visits. Each of these interactions was an

opportunity to inform the rural hospital staff on how telemedicine resources would impact their workflow and operations. Once agreement to participate in the pilot was reached, equipment was ordered and workgroup members sent their technical teams to work with the hospital's information technology staff on infrastructure readiness.

Pilot Site Reporting

Currently, data on TeleNICU performance is limited to the information extracted from the medical record. A key goal of the pilot is to reduce unnecessary transfers from the patient site to the distant site hospital, which frees up the ability to focus on higher-acuity newborns in the distant site NICU.

Transfers Avoided

Data is currently collected by looking at telemedicine consults, and determining when a patient was transferred. Avoided transfers are counted when a consult took place for a patient and, as a result of the consult, a transfer did not occur. Under this premise, a physician seeking a consult had questions about treating that child, and was considering a transfer for the patient. If the patient was not transferred, the consult was successful in guiding that physician to an effective treatment and thus avoiding a transfer.

Implementation Limitations

Full implementation of H.B. 1697 was not feasible without appropriated funding. To enable the pilot, HHSC is leveraging existing reimbursement structures to allow payment to distant site providers through the existing Texas Medicaid telemedicine medical services benefit. HHSC only guarantees distant site provider reimbursement when the clients served are eligible for Texas Medicaid, whereas the pediatric telemedicine grant program under H.B. 1697 is not specific to Medicaid clients or providers.

5. Conclusion

The H.B. 1697 workgroup's initiation of the pilot was possible due to the leadership of the stakeholders who collaborated with HHSC. The development of the pilot provides a strong framework of technical specifications, the data needed for both site selection and outcome measurement purposes, and the policy framework to help govern the program going forward. The pilot also provides the opportunity to capture real-time data on the impact of implementation on the rural hospitals, tertiary facilities, and the patients they serve.

HHSC has submitted an exceptional item in its 2020-2021 Legislative Appropriations Request (LAR) to fund and support the telemedicine grant program envisioned by H.B. 1697. Telemedicine projects like H.B. 1697 may enhance the viability of rural hospitals through the provision of specialized medical services. The workgroup's efforts during this interim position HHSC to quickly implement a grant program if an appropriation is received.

List of Acronyms

Acronym	Full Name
AHA	American Hospital Association
CAH	Critical Access Hospital
CHA	Children’s Hospital Association
CHST	Children’s Health System of Texas
CMS	Centers for Medicare and Medicaid Services
CRTPTPP	Collaborative Rural Texas Pediatric Telemedicine Pilot Project
HIPAA	Health Insurance Portability and Accountability Act of 1996
HPSA	Health Professions Shortage Area
Joint Commission	Joint Commission on Accreditation of Healthcare Organizations
LAR	Legislative Appropriation Request
MSA	Metropolitan Statistical Area
NICU	Neonatal Intensive Care Unit
RRC	Rural Regional Clinics
RUCA	Rural Urban Community Area
SCH	Sole Community Hospital

Acronym	Full Name
TORCH	Texas Organization of Rural and Community Hospitals
TTUHSC RCH	Texas Tech University Health Sciences Center's Institute for Rural and Community Health
UTMB	The University of Texas Medical Branch in Galveston
UT-VHN	The University of Texas System Virtual Health Network

Appendix A. H.B. 1697 Workgroup Membership List

Organization		Member(s)
1.	Children’s Health System of TX (Children’s Health)	Julie Hall-Barrow Michaela Bernacchio Jill Epperson Michael Herrington Yolanda Hilliman Matt Moore Tamara Perry
2.	Children’s Hospital Association of TX (CHAT)	Stacy Wilson
3.	Health and Human Services Commission	Jimmy Blanton Erin McManus Hope Morgan Adriana Rhames
4.	Superior Health Plan	Malinda Buratti Dr. Brendle Glomb Ken James Tracy Rico
5.	Texas Association of Community Health Centers (TACHC)	Mary Allen Daniel Diaz Mimi Garcia
6.	Texas Association of Health Plans (TAHP)	Jason Baxter
7.	Texas Children’s Hospital (TCH)	Johnna Carlson James F. Hury
8.	Texas e-Health Alliance (TeHA)	Nora Belcher
9.	Texas Hospital Association (THA)	Jennifer Banda Sara Gonzalez
10.	Texas Medical Association (TMA)	Alison Mohr Boleware Anthony Chapple Martha Danz Helen Davis
11.	Texas Organization of Rural & Community Hospitals (TORCH)	John Henderson Don McBeath
12.	Texas Pediatric Society (TPS)	Clayton Travis

	Organization	Member(s)
13.	Texas Tech University HSC (TTUHSC)	Becky Jones
14.	The University of Texas Medical Branch (UT Virtual Health Network)	Mari Robinson

Appendix B. H.B. 1697 Technical Specifications



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Health and Human Services

Introduction

The Pediatric Tele-connectivity Resource Program for Rural Texas was established by House Bill 1697 in the 85th Legislative Session. Per the Legislation, the purpose of the program is to “establish a pediatric tele-connectivity resource program for rural Texas to award grants to nonurban health care facilities to connect the facilities with pediatric specialists and pediatric subspecialists who provide telemedicine medical services.” This guide will provide direction to applicants for these grants, particularly in the area of technical requirements.

A few main principles form the reasoning behind these requirements. First and foremost, the goal of these grants is to create and manage access to specialty services for pediatric patients across the state. There are far too few local specialty physicians to address the needs of all the children of Texas, and telehealth gives the opportunity to reach those vulnerable populations that live in areas without services. Secondly, this access must be provided in an efficient manner that still allows for the high quality of care demanded in the treatment of our children. The necessity of this is obvious, as to reach the largest number of patients, funds must be distributed in a fiscally responsible way. To enable a vast and effective network, all technology must be able to meet minimum specifications and communications standards. The technology must work to link the maximum number of partners, not build silos within customized systems by creating barriers to cross communication and cross utilization.

The impact for potential good is enormous if funds are used appropriately and partners can work together for true impact. Given this, please ensure that all applications conform to the standards listed below.

General Standard

Videoconferencing systems rely on a large collection of standards for everything from displaying video to establishing connectivity with an endpoint across the globe. The vast majority of features implemented by videoconferencing systems have a corresponding standard. Not all available systems support all of the standards in the same way, resulting in some proprietary implementations of features that can make interoperability a problem. It is imperative that any system used within a funding request be capable of interoperability with other telemedicine equipment. This may be accomplished by ensuring that all industry accepted standards are met. One of the main standards-issuing bodies in this field is the International Telecommunication Union, which releases a set of standards in the ITU Telecommunications Standards Sector (ITU-T). Many of the video standards, including the G. and H. standards, are created by this group.

In addition to the above, it is also critical that interoperability of any proposed purchased or otherwise utilized system be feasible as well as possible. In this vein, system licensing/connection/use fees should be minimal or non-existent, and any system that does not meet this criteria will not be considered for funding.

Technology Specifications

The following set of minimum specifications will ensure quality images, sound, and connectivity during a telemedicine visit all while maintaining HIPAA compliance in a two-way video conference.

Video Teleconferencing Unit

In this section, the term Video Teleconferencing Unit (VTC) refers to the method of communication and can refer to both software and hardware based systems. VTC, also known as a Coder-Decoder (CODEC), refers to a hardware or software device used to provide audio/video connectivity for a telemedicine service.

VTC Unit

- Technical staff shall use either hardware and/or software based VTC Units for telemedicine.

Video Conferencing Protocols

- Technical staff shall use Direct Dialing as the preferred method for call connection.
- Technical staff shall use H.323 or Session Initiated Protocol (SIP) as the preferred method of connection.

Encoding Formats

- Technical staff shall use one of the following H.323 audio CODECs: G711, G722, G729, G729a.
- Technical staff shall use one of the following H.323 video CODECs: H.261, H.263, H.264, H.265.

High Definition Resolution

- Technical staff shall ensure that endpoints are capable of transmission and reception of a minimum of Full HD (1920x1080 pixels) video resolution. If this level of video resolution is not possible due to technology limitations and is not necessary for the proposed care model, technical staff may request an exemption for a lower video resolution standard.
- Technical staff shall ensure that all associated medical peripheral equipment that supports transmission of video information are capable of the above video requirements.

Encryption

- All communications must be encrypted to ensure HIPAA compliance.
- Technical staff shall ensure that Transport Layer Security (TLS) or Internet Protocol Security (IPsec) is used to encrypt the signaling component.
- Technical staff shall ensure that Advanced Encryption Standard (AES) 128 or 256-bit compatibility is used to encrypt all audio and video streams.
- Technical staff shall ensure that endpoints used for telemedicine only allow encrypted calls over the Internet. All unencrypted calls should be automatically rejected.
- Any recording of the session must be stored using encryption and managed as part of the patient's medical record, if any recording is made.

Indicators

- Technical staff shall ensure that endpoints confirm encryption of conference call, typically confirmed with a closed hasp lock (🔒) indicator.

Call Rates

- Technical staff shall ensure a minimum quality of service

Far End Camera Control

- When applicable, technical staff shall ensure the use of Far End Camera Control (FECC) compliant systems, to allow for remote camera control.
- Technical staff shall follow ITU H.281 or SIP RFC 4573 for standard compatibility.

Proprietary or Closed Systems

- Technical staff shall avoid the use of VTC systems that do not adhere to the standards listed in this manual.
- Technical staff shall avoid the use of systems that adhere to the recommended protocols but are not configured to communicate with other VHN system devices.
- Technical staff shall ensure that VTC systems can communicate with all other standards based VTC systems on other outside networks.

Call Requirements

- Technical staff shall ensure that video teleconferencing (VTC) units, located at the telemedicine healthcare sites, are set to manually answer calls to prevent systems from dialing in and viewing patient areas without their consent. If an issue arises that makes manually answering calls impossible, technical staff may seek an exemption from this requirement as long as systems are in place to address HIPAA requirements.
- Technical staff shall ensure that the VTC unit with built-in multipoint calls are set to be manually answered and/or reject any incoming calls.

Displays

- Technical staff shall ensure minimal resolution of 1080p for all telemedicine displays/screens.
- Technical staff shall ensure that all display in a clinical/hospital setting meet FDA requirements for medical grade electronics.
- Technical staff shall ensure that proper size of displays for telemedicine services using the following formula to calculate adequate display size: Measure the maximum distance from the screen to the patient and divide by three. (Typically a 32" display is sufficient for most telemedicine carts)
- Technical staff shall ensure that all displays are properly and securely mounted following ADA rules. Displays mounted below 80" may only protrude up to 4" at most from the wall, unless an object (i.e. furniture, bench, etc.) is placed underneath the display.

General Telemedicine Equipment

Medical Peripheral Devices

- Technical staff shall ensure that all medical peripheral devices, including medical cameras, such as video ophthalmoscopes and dermatoscope, adhere to FDA guidelines.
- Technical staff shall ensure that all devices possess proper sterilization instructions provided as per the manufacturer recommendations and that proper sterilization has occurred prior to use with a patient.
- Technical staff shall ensure that all operational instructions provided by the manufacturer are properly followed when using telemedicine equipment.

Telemedicine Carts

- Technical staff shall ensure that each telemedicine cart is medical grade, designed, and equipped with appropriate medical peripherals to provide a proper patient evaluation.
- Technical staff shall ensure that all equipment is properly and securely mounted to the cart to avoid dislodgement and connection issues.
- Technical staff shall ensure that all cabling is secured and not creating a trip hazard.

Multipoint Control Unit

- Technical staff shall be aware that the use of Multipoint Control Unit (MCU) presents a possible security risk as it allows third parties to monitor medical consultations, thus resulting in HIPAA violation.
- Technical staff shall ensure that the use of an MCU to connect to 2 or more sites is strictly limited for a specific need (i.e. multiple providers sharing data).
- Technical staff shall follow proper point-to-point connection guidelines, in the event that a MCU is necessary.

Personal Computer Standards

These standards apply to the Personal Computers (PCs) used by the providers to connect with the patients and provide care.

- Technical staff shall ensure that Personal Computers (PCs) used for video conferencing must adhere to certain minimum specifications to maintain a HD quality image.
- Technical staff shall refer to the following minimum standards and requirements for proper delivery of telemedicine services:
 - ▶ CPU's – i5 or i7 from Intel with quad core processors, \geq 2.2GHZ CPU speed
 - ▶ 8GB RAM
 - ▶ 256GB SSD
 - ▶ Analog audio input and output
 - ▶ 4 USB I/O ports (minimum)
 - ▶ Digital video output – DVI, HDMI or DisplayPort (HDMI is preferred)
 - ▶ DirectX 9.0 or higher
 - ▶ 512Mb video RAM

Testing

- Technical staff shall test the connection prior to use by medical staff.

Environmental

- Technical staff shall ensure that the environment used for telemedicine has appropriate lighting and sound control to ensure the patient may be properly observed and that that each site can clearly understand audio transmissions.

Network Connection

- Technical staff shall ensure presence of adequate Ethernet connection capable of full duplex, 100Mbps connectivity.
- Technical staff shall ensure adequate network connection speeds of a minimum of 1.5 Mbps two-way data streams and no more than 3% packet loss with 10 ms latency.
- Technical staff shall ensure adequate firewall rules are in place to allow aforementioned protocols for access to video conferencing appliances, including H.460.18 or H460.19 standards.

Equipment Failure

- Technical staff shall refer to the Troubleshooting and Technical Support section of this document for technical issues.
- Technical staff shall contact designated organizational support team for all technical related issues within their internal designated Service Level Agreement, which must be established and followed. To be considered for funding, any Service Level Agreement must have fees and charges that are reasonable.
- Technical staff shall contact designated telehealth network technical representatives any for scheduled or unscheduled extended outages. A plan must be in place regarding potential outages, and any equipment failure must be addressed within 48 hrs.

Connection Times

Staff is responsible for executing proper connection times based on clinical program guidelines.

Appendix C. Collaborative Rural Texas Pediatric Telemedicine Pilot Program Reporting Requirements

Hospitals participating in the *Collaborative Rural Texas Pediatric Telemedicine Pilot Project* will be required to report specific information about their encounters utilizing equipment and services supplied through the participating pediatric specialty telemedicine provider.

The measures to be collected are provided below. A follow up meeting with University of Texas Medical Branch / Children's Health System of Texas staff will be scheduled to discuss any questions or concerns.

1. Number of consults
2. Specialty (NICU/ER) (for this pilot NICU)
3. Diagnoses
 - a. --Did the diagnoses change?
4. Outcome Retention or Transport
 - a. --Transport to Children's
 - b. --Transport to Non-Children's Facility
5. Discharge home
6. Transported to Later
 - a. --Transport to Children's/other pilot site
 - b. --Transport to Non-Children's Facility/or other pilot
7. Length of Stay
8. Intent to Transfer
 - a. --Did this change after consultation?
9. Mode of transportation
 - a. --by ground, air etc.

Appendix D. UT System Virtual Health Network

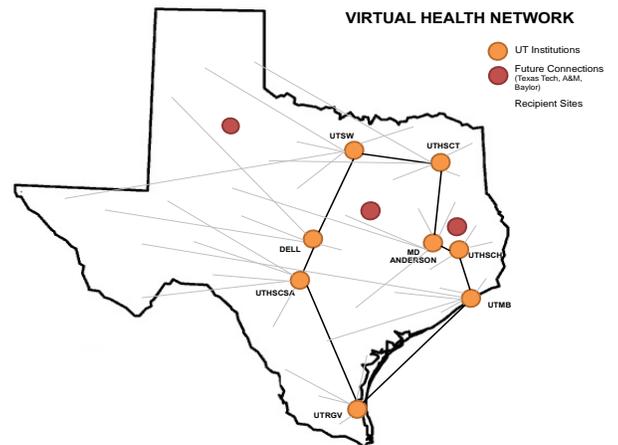
THE UNIVERSITY OF TEXAS VIRTUAL HEALTH NETWORK (UT-VHN)

Purpose:

In response to the ever present need for high quality and efficient health care, in 2016 The University of Texas System began leveraging its lengthy history as one largest providers of telemedicine in the state to develop and implement a Virtual Health Network (UT-VHN). Upon successful completion of this ambitious project, Texas will have the initial structure to create a true statewide network for the provision of medical services in all areas of the state.

What is the Virtual Health Network?

The UT-VHN will connect all UT System Health Science Centers and Medical Schools to create a model for coordinated care delivery using telemedicine and telehealth technologies. This will enable UT System to will provide coordinated outbound and inbound support for current telemedicine & telehealth services, conduct research and data analytics, expand outreach to satellite partners, provide distance education, and use telehealth tools to manage population health.



How will the UT-VHN be implemented?

There are three major phases of the project.

- Phase 1: Discover and Define - Institutional Focus (*Completed*)
 - ▶ This phase will center on an assessment of the current landscape of each institution's telehealth initiatives with a focus on culminating/enabling each institution to enhance its own capabilities.
- Phase 2: Introduce and Demonstrate – System Focus (*In Progress*)
 - ▶ This phase focuses on the creation of the video connectivity platform which will allow communication between all the medicals sites, as well as the necessary documentation and scheduling support for the project. Initial clinical roll out projects have begun and will continue to be identified as well, and initiated as resources are available.
- Phase 3: Full Deployment – Statewide Focus (*Future Goal*)
 - ▶ This phase reflects a growth strategy whereby institutions experiment with expanding a full range of clinical services across a variety of settings such as schools, work sites, community health centers, community mental health centers, and even in the patients' homes. If feasible, other academic centers may be introduced into the network with the goal of establishing a robust statewide network.

What is the potential impact?

To meet the medical needs of Texans across the state, it is imperative that all available resources for care reach as far and as wide as technology and quality standards will allow. If successful, University of Texas medical institutions and its partners will be able to cast a wide net of service across rural, urban, and underserved areas, truly bridging the gap in care access.