



TEXAS
Health and Human
Services

**Texas Department of State
Health Services**

**Assessment of the Feasibility of an Epidemiological Study to Assess
the Occurrence of Cancer**

Addendum

Houston, Texas

2000-2016

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Prepared by the
Texas Department of State Health Services

Purpose

This addendum provides DSHS's response to items suggested for consideration by participants on the subject-matter experts conference call on August 17, 2020. DSHS considered available resources, expertise, and logistical considerations when formulating responses to these suggested ideas and actions.

Background

Citizen concern prompted the Texas Department of State Health Services (DSHS) to examine the occurrence of cancer in the Kashmere Gardens neighborhood in Houston, Texas. DSHS followed the Centers for Disease Control and Prevention (CDC) and Council of State and Territorial Epidemiologists (CSTE) 2013 guidelines to investigate the occurrence of adult cancers. Observed numbers of 5 cancer types were higher than expected based on Texas rates, when looking at the whole area (21 census tracts together). The five cancer types included acute myeloid leukemia, esophagus, larynx, liver, and lung and bronchus cancers. When looking at individual census tracts, the numbers of certain cancers were higher than expected in some census tracts but not in others. The full report is available at dshs.texas.gov/epitox/CancerClusters.shtm.

The CDC and CSTE 2013 guidelines include four steps.¹ The first step is to collect information about the community's concerns. The second step is to determine whether the observed number of cancer cases is statistically significantly different than expected. The third step is to evaluate the feasibility of performing an epidemiologic study. This study examines whether exposure to a specific exposure is associated with the suspected cancer cluster. If deemed feasible in step three, the fourth step is to conduct an epidemiologic study.

In accordance with step three of the CDC and CSTE 2013 guidelines, and at

¹ Centers for Disease Control and Prevention, *Investigating Suspected Cancer Clusters and Responding to Community Concerns*. MMWR, 2013. 62: p. 22. Available from: <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6208a1.htm>.

the request of the Harris County District Attorney, DSHS convened a group of subject-matter experts to review assessment result and evaluate feasibility of a follow-up epidemiologic study. Feasibility refers to the ability to design and conduct a study that can test a specific hypothesis given the data available.

The group represented a wide array of relevant experience and included members from academia, government, health care, and the community. The group was comprised of experienced scientists, including epidemiologists, toxicologists, physicians, a statistician, and environmental health scientists. Additionally, four local community representatives participated in the group to represent the unique communities of the area.

A group conference call was held on August 17, 2020. The purpose of the meeting was to determine the feasibility of an epidemiologic study of the associations between specific cancers and environmental contaminants in the area.

DSHS staff facilitated the meeting while participants provided expert opinion and discussed issues such as development of a testable hypothesis, environmental exposures in the area investigated, and community concerns.

Subject-Matter Expert Meeting Outcome: Study Not Feasible.

Based on the information discussed during the meeting, the subject-matter expert group determined that an epidemiologic study of the associations between specific cancers and environmental contaminants in the area investigated is not feasible. Some factors identified by the expert group included the following.

- There are many possible risk factors of cancer apart from exposure to creosote, especially for the cancer types identified in these assessments. Following CDC/CSTE guidelines, DSHS adjusted for some risk factors, such as race/ethnicity, sex, and age. DSHS did not adjust for other well-known risk factors for some of these cancers – such as smoking, hepatitis, fatty liver disease, cirrhosis, obesity, and alcohol consumption - because this information is unavailable from the Texas Cancer Registry.

- There are too many limitations to determine whether environmental exposure to creosote is occurring. There needs to be a better understanding of current and historical exposures.
- Questions about disease latency and lack of information regarding residential history prevents one from forming a testable hypothesis.
- Given the limited environmental data available, it is unclear if exposure is occurring; therefore, it is not possible to come up with a testable hypothesis.
- The cancer assessments are a preliminary look at cancers occurring in the community using Texas Cancer Registry data. A full-scale epidemiologic study will be resource- and time-intensive. The results of the epidemiologic study would not prove causation.

DSHS Response to Items Suggested for Additional Consideration

In addition to their conclusions about the feasibility of additional epidemiological study, scientists and community members from the subject matter expert group provided recommendations for DSHS consideration. DSHS has evaluated each suggestion, and responses are provided below.

Recommendation 1: Reconsider the timeframe selected for analysis to include 1995 – 1999 and for the years after 2016 to determine any effects from Hurricane Harvey.

The timeframe used in analyses (2000-2016) was selected in consultation with the requesters and according to community concerns about environmental contamination that was present in the area prior to this time period and when the facility was operational. DSHS will conduct additional assessments to include years past 2016 upon request and when data becomes available. This analysis may also include data from 1995-1999.

Recommendation 2: Conduct an exposure assessment for the community in the area surrounding the former creosote facility.

DSHS Health Assessment and Toxicology (HAT) program has a cooperative agreement with the Agency for Toxic Substances and Disease Registry

(ATSDR) to protect communities from harmful health effects related to exposure to natural and man-made hazardous substances. Utilizing environmental health tools and data available from the Texas Commission on Environmental Quality (TCEQ), ATSDR and DSHS HAT will investigate possible exposure pathways in the community that are 1) immediately surrounding the site and 2) possibly impacted by the former site's activities. DSHS will investigate whether there are contaminants in the community immediately surrounding the site and if so, how these contaminants may impact residents' health. DSHS HAT program will write a post-assessment report and recommend actions to protect health.

Recommendation 3: Depending on the exposure/health assessment results, consider biomonitoring activities to determine whether people have been exposed to contaminants from the former creosote facility. In addition, consider a community survey to gain a better understanding of occupational and long-term exposures and other risk factors.

The need for biomonitoring (measuring contaminants in human tissues and fluids, such as blood and urine) will depend on the results of the exposure assessment and could potentially be informative. However, DSHS does not have the resources to carry out a biomonitoring project but would consider providing technical support to an external entity (an academic institution, for example) for such an endeavor.

Recommendation 4: Investigate the need for additional environmental monitoring of offsite soil, groundwater, and indoor air for vapor intrusion.

The need for additional environmental monitoring will be determined based on the results of the exposure/health assessment. If a need is determined, DSHS will recommend that TCEQ conduct additional environmental sampling.

Recommendation 5: Because there are many other known risk factors for the types of cancers identified by the assessments, explore ways to provide community education on how to mitigate known risk factors, and to promote and conduct more cancer screening in the area.

DSHS will work with our local public health colleagues (such as the Houston Health Department) to identify ways to provide education on how to reduce

known cancer risk factors and to promote cancer screening in the community.

Recommendation 6: Share community concerns about TCEQ's regulation and oversight of the Union Pacific Railroad's actions to clean up soil and groundwater contamination with the TCEQ.

DSHS will share a copy of the meeting summary notes with TCEQ and provide recommendations for additional environmental sampling pending the results of the exposure assessment.

Recommendation 7: Calculate standardized incidence ratios (SIRs) for childhood cancers (acute lymphocytic leukemia and acute myeloid leukemia) and cancers of urinary system in adults (includes cancers of kidney and renal pelvis, ureter and other urinary organs), if there are sufficient cases.

If there are sufficient case numbers, DSHS will examine these SIRs (and 95 percent confidence intervals) and make them available.

Conclusion

Based the external subject-matter expert group determination, DSHS will not pursue an epidemiologic study related to the community's concerns regarding the occurrence of cancer in the area surrounding the former creosote facility in Houston, Texas. DSHS carefully considered the expert group's suggestions and will conduct the following activities:

- Additional cancer assessments to include years past 2016 upon request and when the data becomes available;
- An exposure/health assessment to investigate possible exposure pathways in the community immediately surrounding the site and possibly impacted by the former site's activities; and
- An assessment of childhood cancers (acute lymphocytic leukemia and acute myeloid leukemia) and cases of adult cancers (including kidney, renal pelvis, ureter and other urinary organs) in the area of the 21 census tracts.

Additionally, DSHS will continue to work closely with federal, state, and local partners by sharing community concerns, recommendations for possible additional environmental evaluation and biomonitoring, and ways to help provide education on how to reduce know cancer risk factors and to promote cancer screening in the community.