Texas Local and Regional Public Health Coverage Map

Williamson County Public Health Center and Hospitals
INTRODUCTION

The theme for this report is collaboration. To be successful, epidemiology programs must build and maintain relationships outside of the health district with hospitals, neighboring health departments, colleges and universities, school districts, and many others. This report includes examples of these partnerships in action. It is in the spirit of collaboration that this report invited articles from the Mental Health Community which is also constantly seeking to measure and monitor outcomes for its models, programs, and services.

The leaders of our county and cities understand the damage a “silo mentality” can do to any organization or entity, including the public health system. The fear associated with stepping outside of our collective comfort zones often prevents us from discovering new ideas and elegantly simple solutions to complex problems.

Fortunately, Williamson County is home to many innovative problem solvers. In 2012 - 2013, the public health system took an important first step in harnessing their brainpower by initiating a community health assessment and community health improvement planning process. This cycle of assessment and planning will be repeated every 3 to 5 years, providing community leaders opportunities to apply the principles of continuous quality improvement to public health. Improved patient and population health outcomes are the ultimate reward for these efforts.

Other benefits from improved collaboration are less obvious and may be more difficult to quantify. As an environment of collaboration matures, connections between organizations are made that reduce duplication of effort. Within organizations, collaboration fosters a more effective work environment. Establishing relationships before a crisis often helps produce a better coordinated response during an emergency.

Join us in celebrating these concepts of collaboration and partnership. We hope the 2012 Epidemiology Report helps sustain discussions about addressing some of our most vexing public health problems. It is only together than we will discover solutions and move forward toward healthier communities.

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Acknowledgements
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The residents of Williamson County have reason to be proud of their local health department. Over the next two years, the Williamson County and Cities Health District (WCCHD) will embark on a journey with a goal of achieving national accreditation and performance excellence. The journey will involve the critical evaluation of health outcomes and public health services in Williamson County.

The Board of Health supports efforts that build partnerships across all organizations and recognizes the critical role provided by quality data on the health of our population. We ensure that your local health department maintains the capacity to monitor, diagnose and investigate health threats and this report is a snapshot of those efforts. The Board routinely reviews epidemiologic reports and monitors the quality of health status data collection, and appreciates your interest in this report and would welcome your contributions to subsequent issues.

The 2012 Epidemiology Report highlights the outstanding work that results from strong partnerships, but good data is only the foundation of a strong public health system. The heart of that system that translates data into action and then evaluates itself again has been the WilCo Wellness Alliance, which for the last five years has successfully been the Williamson County coalition for Community Health Improvement. To the many partners of the Alliance, thank you for your efforts in keeping Williamson County on the list of the “most desirable” and healthiest places to live!

Wayne Cavalier, Chair
Williamson County Board of Health

W.S. “Chip” Riggins, Jr., MD, MPH
Executive Director and Health Authority
Our Vision

*Healthy people thriving in healthy communities in Williamson County.*

Our Mission

*The Williamson County and Cities Health District, in partnership with communities, protects and promotes the health of the people of Williamson County.*
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LONE STAR CIRCLE OF CARE: SHARED CARE IS BEST CARE

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Introduction
An Institute of Medicine report in 2005 concluded that the only way to achieve true quality and equality in the health care system is to integrate primary care with mental health care and substance abuse services. Lone Star Circle of Care (LSCC), a Federal Qualified Health Center (FQHC) providing care to uninsured, underinsured, and Medicaid/CHIP patients, created an integrated, behaviorally enhanced health care home in order to approach each patient in a holistic manner.

Treatment Process
When guardians of children first access LSCC, they are provided information about the behaviorally-enhanced integrated health care model and the role various team members play in their child’s healthcare. Primary Care Physicians (PCPs) often remain in charge of the patient’s treatment, utilizing behavioral health (BH) screening tools to efficiently identify at-risk patients and refer to a Behavioral Health Consultant (BHC) when needed. A BHC is an active member of the primary care team. The BHC can be a psychiatrist or a therapist, but most often, is a licensed social clinical worker, licensed professional counselor, or psychologist. The BHC offers co-management of care, including patient education, resource referral coordination, real-time crisis evaluations, comprehensive assessments, facilitation of healthy lifestyle changes, and ongoing evidence-based therapy when indicated. The PCP may consult with the child psychiatrist who is available for real-time consultation by phone. This may result in the PCP initiating and possibly offering maintenance treatment with psychotropic medication(s). Alternatively, the PCP may refer to a child and adolescent psychiatrist (CAP), who then becomes an integral and direct part of the treatment team. In consultation with the BHC and CAP, the PCP may initiate genetic testing, electroencephalograms (EEG), electrocardiograms (EKG), magnetic resonance imaging (MRI), laboratory studies, and consultations. Parents appreciate that their child’s care is coordinated, and not duplicated, and value the savings to them in time and transportation costs. The electronic health record (EHR), including previous encounter information and assessment results, are available to the treatment team.

Member Navigation Center
The treatment team is further enhanced by LSCC’s Member Navigation Center (MNC), a cutting-edge patient care navigation center that optimizes communications and contacts with patients to reduce the barriers that individuals often face when seeking health care services. The
MNC provides bidirectional, proactive services seven days a week and is a one-stop shop for health care coordination – providing comprehensive referral services. The collaboration between the patient and his/her LSCC care team goes far beyond the typical course of making a referral and hoping for the best. MNC patient representatives help schedule appointments, send records to the specialist, make sure that the member understands the reason for the appointment and what to expect, checks in after missed appointments, follows up after completed appointments, and collects records from the specialist to include in LSCC’s EHR. In addition to patient service representatives (PSR) and referral specialists, the MNC also employs Clinical Nurse Interventionists (CNI) who provide triage, medication refills, lab results, and health education and who proactively manage patients with chronic conditions. MNC staff are an integral part of each patient’s health care team as they coordinate services along a patient’s entire continuum of care and work with the treatment team to provide uninterrupted, coordinated care for patients, thereby eliminating unnecessary, duplicative efforts that can be confusing to patients and providers.

Interdisciplinary Collaboration
The treatment team promotes a supportive, respectful, and interactive interdisciplinary provider group. The relationship is strengthened by ongoing education through team meetings. Education is reciprocal: pediatric providers educate the BH members on medical conditions such as sleep apnea and seizure disorders and on management of insulin resistance; BH members teach the primary care members how to recognize the signs and symptoms of mental illness, how to use BH assessment tools (i.e., MCHAT, CY-82 BOCS, NIHCQ Vanderbilt Scale), the use of FDA-approved and off-label psychotropic medications, FDA black-box warnings, and metabolic monitoring guidelines when using atypical antipsychotics. Knowledge and clinical practice is further strengthened by case reviews exploring management of complex patients.
Screening

An interdisciplinary governance council establishes consistent professional practice standards such as defining the BH screening tools to use in primary care clinics. Since PCPs have limited time to conduct the variety of health care screening required, standardized evidence-based screening tools (e.g., TeenScreen, etc.) are used to efficiently identify at-risk patients in the primary care setting. Table 1 outlines the components of care in this integrated system, along with the benefits and challenges.

Case Study

To highlight LSCC’s integrated behavioral healthcare home, the following case study is presented.

JJ, a four-year old male victim of neglect and physical abuse, presented with his fourth foster mother for a well-child visit and to establish a medical home at LSCC Pediatrics. He had a previous diagnosis of autism spectrum disorder and his former psychiatrist had prescribed Risperidone and Clonidine. The chief complaints included JJ’s extremely aggressive behavior to himself and others, staring spells, disrupted sleep, and night terrors.

Based on previous co-management of cases and training provided by the LSCC CAP, the pediatrician immediately consulted the BHC embedded in the clinic and the CAP for real-time
consultation by phone. By the time JJ left the pediatrician’s office, the CAP, pediatrician, and BHC had developed a treatment plan that included:

- Decreasing the Risperdal to reduce risk of suspected seizures,
- Establishing an appointment with the CAP within 24 hours,
- Initiating psychotherapy to address aggressive behaviors and suspected post-traumatic stress disorder (PTSD),

- Scheduling labs to monitor potential metabolic effects of Risperidone,
- Scheduling an EEG and brain MRI for suspected seizure disorder, and
- Initiating referrals to pediatric neurology for suspected seizures and genetics to rule out 116 Fragile X.

Referrals for speech, physical therapy, and occupational therapy had already been initiated through the school. In the short term, JJ’s staring spells and night terrors continued to worsen, which led the pediatrician to consult the BH team again, and refer JJ for a neurologic hospitalization. JJ was diagnosed with complex partial seizure disorder and started on Valproic Acid, which eliminated his seizure activity (including nocturnal ones). During an outpatient visit at LSCC, the CAP adjusted his Risperidone, which reduced his irritability, temper tantrums, aggression, and self-injurious behaviors related to his autism, and prescribed Clonidine, which reduced his hyperactivity and insomnia.

In a traditional, non-integrated health care model, JJ’s pediatrician would have managed the well child visit and referred JJ to other community providers to address his BH needs. It is likely his foster parent and Child Protective Services would have been responsible for managing these referrals and scheduling the visits. Additionally, they would have been confronted by a limited list of Medicaid providers in the area. In Central Texas, child psychiatrists often have three- to eighteen-month waiting lists for an appointment, and pediatric neurologists have six to eighteen month waits. The coordination of care between the pediatricians, specialty physicians, and therapists would be disjointed or non-existent despite the best intentions and requests for records and communication. As a result, in a non-integrated health care system, JJ would have been at greater risk for more extensive interventions, such as multiple inpatient psychiatric hospitalizations, residential placement, and another failed foster placement, requiring him to establish care elsewhere.
Guardians often first present to their PCPs for help understanding and managing their child’s BH problems. Unfortunately, PCPs are confronted with two problems: time constraints and limited access to BH resources. PCPs find themselves struggling to provide the best care they can given these challenges. An integrated model of care addresses both of these concerns.

**Sustainability**

When provided within an FQHC, the behaviorally-enhanced integrated delivery model is both sustainable and scalable to fit the needs of an organization. Sustainability metrics include: provider skill mix (ratio of therapists to psychiatrists); payer mix (ratio of Medicaid, commercial, and unfunded); and productivity (discipline-specific patient encounter volumes). While phone consultations are not reimbursable, they are seen as a benefit to LSCC’s patients, and the costs are offset by the sufficient revenue generated through the CAPs direct interventions.

**Summary**

The behaviorally enhanced integrated health care model offered by LSCC is innovative and patient-centered. PCPs, committed to providing the best care to their patients, assist in reducing the stigma of mental illness. They can access real time BHC and/or CAP resources that efficiently and effectively facilitate the integrated management of the patient. This direct access is essential to avoid disconnects that so often happen in separate, non-integrated systems of care. The providers embrace an attitude of openness and willingness to learn from each other’s disciplines. Most importantly, the patient and the family are an integral part of the team, learning to trust each member of the care team and becoming drivers of the treatment. Their active participation leads to positive outcomes, including better patient and guardian satisfaction and adherence. Parent feedback such as, “All of you know what is going on…you communicate with one another…you left no stone unturned to find out what was going on with my child” is common place, validating that “shared care is best care.”

**References**

PARTNERING TO BETTER UNDERSTAND INFLUENZA INCIDENCE IN WILLIAMSON COUNTY

A JOINT SURVEILLANCE PROJECT BETWEEN LONE STAR CIRCLE OF CARE AND WILLIAMSON COUNTY AND CITIES HEALTH DISTRICT

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Introduction

Public health agencies throughout the world collect, compile, and analyze information on influenza activity year round. It is important to maintain a comprehensive system for influenza surveillance in order to characterize the influenza viruses circulating, monitor changes that might indicate a pandemic, inform vaccine composition, and identify a need for public health response to protect the vulnerable. This ongoing, effective, routine influenza surveillance provides the foundation for global preparedness for recognition of and response to any potential catastrophic pandemic event.

Influenza, however, is not a communicable disease that is required by Texas law to be reported by providers to the local health authority. Its incidence is so common that such reporting would represent an excessive burden to providers. In lieu of required reporting of all cases, Williamson County and Cities Health District (WCCHD) collects voluntary information from a variety of provider sources throughout the year on both laboratory-confirmed influenza and incidences of influenza-like illness (ILI). This “sentinel” surveillance system does not intend to capture all instances of influenza or ILI, but rather seeks to have a representative picture of illness due to influenza in the community. This information is summarized weekly during the “official” influenza season, which is approximately October to May for each year. This information is then provided to the community via weekly website postings and health alerts when necessary.

Another purpose of ILI surveillance is outbreak detection in institutions such as long term care facilities, schools and other similar institutional settings. Although individual cases of influenza are not reportable, outbreaks of both ILI and laboratory-confirmed influenza are. Sentinel ILI surveillance also assists in monitoring vaccine efficacy and vaccine failure by the routine collection of specimens which are ultimately routed to the Centers for Disease Control and Prevention (CDC) for typing and matching to vaccine strains.

Voluntary reporting such as that provided by sentinel providers has a number of limitations. As the reports are voluntary, data are not necessarily provided on a consistent basis, and the number of reporters varies from week to week. There is also only a limited amount of information provided. Schools only provide the number of absences attributed to ILI, and the method for classifying an absence as ILI varies from school to school depending upon who receives the notification of absence. Schools also do not provide demographic information such as age or gender. Trends in absences from week to week in a given district provides a very
limited assessment of ILI in that particular community, but due to the size differences in school districts, comparisons cannot be made between them. Hospitals also report ILI encounters in their facilities, as well as number of laboratory-confirmed influenza cases, but again without demographic or geographic details. Consequently, the data do not provide any information regarding the populations most vulnerable to serious consequences of influenza infection such as the very young, the very old, and pregnant women, nor the specific communities affected.

An important provider partner in our community is the Federally Qualified Health Center whose headquarters are in Williamson County, Lone Star Circle of Care (LSCC). A significant provider of care to Williamson County residents, the client base of LSCC represents a potentially data-rich source of information concerning those affected by influenza. A data enhancement project for ILI surveillance was proposed by WCCHD to LSCC in order to determine if details concerning those patients seen for ILI at LSCC clinics could be used to develop a clearer picture of the incidence of influenza in Williamson County. The intent of the project is to improve the quality and utility of information WCCHD shares with providers, communities, and member cities in Williamson County to inform local policy and planning. Specific goals for data enhancement included collecting age-specific data, determining the burden of ILI in childbearing women, and obtaining community-level data more detailed than was available from school reporting.

**Methodology**

LSCC provided ILI surveillance reports to WCCHD on all patients who they identified as Williamson County residents. Data on the total number of patient visits and the total number of ILI visits among Williamson County residents were provided by LSCC on a weekly basis to WCCHD based on an executed data sharing Business Associates Agreement (BAA) between the two agencies. In order to be counted as an ILI case, a patient had to have documented symptoms of fever with cough and/or sore throat, as well as one of the following ICD-9 codes included in the diagnoses for the encounter: 079.99 (unspecified viral infection), 462 (acute pharyngitis), 465 (acute upper respiratory infections of multiple or unspecified sites), 487 (influenza), 488 (influenza due to certain identified influenza viruses), 780.60 (fever, unspecified), 784.1 (throat pain), 786.2 (cough), or 780.99 (other general symptoms). If the selected ICD-9 diagnosis was 780.99, the associated assessment had to include the terminology "influenza-like symptoms".

LSCC uses the NextGen® Electronic Medical Record (EMR) system to document clinical information during patient encounters. Using SQL database programming, LSCC extracted
data from the EMR to identify patients presenting with symptoms meeting the definition of ILI. Data were aggregated by zip code, sex, age group, and pregnancy status (among females aged 18-49 years) beginning in June 2012. For this report, WCCHD compiled and analyzed data from September 30, 2012 (first day of week #40 of the year) through September 28, 2013 (last day of week #39 of the year) reflecting the entire 2012-2013 influenza "year". Although data provided to WCCHD by LSCC was aggregated by zip code of patient residence, WCCHD aggregated data further into five "communities" shown in Figure 1: Taylor (zip code 76574), Georgetown (zip codes 78626, 78628, and 78633), Round Rock/Hutto (zip codes 78634, 78664, 78665, 78680, 78681, 78682, and 78683), Rural Williamson County (zip codes 78674, 78673, 78642, 76511, 76527, 76530, 76537, 76573, 76577, 76578, 78615, and 78621), and Cedar Park/Leander/Austin (zip codes 78717, 78727, 78728, 78750, 78759, 78646, 78641, 78630, and 78613).

Results

Table 1 shows the total number of encounters at LSCC clinics for the 52-week period from September 30, 2012 to September 28, 2013 (weeks began on Sundays and ended on Saturdays). Total encounters for each community only varied about 10-15% from week to week. ILI incidence peaked for LSCC encounters during the nationally observed peak influenza season (between 12/23/2012 and 2/2/2013). This past season's peak occurred nationally relatively early as compared to most other seasons, although not as "off-season" as the H1N1 pandemic of 2009-2010 (Figure 2).

The data provided by LSCC to WCCHD were aggregated into eight age groups: <1 year of age, 1 year, 2-4 years, 5-17 years, 18-24 years, 25-49 years, 50-64 years, and >64 years old. The age distribution of LSCC patients differed from the general population of Williamson County with a significant shift to the pediatric population (Table 2). In addition, ILI encounters were primarily in the pediatric population of 1-17 years of age (Figure 3, shown in two groups: 1-4 years of age, and 5-17 years of age). Infants less than 1 year old had fairly flat ILI incidence of about 5% throughout the year. ILI in adult populations (18-64 years of age) was seen in about 1% of encounters. Although LSCC pediatric patients outnumbered adult patients, ILI for each age group is shown as a percentage of encounters for that age group, reducing the significance of the differences in distribution. However, because so very few adults >64 years of age (a total of 4,410 encounters for the entire 52 weeks, about 85 visits/week, with only 35 of those due to ILI) were seen, even small numbers of visits for ILI resulted in erratic peaks in incidence within this age group (e.g., see sharp peak in Figure 3 for week ending 3/23/13). When compared to ILI
incidence rates for the entire state of Texas as reported to CDC through the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), LSCC rates were consistently higher due to the over-representation of pediatric patients and their higher overall rates of ILI. When these rates were adjusted to reflect the actual age distribution of the population in Williamson County, ILI incidence closely mirrored the state’s (Figure 4).

Data from LSCC also included the zip code of the patient residence, which allowed for aggregation into generalized geographical locations as previously shown in Figure 1. Figure 5 shows the utility of such aggregation by comparing rates of ILI in one community (Round Rock/Hutto in the figure) with the county as a whole as well as the remainder of the county exclusive of the community. ILI rates in the Round Rock/Hutto community area did not vary much from the county as a whole or the county exclusive of Round Rock/Hutto. However, even though this area contributed almost half of both total encounters and encounters due to ILI (44% and 43%, respectively, data from Table 1), it was not always the primary contributor to increases or decreases in countywide ILI rates from week to week.

Not all communities had ILI incidence that mirrored the remainder of the county as closely as the Round Rock/Hutto area. Figure 6 shows ILI variance in the more rural areas of the county. Because this area comprised less than 10% of the overall population under analysis, week-to-week changes in ILI incidence were more dramatic. These large changes, however, did little to affect the overall incidence for the county.

One objective of this ongoing enhanced data collection project is to improve the visibility of certain populations most vulnerable to severe illness due to influenza. In addition to the very young or those of advanced age, tracked through the age group distribution discussed above, pregnant women are also at increased risk for severe illness with flu. For female patients aged 18-49 years, LSCC also provided pregnancy status. Figure 7 shows the ILI incidence in this age/gender subpopulation of LSCC patients. Overall, the ILI incidence was very low in this group (301 visits due to ILI in 37,193 total encounters), and it was exceptionally low in those who were pregnant (only 12 visits due to ILI in 11,527 total obstetric encounters).

**Discussion**

Once the BAA was executed, there were few barriers to data collection and reporting due to LSCC’s utilization of EMR technology. The EMR allowed data to be extracted, summarized and submitted quickly and efficiently each week. Throughout the year, the data accurately reflected
ILI incidence as compared to other available sources of information regarding ILI.

EMR systems have the potential to improve reporting of notifiable diseases and other health states of interest. Current passive surveillance systems are burdensome to clinicians and reporting of suspect cases is often delayed. There are many advantages to partnership development between public health and providers such as LSCC. LSCC clinicians meet frequently, allowing any issues related to coding and information gaps (e.g., patient signs and symptoms, prescribed treatments, and pregnancy status) to be discussed and solutions developed. The ultimate goal of this ongoing project is to improve patient and public health outcomes by improving efficiency of reporting and response. In addition, this project helps build a foundation for developing algorithms for a system that taps into consolidated data collected via a Health Information Exchange.

An ideal influenza surveillance program would include a number of activities to provide a comprehensive picture for public health awareness of, preparedness for, and response to the community health threat of influenza. Such a program would include specimens submitted for viral isolation and characterization, as well as sufficient demographic and clinical data to assess the severity and impact of influenza infections in vulnerable populations. Prior to the implementation of this LSCC-WCCHD partnership project, WCCHD had very limited capabilities for understanding ILI incidence in the community. With the combination of clinical verification of ILI through the EMR data as well as the provision of key statistics such as age groups, gender, zip code and pregnancy status, this partnership has significantly improved WCCHD’s capacity for preparedness.

References
(1) U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet); www.cdc.gov/flu/weekly/; accessed September 20, 2013

Table 1: LSCC Encounters by Community for September 30, 2012 to September 28, 2013 (52 Weeks)

<table>
<thead>
<tr>
<th>Community</th>
<th>Total Encounters (Weekly Average ± std)</th>
<th>ILI Encounters (Weekly Average ± std)</th>
<th>Maximum Weekly %ILI¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taylor</td>
<td>9,935 (191±29)</td>
<td>561 (11±7)</td>
<td>14.1%</td>
</tr>
<tr>
<td>Georgetown</td>
<td>28,380 (546±74)</td>
<td>1,666 (32±20)</td>
<td>13.8%</td>
</tr>
<tr>
<td>Round Rock/Hutto</td>
<td>52,820 (1,016±119)</td>
<td>2,938 (57±37)</td>
<td>14.9%</td>
</tr>
<tr>
<td>Rural Williamson County</td>
<td>11,484 (221±34)</td>
<td>655 (13±8)</td>
<td>16.5%</td>
</tr>
<tr>
<td>Cedar Park/Leander/Austin</td>
<td>17,094 (329±42)</td>
<td>975 (19±11)</td>
<td>15.5%</td>
</tr>
<tr>
<td>Total Williamson County</td>
<td>119,713 (2,302±274)</td>
<td>6,795 (131±79)</td>
<td>13.0%</td>
</tr>
</tbody>
</table>

¹ Date for maximum %ILI varied by community, but all occurred between weeks ending 12/29/2012 and 2/2/2013 during the peak season for influenza

Table 2: Age Distribution of LSCC Encounters for September 30, 2012 to September 28, 2013 (52 Weeks) as Compared to General Population of Williamson County

<table>
<thead>
<tr>
<th>Age Group</th>
<th>LSCC Encounters (% of Total)</th>
<th>Williamson County, 2012 (1 year Estimate)² (% of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger than 5 years</td>
<td>31,346 (26.3%)</td>
<td>33,371 (7.3%)</td>
</tr>
<tr>
<td>5-17 years of age</td>
<td>31,657 (26.4%)</td>
<td>93,549 (20.5%)</td>
</tr>
<tr>
<td>18-24 years of age</td>
<td>11,714 (9.8%)</td>
<td>36,012 (7.9%)</td>
</tr>
<tr>
<td>25-49 years of age</td>
<td>30,292 (25.3%)</td>
<td>173,996 (38.1%)</td>
</tr>
<tr>
<td>50-64 years of age</td>
<td>10,204 (8.5%)</td>
<td>74,543 (16.3%)</td>
</tr>
<tr>
<td>65 years and older</td>
<td>4,410 (3.7%)</td>
<td>44,761 (9.8%)</td>
</tr>
</tbody>
</table>

Figure 1. Zip Code Aggregated Areas for LSCC Patient Residences
Figure 2: National Summary of ILI as reported to CDC’s ILINet, 2002 – 2013 (1)
Figure 3: Percent ILI for LSCC Visits by Age Group
Figure 4: Effect of Age-Adjustment on LSCC ILI Incidence Compared to Texas ILI Incidence as Reported to ILINet

3Source: Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties, and Puerto Rico Commonwealth and Municipios: April 1, 2010 to July 1, 2012; 2011-12 Year Estimates for Williamson County, Texas; U.S. Census Bureau, Population Division, Release Date June 2013
Figure 5: Percent ILI by Location: County-wide Rate vs Round Rock/Hutto-specific Rate
Figure 6: Percent ILI by Location: County-wide Rate vs Rural Williamson County-specific Rate
Figure 7: Percent ILI by Vulnerability Status: Encounters of Pregnant vs Non-pregnant Women Aged 18-49 Years with ILI (Total encounters this age/gender=37,193)
URBAN-RURAL MAP AND METHODOLOGIES

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**Introduction**

Adjacent to Travis County and the Austin metropolitan area, Williamson County’s population increased by 69 percent from 2000 to 2010 (The County Information Program, Texas Association of Counties, n.d.) . While established urban areas gained the most new residents, which expanded city limits and extraterritorial jurisdictions, previously less populated areas also increased in size. To account for, track, and categorize these changes within Williamson County, an urban-rural map was created to distinguish the two discrete populations within the county. The Urban-Rural Areas of Williamson County, Texas, map was created by the Williamson County and Cities Health District (WCCHD) to divide the county in two distinct, sub-county areas. The purposes of this map are two-fold. First, this map visualizes the majority of previous population growth (up to the 2010 Census) in the county by census tract. Second, these two areas will help classify and track surveillance data and behavioral and cultural differences for comparison between the urban and rural populations in the county. Reporting by urban and rural sub-county areas may be more useful in illustrating the cultural and demographic differences within the county versus other potential methods.

**Methodology**

Methods for designating urban and rural areas must be valid, reliable, and replicable. Many agencies and organization have adapted definitions of urban and/or rural areas to inform planning for various services and community needs. For the map to be useful, the following requirements were applied to this project: urban and rural classifications were based on most recent U.S. Census population data; and distinct classifications to help delineate target populations for public health interventions. Different methods were examined to determine if they met the requirements established for this project. Among these methods, many classified entire counties as either urban or rural with no sub-county level classification (e.g. by zip code,
precinct, census tract, etc.). These methods included definitions from the U.S. Department of Agriculture Economic Research Service (USDA ERS), which uses Rural-Urban Continuum Codes; and from the National Center for Health Statistics (NCHS), which uses Urban-Rural Classification Scheme for Counties (U.S. Department of Agriculture, Economic Research Service, 2013; Centers for Disease Control and Prevention, 2013). Other methods, such as the Office of Management and Budget (OMB), the Federal Office of Rural Health Policy (ORHP), and Urban Influence Codes definitions, include sub-county level classification; however, the methods were defined by metropolitan statistical areas (MSAs), which can cross county lines (U.S. Department of Health and Human Services, Health Information Technology and Quality Improvement, n.d.; U.S. Department of Agriculture, Economic Research Service, 2013). Remaining within Williamson County lines was paramount, as jurisdictions change outside of Williamson County (e.g. Travis County, Bell County, etc.).

The U.S. Census Bureau described the most comprehensive method for designating urban and rural areas. To consider a current, sub-county level definition, WCCHD contacted the U.S. Census Bureau for clarification and collaboration on defining these areas in Williamson County. The U.S. Census Bureau defined urban designations by census blocks, which are the smallest defined sections of a census tract (e.g. one census tract contains multiple census blocks).

**US CENSUS DEFINITION:**

“For the 2010 Census, an urban area will comprise a densely settled core of census tracts and/or census blocks that meet minimum population density requirements, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. To qualify as an urban area, the territory identified according to criteria must encompass at least 2,500 people, at least 1,500 of which reside outside institutional group..."
identifies two types of urban areas:

-- Urbanized Areas (UAs) of 50,000 or more people;
-- Urban Clusters (UCs) of at least 2,500 and less than 50,000 people.

‘Rural’ encompasses all population, housing, and territory not included within an urban area” (U.S. Census Bureau, 2013).

Because only limited data by the U.S. Census Bureau is reported by census blocks, the urban and rural designations needed to be classified by a more widely used method. Because census blocks are smaller sections of census tracts, and because many data are reported by census tracts, the natural choice was to combine the census block designations into one census tract designation. Categorization by census tract allows more data sources, such as the American Community Survey, which reports by census tracts, to be used with this map.

To designate whether a census tract is considered urban or “rural,” the number of census blocks (already designated by the U.S. Census Bureau based on the definition above) in the same census tract were counted. The designation of urban or rural was determined by a majority count. For instance, if a census tract had 10 census blocks, and six were urban and four were rural, the census tract would be designated as urban. While the U.S. Census Bureau further classifies urban areas (see definition above), for the purposes of this map, WCCHD did not use these classifications and combined all urban definitions as one single designation.

Limitations

Because the original U.S. Census definition of urban classified census blocks, not census tracts, and this method combined the census blocks into census tracts, this methodology is not congruent with any official methods.

Census blocks and tracts were available from the 2010 U.S. Census. While these boundaries will not change until 2020, the population within the blocks will change, as Williamson County is
the ninth fastest growing county in America (U.S. Census Bureau, 2011). While populations tend
to increase in the already urban-designated areas, growth will likely spread beyond these
original urban boundaries (e.g. Hutto grew 1,076 percent from 2000-2010). By the boundaries
remaining intact until updated Census information is available after 2020, this map may become
slightly outdated closer to 2020. Nevertheless, the map is not intended to be static over time, as
it is based more on population density (from census block data) than geography.

Discussion of Uses
By categorizing areas of Williamson County by an urban or rural designation, many
stakeholders can compare their data and understand differences and similarities to these
distinct populations.

Because the map is a recent addition to WCCHD processes, discussions are ongoing for the
map's uses and which external partners may collaborate and benefit by adopting the map's
methodology.

Acknowledgements
David G. Bastis, MPH
U.S. Census Bureau

References
The County Information Program, Texas Association of Counties (n.d.). Williamson County


Centers for Disease Control and Prevention (2013). NCHS Urban-Rural Classification Scheme

U.S. Department of Health and Human Services, Health Information Technology and Quality
Improvement (n.d.). How is rural defined?. [online] Retrieved from:


![Urban and Rural Areas by 2010 Census Tracts - Williamson County, Texas](image)

If you have questions regarding this map or its methodology, please contact the Epidemiology Program Office in Round Rock at ep@wcchd.org. Last updated: 05/30/2013.

Disclaimer: Despite referencing it, WCCHD’s definition of “urban” is not identical to the US Census. While the US Census categorized census blocks, WCCHD categorized census tracts by how the majority of the census blocks were coded (urban or rural).

**Figure 1:** Urban and Rural Areas by 2010 Census Tracts – Williamson County, Texas
LET THE CONVERSATION BEGIN

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On June 3, 2013, President Barack Obama convened The National Conference on Mental Health at the White House to elevate the national conversation about mental health.\(^1\) The President directed Health Secretary Kathleen Sebelius and Education Secretary Arne Duncan to “launch a national conversation on mental health to reduce the shame and secrecy associated with mental illness, encourage people to seek help if they are struggling with mental health problems, and encourage individuals whose friends or family are struggling to connect them to help.” In conjunction with that conference, the United States Department of Health and Human Services Substance Abuse and Mental Health Services Administration (SAMHSA) released an Information Brief entitled “Community Conversations About Mental Health”. The publication provides a toolkit to encourage community mental health dialogue to “achieve three main goals:

- Get Americans talking about mental health to break down misperceptions and promote recovery and healthy communities;
- Find innovative community-based solutions to mental health needs, with a focus on helping young people; and
- Develop clear action steps for communities to move forward in a way that complements existing local activities.”\(^4\)

The Williamson County Mental Health Committee has been regularly engaged in such dialogue but wants to invite the broader community to join the discussion, particularly through the WilCo Wellness Alliance. The toolkit provides a well-conceived roadmap to begin this broader community conversation.

The toolkit advises starting the conversation by asking “What Does Mental Health Mean to Me?” encouraging the entire community to examine how our personal place on the mental health/mental illness continuum fluctuates throughout our life span, and by pointing out that thinking, mood and behavior can all be significantly impacted both by positive and negative life events. “Mental health includes one’s emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices.”

Poor individual mental health outcomes mean less than optimal community outcomes, and the discussion guide next prompts us to ask “What Does It [Mental Health] Mean to Us?” collectively. The toolkit points out that the 1994 National Comorbidity Survey found that “Approximately one in five Americans will have a mental health problem in any given year, yet only a little over one in three people with a mental health problem will receive mental health services.” Unaddressed mental health issues can have a negative impact on physical health,
employment, school achievement, personal and public safety, poverty, homelessness, as well as the local economy.

Figure 1: Mental Health Continuum Model jointly developed by the United States Marine Corp Department of Psychiatry and the Canadian Department of National Defense.5

Following a period of personal and collective introspection, we are next advised to assess “What Are the Challenges and Factors We Should Consider?” in our own lives and within our own community. The Williamson County Mental Health Committee has already recognized the need for discussion around the issues of access to treatment, integrating behavioral healthcare into the primary healthcare setting, suicide prevention, jail and juvenile justice diversion, inappropriate emergency room visits, limited access to residential treatment, mental health in schools, mental health supports for veterans and their families, the stigma in seeking mental health and substance abuse treatment and the barriers individuals encounter in working toward recovery. Other issues of concern beg discussion, as well: parenting and early childhood supports; social connectedness and depression in our growing elderly population; family violence and bullying reduction; stress reduction in the workplace and in our schools; the impact of exercise, nutrition and spirituality on our mental health and wellbeing; and the availability of faith-based and otherwise culturally sensitive supports. Actions have been taken on many of these issues, but more action is needed. Growing the community discussion will undoubtedly help improve outcomes.

The “Community Conversations About Mental Health” toolkit cites results from SAMHSA’s 2011
National Survey on Drug Use and Health that indicate “almost two-thirds of the over 45 million adults with any mental illness and almost 90 percent of the over 21 million adults with substance use disorders go without treatment in our country every year.” We are blessed in Williamson County that the Lone Star Circle of Care provides integrated behavioral healthcare and a health home to those least able to afford wellness check-ups, medication and treatment. New higher education programs based at Texas A&M in Round Rock are helping to grow the number of mental health providers in the workforce. The Seton Mind Institute has begun offering multiple Intensive Outpatient Programs in Williamson County. School-based mental health is being provided in Eastern Williamson County schools through a grant from the St. David’s Foundation. We look forward to the opening of two new privately owned behavioral health hospitals in Georgetown that will grow residential and outpatient mental health and substance abuse treatment options for multiple age groups. Our local Mental Health Authority, Bluebonnet Trails Community Services (BTCS), offers crisis respite and transitional housing options for adults moving toward recovery as well as a new Behavioral Health Clinic in Taylor to serve rural Eastern Williamson County. An additional BTCS focus over the next three years will be to improve the availability and delivery of Trauma-Informed Cognitive Behavioral Therapy in Central Texas. Much has obviously been accomplished, yet much remains to be done.

The penultimate question posed in the toolkit asks, “How Can We Best Support the Mental Health of Young People?” According to the Harvard University Center on the Developing Child in *The Science of Early Childhood Development (2007)*, “Toxic stress in early childhood is associated with persistent effects on the nervous system and stress hormone systems that can damage developing brain architecture and lead to lifelong problems in learning, behavior, and both physical and mental health… A strong foundation in the early years increases the probability of positive outcomes and a weak foundation increases the odds of later difficulties… Children who experience toxic stress in early childhood may develop a lifetime of greater susceptibility to stress-related physical illnesses (such as cardiovascular disease, hypertension, and diabetes) as well as mental health problems (such as depression, anxiety disorders, and substance abuse). They also are more likely to exhibit health-damaging behaviors and adult lifestyles that undermine well-being.” This begs discussion around the importance of providing nurturing early childhood experiences, prenatal care, infant and toddler wellness checks, parenting education and support, enriching pre-school and daycare options, family violence prevention and intervention, supports for grandparents raising young grandchildren, and the
need to work together across systems to prevent adverse childhood experiences from occurring or to minimize recurring trauma should they occur.\textsuperscript{7}

It is not just the very young child with whom we must concern ourselves. A 2005 article formidable entitled: "Life-time Prevalence and Age-of-onset Distribution of DSM-IV Disorders in the National Co-morbidity Survey Replication"\textsuperscript{8} relates that many mental health disorders first present during adolescence. Skowyra & Cocozza’s 2006 “Blueprint for Change”\textsuperscript{9} estimates that 67\% to 70\% of youth in the juvenile justice system have a diagnosable mental health disorder. Clearly, Williamson County Juvenile Services has a vital role to play in the conversation, and in fact is leading the way forward through the adoption of several ground-breaking new initiatives: Neighborhood Conference Committees, Motivational Interviewing, Developmental Assets, Trauma-Informed Care, Service Learning, Experiential Learning, as well as hosting Williamson County’s Annual Mental Health in Schools Conference.\textsuperscript{10}

Of course, we know that schools have an important role to play. Citing a 2001 Department of Education report on the Individuals with Disabilities Education Act, the conversation toolkit states: “More than half of adolescents in the United States who fail to complete high school have a diagnosable psychiatric disorder.” Every school needs a structured identification process in place to help struggling students. School referral processes must identify the students who struggle -- academically and/or behaviorally -- and connect those students to appropriate school and community supports when needed. Early identification and intervention are key. Prevention and health promotion are critical. In Williamson County, the reality is that teachers, school nurses, school psychologists and school guidance counselors often provide front line mental health support, with some districts employing school social workers, as well.
Teachers and school staff are increasingly in need of training to recognize the signs and symptoms of substance abuse, suicidality, self-mutilation, eating disorders, and other mental
health issues. Additionally, an increasing number of students are entering school needing direct instruction in Social Emotional Learning core competencies such as responsible decision-making, self-awareness, social awareness, self-management, and relationship skills. Safe and supportive school environments and out-of-school time programs and activities must reflect the principles of positive youth development and be free of violence and bullying by peers and/or adults. State-mandated School Health Advisory Committees (SHACs) and/or District Performance Councils (DPCs) provide a venue to review whether these things are adequately in place within a school system.

The final question asked in the “Community Conversations About Mental Health” toolkit is “What Steps Do We Want To Take In Our Community?” The fact is that many steps already are being taken through the continuing efforts of the Williamson County Mental Health Committee and its Youth Behavioral Health Subcommittee. Likewise, our public and private school, justice, social support, and healthcare systems are continually working to provide optimal environments to achieve improved outcomes. The WilCo Wellness Alliance has organized the community for improved community health assessment and outcomes. Yet, the conversation needs to be broadened to touch each of us on a personal level.

The authors of the critically important 1997 Adverse Childhood Experiences (ACE) Study feel that community solutions “will require integration of educational, criminal justice, healthcare, mental health, public health, and corporate systems”. Further, saying: "It’s not just a social worker's problem. It's not just a
psychologist’s problem. It's not just a pediatrician’s problem. It's not just a juvenile court judge's problem.” This problem belongs to all of us, and we need to own it together. Let the Williamson County conversation begin!
Citations


8. Kessler, Ronald C. PhD; Berglund, Patricia, MBA; Demler, Olga, MA, MS; Jin, Robert,


13. Texas Department of State Health Services; School Health Program. School Health Advisory Councils [Internet]. Austin, TX. 2012 Aug 06 [cited 2013 June 20]. Available from www.dshs.state.tx.us/schoolhealth/sdhac.shtm


16. WilCo Wellness Alliance. Williamson County Community Health Assessment


SUMMARY OF NOTIFIABLE CONDITIONS 2005 – 2012

Prepared by Virginia Headley, PhD, Disease Control and Prevention Director

Introduction

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). The Reportable Conditions List indicates when to report each condition. Cases or suspected cases of illness considered to be public health emergencies, outbreaks, exotic diseases, and unusual group expressions of disease must be reported to the local health department or DSHS immediately. Other diseases for which there must be a quick public health response must be reported within one working day. All other conditions must be reported to the local health department or DSHS within one week. Without such data, unusual occurrences of diseases might not be detected, trends cannot be accurately monitored, and the effectiveness of intervention activities cannot be easily evaluated.

To view national reports for CDC/MMWR Summary of Notifiable Conditions go to: www.cdc.gov/osels/ph_surveillance/nndss/annsum/index.htm

Limitations of Disease Surveillance Data

For most conditions, the number of actual cases is likely higher due to under-reporting. Over-reporting is also possible due to misclassification of cases, false positive laboratory results or a probable case classification based solely on a symptom profile which mimics other conditions. Ongoing quality assurance is vital to minimizing the impact of these issues and ensuring the validity and consistency of surveillance data.

Calculation of Incidence

Incidence is the number of new cases of a disease that arise during a specific period of time. In this report it is expressed as:

\[ \text{Incidence} = \left( \frac{\text{# cases of a disease or condition reported for a year}}{\text{population at risk}} \right) \times 100,000 \]

= reported cases per 100,000 population

Disease incidence is only calculated if there are five or more cases reported. The reliability of incidence statistics based on a low number of reported cases should be questioned. Whenever possible, WCCHD utilizes the most current population estimates produced by the United States Census or the Texas State Data Center and Office of the State Demographer to calculate incidence. For current year data, incidence is calculated using a population projection.
### Summary of Selected Notifiable Conditions Reported to WCCHD 2005 - 2012

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<thead>
<tr>
<th>Notifiable Condition</th>
<th>Reported Cases</th>
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<tr>
<td></td>
<td>2005</td>
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<tr>
<td>AIDS</td>
<td>15</td>
</tr>
<tr>
<td>HIV</td>
<td>20</td>
</tr>
<tr>
<td>Amebiasis</td>
<td>1</td>
</tr>
<tr>
<td>Campylobacteriosis</td>
<td>9</td>
</tr>
<tr>
<td>Chickenpox (Varicella)</td>
<td>326</td>
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<tr>
<td>Chlamydia</td>
<td>522</td>
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<tr>
<td>Cryptosporidiosis</td>
<td>12</td>
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<tr>
<td>Cyclosporiasis</td>
<td>1</td>
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<tr>
<td>Cysticercosis</td>
<td>-</td>
</tr>
<tr>
<td>Dengue Fever</td>
<td>-</td>
</tr>
<tr>
<td>Drowning</td>
<td>N.A.</td>
</tr>
<tr>
<td>Near Drowning</td>
<td>N.A.</td>
</tr>
<tr>
<td>Encephalitis, non-arboviral</td>
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<tr>
<td>Escherichia coli STEC</td>
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<tr>
<td>Gonorrhea</td>
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<tr>
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<tr>
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<tr>
<td>Hepatitis other, acute</td>
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<tr>
<td>Legionellosis</td>
<td>-</td>
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<tr>
<td>Listeriosis</td>
<td>-</td>
</tr>
<tr>
<td>Lyme disease</td>
<td>1</td>
</tr>
<tr>
<td>Malaria</td>
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</tr>
<tr>
<td>Meningitis, Aseptic</td>
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<tr>
<td>Meningitis, Bacterial/Other</td>
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<tr>
<td>Mumps</td>
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<tr>
<td>Neisseria meningitidis, invasive (meningococcal)</td>
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<td>Pertussis</td>
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<td>Q fever</td>
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<tr>
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<tr>
<td>Group B Streptococcus, invasive</td>
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<tr>
<td>Streptococcus, non-A/B, invasive</td>
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<tr>
<td>Syphilis</td>
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<tr>
<td>Total syphilis -- all stages including congenital syphilis</td>
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<tr>
<td>Tuberculosis</td>
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<tr>
<td>Typhoid Fever (Salmonella typhi)</td>
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<tr>
<td>Vibrio spp., non-toxigenic other unspecified</td>
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<tr>
<td>West Nile Neuroinvasive Disease</td>
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<tr>
<td>Yersiniosis</td>
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</tbody>
</table>

1Summary table includes those conditions with at least two reports in the eight year period. Conditions with single reports for the period include: Creutzfeld-Jakob Disease [2010], Pediatric influenza-associated mortality (2007), Perinatal Hepatitis B [2008], St. Louis Encephalitis Virus (Non-neuroinvasive infection) [2012], Taenia [2012], Trichinosis (2011), and Vibrio parahaemolyticus (2011). Notifiable conditions with no reports in the time period indicated are not listed.

2Data source: Texas HIV Surveillance Report 2012: [http://www.dshs.state.tx.us/hivstd/reports/default.shhtm](http://www.dshs.state.tx.us/hivstd/reports/default.shhtm)

3Data source: Texas STD Surveillance Report 2012: [http://www.dshs.state.tx.us/hivstd/reports/default.shhtm](http://www.dshs.state.tx.us/hivstd/reports/default.shhtm)
### Summary of Notifiable Conditions (Incidence) – Cases Reported to WCCHD 2005 – 2012

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<td>AIDS</td>
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*Summary table excludes all notifiable conditions with no reports or only one in the eight year period. Incidence is calculated only for those conditions with at least five cases reported in a year.


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<tr>
<th>Year</th>
<th>Population Estimate</th>
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<td>2005*</td>
<td>332,369</td>
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<td>351,970</td>
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<td>2007*</td>
<td>373,723</td>
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<td>2009*</td>
<td>410,800</td>
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<td>2010*</td>
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<td>2011*</td>
<td>442,291</td>
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<tr>
<td>2012*</td>
<td>456,232</td>
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</tbody>
</table>

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*Data Source: U.S. Census Bureau, Population Division, Intercensal Estimates of the Resident Population for Counties of Texas: April 1, 2000 to July 1, 2010 (CO-EST2000NT-01-48), Release Date: September 2011

*Data Source: U.S. Census Bureau, Population Division, Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties, and Puerto Rico Commonwealth and Municipalities: April 1, 2010 to July 1, 2012; Release Date: June 2013

*Data source: Texas HIV Surveillance Report 2012: [http://www.dshs.state.tx.us/hivstd/reports/default.shtm](http://www.dshs.state.tx.us/hivstd/reports/default.shtm)

*Data source: Texas STD Surveillance Report 2012: [http://www.dshs.state.tx.us/hivstd/reports/default.shtm](http://www.dshs.state.tx.us/hivstd/reports/default.shtm)
Submission Guidelines for the 2013 Epidemiology Report

The yearly WCCHD Epidemiology Report welcomes contributions that help meet the informational needs of healthcare professionals, public health officials, and community leaders by describing issues or significant events with local impact particularly disease outbreaks, disease surveillance, case studies of unusual disease, community health assessments, relevant policy issues, health survey results and examples of successful evidence based programs.

Article Types

Case Studies: A case study presents detailed information about particular participant, patient or small group. Conclusions drawn from case studies are not applicable at the population level. Emphasis is placed on exploration and description.

Feature Articles: Features present the current status of a subject area with emphasis on implications for policy, practice, or future research.

Public Health Practice Articles: Practice articles describe innovative public health programs and initiatives, their current status, and documented outcomes.

Topic Areas

- Chronic or Infectious/Communicable Disease
- Mental Health
- Access to Healthcare

Conflicts of Interest: The Epidemiology Report seeks full disclosure to avoid any appearance of a conflict. Please provide a statement regarding any potential conflict when you submit your manuscript. If no conflict of interest arose, a statement must still be submitted.

Cover Letter: When submitting your manuscript, please include a cover letter describing the article and explaining why it is unique, relevant, and applicable to the WCCHD Epidemiology Report. The cover letter should also note Institutional Review Board determination (approval or waiver) for all studies involving people, medical records, and human tissues.

The Manuscript: Title Page: (a) title (short and descriptive); (b) full names of all authors, including their graduate degrees (please limit number of authors to 10); (c) all authors’ institutional affiliations and job titles during the course of the research (and current affiliations and titles if different); (d) name, street address, telephone number, fax number, and e-mail address of corresponding author; (e) word count of the text (exclusive of synopsis, tables, and references), and the number of charts, tables, and figures.

References: Please consult the Uniform Requirements section on references, or see the National Library of Medicine’s “Citing Medicine: The NLM Style Guide for Authors, Editors, and Publishers,” available online at http://www.ncbi.nlm.nih.gov/books/NBK7256/.

Article Length: Please limit manuscript length to approximately 2,500 words, excluding synopsis, tables, figures, and references.

Page numbering, Font, & Line Spacing/Numbering: To aid in the review process, please include page and line numbers in the manuscript and use 1.5-line spacing for optimal readability. The article must be typed in 12 point Times New Roman font.

Submit manuscripts electronically in Microsoft Word (doc) to Virginia Headley, PhD, Disease Control and Prevention Director, Williamson County and Cities Health District

The deadline for submission is September 30, 2014. All submissions must be received by 5 pm on this day to be considered for the 2013 Epidemiology Report.