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Overview of COVID-19 Public Health Surveillance and Reporting in Texas, 2020-2022

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Objectives

Upon completion of this presentation, participants should be able to:

- Report a notifiable condition, such as COVID-19.
- Access, interpret, and use publicly available COVID-19 data and information resources on the DSHS website.

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Definitions


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- **PHR:** Public Health Region
- **LHD:** Local Health Department
- **ICP:** Infection Control & Prevention
- **EAIDU:** Emerging and Acute Infectious Disease Unit, Texas DSHS
- **RLHO:** Regional and Local Health Operations, Texas DSHS
- **Notifiable Condition:** Any disease or condition that is required to be reported under the Act or by §97.3 of title 25 Texas Administrative Code. Any outbreak, exotic disease, or unusual group expression of illness which may be of public health concern, whether or not the disease involved is listed in §97.3 of this title, shall be considered a "notifiable condition." The term "notifiable condition" is the same as the term "reportable disease" as used in the Health and Safety Code, Chapter 81.

Source: [Texas Administrative Code \(state.tx.us\)](https://state.tx.us)

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Definitions

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- **CDC:** Centers for Disease Control and Prevention
- **CSTE:** Council of State and Territorial Epidemiologists
- **NEDSS:** National Electronic Disease Surveillance System
- **TxEVER:** Texas Electronic Vital Events Registration
- **TXS2:** Texas Syndromic Surveillance
- **eICR:** Electronic Initial Case Report
- **eCR:** Electronic Case Report
- **PII:** Personally identifiable information

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Public Health Surveillance

- Public health surveillance is **systematic**, and **ongoing** assessment of community health through **timely**
 - Collection
 - Analysis
 - Interpretation
 - Dissemination and use of data

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Public Health Surveillance

- **Population based (not a sample)**
 - Not research
 - Aims to detect rare events
 - Data is used to inform prevention strategies and identify outbreaks
 - To inform public health action aimed at interrupting transmission

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Public Health Surveillance (cont.)

- **Collection of personal data for public health surveillance must be:**
 - Stored **securely**
 - **Confidential** and shared and used only for legitimate public health purposes
 - **Used** in ways that protect, maintain and improve the health of the public

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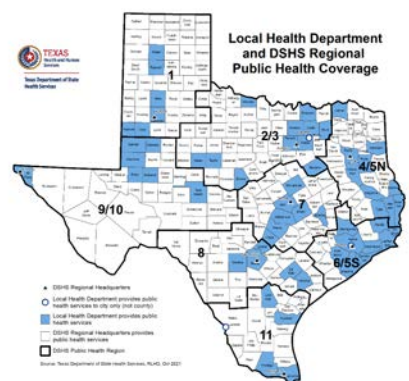
Public Health Organizations Performing Surveillance



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- Federal (CDC, FDA, HHS)
- State (Texas DSHS)
- Regional (DSHS PHRs)
- Local (Local Health Departments)
- Healthcare (Healthcare systems, Hospitals, Clinics, Providers, IPs, etc.)



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Disease reporting: State and Federal Roles

- Laws and rules governing communicable disease reporting reside at the state level
- The CDC and national organizations like CSTE make recommendations (released as position statements), however these recommendations are not requirements
 - Recommendations may include:
 - Standardized case definition
 - Laboratory evidence criteria
 - Outbreak definitions
 - Criteria for identifying fatalities, etc.
- Position statements over the past three years related to COVID-19 (and other conditions) may be found at <https://www.cste.org/page/positionstatements>

Source: 9

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Disease reporting: State Role

- State health departments may:
 - Set case and outbreak definitions for operational surveillance
 - Designate [notifiable conditions](#)
 - Set requirements for reporting notifiable conditions
 - Specify public health actions in response to notifiable conditions
 - Collects and disseminates reports of notifiable conditions to local and regional health departments
 - Shares information with other states and to CDC to disseminate to international public health organizations
 - Provide resources and direct response activities if necessary within the state
 - Sends summary reports of nationally notifiable conditions (without identifying information) to CDC and disseminates findings from collected data in the form of reports, presentations, webpages, infographics, etc. to the public.

Several Texas laws (Health & Safety Code, Chapters 81, 84, and 87) require specific information regarding notifiable conditions be provided to the Texas Department of State Health Services (DSHS). Health care providers, hospitals, laboratories, schools, and others are required to report patients who are suspected of having a notifiable condition (Chapter 97, Title 25, Texas Administrative Code).

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Disease reporting: Regional Role

- DSHS Regional health departments may:
 - Collect and transfer reports of notifiable conditions to local and state health departments
 - Perform functions of the Local Health Department in Jurisdictions where none exist or resource limitations prevent surveillance activities
 - Provide resources to local health departments
 - Send summary reports of nationally notifiable conditions to Texas DSHS central office and disseminates findings from collected data in the form of reports, presentations, webpages, infographics, etc. to the State, and public.

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Disease reporting: Local role

- Case investigation including:
 - Case interview (as applicable to the condition)
 - Medical chart abstraction
 - Laboratory result entry
- Public Health Actions
 - Public Health Follow up (as applicable to the condition)
 - Outbreak identification and investigation
 - Quarantine
 - Isolation
 - Vaccination
 - Linkage to care/linkage to resources
 - Facility level interventions (ICARs, site visits, Technical Assistance, etc.)
 - Development of local specific resources
- Local epidemiological assessments
- Program efficacy assessment using local data

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Disease reporting: Provider role

- Health care providers, hospitals, laboratories, schools, and others are required to report patients who are suspected of having a notifiable condition (Chapter 97, Title 25, Texas Administrative Code).
- Providers are responsible for timely and complete notification and are generally the first source of report
- Providers have a critical role in the prevention of outbreaks and potentially severe or life-threatening disease through timely notification

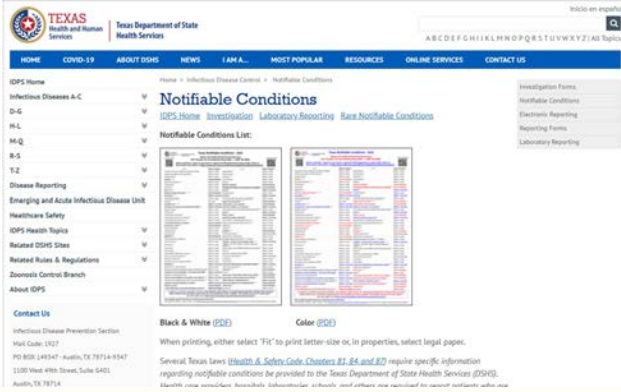
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Notifiable Conditions List

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<https://dshs.texas.gov/IDCU/investigation/Intifihable-Conditions.aspx#content=All%20diseases%20shall%20be%20reported.and%20telephone%20number%20of%20physician>

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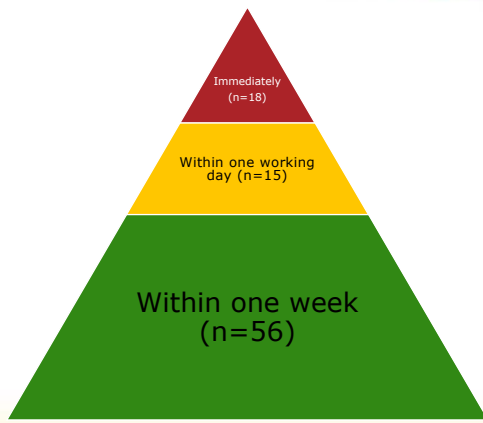
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Texas Notifiable Conditions



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Reporting Timeline	Number of Cases (n)
Immediately	18
Within one working day	15
Within one week	56


- **Immediately:** Call 1-800-705-8868, after hours this will be transferred to an epidemiologist on call
- **Within 1 work day:** report to [local health department](#) or DSHS by phone, electronic report or fax
- **Within 1 week:** report to [local health department](#) or DSHS by call, electronic report, or fax

<https://www.dshs.texas.gov/idcu/investigation/conditions/contacts/>

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COVID-19 Surveillance Systems in Texas



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- **Notifiable Condition Surveillance**
 - Clinical case reporting
 - Test based reporting
 - Facility based reporting
 - Outbreak reporting
- **Syndromic Surveillance (TXS2)**
- **Vital Statistics Surveillance (TXEVER)**
- **Hospital Discharge Data (THCIC)**

Please note: A single case may be detected through multiple surveillance systems

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COVID-19 Surveillance Systems in Texas


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- **Genomic Surveillance** (Texas SARS-CoV-2 Variant Network, CDC NS3)
- **Wastewater Surveillance** (NWSS: National Wastewater Surveillance System)
- **Survey Surveillance** (MASS-C, BRFSS)
- **Test-based Surveillance in Animals** (Texas DSHS Laboratory, USDA, etc.)

Please note: A single case may be detected through multiple surveillance systems

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Notifiable Condition Surveillance


- **Clinical case reporting**
 - Providers report cases meeting clinical and epidemiologic linkage criteria to LHDs or PHRs using a case report form (via fax or secure email).
 - eICR –Electronic Initial Case Report
- **Test based reporting**
 - Laboratories electronically report test results for a notifiable condition to Texas DSHS which are imported into NEDSS
 - Laboratories or providers report test results for a notifiable condition to LHDs or PHRs or Texas DSHS Central Office

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Notifiable Condition Surveillance




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- **Facility based reporting**
 - Texas HHSC and Federal HHS require certain facilities (such as hospitals, public schools, and long-term care facilities) to report COVID-19 cases at the facility level. Reports may be via phone or webform to the appropriate jurisdiction.
 - Other facilities, such as carceral facilities, and military facilities also report COVID-19 cases among residents and staff to Texas DSHS EAIDU.
- **Outbreak reporting**
 - LHDs and PHRs investigate clusters and outbreaks of notifiable conditions based on provider report, laboratory reports or facility report and transmit this information to Texas DSHS via a Respiratory Outbreak Report form

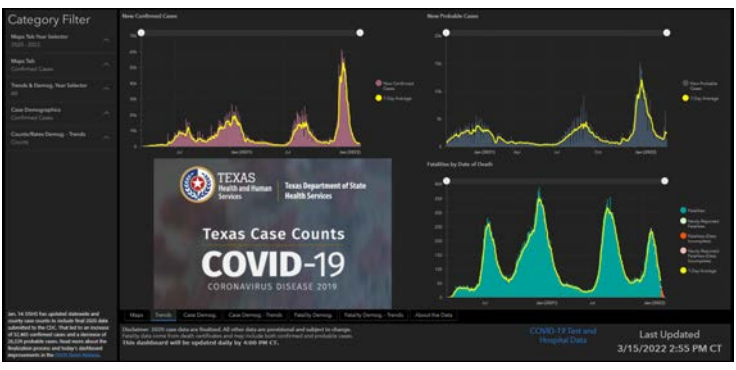
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Notifiable Condition Surveillance



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Texas Case Counts COVID-19 CORONAVIRUS DISEASE 2019

Source: <https://www.arcgis.com/apps/dashboards/45e18cha105c478697c76acbbf86a6bc>

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Facility based reporting


- Typically self-report based by a regulated facility to meet funding or legal obligations.
- Frequently aggregate counts rather than PII.
- Examples:
 - K-12 Schools report cumulative COVID-19 cases to Texas DSHS RLHO on a weekly basis to detect school outbreaks.
 - Long term care facilities report COVID-19 cases and resident vaccination to Texas HHSC.
 - Hospitals report COVID-19 cases and bed availability to Texas DSHS and federal HHS daily.

HHSC: LTCF report
<https://www.hhs.texas.gov/services/health/coronavirus-covid-19/texas-covid-19-case-count-vaccination-data>

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Facility based reporting



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Texas Public Schools COVID-19 Data

Cumulative positive student cases: 556,375

Cumulative positive staff cases: 139,095


State supported living centers and state hospitals: Facility Report (Excel) - Weekly report

Provider-reported COVID-19 Case Counts

Nursing Facilities

Source: <https://www.dshs.texas.gov/coronavirus/schools/texas-education-agency/>
 Source: <https://www.hhs.texas.gov/services/health/coronavirus-covid-19/texas-covid-19-case-count-vaccination-data>

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Outbreak Reporting

- COVID-19 outbreaks investigated by LHDs are required to be reported to Texas DSHS EAIDU within 7 days of outbreak closure.
- Outbreaks are closed 2 incubation periods (28 days) after last case is detected.
- Respiratory Outbreak Report Forms are collected, entered into a database and analyzed by Epidemiologists at Texas DSHS
- If necessary, notifications are sent to other states and federal partners via Epi-X

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Syndromic Surveillance (TXS2)

- Hospitals, free standing emergency centers, and urgent care centers who choose to participate send EHR data for enhanced surveillance of emerging public health conditions or threats.
- Syndromic surveillance utilizes trend analysis to establish a baseline and then uses algorithms to compare the current data to that baseline and issue alerts when aberrations are detected.

Source: [Texas Syndromic Surveillance \(TxS2\)](#)

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Vital Statistics

- Vital records include Birth registration, Death registration and Fetal Death reporting.
- Texas Electronic Vital Events Registration (TxEVER) supports all vital events operations, including reporting, registration, amendments and issuance of vital records.
- For CDC guidance to medical certifiers on reporting COVID-19 deaths, please visit <https://www.cdc.gov/nchs/covid19/coding-and-reporting.htm>

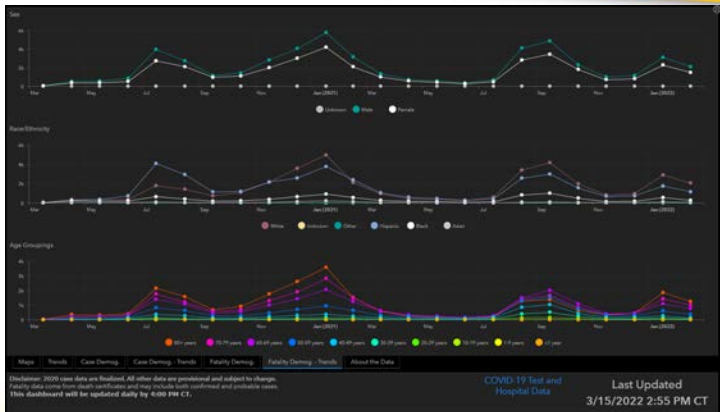


Source: <https://txever.ut.dshs.texas.gov/txever/en/welcome.htm>

COVID-19 Vital Statistics Data




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Disclaimer: 2020 case data are finalized. All other data are provisional and subject to change. Facility data come from death certificates and those include only confirmed and probable cases. This dashboard will be updated daily by 4:00 PM CT.

COVID-19 Test and Hospital Data
 Last Updated: 3/15/2022 2:55 PM CT


Source: <https://www.arcgis.com/apps/dashboards/45e18cha105c478697c76acbf86a6bc>



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Hospital Discharge Data (THCIC)

- Texas Health Care Information Collection (THCIC) Inpatient and Outpatient PUDFs and Research files may be accessed on the Texas DSHS website



Source: <https://dshs.texas.gov/thcic/>
<https://www.hhs.texas.gov/services/health/coronavirus-covid-19/texas-covid-19-case-count-vaccination-data>

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Genomic Surveillance

- Facilities performing whole genome sequencing must report results as WGS tests are considered confirmatory evidence of SARS-CoV-2 infection
- Variant proportions reported on public facing dashboard weekly.
- Reporting of WGS tests conducted by commercial, academic and public laboratories leads to rapid clinical detection of new and emerging variants of concern and mutations that are increasing in frequency.


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Genomic Surveillance Data




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Source: <https://www.dshs.texas.gov/coronavirus/variants-data.aspx>




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Wastewater Surveillance

- Wastewater surveillance is:
 - Rapid, providing early warning of case increases and rapid indication of decreasing community case levels
 - Non-identifiable
 - Does not rely on people having access to healthcare, seeking healthcare when sick, or availability of COVID-19 testing
 - Can be used for other conditions (influenza, foodborne illnesses, etc.)

[https://www.cdc.gov/healthywater/surveillance/wastewater-surveillance.html](https://www.cdc.gov/healthywater/surveillance/wastewater-surveillance/wastewater-surveillance.html)



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Wastewater Surveillance

SARS-CoV-2 RNA Levels in Wastewater in the United States

View charts and data provided by CDC, updated by State DPH. Representations of wastewater data submitted directly to CDC's National Wastewater Surveillance System's (NWSS) platform. Subject to suppression criteria described in footnotes.


For more information on wastewater surveillance please visit the [National Wastewater Surveillance System](https://www.cdc.gov/wastewater/).

www.cdc.gov/wastewater/

State or Territory:

Time Period: Mar 12, 2022 - Mar 26, 2022

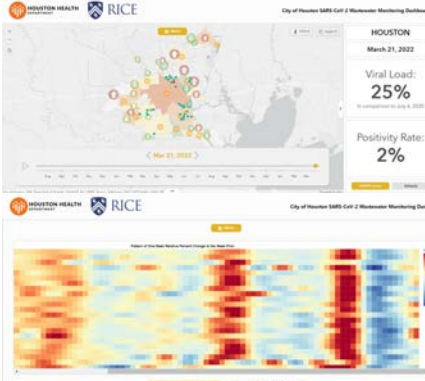
Map Metric: 10 days average



SARS-CoV-2 RNA wastewater levels, United States	10-day average change by surveillance category	Today % Change	Week % Change	Category change since last 7 days
Overall	21	5	12%	
0 to 10	178	20	17%	
10 to 20	21	5	12%	
20 to 30	13	3	23%	
30 to 40	147	14	10%	
40 to 50	39	23	7%	
50 or more	65	15	41%	

Total sites with current data only
Total number of wastewater sampling sites (N=)

Legend legend categories for this points on the Map



HOUSTON
March 21, 2022

Viral Load: **25%**
(in comparison to July 6, 2021)

Positivity Rate: **2%**

Sources: <https://covid.cdc.gov/covid-data-tracker/#wastewater-surveillance>, <https://covidwtp.spatialstudieslab.org/>

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Survey Surveillance

Behavioral Risk Factor Surveillance System (BRFSS)




Serology Surveillance (MASS-C, etc.)



Source: <https://dshs.texas.gov/chs/brfss/#:~:text=The%20Texas%20Behavioral%20Risk%20Factor, and%20use%20of%20preventive%20services.> ; <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/serology.html>

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Test based surveillance in Animals




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- Texas DSHS Zoonosis Control Branch collaborates with Texas Animal Health Commission, CDC, and USDA to report SARS-CoV-2 detections in animals including:
 - Investigating reports in companion animals, zoo animals, and wildlife.
 - Collaborating with Texas A&M University COVID-19 and Pets Research project to study SARS-CoV-2 infections in companion animals.
 - Collaborating with Austin Public Health to study SARS-CoV-2 and coronavirus infections in Community Cats

Source: <https://dshs.texas.gov/idcu/health/zoonosis.aspx> ; <https://vetmed.tamu.edu/hamer-lab/covid-19-pets-project/> ; <https://www.aphis.usda.gov/aphis/ourfocus/onehealth/one-health-sarscov2-in-animals> 33


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Test based surveillance in Animals Data



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Overview of Cases | Cases List



Confirmed Cases of SARS-CoV-2 in Animals in the United States
Last updated March 29, 2022

Filter data by footcote number (See definitions on cases list tab)
All records


Companion Animals and Other Animals in Human Care	Method of Initial Diagnosis			Grand Total
	PCR	Ab		
362	Cat	60	41	101
	Dog	39	59	98
	Tiger	50	2	52
	Goat	51		51
	Gorilla	21		21
	Snow Leopard	13		13
	Other	5		5
	Spotted Hyena	2		2
	Binturong	1		1
	Catfish	1		1
Cougar	1		1	
Ferret	1		1	
Fishing Cat	1		1	
Lynx	1		1	
18	Premises*			18
Mink	16	2	18	
25	Wildlife Detections**			
	Mule Deer			
White-tailed Deer				

*Location of some farms is withheld to avoid disclosing data about individual operations. **Wildlife data only indicate detection in that species and not the number of animals. continued.

Confirmed Positive Animals by State

Source: <https://www.aphis.usda.gov/aphis/ourfocus/onehealth/one-health-sarscov2-in-animals> 34

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Conclusions

- Accurate surveillance of COVID-19 morbidity and mortality **relies heavily on providers** to test for and report notifiable conditions including COVID-19 as appropriate based on clinical picture and exposure history.
- **Providers have a critical role** in the prevention of outbreaks and potentially severe or life-threatening disease through timely notification.

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Conclusions

- Public health surveillance, at every level, aims to provide **systematic**, and **ongoing** assessment of community health threats.
- This allows timely **dissemination** of information that providers, officials, and the public can use **to prevent morbidity and mortality.**

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Limitations

- **Data Collection and Reporting:**
 - Limited to case and outbreak reports received by Texas DSHS. Other organizations, such as LHDs or federal partners, may receive more timely or complete COVID-19 data. Other organizations may also receive delayed data reports or apply additional data cleaning procedures.
 - Reporting requirements have changed over the course of the COVID-19 pandemic.

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Limitations

- **Data Collection and Reporting:**
 - Specific statutory requirements exist requiring reporting of notifiable conditions and vital events in Texas that may not apply to other settings.
 - COVID-19 Surveillance Data is preliminary and subject to change until COVID-19 case finalization for 2021.
 - This is not an exhaustive list of COVID-19 surveillance systems in use in Texas but covers many of the primary sources of data used for many response activities and public reporting.

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Resources for COVID-19 Data

On the Texas DSHS Coronavirus Webpage

- [COVID-19 Case and Fatality Surveillance Dashboard](#)
- [COVID-19 Test and Hospital Data](#)
- [COVID-19 County Trends Dashboard](#)
- [COVID-19 Variants Data](#)
- [COVID-19 Vaccine Effectiveness Data](#)
- [COVID-19 Vaccination Coverage Data](#)
- [COVID-19 Reports by Public Schools \(K-12\)](#)

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Resources for COVID-19

Other Resources

- [COVID-19 Therapeutics Information for Providers](#) (DSHS Website)
- [National Surveillance Dashboards-CDC COVID Data Tracker](#)
- [National Wastewater Surveillance \(NWSS\)-CDC](#)

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Questions?

Email follow up:
EAIDU-Coronavirus@dshs.texas.gov

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