

2019 DRISCOLL HEALTH SYSTEM COMMUNITY HEALTH NEEDS ASSESSMENT

Isabel Araiza, Ph.D.

Brittany Stoker-Garcia, B.A.

Authorization

On November 25, 2019 Dr. Isabel Araiza was contracted by Driscoll Health System to conduct a community health needs assessment of 27 Coastal Bend counties for 2019. The following deliverable is in fulfillment of said contract.

This report has been produced for the 27-county service area of Driscoll Health System by Dr. Isabel Araiza, Principal Investigator, and Brittany Stoker-Garcia. Funding was provided through a contract with Driscoll Health System.

Copyright 2019

All or portions of this report may be duplicated in support of public education, grant writing, research, or planning efforts. Citations made should include the sources: Driscoll Health Systems, Isabel Araiza, and Brittany Stoker-Garcia.

Table of Contents

Authorization	iii
List of Tables and Figures	v
Executive Summary.....	1
Driscoll Health System Service Area Counties	7
Introduction: Background and Purpose.....	8
Methodology.....	11
Findings	13
General Hospital Data	13
Emergency Department Analyses.....	13
Inpatient Analyses.....	22
Outpatient Analyses.....	30
Clinic Data	40
Corpus Christi Clinic Analyses	46
McAllen Clinic Analyses.....	51
Laredo Clinic Analyses.....	55
Victoria Clinic Analyses	59
Brownsville Clinic Analyses	63
Harlingen Clinic Analyses	67
Eagle Pass Clinic Analyses	72
Rio Grande City Clinic Analyses.....	77
How Healthy Are We?.....	82
What Factors Contributed to These Outcomes?	83
How Can We Improve Our Community’s Health?	90
Limitations	95
References	99
Appendix A. University of Wisconsin Population Health Institute: County Health Rankings and Roadmaps	106

List of Tables and Figures

Table 1. Driscoll Health System Service Area Counties.....	7
Figure 1. Map of Driscoll Health System Service Area Counties.....	7
Table 2. 2019 County Health Outcomes Relative Rankings for DHS Service Area.....	9
Table 3. ED Service Area Frequencies.....	13
Table 4. Crosstabulation of Racial Identity by Gender for ED.....	14
Table 5. ED Patients' Age Distribution by Age Categories.....	14
Table 6. ED Crosstabulation of Financial Status by Age Categories.....	15
Table 7. CPT Code Frequencies for ED.....	16
Table 8. ED Crosstabulation of Age Categories by CPT Codes.....	16
Table 9. Top Ten ED Primary Diagnoses.....	17
Table 10. Distribution of Top Ten ED Primary Diagnoses by Age Categories.....	18
Table 11. Noteworthy Top ED Primary Diagnoses by Age Categories.....	19
Table 12. Top Ten ED Secondary Diagnoses.....	20
Table 13. Distribution of Top Ten ED Secondary Diagnoses by Age Categories.....	20
Table 14. Noteworthy Top ED Secondary Diagnoses by Age Categories.....	21
Table 15. Inpatient Service Area Frequencies.....	22
Table 16. Crosstabulation of Racial Identity by Gender for Inpatients.....	22
Table 17. Inpatients' Age Distribution by Age Categories.....	23
Table 18. Inpatient Crosstabulation of Financial Status by Age Categories.....	23
Table 19. CPT Code Frequencies for Inpatients.....	24
Table 20. Top Ten Inpatient Primary Diagnoses.....	25
Table 21. Distribution of Top Ten Inpatient Primary Diagnoses by Age Categories.....	26
Table 22. Noteworthy Top Inpatient Primary Diagnoses by Age Categories.....	27
Table 23. Top Ten Inpatient Secondary Diagnoses.....	28
Table 24. Distribution of Top Ten Inpatient Secondary Diagnoses by Age Categories.....	29
Table 25. Noteworthy Top Inpatient Secondary Diagnoses by Age Categories.....	29
Table 26. Outpatient Service Area Frequencies.....	30
Table 27. Crosstabulation of Racial Identity by Gender for Outpatients.....	30
Table 28. Outpatients' Age Distribution by Age Categories.....	31

Table 29. Outpatient Crosstabulation of Financial Status by Age Categories	31
Table 30. CPT Code Frequencies for Outpatients	32
Table 31. Top Ten Outpatient Primary Diagnoses	32
Table 32. Distribution of Top Ten Outpatient Primary Diagnoses by Age Categories	33
Table 33. Noteworthy Top Outpatient Primary Diagnoses by Age Categories.....	34
Table 34. Top Ten Outpatient Secondary Diagnoses	34
Table 35. Distribution of Top Ten Outpatient Secondary Diagnoses by Age Categories.....	35
Table 36. Noteworthy Top Outpatient Secondary Diagnoses	36
Table 37. Check-In Type for Orthopedic and Rehabilitation.....	37
Table 38. Visit Frequencies by Clinic Type for Orthopedic and Rehabilitation.....	37
Table 39. Visit Frequencies for Orthopedic and Rehabilitation.....	37
Table 40. Visit Frequencies by Clinic Location for Orthopedic and Rehabilitation.....	38
Table 41. Top Ten Primary Diagnoses for Orthopedic and Rehabilitation	38
Table 42. Top Ten Secondary Diagnoses for Orthopedic and Rehabilitation	39
Table 43. Frequency Distribution of Clinic Visits by Location	40
Table 44. Crosstabulation of Racial Identity by Gender for Clinics.....	40
Table 45. Clinic Patients' Age Distribution by Age Categories	41
Table 46. All Clinics Crosstabulation of Financial Class by Age Categories	42
Table 47. Top Ten CPT Code Frequencies for All Clinic.....	43
Table 48. Top Ten Primary Diagnoses for All Clinic Visits	44
Table 49. Top Ten Secondary Diagnoses for All Clinic Visits	45
Table 50. Crosstabulation of Racial Identity by Gender for Corpus Christi Clinic.....	46
Table 51. Corpus Christi Clinic Patients' Age Distribution by Age Categories	47
Table 52. Corpus Christi Clinic Crosstabulation of Financial Class by Age Categories	47
Table 53. Top Ten CPT Codes for Corpus Christi Clinic	48
Table 54. Top Ten Primary Diagnoses for Corpus Christi Clinic	49
Table 55. Top Ten Secondary Diagnoses for Corpus Christi Clinic.....	50
Table 56. Crosstabulation of Racial Identity by Gender for McAllen Clinic	51
Table 57. McAllen Clinic Patients' Age Distribution by Age Categories.....	51
Table 58. McAllen Clinic Crosstabulation of Financial Class by Age Categories	52
Table 59. Top Ten CPT Codes for McAllen Clinic.....	53
Table 60. Top Ten Primary Diagnoses for McAllen Clinic	53

Table 61. Top Ten Secondary Diagnoses for McAllen Clinic	54
Table 62. Crosstabulation of Racial Identity by Gender for Laredo Clinic	55
Table 63. Age Distribution by Age Categories for Laredo Clinic	55
Table 64. Crosstabulation of Financial Class for Laredo Clinic.....	56
Table 65. Top Ten CPT Codes for Laredo Clinic.....	57
Table 66. Top Ten Primary Diagnoses for Laredo Clinic.....	57
Table 67. Top Ten Secondary Diagnoses for Laredo Clinic	58
Table 68. Crosstabulation of Racial Identity by Gender for Victoria Clinic	59
Table 69. Victoria Patients' Age Distribution by Age Categories	59
Table 70. Crosstabulation of Financial Class by Age Categories for Victoria Clinic	60
Table 71. Top Ten CPT Codes for Victoria Clinic	61
Table 72. Top Ten Primary Diagnoses for Victoria Clinic	61
Table 73. Top Ten Secondary Diagnoses for Victoria Clinic.....	62
Table 74. Crosstabulation of Racial Identity by Gender for Brownsville Clinic.....	63
Table 75. Brownsville Clinic Patients' Age Distribution by Age Categories	63
Table 76. Crosstabulation of Financial Class by Age Categories for Brownsville Clinic	64
Table 77. Top Ten CPT Codes for Brownsville Clinic	65
Table 78. Top Ten Primary Diagnoses for Brownsville Clinic	65
Table 79. Top Ten Secondary Diagnoses for Brownsville Clinic.....	66
Table 80. Crosstabulation of Racial Identity by Gender for Harlingen Clinic.....	67
Table 81. Harlingen Clinic Patients' Age Distribution by Age Categories	67
Table 82. Crosstabulation of Financial Class by Age Categories for Harlingen Clinic	68
Table 83. Top Ten CPT Codes for Harlingen Clinic	69
Table 84. Top Ten Primary Diagnoses for Harlingen Clinic	70
Table 85. Top Ten Secondary Diagnoses for Harlingen Clinic.....	71
Table 86. Crosstabulation of Racial Identity by Gender for Eagle Pass Clinic.....	72
Table 87. Eagle Pass Clinic Patients' Age Distribution by Age Categories	72
Table 88. Crosstabulation of Financial Class for the Eagle Pass Clinic.....	73
Table 89. CPT Codes for Eagle Pass Clinic	74
Table 90. Top Ten Primary Diagnoses for Eagle Pass Clinic	75
Table 91. Top Ten Secondary Diagnoses for Eagle Pass Clinic.....	76
Table 92. Crosstabulation of Racial Identity by Gender for Rio Grande City.....	77

Table 93. Rio Grande City Patients' Age Distribution by Age Categories	77
Table 94. Crosstabulation of Financial Class by Age Categories for Rio Grande City Clinic.....	78
Table 95. Top CPT Codes for Rio Grande City Clinic.....	79
Table 96. Top Ten Primary Diagnoses for Rio Grande City Clinic.....	80
Table 97. Top Ten Secondary Diagnoses for Rio Grande City Clinic	81
Table 98. Comparison of 2019 Health Outcomes for U.S. Texas, DHS Counties, Primary Service Counties, and Secondary Service Counties	82
Table 99. Comparison of 2019 County Health ranking for Health Behaviors: Measures for National, State, and Counties Served by Driscoll Health System.	84
Table 100. Comparison of 209 County Health Rankings for Clinic Care: Measures for Nation, Texas, and Counties Served by the Driscoll Health System.	85
Table 101. Comparison of County Rankings for Social and Economic Factors: Measures for Nation, Texas, and Counties Served by Driscoll Health System.....	87
Table 102. Comparison of 2019 Physical Environment Conditions: Measures for Nation, Texas, and Counties Served by Driscoll Health System.	89

Executive Summary

Driscoll Health System commissioned a community health needs assessment. The resulting report is based on information garnered from Driscoll Children’s Hospital general hospital data (including inpatient, outpatient, and emergency department data) as well as data from all Driscoll Health System clinics. This report details the access to and utilization of healthcare services in Driscoll Health System’s 27-county service area. This executive summary highlights the “needs” of the community as supported by the data in a non-prioritized list. This approach delineates the issues to allow for more effective planning.

Data indicate some segments of the target population use the emergency department for primary care.

Issue

An analysis of CPT codes for emergency department visits show that only 7.8% of emergency department visits were classified as Level 4 or 5, the two most urgent rankings of emergencies. Crosstabulations also revealed that 40.9% of all visits were either non-urgent or less urgent, and for those ED visits by patients under the age of one, the proportion of visits classified as Level I or 2 (the two lowest levels), the proportion increases to 49.1%—almost half of all ED visits. These trends may indicate that some people do not have a medical home or that some people may not have access to support that can help them decide whether an emergency department visit is warranted.

Recommendations

- Recruit more extenders, nurse practitioners and physician assistants to help divert the use of emergency departments for non-emergent care
- Recruit more primary care physicians to the area
- Increase health literacy about available health care resources
- Work with area clinics to expand evening and weekend hours
- Explore expanding participation in Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program for new, first-time parents
- Coordinate with birth services of other hospital systems and pediatricians to disseminate information about after-hours care, emergency vs. urgent care, etc. The Driscoll Health Plan has a useful link about after-hours care; developing a mobile-accessible resource for all new parents may help reduce the use of ED for non-emergency/non-urgent issues.

Data indicate that some hospitalizations are preventable.

Issue

Among the top fifteen inpatient primary diagnoses, dehydration (rank 3), fecal impaction (rank 4), Type 1 diabetes mellitus with ketoacidosis without coma (rank 6), site-not-specified urinary tract infection (rank 7), and severe persistent asthma with status asthmaticus (rank 12) can all be considered preventable hospitalizations.

Recommendations

- Increase access to primary care physicians
- Ensure that children visiting outpatient or emergency department with these issues have a medical home
- Use patient navigator programs and community health workers to help increase health literacy, encourage a continuum of care strategy, and enhance disease maintenance behaviors that prevents hospitalizations
- Hospitalizations related to diabetes and asthma may be the result of non-compliance with health care management. Non-compliance may be the result of not having access to resources. Increasing social worker contact with a child's family throughout the duration of the patient's hospital stay may enhance building trust between the family and the social worker, encouraging families to move beyond the stigma which may inhibit them from applying for services for which they may be eligible
- Regarding asthma, research has demonstrated that home visits by health care professionals can help families reduce environmental triggers in the home, improve use of medication devices, and improve asthma control. Adopting home visit programs that have demonstrated effective, positive results may help reduce preventable hospitalizations
- Support an education campaign that notes the link between diet, hydration, and exercise and preventable hospitalizations associated with dehydration and fecal impaction
- Support an education campaign that informs families about the relationship between urinary tract infections and behavioral factors that can place children at greater risk for UTIs

Data indicate that chronic and co-morbid conditions are prevalent in the target population.

Issue

A review of secondary diagnoses in the outpatient file reveal that mental or behavioral disorders--acute stress reaction (rank 1), attention deficit hyperactivity disorder (rank 4), and anxiety disorder (rank 7) are among the most frequency secondary diagnoses, as are chronic conditions like unspecified asthma (rank 2) and unspecified obesity (rank 6).

Recommendations

- Increase health literacy through patient and family education about disease maintenance
- Monitor disease treatment specific to each condition to prevent worsening condition and potential readmission through patient navigation/community health worker programs
- Increase screenings for disease and mental/behavioral health issues for early detection
- Increase awareness on how to best prevent and/or delay the onset of chronic diseases
- Encourage the evaluation of readmissions to determine if there are discernable patterns that can be remedied through interventions, education, and/or increased monitoring
- Assign patient navigator/ community health workers/ social workers to patients with a history of readmissions

Data indicate that obesity remains a major problem for the target population.

Issue

For outpatient data, obesity is among the top ten secondary diagnoses. Among the clinic data (for Laredo, Brownsville, and Harlingen), obesity complicating pregnancy in the second and third trimester is among the top ten secondary diagnoses. In Eagle Pass and Rio Grande City clinics, pediatric BMIs greater than or equal to the 95 percentile for the patient's age is among the top ten secondary diagnoses. In Rio Grande city clinics, morbid obesity and overweight are among the top ten secondary diagnoses. Acanthosis nigricans is also among the top ten secondary diagnoses for Corpus Christi clinic visits; it typically occurs in people who are either obese or have diabetes.

Recommendations

- Create partnerships with health and social service agencies, government and educational institutions to formulate initiative to tackle obesity
- Evaluate regional programs that promote healthy lifestyles for possible local implementations
- Increase education about healthy lifestyles, especially for children
- Collaborate with local governments and school districts to implement healthy lifestyle programs
- Enhance physical environmental and public spaces to encourage safe, low cost physical activity

- Seek grants that fund programs aimed at reducing obesity
- Advocate for and encourage participation in food security programs, such as SNAP and WIC. Families who face food insecurity are more likely to choose food that addresses quantity needs, rather than quality needs
- Raise awareness of communities with food deserts. Support initiatives that enhance communities' access to quality food

Data indicate that diabetes is an issue among the patients seeking services from Driscoll Health System.

Issue

Gestational diabetes is a top ten primary diagnosis for the entire data set of clinics. It is also a top diagnosis for Corpus Christi, McAllen, Laredo, Brownsville, and Harlingen clinic visits. Gestational diabetes can pose other health risks for the mother, including high blood pressure, pre-eclampsia, and diabetes in the future. For the fetus, gestational diabetes can lead to the baby growing too large and requiring a C-section birth, early/pre-term births, and respiratory distress syndrome for babies. Babies can be vulnerable to experiencing seizures and themselves have higher risks for developing obesity and/or Type 2 diabetes later in life. Type 1 diabetes mellitus with ketoacidosis without coma is among the top ten inpatient diagnoses. It can affect major organs in the body including heart, blood vessels, nerves, eyes and kidneys. Acanthosis nigricans is also among the top ten secondary diagnoses for Corpus Christi clinic visits; it typically occurs in people who are either obese or have diabetes.

Recommendations

- Initiate Medical Nutritional Therapy, with a minimum of three visits, as research indicates that medical nutrition therapy leads to better maternal and neonatal outcomes
- Screening strategies at the first obstetrics visit should be conducted to determine if a pregnant woman is at low, average, or high risk of developing gestational diabetes and to tailor observations based on that initial assessment
- Increase health screenings
- Encourage individuals to engage in self-monitoring
- Encourage diabetes education programs both for those with and at risk of gestational diabetes and for children and family members with children who have been diagnosed with diabetes
- Encourage Medical Nutritional Therapy for children and their family members
- Ensure that people diagnosed with diabetes have a medical home
- Encourage families to work with community health workers to ensure that effective disease management is practiced in the home
- Encourage education campaign to promote healthy lifestyles that limit the risk of individuals developing diabetes

Data indicate that mental health issues are among the most frequent primary and secondary diagnoses in the target population.

Issue

In emergency department data, suicidal ideation and depressive disorder are among the top 20 diagnoses for those ages 11 through 13 and among the top ten primary diagnoses for those ages 14 through 17. Attention deficit hyperactivity disorder is among the top ten diagnoses for age categories 5 through 10, 11 through 13, and 14 through 17. Autism is a top primary diagnosis for those between 11 through 13. Anxiety is among the top ten secondary diagnoses for those ages 14 through 17. For outpatient visits, acute stress reaction, attention deficit hyperactivity disorder, and anxiety disorder are among top ten secondary diagnoses. Among the orthopedic and rehabilitative visits, autistic disorder is both a top primary and secondary diagnosis.

Recommendations

- Encourage mental and behavioral health screenings at point of contact with health care professionals affiliated with the hospital system
- Facilitate referrals to local mental health providers and/or associations
- Hire more mental and behavioral health care professionals
- Create more immediate mental health services for patients with behavioral health diagnoses
- Advocate for programs that encourage community and social connections for youth
- Advocate for programs that can reduce environmental hazards that are associated with mental and behavioral health disorders
- Increase patient and family education about mental health and behavioral issues to encourage families to get screenings and seek treatment for their children who have these issues

Data indicate that respiratory conditions are prevalent among the target population.

Issue

Asthma and acute upper respiratory infections occur as a top diagnoses in inpatient, outpatient, and emergency department patient visits. Acute bronchiolitis is a top diagnosis for inpatient and outpatient visits. Acute obstructive laryngitis (Croup) is a top diagnosis for outpatient and emergency department visits. Acute pharyngitis is a top diagnosis for emergency department visits. For inpatient visits, respiratory distress and acute respiratory failure are among the top diagnoses. The causes of these respiratory issues are diverse. Some are triggered by environmental conditions; some are the result of viral or bacterial infections, accidents, or other underlying health conditions.

Recommendations

- Encourage the evaluation of factors that contribute to asthma
- Take measures to ensure that people diagnosed with asthma have a medical home; asthmatics with medical homes are more likely to manage their illness and avoid needing hospitalizations
- Increase efforts to provide health educational materials that encourage behaviors that reduce the risk of spreading communicable diseases
- Improve health literacy
- Work with area clinics to expand evening and weekend hours
- Recruit more extenders, such as nurse practitioners and physician assistants to help increase access to care
- Encourage uninsured adults and families with uninsured children to find health insurance programs for which they may be eligible. This would help adults and families seek treatment for illness
- Advocate for policies that improve air quality

Driscoll Health System Service Area Counties

Table 1. Driscoll Health System Service Area Counties

Aransas	Bee	Brooks
Calhoun	Cameron	DeWitt
Dimmit	Duval	Goliad
Hidalgo	Jim Hogg	Jim Wells
Kenedy	Kleberg	La Salle
Live Oak	Maverick	McMullen
Nueces	Refugio	San Patricio
Starr	Victoria	Webb
Willacy	Zapata	Zavala

Figure 1. Map of Driscoll Health System Service Area Counties



Introduction: Background and Purpose

Health care professionals and administrators who are in direct contact with community members seeking sick care often develop a strong, albeit informal, assessment of the major issues with which communities grapple. The challenge with informal assessments is that they do not employ a process that guards against bias, the tendency to generalize from personal experiences, and/or problems associated with sampling—all of which can lead to inaccurate generalizations. A community health needs assessment (CHNA) is a systematic approach to assessing the overall health outcomes, health factors, and health needs of a community.

Tax exempt hospitals are required to conduct a community health needs assessment within their communities every three years. No standard set of questions or data must be used when conducting a community health needs assessment because hospitals are expected to conduct an assessment that is community specific—relevant to people, as well as the social and environmental conditions within which they live their lives, with the goal of developing a plan to address the unmet needs of a community (CDC 2019).

The University of Wisconsin Public Health Institute and the Robert Wood Johnson Foundation collaborated to produce the County Health Ranking and Roadmaps (CHR&R) program, which rank the health of nearly every county in the country. There are two primary rankings: health outcomes and health factors. These data can be used to understand the relative health of communities as well as the conditions that can have an impact on health outcomes. The goal of CHR&R is to have local communities use the data to engender support for initiatives that create healthier communities and address disparities in both health outcomes and environmental conditions that contribute to the disparities observed.

Table 2 shows the County Health Outcomes Relative Ranking for each county Driscoll Health System serves. The health outcome rankings are calculated using measures that address length of life measures (premature death, life expectancy, premature age-adjusted mortality, child mortality, and infant mortality rates) and quality of life indicators (percent of people reporting poor/fair health, the average number of poor physical health days, the average number of poor mental health days, low birthweight, frequent physical distress, frequent mental distress, and diabetes) of the people living within a county. These measures provide a standard way to measure how healthy a county is and see where improvements can be made. The table organizes the counties Driscoll Health System (DHS) serves in descending rank. Those with the lowest values in the table have better health outcomes.

Table 2. 2019 County Health Outcomes Relative Rankings for DHS Service Area

County	Health Outcomes Rank (Out of 244 Counties ranked)	Percent
Calhoun	41	16.80
Hidalgo	68	27.87
Victoria	92	37.70
DeWitt	100	40.98
Live Oak	102	41.80
Goliad	116	47.54
Cameron	131	53.69
Maverick	136	55.74
Jim Hogg	139	56.97
Bee	144	59.02
Nueces	145	59.43
Dimmit	150	61.48
San Patricio	151	61.89
Webb	152	62.30
La Salle	173	70.90
Kleberg	177	72.54
Zapata	187	76.64
Aransas	194	79.51
Refugio	195	79.92
Willacy	197	80.74
Starr	200	81.97
Jim Wells	226	92.62
Zavala	237	97.13
Brooks	238	97.54
Duval	243	99.59
Kenedy	NR	NA
McMullen	NR	NA

Note: Missing values are common for individual measures. Not all counties (especially smaller counties) compile data on each of the approximately 30 measures used to calculate the ranking score, or they have sample sizes that are too small for any meaningful comparison. PHI substitutes the state average for missing values in the calculation of rankings, an accepted technique for the treatment of missing data.

It is important to note that of the 27 counties Driscoll Health System serves, only one county's score is in the top quarter of all Texas county rankings. One third of the counties that Driscoll serves (nine of the 27 counties) have health outcome ranks that place them among the lowest quarter of county rankings. Overall, the nineteen of the 27 counties (or 70%) DHS serves have health outcome scores that rank in the bottom half of Texas counties.

The 2019 Driscoll Health System Community Health Needs Assessments (CHNA) involved analyses of inpatient, outpatient, emergency department, and clinic patients' information. Drawing on analyses of patient information across different departments within the hospital system as well as patient information data organized by service location, this report provides the community with information to help prioritize community health care needs and engender support from local stakeholders to work collaboratively to develop evidence-informed initiatives to improve communities' health.

Methodology

Emergency department, inpatient, outpatient, and clinic data were provided by Driscoll Health System for fiscal years 2017-2019. The data for this community health needs assessment were provided by a data analytics specialist for Driscoll Health System. These data were used to determine patterns of health care utilization and prevalence of disease among the hospital system's different departments. The data did not have any information identifying patients; as such, some of the cases may be repeat patients.

An excel file with all emergency department, inpatient, and outpatient data (except orthopedics and rehabilitation) contained the following information: home zip code, patient's home county, discharge date, patient's age (first in days, then converted to years), patient's gender, patient's race/ethnicity, discharge disposition, DRG, DRG disposition, CPT code, CPT description, primary diagnosis code, primary diagnosis description, secondary diagnosis code, secondary diagnosis description, financial class, primary insurance, and the patient's guarantor's employment status. Separate excel files were sent with clinic data and orthopedic and rehabilitative data. These files contained the same information. Additionally, separate files were sent containing secondary diagnoses for each of the data sets. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26.0.

Definitions of Terms

Patient Visit Type: emergency department, inpatient, outpatient, and clinic visit.

Primary Service Area: includes eight counties: Aransas, Bee, Jim Wells, Kleberg, Live Oak, McMullen, Nueces, and San Patricio.

Secondary Service Area: excludes the primary service area and includes nineteen counties: Brooks, Calhoun, Cameron, DeWitt, Dimmit, Duval, Goliad, Hidalgo, Jim Hogg, Kenedy, La Salle, Maverick, Refugio, Star, Victoria, Webb, Willacy, Zapata, and Zavala.

Race/Ethnicity: a six category variable constructed using two separate variables—"Race" and "Ethnicity"—from the original excel files. Patients were coded as Hispanic if they reported their ethnicity as Hispanic regardless of the racial category reported. This operationalization of Hispanic is a standard practice in social science literature. Native Americans self-identified as Native American or American Indian and indicated that they were not Hispanic ethnically. Those coded as Black indicated they were Black and Non-Hispanic. Those who are labeled Asian self-identified as Asian or Pacific Islanders and reported being non-Hispanic. Non-Hispanic Whites were those who indicated they were white and non-Hispanic. The category "Other" contains all other patients who were not identified by the aforementioned categories.

Age Categories: patient age was originally reported in days and reflected the exact age of the patient on their visit date. These data were then converted to years which produced figures with up to nine decimal places following the whole number. These ages were recoded into the following age categories: <1, 1-4, 5-10, 11-13, 14-17, and 18+. These delineations were utilized to examine possible differences in patient characteristics and diagnoses based on life course groupings. Less than one year captures neonatal patients, newborns, and infants under one year of age. Ages 1 through 4 group pre-school aged children. Elementary schooling typically encompasses ages 5 through 10, followed by middle school (ages 11 through 13), and high school (ages 14 through 17). All those 18 years of age and older were grouped as adults.

Financial Status: is determined by how visits were paid. There are seven classifications: Commercial, Commercial Managed Care, Federal/State Program, Medicaid, Medicare, Private Traditional, and Self Pay. For each type of patient visit, Chi-square tests were conducted to determine if there were significant variations in the ways in which patient visits were paid by the age category of the patient.

Findings

Data was categorized as general hospital data (including emergency department, inpatient, and outpatient data) and clinic data. The findings for each category are structured and presented similarly in this report. First, for each service type, descriptions of the patients being served are provided. An overview of race, gender, and financial status by age categories is presented. Additionally, a table showing which area patients are coming from is presented. Next, the frequency and distribution of CPT codes is shared. Then, the most common primary diagnoses for the entire data set are presented, followed by a comparison table of the diagnoses across age categories. Thereafter, a table presenting notable observations by age category is shared. Finally, a table presenting the most common secondary diagnoses for each type of patient visit is presented followed by a comparison table of the most common secondary diagnoses for all age categories is presented as well as a final table of noteworthy observations for each category.

General Hospital Data

General hospital data was received from Driscoll Children’s Hospital for fiscal years 2017-2019. This data was broken into three subcategories for analysis: inpatient, outpatient, and emergency department. Overall, there were 10,622 inpatients, 109,302 outpatients, and 117,276 emergency department patients resulting in a total of 237,200 patients seen by Driscoll Children’s Hospital for fiscal years 2017-2019.

Emergency Department Analyses

Demographic Description of Emergency Department Patients

There were a total of 117,276 emergency room visits for fiscal years 2017-2019. As Table 3 shows, 94.2% of ER patients are from DHS’S primary service area and 3.5% were from a secondary service area county. Only 2.3% of patients were from outside the service area.

Table 3. ED Service Area Frequencies

	Frequency	Percent
Primary service area	110505	94.2
Secondary service area	4076	3.5
Not in service areas	2695	2.3
Total	117276	100

Table 4. Crosstabulation of Racial Identity by Gender for ED

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Black % (n)	Asian % (n)	Native American % (n)	Other % (n)	Total % (n)
Female	49.1% (47707)	40.8% (7146)	48.9% (2035)	44.2% (173)	48.9% (20)	45.6% (367)	49.0% (57448)
Male	50.9% (49532)	51.1% (7482)	51.1% (2127)	55.8% (218)	59.2% (29)	54.4% (437)	51.0% (59825)
Total	100% (97239)	100% (14628)	100% (4162)	100% (391)	100% (49)	100% (804)	100% (117273)
Percent of Total Patients	82.9%	12.5%	3.6%	0.3%	0.0%	0.7%	100%*

*Percentages do not total exactly 100 due to rounding display

Males comprised 51% of all emergency department visits (see Table 4). For every racial category, more males were emergency room patients than females. Hispanics constituted 82.92% of all ER patients. Non-Hispanic Whites were 12.47% of all ER patients, African Americans were 3.55%, and Asians were less than one half of a percentage point (0.33%) of all ER patients. These racial-ethnic distributions look very similar to the racial/ethnic distributions of children in Nueces County.

Table 5. ED Patients' Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-1 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	15.4% (18055)	35.6% (41714)	24.0% (28158)	9.5% (11139)	12.9% (15084)	2.7% (3126)	100% (117276)

Emergency department patients' ages ranged from 1 day to 88.57 years. The mean patient age was 6.68, with a standard deviation of 5.96 years. This means 68% of emergency department patients were between the ages of approximately 8 months and 12.64 years of age. Table 5 above shows the age distribution of emergency department patients by age categories.

The largest age category of emergency department patients was those between the ages of 1 and 4; more than one out of every three emergency department patients were members of this age category. The next largest age category was those between the ages of five and ten; they comprised nearly a quarter (24.0%) of all emergency department visitors. More than 15% of emergency department visitors were under the age of one, while only 2.7% of emergency department visitors were 18 years of age or older.

Table 6. ED Crosstabulation of Financial Status by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	0.5% (93)	0.7% (305)	1.0% (292)	1.4% (160)	2.0% (302)	1.9% (58)	1.0% (1210)
Commercial Managed Care	4.6% (833)	6.2% (2585)	7.1% (2000)	7.9% (875)	8.3% (1250)	1.9% (278)	6.7% (7821)
Federal/State Program	1.4% (15737)	2.0% (852)	2.1% (604)	1.8% (204)	1.7% (250)	2.3% (73)	1.9% (2236)
Medicaid	87.2% (15737)	79.2% (33025)	74.9% (21809)	73.3% (8161)	70.2% (10582)	51.3% (1605)	76.9% (90199)
Medicare	0% (0)	0% (5)	0% (5)	0% (7)	.1% (8)	1.8% (53)	.1% (78)
Private Traditional	5.4% (975)	7.0% (2914)	8.8% (2485)	9.6% (1065)	10.3% (1560)	13.9% (436)	8.0% (9434)
Self-Pay	.9% (164)	4.9% (2028)	6.0% (1683)	6.0% (668)	7.5% (1132)	19.9% (623)	5.1% (6298)
Total	100% (18055)	100% (41714)	100% (28158)	100% (11139)	100% (15084)	100% (3126)	100% (117276)

Chi-square=5079.0, df=30, p<.001

Table 6 shows that the most prevalent way of paying for emergency department services was via Medicaid. More than three quarters (76.9%) of all emergency department visits were paid by Medicaid. It is worth noting that the proportion of emergency department visits paid by Medicaid decreases as the age categories increase. For example, 87.2% of emergency department patients under the age of one had their visits paid by Medicaid. For the age category 11-13, the proportion of visits paid by Medicaid decreases to 73.3%; and for those age 18 and older, a little more than half (51.3%) of emergency department visits are paid by Medicaid. The Chi-square value 5079.0 (df=30, p<.001) indicates that the differences observed are real, and not the product of chance. This pattern aligns with previous research which has demonstrated that those with young children are more likely to have lower incomes and more likely to be eligible for means-tested insurance programs like Medicaid. The next most likely source of payments comes from private traditional sources (8.0%) and from commercial/commercial managed care, which includes HMOs and PPOs, (7.7%).

Severity of Emergency Department Visits

Table 7. CPT Code Frequencies for ED

CPT CODES	CPT Description	DCH Description	Frequency	Percent
99281	Non-Urgent	Emergency Level 1	24968	21.3
99282	Less Urgent	Emergency Level 2	22945	19.6
99283	Urgent	Emergency Level 3	60367	51.5
99284	Emergent	Emergency Level 4	6665	5.7
99285	Resuscitation	Emergency Level 5	2187	1.9
Null		Null	144	0.1
Total			177276	100*

*Percentages do not total exactly 100 due to rounding display

More than one out of every five emergency department visits were non-urgent, and almost 20% were urgent (see Table 7). Combined, about four out of every ten visits were less urgent or non-urgent. Slightly more than half of ED visits were deemed Emergency Level 3, meaning patients were stable but needed multiple types of resources to either investigate or treat the patients' condition. Less than two percent of ED visits were coded as Emergency Level 5, which were deemed to need immediate life-saving interventions without delay. Less than six percent (5.7%) were coded as Emergency Level 4, indicating a critical problem at high risk of deterioration.

Table 8. ED Crosstabulation of Age Categories by CPT Codes

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total %
99281	29.7% 5354	24.0% 10010	18.8% 5306	15.7% 1744	13.9% 2104	14.4% 450	21.3% 24968
99282	19.4% 3511	21% 8778	20.2% 5697	18.5% 2057	16.1% 2435	14.9% 467	19.6% 22945
99283	46.9% 8470	50.7% 21153	54% 15214	54.3% 6045	52.3% 7893	50.9% 1592	51.5% 60367
99284	3.4% 620	3.5% 1459	5.4% 1530	8.2% 908	11.7% 1762	12.3% 386	5.7% 6665
99285	0.4% 70	0.6% 270	1.4% 389	3.3% 372	5.7% 863	7.1% 223	1.9% 2187
Null	0.2% 30	0.1% 44	0.1% 22	0.1% 13	0.2% 27	0.3% 8	0.1% 144
Total	100% 18055	100% 41714	100% 28158	100% 11139	100% 15084	100% 3126	100% 117276

Chi-square: 5977.02, df=25, p<.001

Table 8 shows the severity of emergency department visits does vary significantly by age category (Chi-square=5977.02, df=25, p<.001). The observed differences are real and not attributable to chance. Patients under the age of one are the most likely group to visit the ED for non-urgent matters. Moreover, 49.1% of all visits, nearly one out of every two ED visits by children under the age of one, are for less urgent or non-urgent issues. As the age category increases, so does the proportion of emergent and resuscitation cases (emergency level 4 and 5), though these cases constitute a very small proportion (7.6% combined) of all ED visits.

Primary Reasons for Emergency Department Use

This section examines the top principal and secondary diagnoses recorded for ED visits and provides a discussion of noteworthy diagnoses patterns. Table 9 below presents the top ten primary diagnoses for all ED visits.

Table 9. Top Ten ED Primary Diagnoses

Rank	Code	Description	Frequency	Percent
1	J06.9	Acute upper respiratory infection, unspecified	15478	13.2
2	K52.9	Noninfective gastroenteritis and colitis, unspecified	4375	3.7
3	B34.9	Viral infection, unspecified	3633	3.1
4	J10.1	Influenza due to other identified influenza virus with other respiratory manifestations	3414	2.9
5	R50.9	Fever, unspecified	2658	2.3
6	K59.00	Constipation, unspecified	2411	2.1
7	J02.9	Acute pharyngitis, unspecified	2167	1.8
8	R11.0	Vomiting, unspecified	1831	1.6
9	J05.0	Acute obstructive laryngitis (croup)	1785	1.5
10	Z53.21	Procedure and treatment not carried out due to patient leaving prior to being seen by health care provider	1745	1.5
Total Top Ten Codes			39497	33.7
Total All Other Codes			77776	66.3
Total			117273	100

According to Table 9, the most prevalent primary diagnosis for all ED visits is J06.9, acute upper respiratory infection, unspecified; 13.2% of all ED visits received this primary diagnosis. Two other conditions, pharyngitis (J02.9) and obstructive laryngitis (J05.0) are classified as acute conditions; five conditions are classified as unspecified. It is worth noting that the tenth-ranked diagnosis indicates that the patient left prior to being seen by a health care provider.

Table 10 below shows whether the most prevalent conditions for all ED visits are also among the top ten most prevalent conditions within each of the age categories. An “X” in the cell below the column indicates that the diagnosis was among the age category’s top ten primary diagnoses.

Table 10. Distribution of Top Ten ED Primary Diagnoses by Age Categories

Rank	Code	Description	<1	1-4	5-10	11-13	14-17	18+
1	J06.9	Acute upper respiratory infection, unspecified	X	X	X	X	X	X
2	K52.9	Noninfective gastroenteritis and colitis, unspecified	X	X	X	X	X	X
3	B34.9	Viral infection, unspecified	X	X	X	X	X	X
4	J10.1	Influenza due to other identified influenza virus with other respiratory manifestations		X	X	X	X	
5	R50.9	Fever, unspecified	X	X	X			
6	K59.00	Constipation, unspecified	X	X		X	X	
7	J02.9	Acute pharyngitis, unspecified			X	X	X	X
8	R11.1	Vomiting, unspecified	X	X				
9	J05.0	Acute obstructive laryngitis (croup)	X					
10	Z53.21	Procedure and treatment not carried out due to patient leaving prior to being seen by health care provider		X	X	X	X	X

X indicates the diagnosis was present in that age category’s top ten primary diagnoses

The top three diagnoses—acute respiratory infection, noninfective gastroenteritis and colitis, and viral infection—were among the top ten diagnoses for all age categories. Vomiting was among the top ten only for those under age one and between the ages of 1 and 4. Fevers were a primary diagnosis for those under one, 1 through 4, and those 5 through 10 years of age. Of note, Z53.21 (procedure or treatment was not carried out due to patient leaving prior to being seen) was among the top ten primary diagnoses for all age categories except those under the age of one.

For each age category, a frequency distribution of primary diagnoses was conducted. The top 20 diagnoses for each category were examined to discern if there were any notable variations that should be shared (see Table 11).

Table 11. Noteworthy Top ED Primary Diagnoses by Age Categories

Age	Patterns Observed, Rank in Parentheses
<1	Five of the ten top diagnoses were associated with respiratory issues (ranks 1, 3, 4, 8, and 10). Collectively, these accounted for 42.1% of all primary diagnoses.
1-4	Many of the same respiratory issues for children less than one are present in this age category as well including acute upper respiratory infection (1), Hand-foot-mouth disease (10), and influenza (6). Asthma fails to make the top ten diagnoses, but it is ranked 14, with 1.1% of patients entering the ER because of asthma. Patients leaving before being treated is also a top diagnostic code (9).
5-10	Urinary tract infection (9) and sore throats (6,7) are among the top diagnoses for this age category. Leaving before being treated (10) accounted for 1.4% of these patients' primary diagnoses. Asthma (11) is also prevalent.
11-13	Asthma ranks 10 th among this age category, while patient leaving is ranked 8. Head injuries are ranked 11 and 12. Worth noting is that suicide ideation is among the top 20 diagnoses for this age group.
14-17	Suicide ideation is among the top ten principle diagnoses. Asthma ranks 22 nd . Headaches (7) are a top primary diagnosis as is urinary tract infection (9). Sexual abuse ranks 16. Patient leaving continues to rank among the top ten (8).
18+	Among and unique to this group's top diagnoses is chest pain (5,8). Urinary tract infections (6) are also prevalent. Patient leaving ranks 7 for this age category.

Suicide ideation is first notable among the age category 11-13, though it fails to make the top ten primary diagnoses; whereas suicide ideation is among the top ten primary diagnoses between the ages of 14-17. These findings seem to correspond with a recent report from the Centers for Disease Control and Prevention that showed suicide rates among people between the ages of 10 and 14 nearly tripled between 2007 to 2017 (Curtin and Heron 2019).

Of the 117,276 individuals who visited the emergency department: 70,765 also received at least one secondary diagnosis; 46,511 had no secondary diagnoses. Table 12 presents the top secondary diagnoses for emergency department patients.

Table 12. Top Ten ED Secondary Diagnoses

Rank	Code	Description	Frequency	Percent
1	R50.9	Fever, unspecified	4470	3.8
2	J06.9	Acute upper respiratory infection, unspecified	2883	2.5
3	J45.909	Unspecified asthma	2875	2.5
4	R11.10	Vomiting, unspecified	2745	2.3
5	R19.7	Diarrhea, unspecified	1692	1.4
6	Z88.0	Allergy status to penicillin	1581	1.3
7	F90.9	Attention-deficit hyperactivity disorder, unspecified type	1186	1.0
8	R09.81	Nasal congestion	1128	1.0
9	R05	Cough	1054	0.9
10	J02.9	Acute pharyngitis, unspecified	1049	0.9
Total for Top Ten			20664	29.2
Total All Other Codes			50101	70.8
Total			70765	100

Four of the primary diagnoses (R50.9, J06.9, R11.10, and J02.9) are also among the most prevalent secondary diagnoses. Unspecified asthma is the third most prevalent secondary diagnosis. Allergy to penicillin is the sixth highest ranked secondary diagnosis. Attention-deficit hyperactivity disorder is the seventh highest ranked secondary diagnosis for all age groups.

Table 13. Distribution of Top Ten ED Secondary Diagnoses by Age Categories

Rank	Code	Description	<1	1-4	5-10	11-13	14-17	18+
1	R50.9	Fever, unspecified	X	X	X	X	X	X
2	J06.9	Acute upper respiratory infection, unspecified	X	X	X	X		
3	J45.909	Unspecified asthma		X	X	X	X	X
4	R11.10	Vomiting, unspecified	X	X	X	X	X	X
5	R19.7	Diarrhea, unspecified	X	X				
6	Z88.0	Allergy status to penicillin		X	X		X	X
7	F90.9	Attention-deficit hyperactivity disorder, unspecified type			X	X	X	
8	R09.81	Nasal congestion	X	X				
9	R05	Cough		X	X			
10	J02.9	Acute pharyngitis, unspecified				X	X	

X indicates the diagnosis was present in that age category's top ten primary diagnoses

Two secondary diagnoses, unspecified fever and unspecified vomiting, are among the top ten secondary diagnoses for all age groups (see Table 13). Asthma is among the most prevalent secondary diagnosis for all age categories except for those under the age of one. Attention-deficit hyperactivity disorder is among the top secondary diagnoses for the age categories of school age children: ages 5 through 10, 11 through 13, and 14 through 17.

Top ten secondary diagnoses appear to be much more diverse by age category. Noteworthy observations among the top twenty secondary diagnoses are presented in Table 14 below.

Table 14. Noteworthy Top ED Secondary Diagnoses by Age Categories

Age	Patterns Observed, Rank in Parentheses
<1	Ear issues (7, 10) and skin issues including rash (9) and diaper dermatitis (6) are among the top secondary diagnoses.
1-4	Ear issues (7, 10) are top secondary diagnoses as well.
5-10	ADHD (6) is a prevalent secondary diagnosis for this group. Headache (10) makes its first appearance as a secondary diagnosis among this age group. Autistic disorder ranks 14 in this age group.
11-13	ADHD, Autism, and Major Depressive Disorder are all among the top 20 diagnoses.
14-17	Several mental health issues ranked among the top ten secondary diagnoses. ADHD is ranked second with 2.4% having this diagnosis. Depressive Disorder (8) was diagnosed in 9% of these patients. Anxiety (10) is also among the top ten secondary diagnoses. In total, 4.1% of the patients in this age group were diagnosed with a mental health issue.
18+	Dizziness (7) and dehydration (9) were in the top ten. Allergies to penicillin (1) and allergies to other drugs (10) appeared in the top ten secondary diagnoses.

While mental health issues are often not primary diagnoses when bringing children to emergency department visits, lists of secondary diagnoses reveal that mental health issues are conditions which manifest among a substantial minority of school age children visiting the ED. The fact that these diagnoses do not present themselves among ED visits for those ages 1-4 and 18+ may be a function of their location in children's life course. Mental health disorders and diagnoses may be a function of the social organization of schooling which requires children's bodies to be disciplined (Martin 1998), and children who are less able to conform to the normative expectations of schooling are more likely to garner the attention of teachers (Foucault 1995), which may lead to referrals to health professionals.

Inpatient Analyses

Demographic Description of Inpatients

Inpatient hospitalizations account for the smallest proportion of patient types serviced by Driscoll Children’s Hospital with 10,622 patients between fiscal years 2017-2019. As Table 15 shows, 62.3% of inpatients are from DCH’S primary service area, 33.8% are from a secondary service area county, and the remaining 3.9% reside outside of DCH’s service area.

Table 15. Inpatient Service Area Frequencies

	Frequency	Percent
Primary service area	6615	62.3
Secondary service area	3590	33.8
Not in service areas	417	3.9
Total	10622	100

Table 16 shows the distribution of males and females by racial classifications of inpatients. With the exception of patients who identified as African American, there were more male than female patients with Asian (61%) and Native American (80%) having the greatest proportion of males. Overall, the patient population was 54.7% male and 45.3% female. The majority of inpatients were Hispanic (80.3%). Only 15.5% were Non-Hispanic Whites, and 2.7% were African American. The next largest racialized category was those classified as “Other”; these individuals did not specify their racial or ethnic identity.

Table 16. Crosstabulation of Racial Identity by Gender for Inpatients

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Black % (n)	Asian % (n)	Native American % (n)	Other % (n)	Total % (n)
Female	45.0% (3839)	46.0% (757)	51.4% (150)	39.0% (16)	20.0% (1)	43.8% (49)	45.3% (4812)
Male	55.0% (4687)	54.0% (887)	48.6% (142)	61.0% (25)	80.0% (4)	56.3% (63)	54.7% (5808)
Unknown	0% (2)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (2)
Total	100% (8528)	100% (1644)	100% (292)	100% (41)	100% (5)	100% (112)	100% (10622)
Percent of Total Patients	80.3%	15.5%	2.7%	0.4%	0.0%	1.1%	100%

Inpatients' age was analyzed using the following categories: less than one year, 1 through 4 years, 5 through 10 years, 11 through 13 years, 14 through 17 years, and 18 years or older. These delineations were utilized to examine possible differences in patient characteristics and diagnoses based on life course groupings. Less than one year captures neonatal patients, newborns, and infants under one year of age. Ages 1 through 4 group pre-school aged children. Elementary schooling typically encompasses ages 5 through 10, followed by middle school (ages 11 through 13), and high school (ages 14 through 17). All those 18 years of age and older were grouped as adults. Table 17 below shows that the greatest proportion of inpatients was less than one year old (29.9%) followed by children ages 1 through 4 (21.8%). The smallest proportion of inpatients was adults (4.2%).

Table 17. Inpatients' Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	29.9% (3179)	21.8% (2316)	17.5% (1856)	10.6% (1129)	16.0% (1696)	4.2% (446)	100% (10622)

Table 18. Inpatient Crosstabulation of Financial Status by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	0.8% (24)	1.3% (29)	2.1% (39)	1.9% (22)	4.0% (68)	2.5% (11)	1.8% (193)
Commercial Managed Care	8.6% (274)	9.0% (208)	11.1% (206)	11.5% (130)	14.6% (247)	9.0% (40)	10.4% (1105)
Federal/State Program	1.4% (45)	2.2% (50)	2.9% (53)	1.5% (17)	1.7% (29)	0.9% (4)	1.9% (198)
Medicaid	77.0% (2449)	74.4% (1722)	65.2% (1211)	67.7% (764)	62.6% (1062)	48.7% (217)	69.9% (7425)
Medicare	0% (0)	0.5% (11)	1.0% (18)	1.3% (15)	0.6% (11)	9.2% (41)	0.9% (96)
Private Traditional	12.0% (382)	11.9% (276)	16.3% (303)	14.7% (166)	15.3% (260)	22.6% (101)	14.0% (1488)
Self-Pay	0.2% (5)	0.9% (20)	1.4% (26)	1.3% (15)	1.1% (19)	7.2% (32)	1.1% (117)
Total	100% (3179)	100% (2316)	100% (1856)	100% (1129)	100% (1696)	100% (446)	100% (10622)

Chi-square= 815.647, df=30, p<.001

Financial status refers to how a patient paid for hospital services. Table 18 above shows how services were paid for by age group. Overall, Medicaid was by far the most utilized source of payment (69.9%) with patients under one year of age having the greatest proportion of Medicaid use (77.0%). Private traditional insurance was the second most utilized payment source (14.0%). As expected, those age 18 and older had the highest proportion of private traditional insurance use (22.6%). Additionally, Medicare was the least used source of payment (0.9%).

Severity of Inpatient Visits

Table 19. CPT Code Frequencies for Inpatients

CPT Code	CPT Description	DHS Description	Frequency	Percent
99285	Non-Urgent	ER Level 5	2375	22.4
99284	Less Urgent	ER Level 4	2316	21.8
99283	Urgent	ER Level 3	960	9.0
99282	Emergent	ER Level 2	15	0.1
99281	Resuscitation	ER Level 1	9	0.1
NULL		NULL	4947	46.6
Total			10622	100

As Table 19 shows, nearly half of inpatients did not have a CPT code. Those without a CPT code primarily had a Check-In Type of Elective or Urgent. Conversely, 96% of those with Emergency and Trauma Center Check-In Types had CPT codes. As anticipated, the proportion of inpatients with CPT codes increases as the severity of “ER Level” increases with ER Level 5 (99285) having the greatest proportion (22.4%).

Primary Reasons for Inpatient Use

Table 20. Top Ten Inpatient Primary Diagnoses

Rank	Code	Description	Frequency	Percent
1	J21.0	Acute bronchiolitis due to respiratory syncytial virus	361	3.4
2	Z51.11	Encounter of antineoplastic chemotherapy	347	3.3
3	E86.0	Dehydration	244	2.3
4	K56.41	Fecal impaction	180	1.7
5	J21.8	Acute bronchiolitis due to other specified organisms	164	1.5
6	E10.10	Type 1 diabetes mellitus with ketoacidosis without coma	158	1.5
7	N39.0	Urinary tract infection, site not specified	104	1.0
8	P22.0	Respiratory distress syndrome of newborn	102	1.0
9	Q25.0	Patent ductus arteriosus	89	.8
10	D70.9	Neutropenia, unspecified	87	.8
Total for Top Ten			4048	17.3
Total All Other Codes			6574	82.7
Total			10622	100

Table 20 displays the top ten inpatient primary diagnoses. Respiratory issues including acute bronchiolitis (ranks 1 and 5) and respiratory distress syndrome of a newborn (rank 8) top the list. Several diagnoses are preventable conditions such as dehydration, fecal impaction, and urinary tract infections. However, chronic conditions such as cancer and diabetes also make the list. Patent ductus arteriosus (PDA), a heart-related condition, also made the top ten list. Of note, chemotherapy is the second most frequent primary diagnosis; neutropenia—a side effect of some cancer treatments—also makes the list.

Table 21 below shows whether the most prevalent conditions for all inpatient visits are also among the top ten most prevalent conditions within each of the age categories. An “X” in the cell below the column indicates that the diagnosis was among the age category’s top ten primary diagnoses.

Table 21. Distribution of Top Ten Inpatient Primary Diagnoses by Age Categories

Rank	Code	Description	<1	1-4	5-10	11-13	14-17	18+
1	J21.0	Acute bronchiolitis due to respiratory syncytial virus	X	X				
2	Z51.11	Encounter of antineoplastic chemotherapy		X	X	X	X	X
3	E86.0	Dehydration	X	X	X	X	X	X
4	K56.41	Fecal impaction		X	X	X	X	X
5	J21.8	Acute bronchiolitis due to other specified organisms	X	X				
6	E10.10	Type 1 diabetes mellitus with ketoacidosis without coma			X	X	X	X
7	N39.0	Urinary tract infection, site not specified	X	X	X		X	X
8	P22.0	Respiratory distress syndrome of newborn	X					
9	Q25.0	Patent ductus arteriosus	X	X				
10	D70.9	Neutropenia, unspecified		X	X	X	X	X

X indicates the diagnosis was present in that age category's top ten primary diagnoses

Table 21 displays the frequency distribution of the top ten inpatient diagnoses for the total sample broken down by age category. Overall, the distribution of the primary diagnoses codes follows expected life course patterns. Acute bronchiolitis only appeared in the top ten for age groups less than one and ages 1 through 4. Type 1 diabetes, while not present in less than one and ages 1 through 4 groups, was present among all other age groups. Dehydration appeared as a top ten diagnosis for every age group. Two cancer-related primary diagnoses were in the top ten for each age group except those less than one year old.

Table 22. Noteworthy Top Inpatient Primary Diagnoses by Age Categories

Age	Patterns Observed, Rank in Parentheses
<1	Four of the top ten diagnoses for this category were congenital abnormalities (i.e. birth defects), which accounted for 5.8% of all diagnoses: Q25.0 (6), Q21.3 (7), Q40.0 (8), and Q25.1 (10). The top three diagnoses were respiratory issues including bronchiolitis J21.0 (1) and J21.8 (2) and respiratory distress syndrome of a newborn P22.0 (3). These three diagnoses represent 39.1% of all primary diagnoses for children less than one year old.
1-4	Preventable conditions such as dehydration (1), fecal impaction (4), and UTIs (20) all rank in the top twenty primary diagnoses. Respiratory illnesses such as bronchiolitis (2, 5) appeared in the top ten diagnoses.
5-10	Dehydration (3) and fecal impaction (1) continued to be top diagnoses in this group. Type 1 diabetes (7) also appeared as a top primary diagnosis for the first time.
11-13	Chemotherapy (1) was the top diagnosis for this group accounting for 10.5% of all inpatient visits. The second highest ranked diagnosis was Type 1 diabetes.
14-17	Cancer-related diagnoses (1, 5) appear twice in the top ten. Type 1 diabetes ranked 2 nd highest with 4.7% of all visits.
18+	Chemotherapy (1) tops the list followed by Cystic fibrosis (2). Diabetes ranks 4 th .

Table 23. Top Ten Inpatient Secondary Diagnoses

Rank	Code	Description	Frequency	Percent
1	E86.0	Dehydration	420	4.1
2	J06.9	Acute upper respiratory infection, unspecified	149	1.5
3	J21.0	Acute bronchiolitis due to respiratory syncytial virus	125	1.2
4	R06.03	Acute respiratory distress	110	1.1
5	J96.01	Acute respiratory failure with hypoxia	109	1.1
6	R50.81	Fever presenting with conditions specified elsewhere	108	1.1
7	N17.9	Acute kidney failure, unspecified	101	1.0
8	B97.89	Other viral agents as the cause of diseases classd elswhr	98	1.0
9	C91.01	Chronic lymphocytic leukemia of B-cell type	94	0.9
10	J96.00	Acute respiratory failure, unsp w hypoxia or hypercapnia	86	0.8
10*	Q21.1	Atrial septal defect	86	0.8
Total for Top Ten			1486	14.6
Total All Other Codes			8719	85.4
Total			10205	100

*Two codes (J96.00, Q21.1) tied for rank 10

Of the 10,622 inpatients in the sample, 10,205 had secondary diagnoses. Therefore, the percentage columns in tables pertaining to secondary diagnoses represent percentages for patients with a secondary diagnosis; those without a secondary diagnosis are excluded. Secondary diagnoses appear more widely distributed with the top ten ranking diagnoses representing only 14.6% of the sample (see Table 23 above). The top-ranking secondary diagnosis, dehydration, accounted for 4.1% of all secondary diagnoses. However, respiratory issues dominate the top ten secondary diagnoses accounting for ranks 2-5 and rank 10. Taken together, these five diagnoses account for 5.7% of all secondary diagnoses (more than the top-ranking diagnosis, dehydration). Acute bronchiolitis due to respiratory syncytial virus, which was the number one ranked primary diagnosis, is the third highest ranked secondary diagnosis at 1.2%. Additionally, atrial septal defect, which was the fifteenth ranked primary diagnosis, appears as the tenth most frequent secondary diagnosis.

Table 24. Distribution of Top Ten Inpatient Secondary Diagnoses by Age Categories

Rank	Code	Description	<1	1-4	5-10	11-13	14-17	18+
1	E86.0	Dehydration	X	X	X	X	X	X
2	J06.9	Acute upper respiratory infection, unspecified	X	X	X			
3	J21.0	Acute bronchiolitis due to respiratory syncytial virus	X	X				
4	R06.03	Acute respiratory distress	X					
5	J96.01	Acute respiratory failure with hypoxia		X	X			X
6	R50.81	Fever presenting with conditions specified elsewhere		X	X	X	X	
7	N17.9	Acute kidney failure, unspecified				X	X	X
8	B97.89	Other viral agents as the cause of diseases classd elswhr	X	X	X			
9	C91.01	Chronic lymphocytic leukemia of B-cell type		X	X	X	X	
10	J96.00	Acute respiratory failure, unsp w hypoxia or hypercapnia		X				
10*	Q21.1	Atrial septal defect	X					

X indicates the diagnosis was present in that age category's top ten primary diagnoses; * Two codes (J96.00, Q21.1) tied for rank 10

Dehydration was ranked in the top ten secondary diagnoses across all age groups. Acute respiratory distress, which ranked 4th overall, only appeared in the top ten for patients less than one year old. Likewise, atrial septal defect only appeared in the top ten for patients less than one year old as well.

Table 25. Noteworthy Top Inpatient Secondary Diagnoses by Age Categories

Age	Patterns Observed, Rank in Parentheses
<1	Four of the top ten secondary diagnoses were respiratory related: acute respiratory distress (1), bronchiolitis (2,9), and acute upper respiratory infection (8).
1-4	Dehydration (1) was the secondary diagnosis for 4% of this group. Acute respiratory failure (4, 5) ranked highly as did other respiratory diagnoses.
5-10	Dehydration (1), fever (2), and upper respiratory infections (3) topped the list followed by Chronic lymphocytic leukemia of B-cell type (4).
11-13	Cancer diagnoses fill the top ten including malignant bone tumor diagnoses (2,6, 8) and leukemia in remission(9). Attention-deficit hyperactivity disorder ranks 10 th .
14-17	Dehydration (1) and leukemia (2) rank highest. Attention-deficit hyperactivity disorder ranks 8 th —two places higher than in the previous age group.
18+	Dehydration (1), end stage renal disease (2), and cystic fibrosis (3) top the list for adults followed by acute kidney failure (4).

Outpatient Analyses

Outpatient Demographic Information

Outpatient data was collected for 109,302 patients from fiscal years 2017-2019. Outpatients include those admitted for day surgery, urgent care, orthopedics, and rehabilitation. Due to the repetitious nature of orthopedic and rehabilitative visits, this subset of outpatients will be discussed separately from all other outpatients. Excluding orthopedic and rehabilitation outpatients, there were a total of 24,576 outpatients. The following analyses will pertain to these patients.

As Table 26 shows, 70.6% of outpatients are from DCH'S primary service area, 26.5% are from a secondary service area county, and the remaining 2.9% reside outside of DCH's service area.

Table 26. Outpatient Service Area Frequencies

	Frequency	Percent
Primary service area	17353	70.6
Secondary service area	6510	26.5
Not in service areas	713	2.9
Total	24576	100

Table 27 shows the distribution of males and females by racial classifications of outpatients. Across all racial groups, there were more male than female patients. Overall, the patient population was 57.2% male and 42.8% female. The majority of outpatients were Hispanic (78.9%). Only 16.4% were Non-Hispanic Whites, and 2.5% were African American. The next largest racialized category was those classified as "Other"; these individuals did not specify their racial or ethnic identity.

Table 27. Crosstabulation of Racial Identity by Gender for Outpatients

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Black % (n)	Asian % (n)	Native American % (n)	Other % (n)	Total % (n)
Female	43.0% (8335)	43.0% (1729)	42.9% (263)	37.3% (50)	35.7% (5)	34.2% (138)	42.8% (10520)
Male	57.0% (11052)	57.0% (2295)	57.1% (350)	62.7% (84)	64.3% (9)	65.8% (265)	57.2% (14055)
Unknown	0.0% (1)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0.0% (1)
Total	100% (19388)	100% (4024)	100% (613)	100% (134)	100% (14)	100% (403)	100% (24576)
Percent of Total Visits	78.9%	16.4%	2.5%	0.5%	0.1%	1.6%	100%

Table 28. Outpatients' Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	11.7% (2868)	33.9% (8336)	26.8% (6581)	9.8% (2415)	15.0% (3688)	2.8% (688)	100% (24576)

Outpatients' age was analyzed using the following categories: less than one year, 1 through 4 years, 5 through 10 years, 11 through 13 years, 14 through 17 years, and 18 years or older. These delineations were utilized to examine possible differences in patient characteristics and diagnoses based on life course groupings. Less than one year captures neonatal patients, newborns, and infants under one year of age. Ages 1 through 4 group pre-school aged children. Elementary schooling typically encompasses ages 5 through 10, followed by middle school (ages 11 through 13), and high school (ages 14 through 17). All those 18 years of age and older were grouped as adults. Table 29 above shows that the greatest proportion of outpatients was between the ages of 1 and 4 years old (33.9%) followed by children ages 5 through 10 (26.8%). The smallest proportion of outpatients was adults (2.8%).

Table 29. Outpatient Crosstabulation of Financial Status by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	0.8% (22)	1.0% (83)	1.4% (95)	2.1% (51)	3.0% (110)	2.9% (20)	1.8% (193)
Commercial Managed Care	7.7% (221)	8.0% (633)	10.0% (659)	11.9% (288)	12.8% (473)	10.9% (75)	10.4% (1105)
Federal/State Program	1.3% (38)	2.1% (171)	2.0% (132)	1.8% (44)	2.2% (81)	1.0% (7)	1.9% (198)
Medicaid	80.7% (2314)	77.5% (6458)	71.4% (4697)	67.1% (1621)	63.5% (2343)	57.7% (397)	69.9% (7425)
Medicare	0% (0)	0.1% (11)	0.9% (56)	0.7% (18)	0.3% (12)	6.1% (42)	0.9% (96)
Private Traditional	9.1% (260)	10.4% (869)	13.1% (865)	15.2% (367)	16.2% (597)	16.3% (112)	14.0% (1488)
Self-Pay	0.5% (13)	1.0% (81)	1.2% (77)	1.1% (26)	2.0% (72)	5.1% (35)	1.1% (117)
Total	100% (2868)	100% (8336)	100% (6581)	100% (2415)	100% (3688)	100% (688)	100% (24576)

Chi-square= 815.647, df=30, p<.001

Financial status refers to how a patient paid for hospital services. Table 29 above shows how services were paid for by age group. Overall, Medicaid was by far the most utilized source of payment (69.9%) with patients under one year of age having the greatest proportion of Medicaid use (80.7%). Private traditional insurance was the second most utilized payment source (14.0%). As expected, those age 18 and older had the highest proportion of private traditional insurance use (5.1%). Additionally, Medicare was the least used source of payment (0.9%).

Table 30. CPT Code Frequencies for Outpatients

CPT Code	CPT Description	DHS Description	Frequency	Percent
99284	Less Urgent	ER Level 4	3693	15.0
99285	Non-Urgent	ER Level 5	2074	8.4
99283	Urgent	ER Level 3	1900	7.7
99282	Emergent	ER Level 2	22	0.1
NULL		NULL	16887	68.7
Total			24576	100

Table 30 shows that just over two-thirds (68.7%) of outpatients did not have a CPT code. Those without a CPT code primarily had a Check-In Type of Elective (over 90%) or urgent (9.1%). Nearly a quarter (23.4%) of outpatient visits were classified as less urgent or non-urgent.

Table 31. Top Ten Outpatient Primary Diagnoses

Rank	Code	Description	Frequency	Percent
1	K02.9	Dental caries, unspecified	2668	10.9
2	K35.80	Unspecified acute appendicitis	431	1.8
3	E86.0	Dehydration	429	1.7
4	N47.1	Phimosis	415	1.7
5	H69.83	Other specified disorders of Eustachian tube, bilateral	374	1.5
6	J21.0	Acute bronchiolitis due to respiratory syncytial virus	274	1.1
7	J35.3	Hypertrophy of tonsils with hypertrophy of adenoids	225	0.9
8	K52.9	Noninfective gastroenteritis and colitis, unspecified	214	0.9
9	J45.901	Unspecified asthma with (acute) exacerbation	203	0.8
10	K40.90	Unilateral inguinal hernia, without obstruction or gangrene, not specified as recurrent	192	0.8
Total for Top Ten			5425	22.1
Total All Other Codes			19151	77.9
Total			24576	100

Table 31 displays the top ten outpatient primary diagnoses, which account for 22.1% of all outpatient diagnoses. Diseases of the respiratory system including acute bronchiolitis, asthma, and swelling of the tonsils top the list. Diseases of the digestive system including tooth decay, appendicitis, gastroenteritis and colitis, and inguinal hernia are also prevalent.

Table 32. Distribution of Top Ten Outpatient Primary Diagnoses by Age Categories

Rank	Code	Description	<1	1-4	5-10	11-13	14-17	18+
1	K02.9	Dental caries, unspecified		X	X	X	X	X
2	K35.80	Unspecified acute appendicitis			X	X	X	X
3	E86.0	Dehydration	X	X	X	X	X	X
4	N47.1	Phimosis	X	X	X	X	X	
5	H69.83	Other specified disorders of Eustachian tube, bilateral		X	X	X		
6	J21.0	Acute bronchiolitis due to respiratory syncytial virus	X					
7	J35.3	Hypertrophy of tonsils with hypertrophy of adenoids		X	X			
8	K52.9	Noninfective gastroenteritis and colitis, unspecified	X	X			X	X
9	J45.901	Unspecified asthma with (acute) exacerbation		X	X			
10	K40.90	Unilateral inguinal hernia, without obstruction or gangrene, not specified as recurrent	X					

X indicates the diagnosis was present in that age category's top ten primary diagnoses

Table 32 displays the frequency distribution of the top ten outpatient primary diagnoses for the total sample broken down by age category. Overall, the distribution of the primary diagnoses codes follows expected life course patterns. Acute bronchiolitis only appeared in the top ten for age groups less than one. Dehydration appeared as a top ten diagnosis for every age group. Asthma ranked highest among children ages 1 through 10. Tooth decay occurred in the top ten primary diagnoses for all age groups except children less than one year old.

Table 33. Noteworthy Top Outpatient Primary Diagnoses by Age Categories

Age	Patterns Observed, Rank in Parentheses
<1	Bronchiolitis occupies ranks 1,2, and 7 for this group. Dehydration ranks 3 rd .
1-4	Tooth decay was ranked 1 st , 8 th , and 9 th accounting for 21.1% of all cases. Ear infections were ranked 2 nd .
5-10	Tooth decay continues to rank highly (1, 12) followed by acute appendicitis (2). Phimosi (a male only diagnosis) ranks 3 rd followed by swelling of the tonsils (4). Fractures (5, 10, 11, 16, 17) appear as top diagnoses for the first time.
11-13	Appendicitis (1), tooth decay (2), and fractures (3, 5, 10) top the list. Removal of a fixation device (typically following joint surgery) ranks 4 th . Microtia (8), a congenital deformity where the external ear is underdeveloped, appears for the first time.
14-17	Appendicitis (1) continues to rank highly. Pilonidal cysts rank 2 nd . Risk factors for pilonidal cysts include being male, sedentary, having thick body hair, family history, being overweight, and previous pilonidal cysts. Of note, abdominal pain (5, 8, 11, 12) accounts for 4.3% of all primary diagnoses.
18+	Aftercare following a kidney transplant (1) accounted for 6.3% of all adult cases followed by treatment for pilonidal cysts (2). Appendicitis (3) and tooth decay (4) also rank high. Myasthenia gravis (10), a chronic autoimmune neuromuscular disease that causes weakness in the skeletal muscles, which are responsible for breathing and moving parts of the body, appears for the first time.

The following section examines secondary diagnoses. Not all outpatients had secondary diagnoses, although 84.7% had at least one. In the case that a patient has multiple secondary diagnoses, there is no rank order in terms of severity. Overall, 20,819 visits had secondary diagnoses.

Table 34. Top Ten Outpatient Secondary Diagnoses

Rank	Code	Description	Frequency	Percent
1	F43.0	Acute stress reaction	1640	7.9
2	J45.909	Unspecified asthma, uncomplicated	778	3.7
3	E86.0	Dehydration	416	2.0
4	F90.9	Attention-deficit hyperactivity disorder, unspecified type	377	1.8
5	F41.1	Generalized anxiety disorder	322	1.5
6	E66.9	Obesity, unspecified	282	1.4
7	F41.9	Anxiety disorder, unspecified	268	1.3
8	H69.83	Other specified disorders of Eustachian tube, bilateral	229	1.1
9	K40.90	Unilateral inguinal hernia, without obstruction or gangrene, not specified as recurrent	190	0.9
10	J06.9	Acute upper respiratory infection, unspecified	185	0.9
Total for Top Ten			4687	22.5
Total All Other Codes			16132	77.5
Total			20819	100

In a sharp departure from primary diagnoses trends, behavioral health diagnoses comprise the majority of the top 10 secondary diagnoses including acute stress reaction, Attention-Deficit Hyperactivity Disorder (ADHD), and anxiety disorder. Several diagnoses present in the top primary list including asthma and dehydration also appear as top secondary diagnoses. Obesity also appears among the top ten, accounting for 1.4% of the secondary diagnoses.

Table 35. Distribution of Top Ten Outpatient Secondary Diagnoses by Age Categories

Rank	Code	Description	<1	1-4	5-10	11-13	14-17	18+
1	F43.0	Acute stress reaction		X	X	X	X	X
2	J45.909	Unspecified asthma, uncomplicated		X	X	X	X	X
3	E86.0	Dehydration	X	X	X	X	X	
4	F90.9	Attention-deficit hyperactivity disorder, unspecified type			X	X	X	X
5	F41.1	Generalized anxiety disorder		X	X			
6	E66.9	Obesity, unspecified			X	X	X	X
7	F41.9	Anxiety disorder, unspecified		X	X			X
8	H69.83	Other specified disorders of Eustachian tube, bilateral		X	X			
9	K40.90	Unilateral inguinal hernia, without obstruction or gangrene, not specified as recurrent			X			
10	J06.9	Acute upper respiratory infection, unspecified	X	X				

Anxiety issues constitute four of the top ten primary diagnoses with acute stress reaction appearing in the top ten for every age group except patients less than one year old (see Table 35). Asthma also appeared in the top ten for every group except those less than one year old. Dehydration continues to top the list for all groups except adults. Obesity was a top ten secondary diagnosis for patients ages 5 through 10, 11 through 13, 14 through 17, and 18 years or older.

Table 36. Noteworthy Top Outpatient Secondary Diagnoses

Age	Patterns Observed, Rank in Parentheses
<1	Dehydration (1) and upper respiratory infections (2) ranked highest. Other viral infections (9) and enteroviruses (3, 5) as well as bacterial infections (4) constituted the majority of the top ten.
1-4	Interestingly, anxiety related diagnoses (1, 2, 6, 7) represented four of the top ten diagnoses with acute stress reaction in the number one rank. Development of speech and language disorder (9) appeared as well. Dehydration (4) and ear infections (5) continued to appear.
5-10	Obesity (8) appeared in the top ten for the first time. Asthma was the 2 nd highest ranking diagnosis. Acute stress reaction (1), Attention-deficit Hyperactivity Disorder (3), and anxiety disorders (5, 7) accounted for four of the top ten secondary diagnoses for this age group.
11-13	Asthma (1) accounted for 6.3% of all top secondary diagnoses for this group followed by ADHD (2). Obesity (3), and morbid obesity (9) appeared. Dehydration (7), vomiting (6) and fractures (8) also made the list.
14-17	Asthma (1) continued to rank highest in this group followed by obesity (2) and morbid obesity (4). ADHD was ranked 3 rd . Reaction to severe stress and adjustment disorders (10) rounded out the top ten.
18+	Once again, asthma (1) and obesity (2) top the list with morbid obesity (8) also making the top ten. End stage renal disease (3) and long-term drug therapy (5) appeared in the top ten for the first time. Mental health diagnoses, including major depressive disorder (10), ranked 4 th , 5 th , 6 th , 7 th , and 10 th .

Table 36 demonstrates the importance of examining secondary diagnoses across age groups. Analyzing the data this way provided a window into how prevalent these diagnoses are and at which points in the life course they become most problematic/severe. Of note in particular: asthma, obesity, and mental health issues were prevalent among all age categories.

Analysis: Orthopedic and Rehabilitation

As previously discussed, orthopedic and rehabilitation patients are classified as outpatients. However, due to the high volume of visits per patient for these services, discussion for these subcategories has been separated from other outpatients. This portion of the discussion will focus on number of visits rather than number of patients. This is a limitation of the data set due to the repetitious nature of rehabilitative and orthopedic visits and the use of unique identifiers to protect patient identity.

There were 84,726 orthopedic and rehabilitation patients resulting in 202,731 visits from fiscal years 2017-2019. Table 37 shows the categorization of visits by check-in type. Of the total sample, 83.1% of visits were classified as rehabilitation; the remaining 16.9% were clinic (i.e. orthopedic) visits.

Table 37. Check-In Type for Orthopedic and Rehabilitation

	Frequency	Percent
Clinic Visit	34314	16.9
Rehabilitation	168417	83.1
Total	202731	100

Table 38 below displays the total number of visits to each type of clinic. The largest proportion of visits was for speech pathology (34.7%) followed by physical therapy (24.2%). Occupational therapies and orthopedic visits had similar frequencies (17.1% and 16.9% respectively), and audiology accounted for 7.1% of all visits.

Table 38. Visit Frequencies by Clinic Type for Orthopedic and Rehabilitation

Clinic Type	Frequency	Percent
Audiology	14343	7.1
Orthopedic	34314	16.9
Occupational Therapy	34712	17.1
Physical Therapy	49057	24.2
Speech Pathology	70305	34.7
Total	202731	100

The average number of visits was 2.8 per patient with a range from 1 visit up to 361 visits. Table 39 shows the distribution of visit frequencies. The majority of patients (62.7%) had only one visit. The next highest category was 2 to 50 patient visits. A cursory examination of patient IDs with the highest number of visits reveal the majority have an age of less than one year. The patient with the most visits (361), for instance, appears to be a neonatal male requiring a multitude of therapies. As Table 40 shows, the vast majority of orthopedic and rehabilitative visits occurred in Corpus Christi clinics (97.8%). The remaining visits were in Brownsville (1.0%), McAllen (0.9%), and Laredo (0.3%).

Table 39. Visit Frequencies for Orthopedic and Rehabilitation

1 Visit	2-50	51-100	101-150	151-200	201+	Total
53094	31291	241	64	24	12	84726
62.7%	36.9%	0.3%	0.1%	0.0%	0.0%	100%

Table 40. Visit Frequencies by Clinic Location for Orthopedic and Rehabilitation

Clinic Location	Frequency	Percent
Brownsville	1990	1.0
Corpus Christi	198198	97.8
Laredo	635	0.3
McAllen	1908	0.9
Total	202731	100

Primary Reasons for Orthopedic and Rehabilitative Visits**Table 41. Top Ten Primary Diagnoses for Orthopedic and Rehabilitation**

Rank	Code	Description	Frequency	Percent
1	F80.9	Developmental disorder of speech and language, unspecified	17988	8.9
2	F80.2	Mixed receptive-expressive language disorder	12014	5.9
3	R62.0	Delayed milestone in childhood	5459	2.7
4	F84.0	Autistic disorder	5277	2.6
5	P22.0	Respiratory distress syndrome of newborn	5149	2.5
6	Z47.89	Encounter for other orthopedic after care	4624	2.3
7	F82	Specific developmental disorder of motor function	4142	2.0
8	F80.1	Expressive language disorder	4058	2.0
9	F80.0	Phonological disorder	4020	2.0
10	R62.50	Unspecified lack of expected normal physiological development in childhood	3353	1.7
Total for Top Ten			66084	32.6
Total All Other Codes			136647	67.4
Total			202731	100

As Table 41 shows, speech-related disorders occupy four of the top ten diagnoses ranks and amount to 18.8% of all primary diagnoses. Autistic disorder was 2.6% of the sample visits. Encounter for orthopedic after-care was 2.3% of visits. Respiratory distress syndrome of a newborn appears again, accounting for 2.5% of visits.

Table 42. Top Ten Secondary Diagnoses for Orthopedic and Rehabilitation

Rank	Code	Description	Frequency	Percent
1	Z98.890	Other specified postprocedural states	2747	3.1
2	F80.0	Phonological disorder	1403	1.6
3	Q21.1	Atrial septal defect	926	1.0
4	R62.50	Unspecified lack of expected normal physiological development in childhood	852	1.0
5	Z98.1	Arthodesis status	842	0.9
6	Z79.899	Other long term (current) drug therapy	819	0.9
7	M62.81	Muscle weakness (generalized)	784	0.9
8	F84.0	Autistic disorder	777	0.9
9	R62.0	Delayed milestone in childhood	691	0.8
10	F80.9	Developmental disorder of speech and language, unspecified	663	0.7
Total for Top Ten			10504	11.8
Total All Other Codes			78664	88.2
Total			89168	100

Table 42 above displays the top secondary diagnoses for orthopedic and rehabilitative visits. Interestingly, half of the diagnoses were also among the top 10 primary diagnoses: phonological disorder (1.6%), lack of expected normal physiological development (1.0%), Autistic Disorder (0.9%), delayed milestone (0.8%), and speech delay (0.7%). The top secondary diagnosis was other specified postprocedural states (i.e. personal surgical history) with 3.1%.

Clinic Data

Demographic Description of Clinic Patients

The data in the following section of the Community Health Needs Assessment focus on clinic patients for the entire Driscoll Health system. Table 43 below shows the frequency distribution of clinic visits by city for the entire 27-county service area.

Table 43. Frequency Distribution of Clinic Visits by Location

Clinic Location	Frequency	Percent
Corpus Christi	201,420	58.6
McAllen	74,300	21.6
Laredo	27,140	7.9
Victoria	18,325	5.3
Brownsville	16,648	4.8
Harlingen	5,374	1.6
Eagle Pass	434	0.1
Rio Grande	357	0.1
Total	343,998	100

The most clinic visits occurred in Corpus Christi (58.5%), McAllen (21.6%), and Laredo (7.9%). Corpus Christi clinics are located in Driscoll Health System's primary service area; the other clinics' city locations are in the secondary service area. According to the U.S. Census's 2018 American Community Survey population estimates, Corpus Christi is the largest city in DHS's service area with an estimated population of 326,554 followed by Laredo (261,639) and Brownsville (183,292).

Table 44. Crosstabulation of Racial Identity by Gender for Clinics

	Hispanic, Any race %	Non-Hispanic White %	Black %	Asian %	Native American %	Other %	Total %
	(n)	(n)	(n)	(n)	(n)	(n)	(n)
Female	54.9% (155635)	53.4% (23948)	52.4% (3681)	66.9% (1190)	50.0% (5)	49.5% (3423)	54.6% (187882)
Male	45.1% (127742)	46.6% (20940)	47.6% (3345)	33.1% (588)	50.0% (5)	50.5% (3493)	45.4% (156113)
Unknown	0% (3)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (3)
Total	100% (283380)	100% (44888)	100% (7026)	100% (1788)	100% (10)	100% (6916)	100% (343998)
Percent of Total	82.4%	13.0%	2.0%	0.5%	0.0%	2.0%	100%*

*Percentages do not total exactly 100 due to rounding display

According to Table 44, 54.6% of all clinic visits were by females. There were three clinic visits where the gender of the patient is listed as unknown. For Hispanics of any race, Non-Hispanic Whites, African Americans, and Asians there were more female patients than male with Asians having the greatest proportion (66.9%) of females. Overall, the patient population was 54.6% female. Among clinic visits, 88.4% were by people identified as Hispanic. Only 13% are Non-Hispanic White, and 2% are African American. The next largest racialized category was those classified as “Other”; these individuals did not specify their racial or ethnic identity.

Clinic patients’ ages ranged from 0 to 73, with a mean age of 11.3. Sixty-eight percent of all clinic patients were between the ages of 1.3 and 21.3. Ages of patients were recoded into six categories that mirrored important stages of children’s life course. Table 45 shows the age distribution of clinic patients by age category.

Table 45. Clinic Patients’ Age Distribution by Age Categories

	<1	1-4	5-10	11-13	14-17	18+	Total
	%	%	%	%	%	%	%
	(n)	(n)	(n)	(n)	(n)	(n)	(n)
Total	5.2%	26.7%	23.5%	10.4%	14.1%	20.2%	100%*
	(17966)	(91805)	(80786)	(35693)	(48358)	(69390)	(343998)

*Percentages do not total exactly 100 due to rounding display

Table 45 shows that more than 5% of the clinic patients were less than one year of age. More than 50% of the patients were between the ages of 1 and 10. Another 20% of the clinic patients were ages 18 or older.

Table 46. All Clinics Crosstabulation of Financial Class by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	1.2% (222)	1.7% (1570)	1.8% (1440)	1.9% (678)	2.2% (1047)	2.4% (1659)	1.9% (6616)
Commercial Managed Care	7.9% (1419)	8.8% (8108)	9.9% (7970)	10.6% (3779)	11.9% (5777)	12.0% (8323)	10.3% (35375)
Federal/State Program	1.8% (315)	1.8% (1665)	1.9% (1573)	1.9% (672)	2.2% (1076)	1.7% (1193)	1.9% (6492)
Medicaid	76.0% (13647)	71.9% (66045)	68.0% (54964)	67.4% (23976)	65.1% (31491)	63.0% (43731)	68.0% (233854)
Medicare	0.0% (0)	0.1% (109)	0.2% (189)	0.3% (112)	0.2% (116)	1.2% (844)	0.4% 1370
Private Traditional	11.5% (2060)	13.6% (12473)	16% (12917)	16.2% (5768)	16.5% (7957)	18.1% (12569)	15.6% (53744)
Self-Pay	1.7% (303)	2.0% (1837)	2.1% (1733)	2.0% (708)	1.8% (894)	1.5% (1071)	1.9% (6546)
Total	100% (17966)	100% (91805)	100% (80786)	100% (35693)	100% (48358)	100% (69390)	100% (343998)

Chi-square=3883.39, df=30, p<.001

Financial status refers to how a patient's clinic bills were paid. According to these data (see Table 46), the largest source of payment for services came from Medicaid, across all age categories. A Chi-Square test reveals that the distribution by financial class varies significantly (Chi-square=3883.39, df=30, p<.001) across the age categories. For example, more than three-quarters (76.0%) of patients less than one year of age had their clinic visits paid by Medicaid compared to those ages 14 through 17 with 65% of their bills paid for by Medicaid. Private traditional sources paid for 16.5% of the bills for those ages 14 through 17, whereas only 11.5% of those under the age of one had their bills paid by private traditional sources. As the age categories increased, the proportion of hospital bills paid by private traditional sources increases. The patterns presented in this table make sense given that national data demonstrate that households with young children in them (under the age of five) tend to have higher poverty rates and near-poor rates than households with older children in them (Children's Defense Fund 2017).

Severity of Clinic Visits

Table 47. Top Ten CPT Code Frequencies for All Clinic

CPT CODES	CPT	Frequency	Percent
99212	Self-Limiting/Minor	29397	8.5
99242	Low Severity	13443	3.9
99213	Low to Moderate Severity	123367	35.9
99202	Low to Moderate Severity	9213	2.7
99243	Moderate Severity	23376	6.8
99203	Moderate Severity	14201	4.1
99214	Moderate to High Severity	70613	20.5
99244	Moderate to High Severity	20773	6.0
99215	Moderate to High Severity	16316	4.7
99024	Post-Operative Follow UP Visit	15163	4.4
All Other CPT Codes		8136	2.5
Total		343998	100

Table 47 shows the top ten CPT codes for all clinic visits. The descriptions of the CPT codes were derived from Decision Health (2019). Among all clinic visits, 61.9% of the clinic visits were deemed moderately severe or less. Almost a third (31.2%) of the most frequent clinic visits were coded as moderate to high severity. In assessing the top ten CPT codes for the clinics individually, Harlingen has the lowest proportion of clinic visits (18.5%) classified as moderate to high severity while more than 50% of Eagle Pass Clinic visits were deemed moderate to high severity. Rio Grande City clinic CPT codes were substantively different from the others; 85.7% of Rio Grande City clinic visits were classified as moderate to high severity.

Primary Reasons for Clinic Use

Analyses for clinic visits in each city are discussed individually in this portion of the health needs assessment. Both top primary and secondary diagnoses are evaluated. Table 48 presents the top primary diagnoses for all clinic visits, regardless of location.

Table 48. Top Ten Primary Diagnoses for All Clinic Visits

Rank	Code	Description	Frequency	Percent
1	R50.9	Fever, unspecified	18544	5.4
2	J06.9	Acute upper respiratory infection, unspecified	9442	2.7
3	J02.9	Acute pharyngitis, unspecified	7257	2.1
4	O35.8XX0	Maternal care for other (suspected) fetal abnormality and damage, not applicable or unspecified	7091	2.1
5	O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	4819	1.4
6	H69.83	Other specified disorders of eustachian tube, bilateral (ear ache)	3742	1.1
7	R01.1	Cardiac murmur, unspecified	3252	0.9
8	O09.522	Supervision of elderly multigravida, second trimester (mother 35+ and pregnant more than once)	3088	0.9
9	Q21.1	Atrial septal defect (hole in the heart)	3056	0.9
10	C91.01	Acute lymphoblastic leukemia, in remission	2843	0.8
Top Codes Total			63134	18.4
All Other Codes			280864	81.6
All Codes			343998	100.00

Fevers were the highest ranked diagnosis (3.4%). The second highest diagnosis is an acute, unspecified, upper respiratory infection; 2.9% of all clinic visitors were diagnosed with this. The third most frequent diagnosis was acute pharyngitis (i.e. sore throat/inflammation of the back of the throat); 11.49% of the top ten principle diagnoses were sore throats. Three of the top diagnoses were associated with pregnancies: suspected fetal abnormalities, gestational diabetes, and elderly pregnancies. Two of the top ten diagnoses were associated with heart defects.

Patients may enter the clinic with multiple issues. The clinic data provided for the community health needs assessment included up to five secondary diagnoses. These data show that 120,036 individuals, 34.9%, did not have a secondary diagnosis. The frequency of the secondary diagnoses was calculated by including all secondary diagnoses. Among the 65.1% of clinic visits that did include a second diagnoses, a total of 465,520 secondary diagnoses were identified. Table 49 presents the most common secondary diagnoses for all clinic patients seen during fiscal years 2017-2019.

Table 49. Top Ten Secondary Diagnoses for All Clinic Visits

Rank	Code	Description	Frequency	Percent
1	J06.9	Acute upper respiratory infection, unspecified	14494	3.1
2	R50.9	Fever, unspecified	11439	2.5
3	J02.9	Acute pharyngitis, unspecified	7365	1.6
4	R05	Cough	5050	1.1
5	B97.89	Other viral agents as the cause of diseases classified elsewhere	4468	1.0
6	R09.81	Nasal congestion	4396	0.9
7	R01.1	Cardiac murmur, unspecified	4015	0.9
8	O34.219	Maternal care for unspecified type scar from previous cesarean delivery	3812	0.8
9	Q21.1	Atrial septal defect (hole in the heart)	3499	0.8
10	J02.0	Streptococcal pharyngitis	3145	0.7
Top Codes Total			58538	13.3
All Other Codes			406982	86.8
All Codes			465520	100*

*Percentages do not total exactly 100 due to rounding display

It is interesting to note that the top three primary diagnoses were also the top three secondary diagnoses: acute upper respiratory infections, unspecified fevers, and acute unspecified pharyngitis. As with the primary diagnoses, two of the top secondary diagnoses were related to heart abnormalities: unspecified cardiac murmur and atrial septal defect. Maternal care for a scar from a previous c-section was also among the top ten diagnoses.

Taking primary and secondary diagnoses into consideration, 8.9% of clinic patients were diagnosed with unspecified fevers, 7.0% were diagnosed with acute unspecified upper respiratory infections, and 4.3% were diagnosed with acute unspecified pharyngitis.

Corpus Christi Clinic Analyses

Table 50 shows the distribution of males and females by racial classifications for Corpus Christi clinic patients.

Table 50. Crosstabulation of Racial Identity by Gender for Corpus Christi Clinic

	Hispanic, Any race % (n)	Non- Hispanic White % (n)	Black % (n)	Asian % (n)	Native American % (n)	Other % (n)	Total % (n)
Female	52.7% (80151)	53.9% (20482)	53.0% (3219)	66.1% (946)	60.0% (3)	49.4% (1943)	53.0% 106654
Male	47.3% (72013)	46.1% (17498)	47.0% (2776)	33.9% (486)	40.0% (2)	50.6% (1989)	47.0% 94764
Unknown	0.00013% (2)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0.0% (2)
Total	100% (152166)	100% (37980)	100% (5905)	100% (1432)	100% (5)	100% (3932)	100% 201420
Percent of Total	75.6%	18.9%	2.9%	0.7%	0.0%	2.0%	100%

Fifty-three percent of all Corpus Christi clinic visits were by females. Two of the patients visiting Corpus Christi clinics had a gender that was unknown. The rest of the Corpus Christi clinic visits were by males. Table 50 shows that there were more female patients than male for Hispanics of any Race, Non-Hispanic Whites, African Americans, and Asians, with Asians having the greatest proportion (66.1%) of females. Moreover, 75.6% of Corpus Christi clinic patients are Hispanics of any race. Only 18.9% were Non-Hispanic White, and 2.9% are African American. The next largest racialized category was those classified as “Other”; these individuals did not specify their racial or ethnic identity.

Corpus Christi clinic patients’ ages ranged from 0 to 66 with a mean age of 10.74. Sixty-eight percent of all clinic patients were between the ages of 1.71 and 19.77. Table 51 shows the age distribution of clinic patients by age category.

Table 51. Corpus Christi Clinic Patients' Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	5.2% (9349)	26.7% (52645)	23.5% (49548)	10.4% (23153)	14.1% (32480)	20.2% (34245)	100% (201420)

Just over 5% of the clinic patients are less than one year of age. More than 50% of the patients are between the ages of 1 and 10. Another 20% of the clinic patients are ages 18 or older.

Table 52. Corpus Christi Clinic Crosstabulation of Financial Class by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	1.0% (98)	1.3% (683)	1.7% (831)	1.8% (411)	2.3% (735)	2.7% (926)	1.8% (3684)
Commercial Managed Care	10.3% (966)	10.7% (1538)	12.0% (5940)	12.9% (2980)	15.0% (4862)	17.2% (5878)	13.0% (26625)
Federal/State Program	3.1% (289)	2.9% (1538)	2.8% (1397)	2.7% (635)	3.1% (1005)	3.0% (1014)	2.9% (5878)
Medicaid	71.3% (6668)	68.4% (36025)	63.6% (31503)	62.4% (14451)	59.1% (19183)	52.6% (18003)	62.5% (125833)
Medicare	0.00% (0)	.2% (105)	.3% (135)	.2% (56)	.3% (90)	1.3% (429)	.4% (815)
Private Traditional	12.8% (1194)	14.4% (7580)	17.6% (8710)	17.9% (4149)	18.4% (5986)	21.4% (7342)	17.4% (34961)
Self-Pay	1.4% (134)	2.0% (1075)	2.1% (1032)	2.0% (471)	1.9% (619)	1.9% (653)	2.0% (3984)
Total	100% (9349)	100% (52645)	100% (49548)	100% (23153)	100% (32480)	100% (34245)	100% (201420)

Chi-square=3687.80, df=30, p<.001

Financial class refers to how a patient's clinic bills were paid. According to Table 52, the largest source of payment for services came from Medicaid across all age categories. A Chi-Square test reveals that the distribution by financial class varies significantly (Chi-square=3687.80, df=30, p<.001) across the age categories. For example, 71.3% of patients less than one year of age had their bills paid by Medicaid, compared to those ages 14 through 17 with 59.1% of their bills paid for by Medicaid. Private traditional sources paid 21.45% of the bills for those ages 14 through 17 whereas only 12.8% of those under the age

of one had their bills paid by private traditional sources. As the age categories increased, the proportion of hospital bills paid by private traditional sources increased.

Table 53. Top Ten CPT Codes for Corpus Christi Clinic

Rank	CPT CODES	CPT	Frequency	Percent
1	99213	Low to Moderate Severity	6983	34.7
2	99214	Moderate to High Severity	47206	23.4
3	99212	Self-Limiting/Minor	16256	8.1
4	99243	Moderate Severity	13276	6.6
5	99244	Moderate to High Severity	11590	5.8
6	99215	Moderate to High Severity	11013	5.5
7	99024	Post-Operative Follow UP Visit	9943	4.9
8	99242	Low Severity	7045	3.5
9	99202	Low to Moderate Severity	5851	2.9
10	99203	Moderate Severity	4920	2.4
	All Other CPT Codes		67,338	33.4
	Total		201420	100

Table 53 shows that among the Corpus Christi clinic visits, 63.1% of the clinic visits were deemed moderately severe or less. Those clinic visits coded as moderate to high severity constituted 37.4% of all Corpus Christi clinic visits.

Table 54. Top Ten Primary Diagnoses for Corpus Christi Clinic

Rank	Code	Description	Frequency	Percent
1	R50.9	Fever, unspecified	9621	4.6
2	J06.9	Acute upper respiratory infection, unspecified	5354	2.7
3	H69.83	Other specified disorders of eustachian tube, bilateral (earache)	3742	1.9
4	O35.8XX0	Maternal care for other (suspected) fetal abnormality and damage, not applicable or unspecified	3252	1.6
5	J02.9	Acute pharyngitis, unspecified	2621	1.3
6	O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	2485	1.2
7	C91.01	Acute lymphoblastic leukemia, in remission	2400	1.2
8	J45.4	Moderate persistent asthma with (acute) exacerbation	2209	1.1
9	F90.2	Attention-deficit hyperactivity disorder, combined type	2137	1.1
10	L70.0	Acne vulgaris	1834	0.9
Top Codes Total			35655	17
All Other Codes			174765	83
Total			210420	100*

*Percentages do not total exactly 100 due to rounding display

Unspecified fever was the top primary diagnosis (4.7%) for patients at Corpus Christi clinics (see Table 54). The next most prevalent diagnosis (2.9%) was an acute upper respiratory infection followed by bilateral disorders of the eustachian tube (1.9%). Approximately 1.3% of Corpus Christi patients were diagnosed with acute pharyngitis (a sore throat/inflammation of the back of the throat). Two of the top diagnoses were associated with pregnancy: maternal care for other (suspected) fetal abnormality and damage (1.6%) and gestational diabetes (1.1%). Moderate persistent asthma with acute exacerbation (1.2%) was also among the top ten as was Attention-deficit Hyperactivity Disorder (1.1%).

Patients may enter into the clinic with multiple issues. The clinic data provided for the health needs assessment included up to five secondary diagnoses, though not all patients visiting clinics have at least one secondary diagnosis. Among the 210,420 Corpus Christi clinic visits, 130,339 visits (61.9%) had a secondary diagnosis in addition to the primary diagnosis. The frequency of the secondary diagnoses was calculated by including all secondary diagnoses. Table 55 presents the most common secondary diagnoses for fiscal years 2017-2019.

Table 55. Top Ten Secondary Diagnoses for Corpus Christi Clinic

Rank	Code	Description	Frequency	Percent
1	R50.9	Fever, unspecified	7662	2.8
2	J06.9	Acute upper respiratory infection, unspecified	6955	2.5
3	Z79.899	Other long term (current) drug therapy	3370	1.2
4	B97.89	Other viral agents as the cause of diseases classified elsewhere	2438	0.9
5	J02.9	Acute pharyngitis, unspecified	2435	0.9
6	L83	Acanthosis nigricans	1839	0.7
7	E55.9	Vitamin D deficiency, unspecified	1772	0.6
8	F90.2	Attention-deficit hyperactivity disorder, combined type	1767	0.6
9	R11.2	Nausea with vomiting, unspecified	1570	0.6
10	G47.9	Sleep disorder, unspecified	1480	0.5
Top Codes Total			31288	11.4
All Other Codes			242925	88.6
All Codes			274213	100*

*Percentages do not total exactly 100 due to rounding display

Acute conditions listed among the top ten secondary diagnoses (Table 55) include acute upper respiratory infection, unspecified (2.5%) and acute unspecified pharyngitis (0.9%). Long term (current) drug therapy, Attention-deficit Hyperactivity Disorder, and unspecified sleep disorder (i.e. more chronic conditions) also appear among the top secondary diagnoses. Worth noting, Acanthosis nigricans (a condition associated with obesity and/or pre-diabetes) is also among the top ten diagnoses.

McAllen Clinic Analyses

There were 74,300 McAllen clinic visits for fiscal years 2017-2019. Table 56 below shows the racial/ethnic and gender characteristics of McAllen clinic patients.

Table 56. Crosstabulation of Racial Identity by Gender for McAllen Clinic

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Black % (n)	Asian % (n)	Native American % (n)	Other % (n)	Total % (n)
Female	55.4% (39817)	53.1% (530)	40.3% (27)	77.5% (124)	33.3% (1)	52.1% (612)	55.3% (41111)
Male	44.6% (32080)	46.9% (469)	59.7% (40)	22.5% (36)	66.7% (2)	47.9% (562)	44.7% (33189)
Total	100% (71897)	100% (999)	100% (67)	100% (160)	100% (3)	100% (1174)	100% (74300)
Percent of Total	96.8%	1.3%	0.1%	.2%	0.0%	1.6%	100%

According to Table 56, 55.3% of all McAllen clinic visits were by females while 96.8% of clinic visits were by Hispanics of any race. Other (1.6%) and Non-Hispanic Whites (1.3%) were the next largest racial-ethnic categories.

McAllen clinic patients' ages ranged from 0 to 73, with a mean age of 10.92. Sixty-eight percent of all clinic patients were between the ages of .24 and 21.6. Table 57 shows the McAllen clinic patients' age ranges.

Table 57. McAllen Clinic Patients' Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	6.1% (4515)	30.1% (22889)	23.5% (17477)	8.7% (6435)	10.3% (7658)	20.1% (15326)	100% (74300)

Six percent of McAllen clinic patients were under the age of one, while 30.1% (nearly one out of every three) were between the ages of one and four. Almost a quarter (23.5%) of McAllen clinic patients were between the ages of five and ten, with just 8.7% of patients between the ages of 11 and 13. A little more than ten percent were between the ages of 14 and 17, and slightly more than 20% of McAllen patients were ages 18 or older.

Table 58. McAllen Clinic Crosstabulation of Financial Class by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	1.6% (71)	2.3% (535)	2.0% (349)	2.7% (172)	2.2% (169)	2.2% (339)	2.2% (1635)
Commercial Managed Care	4.5% (205)	5.9% (1361)	5.8% (1021)	5.8% (375)	5.2% (398)	8.2% (1253)	6.2% (4613)
Federal/State Program	0.1% (4)	0.2% (54)	0.6% (98)	0.3% (17)	0.3% (23)	0.5% (74)	0.4% (270)
Medicaid	82.2% (3710)	76.5% (17519)	74.8% (13073)	75.5% (4861)	79.0% (6046)	70.2% (10760)	75.3% (55969)
Medicare	0% (0)	0.0% (4)	0.2% (34)	0.5% (32)	0.3% (21)	2.0% (299)	0.5% (390)
Private Traditional	9.3% (422)	12.7% (2901)	13.8% (2412)	13.0% (835)	10.9% (838)	15.1% (2311)	13.1% (9719)
Self-Pay	2.3% (103)	2.2% (515)	2.8% (490)	2.2% (143)	2.1% (163)	1.9% (290)	2.3% (1704)
Total	100% (4515)	100% (22889)	100% (17477)	100% (6435)	100% (7658)	100% (15326)	100% (74300)

Chi-square=1241.62, df=30, p<.001

Chi-square tests (1241.62, df=30, p<.001) indicate that payment sources for patients' clinic visits vary significantly by age (see Table 58). For example, while 75.3% of all clinic visits were paid by Medicaid, the proportion (82.2%) is much higher among those less than one year of age, compared to those between the ages of five and ten (74.9%) and those 18 years and older (70.2%). An inverse pattern is also revealed among those whose visits are covered by commercial managed care. For example, only 4.5% of all clinic visits for patients under the age of one are paid for by commercial managed care compared to 5.8% of those between the ages of five and 13. Those 18 and older have the highest proportion (8.2%) of clinic visits paid by commercial managed care.

Table 59. Top Ten CPT Codes for McAllen Clinic

Rank	CPT CODES	CPT	Frequency	Percent
1	99213	Low to Moderate Severity	34181	46.0
2	99214	Moderate to High Severity	9170	12.3
3	99203	Moderate Severity	7514	10.1
4	99212	Self-Limiting/Minor	5872	7.9
5	99243	Moderate Severity	4225	5.7
6	99244	Moderate to High Severity	2730	3.7
7	99024	Post-Operative Follow UP Visit	2669	3.6
8	99215	Moderate to High Severity	2442	3.3
9	99242	Low Severity	2060	2.8
10	99202	Low to Moderate Severity	1763	2.9
	All Other Codes		1674	2.3
	Total		74300	100

It is interesting to note that 3.6% of clinic visits are used for post-operative follow up visits (Table 59 above). Nearly three-fourths (72.5%) of McAllen clinic visits can be classified as moderate to low severity or minor visits. Less than one in five visits (19.3%) were classified as moderate to high severity.

Table 60. Top Ten Primary Diagnoses for McAllen Clinic

Rank	Code	Description	Frequency	Percent
1	R50.9	Fever, unspecified	8856	11.9
2	J02.9	Acute pharyngitis, unspecified	3397	4.6
3	J06.9	Acute upper respiratory infection, unspecified	3144	4.2
4	R05	Cough	1641	2.2
5	O35.8XX0	Maternal care for other (suspected) fetal abnormality and damage, not applicable or unspecified	1225	1.6
6	Q21.1	Atrial septal defect (hole in the heart)	1125	1.5
7	O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	1094	1.5
8	J02.8	Acute pharyngitis due to other specified organisms	893	1.2
9	R11.10	Vomiting, unspecified	848	1.1
10	O09.522	Supervision of elderly multigravida, second trimester	811	1.1
Top Codes Total			23034	31.0
All Other Codes			51266	69.0
All Codes			74300	100*

*Percentages do not total exactly 100 due to rounding display

As Table 60 shows, there were three acute conditions in the top ten primary diagnoses: pharyngitis (J02.9 and J02.8) and upper respiratory infections (J06.9). Also among the top ten primary diagnoses were conditions related to pregnancy including supervision of elderly multigravida, second trimester; gestational diabetes; and maternal care for other (suspected) fetal abnormality and damage. These conditions constituted 4.1% of all McAllen clinic visits.

Of the 74,300 clinic visits, 68.3% of those visits included at least one secondary diagnosis. Table 61 presents the total number of secondary diagnoses and the ten most frequent of those secondary diagnoses.

Table 61. Top Ten Secondary Diagnoses for McAllen Clinic

Rank	Code	Description	Frequency	Percent
1	J06.9	Acute upper respiratory infection, unspecified	6222	5.9
2	J02.9	Acute pharyngitis, unspecified	4081	3.9
3	R50.9	Fever, unspecified	3629	3.5
4	R05	Cough	3289	3.1
5	R09.81	Nasal congestion	3234	3.1
6	R01.1	Cardiac murmur, unspecified	2172	2.1
7	B97.89	Other viral agents as the cause of diseases classified elsewhere	1671	1.6
8	J02.0	Streptococcal pharyngitis	1537	1.5
9	Q25.6	Stenosis of pulmonary artery	1216	1.2
10	R19.7	Diarrhea, unspecified	1032	1.0
Total for Top Ten			28083	26.8
All Other Codes			76888	73.2
All Codes			104971	100*

*Percentages do not total exactly 100 due to rounding display

Two of the top ten secondary diagnoses were related to acute conditions and communicable infections. Cardiac murmur and stenosis of pulmonary artery also reveal physical abnormalities, both heart-related, with one affecting the heart and lungs.

Laredo Clinic Analyses

Table 62. Crosstabulation of Racial Identity by Gender for Laredo Clinic

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Asian % (n)	Native American % (n)	Other % (n)	Total % (n)
Female	60.8% (16052)	48.1% (165)	100% (42)	50.0% (1)	49.7% (162)	60.6% (16440)
Male	39.2% (10351)	51.9% (178)	0% (0)	50.0% (1)	50.3% (164)	39.4% (10700)
Total	100% (26403)	100% (343)	100% (42)	100% (2)	100% (326)	100% (27140)
Percent of Total	97.3%	1.3%	0.2%	0.0%	1.2%	100%

According to Table 62, 60.6% of all Laredo clinic visits were by females; 97.3% of clinic visits were by Hispanics of any race. Other (1.2%) and Non-Hispanic Whites (1.3%) were the next largest racial-ethnic groups.

Laredo clinic patients' ages ranged from 0 to 48, with a mean age of 14.25. Sixty-eight percent of all clinic patients were between the ages of 2.3 and 26.2. Table 63 shows the distribution of Laredo clinic patients' age ranges.

Table 63. Age Distribution by Age Categories for Laredo Clinic

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	6.7% (1812)	21.2% (5744)	17.7% (4806)	9.6% (2592)	13.1% (3538)	31.9% (8648)	100% (27140)

Laredo clinic patients look different from patients of other clinics. More than 30% of Laredo clinic patients were ages 18 and older. Another 13.1% were ages 14 through 17. Those ages four years and younger comprised 27.9% of Laredo clinic patients.

Table 64. Crosstabulation of Financial Class for Laredo Clinic

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	0.4% (7)	0.5% (144)	0.4% (20)	0.5% (14)	0.5% (17)	1.1% (93)	0.7% (177)
Commercial Managed Care	2.5% (46)	2.5% (144)	3.5% (170)	3.8% (1)	3.5% (125)	4.0% (348)	3.4% (931)
Federal/State Program	0.1% (1)	0.1% (3)	0.3% (14)	0.0% (1)	0.2% (6)	0.1% (11)	0.1% (36)
Medicaid	83.4% (1512)	86.0% (4940)	81.0% (3893)	81.4% (2110)	81.5% (2882)	79.7% (6889)	81.9% (22226)
Medicare	0% (0)	0% (0)	0% (0)	0.2% (4)	0% (1)	0.4% (33)	0.1% (38)
Private Traditional	12.1% (220)	10.5% (601)	13.8% (665)	13.1% (340)	13.2% (467)	14.4% (1241)	13.0% (3534)
Self-Pay	1.4% (26)	0.5% (30)	0.9% (44)	1.0% (25)	1.1% (40)	0.4% (33)	0.7% (198)
Total	100% (1812)	100% (5744)	100% (4806)	100% (2592)	100% (3538)	100% (8648)	100% (27140)

Chi-square= 240.15, df=30, p<.001

As Table 64 above shows, more than 80% of all Laredo clinic visits were paid by Medicaid, with those under the age of one having the highest proportion of visits paid by Medicaid (83.4%) and the lowest portion of visits paid by commercial managed care (2.5%). Conversely, those ages 18 and older had the lowest proportion of visits paid by Medicaid (79.7%) and the highest proportion paid by commercial managed care (4.0%). Similar to other clinics, the observed differences in the source of payments by age category are deemed real and statistically significant (Chi-square=240.15, df=30, p<.001).

Table 65. Top Ten CPT Codes for Laredo Clinic

Rank	CPT CODES	CPT	Frequency	Percent
1	99214	Moderate to High Severity	6887	25.4
2	99213	Low to Moderate Severity	5178	19.1
3	99244	Moderate to High Severity	4076	15.0
4	99243	Moderate Severity	2814	10.4
5	99212	Self-Limiting/Minor	2331	8.6
6	99242	Low Severity	1729	6.4
7	99215	Moderate to High Severity	1371	5.1
8	99024	Post-Operative Follow UP Visit	840	3.1
9	99241	Self-limited/Minor	517	1.9
10	99203	Moderate Severity	449	1.7
	All Other CPT Codes		948	3.5
	Total		27140	100

Unlike the Corpus Christi and McAllen clinics, a greater proportion (45.5%) of Laredo clinic visits had CPT codes that indicate the visit was moderate-to-high severity. Only 1.9% were self-limited/minor; 25.5% of visits were low or low-to-moderate severity; and 12.1% of Laredo clinic visits were classified as moderate severity.

Table 66. Top Ten Primary Diagnoses for Laredo Clinic

Rank	Code	Description	Frequency	Percent
1	R101.1	Cardiac murmur, unspecified	1427	5.3
2	O35.8XX0	Maternal care for other (suspected) fetal abnormality and damage, not applicable or unspecified	1297	4.8
3	Q21.1	Atrial septal defect (hole in the heart)	891	3.3
4	O09.523	Supervision of elderly multigravida, third trimester	562	2.1
5	I10	Essential (primary) hypertension	529	2.0
6	Q21.0	Ventricular septal defect (hole in the heart)	516	2.0
7	O09.523	Supervision of elderly multigravida, third trimester	504	1.9
8	R01.0	Benign and innocent cardiac murmurs	482	1.8
9	O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	458	1.7
10	O24.913	Unspecified diabetes mellitus in pregnancy, third trimester	407	1.5
Total for Top Ten			7073	26.1
All Other Codes			20067	74.0
All Codes			27140	100*

*Percentages do not total exactly 100 due to rounding display

Table 66 shows that all but one of the top ten primary diagnoses are heart issues or pregnancy related. Cardiac murmurs appear twice along with atrial septal defect and ventricular septal defect. Two diagnoses are related to elderly multigravida pregnancies, and two are related to gestational diabetes.

Of the 27,140 Laredo clinic patient visits, a little less than one-third of the patients (9,207) did not have a secondary diagnosis. The next table, Table 67, shows the ten most frequent secondary diagnoses for the 65.9% of Laredo clinic visits who had at least one secondary diagnosis.

Table 67. Top Ten Secondary Diagnoses for Laredo Clinic

Rank	Code	Description	Frequency	Percent
1	Q21.1	Atrial septal defect (hole in the heart)	891	2.4
2	O34.219	Maternal care for unspecified type scar from previous cesarean delivery	714	1.9
3	R01.0	Benign and innocent cardiac murmur	588	1.6
4	R01.1	Cardiac Murmur	542	1.4
5	L83	Acanthosis nigricans	542	1.4
6	O35.8XXO	Maternal care for other (suspected) fetal abnormality and damage, not applicable or unspecified	419	1.1
7	O09.523	Supervision of elderly multigravida, third trimester	388	1.0
8	O09.212	Obesity complicating pregnancy, second trimester	329	0.9
9	O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	325	0.9
10	O09.213	Obesity complicating pregnancy, third trimester	321	0.9
Total for Top Ten			5059	13.4
All Other Codes			32637	86.6
All Codes			37696	100*

*Percentages do not total exactly 100 due to rounding display

Three of the secondary diagnoses were related to heart abnormalities—atrial septal defect, benign and innocent cardiac murmur, and cardiac murmur. Six of the top issues are related to pregnancy, with one related to suspected fetal abnormality and damage, two related to obesity complicating pregnancy, and gestational diabetes mellitus. Acanthosis nigricans, a condition typically occurring in people who are obese or have diabetes, is also among the most prevalent secondary diagnoses.

Victoria Clinic Analyses

There were 18,325 Victoria clinic visits from fiscal years 2017-2019. Table 68 below shows the racial-ethnic and gender characteristics of Victoria clinic patients.

Table 68. Crosstabulation of Racial Identity by Gender for Victoria Clinic

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Black % (n)	Asian % (n)	Other % (n)	Total % (n)
Female	49.4% (5409)	48.9% (2476)	49.3% (497)	40.6% (41)	47.7% (571)	49.1% (8994)
Male	50.6% (5543)	51.1% (2589)	50.7% (511)	59.4% (60)	52.3% (627)	50.9% (9330)
Unknown	0.0% (1)	0% (0)	0% (0)	0% (0)	0% (0)	0.0% (1)
Total	100% (10953)	100% (5065)	100% (1008)	100% (101)	100% (1198)	100% (18325)
Percent of Total	59.8%	27.6%	5.5%	0.6%	6.5%	100%

According to Table 68, 49.1% of all Victoria clinic visits were by females; 59.8% of clinic visits were by Hispanics of any race. Non-Hispanic White patients were the next largest racial-ethnic group using Victoria clinic services (27.6%) followed by those coded as “Other” (6.5%).

Victoria clinic patients’ ages ranged from 0 to 47, with a mean age of 7.82. Sixty-eight percent of all clinic patients were between the ages of 0.77 and 14.77. Table 69 shows the distribution of Victoria clinic patients’ age ranges by age categories.

Table 69. Victoria Patients’ Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	5.5% (1013)	35.4% (6486)	29.6% (5418)	10.4% (1908)	12.1% (2212)	7.0% (1288)	100% (18325)

Patients ages 1 through 4 comprised 35.4% of all Victoria clinic patients. The next largest age category of patients were children between the ages of 5 and 10; they were 29.6% of all Victoria clinic patients. Children under the age of one were only 5.5% of all Victoria clinic visits.

Table 70. Crosstabulation of Financial Class by Age Categories for Victoria Clinic

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	2.3% (23)	3.4% (220)	3.0% (162)	2.7% (52)	3.1% (68)	2.1% (27)	3.0% (552)
Commercial Managed Care	13.1% (233)	13.1% (849)	12.1% (658)	13.4% (256)	13.2% (291)	12.0% (154)	21.8% (2341)
Federal/State Program	0.1% (1)	0.6% (41)	0.8% (45)	0.6% (12)	1.3% (28)	1.4% (18)	0.8% (145)
Medicaid	71.9% (728)	64.2% (4163)	66.2% (3588)	65.5% (1250)	62.7% (1386)	62.7% (808)	65.1% (11923)
Medicare	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0.9% (12)	0.1% (12)
Private Traditional	10.6% (107)	16.2% (1052)	15.3% (828)	15.1% (289)	18.4% (407)	20.1% (259)	16.1% (2942)
Self-Pay	2.1% (21)	2.5% (161)	2.5% (137)	2.6% (49)	1.4% (32)	0.8% (10)	2.2% (410)
Total	100% (1013)	100% (6486)	100% (5418)	100% (1908)	100% (2212)	100% (1288)	100% (18325)

Chi-square= 271.30 , df=30, p<.001

Similar to other clinics, there is a significant association between the age category of Victoria clinic patients and the manner in which visits are paid (Chi-square 271.3, df=30, p<.001). The younger the patient was, the more likely he/she was to have their clinic visit paid by Medicaid. For example, 71.9% of those patients under the age of one had their services paid by Medicaid; however, only 62.5% of patients 18 and older had their visits paid by Medicaid. Conversely, among visits paid by private traditional insurance, only 10.6% of visits for those under one year of age paid via this method, while 20.1% of patient visits of those 18 years and older were paid by private traditional.

Table 71. Top Ten CPT Codes for Victoria Clinic

Rank	CPT CODES	CPT	Frequency	Percent
1	99213	Low to Moderate Severity	8745	47.7
2	99214	Moderate to High Severity	2923	16.0
3	99212	Self-Limiting/Minor	1535	8.4
4	99244	Moderate to High Severity	1191	6.5
5	99243	Moderate Severity	988	5.4
6	99202	Low to Moderate Severity	935	5.1
7	99203	Moderate Severity	814	4.4
8	99242	Low Severity	556	3.0
9	99215	Moderate to High Severity	253	1.4
10	99024	Post-Operative Follow UP Visit	202	1.1
	All Other CPT Codes		183	1.0
	Total		18325	100

According to Table 71, 8.4% of Victoria clinic patient visits were self-limiting/minor, 3% were low severity, and 52.8% were low-to-moderate severity. Less than a quarter (23.9%) of the Victoria clinic patients had issues that were coded moderate to high severity.

Table 72. Top Ten Primary Diagnoses for Victoria Clinic

Rank	Code	Description	Frequency	Percent
1	J06.9	Acute upper respiratory infection, unspecified	937	5.1
2	J02.0	Streptococcal pharyngitis	759	4.1
3	H66.93	Otitis media, unspecified, bilateral	699	3.8
4	J02.9	Acute pharyngitis, unspecified	659	3.6
5	R01.1	Cardiac murmur, unspecified	590	3.2
6	R50.9	Fever, unspecified	421	2.3
7	J10.1	Influenza due to other identified influenza virus with other respiratory manifestations	375	2.0
8	R05	Cough	272	1.5
9	J03.9	Acute recurrent tonsillitis, unspecified	254	1.4
10	I10	Essential (primary) hypertension	209	1.1
Total for Top Ten			5175	28.2
All Other Codes			13150	71.8
All Codes			18325	100*

*Percentages do not total exactly 100 due to rounding display

Table 72 shows that three of the top ten conditions are classified as acute—unspecified acute upper respiratory infection, unspecified acute pharyngitis, and unspecified acute recurrent tonsillitis. Influenza was also among the top diagnoses. One birth defect, unspecified cardiac murmur, appeared in the top ten diagnoses. Essential (primary) hypertension is also among the most frequent primary diagnoses among Victoria clinic patients and does not emerge as a primary diagnosis at any of the other DHS clinics.

Of the 18,325 Victoria clinic visits, 60.6% of those visits included at least one secondary diagnoses. Table 73 presents the total number of secondary diagnoses and the ten most frequent of those secondary diagnoses.

Table 73. Top Ten Secondary Diagnoses for Victoria Clinic

Rank	Code	Description	Frequency	Percent
1	J06.9	Acute upper respiratory infection, unspecified	1362	6.5
2	J30.9	Allergic rhinitis, unspecified	815	3.9
3	J02.9	Acute pharyngitis, unspecified	802	3.8
4	R05	Cough	536	2.6
5	B97.89	Other viral agents as the cause of diseases classified elsewhere	535	2.5
6	H66.93	Otitis media, unspecified, bilateral	483	2.3
7	R50.9	Fever, unspecified	322	1.5
8	R09.81	Nasal congestion	277	1.3
9	Z03.89	Encounter for observation for other suspected diseases and conditions ruled out	276	1.3
10	J02.0	Streptococcal pharyngitis	238	1.1
Total for Top Ten			5646	26.9
All other Codes			15369	73.1
All Codes			21015	100*

*Percentages do not total exactly 100 due to rounding display

Table 73 shows that two of the top ten conditions are classified as acute—unspecified acute upper respiratory infection and unspecified acute pharyngitis. Nasal congestion, cough, and allergic rhinitis (runny nose) are also among the top ten secondary diagnoses. No chronic conditions were listed among the top secondary diagnoses for Victoria clinic patients.

Brownsville Clinic Analyses

There were 16,648 Brownsville clinic visits for fiscal years 2017-2019. Table 74 shows the racial/ethnic and gender characteristics of the Brownsville clinic patients.

Table 74. Crosstabulation of Racial Identity by Gender for Brownsville Clinic

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Black % (n)	Asian % (n)	Other % (n)	Total % (n)
Female	61.4% (9884)	53.9% (185)	23.1% (3)	81.8% (27)	36.9% (59)	61.0% (10158)
Male	38.6% (6215)	46.1% (158)	76.9% (10)	18.2% (6)	63.1% (101)	39.0% (6490)
Total	100% (16099)	100% (343)	100% (13)	100% (33)	100% (160)	100% (16648)
% of Total Clinic	96.7%	2.1%	0.08%	0.3%	1.0%	100%

Females comprised 61% of all Brownsville clinic visits. According to Table 74, 96.7% of Brownsville clinic patients are Hispanic of any race. Non-Hispanic whites were only 2.5% of all Brownsville patient visits.

Brownsville clinic patients' ages ranged from 0 to 47 with a mean age of 15.32. Sixty-eight percent of all clinic patients were between the ages of 3.34 and 27.3. Table 75 shows the distribution of Brownsville clinic patients' age ranges.

Table 75. Brownsville Clinic Patients' Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	6.1% (1009)	18.6% (3092)	17.2% (2866)	8.0% (1339)	12.3% (2041)	37.7% (6281)	100% (16648)

A little over six percent of Brownsville clinic patient visits were by those under the age of one, 18.6% were between the ages of one and four, and 17.2% were between the ages of five and ten. Notably, 37.7% of all Brownsville clinic patient visits were by people who were 18 years of age or older.

Table 76. Crosstabulation of Financial Class by Age Categories for Brownsville Clinic

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	1.7% (17)	3.1% (95)	2.3% (67)	1.9% (25)	2.2% (45)	2.8% (175)	2.5% (424)
Commercial Managed Care	5.6% (57)	2.5% (78)	5.5% (158)	4.6% (62)	4.2% (85)	7.1% (446)	5.3% (886)
Federal/State Program	1.8% (18)	0.7% (21)	0.6% (17)	0.4% (6)	0.6% (13)	0.8% (53)	0.8% (128)
Medicaid	79.8% (805)	84.2% (84.2)	81.2% (2343)	80.7% (1081)	81.8% (1669)	74.3% (4668)	79.1% (13169)
Medicare	0% (0)	0% (0)	0.6% (17)	1.4% (19)	0.2% (4)	0.7% (47)	0.5% (87)
Private Traditional	9.6% (97)	8.2% (253)	9.0% (260)	9.9% (9.9)	9.6% (196)	13.1% (825)	10.6% (1763)
Self-Pay	1.5% (15)	1.4% (42)	0.8% (24)	1.0% (14)	1.4% (29)	1.1% (67)	1.1% (191)
Total	100% (1009)	100% (3092)	100% (2866)	100% (1339)	100% (2041)	100% (6281)	100% (16648)

Chi-square= 275.85 , df=30, p<.001

Table 76 shows the largest source of payment for services came from Medicaid across all age categories (79.1%). A Chi-Square test reveals that the distribution by financial class varied significantly (Chi-square=275.85, 30, df=30, p<.001) across the age categories. For example, 84.2% of patients between one and four years old had their bills paid by Medicaid compared to those ages 18 and older with 74.3% of their bills paid by Medicaid. Private traditional insurance paid 13.1% of the bills for those ages 18 and older, whereas only 9.6% of those under the age of one had their bills paid by private traditional insurance.

Table 77. Top Ten CPT Codes for Brownsville Clinic

Rank	CPT CODES	CPT	Frequency	Percent
1	99213	Low to Moderate Severity	4094	24.6
2	99214	Moderate to High Severity	3475	20.9
3	99212	Self-Limiting/Minor	2349	14.1
4	99243	Moderate Severity	1511	9.1
5	99242	Low Severity	1262	7.6
6	99024	Post-Operative Follow UP Visit	1188	7.1
7	99215	Moderate to High Severity	1158	7.0
8	99244	Moderate to High Severity	674	4.0
9	99203	Moderate Severity	277	1.7
10	99202	Low to Moderate Severity	216	1.3
	All other CPT Codes		444	2.7
	Total		16648	100

A little more than 7% of Brownsville clinic visits were post-operative follow up visits (see Table 77). Another 14.1% were self-limiting or minor visits. Low severity and low-to-moderate severity visits totaled 33.5% of all Brownsville clinic visits. Another 10.8% were coded as moderate issues, while 30.9% were deemed moderate-to-high severity visits.

Table 78. Top Ten Primary Diagnoses for Brownsville Clinic

Rank	Code	Description	Frequency	Percent
1	O35.8XX0	Maternal care for other (suspected) fetal abnormality and damage, not applicable or unspecified	711	4.3
2	O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	567	3.4
3	N47.1	Phimosis	330	2.0
4	O09.522	Supervision of elderly multigravida, second trimester	325	2.0
5	C91.01	Acute lymphoblastic leukemia, in remission	261	1.6
6	D69.6	Thrombocytopenia, unspecified	259	1.6
7	Z98.89	Other specified postprocedural states	256	1.5
8	O09.523	Supervision of elderly multigravida, third trimester	252	1.5
9	Z09	Encounter for follow-up examination after completed treatment for conditions other than malignant neoplasm	233	1.4
10	O35.1XX0	Maternal care for (suspected) chromosomal abnormality in fetus, not applicable or unspecified	202	1.2
Total for Top Ten			3396	20.4
All Other Codes			13252	79.6
All Codes			16648	100*

*Percentages do not total exactly 100 due to rounding display

Five of the top ten primary diagnoses were associated with pregnancy (see Table 78). Two of those conditions related to abnormalities of the fetus—maternal care for other (suspected) fetal abnormality and damage; and maternal care for (suspected) chromosomal abnormality in fetus). Two more conditions were associated with elderly multigravida for the second and third trimester. The fifth pregnancy-related condition was associated with gestational diabetes. Two blood-related conditions were among the top ten diagnoses: Thrombocytopenia (low platelet levels) and acute lymphoblastic leukemia, in remission. Phimosis is also a top primary diagnosis for Brownsville patients.

Not all patients who visit Brownsville clinics have a secondary diagnosis. Only 55.8% of patient visits actually included a secondary diagnosis. Table 79 shows the top ten secondary diagnoses for Brownsville clinic patients.

Table 79. Top Ten Secondary Diagnoses for Brownsville Clinic

Rank	Code	Description	Frequency	Percent
1	O34.219	Maternal care for unspecified type scar from previous cesarean delivery	703	3.9
2	N39.8	Other specified disorders of urinary system	339	1.9
3	O99.213	Obesity complicating pregnancy, third trimester	322	1.8
4	N39.0	Urinary tract infection, site not specified	273	1.5
5	O09.522	Supervision of elderly multigravida, second trimester	232	1.3
6	O09.523	Supervision of elderly multigravida, third trimester	227	1.3
7	K59.00	Constipation, unspecified	216	1.2
8	O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	206	1.1
9	O99.212	Obesity complicating pregnancy, second trimester	200	1.1
10	O09.212	Supervision of pregnancy with history of pre-term labor, second trimester	178	1.0
Total for Top Ten			2896	16.0
All Other Codes			15168	84.0
All Codes			18064	100*

*Percentages do not total exactly 100 due to rounding display

For Brownsville clinic patients, there were no acute issues among the top ten diagnoses (Table 79). Two conditions associated with the urinary system were among the top secondary diagnoses. Gestational diabetes as well as obesity in the second and third trimester were top secondary diagnoses. Most of the secondary diagnoses were related to pregnancy.

Harlingen Clinic Analyses

The Harlingen clinic includes within its areas of subspecialty services craniomaxillofacial and reconstructive surgery, maternal fetal medicine, and surgery. Thus, the demographics served by this clinic were distinct from the other DHS clinics. Table 80 shows the racial and gender characteristics of the Harlingen clinic patients.

Table 80. Crosstabulation of Racial Identity by Gender for Harlingen Clinic

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Black % (n)	Asian % (n)	Other % (n)	Total % (n)
Female	78.0% (3999)	73.1% (98)	77.8% (7)	100% (9)	60.2% (59)	77.6% (4172)
Male	22.0% (1125)	26.9% (36)	22.2% (2)	0% (0)	39.8% (39)	22.4% (1202)
Total	100% (5124)	100% (134)	100% (9)	100% (9)	100% (98)	100% (5374)
Percent of Total	95.3%	2.5%	0.2%	0.2%	1.9%	100%

Table 80 shows the vast majority of Harlingen clinic patients were female (77.6%), which was anticipated since this clinic includes a maternal fetal clinic subspecialty. Non-Hispanic Whites (95.3%) are the largest racial category among Harlingen clinic patients. Non-Hispanic White patients were the next largest racial category, yet only 2.5% of all Harlingen clinic patients were a member of this racial category. The next largest group was “Other” at 1.9%. Less than 0.2% of all Harlingen clinic patients were Black.

Harlingen clinic patients’ ages ranged from 0 to 50 with a mean age of 22.46. Sixty-eight percent of all clinic patients were between the ages of 9.02 and 35.9. Table 81 shows the distribution of Harlingen clinic patients’ ages.

Table 81. Harlingen Clinic Patients’ Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	3.5% (187)	14.1% (760)	8.7% (468)	2.9% (154)	4.90% (262)	65.9% (3543)	100% (5374)

The Harlingen clinic includes maternal fetal medicine within its fields of subspecialty services. Thus, the fact that the largest proportion (65.9%) of patient clinic visits was by people ages 18 and older are expected, since women’s reproductive years are between the ages of 12 and 51, with the average age at

which a woman has her first child being 28. Children ages one to four constitute the next largest age category of Harlingen clinic patients (14.1%) followed by children between the ages of five and ten at 8.7%.

Table 82. Crosstabulation of Financial Class by Age Categories for Harlingen Clinic

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	2.1% (4)	1.1% (8)	1.7% (8)	0.6% (1)	2.7% (7)	2.8% (99)	2.4% (127)
Commercial Managed Care	3.7% (7)	4.3% (33)	4.3% (20)	3.9% (6)	4.2% (11)	6.8% (242)	5.9% (319)
Federal/State Program	2% (1.1)	0.8% (6)	0.4% (2)	0.0% (0)	0.4% (1)	0.6% (23)	0.6% (34)
Medicaid	82.4% (154)	82.8% (629)	84.8% (397)	84.4% (130)	75.2% (197)	72.3% (2560)	75.7% (4067)
Medicare	0.0% (0)	0.0% (0)	0.6% (3)	0.6% (1)	0.0% (0)	0.6% (23)	0.5% (27)
Private Traditional	9.1% (17)	10.0% (76)	7.3% (34)	9.7% (15)	16.0% (42)	16.5% (584)	14.3% (768)
Self-Pay	1.6% (3)	1.1% (8)	0.9% (4)	0.6% (1)	1.5% (4)	0.3% (12)	0.6% (32)
Total	100% (187)	100% (760)	100% (468)	100% (154)	100% (262)	100% (3543)	100% (5374)

Chi-square=112.31, df=30, p<.001

Table 82 shows there is a statistically significant relationship between the age of the patient and the manner in which their clinic visit was paid. Younger patients were more likely to have their clinic visits paid by Medicaid (82.5%) versus those patients who are older. For example, only 75.2% of patients between the ages of 14 and 17 and 72.3% of patients ages 18 or older have their clinic visits paid by Medicaid, but Medicaid paid for more than 82% of visits by children five years and younger. Conversely, 14 through 17-year-olds have 16% of their Harlingen clinic visits paid via private traditional insurance, compared to 10% or less by those ages five and under.

Table 83. Top Ten CPT Codes for Harlingen Clinic

Rank	CPT CODES	CPT	Frequency	Percent
1	99213	Low to Moderate Severity	1284	23.9
2	99212	Self-Limiting/Minor	1051	19.6
3	99242	Low Severity	730	13.6
4	99214	Moderate to High Severity	720	13.4
5	99243	Moderate Severity	457	8.5
6	99024	Post-Operative Follow UP Visit	317	5.9
7	99244	Moderate to High Severity	272	5.1
8	99203	Moderate Severity	224	4.2
9	99202	Low to Moderate Severity	153	2.8
10	99241	Self-limited/Minor	85	1.6
	All Other CPT Codes		81	1.5
	Total		5374	100

Post-operative follow-up visits were 5.9% of all Harlingen clinic visits (Table 83). Another 21.5% of visits were classified as self-limiting or minor. Cases classified as low severity constituted 13.6% of all clinic visits. Another 26.7% were classified as low-to-moderate severity, and 18.5% were classified as moderate-to-high.

Table 84. Top Ten Primary Diagnoses for Harlingen Clinic

Rank	Code	Description	Frequency	Percent
1	O35.8XX 0	Maternal care for other (suspected) fetal abnormality and damage, not applicable or unspecified	523	9.7
2	O09.522	Supervision of elderly multigravida, second trimester	403	7.5
3	O09.523	Supervision of elderly multigravida, third trimester	220	4.1
4	O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	171	3.2
5	O35.1XX 0	Maternal care for (suspected) chromosomal abnormality in fetus, not applicable or unspecified	154	2.9
6	O35.2XX 0	Maternal care for (suspected) hereditary disease in fetus, not applicable or unspecified	115	2.2
7	O24.912	Unspecified diabetes mellitus in pregnancy, second trimester	95	1.8
8	N47.8	Other disorders of prepuce	89	1.7
9	O24.913	Unspecified diabetes mellitus in pregnancy, third trimester	86	1.6
10	Q55.22	Retractile testis	85	1.6
Total for Top Ten			1941	36.1
All other Codes			3433	63.9
All Codes			5374	100*

*Percentages do not total exactly 100 due to rounding display

As Table 84 shows, most of the primary diagnoses were related to pregnancies including supervision of elderly multigravida pregnancies during the second and third trimester. They also include three fetal abnormalities. Three more of the top diagnoses were pregnancy-related and included having unspecified diabetes or gestational diabetes. The other two top diagnoses for the Harlingen clinic are unrelated to pregnancy but were related to sex organs. Disorders of the prepuce and retractile testis are both among the top ten primary diagnoses of the Harlingen clinic.

Of the 5,374 Harlingen clinic visits, 74.4% of those visits included at least one secondary diagnosis. Table 85 presents the total number of secondary diagnoses and the ten most frequent of those secondary diagnoses.

Table 85. Top Ten Secondary Diagnoses for Harlingen Clinic

Rank	Code	Description	Frequency	Percent
1	O34.219	Maternal care for unspecified type scar from previous cesarean delivery	372	4.8
2	O09.522	Supervision of elderly multigravida, second trimester	250	3.2
3	O09.523	Supervision of elderly multigravida, third trimester	209	2.7
4	O35.8XX0	Maternal care for other (suspected) fetal abnormality and damage, not applicable or unspecified	184	2.4
5	O99.212	Obesity complicating pregnancy, second trimester	154	2.0
6	O99.213	Obesity complicating pregnancy, third trimester	144	1.9
7	O09.212	Supervision of pregnancy with history of pre-term labor, second trimester	120	1.6
8	O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	119	1.5
9	N48.89	Other specified disorders of penis	84	1.1
10	O09.213	Supervision of pregnancy with history of pre-term labor, third trimester	77	1.0
Total for Top Ten			1713	22.3
All Other Codes			5985	77.7
All Codes			7698	100*

*Percentages do not total exactly 100 due to rounding display

Many of the same issues that appeared in the list of primary diagnoses also appeared in the list of secondary diagnoses including supervision of elderly multigravida in the second and third trimester, as well as gestational diabetes. Obesity complicating the second and third trimesters was also among the top diagnoses. Issues associated with high-risk pregnancies dominated the top secondary diagnoses of Harlingen clinic visits. “Other specified disorders of the penis” was also among the top secondary diagnoses.

Eagle Pass Clinic Analyses

There were 434 Eagle Pass clinic visits for fiscal years 2017-2019. The demographic characteristics of the Eagle Pass Clinic patient visits are presented below. Table 86 contains the gender and racial/ethnic characteristics of the patients for this clinic.

Table 86. Crosstabulation of Racial Identity by Gender for Eagle Pass Clinic

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Black % (n)	Other % (n)	Total % (n)
Female	44.5% (173)	52.2% (12)	59.1% (13)	59.1% (13)	45.6% (198)
Male	55.5% (216)	47.8% (11)	40.9% (9)	40.9% (9)	54.4% (236)
Total	100% (389)	100% (23)	100% (22)	100% (22)	100% (434)
Percent of Total	89.6%	5.3%	5.1%	5.1%	100%

Less than half (45.6%) of all Eagle Pass clinic patient visits were by females; 89.6% of patients were classified as Hispanic of any race. Roughly five percent of Eagle Pass clinic patients were Non-Hispanic White. Another 5.1% were Black, and another 5.1% were classified as Other. No patients were identified as Asian or Native American.

Eagle Pass clinic patients' ages ranged from 0 to 30 with a mean age of 8.39. Sixty-eight percent of all clinic patients were between the ages of 2.24 and 14.54. Table 87 shows the Eagle Pass clinic patients' age distribution by age categories.

Table 87. Eagle Pass Clinic Patients' Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	9.7% (42)	25.6% (111)	23.0% (100)	14.1% (61)	22.1% (96)	5.2% (24)	100% (434)

Nearly ten percent (9.7%) of Eagle Pass Clinic patients were less than one year of age. Another 25.6% were between the ages of one and four. Twenty-three percent were between the ages of five and ten, and 22.1% were between the ages of 14 and 17. Only 5.2% were ages 18 and older.

Table 88. Crosstabulation of Financial Class for the Eagle Pass Clinic

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	4.8% (2)	2.7% (3)	2.0% (2)	4.9% (3)	5.2% (5)	0% (0)	3.5% (15)
Commercial Managed Care	7.1% (3)	2.7% (3)	0% (0)	0% (0)	3.1% (3)	4.2% (1)	2.3% (10)
Federal/State Program	0% (0)	0% (0)	0% (0)	1.6% (1)	0% (0)	0% (0)	0.2% (1)
Medicaid	83.3% (35)	85.6% (95)	91% (90)	82% (50)	71.9% (69)	75% (18)	82.5% (358)
Medicare	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	1% (4.2)	0.2% (1)
Private Traditional	4.8% (2)	6.3% (7)	7.0% (7)	9.8% (6)	17.7% (17)	16.7% (4)	9.9% (43)
Self-Pay	0% (0)	2.7% (3)	0.0% (0)	1.6% (1)	2% (2.1)	0% (0)	1.4% (6)
Total	100% (42)	100% (111)	100% (100)	100% (61)	100% (96)	100% (24)	100% (434)

Chi-square= 51.4, df=30, p<.008

Table 88 shows that as with other clinics, the statistically significant relationship between age and financial status persists (Chi-square= 51.4, df=30, p<.008). The younger the patient, the more likely they were to have their visits paid by Medicaid compared to patients who are older. For example, 83.3% of visits by those less than one year old were paid by Medicaid, compared to those between the ages of 14-17 (71.9%) and 18 years or older (75%). Conversely the youngest patients had a much smaller proportion of their visits paid for by private traditional insurance than older patients.

Table 89. CPT Codes for Eagle Pass Clinic

Ranking	CPT CODES	CPT	Frequency	Percent
1	99244	Moderate to High Severity	121	27.9
2	99214	Moderate to High Severity	97	22.4
3	99243	Moderate Severity	83	19.1
4	99242	Low Severity	61	14.1
5	99213	Low to Moderate Severity	33	7.6
6	99215	Moderate to High Severity	23	5.3
7	99202	Low to Moderate Severity	5	1.2
8	99203	Moderate Severity	3	0.7
9	99245	Moderate to High Severity	3	0.7
10	99211	Minimal	2	0.5
	99212	Self-Limiting/Minor	2	0.5
	All other CPT codes		1	0.2
	Total			434

More than half (56.4%) of all Eagle Pass clinic visits were classified as moderate to high severity (Table 89). Only 19.8% were classified a moderate visits. Twenty-three percent were classified as low-to-moderate or low severity.

Table 90. Top Ten Primary Diagnoses for Eagle Pass Clinic

Rank	Code	Description	Frequency	Percent
1	R01.1	Cardiac murmur, unspecified	137	31.6
2	R07.9	Chest pain, unspecified	29	6.7
3	Q21.1	Atrial septal defect (hole in the heart)	26	6.0
4	R55	Syncope and collapse	21	4.8
5	Q21.0	Ventricular septal defect	17	3.9
6	I10	Essential (primary) hypertension	16	3.7
7	R03.0	Elevated blood-pressure reading, without diagnosis of hypertension	15	3.5
8	R00.2	Palpitations	14	3.2
9	R01.0	Benign and innocent cardiac murmurs	12	2.8
10	Z82.41	Family history of sudden cardiac death	10	2.3
Total for Top Ten			297	68.5
All Other Codes			137	31.5
All Codes			434	100*

*Percentages do not total exactly 100 due to rounding display

Table 90 shows chest pain, heart palpitations, elevated blood pressure, and hypertension were all among the top ten primary diagnoses. Cardiac murmurs and other heart-related defects were also among the top ten diagnoses for the Eagle Pass clinic visits.

Of the 434 Eagle Pass clinic visits, 72.6% of those visits included at least one secondary diagnosis. Table 91 presents the total number and the ten most frequent of those secondary diagnoses.

Table 91. Top Ten Secondary Diagnoses for Eagle Pass Clinic

Rank	Code	Description	Frequency	Percent
1	Z03.89	Encounter for observation for other suspected diseases and conditions ruled out	53	10.6
2	Z68.54	Body mass index (bmi) pediatric, greater than or equal to 95th percentile for age	42	8.4
3	Q21.1	Atrial septal defect (hole in the heart)	40	8.0
4	R01.1	Cardiac murmur, unspecified	28	5.6
5	R00.2	Palpitations	21	4.2
6	I51.7	Cardiomegaly	19	3.8
7	I34.0	Nonrheumatic mitral (valve) insufficiency	16	3.2
8	Z82.49	Family history of ischemic heart disease and other diseases of the circulatory system	12	2.4
9	R01.0	Benign and innocent cardiac murmurs	12	2.4
10	R03.0	Elevated blood-pressure reading, without diagnosis of hypertension	11	2.2
Total for Top Ten			254	50.8
All Other Codes			246	49.2
All Codes			500	100*

*Percentages do not total exactly 100 due to rounding display

Almost ten percent (8.4%) of patient visits to the Eagle Pass clinic had a pediatric body mass index (bmi) greater than or equal to 95th percentile for age. The most frequent secondary diagnosis, Z03.89, is used for patients who are suspected of having an abnormal condition that is later ruled out after the patient is examined; 10.6% of patients received this secondary diagnosis. Eight percent had an atrial septic defect as a secondary diagnosis, and another 8% had a secondary diagnosis related to a cardiac murmur.

Rio Grande City Clinic Analyses

There were 357 Rio Grande City clinic visits for fiscal years 2017-2019. Table 92 below shows the gender and racial/ethnic characteristics of the Rio Grande City clinic patients.

Table 92. Crosstabulation of Racial Identity by Gender for Rio Grande City

	Hispanic, Any race % (n)	Non-Hispanic White % (n)	Asian % (n)	Other % (n)	Total % (n)
Female	43.0% (150)	0% (0)	100% (1)	66.7% (4)	43.3% (155)
Male	199% (57.0)	100% (1)	0% (0)	33.3% (2)	56.6% (202)
Total	100% (349)	100% (1)	100% (1)	100% (6)	100% (357)
Percent of Total	97.8%	0.3%	0.3%	1.7%	100%

A clear majority (56.5%) of Rio Grande clinic patient visits was by males, and 97.8% of all Rio Grande clinic visits were by Hispanics of any race. There was only one clinic patient coded as Non-Hispanic White, one coded as Asian, and only six (1.7%) coded as Other.

Rio Grande City clinic patients' ages ranged from 0 to 34, with a mean age of 9.13. Sixty-eight percent of all clinic patients were between the ages of 2.35 and 15.91. Table 93 shows the Rio Grande clinic patients' age distribution by Age Categories.

Table 93. Rio Grande City Patients' Age Distribution by Age Categories

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Total	10.9% (39)	21.8% (78)	23.2% (83)	14.3% (51)	19.9% (71)	9.8% (35)	100% (357)

According to Table 93, the greatest proportion of patients (23.2%) were between the ages of five and ten followed by those between the ages of one and four (21.8%) and ages 14 through 17 (19.9%). Almost 11% of Rio Grande City clinic patients were under the age of one, while just under 10% of the clinic patients were ages 18 and older.

Table 94. Crosstabulation of Financial Class by Age Categories for Rio Grande City Clinic

	<1 % (n)	1-4 % (n)	5-10 % (n)	11-13 % (n)	14-17 % (n)	18+ % (n)	Total % (n)
Commercial	0% (0)	0% (0)	1.2% (1)	0% (0)	1.4% (1)	0% (0)	0.6% (2)
Commercial Managed Care	5.1% (2)	1% (1.3)	3.6% (3)	3.9% (2)	2.8% (2)	2.9% (1)	3.1% (11)
Medicaid	89.7% (35)	91% (71)	91.6% (76)	84.3% (43)	83.1% (59)	71.4% (25)	86.6% (309)
Private Traditional	2.6% (1)	3.8% (3)	1.2% (1)	3.9% (2)	5.6% (4)	8.6% (3)	3.9% (14)
Self-Pay	2.6% (1)	3.8% (3)	2.4% (2)	7.8% (4)	7.0% (5)	17.1% (6)	5.9% (21)
Total	100% (39)	100% (78)	100% (83)	100% (51)	100% (71)	100% (35)	100% (357)

Chi-square 20.98, df=20, p<.398

Table 94 shows that unlike the other clinics, Chi-square tests indicate there was not a statistically significant relationship between the age of the patient and the way in which his/her visit is paid (Chi-square= 20.98, df=20, p<.398). This, though, may be a function of the number of patients for the analysis, the number of cells in the cross-tabulation, and the number of cells with fewer than five cases. Medicaid paid for 86.6% of all Rio Grande City clinic visits, paying for at least nine out of every ten visits for patients ten years of age and younger.

Table 95. Top CPT Codes for Rio Grande City Clinic

Ranking	CPT Code	Severity	Frequency	Percent
1	99214	Moderate to High Severity	135	37.8
2	99244	Moderate to High Severity	119	33.3
3	99215	Moderate to High Severity	52	14.6
4	99243	Moderate Severity	22	6.2
5	99213	Low to Moderate Severity	13	3.6
6	99245	Moderate to High Severity	10	2.8
7	99024	Post-Operative Follow UP Visit	4	1.1
8	99212	Self-Limiting/Minor	1	0.3
9	99241	Self-Limited/Minor	1	0.3
	Total		357	100

According to Table 95, 88.5% of all CPT codes indicated that the issue bringing the patient to the clinic was of moderate to high severity. Only 6.2% of visits were of moderate severity, and 3.6% were low to moderate severity.

Table 96. Top Ten Primary Diagnoses for Rio Grande City Clinic

Rank	Code	Description	Frequency	Percent
1	Q21.1	Atrial septal defect (hole in the heart)	71	19.9
2	R01.1	Cardiac murmur, unspecified	62	17.4
3	I10	Essential (primary) hypertension	14	3.9
4	Q25.1	Coarctation of aorta	14	3.9
5	Q21.3	Tetralogy of Fallot	11	3.1
6	Q21.0	Ventricular septal defect	10	2.8
7	R07.9	Chest pain, unspecified	9	2.5
8	Q24.5	Malformation of coronary vessels	8	2.2
9	R07.89	Other chest pain	8	2.2
10	Q20.4	Double inlet ventricle	7	1.7
11	Q23.1	Congenital insufficiency of aortic valve	7	1.7
12	Q25.6	Stenosis of pulmonary artery	7	1.7
Top Ten Codes			214	63.0
All Other Codes			143	37.0
All Codes			357	100

Nearly 20% of patients of the Rio Grande City clinics were diagnosed with an atrial septal defect, and 17.4% were diagnosed with an unspecified cardiac murmur (Table 96). While nearly five percent of the visits had a primary diagnosis related to chest pain, many of the top ten primary diagnoses were related to cardiac abnormalities that were present at birth.

More than 92% of the 357 Rio Grande City clinic visits (303) included a secondary diagnosis. Table 97 below presents the most frequent secondary diagnoses for these clinic visits.

Table 97. Top Ten Secondary Diagnoses for Rio Grande City Clinic

Rank	Code	Description	Frequency	Percent
1	R01.1	Cardiac murmur, unspecified	120	12.8
2	Q25.6	Stenosis of pulmonary artery	49	5.2
3	Q21.1	Atrial septal defect (hole in the heart)	46	4.9
4	E66.3	Overweight	34	3.6
5	E66.01	Morbid (severe) obesity due to excess calories	23	2.5
6	Z68.54	Body mass index (bmi) pediatric, greater than or equal to 95th percentile for age	22	2.3
7	R94.31	Abnormal electrocardiogram (ECG) (EKG)	21	2.2
8	I34.0	Nonrheumatic mitral (valve) insufficiency	17	1.8
9	I51.7	Cardiomegaly	16	1.7
10	Z87.74	Personal history of (corrected) congenital malformations of heart and circulatory system	16	1.7
Total for Top Ten			364	38.8
All Other Codes			573	61.2
All Codes			937	100*

*Percentages do not total exactly 100 due to rounding display

While an unspecified cardiac murmur was the second most prevalent primary diagnosis for Rio Grande City patients (Table 96), it was the most prevalent secondary diagnosis for patients. When combining primary and secondary diagnoses frequencies, a total of 182 out of 357 patients, or 51.0% of Rio Grande City visits, included a diagnosis of an unspecified cardiac murmur. The third most frequent secondary diagnosis was atrial septal defect, which was the most prevalent primary diagnosis. Combined, this diagnosis occurred in 120 of the 357 patients (33.6% of the visits). Also worth noting among the secondary diagnoses are three diagnoses related to weight. Thirty-four visits included the diagnostic code E66.3, overweight. Another 23 patient visits were coded for severe/morbid obesity and 22 patients had a pediatric body mass index (bmi) greater than or equal to 95th percentile for age. In total, 79 visits (22.1%) included a secondary diagnosis related to a patient having an unhealthy weight.

How Healthy Are We?

The University of Wisconsin Public Health Institute and the Robert Wood Johnson Foundation collaborated to produce the County Health Ranking and Roadmaps (CHR&R) program, which rank the health of nearly every county in the country. There are two primary rankings: health outcomes and health factors. These data can be used to understand relative health of communities as well as the conditions that can have an impact of health outcomes. The goal of CHR&R is to have local communities use the data to engender support for initiatives that create healthier communities and address disparities in both health outcomes and environmental conditions that contribute to the disparities observed.

In examining the differences in health outcomes, we can get a sense of the relative health of the communities DHS serves. The data presented in Table 98 below are median values for the counties included in each area.

Table 98. Comparison of 2019 Health Outcomes for U.S. Texas, DHS Counties, Primary Service Counties, and Secondary Service Counties

	Description	US Overall	Texas Overall	All DHS Counties	DHS Primary Service Counties	DHS Secondary Service Counties
Premature Death	Years of potential life lost before age 75 per 100,000	6,900	6681	7981	8917	7344
Poor/Fair Health	Percent of adults reporting poor or fair health	16%	18	28	22.5	31
Poor Physical Health Days	Average # of Physically unhealthy days	3.7	3.5	4.4	3.9	4.5
Poor Mental Health Days	Average # of Poor Mental Health Days	3.8	3.4	3.8	3.6	3.9
Low Birthweight	% of live births with weight <2500 grams	8.0	8.0	8	9	8

For nearly every health outcome presented in the table, counties within the Driscoll service areas have poorer outcomes than Texas and the United States. As shown in Table 98, the DHS premature death value (7981) is 19.5% higher than Texas's overall premature death value (6681), and DHS's primary service premature death value (8917) is 33.5% higher than Texas's overall value (6681). DHS counties also have a greater proportion of adults reporting poor/fair health. Nationally, 16% of adults report having poor or fair health. For Texas, that percentage is 18%. For DHS's entire service area, 28% of adults report being in poor/fair health. The rate for the secondary service area is worse with 31% reporting fair/poor health; that's nearly double the rate for the United States. When looking at the average number of physically unhealthy days and the average number of poor mental health days,

again, the outcomes for the counties DHS serves are worse. In fact, the only measure where DHS counties are like the state and national average are the percent of low birthweight babies. Overall, DHS counties have poorer health outcomes than the state's and nation's averages.

What Factors Contributed to These Outcomes?

Health outcomes are affected by a range of individual, group, and community-level attributes. The University of Wisconsin Population Health Institute (PHI) highlight health behaviors, clinical care, social/economic indicators, and the physical environment as having a significant impact on the health outcomes of individuals and communities. Using information about these indicators, PHI developed a Health Factor ranking for nearly every county in the country. Texas has 254 counties, but ten of their counties are unranked due to their small population size and lack of information. Thus, the total number of ranked counties in Texas is 244. Two of the 27 counties Driscoll Health System (DHS) serves are among the unranked. The overall Health Factors of the ranked counties DHS serves ranged from a high of 67 (Goliad) to a low of 244 (Starr). Notably, many of the counties DHS serves have some of the lowest health outcomes among the entire state's counties. In fact, the five counties (Starr 244, Willacy 243, Brooks 242, Zavala 241, Zapata 240) with the lowest health outcomes ranks are all served by DHS. What's more, nearly half of the counties DHS serves (12 out of 25) are among the ten percent of Texas counties with the worst health outcomes score.

Health Behaviors

In a highly individualistic society, individual-level attributes tend to garner the most attention when trying to understand group differences. This holds true for health outcomes. Table 99 shows a comparison of health behaviors for the nation, state, and counties served by DHS.

Table 99. Comparison of 2019 County Health ranking for Health Behaviors: Measures for National, State, and Counties Served by Driscoll Health System.

	Description	Number in Sample	US Overall	Texas Overall	DHS Counties	DHS Primary Service Area	DHS Secondary Service Area
Adult Smoking	% of adults who are current smokers	27	17%	14%	16%	15%	16%
Adult Obesity	% of adults who report BMI \geq 30	27	32%	29%	30%	31%	29%
Food Environment Index	Index of factors that contribute to healthy food environment (0-10)	27	7.7	6	7.3	7.45	7.3
Physical Inactivity	% of adults aged 20+ who report no leisure time for physical activity	27	26%	23%	24%	24.5%	24%
Access to Exercise Opportunity	% of population with adequate access to physical activity locations	27	66%	80%	52%	49%	58%
Excessive Drinking	% of adults who report binge or heavy drinking	27	17%	19%	16%	18%	15%
Alcohol Impaired Driving Deaths	% of adults driving deaths involving alcohol	27	28%	28%	18%	18%	18%
Sexually transmitted Infections	# of newly diagnosed chlamydia cases per 100,000 pop	26	321.7	520.4	457.9	539.7	438.3
Teen Birth Rates	# of birth per 1,000 females age 15-19	25	31	37	57	46	62

These data demonstrate that the counties outside the primary services areas have median health behaviors that look marginally “better” than the median health behaviors values for those counties within the primary service area, except for the Food environment Index and the Teen Birth Rate. The Food Environment Index score ranges from 0-10, with a zero indicating the worst healthy food environment and a ten indicating the best healthy food environment. The median value for the counties outside of the primary service area was a score of 7.3, which is marginally lower than the score for the primary service area which is 7.45. However, the median value for the entire DHS area (7.3) is better than Texas’s overall score (6.0). While the median teen birth rate is lower for the primary county area, counties outside the primary area are much higher (46 vs 62). The sexually transmitted infection rate (the number of newly diagnosed chlamydia cases per 1000,000 population) is substantially higher within the primary service counties compared to those outside (539.7 verses 438.3, respectively). The median values for counties inside and outside the primary services areas demonstrated that a similar proportion of adults ages 20 and over had no leisure time for physical activity, though those within the primary

service area tended to have less access to places where they could be physically active (49% versus 58%, respectively).

Clinical Care

In addition to individual behaviors, access to clinical care has a substantive impact on keeping a community and its members healthy. It is among these factors that major disparities can be seen among the counties DHS serves and the state and national averages. Table 100 presents a comparison of indicators of clinical care for the nation, state, and DHS service areas.

Table 100. Comparison of 209 County Health Rankings for Clinic Care: Measures for Nation, Texas, and Counties Serviced by the Driscoll Health System.

	Description	Number of Counties	US Overall	TX Overall	DHS Counties	Primary Service Area	Secondary Service Area
Uninsured	% of population under the age of 65 without health insurance	27	10	19	19	19	20
Primary Care Physicians	Ratio of population to primary care physicians	20	1330:1	1660:1	2582:1	2934:1	2726:1
Dentists	Ratio of population to dentists	25	14600:1	1760:1	3612:1	3052:1	3842:1
Mental Health Providers	Ratio of population to mental health providers	24	440:1	960:1	3230:1	2588:1	3475:1
Preventable Hospital Stays	# of hospital stays for ambulatory-care sensitive conditions per 1,000 Medicare enrollees	27	4648	4966	6057	4751	6057
Flu Vaccines	% of Medicare enrollees who receive an influenza vaccination	27	42%	43%	33%	37%	33%
Mammography Screening	% of Medicare enrollees ages 65-74 that receive mammography screening	27	40%	37%	30.5%	34.5%	28%

The uninsured rate for the counties DHS serves is nearly twice the state and national rates. Both the United States and Texas have an uninsured rate of 10% while the median uninsured rate for the counties DHS serves is 19 percent. The disparities with professional health care providers are even more problematic. For example, for DHS's entire service area, the median ratio of population to primary care

physicians is 55% greater than the Texas ratio, but the ratio for DHS primary services area is 77.1% greater than the Texas ratio. For Dentists, the median ratio of DHS's entire service area is more than two times the Texas's ratio. For mental health service providers, it is even worse. While the ratio for Texas is 1 medical health professional for every 960 people, that ratio is 1:3230 for the entire DHS service area. There are 3.36 times more people per health care professional in DHS's entire service area. The disparity is not quite as pronounced for the primary service area with 1 health care professional for every 2588 people. In the secondary service area the ratio is worse. The population ratio of people per mental health providers is 3475:1, a ratio that is 363% of the Texas ratio. Thus, when people are in need of health care professionals whether they are primary care physicians, dentists, or mental health providers, people within DHS's service areas are going to have less access to health care.

Social and Economic Factors

Socioeconomic factors can have a profound impact not just on an individual but also on the community within which an individual lives. The more resources an individual or household has, the greater the ability for that individual/household to act affirmatively on its behalf. When a community has high concentrations of poverty, low income, and low educational attainment, those communities tend to have less resources that benefit the entire community. Both the public and private sectors are compromised when a community lacks economic diversity. First, public institutions are not able to pool resources (in the form of fees and taxes) to adequately fund and maintain their public institutions like schools, hospitals, parks, libraries, and infrastructure. Second, in economically distressed communities, the members of the community do not have enough disposable income to spend in the private sector limiting the growth and investment in the private sector, and/or community members lack the social capital, in the form of a well-educated population, to spur growth and innovation in the private sector. Table 101 compares the social and economic factors of the counties DHS services with the state and national characteristics.

Table 101. Comparison of County Rankings for Social and Economic Factors: Measures for Nation, Texas, and Counties Serviced by Driscoll Health System.

	Descript	Number of Counties	US Overall	TX Overall	DHS Counties	Primary Service Area	Secondary Service Area
High School Graduation	% of 9th grade cohort that graduates in 4 yrs	24	90	89	88	87	87
Some College	% of adults ages 25-44 with some post-secondary education	27	58	61	44	45.6	44
Child Poverty	% of children under the age of 18 in poverty	27	21	21	34	29.5	38
Income Inequality	Ratio of household income at the 80 th percentile to income at the 20 th percentile	27	4.4	4.9	5.3	4.9	5.5
Unemployment Rate	% of population age 16 and older unemployed but seeking work	27	4.4	4.3	6.4	6.15	6.9
Children in Single Parent Household	% of children that live in a household headed by a single parent	27	32	33	37	36.5	38
Social Associations	# of membership associations per 10,000 ppl	27	12.6	7.6	8.0	8.95	5.0
Violent Crime rates	# of violent crime offenses per 100,000 pop	27	205	420	320	419	312
Injury deaths	# of deaths due to injury per 100,000 pop	27	82	56	66	69	65

Table 101 shows that median high school graduation rates for the DHS area are similar to the national and state averages, though quite a bit fewer adults in the DHS area have had some post-secondary education. Even more problematic are the median child poverty rates for the DHS counties relative to the state and national rates. The median child poverty rate for DHS counties is 34% compared to 21% for the state of Texas. The median poverty rates for DHS counties are 61.6% higher than the Texas and US child poverty rate. The median income inequality is also substantially higher than the median inequality ratio for all the counties served by DHS and for the secondary service area. The unemployment rate for the primary service area is 43% higher than the Texas's unemployment rate, but the unemployment for the secondary service area is more than 60% higher. This is particularly problematic when one takes into consideration that the primary way for people to have access to health care is through their employer. The educational attainment and unemployment rate of adults in addition to income inequality in a community are particularly important for children's life chances, as children have neither the autonomy nor the ability to directly shape their material conditions.

Physical Environment

The quality of the air we breathe, the water we drink, and the housing in which we shelter creates a foundation upon which all other quality of life indicators are built. The quality of our physical environment can have a profound impact on an entire community's health and well-being. The size of particles in the environment can cause health problems. According to the EPA small particles, those less than 10 micrometers in diameter, pose the greatest problems, affecting both the lungs and the heart. Studies have demonstrated that exposure to particulates can lead to premature death, cardiovascular, and respiratory issues. Moreover, people with heart/lung diseases as well as children and elders are vulnerable to the adverse impacts of particulates in the air (EPA 2018). As with clean air, access to clean water is fundamental to community health. The Centers for Disease Control and Prevention (CDC) report that "approximately 19.5 million Americans fall ill every year from pathogens as a result of contaminated drinking water from public water systems" (2017). As with polluted air, children; seniors; and the ill are vulnerable to contaminants in drinking water. Quality of housing and commute issues also have a fundamental impact on our quality of life, as these are the spaces within which we engage in social reproduction—the work necessary to be productive workers and contributing citizens. If our shelter conditions are stress-laden environments, those conditions can adversely impact people's ability to engage in other spheres within the community. Long commute times to work also compromise adults' abilities to participate in the growth, development, and support of youth. The data presented in Table 102 show DHS's counties' physical environment attributes, relative to Texas and the United States conditions.

Table 102. Comparison of 2019 Physical Environment Conditions: Measures for Nation, Texas, and Counties Served by Driscoll Health System.

	Description	Number of Counties	US Overall	TX Overall	DHS Counties	Primary Service Area	Secondary Service Area
Air Pollution	Average daily density of fine particulate matter in micrograms per cubic meter (PM2.5)	27	9.4	8.8	9.1	9.25	8.6
Drinking Water Violations	Indicator of the presence of health-related water violations. Percent indicates proportion of counties with presence of water violations	27	N/A	N/A	70.4%	62.5%	73.7%
Severe Housing Problems	% of households with overcrowding, high housing costs, or lack of kitchen or plumbing facilities	27	14	18	19	16.5	20
Driving Alone	% of workforce that drives alone to work	27	81	80	81	80.5	81
Long Commute to work	Among workers who commute in their car alone, % community >30 minutes	27	31	38	28	29.5	22

Note: Missing values are common in individual measures. Not all counties, especially smaller counties, will compile data on each of the over thirty measures used to calculate the ranking score or will have a sample size too small for any meaningful comparison. PHI substitutes the state average for missing values in the calculation of rankings; this is a standard, accepted technique for the treatment of missing data.

Table 102 shows that the average daily density of air pollution in DHS counties is somewhat higher than the state average but lower than the national average. The table also shows that a clear majority of DHS counties experienced health-related water violations. The proportion of DHS counties experiencing severe housing problems is similar to those of Texas overall, with the primary service area faring somewhat better than both the secondary service area and Texas overall. Moreover, the percent driving alone appear to be comparable to state and national percentages, and a smaller proportion of workers within the DHS service area have long commutes to and from work.

While DHS counties' physical environment appear to be very similar to the state and national attributes, the social and economic factors and accessibility to clinic care appear to be much more problematic for health outcomes. The social and economic characteristics within the counties DHS serves suggest that substantial portions of the populations have such limited resources that their capacity to make choices to enhance their life chances is constrained by their material conditions. When coupling those limited economic and social resources with a lack of access to health care and health professionals, it becomes apparent that the health outcomes of the communities in general and the children living in those communities are compromised, even in the face of good-faith efforts by medical professionals and administrators.

How Can We Improve Our Community's Health?

In conducting a community health needs assessment that focuses on children's health and well-being, the strategies that must be employed to address children's health and well-being are different from the strategies focusing on adults' health and well-being. Children have limited autonomy and control of material resources to make decisions and take actions on their behalf. Thus, a fundamental way to ensure that children have a healthy life is to support the families and the parents of those children. When parents/guardians of children thrive, children are more likely to thrive; conversely, when parents/guardians of children are distressed, their children are more likely to experience distress. By using a multi-sector approach to addressing children's well-being, the overall health of our entire community can improve.

Support Females' Access Reproductive Health Care

According to the Guttmacher Institute (2016), 45% of all pregnancies in the U.S. in 2011 were unintended. Among teens (females ages 15-19), the rate was closer to 75%. In 2019, the median teen birth rate in counties served by DHS was 57 per 1000 females between the ages of 15 and 19. Within the primary area the rate was 46; within the secondary area the rate was 62. The Texas rate was 37. Young women who get pregnant are less likely to continue their education and more likely to find themselves and their families below the official poverty line (Ricketts, Klinger, and Schalwberg 2014).

In 2010, 54% of all pregnancies in Texas were unintended with 61% of those pregnancies resulting in births. Births resulting from unplanned pregnancies are associated with a whole host of negative outcomes for both the mother and the child. Women who have unplanned pregnancies are more likely to experience delayed prenatal care (Mayer 1997; Kost and Linberg 2015), have low birth weight (Dott, Rasmussen, Hogue, and Reefhuis 2009) or preterm babies (Orr, Miller & Baboness 2000). Women who have unplanned pregnancies are also less likely to alter their behavior (e.g stop smoking, drinking alcohol, consuming caffeine, take prenatal vitamins) (Cheng, Schwartz, Douglas, and Horon 2009). Women who have unplanned pregnancies also demonstrate an increased likelihood of maltreating the children resulting from those pregnancies (Guterman 2015). Additionally, women who have children from unplanned pregnancies are also shown to be at increased risk of experiencing post-partum depression (Cheng, Schwartz, Douglas, and Horon 2009). Conversely, women who have children as a result of planned pregnancies engage in more optimal prenatal behaviors and experience higher rates of their children having better health and learning outcomes. Supporting women having access to reproductive health care including long-acting, reversible contraception can have a profound impact not just on women and their families, but also on the health care system and state governments that provide the care for the mothers and children resulting from unplanned pregnancies. Citing work by Frost, Sonfield, Zolna, and Finer (2014), the Guttmacher Institute (2016) reports "By helping women avoid unintended pregnancies, publicly funded family planning services saved taxpayers \$13.6 billion in 2010, or \$7.09 for every \$1 spent."

Support the expansion of The Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program

The MIECHV Program is administered by the Health Resources and Services Administration (HRSA) in partnership with the Administration for Children and Families (ACF). This program uses a two-generation approach to services that begins with the premise: to support children, we must support their parents. According to the Health Resources and Services Administration (2019), the program is rooted in social science research that shows “home visits by a nurse, social worker, early childhood educator, or other trained professional during pregnancy and in the first years of a child’s life helps prevent child abuse and neglect, supports positive parenting, improves maternal and child health, and promotes child development and school readiness.”

In 2018, the entire state of Texas had 3,817 households participate in the program; the program was present in the following counties DHS serves: Willacy, Starr, Cameron, Hidalgo, Nueces, San Patricio, and Victoria. Twenty DHS counties do not have the program in their communities; each of those twenty counties are identified as rural communities. People living in rural communities face significant obstacles to access to health care (Wishner 2016); a program that sends health care professionals to a rural community can have a profound, positive impact on members of such communities. Rural communities are associated with lower educational attainment rates, higher rates of unemployment, greater disability rates, less access to employer sponsored health care, and less access to health care in general (Foutz, Artiga, and Garfield 2017). All these factors are considered stressors for households and communities. By supporting the expansion of this type of program to those counties-not-yet-served, DHS can anticipate that some of the challenges associated with first-time parenthood can be addressed and can also help address preventable hospital visits (such as those related to constipation, dehydration, phimosis, diaper rash) that were observed in the primary/secondary diagnoses among inpatient, emergency department, and clinic visits.

Advocate for Increase Access to Health Care, via Medicaid, for Adults and Children

The uninsured rate of individuals under the age of 65 in DHS counties range from a low of 14% (Goliad) to a high of 30% (Hidalgo) with a median uninsured rate of 19%. According to the American Psychological Association, “Uninsured adults reported an average stress level of 5.6 in the previous month (on a 10-point scale, where 1 is “little or no stress” and 10 is “a great deal of stress”), while those with health insurance reported a significantly lower average stress level (4.7).” Those with chronic conditions experience higher stress levels than those without. When adults get access to health insurance, they are more likely to seek care (Johnson 2017) for both episodic and chronic illnesses. According to Paradise (2017) “uninsured people are markedly less likely than Medicaid beneficiaries to get care and significantly more likely to delay or go without needed care due to cost.” Having Medicaid actually promotes the economic stability of low-income families by reducing financial strain and protecting families from catastrophic medical debt. Increasing adults’ access to insurance, including Medicaid, (thereby, increasing access to health care) can lower their stress levels. For those uninsured adults who have children in their household, Medicaid expansion or access to other means-tested health insurance programs can alleviate one source of stress for households on the economic margins.

Measures to ensure that children are insured, even though Medicaid, CHIP, or other means-tested health insurance programs, can have a positive impact on health and well-being. According to Smith and Chen (2016), being uninsured in childhood has been associated with increased risk of hospitalization, childhood mortality, and worse adult health outcomes (Shakib et al. 2015; Tom et al. 2013; Hakim and Bye 2001; Johnson and Schoeni 2011; Rosen et al. 2009). Paradise (2017) also reports that “research documents that Medicaid coverage of pregnant women and children has contributed to dramatic declines in infant and child mortality...[,] that Medicaid eligibility during childhood also has long-term positive impacts, including reduced teen mortality, reduced disability, improved long-run educational attainment, and lower rates of emergency department visits and hospitalization in later life.” Measures to ensure that Medicaid-eligible children get enrolled in the program can have both immediate and long-term benefits for individuals, communities, and the health care system—even as increased access to health insurance leads to increased health care service utilization (Johnson 2017).

Address Respiratory Problems

The data indicated that asthma is a frequent reason for hospital admissions and emergency department visits. Both indoor and outdoor air quality can play important roles in avoiding potential asthma episodes, but a coordinated effort to work with stakeholders outside the hospital system to address air quality and home environments that can trigger breathing problems is needed. The Asthma Coalition of Texas is a group that is working in partnership with others to address environmental conditions that trigger asthma. As industrial buildout expands in the Coastal Bend and in the Rio Grande Valley, collaboration with groups such as these may help to address the broader environmental factors that can affect respiratory conditions.

DHS has hired community health workers specifically trained in asthma management to help families in their homes reduce triggers and ensure compliance with asthma management plans. Research has demonstrated that programs that include home visits have a significant, positive impact in helping families control their children’s issues with asthma (Allison, Gundy, and Jain 2016). Colorado’s, “Just Keep Breathing” program, which is a home visitation program for families with children who have asthma, demonstrated significant improvements in usage of medical devices and in improved asthma control (Childrens Hospital Colorado 2108). Expanding DHS’s home visit program is encouraged, as is ensuring that children have a medical home. Diedhiou et al (2010) found that children with asthma who have a medical home are less likely to visit the emergency department.

Address Mental and Behavioral Health Issues

While no family, race, ethnicity, or social class is immune from the risk of behavior/mental health issues, some family and environmental factors can make some children more vulnerable to mental health and behavioral problems and less likely to be screened or diagnosed. Young children in low income neighborhoods are more likely to experience behavioral problems that affect their development, and young children of color are more likely to experience conditions that place them at risk for developing emotional/behavioral conditions (Cooper, Masi, and Vick 2009). The unrelenting stress of living in impoverished conditions can overwhelm a child’s stress response system and lead to “toxic

stress;” according to Shonkoff et al 2012, “toxic stress affects a child’s brain architecture and increases the risk of developing poor physical, behavioral, socio-emotional, and cognitive health” (Francis, DePriest, Wilson, Gross 2018). Though these conditions may seem daunting, it is important to also know that parents and caregivers can have a positive impact despite the material stressors of poverty. Parents and caregivers play an important role in supporting children’s healthy development. Interventions that target parenting can reduce the impact of income on children’s development by up to 50% (Cooper, Masi, and Vick 2009).

Education campaigns that inform the public about the risk factors (such as domestic violence exposure) that can contribute to emergence of mental and behavioral health issues and help to reduce the stigma associated with mental health conditions can help with increased diagnoses and access to treatment of mental and behavioral health issues.

DHS’s commitment to hiring more mental health professionals can create opportunities for more mental health screenings, diagnoses, treatment, and management of mental and behavioral health conditions. While hiring more health care professionals may help with treating/managing children’s mental and behavioral health conditions, it is important to also consider the root causes of those problems. The child poverty rates in DHS counties are high, with the median child poverty rate being 34%. The income inequality in the counties DHS serves is also substantially greater than the Texas ratio. Great wealth and income disparity pose a challenge to the well-being of individuals and communities (Eitzen, Zinn and Smith 2010). Supporting programs and policy initiatives, like access to affordable, quality housing, high-quality schools, day-care, and affordable after-school programs that enhance economically vulnerable people’s quality of life and services can help address the conditions that can exacerbate mental health and behavioral problems.

Coordinate with Local Schools to Promote Health and Wellness

Parents—mothers and fathers—today spend less time participating in civic organizations and voluntary associations and more time with their children than parents of the 1960s (Wang 2013). With the decline in civic participation, there is also a concurrent decline in attendance at religious institutions and religious affiliation (Pew Research Center 2019). Moreover, schools today actively encourage their parents to be involved in their children’s schooling experiences (Lareau 1986). Because of these converging trends, schools can play an increasingly important role in supporting wellness for the broader community. Schools and school systems already have a history of established private-public partnerships. Historically, these partnerships have centered on relationships with businesses, but this model can be applied to other community partnerships, like hospital systems. Social workers can be positioned in schools so that parents can get help finding jobs and get access to other social services, while community health workers can help parents with learning about health insurance and health care programs.

Hospital systems can collaborate with school districts to share information about the importance of nutrition and physical exercise, work with the schools systems to socialize children regarding the importance of healthy lifestyle behaviors, and encourage schools to structure opportunities for children

to be active. Schools are tasked with teaching children essential knowledge and skills, and while we associate those skills with occupations/employment, knowledge and habits about healthy life choices can also be disseminated at schools. Children take what they learn at school to the family members in their homes (Gonzales 2015). This characteristic of schooling can be used to help with information dissemination and encouraging healthy habits/lifestyles. Goslin (1965) states that schools have been spaces where social reforms have been implemented.

Increase Collaboration within Communities, across Organizations

Historically, social programs designed to help vulnerable populations work parallel to, rather than integrated with, other programs. This can lead to redundancies, inefficiencies, and increased fragmentation. Different efforts at integrating social and health care services have been attempted with varying degrees of success and failure. Fisher and Elnitsky (2012) conducted a review of different approaches to services integration, documenting the rationale of various approaches, their successes, and the factors that contributed to integration attempts' successes and failures. This meta-analysis of integration efforts is worth examination, especially for organizations that work with populations whose needs span multiple services areas. Given that DHS is renowned for working with acutely and chronically ill children and their families, serious consideration about how to augment their social work services may be warranted.

Collaboration, though, need not be limited to how to integrate health care and social services. Given the extremely high ratio of the general population to health care providers (especially mental health providers and dentists), collaborating with hospital systems within DHS's service areas to develop strategies to increase the overall number health care professionals in service areas may be more effective than only setting hiring goals within DHS.

The County Health Rankings and Roadmaps website offers resources on how to identify and engage partners to take actions to improve community health. The Population Health Institute at the University of Wisconsin-Madison points out the greatest achievements in public health pursued population-based/systemic strategies, rather than individual-based interventions.

Limitations

An abbreviated timeline compelled the investigators responsible for developing this report to be selective about the information included and addressed in the CHNA. This section details observations and reflections that provide context for the format of the 2019 CHNA and may be useful for future community health needs assessments.

Having access to a report describing the Driscoll Health System, its campuses, and descriptions of any sub-specialties of the various campuses would help researchers/ data analysts/ investigators understand the variability of the diagnoses by campus.

Developing a protocol for case identifiers for individuals, not just visit counts, to the various departments would allow investigators to differentiate between patients who have limited interactions with the hospital and those who have repeated interactions, and to compare/contrast their socio-demographic characteristics and the conditions that lead to more frequent interactions.

Extensive research has documented gender and race/ethnicity disparities in health and health issues. Sociodemographic characteristics of the patient population were only examined in terms of overall frequencies. When sub-analyses of the population's visits and diagnoses were conducted for the emergency department, inpatients, and outpatients, the only sub-analyses conducted were those conducted by age category; sub-analyses were not conducted for gender nor race/ethnicity.

In conducting the analyses of hospital data, the investigators focused exclusively on the top ten specific principle and secondary diagnoses. As a deviation from (and an improvement over) the past CHNAs, investigators examined all secondary diagnoses when considering which diagnoses occurred most frequently. For future CHNAs with more standard timelines, creating aggregates of diagnoses subsets would help produce more accurate, meaningful discussion around diagnoses. For example, codes for asthma begin with "J45," but can have separate sub-codes such as: J45.2X Mild intermittent, J45.3X Mild persistent, J45.4X Moderate persistent, J45.5X Severe persistent; then X=0 uncomplicated, X=1 with exacerbation, X=2 with status asthmaticus, J45.9XX Other and unspecified asthma, and J44.XXX which is asthma with chronic obstructive pulmonary disease. The abbreviated timeline for this CHNA did not allow for the necessary background work to determine which codes would have been appropriate for grouping. This may have affected the investigators' understanding of the scope of particular health issues.

The investigators initially asked for the guarantor's employment status. Sociologically speaking, work is more than just the activity people do to earn money so they can pay their bills. Work has a profound impact on the way people live, the choices they make, the values they emphasize, the concerns they have, and the constraints with which they grapple. We anticipated that occupational status of the guarantor might be significantly related to variations in the types of health issues that bring patients to the hospital system. Upon reviewing the employment data, the diversity in people's responses to the question about employment proved too problematic to engage with given the time constraints.

The DHS hospital administrator expressed interest in obesity, diabetes, asthma, and mental health issues. A systemic approach was utilized for the analyses in order to replicate the procedure for every data source: emergency department, outpatient, inpatient, and clinic. The investigators privileged a systematic approach over selectively searching for information to eliminate selection bias. Additionally, methodological constraints became apparent as attempts were made to examine the issues of concern. First, issues pertaining to obesity seem to suggest they were only recorded when they were striking and were related to other conditions. For example, BMIs placing patients in the top 95th percentile or severe, morbid obesity and "obesity that created complications for pregnancy" were both secondary diagnoses. To ascertain the prevalence of obesity among DHS patients, having access to the height, weight, and age of patients would enable investigators to calculate patients' BMIs and classify them into one of the six BMI categories that range from underweight to Class III obesity. Those data were not available for this CHNA. Similarly, to assess the prevalence of mental health issues (or even specific mental health issues like major depression, anxiety, and/or suicide ideation), screenings would need to be conducted for all patients entering the facilities. The investigators were unaware of any such data for this CHNA. These issues should be revisited in preparation for the next CHNA, especially given the concerns of medical professionals.

These analyses focused on the different DHS departments and clinic locations; analyses of issues by the different geographic locations where people live would also provide useful information. According to the Office of Disease Prevention and Health Promotion (2019), citing a 2006 World Health Organization report, "The environment directly affects health status and plays a major role in quality of life, years of healthy life lived, and health disparities. Poor air quality is linked to premature death, cancer, and long-term damage to respiratory and cardiovascular systems... Globally, nearly 25% of all deaths and the total disease burden can be attributed to environmental factors." There are spaces within the DHS service area that have been experiencing industrial buildout and others that have been spared. Being able to compare the health issues that bring people to use DHS services by the places within which they live their lives may help illuminate community health issues that require unique strategies to address those issues.

Another issue related to location and unexplored for this CHNA—though it is critical to community health— is rurality. Research shows that people living in rural communities have significantly lower educational attainment and income levels than their urban counterparts; rural communities also have higher rates of poverty, unemployment, and disability than urban communities (Foutz, Artiga, Garfield 2017). Research examining access to health care after the passage of the Affordable Care Act says that health care in rural communities in states that did not accept Medicaid expansion saw their accessibility to health care decrease. Adam Searing (2018) of Georgetown University’s Health Policy Institute’s Center for Children and Families reported that between 2010-2018, there were six states that had at least five rural hospital closures, with Texas having the most closures: 15. The Kaiser Family Foundation created an interactive county map based on the Index of Relative Rurality; the index ranges from zero (indicating the lowest level of rurality) to one (indicating the most rural). The rationale and methods for creating the index and its benefits are discussed by Waldorf and Kim (2018). For the 27 counties DHS serves, IRR scores ranged from a low of .32 for Hidalgo County to a high of .71 for Kenedy County. The median IRR score was .52. Given the social science research that demonstrates the challenges rural communities face and the fact that 24 of the 27 counties served by DHS are classified as rural, conducting sub-analyses of the hospital data by rurality could be valuable in shaping recommendations.

For each of the different departments and clinic locations, an overview of the patient population’s socio-demographic characteristics was provided. In future reports, the investigators would like to provide additional context for that information. For example, providing a brief overview of socio-demographic characteristics of the general population and the child populations’ of the community areas reported by the American Community Survey (ACS), which is an on-going yearly survey conducted by the Census Bureau, would enable CHNA readers to consider whether the hospital patient system “looked like” the broader community. An Appendix on page table summaries of important ACS information—like population size, population breakdown by race and Hispanic origin, income measures (per capita income in months, median household income, and poverty), unemployment rates, and uninsured rates—would be beneficial.

The analyses for this community health needs assessment relied exclusively on information provided by Driscoll Health System. While these data allowed for rich analyses of issues that brought community members into contact with DHS, relying exclusively on these data is a type of sampling bias as it only provides information about people who are actually interacting with this specific health care system. Among the important purposes of a community health needs assessment is to conduct a systematic analysis of the health needs and concerns of a community so that issues can be identified and more effective, evidence-driven action plans can be designed. By focusing on one source of data, a very specific perspective on the needs of the community is created. Ideally, a community health needs

assessment would not only define the community being served, but would also identify various key stake holders within that community including those in hard-to-reach and/or vulnerable populations. Moreover, a mixed methods approach to collecting data, which would include both quantitative and qualitative approaches can allow for richer, more nuanced analyses of the needs of a community.

Traditional health care models focus on individuals, individual behaviors, and how those affect health outcomes. The reality is that individuals live their lives in broader communities, constrained by both the resources they have, the resources the community has, and the environment within which they live. Community health needs assessments are tools that can help stakeholders shift their lens when thinking about health and healthcare to examine health and well-being (and sickness) at the population level. A CHNA approach that involves a diversity of key stake holders fosters the development of a perspective that compels individuals to think about health care and wellness systemically. It enables investigators and healthcare providers to ask questions about the patterns they observe and to look for systemic solutions that improve the overall health and well-being of the entire community, not simply those that seek sick care.

References

- Allison, D. Richard, Karl Van Gundy, Jose Vempilly, and Vipul Jain. 2016. "A Single Home Visit Improves Patient Adherence and Reduces Exacerbations in Patients with Severe Asthma and COPD." *CHEST Journal* 150(4):15A.
- American Psychological Association. 2018. "Stress in America: Uncertainty About Health Care." Retrieved December 18, 2019 (<https://www.apa.org/news/press/releases/stress/2017/uncertainty-health-care.pdf>).
- Centers for Disease Control. 2018. "Community Health Assessments & Health Improvement Plans." Retrieved December 27, 2019 (<https://www.cdc.gov/publichealthgateway/cha/plan.html>).
- Cheng, Diana, Eleanor B. Shwartz, Erika Douglass, and Isabelle Horon. "Unintended Pregnancy and Associated Maternal Preconception, Prenatal, and Postpartum Behaviors." *Contraception* 79(3):194-198.
- Children's Hospital Colorado. 2018. "Children's Hospital Colorado 2018 Health Needs Assessment." Retrieved December 18, 2019 (<https://www.childrenscolorado.org/community/community-health/community-health-needs-assessment/>).
- Correct Code Chek. 2019. Retrieved December 14, 2019 (<https://correctcodechek.decisionhealth.com/Cpt/Detail.aspx?Code=99214>).
- Cooper, Janice, Rachel Masi, and Jessica Vick. 2009. "Social Emotional Development in Early Childhood." *National Center for Children in Poverty*. Retrieved December 28, 2019. (http://www.nccp.org/publications/pdf/text_882.pdf).
- Curtin, Sall C. and Melonie Heron. 2019. "Death Rates Due to Suicide and Homicide Among Persons Aged 10-24: United States, 2000-2017." *NCHS Data Brief* 352 (October):1-8. U.S. Department of Health and Human Services. Retrieved December 24, 2019

(<https://www.cdc.gov/nchs/products/databriefs.html>)

Diedhiou, A, JC Probst, JW Hardin, AB Martin, and S Xirasagar. 2010. "Relationship Between Presence of a Reported Medical Home and Emergency Department Use among Children with Asthma."

Medical Care Research and Review 67(4):450-475.

Dott, Mary, Sonja A. Rasmussen, Carol J. Hogue, and Jennita Reefhuis. 2015. "Association Between Pregnancy Intention and Reproductive-health Related Behaviors Before and After Pregnancy Recognition, National Birth Defects Prevention Study, 1997-2002." *Maternal and Child Health Journal* 14(3):373-381.

Eitzen, D. Stanley, Maxine Baca Zinn, and Kelly Eitzen Smith. 2010. *In Conflict and Order: Understanding Society*. Boston, MA: Allyn and Bacon.

Environmental Protection Agency. 2018. "Health and Environmental Effects of Particulate Matter (PM)" Retrieved December 27, 2019 (<https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>).

Fedinick, Kristi Pullen, Mae Wu, and Erick Olson. 2017. "Threats on Tap: Widespread Violations Highlight Need for Investment in Water Infrastructure and Protections." Natural Resources Defense Council: Report. Retrieved December 27, 2019 (<https://www.nrdc.org/sites/default/files/threats-on-tap-water-infrastructure-protections-report.pdf>).

Fisher, Michael P. and Christine Elnitsky. 2012. "Health and Social Services Integration: A Review of Concepts and Models." *Social Work in Public Health* 27(5):441-468.

doi: 10.1080/19371918.2010.525149

Foucault, M. [1975] 1995. *Discipline and Punish: The Birth of the Prison*. Translated by A. Sheridan. United Kingdom: Vintage Books.

Foutz, Julia, Samantha Artiga, and Rachel Garfield. 2017. "Issue Brief: The Role of Medicaid in Rural America." The Henry J. Kaiser Family Foundation. Menlo Park, CA:1-12.

- Francis, Lucine, Kelli DePriest, Marcella Wilson, and Deborah Gross. 2018. "Child Poverty, Toxic Stress, and the Social Determinants of Health Screenings and Care Coordination." *The Online Journal of Issues in Nursing* 23(3):1-14. doi:10.3912/OJIN.Vol23No03Man02.
- Frost, J.J., A. Sonfield, M.R. Zolna, and L.B. Finer. 2014. "Return on Investment: a Fuller Assessment of the Benefits and Cost Savings of the US Publicly Funded Family Planning Program." Guttmacher Institute. 2014 Dec 92(4):696-749.
doi: 10.1111/1468-0009.12080, <http://onlinelibrary.wiley.com/enhanced/doi/10.1111/1468-0009.12080/>
- Gonzales, Sandra M. 2015. "Abuelita Epistemologies: Counteracting Subtractive Schools in American Education." *Journal of Latinos and Education* 14(1):40-54.
doi: 10.1080/15348431.2014.944703
- Goslin, David. 1965. "The Functions of School in Modern Society." *School in Contemporary Society* Chicago: Scott Foresman.
- Guterman, Kai. 2015. "Unintended Pregnancy as a Predictor of Child Maltreatment." *Child Abuse & Neglect* 48(October):160-169. Retrieved December 27, 2019
(<https://doi.org/10.1016/j.chiabu.2015.05.014>).
- Guttmacher Institute. 2016. "State Facts about Unintended Pregnancy: Texas." Retrieved December 28, 2019
(https://www.guttmacher.org/sites/default/files/factsheet/tx_18.pdf).
- Hakim, R. B. and B.V. Bye. 2001. "Effectiveness of Compliance with Pediatric Preventive Care Guidelines Among Medicaid Beneficiaries." *Pediatrics* 108(1):90-7. Retrieved December 27, 2019
(<http://www.ncbi.nlm.nih.gov/pubmed/11433059>).
- Health Resources and Services Administration: Maternal and Child Health. 2019. "Texas MIECHV Program FY 2018." Retrieved December 28, 2019

(<https://mchb.hrsa.gov/sites/default/files/mchb/MaternalChildHealthInitiatives/HomeVisiting/pdf/tx.pdf>).

Johnson, Carolyn. 2017. "The Uninsured are Over-Using Emergency Rooms and Other Health Care Myths." *Washington Post*. Retrieved December 28, 2019

(<https://www.washingtonpost.com/news/wonk/wp/2017/12/27/the-uninsured-are-overusing-emergency-rooms-and-other-health-care-myths/>).

Johnson, R. C. and R. F. Schoeni. 2011. "Early-life Origins of Adult Disease: National Longitudinal Population-based Study of the United States." *American Journal of Public Health* 101(12):2317–2324. Retrieved December 27, 2019

(<https://doi-org.manowar.tamucc.edu/10.2105/AJPH.2011.300252>).

Kasier Family Foundation. 2017. "Rurality in the United States by County." Retrieved December 27, 2019

(https://public.tableau.com/profile/kasier.family.foundation#!/vizhome/RuralityintheU_S_byCounty/RuralityintheUnitedStatesbyCounty).

Kost, Kathryn and Laura Lindberg. 2015. "Pregnancy Intentions, Maternal Behaviors, and Infant Health: Investigating Relationships with New Measures and Propensity Score Analysis." *Demography* 52:83-111. (<https://doi.org/10.1007/s13524-014-0359-9>).

Lareau, A. 1987. "Social Class Differences in Family-School Relationships: The Importance of Cultural Capital." *Sociology of Education* 60(2):73-85.

doi:10.2307/2112583.

Martin, Karin A. 1998. "Becoming a Gendered Body: Practices of Preschool." *American Sociological Review* 63(4):494-511.

Mayer, J.P. 1997. "Unintended Childbearing, Maternal Beliefs, and Delay of Prenatal Care." *Birth* 24(4):247-252.

Office of Disease Prevention and Health Promotion. 2019. "Environmental Quality." Retrieved December 29, 2019

- (<https://www.healthypeople.gov/2020/leading-health-indicators/2020-lhitopics/Environmental-Quality>).
- Orr, S.T., C.A. Miller, S. James, and S. Babones. 2000. "Unintended Pregnancy and Preterm Birth." *Pediatric Perinatal Epidemiology* 14(4):309-13.
- Paradise, Julia. 2017. "Data Note: Three Findings about Access to Care and Health Outcomes in Medicaid." The Henry J. Kaiser Family Foundation. Menlo Park, CA.
- Pew Research Center. 2019. "In U.S., Decline of Christianity Continues at Rapid Pace: An Update on America's Changing Religious Landscape." Washington, D.C.: Pew Research Center. Retrieved on December 27, 2019 (<https://www.pewforum.org/2019/10/17/in-u-s-decline-of-christianity-continues-at-rapid-pace/>).
- Prüss-Üstün A. and C. Corvalán. 2006. "Preventing Disease Through Healthy Environments." Geneva, Switzerland: World Health Organization. Retrieved December 29, 2019 (http://www.who.int/quantifying_ehimpacts/publications/preventingdisease.pdf).
- Ricketts, Sue, Greta Klingler, and Renee Schwalberg. 2014. "Game Change in Colorado: Widespread Use of Long-Acting Reversible Contraceptives and Rapid Decline in Births Among Young, Low-Income Women." *Perspectives on Sexual and Reproductive Health* 46(3):125-132.
- Rosen, H., F. Saleh, S.R. Lipsitz, J.G. Meara, and S.O. Rogers. 2009. "Lack of Insurance Negatively Affects Trauma Mortality in US Children." *Journal of Pediatric Surgery* 44(10):1952–1957.
- Searing, Adam. 2018. "More Rural Hospitals Closing in States Refusing Medicaid Coverage Expansion." Washington, D.C: Center for Children & Families of the Georgetown University Healthy Policy Institute. Retrieved December 29, 2019 (<https://ccf.georgetown.edu/2018/10/29/more-rural-hospitals-closing-in-states-refusing-medicaid-coverage-expansion/>).
- Shonkoff J.P., A.S. Garner, B.S. Siegel, M.I. Dobbins, M.F. Earls, A.S. Garner, and D.L. Wood. 2012. "The

- Lifelong Effects of Early Childhood Adversity and Toxic Stress.” *Pediatrics* 129(1):e232-e246.
doi:10.1542/peds.2011-2663
- Shakib, J., K. Buchi, E. Smith, K. Korgenski, and P.C. Young. 2015. “Timing of Initial Well-child Visit and Readmissions of Newborns.” *Pediatrics* 135(3):469–474.
- Smith, Anna Jo Bodurtha and Alyna T. Chien. 2019. “Adult-oriented Health Reform and Children’s Insurance and Access to Care: Evidence from Massachusetts Health Reform.” *Maternal and Child Health Journal* 23(8):1008-2004.
- The Children’s Defense Fund. 2019. “Child Poverty in America 2017: National Fact Sheet.” Retrieved December 18, 2019
(<https://www.childrensdefense.org/wp-content/uploads/2018/09/Child-Poverty-in-America-2017-National-Fact-Sheet.pdf>).
- Tom, J. O., R. Mangione-Smith, D.C. Grossman, C. Solomon, and C.W. Tseng. 2013. “Well-child Care Visits and Risk of Ambulatory Care-sensitive Hospitalizations.” *The American Journal of Managed Care* 19(5):354–60.
- U.S. Bureau of the Census. 2019. “American Community Survey.” Retrieved December 18, 2019
(<https://www.census.gov/programs-surveys/acs/data.html>).
- Waldorf, B. and A. Kim. 2018. “The Index of Relative Rurality (IRR) : US County Data for 2000 and 2010.” Purdue University Research Repository.
doi:10.4231/R7959FS8
- Wang, Wendy. 2013. “Parents’ Time with Kids More Rewarding than Paid Work—and More Exhausting.” Washington, DC: Pew Research Center. Retrieved December 27, 2019
(<https://www.pewsocialtrends.org/2013/10/08/parents-time-with-kids-more-rewarding-than-paid-work-and-more-exhausting/>).
- Whitaker, R. C., S.M. Orzol, and R.S. Kahn. 2006. “Maternal Mental Health, Substance Use and Domestic Violence in the Year After Delivery and Subsequent Behavior Problems in Children at Age 3

Years." *Archives of General Psychiatry* 63:551-560.

Wishner, Jane, Patricia Solleveld, Robin Rudowitz, Julia Paradise, and Larisa Antonisee. 2016. *A look at Rural Hospital Closures and Implications for Access to Care: Three Case Studies*. Washington, DC: Kaiser Commission on Medicaid and the Uninsured. Retrieved December 27, 2019 (<http://kff.org/medicaid/issue-brief/a-look-at-rural-hospital-closures-and-implications-for-access-to-care/>).

**Appendix A. University of Wisconsin Population Health
Institute: County Health Rankings and Roadmaps**

**County Health
Rankings & Roadmaps**
Building a Culture of Health, County by County

Compare Counties
2019 Rankings

	Texas	Aransas (ARA), TX X	Bee (BEE), TX X	Brooks (BRO), TX X	Calhoun (CAH), TX X	Cameron (CAM), TX X
Health Outcomes		194	144	238	41	131
Length of Life		171	102	172	52	25
Premature death	6,700	9,300	8,000	9,300	7,000	6,300
Quality of Life		195	186	241	72	232
Poor or fair health	18%	20%	23%	38%	19%	32%
Poor physical health days	3.5	3.9	3.9	5.2	3.7	4.8
Poor mental health days	3.4	3.7	3.5	4.2	3.5	4.0
Low birthweight	8%	10%	10%	9%	7%	8%
Health Factors		173	227	242	168	231
Health Behaviors		139	174	206	101	181
Adult smoking	14%	16%	17%	19%	15%	17%
Adult obesity**	29%	32%	29%	29%	31%	31%
Food environment index**	6.0	6.1	7.1	7.5	7.2	7.6
Physical inactivity**	23%	25%	24%	24%	23%	25%
Access to exercise opportunities	80%	81%	51%	52%	51%	60%
Excessive drinking	19%	16%	20%	13%	17%	15%
Alcohol-impaired driving deaths	28%	20%	21%	5%	31%	26%
Sexually transmitted infections**	520.4	532.5	651.0	677.7	365.4	485.6
Teen births	37	46	60	96	56	55
Clinical Care		23	191	222	164	178
Uninsured	19%	21%	18%	18%	18%	30%
Primary care physicians	1,660:1	1,980:1	4,680:1		1,490:1	2,110:1
Dentists	1,760:1	3,650:1	2,960:1	7,240:1	2,720:1	3,280:1
Mental health providers	960:1	1,280:1	2,500:1		10,870:1	1,970:1
Preventable hospital stays	4,966	3,116	6,958	8,436	7,010	4,732
Mammography screening	37%	46%	30%	26%	28%	35%
Flu vaccinations	43%	51%	29%	27%	30%	41%
Social & Economic Factors		230	227	242	181	228
High school graduation	89%	87%	88%	85%	92%	91%
Some college	61%	47%	35%	39%	50%	47%
Unemployment	4.3%	6.8%	6.4%	8.2%	5.8%	6.9%
Children in poverty	21%	32%	34%	53%	24%	38%
Income inequality	4.9	5.3	4.9	7.2	4.2	5.7
Children in single-parent households	33%	29%	37%	63%	35%	38%
Social associations	7.6	8.6	7.3	8.3	11.4	5.0
Violent crime**	420	477	252	234	512	319
Injury deaths	56	101	67	75	65	31
Physical Environment		91	167	198	168	237

	Texas	Aransas (ARA), TX X	Bee (BEE), TX X	Brooks (BRO), TX X	Calhoun (CAH), TX X	Cameron (CAM), TX X
Air pollution - particulate matter	8.8	9.3	9.4	8.6	9.4	9.3
Drinking water violations		No	Yes	Yes	Yes	Yes
Severe housing problems	18%	16%	16%	21%	16%	24%
Driving alone to work	80%	81%	80%	85%	83%	85%
Long commute - driving alone	38%	28%	31%	21%	21%	21%

** Compare across states with caution

Note: Blank values reflect unreliable or missing data

**County Health
Rankings & Roadmaps**
Building a Culture of Health, County by County

Compare Counties
2019 Rankings

	Texas	DeWitt (DEW), TX X	Dimmit (DIM), TX X PEER COUNTY	Duval (DUV), TX X PEER COUNTY	Goliad (GOL), TX X	Hidalgo (HID), TX X
Health Outcomes		100	150	243	116	68
Length of Life		105	71	242	161	13
Premature death	6,700	8,200	7,500	13,400	9,000	5,600
Quality of Life		111	215	233	63	214
Poor or fair health	18%	19%	31%	32%	18%	29%
Poor physical health days	3.5	3.8	4.5	4.7	3.7	4.4
Poor mental health days	3.4	3.6	3.9	3.8	3.6	3.9
Low birthweight	8%	8%	8%	9%	7%	8%
Health Factors		164	203	237	67	226
Health Behaviors		119	123	131	51	71
Adult smoking	14%	15%	16%	17%	14%	15%
Adult obesity**	29%	29%	29%	27%	31%	30%
Food environment index**	6.0	7.3	7.7	7.1	7.4	7.0
Physical inactivity**	23%	27%	24%	24%	25%	21%
Access to exercise opportunities	80%	62%	68%	58%	58%	53%
Excessive drinking	19%	17%	15%	15%	17%	14%
Alcohol-impaired driving deaths	28%	21%	14%	8%	13%	30%
Sexually transmitted infections**	520.4	610.7	919.9	1,545.5	770.2	434.3
Teen births	37	51	61	63	29	57
Clinical Care		113	131	159	91	209
Uninsured	19%	17%	18%	19%	14%	30%
Primary care physicians	1,660:1	1,900:1	1,540:1			2,210:1
Dentists	1,760:1	4,050:1	3,470:1		2,520:1	3,840:1
Mental health providers	960:1	10,110:1	3,470:1	11,270:1	3,780:1	1,880:1
Preventable hospital stays	4,966	5,975	5,547	6,426	6,859	5,746
Mammography screening	37%	31%	20%	29%	33%	33%
Flu vaccinations	43%	33%	34%	33%	40%	44%
Social & Economic Factors		191	232	240	113	235
High school graduation	89%	93%	83%	86%	99%	88%
Some college	61%	44%	42%	42%	61%	47%
Unemployment	4.3%	4.4%	5.1%	7.7%	4.9%	7.4%
Children in poverty	21%	27%	43%	40%	25%	41%
Income inequality	4.9	6.1	5.1	5.2	5.4	5.6
Children in single-parent households	33%	37%	48%	52%	37%	36%
Social associations	7.6	14.9	8.3	3.5	13.3	3.6
Violent crime**	420	538	85	611	211	312
Injury deaths	56	62	66	87	85	31
Physical Environment		181	75	150	66	238

	Texas	DeWitt (DEW), TX X	Dimmit (DIM), TX X PEER COUNTY	Duval (DUV), TX X PEER COUNTY	Goliad (GOL), TX X	Hidalgo (HID), TX X
Air pollution - particulate matter	8.8	9.6	8.1	8.5	9.3	9.4
Drinking water violations		Yes	No	Yes	No	Yes
Severe housing problems	18%	13%	20%	21%	10%	27%
Driving alone to work	80%	85%	80%	74%	76%	80%
Long commute - driving alone	38%	33%	13%	27%	57%	22%

** Compare across states with caution

Note: Blank values reflect unreliable or missing data

**County Health
Rankings & Roadmaps**
Building a Culture of Health, County by County

Compare Counties
2019 Rankings

	Texas	Jim Hogg (JIH), TX X	Jim Wells (JIW), TX X	Kenedy (KED), TX X	Kleberg (KLE), TX X	La Salle (LAS), TX X PEER COUNTY
Health Outcomes		139	226	NR	177	173
Length of Life		44	168	NR	157	101
Premature death	6,700	6,900	9,300		8,900	8,000
Quality of Life		226	228	NR	188	224
Poor or fair health	18%	31%	27%	27%	28%	30%
Poor physical health days	3.5	4.5	4.2	4.3	4.4	4.5
Poor mental health days	3.4	3.8	3.7	3.8	3.7	3.7
Low birthweight	8%	9%	10%		8%	9%
Health Factors		219	229	NR	204	170
Health Behaviors		59	86	NR	81	137
Adult smoking	14%	16%	15%	15%	16%	16%
Adult obesity**	29%	29%	30%	28%	28%	28%
Food environment index**	6.0	7.9	8.0	3.3	7.0	6.3
Physical inactivity**	23%	22%	24%	23%	23%	20%
Access to exercise opportunities	80%	90%	47%	0%	50%	0%
Excessive drinking	19%	15%	16%	15%	18%	18%
Alcohol-impaired driving deaths	28%	18%	20%	0%	10%	16%
Sexually transmitted infections**	520.4	442.3	198.2		765.9	235.9
Teen births	37	75	62		37	66
Clinical Care		202	145	NR	223	119
Uninsured	19%	20%	19%	20%	21%	17%
Primary care physicians	1,660:1		3,430:1	400:0	2,440:1	7,610:1
Dentists	1,760:1	5,200:1	3,140:1	420:0	2,070:1	
Mental health providers	960:1		1,360:1	420:0	2,590:1	1,900:1
Preventable hospital stays	4,966	6,916	6,165	33,333	9,249	4,240
Mammography screening	37%	25%	30%		33%	24%
Flu vaccinations	43%	29%	36%	42%	38%	31%
Social & Economic Factors		237	239	NR	219	195
High school graduation	89%	85%	84%		88%	87%
Some college	61%	50%	44%	18%	63%	28%
Unemployment	4.3%	7.2%	7.5%	3.3%	5.9%	3.7%
Children in poverty	21%	40%	36%	19%	34%	36%
Income inequality	4.9	6.0	5.7	4.0	6.7	4.3
Children in single-parent households	33%	43%	39%	16%	38%	16%
Social associations	7.6	1.9	8.0	0.0	9.5	7.9
Violent crime**	420	77	583	978	500	85
Injury deaths	56	65	72		45	72
Physical Environment		84	218	NR	156	138

	Texas	Jim Hogg (JH), TX X	Jim Wells (JW), TX X	Kenedy (KED), TX X	Kleberg (KLE), TX X	La Salle (LAS), TX X PEER COUNTY
Air pollution - particulate matter	8.8	8.1	9.1	8.4	9.1	8.2
Drinking water violations		Yes	Yes	Yes	Yes	No
Severe housing problems	18%	11%	17%	14%	19%	19%
Driving alone to work	80%	77%	84%	97%	76%	89%
Long commute - driving alone	38%	29%	49%	6%	19%	29%

** Compare across states with caution

Note: Blank values reflect unreliable or missing data

**County Health
Rankings & Roadmaps**
Building a Culture of Health, County by County

Compare Counties
2019 Rankings

	Texas	Live Oak (LIV), TX	Maverick (MAV), TX	McMullen (MCM), TX	Nueces (NUE), TX	Refugio (REF), TX	San Patricio (SAP), TX
		X	X	X	X	X	X
Health Outcomes		102	136	NR	145	195	151
Length of Life		166	30	NR	95	218	149
Premature death	6,700	9,200	6,600		7,900	10,600	8,700
Quality of Life		41	230	NR	193	116	163
Poor or fair health	18%	19%	35%	18%	22%	21%	21%
Poor physical health days	3.5	3.7	4.8	3.6	4.3	3.8	3.8
Poor mental health days	3.4	3.5	3.9	3.4	3.8	3.6	3.5
Low birthweight	8%	7%	8%		8%	8%	9%
Health Factors		125	238	NR	143	124	196
Health Behaviors		47	176	NR	125	30	162
Adult smoking	14%	15%	17%	13%	14%	14%	15%
Adult obesity**	29%	29%	30%	32%	34%	29%	36%
Food environment index**	6.0	8.0	7.1	6.0	7.8	7.8	8.0
Physical inactivity**	23%	25%	25%	29%	23%	25%	31%
Access to exercise opportunities	80%	34%	74%	26%	96%	39%	48%
Excessive drinking	19%	18%	15%	17%	19%	17%	18%
Alcohol-impaired driving deaths	28%	13%	18%	7%	26%	12%	16%
Sexually transmitted infections**	520.4	539.7	537.2		734.2	425.3	250.9
Teen births	37	32	68		44	50	47
Clinical Care		144	238	NR	29	157	72
Uninsured	19%	19%	27%	16%	18%	17%	19%
Primary care physicians	1,660:1	12,060:1	3,850:1	800:0	1,280:1	7,320:1	3,560:1
Dentists	1,760:1	6,090:1	4,850:1	780:0	1,960:1	3,610:1	2,690:1
Mental health providers	960:1	4,060:1	3,880:1	780:0	940:1	3,610:1	2,590:1
Preventable hospital stays	4,966	4,858	6,582	2,572	4,513	6,241	4,643
Mammography screening	37%	31%	26%	36%	40%	37%	38%
Flu vaccinations	43%	35%	27%	28%	38%	24%	41%
Social & Economic Factors		173	236	NR	201	170	215
High school graduation	89%	93%	87%	100%	87%	95%	93%
Some college	61%	43%	51%	44%	57%	55%	50%
Unemployment	4.3%	4.7%	9.3%	1.9%	5.4%	5.8%	7.6%
Children in poverty	21%	25%	33%	17%	23%	26%	27%
Income inequality	4.9	4.9	5.9	4.9	4.9	4.8	4.6
Children in single-parent households	33%	29%	30%	18%	41%	35%	36%
Social associations	7.6	11.6	4.0	12.4	7.9	15.0	10.2
Violent crime**	420	320	179	123	685	336	361
Injury deaths	56	108	38		67	99	69

	Texas	Live Oak (LIV), TX X	Maverick (MAV), TX X	McMullen (MCM), TX X	Nueces (NUE), TX X	Refugio (REF), TX X	San Patricio (SAP), TX X
Physical Environment		92	95	NR	197	158	209
Air pollution - particulate matter	8.8	9.2	8.2	8.5	9.9	9.3	9.7
Drinking water violations		No	No	No	Yes	Yes	Yes
Severe housing problems	18%	13%	25%	18%	18%	12%	16%
Driving alone to work	80%	79%	77%	78%	83%	83%	84%
Long commute - driving alone	38%	56%	18%	15%	18%	34%	34%

** Compare across states with caution

Note: Blank values reflect unreliable or missing data

**County Health
Rankings & Roadmaps**
Building a Culture of Health, County by County

Compare Counties
2019 Rankings

	Texas	Starr (STA), TX X	Victoria (VIC), TX X	Webb (WEB), TX X	Willacy (WIA), TX X PEER COUNTY	Zapata (ZAP), TX X	Zavala (ZAV), TX X
Health Outcomes		200	92	152	197	187	237
Length of Life		21	92	17	58	40	175
Premature death	6,700	6,300	7,900	6,200	7,200	6,800	9,400
Quality of Life		242	109	237	238	239	240
Poor or fair health	18%	41%	20%	36%	38%	35%	40%
Poor physical health days	3.5	5.5	3.7	5.0	5.3	5.0	5.3
Poor mental health days	3.4	4.3	3.5	4.1	4.0	4.1	4.2
Low birthweight	8%	9%	8%	8%	9%	9%	9%
Health Factors		244	135	233	243	240	241
Health Behaviors		242	121	216	231	183	194
Adult smoking	14%	20%	15%	18%	20%	18%	20%
Adult obesity**	29%	32%	31%	33%	31%	29%	28%
Food environment index**	6.0	5.5	7.5	8.1	7.5	6.3	6.4
Physical inactivity**	23%	26%	27%	25%	23%	22%	21%
Access to exercise opportunities	80%	31%	81%	86%	34%	45%	59%
Excessive drinking	19%	14%	19%	16%	15%	15%	14%
Alcohol-impaired driving deaths	28%	39%	25%	22%	23%	25%	14%
Sexually transmitted infections**	520.4	423.2	457.9	411.9	351.6	243.5	122.6
Teen births	37	74	50	66	55	79	70
Clinical Care		241	51	221	149	240	195
Uninsured	19%	28%	19%	28%	23%	29%	20%
Primary care physicians	1,660:1	5,340:1	1,230:1	2,920:1	2,730:1	14,350:1	6,010:1
Dentists	1,760:1	7,160:1	2,050:1	3,570:1	21,580:1	7,160:1	3,980:1
Mental health providers	960:1	5,860:1	740:1	3,480:1	3,600:1		2,990:1
Preventable hospital stays	4,966	6,947	7,057	5,376	6,057	5,864	5,156
Mammography screening	37%	28%	41%	28%	31%	20%	24%
Flu vaccinations	43%	24%	49%	33%	56%	30%	24%
Social & Economic Factors		243	176	208	244	238	241
High school graduation	89%	91%	81%	91%	88%	90%	90%
Some college	61%	34%	55%	45%	31%	41%	36%
Unemployment	4.3%	11.7%	4.8%	4.2%	11.0%	7.3%	11.1%
Children in poverty	21%	40%	23%	36%	44%	46%	43%
Income inequality	4.9	5.2	4.5	6.0	6.6	6.4	5.5
Children in single-parent households	33%	43%	35%	38%	43%	41%	56%
Social associations	7.6	2.7	10.7	3.5	4.6	4.9	3.3
Violent crime**	420	263	425	382	731	96	177
Injury deaths	56	35	67	42	49	36	66

	Texas	Starr (STA), TX X	Victoria (VIC), TX X	Webb (WEB), TX X	Willacy (WIA), TX X PEER COUNTY	Zapata (ZAP), TX X	Zavala (ZAV), TX X
Physical Environment		119	169	239	224	104	93
Air pollution - particulate matter	8.8	8.6	9.9	8.4	8.8	7.9	8.3
Drinking water violations		Yes	Yes	Yes	Yes	Yes	No
Severe housing problems	18%	22%	15%	31%	19%	23%	23%
Driving alone to work	80%	69%	81%	81%	86%	69%	80%
Long commute - driving alone	38%	22%	20%	23%	33%	18%	13%

** Compare across states with caution

Note: Blank values reflect unreliable or missing data