TELEHEALTH CENTERS OF EXCELLENCE

National Telehealth Data Warehouse

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Thank You

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Welcome to the National Telehealth Data Warehouse

A national platform for telehealth evidence and policy

COMPREHENSIVE TELEHEALTH DATA

Curated datasets covering telehealth adoption, utilization, and patient outcomes.

TRANSFORMATIVE RESEARCH AND POLICY

Enabling evidence-based decision-making to advance telehealth integration.

COLLABORATIVE PARTNERSHIPS

Connecting healthcare organizations to unlock telehealth insights.

ACCESS FOR ALL — USER-FRIENDLY DATA

Intuitive tools and resources for seamless data exploration and analysis.

A transformative platform that empowers the healthcare community to drive the future of telehealth through data-driven insights and evidence-based policymaking.

Architecture and Infrastructure

Secure, scalable, and interoperable by design

SECURE CLOUD-BASED PLATFORM

Hosted by UMMC to ensure data security and reliability.

DATA VISUALIZATION TOOLS

Leverages Tableau and Power BI for interactive dashboards and reporting.

INTEROPERABLE AND SCALABLE

Designed to integrate with external systems and accommodate growing data needs.

SUPPORTS APIs

Enables seamless integration and data access for research and analysis.

A secure, flexible, and data-driven environment built to support research and analysis needs across the telehealth community.

Telehealth Data Management Goals

What the warehouse is engineered to deliver

CENTRALIZED TELEHEALTH DATA REPOSITORY

Aggregate and store telehealth data from multiple sources in a centralized database.

LONGITUDINAL AND CROSS-PROGRAM ANALYSIS

Enable in-depth analysis of telehealth trends and utilization patterns over time and across programs.

DATA PRIVACY, SECURITY, AND COMPLIANCE

Implement robust data protection measures to ensure patient confidentiality and adherence to relevant regulations.

A centralized telehealth data repository to support comprehensive analysis, grantee reporting, and compliance — driving improved telehealth outcomes.

Architecture and Infrastructure

Reference view: technical foundations of the warehouse

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Leverages Tableau and Power BI for interactive dashboards and reporting.

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SUPPORTS APIs

Enables seamless integration and data access for research and analysis.

Cloud-native, API-driven, and scalable — ready to support the next generation of telehealth research and policy work.

National Telehealth Data Warehouse Data Dictionary

Variable	Variable Name	Measurement Unit	Allowed Values	Null	Definition
Date of Telehealth Encounter	DATE	dd/mm/yy	12/31/20	No	The date that the telehealth encounter took place
Beginning Time of Encounter	BEGINTIME	hh:mm (AM/PM)	12:00 PM	No	The time that the telehealth encounter began
End Time of Encounter	ENDTIME	hh:mm (AM/PM)	12:30 PM	No	The time that the telehealth encounter ended
ZIP Code of Originating Site	ZIPORIGIN	Numeric	First three digits only (ex: 207)	No	ZIP code of the facility or patient's home where the encounter occurred
Outpatient Claim Type	CLAIMTYPE	Numeric	Two digits (40, 41, or 42)	No	40 - Outpatient Claim; 41 - Full Encounter; 42 - Abbreviated Encounter
Claim Service Classification	CLAIMSERVICE	Numeric	Single Digit	No	CMS1500/837 Format
Claim Frequency	CLAIMFREQUENCY	Numeric	Single Digit	No	CMS1500/837 Format
Patient Primary Diagnoses	PRDIAGNOSES	ICD-10	ICD-10 Codes	No	Primary diagnoses of the patient in the telehealth encounter
Patient Diagnosis	DIAGNOSES	ICD-10	ICD-10 Codes	No	Diagnoses of the patient in the telehealth encounter
Secondary Diagnosis	SECDIAGNOSIS	ICD-10	ICD-10 Codes	Yes	Secondary diagnosis codes within the patient record/claims
Patient Primary Medical Procedures	PRPROCEDURES	CPT-4/HCPCS	CPT or HCPCS Codes	No	Primary procedure used during the telehealth encounter
Primary Medical Procedures	PROCEDURES	CPT-4/HCPCS	CPT or HCPCS Codes	No	Procedure(s) used during the telehealth encounter
Medications Prescribed	MEDS	NDC/RxNorm	NDC/RxNorm	Yes	Medications prescribed to the patient during the encounter
Medication History	MEDHISTORY	NDC/RxNorm	NDC/RxNorm	Yes	Medication history of the patient at encounter initiation
Laboratory Test Orders	LABORDERS	CPT-4/HL7 v2.5.1/LOINC/SNOMED-CT	Conform to CPT-4, HL7, LOINC or SNOMED-CT	Yes	Laboratory orders signed off by a provider during a telehealth encounter
Laboratory Test Results	LABRESULTS	CPT-4/HL7 v2.5.1/LOINC/SNOMED-CT	Conform to CPT-4, HL7, LOINC or SNOMED-CT	Yes	Laboratory results generated from the original order signed off by the provider
Patient Discharge Status	DISCHARGE	CMS 837 Classifications	Conform to CMS 837 definition	No	CMS 837 patient discharge status
Insurance Used (if any)	INSURANCE	Local coding	Medicaid, BCBS, Humana, etc.	SELF-PAY if none	Type of insurance used during the telehealth encounter
Total Charge	CHARGE	$XXX.XX	Total dollars spent on the encounter	No	Total charge incurred during the telehealth visit (billed to payer or patient)
Age	PATIENTAGE	Numeric	54	No	Age of the patient
ZIP Code	PATIENTZIP	Numeric	207	No	First three digits of the patient's primary residence ZIP code
State	PATIENTSTATE	Two Letter	TX, MD, SC, NC, etc.	No	State of the patient's primary residence
County	PATIENTCOUNTY	Alpha	Howard, Montgomery, etc.	No	County of the patient's primary residence
Patient's Race	PTRACE	Classification Scale	Based on US OMB scale	Yes	Race category the patient identifies with
Patient's Ethnicity	PTETHNIC	Classification Scale	Based on US OMB scale	Yes	Ethnic category the patient identifies with
Patient Gender	PTGENDER	Classification Scale	NCVHS scale; Current Gender Identity	No	Current gender identity of the patient
Past Patient Diagnoses	PASTDIAGNOSES	ICD-10	ICD-10 Codes	No	Past diagnoses of the patient prior to the telehealth encounter
Past Medical Procedures	PASTPROCEDURES	CPT-4/HCPCS	CPT or HCPCS Codes	Yes	Past medical procedures performed prior to the telehealth encounter
Medication History	MEDHISTORY	NDC/RxNorm	NDC/RxNorm	Yes	Medication history of the patient prior to the telehealth encounter
Past Laboratory Test Orders	PASTLABORDERS	CPT-4/HL7 v2.5.1/LOINC/SNOMED-CT	Conform to CPT-4, HL7, LOINC or SNOMED-CT	Yes	Past laboratory orders presented prior to the encounter
Past Laboratory Test Results	PASTLABRESULTS	CPT-4/HL7 v2.5.1/LOINC/SNOMED-CT	Conform to CPT-4, HL7, LOINC or SNOMED-CT	Yes	Past laboratory results presented prior to the encounter

Standardized data elements that provide numerous research oppotunities

Telehealth Case Studies

Illustrative use cases the warehouse already informs

TELEHEALTH ADOPTION IN RURAL COMMUNITIES

Research from the data warehouse can identify a significant rise in telehealth adoption among rural healthcare providers — expanding the reach of care to communities with limited access.

IMPROVING CHRONIC DISEASE MANAGEMENT

Case studies can showcase how the data warehouse informed telehealth programs that enhanced patient engagement and improved outcomes for individuals with chronic conditions.

EXPANDING ACCESS FOR ALL TO MENTAL HEALTH SERVICES

The data warehouse can highlight the growing use of telehealth to broaden access to mental health services, particularly in areas with provider shortages.

Each case shows how a shared evidence base can translate into measurable improvements in access for all and in care delivery.

Public-Facing Dashboard

NATIONAL TELEHEALTH DATA WAREHOUSE

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TOTAL ENCOUNTERS	PARTICIPATING PROGRAMS	AVG. COST PER ENCOUNTER	RX ORDERS ISSUED
4.7 Million	42 Programs	$127	61%
↑ 18% vs prior year	Across 31 states	Range: $48–$340	Of all encounters

Telehealth Utilization Over Time (Annual Encounter Volume)

Year	2019	2020*	2021*	2022	2023	2024	2025	Trend
Encounters	14K	108K	159K	142K	129K	148K	170K	▲ +12x

** COVID surge years*

Insurance Breakdown

34%	28%	26%	8%	4%
Medicare	Medicaid	Private	Self-Pay	Other

Conditions Treated via Telehealth

Condition	%
Major depressive disorder	14%
Generalized anxiety disorder	11%
PTSD	7%
Substance use disorder	6%
Bipolar disorder	5%
Type 2 diabetes	10%
Hypertension	9%
COPD	5%
CHF / cardiac	5%
Chronic kidney disease	4%
Asthma / hypothyroidism	3%

Purple = mental health · Blue = chronic disease

Urban vs. Rural Site Concentration

Site	'17	'18	'19	'20	'21	'22	'23	'24	▲▼
Urban	68%	66%	64%	61%	59%	58%	55%	52%	▼ −16
Suburban	19%	20%	21%	22%	22%	23%	24%	24%	▲ +5
Rural	10%	11%	12%	13%	15%	15%	17%	18%	▲ +8
Frontier	3%	3%	3%	4%	4%	4%	4%	6%	▲ +3

Values = % of originating sites · ▲▼ = 2017–2024 trend (pp)

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Mock-Up of Public dashboard hosted at the University of Mississippi Medical Cent

What Comes After 2026?

Transition from a grant-built asset to a nationally hosted, state-supported utility

Federal funding built the warehouse. A trusted national host can sustain the platform, while participating states and entities support ongoing operations.

1 Federal investment created the asset

- National telehealth data warehouse
- Governance framework and DUAs
- Common data model and ingestion workflows
- Initial dashboarding and proof of concept

2 Neutral national host sustains the platform

- Prestigious convener (organization, consortium, or coordinating center)
- Operates infrastructure, onboarding, compliance, benchmarking
- Keeps stewardship neutral and multi-state

3 States / entities support operations

- Dashboards, analytic briefs, and custom evaluation support

Bottom line: the goal isn't to end with a successful grant — it's to create durable national infrastructure for telehealth evaluation.

Governance Structure for Telehealth Data Submission

Recommended multi-level model to support state participation, data trust, and outcome evaluation

WHO IS REPRESENTED

- State Medicaid agency
- State health department
- Participating health systems
- Academic / evaluation partner
- Legal / privacy representative
- Patient or rural community voice

GOVERNANCE BODIES

Executive Steering Committee

Strategic direction • participation approvals • cross-state priorities

Data Governance & Use Committee

DUAs • privacy / HIPAA • access rules • release approvals

Technical & Data Standards Workgroup

Common data model • submission specs • QA • interoperability

Evaluation & Research Committee

Measures • benchmarking • state reports • publications

WHAT GOVERNANCE ENABLES

- Standard state onboarding
- Defined data submission schedule
- Data quality review and feedback loop
- Approved dashboard metrics
- State-specific reports + benchmarking
- Publication and data release oversight

Start small: steering committee + data governance + technical workgroup + evaluation committee — each with clear decision rights for DUAs, metrics, access, and publication.

From National Warehouse to State / Health Systems Evaluation

A shared data infrastructure can help states measure telehealth access for all, outcomes, and sustainability without building separate analytics systems

Shared foundation

- Common data model
- Shared governance
- Consistent measurement

State-specific value

- Each state receives its own dashboard
- Outputs aligned to local Rural Health Transformation Program (RHTP) priorities

Multi-state learning

- Peer-state benchmarking
- Cross-state comparisons for policy and scale

A national warehouse can serve as the evaluation backbone for state telehealth transformation efforts.

What States / Health Systems Receive in Return

The warehouse should return policy-ready, operationally useful, and publication-quality insights to participating states

1

State dashboard

Telehealth trends by region, modality, service line, and population.

2

Outcome evaluation

Baseline vs. post-implementation changes in access, quality, utilization, and cost.

3

Benchmarking

Comparison against peer states, peer systems, or rural regions.

4

Decision support

Evidence for Medicaid strategy, policy refinement, and sustainability planning.

5

Research output

Multi-site datasets that support dissemination and publishable analyses.

One submission pathway can generate dashboards, evaluation, benchmarking, and strategy support for each state.

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YOU'VE HEARD FROM US.

We want to hear from you.

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