HMA

HEALTH MANAGEMENT ASSOCIATES

Tarrant County Long Range Planning Related to JPS Health Network

Final Report

PREPARED FOR

TARRANT COUNTY COMMISSIONERS COURT

JUNE 26, 2017

Research and Consulting in the Fields of Health and Human Services Policy, Health Economics and Finance, Program Evaluation, Data Analysis, and Health System Restructuring

ALBANY, NEW YORK • ATLANTA, GEORGIA • AUSTIN, TEXAS • BOSTON, MASSACHUSETTS • CHICAGO, ILLINOIS • COLUMBUS, OHIO
DENVER, COLORADO • HARRISBURG, PENNSYLVANIA • INDIANAPOLIS, INDIANA • LANSING, MICHIGAN • NEW YORK, NEW YORK
PHOENIX, ARIZONA • PORTLAND, OREGON • SACRAMENTO, CALIFORNIA • SAN ANTONIO, TEXAS • SAN FRANCISCO, CALIFORNIA
SEATTLE, WASHINGTON • SOUTHERN CALIFORNIA • TALLAHASSEE, FLORIDA • WASHINGTON, DC

Table of Contents

Introduction

In August 2016, the Tarrant County Commissioners Court contracted with Health Management Associates (HMA) to develop a "Long Range Planning and Analysis for the Tarrant County Hospital District d/b/a JPS Health Network."

The charter established for HMA's work was published on the Tarrant County Website:

> *"Tarrant County, with the assistance of JPS Health Network, is looking into the future to anticipate changes in population demographics/growth, technology and how we provide healthcare services. With this information, the Tarrant County Commissioners Court will be able to make informed decisions to improve the health status of the County."*

HMA assembled a team of subject matter experts to evaluate the strategic priorities for Tarrant County and JPS Health Network as they relate to clinical focus, operation, financing, collaboration, and population health management of the health care delivery system for low-income residents of Tarrant County. The team included: Warren Lyons, Project Director; Karen Batia, Ph.D.; Karen Duncan, MD; Mary Goddeeris; Ray Jankowski; Michelle Janssen; Anissa Lambertino, PhD; Maurice Lemon, MD; Jeff Smith; Sandra Sperry, RN; Greg Vachon, MD; Lori Weiselberg; Linda Wertz and Anne Winter.

Over the past seven months, HMA listened to community voices on health care and public health concerns through a stakeholder engagement process with over 130 interviews, community forums, and focus groups as well as constant communication with the Tarrant County Commissioners Court, JPS Health Network and the Tarrant County Public Health Department administrative and clinical leadership. In this report, HMA provides a Tarrant County Community Health Needs Assessment informing decisions to improve the health status of residents and the JPS community.

HMA reviewed all previous consultant reports, analyzed financial, demographic, and utilization data for JPS and other health systems providing service to low-income persons in Tarrant County. The work of the concurrent Strategic Facilities Planning Consultant (Cumming) is supported by review of these findings and recommendations. Furthermore, HMA looks forward to presenting this report to the Tarrant County Citizens Blue Ribbon Committee chartered to advise the Tarrant County Commissioners Court on future actions on community health.

The following report describes key findings and presents recommendations based on the analysis of the past seven months. Additional supportive information is included in the Appendices.

HMA would like to thank the Tarrant County Commissioners Court for the opportunity to help improve health care in Tarrant County.

Executive Summary

Overview

The *Long Range Planning Report* prepared for Tarrant County and the JPS Health Network was guided by the Charter prepared by the Tarrant County Commissioners Court. The Charter specifies:

> *"Tarrant County, with the assistance of JPS Health Network, is looking into the future to anticipate changes in population demographics/growth, technology and how we provide healthcare services. With this information, the Tarrant County Commissioners Court will be able to make informed decisions to improve the health status of the County."*

The Charter was the result of over six years of planning by JPS Health Network, beginning in 2010, when JPS Health Network retained BOKA Powell to develop a Strategic Facilities Utilization Plan. This Plan, and the subsequent iterations, are intended to serve as the foundation of the needs validation, as well as to provide conceptual recommendations for the proposed JPS facilities development project, which includes the construction of both a replacement hospital and of clinic buildings within the JPS Health Network.

In 2014, the JPS Board of Managers formed a Planning Steering Committee and engaged Broaddus & Associates and Blue Cottage Consulting to conduct functional and space programming and to prepare detailed cost estimates for the proposed construction projects as iterated in the Strategic Facilities Utilization Plan. Following a series of community forums on the proposed construction projects, on March 8, 2016, G.K. Maenius, the County Administrator, briefed the Tarrant County Commissioners Court on the proposed hospital construction project. The Commissioners Court authorized funding for consulting firms to explore the projects and provide recommendations.

The initial report was to provide projections of Tarrant County's community health care needs with a focus on low-income, uninsured residents who seek care from JPS Health Network and other healthcare organizations serving this population. Tarrant County contracted with HMA in August of 2016 to develop and present this report to the JPS Board of Managers and the Tarrant County Commissioners Court beginning in March of 2017.

The Court also engaged Cumming Construction Management (Cumming) in February of 2017 to provide a Long Range Facilities Planning report to evaluate the cost of renovations versus new hospital construction, analyze the existing facilities and equipment as they relate to current and future needs, and present reported findings to the Court. The Court also appointed a Citizens Blue Ribbon Committee in January, 2017 to evaluate the Long Range Planning and Long Range Facilities Planning reports through this Charter:

> *"The Citizens Blue Ribbon Committee is charged with evaluating future health care needs and delivery systems and the role that the Tarrant County Hospital District plays in this process. In that regard, the Committee will evaluate the findings of both Health Management Associates and Cumming Construction Management, along with input from other community, professional and healthcare related groups. At the conclusion of the analysis process, the Committee will make recommendations to the Tarrant County Commissioners Court for consideration and action."*

HMA Scope of Work

Tarrant County requested HMA develop a planning analysis report with four major focus areas:

Local, Regional, and National Market Analysis: Provide a current and prospective market analysis of healthcare in Tarrant County, including national macro trends in healthcare delivery systems with significant behavioral health and academic medical center considerations over the long term, defined as ten to 30 years.

JPS Health Network's Role: In the context of the local, regional, and national market analysis, provide an analysis of the current and prospective contribution of JPS Health Network including strengths, weaknesses, opportunities, and threats (SWOT analysis).

Stakeholder Engagement: In collaboration with Tarrant County and JPS, solicit input from the community on perceived health care needs and the impact of any changes in services currently provided by JPS on economic development and opportunities for Tarrant County. This includes hosting public forum meetings as well as conducting interviews with JPS officials, health care providers, JPS partners, and the general public.

Evaluation and Report: Review prior planning and analysis work completed by JPS and reconcile the appropriateness and reasonableness of the JPS proposal to the Market Analysis and Stakeholder Engagement findings; provide information and guidance to Cumming's Long Range Facilities Planning work effort and report; and prepare and present a draft and final report to the Citizens Blue Ribbon Committee, the Tarrant County Commissioners Court, and the JPS Board of Managers.

Long Range Planning Analysis: Approach, Findings and Recommendations

HMA conducted research, engaged stakeholders, developed findings, and provided recommendations for action organized in seven focus areas that form the chapters of this report:

1. Voices of the Community: Stakeholder Engagement Process
2. Macro Trends in United States Health Care Delivery
3. Community Health Needs Assessment
4. System Capacity and Population Needs
5. Market Assessment: Medical Staff and Medical Education
6. JPS Delivery System including major service lines, JPS strategic plans
7. Tarrant County Public Health: Role and Relationship with JPS Health Network
8. Market Assessment: Financial Perspectives

Key findings and recommendations for each of the focus areas are presented below.

1. Voices of the Community: Stakeholder Engagement Process

One of the key drivers of change identified is the strong interest and equally strong opinions displayed by residents of Tarrant County's diverse communities on how the County—and JPS Health Network — can improve the health and healthcare of its citizens, including low-income uninsured and other vulnerable populations. The following themes from focus groups and community forums are considered in recommendations throughout the report.

JPS Improvements are Recognized and Appreciated by the Community. Community leaders and patients expressed satisfaction with JPS improvements under current leadership. Several patients provided anecdotes of "very good people inside of JPS."

Behavioral Health Service Needs. Strong perceived need to expand capacity of behavioral health services both inpatient and outpatient, now and in the future. Community stakeholders also indicated the need for efforts to reduce stigma and better promote existing behavioral health services.

Service Expansion and Creativity in Service Delivery is required to Meet Current and Future Needs. "We need to look at different ways of delivering care that [are] easily accessible to people in their communities." Suggestions included increasing the number of community clinics and extending hours. Other examples shared included using school-based clinics as multi-generational clinics, or the expansion of pharmacies with nurse practitioners. Community leaders and patients indicated the need to expand emergency department capacity.

Transportation Barriers. Concern regarding lack of transportation options and the difficulty this poses for individuals seeking care at the downtown JPS location. Community advocates indicated: "People have JPS Connection but they go to free clinics because they don't have transportation to the JPS clinic." Patients emphasized that all the departments at JPS need to know transportation options and inform patients about them.

Focus on the "Needy" population. Perspective from several commenters that JPS should focus on "the needy" population; those unable to afford care elsewhere, and not compete with private sector.

Interest in Having JPS Focus More on Prevention and Social Determinants of Health. Many of the community advocates agreed that the system needs to be reengineered to focus more on community, prevention and management of chronic conditions. They emphasized social determinants of health including healthy food, access to care, social networks, and transportation. Advocates also discussed potential synergies between JPS and Tarrant County Public Health, and indicated that, "JPS is positioned to champion the integration of medical care and social services in Tarrant County".

Community Partnerships Are Required to Overcome Challenges in Meeting Needs of a Diverse Population. Community advocates agreed that JPS needs to "broaden [their] strategy to include more partnerships with diverse communities". A compelling case was made by several community stakeholders to serve the undocumented. "The undocumented are working and educating their children." "They pay taxes." "We want to keep them healthy [so they are not using the emergency room for their care.]" Community advocates indicated that a network of free clinics are struggling to manage undocumented patients and reduce preventable visits to the JPS emergency department.

2. Macro Trends in the U. S. Health Care Delivery System

Five domains of change were identified that will likely impact JPS' policies, as well as Tarrant and surrounding counties over the next few decades. These trends are considered in the recommendations throughout the report.

Culture of Health. Community based and collaborative efforts that adopt a broader definition of community health including making health a shared value; fostering cross sector collaboration to improve well-being; creating healthier, more equitable communities; and strengthening integration of health services and systems.

Health System Integration and Transformation. This includes care integration within and between health systems, increased use of sophisticated data analytics to close gaps in care, building predictive models to identify high risk patients for care management, the use of tele-monitoring of patient health status, etc. It also includes shifting from a "sick care" system to one focused on prevention and the social determinants of health, such as housing, food access, etc.

Whole Person Care. Coordination of physical health, behavioral health, and social services in a patient-centered manner with the goals of improved health outcomes and effective use of resources.

Value Based Payment. There is consensus among policy makers, payors, and practitioners that healthcare's current funding structure is an impediment to delivering high value care. The current trend is to shift payments from pure volume-based payment, as exemplified by fee-for-service payments, to payments that are more closely aligned with health outcomes and accountability.

Medical Education and Provider Supply. Adoption of new multidisciplinary training programs and reallocation of educational resources towards areas of need including primary care, behavioral health, and integrated practice models of care.

3. Community Health Needs Assessment

HMA conducted a community health needs assessment encompassing Tarrant County, including population projections, trends in population growth and demographics by zip code, comparison of county health indicators to national benchmarks, and health system capacity for physicians, providers and hospital beds.

Key Findings

Demographics

- The population of Tarrant County is expected to grow over 46% in the next 20 years - from 2,020,278 in 2017 to 2, 948,206 in 2037.
- The number of low income residents, defined as those with household incomes below 250 percent of the Federal Poverty Level, is expected to increase from 857,000 to 1,250,000 by 2037, with approximately 620,000 of those low-income residents expected to be JPS Connection eligible by 2037.
- The Medicare-eligible population is also expected to increase by an astronomical rate of 41% in the half dozen years between 2015 and 2021.
- The population will continue to grow increasingly diverse, with substantial growth in Hispanic, Asian, and Black populations.
- Undocumented populations (approximately 7% or 141,419 individuals in 2017) are not eligible for Medicaid or JPS Connection program; refugee populations are eligible for Medicaid upon arrival in the United States.
- The growth, aging, and increasing diversity of the population has enormous implications for the health care, public health, and social service systems in Tarrant County as well as the needed workforce.

Health Status

- While the overall health status of Tarrant County is good, several health status concerns emerged from HMA's research and are presented in the points below.
- Infant Mortality in particular geographies and among particular populations, as well as late entry into prenatal care, are of significant concern.
- There is a high rate of sexually transmitted infection.
- Major depressive episodes are almost twice as high as the national average, and while substance use for the metropolitan statistical area (MSA) is lower than the national average, it still has a significant impact on the community.
- Adult obesity, diabetes, high blood pressure, and cancer are some of the key health concerns for the County.
- Childhood immunization rates and childhood obesity are also concerns.
- Linguistic isolation of a large proportion of the population and significant transportation barriers make it all the more challenging to navigate and access the health care system.

Key Recommendations

- JPS should determine future population demand for safety net care using national benchmarks and JPS strategic utilization plan criteria to estimate expected county-wide shortfall in provider and hospital services.
- The County must emphasize the prevention and improved management of the most prevalent and controllable conditions. JPS efforts should include partnerships with public health and community-based organizations building on past successes.
- Plan to ensure sufficient capacity of long-term service and support needs of the aging population.
- Use approaches that engage increasingly diverse communities, such as Community Health Workers recruited from these communities.

4. System Capacity and Population Needs

Key Findings

- In 2016, Tarrant County had 4,084 acute care beds, of which 406 or 9.9% were JPS beds. Of the 550 acute psychiatric beds in Tarrant County, JPS had 132 or 24%. Although additional psychiatric beds and hospitals are being developed especially in the private sector, the shortfall in psychiatric bed inventory for Medicaid and uninsured residents in particular, will continue to stress access for low income populations.
- A review of data provided by the Dallas Fort Worth Hospital Council suggests that JPS is providing a disproportionate percentage of Tarrant County inpatient and outpatient services for patients who have Medicaid or are uninsured. The market share of inpatient discharges are estimated at 21.7% Medicaid and 32% uninsured. The market share of outpatient services are estimated at 8.6% Medicaid and 39.8% uninsured.
- Many of the private hospitals and outpatient providers in the county should be recognized for providing a significant share of safety net care.
- JPS is the only Level 1 Trauma Center in Tarrant County, with 1,404 inpatient discharges and 1,578 outpatient trauma visits for the 12 months ending September 30, 2016. JPS serves a regional trauma role with 38.5% of inpatient discharges and 30.2 % of outpatient visits originating from non-Tarrant County geographies.
- Using a projected reduction in acute care bed need per thousand population as health care transforms to population health and value based payment methods, Tarrant County overall would still need an additional 770 beds by the year 2037. The projected additional population of JPS Connection eligible people alone would need 325 beds even with these assumptions of decreased demand through best practices.
- Due to lack of capacity, in fiscal year 2015, JPS transferred 3,100 psychiatric service line patients to other hospitals for inpatient admission and paid $3.1 million to private hospitals for a portion of these patients who had no resources. Often private hospitals are not fully equipped to meet the needs of individuals with highly complex psychiatric conditions, and JPS believes they could care for these complex patients at a lower cost.
- The number of psychiatric beds are well below the current need level (using 70 public beds per 100,000 population); projected population growth will only increase the gap. Although the total number of public psychiatric beds needed by 2037 is estimated to be 2,064, a robust system of community behavioral health resources and non-hospital psychiatric services could cut this estimate in half to about 1,032. If JPS plans to meet about one-half of this need, approximately 516 beds will be required, compared to the 132 current beds.

- Given the estimated total number of licensed primary care physicians (778), we estimate that approximately 75% of the total primary care need in the county is currently being met. In other words, Tarrant County as a whole has fewer physician FTEs than needed to meet the expected demand. The demand for those under the 250% of the Federal Poverty Level (FPL) is only a portion of the overall need.
- By 2037, an estimated 433 FTE (full-time equivalent) primary care providers will be needed in Tarrant County (collectively by JPS, and other hospitals, clinics and physician groups) to meet demand for the JPS Connection-eligible population. Currently, an estimated 263 FTE primary care providers are necessary. JPS has 98 FTE primary care providers at this time; when combined with current estimated primary care providers at North Texas Area Community Health Centers (NTACHC), Cook Children's Hospital, and charity clinics, a critical shortfall of providers exists and will grow to a shortfall of several hundred primary care provider FTEs by 2037.
- The availability of specialty care physicians to treat Medicaid and uninsured adult populations is limited by public system staffing resources and frequent non-participation of private sector physicians in Medicaid. JPS currently has approximately 317 FTE specialty physicians, while the estimated need county-wide for the total population below 250% FPL is 644. The expected population growth by 2037 would require a total of approximately 991 specialty physicians in the specialties analyzed.
- Private hospitals and their associated specialists provide emergency department and emergency inpatient specialty care to Tarrant County residents at higher cost and with less care coordination than best practices dictate for ambulatory and inpatient care, necessitating a future need for specialty physicians at JPS and other Tarrant County health systems and medical groups.

Key Recommendations

- JPS should lead the development of a county-wide behavioral health system of care with a focus on expanding prevention and wellness programming, and outpatient services.
- JPS should replace and expand the medical and psychiatric bed capacity to the maximum number of beds, including building out shell space, as described in the 2011 Strategic Facilities Utilization Plan.
- Additional ambulatory care sites (primary care, specialty and sub-specialty care, ambulatory surgery centers, and cancer care) will be needed as the population grows and ages.
- Primary care capacity should increase in order to meet a greater proportion of the calculated need of the population below 250% FPL by 2037 given fiscal realities. With a greater proportion of this population receiving preventive care and treatment to manage chronic conditions, we would expect lower emergency department and inpatient utilization.
- Recruit additional primary care physicians through fair market value based compensation greater than the current 25th percentile rank paid by JPS when compared to the regional market.
- Recruit specialty care physicians, through Acclaim's employment or contracted provider model, using value based payment methodologies that strengthen retention and align quality, safety, patient satisfaction and cost efficiency goals between the provider, other JPS employees and health network domains.

5. Medical Staff and Medical Education

Key Findings

- JPS recently surveyed the medical staff on engagement and satisfaction. The report indicates marked improvement in and opportunity to enhance physician satisfaction through operational and strategic plans.
- The thriving public hospitals of today are also academic medical centers with an educational focus on care of the underserved.
- Population growth pressure to educate primary care providers faces a continuing low rate of medical school graduates' options for practice in primary care. For example, in Texas less than 20% of medical school graduates are opting to practice in primary care.
- Studies show that most physicians ultimately practice within 50 miles of the location of their residency training. A robust academic education and research program will help JPS recruit and retain staff in a competitive hiring environment and ultimately help the public hospital remain viable.
- There is a need for Graduate Medical Education (GME) programs at JPS and in Tarrant County in many crucial specialties and subspecialties (e.g., internal medicine and surgery).
- There is a need for a strategic plan for education at JPS addressing both graduate and undergraduate medical education and non-physician provider education. There have been some initial efforts to address this internally.
- Acclaim (JPS' newly created physician group) as a physician organization within JPS will need to play an essential role in helping JPS provide integrated health care in a value-based payment model with aligned goals and incentives.
- The consolidation of primary care providers from multiple organizations into a unitary group has created opportunity to optimize the mix of medical residents, nurse practitioners, and physicians at the community health centers and the Family Health Center.
- Current campus facilities and resources are insufficient for educational needs, several improvements are needed; a simulation lab would support training of clinical students and employees, as well as selected operations staff.

Key Recommendations – Medical Staff and Medical Education

- Work collaboratively with local educational partners to create a blueprint for GME expansion in Tarrant County.
- Develop a strategic plan for medical education and the education of other health professionals to align investments, affiliations, and recruitment goals for JPS.
- Increase training in geriatric care issues and approaches for the entire spectrum of the JPS work force.
- Increase use of ambulatory and community-based facilities for teaching, supervision, and mentoring of residents and students.
- Continue to implement and measure results of initiatives to improve physician satisfaction.

6. JPS Delivery System

HMA reviewed the activity level, capacity, quality, strengths, and opportunities for improvement of the JPS Health Network and its positioning and relationship to the Tarrant County health care delivery and insurance market. The following delivery system components were studied.

Key Findings – Delivery System Overall

- JPS is and will continue to be an essential part of the Tarrant County healthcare delivery system.

- JPS is well regarded by the community for fulfilling its mission to provide medical care and education to the residents of Tarrant County and as a regional provider of trauma and emergency psychiatric care.
- There is a critical need for additional medical bed capacity.
- There is a critical need for additional behavioral health services — inpatient and outpatient.
- There is a critical need for JPS to develop substance abuse services — inpatient and outpatient.
- Stronger external community and hospital partnerships and collaborations are needed.
- There is a need for improved facilities for patients, staff, providers and health professions students at the hospital campus.
- There is a need for greater collaboration with medical schools and other health professions education programs.
- JPS cannot meet the health care needs of the entire Tarrant County safety net population and should work with the Tarrant County Commissioners Court and other health care system stakeholders to develop new collaborative strategies to improve access to services and develop and expand services.

Key Recommendations – Delivery System Overall

- Designate cancer care and geriatrics for higher priority service line development including partnerships with Moncrief Cancer Center, and/or others, and collaborations with post-acute care facilities and programs.
- Support legislative and administrative development of expanded PACE programs and other Star Plus population services.
- Continue to evaluate hospital-based services that can be shifted to outpatient settings.
- Create coordinated continuums of care that improve efficiencies.
- Drive workforce to match the skills needed and the populations served.
- Strengthen care teams to manage chronic diseases.
- JPS is well positioned to lead a county-wide visioning and planning process to develop a Behavioral Health System of Care.
- Evaluate partnerships with other healthcare entities and organizations that create needed access and service. Potential partners include the Veterans Administration and Medicaid managed care plans.
- Use technology to standardize best practices and improve processes; continue to optimize and integrate new technology into care settings. Examples include: mobile health, telemedicine, and applications for population health management.
- Build a data warehouse to enable JPS to better manage populations and take accountability for those populations.
- Expand the JPS care management and coordination programs to span across social, economic, behavioral health, and medical needs.
- Expand collaborations between physicians, mid-level providers, and other clinicians such as nurses, psychologists, social workers, and dentists to increase ambulatory network capacity for patient visits.

Key Findings—Primary Care

- JPS has dedicated staff and providers that deliver high quality care.
- The recently formed Physician Group (Acclaim) is positioned to move to value-based care and reimbursement.
- There is a single Electronic Health Record (EPIC) across the enterprise.

- JPS has been recognized for quality, e.g., National Committee on Quality Assurance recognized Level 3 Patient-Centered Medical Home (PCMH) and Nurses Improving Care for Health System Elders (NICHE) Program Designation.
- There is an increasing unmet demand for primary care services in the County.
- Primary care access is a challenge (call center wait time, next available new patient appointments for medical homes).
- There is difficulty obtaining referral appointments due to limited resources
- Limited public transportation impedes access for patients.

Key Recommendations —Primary Care

Access to Primary Care

- Optimize the patient empanelment system by empaneling all patients to a PCP; this will enable JPS to more accurately measure primary care capacity and population served, and serve as a foundation for population health.
- Continue to create and build upon new ways for patients to access their medical homes through patient portals (EHR), virtual access (telehealth), and secure text messaging applications.
- Consider expanding primary care capacity at the Arlington facility; consider partnerships or new centers of care in key areas the CHNA identified as high needs/low access (Hurst, Euless, and Bedford (HEB), North West, Grapevine, North Central and West) and that meet JPS criteria for new site development.
- Promote expansion of North Texas Area Community Health Centers (NTACHC) satellite clinics. This will be beneficial as Federally Qualified Health Center (FQHC) sites receive an enhanced Medicaid encounter rate.
- Further "brand" community health centers both internally and externally, and build on education programs for patients that address where and how to access primary care services.

Population Health/Care Management

- Build on the empanelment system to risk stratify patients to ensure that the highest risk patients are enrolled in care management.
- Extend the scope of the JPS Care Management program to include additional patient categories and address physical, behavioral health, and social service needs of patients. Increase private provider participation as partners in the JPS Care Management program for all services in the continuum of care.

Cultural Competence

- Continue to develop and emphasize human resources strategies that match work force in community centers with the community served.

Elder Care

- Build and expand geriatric programs across all relevant services particularly in behavioral health, trauma, emergency care, access to clinics and specialists.
- Position JPS Health Network to participate in Program for All-Inclusive Care of the Elderly (PACE) programs to provide comprehensive care to the elderly.

Key Findings – Dental Care Services

- Over 40% of adults in Tarrant Country report they have not had a dental visit in the last year. JPS has six dental clinic locations with demand far exceeding capacity, and an oral surgery clinic with a several months' wait. There is very limited capacity in the county for dental services for low-

income persons without dental insurance. While CHIP dental coverage for children is more comprehensive, Medicaid coverage for adults is extremely limited.

Key Recommendations – Dental Care Services

- Include dental care access and capacity in planning for health care services throughout Tarrant County.
- JPS and potential partners such as NTACHC, Catholic Charities, and others should develop plans to expand affordable dental services in the county. NTACHC could get an enhanced rate from Medicaid to provide dental services; this opportunity should be further explored and supported by the county.

Key Findings – Behavioral Health: Psychiatric Care

- JPS' behavioral health leaders are recognized as collaborative and critical partners within the community. JPS behavioral health performance metrics reported for the most part exceed national benchmarks.
- Widespread recognition of capacity limitations in Tarrant County and need for behavioral health services, including both mental health and substance abuse services across the county and within the JPS system that lead to increased psychiatric crises and more people with untreated behavioral health issues landing in the criminal justice system.
- Untreated mental illness increases total health care costs by two to three times with most of the excess cost related to "facility-based care" (i.e., emergency room and inpatient treatment). Unrecognized behavioral health conditions can lead to decreased adherence to recommended medical/surgical treatments and lack of follow-up for care.
- JPS has prioritized programming that has helped reduce readmission rates by focusing on high need patients, as well as supported improvements in the Tarrant County Behavioral Health delivery system broadly.

Key Recommendations – Behavioral Health: Psychiatric Care

- Implement the inpatient and ambulatory behavioral health facility construction components of the Strategic Facilities Utilization Plan.
- Hospital services should include electroconvulsive therapy (ECT) and dedicated inpatient and outpatient services for the growing geriatric population.
- JPS should provide leadership in a county-wide visioning and planning process to develop a Behavioral Health System of Care.
- JPS should develop a plan and strategy to provide additional and new behavioral health services with partners that includes: substance abuse services, diversion programming that helps people access and engage in community-based services that reduce avoidable emergency room, inpatient and criminal justice involvement, and integrated behavioral health and primary care services.

Key Findings – Emergency Department

- JPS is one of the busiest Emergency Departments (EDs) in the county, and like other safety net hospitals, generates a large number of inpatient admissions.
- ED throughput is further taxed by insufficient number of available inpatient beds to quickly receive patients admitted from the ED. Patients are held in ED and other hospital areas for extended periods of time, waiting to be admitted to inpatient areas. This results in further ED operational inefficiencies as ED resources are pulled in many directions.
- Tarrant County ED needs are expected to match the national trends outlined above with increasing numbers of visits especially by the aging populations. The county will continue to see

high volumes of low income and uninsured residents using more ED services as the front door for medical problems as they find it difficult to navigate other more appropriate places for care.

Key Recommendations – Emergency Department

- ❑ Expand the frequent ED user care management program to additional ED user groups.
- ❑ Accelerate population health management and care coordination infrastructure for JPS Connection, Medicaid and other uninsured, populations to reduce ED demand for avoidable ED care.

Key Findings – Trauma Service Level 1

- ❑ JPS Trauma Service is well regarded and considered a premier program with strong leadership and relationships with other Tarrant County hospitals.
- ❑ The American College of Surgeons estimates that one Level 1 Trauma Center is needed for every one million people. Today, Tarrant County population has close to two million people and is projected to increase to nearly three million by 2037.

Key Recommendations – Trauma Service Level 1

- ❑ Trauma Care will need to be expanded at some time; at least one additional Level 1 Trauma Center may be needed in Tarrant County when the population exceeds two million. Timing will depend on utilization of JPS' existing capacity. JPS should lead discussions for the strategic expansion of trauma services for the growing community.
- ❑ JPS should partner with healthcare entities to develop and enhance trauma-relevant inpatient hospital care services including long-term acute hospitals, skilled nursing facilities, rehabilitation hospitals, and long term care services and supports.

Assessment of JPS Strategic Plans and Recommendations for Action

We reviewed a wide range of JPS plans, reports and data in the context of external research studies and data.

Key Findings

- ❑ The JPS Strategic Facilities Utilization Plan provides directionally the necessary actions to replace aging facilities, expand bed capacity, improve specialty clinic performance, address behavioral health, and resource medical education. The application of national performance standards and benchmarks confirms the validity of the plan's assumptions overall but also indicates the need to update and revise parts of the plan.
- ❑ The CHNA report identifies and validates the need for JPS to increase the number, capacity, and clinical service lines in additional regional medical home clinics; however, the timing and pace of expansion is not sufficiently scheduled and funded at this time. A potential bond election must include funding for additional ambulatory clinics in Tarrant County.

Key Recommendations

- ❑ JPS needs to assess current sites for type of services, capacity and operational efficiencies; based on this assessment, JPS may expand, consolidate, and/or build new centers.
- ❑ The JPS Board of Managers should develop and approve a comprehensive long range plan that includes actions to transform JPS towards an integrated model of care based upon principles of population health management, value based payment models and integrated clinical practice units both within JPS and through collaborations and partnerships with other Tarrant County health care stakeholders including Tarrant County Public Health, MHMR, correctional and law enforcement agencies.

- The JPS Strategic Facilities Plan includes a shell space. Instead of shell space, HMA recommends building out this space to accommodate the maximum number of beds possible to service the projected higher population of Medicaid and low-income uninsured over the next ten to 20 years. If the replacement JPS hospital is completed in five years from now as currently planned, JPS will likely continue to have bed shortages and ED delays for admission.
- The JPS strategic plan also should address health plan contracting and service line diversification that provides sufficient operating income to recruit, compensate and retain the very large number of primary and specialty physicians and providers required to support the current or potentially higher share of safety net care by JPS as determined by Tarrant County and JPS Board of Manager policies.
- The JPS Connection program should be redesigned with care management embedded in primary care and risk-based, value-based payment models similar to those used by Medicaid and commercial managed care plans. JPS should explore ways to use current health plan infrastructure, such as Cook Children's Medicaid managed care plan, to improve performance in JPS Connection and other JPS assigned members from Medicare and Exchange plans.
- JPS should be the anchor point for additional undergraduate and funded graduate medical education training programs in medical and surgical sub-specialty services that support the health professions training programs in the County including UNT Health Science Center (UNTHSC), Texas Christian University, UT Southwestern Medical Center, and UT Arlington among others.
- Tarrant County should initiate and facilitate a county-wide health care strategic plan for Medicaid and low-income uninsured populations over the next 20 years.
- The Tarrant County Commissioners Court should endorse and sponsor a community health collaborative process to develop safety net care solutions involving governmental and non-governmental health care providers and health plans.

7. Tarrant County Public Health—Role and Relationship with JPS Health Network

Key Findings

- Tarrant County Public Health (TCPH) has been a valuable presence in the community. TCPH is continually working to promote, achieve, and maintain a healthy standard of living for Tarrant County residents. The Department has a staff of more than 380 public health professionals and annual funding of approximately $58 million.
- More and more public health departments are taking on the role of convener of non-profit hospitals and other safety providers; health departments and their sponsoring county or city governments are viewed as a neutral entity serving as an honest broker among competitors aiming to adopt health care policies and programs to meet community health goals.
- TCPH and JPS have a foundation of collaborative work including efforts related to particular health issues, such HIV/AIDS; each has DSRIP funded projects that intersect with one another and other health and social service agencies; TCPH and JPS work together on selected health policy issues; and some TCPH services such as chronic disease self-management programs are offered in JPS facilities, and vice versa.

Key Recommendations

- TCPH and JPS should continue to work together to sustain priority DSRIP initiatives. JPS should work with TCPH and others to prioritize the most meaningful initiatives to sustain and begin to transfer them into standard operating and capital budgets.

- JPS should work with TCPH to improve efforts to prevent disease and support policies and programs that raise the community standard of living such as education, jobs, transportation, access to healthy food, safe housing, etc.
- Continued exploration of facility sharing and/or jointly planning new locations could potentially further the reach of one or both organizations in the community.

8. Market Assessment: Financial Perspectives

Key Findings

- JPS' financial performance amongst other Texas public hospitals is in line with what one would reasonably expect, with expenses per Adjusted Patient Day comparing favorably to Texas public hospitals and within Tarrant County.
- JPS has three major revenue streams: Net Patient Service Revenues (NPSR):43.7%; Property Tax Revenue: 37.9%; and Supplemental Medicaid Funding: 18.4%.
- Amongst the top eight (8) Texas public health systems plus Brackenridge (Travis County), JPS' operating expenses of $2,791 per adjusted patient day (APD) were equal to the median within that group.
- JPS experiences funding and expenditure realities that are similar to those of other public health care delivery systems. For example, based upon JPS audited financial statements, its annual shortfall of NPSR relative to labor costs increased from less than $90 million in FY2011 to slightly more than $124 million in FY2016.
- As both Medicaid basic funding streams and Medicaid supplemental funding streams continue to be put under pressure, public hospitals in general – and JPS Health System in particular – will need to adapt both strategically and financially to the shifting landscape. For Tarrant County, JPS cannot shoulder the entire burden of uninsured and underinsured care.
- Texas did not expand Medicaid for low-income adults. With the ACA Exchange, Texas' uninsured rate has decreased from about 24% to 17%, but the rate is still the highest in the nation due, in large part, to Texas having one of the largest unauthorized immigrant populations who are not eligible for Medicaid or Exchange coverage.
- For FY2016, JPS Connection was a significant payor type across each of the key JPS service areas, accounting for the following proportions of billed charges for the respective services below:
    - 13.4% of acute inpatient
    - 12.7% of psychiatric inpatient
    - 14.4% of emergency services
    - 33.7% of non-ER outpatient services
    - 28.2% of clinic services
    - 12.6% of outpatient pharmacy
- Despite the relatively significant role that JPS plays in providing safety net health care services in relation to those provided by other Tarrant County facilities, it lacks the managed care contracts that are risk-based and offer incentives for maximizing value to the consumer and the payor. Transition to more value-based reimbursement methodologies could help JPS transition to a more integrated model focusing on population health.
- A review of data provided by the Dallas Fort Worth Hospital Council, and summarized in Table 57, suggests that JPS is providing a disproportionate percentage of Tarrant County inpatient and outpatient services for patients who have Medicaid or are uninsured.
- Without more modern, efficient facilities that allow it to better serve its clientele in a more operationally efficient manner, there will be significant obstacles to improvement.

Key Recommendations

- As the JPS management team implements both productivity and cost accounting systems, there will be opportunities for enhanced efficiency levels to the extent not impeded by the facility configuration and logistics.
- Depending upon the future of health care legislation effecting Tarrant County, JPS Connection may choose to expand its income eligibility threshold above 250% FPL should there be sufficient funding to support such an expansion. The availability of additional funding would allow JPS to potentially enhance its role within Tarrant County and extend its outreach at the same time.
- Tarrant County and JPS should continue discussions with Cook Children's Hospital, Texas Health Resources, other Tarrant County hospitals, and other community stakeholders as appropriate to determine whether there are opportunities to collaborate on service delivery, broader county issues such as transportation, and/or to determine whether there are ways to bring additional funding into the County.
- Through its ongoing discussions with Cook Children's Health Plan or another Medicaid managed care plan, JPS could partner with payers and other providers to provide infrastructure for population health management, care coordination, integrated practice models and value based payment methodologies.
- JPS could participate in the Texas rebid of STAR+PLUS and possibly offer a JPS STAR+PLUS product to serve those Texas Medicaid beneficiaries who have disabilities or are age 65 or older.
- Conduct additional demographic analysis of the JPS Connection population to determine if there are opportunities to support a potential partnership with the Medicaid Managed Care Organizations (MCOs).
- While JPS' primary role is to serve the low-income uninsured population and those with Medicaid, the long-term viability of the health system to serve this purpose would be significantly improved if it could diversify its payor base by increasing its market share of Medicare, Exchange, and private sector revenues. This would assist in developing a sustainable patient-based revenue stream that would make JPS less dependent upon future property tax revenues and/or maintenance of historical Medicaid supplement funding.
- Investment in new and more efficient facilities would enhance JPS' ability to maximize revenues, improve operational efficiencies, enhance quality outcomes, maintain infection control, and ensure regulatory compliance

In conclusion, JPS Health Network is a strong, academic, public hospital system that provides by far the greatest portion of safety net care in Tarrant County. JPS is critical to the county and is recognized and valued by residents, public health, social service and other health care entities.

The rapid growth, aging and diversity of the Tarrant County population in the coming decades requires JPS and others to focus on several priorities simultaneously. A key one is ensuring an adequate future health care workforce by expanding and strengthening JPS' health professions training programs; public hospitals that do not have teaching programs or properly invest in those programs are not sustainable. Other critical priorities include expanding ambulatory care in communities of greatest need; replacing and expanding JPS' acute medical and psychiatric inpatient facilities, as described in the 2011 Strategic Facilities Utilization Plan, maximizing the number of beds by building out the proposed shell space.

Other key priorities include preparing JPS, as an integrated health system, for value-based reimbursement and risk-based managed care in part by optimizing empanelment in primary care, using information technologies and data analytics for population health management and for identifying and enrolling high-risk patients in a robust care management program.

A clear need in the community is behavioral health capacity and JPS is well positioned to lead the development of a county-wide behavioral health system of care with a focus on expanding prevention and wellness programming, and outpatient services. HMA also recommends JPS designate cancer care and geriatrics as high priority service line developments.

Hospital systems are shifting from focusing solely on "sick care" to promoting health. HMA encourages JPS to continue to build and strengthen partnerships with diverse communities, public health and social service organizations, as well as other hospital systems to increase efforts in disease prevention and address social determinants of health -- through health policy and other means -- including public transit to improve access to its services.

Chapter 1. Voices of the Community: Stakeholder Engagement Process

A conversation with the community is key to understanding the health care needs of the county and to develop plans for Tarrant County's future health care delivery system. This section of the report provides a summary of the stakeholder engagement process conducted by HMA. The process included stakeholder interviews, focus group meetings, and community forums with individuals invested in the future of healthcare delivery in Tarrant County. Information and ideas from stakeholder interviews are woven throughout the chapters of this report. Themes from focus groups and community forums reinforced early findings and suggested additional areas of exploration relevant to planning. These themes are summarized in the Appendices of this report.

Stakeholder Interviews

Working with Tarrant County and the JPS Health Network, HMA developed a list of organizational representatives and other key stakeholders who had particular insight and/or investment in the health care delivery system of Tarrant County.

The list of organizational representatives and key stakeholders included: Tarrant County's Judges, Commissioners, and selected staff; JPS Network Board Members and selected staff; elected officials; executive leaders at community health centers (including community behavioral health centers), selected hospital systems (including behavioral health hospitals), nursing homes, and health profession training programs; community leaders at relevant community organizations, coalitions, and associations; leaders at business and civic organizations; law enforcement; and leaders at health foundations. Particular emphasis was placed on individuals who represent and/or work with underserved populations. A total of 107 interviews were conducted. (Refer to Appendix 1 for Individual Stakeholder List.)

HMA conducted a combination of face-to-face, individual, and small-group interviews as well as telephone conversations to obtain input about the strategic direction of the health care delivery system in Tarrant County. Stakeholder commentary and ideas have been woven throughout the chapters of this report.

Focus Groups

Working with Tarrant County staff and JPS Health Network leadership, HMA identified community health advocates such as members of the JPS Joint Council, JPS Health Network users, and JPS Family Advisory Council, to participate in focus group discussions. HMA developed a focus group guide which included questions for the groups. Two focus groups were held on November 3, 2016 with a total of 20 participants. A diverse group of actively engaged stakeholders participated.

The focus group discussions were transcribed by a court reporter. HMA reviewed the transcripts and identified key themes from each focus group. The themes reinforced HMA's findings in the stakeholder interviews and, led to the further exploration of issues that were raised during these conversations (refer to Appendix 2 for Focus Group Report).

Community Forums

HMA conducted four Community Forums. The Community Forums were promoted as listening sessions and the purpose was to gain input from the general public on the perceived health care needs and the future of the Tarrant County healthcare delivery system. Additionally, the forums functioned to:

- Introduce the "Long Range Planning and Analysis related to the Tarrant County Hospital District" initiative and share early findings;
- Obtain and document community input related to Tarrant County health, healthcare, and related needs,
- Obtain and document community input related to the current and future role of the JPS Health Network in the broader delivery system; and
- Inform the public of a website where they could obtain further information on the initiative, track progress and deliverables, and ask questions.

Four community forums were held on the dates and locations listed below; 158 total participants from the public were in attendance.

Table 1: Community Forum Overview

Date of Community Forum	Location	Number of participants from the public
November 9, 2016	Resource Connection, Fort Worth	15
December 1, 2016	Arlington Sub Courthouse, Arlington	89
December 7, 2016	Lake Worth Activity Center, Lake Worth	13
January 10, 2017	Northeast Courthouse, Hurst	41

A video recording of each forum was posted on the Tarrant County website. HMA summarized themes from the forums by precinct and for the county as a whole. Similar to the findings of the focus groups meetings, the themes reinforced HMA's findings in the stakeholder interviews and led to the further exploration of issues that were raised during these conversations (refer to Appendix 3 for Notes by Community Forum).

Overall Themes

Themes from the community forums are listed below, in order of frequency of comments and concurrence:

1. Behavioral Health Services Needs

Participants expressed a strong need to expand the capacity of behavioral health services (both inpatient and outpatient). Community members expressed concerns that the JPS facility is inadequate for psychiatric emergencies. Others emphasized the need for early intervention, especially around child, adolescent, and young adult services; while other community members focused on the need for criminal justice diversion with mental health services.

2. Community Clinic Capacity

There was expressed concern around the capacity of JPS services in the future. To this end, many individuals suggested increasing the number of clinics which would provide greater access to care for patients. Community members also suggested extending service hours at clinics to increase access to care. Community members believed clinics were well-placed (location) but operating at capacity. Others identified areas where no clinics were currently located as a gap that needed to be addressed.

3. Transportation Barriers

The lack of transportation options was a concern due to the challenges posed to individuals seeking care at the downtown JPS location.

4. Focus on the "Needy" Population

Community members believed JPS should focus on "the needy" population, defined as those who are unable to afford care elsewhere. Some mentioned that the County/JPS should not compete with the private sector, and that they should demonstrate fiscal responsibility.

Tarrant County Website

Together with Tarrant County, HMA designed a public-facing website for the County's Long Range Planning process, accessible at: http://www.tarrantcounty.com/en/administration/jps-information/hma.html. The website allows users to access the following information: JPS' current and future plans; the stakeholder engagement process, including links to video recordings of the community forums; HMA's briefings on the planning process to the Commissioners Court, JPS Board, and committee meetings; HMA's qualifications, including the current project work plan and ongoing project status reports; a brief description of the facility planning process; a description of the Citizens Blue Ribbon Committee and Committee members from the County Judge's Office and each precinct; and a list of frequently asked questions (FAQs) and answers about JPS and its long range planning process.

Between October 1, 2016 and December 31, 2016, 275 visitors have viewed the page.

Citizens Blue Ribbon Committee

The Commissioners Court established a Citizens Blue Ribbon Committee to review current and future needs of the JPS Health Network. Its purpose is to evaluate how JPS can best serve its stakeholders in the future. To this end, the Committee will use recommendations from this report and refer to a comprehensive evaluation of JPS Health Network facilities. The findings will be presented to the Commissioners Court and Tarrant County Hospital District Board of Managers for further consideration.

The Committee consists of twelve members. Two members are appointed by each of the Court Members and two co-chairs are appointed by the Court as a whole. Meetings are held in a public place with adequate notice to encourage public attendance. Digital recordings of the meetings are posted on the County's website.

Co-Chairs

- Randy Moresi, Former CEO, North Hills Hospital
- Lorraine C. Miller, President, LLM Ventures, LLC

Judge's Office:

- Stuart Flynn, MD, Dean, UNTHSC & TCU Fort Worth MD School
- Dee J. Kelly Jr., Kelly Hart & Hallman LLP, Partner

Precinct 1

- Elizabeth Treviño, PhD, Adjunct Professor, University of North Texas Health Science Center (Formerly, Chief Executive Officer, North Texas Area Community Health Center, Inc.)
- Tiesa R. Leggett, Project Coordinator, Blue Zones Project

Precinct 2

- Pastor Michael Evans, PhD., President, Board of Trustees, Mansfield Independent School District
- Howard Patterson Hezmall, M.D., Partner, Blue Moon Strategies, LLC

Precinct 3

- Mark R. Berry, CEO and Chairman, Teage Nall and Perkins, Inc.
- Scott W. Fisher, Senior Pastor, Metroplex Chapel

Precinct 4

- Steven L. Simmons, D.O., Pain and Sports Medicine Specialist, Southwest Sports and Spine
- Sarah Hollenstein, Owner, Norco Trucking, Inc.

JPS Board of Managers Liaisons

- Dr. Roy Lowry, D.O.
- Trent Petty

Tarrant County Commissioners Court Liaisons

- Commissioner Roy Charles Brooks
- Commissioner Andy Nguyen

Chapter 2. Macro Trends in United States Health Care Delivery

Tarrant County requested this report include a review state and national macro trends in healthcare delivery systems with significant behavioral health and academic medical center considerations over the long term. In the review of the trends, HMA also sought to provide Tarrant County and JPS a basis for action. This review examines five domains of change:

Table 2: Five Domains of Change

Domain	Description
1. Culture of Health	Community based, collaborative efforts that adopt a broad definition of community health, including making health a shared value, fostering cross-sector collaboration to improve well-being, creating healthier, more equitable communities, and strengthening integration of health services and systems.
2. Health System Transformation	Accelerating movement from fragmented care to coordinated, integrated care systems with measurable outcomes, engage with the community, and produce improved population health. Advancing health care data analytics, digital medicine, and predictive algorithms to improve illness prevention and early intervention while enabling healthier lifestyles.
3. Whole Person Care	Coordination of health, behavioral health, and social services in a patient-centered manner with the goals of improved health outcomes and effective use of resources.
4. Value Based Payment	Financing of health care services that connect payment to results, not volume, of activity.
5. Medical Education and Provider Supply	Adopt new multidisciplinary training programs and reallocation of educational resources towards areas of need including primary care, behavioral health, and integrated practice models of care.

Domain 1: Culture of Health

The Robert Wood Johnson Foundation in 2014 launched a "Culture of Health" vision and action plan that provides a useful framework for Tarrant County to assess the impact of new approaches to health care delivery and financing on county community health needs. The foundation's rationale and charter are well stated in this excerpt from their statement "Why a Culture of Health" [i]:

> *"For too long, we have defined being healthy as simply not being sick. In the U.S., good health is seen as a luxury, out of reach for many. Nearly one-fifth of all Americans live in low-income neighborhoods with limited access to nutritious food, affordable housing, and job opportunities. Compared to those living in similar countries, Americans spend more on health care, yet have poorer health and shorter lives."*

A Moment of Urgency and Opportunity

The foundation observed that after decades of focus on the health care system, health care leaders have come to recognize that complex social factors have a powerful influence on an individual's well-being. To improve the nation's health, all sectors must engage to improve population health, well-being, and equity.[ii]

The foundation also proposed a vision and action plan[iii] that could guide community based planning and collaboration to build a national *Culture of Health*. Ten underlying principles were proposed to guide health care and community wide efforts to improve health status.[iv]

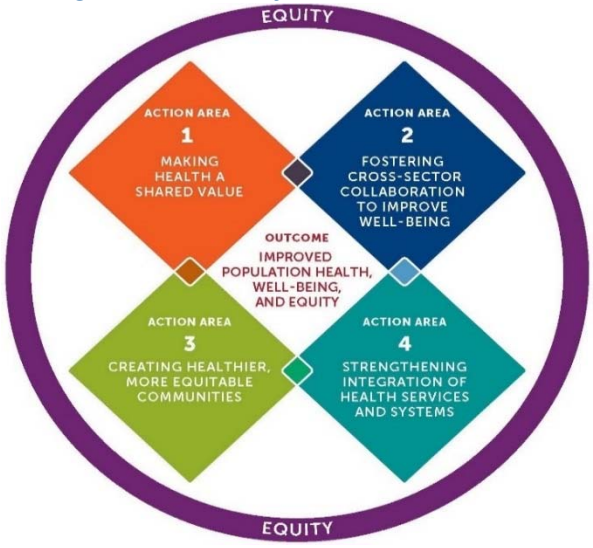
Ten Underlying Principles to Guide Health Care and Community Wide Efforts to Improve Health Status:

1. Good health flourishes across geographic, demographic, and social sectors.
2. Attaining the best health possible is valued by our entire society.
3. Individuals and families have the means and the opportunity to make choices that lead to the healthiest lives possible.
4. Business, government, individuals, and organizations work together to build healthy communities and lifestyles.
5. Everyone has access to affordable, quality health care because it is essential to maintain, or reclaim, health.
6. No one is excluded.
7. Health care is efficient and equitable.
8. The economy is less burdened by excessive and unwarranted health care spending.
9. Keeping everyone as healthy as possible guides public and private decision-making.
10. Americans understand that we are all in this together.

Culture of Health Action Areas, Drivers, and Measures for Change

HMA recommends that Tarrant County and JPS use the planning and action area tools from the Robert Wood Johnson Foundation "Culture of Health Report" to foster a culture of health in their own community, as described below.[v] The ultimate outcome would be improved population health, well-being and equity.

Figure 1: Culture of Health Action Areas



ACTION AREA 1 *Making Health a Shared Value*

ACTION AREA 2 *Fostering Cross-Sector Collaboration to Improve Well-Being*

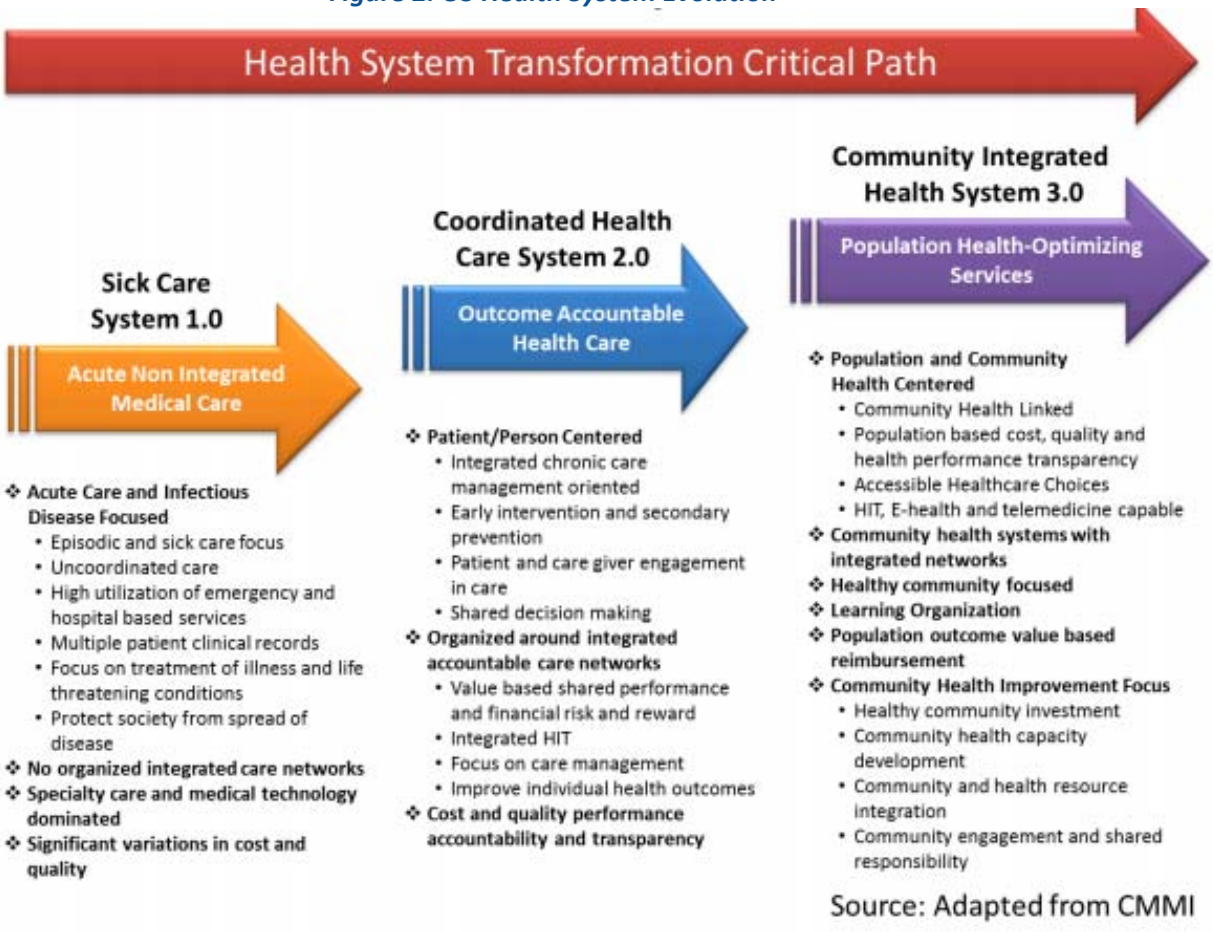
ACTION AREA 3 *Creating Healthier, More Equitable Communities*

ACTION AREA 4 *Strengthening Integration of Health Services and Systems*

Domain 2: Health System Transformation

Neal Halfon provided a seminal report that described the trajectory of health care delivery systems, past to future.[vi] Communities can use the critical path chart below to assess their current positioning on health care system changes.[vii]

Figure 2: US Health System Evolution[viii]



Domain 3: Whole Person Care

Coordination of health, behavioral health, and social services in a patient-centered manner with the goals of improved health outcomes and effective use of resources

The Blue Shield of California Foundation published a 2014 report, "National Approaches to Whole-Person Care in the Safety Net", that advocates for improved integration of care, including social determinants of health, which often are the more significant factors in health care status.[ix]

The report provides a description of Whole Person Care:

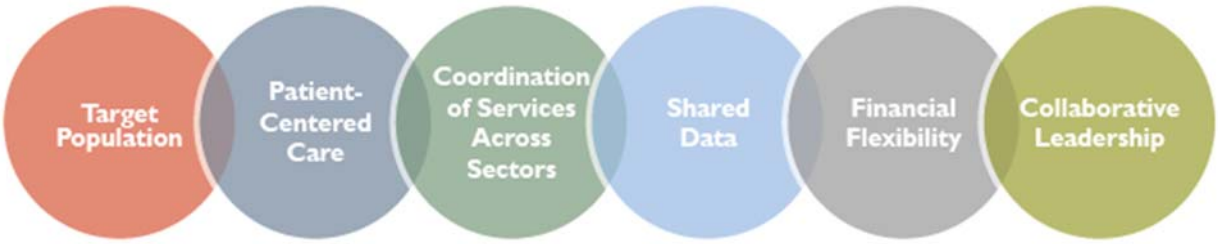
> *"Service providers who work with safety-net populations have long recognized the close interplay between an individual's socioeconomic circumstances, psychosocial conditions, and health. Individuals seen by safety-net providers often have unmet health and behavioral health needs as well as challenging psychosocial issues such as housing instability, unemployment, and food insecurity, which influence access to care and health outcomes. Indeed, studies of population health reveal that an individual's health outcomes are heavily influenced by his or her social determinants of health –that is, where he/she lives, works, and ages.*
>
> *Rising healthcare costs and the Affordable Care Act have elevated the demand for providers to assume increased accountability for cost and quality outcomes. Among*

safety-net health providers, responding to this demand includes a heightened recognition that individuals' behavioral health and basic economic needs and stressors must be addressed along with immediate health concerns.

However, existing organizational structures, financing and data systems for social services, mental health, substance use, public health, and medical services are siloed, often resulting in uncoordinated, insufficient, or potentially duplicative services or unmet needs at the patient level. There is a need to coordinate across systems to create "whole-person care" that overcomes the complexity of treating safety-net populations within the confines of the current systems. Whole-person care plays a critical role in a coordinated delivery system that addresses the medical, behavioral, and social needs of the safety-net population. For the purposes of this paper, we propose a working definition of whole-person care as the coordination of health, behavioral health, and social services in a patient-centered manner with the goals of improved health outcomes and more efficient and effective use of resources." [x]

This Whole Person Care model has six interlocking dimensions, as shown below. Communities can use these dimensions in forming action plans and priorities that result in an integrated approach for services, funding, and outcomes measurement.

Figure 3: Dimensions of Whole Person Care



Domain 4: Value Based Payment (VBP)

Financing of health care services that connect payment to results, not to activity volume

There is consensus among policy makers, payors, and practitioners that health care's current funding structure is an impediment to delivering high value care. Therefore, they are investing a significant amount of time and resources into developing VBP models that improve the overall quality of care while containing the astronomical growth in health care spending.

Transforming how health care is provided in physician offices, hospitals, clinics, long term care facilities, the home, and through technology application must have a compensation and payment model that providers and their support staff endorse as meeting personal and professional goals.

Effective VBP model designs require identification of a funding pool that will put providers at risk for performance based outcomes. Some communities seek funding from care coordination savings incurred by reducing expensive emergency department visits or inpatient admissions.

Value-based payments must be designed to meet the needs of the payor, the health care delivery system, and, most importantly, the designated population. Payment reform without corresponding change in the model of care is ineffective. Similarly, practice redesign without reinforcing payment reform is not sustainable.

Below is a review of VBP frameworks and models across the country, focusing on the safety net, which may inform Tarrant County and JPS's approach.

Robert Wood Johnson Foundation Payment Reform Evaluation Project

As part of a national effort to better understand the strategies around developing value based payment, the Robert Wood Johnson Foundation (RWJ) funded a two-part payment reform evaluation project, which was conducted over the course of 2011 – 2015. The evaluation, conducted by the University of Washington, aimed to "promote high-value health care outcomes through leveraging existing market knowledge, partnerships and resources in different states and regions of the United States….and to draw general lessons by comparing and contrasting implementation processes and intermediate outcomes of the state and regional value based payment projects."[xi]

While value-based payments are relatively new, by evaluating twelve payment reform efforts in eight different states, the Payment Evaluation Project demonstrated a few important lessons[xii]:

1. The delivery system model has a large impact on payment reform. A crucial insight from the research is the need to align payment with delivery system design so they work together to achieve the intended goals of controlling costs and improving quality.
2. Patient centered medical homes and accountable care organizations are strong vehicles for value-based payments.
3. Access to accurate and timely data is necessary but remains difficult to achieve.
4. Cooperation among plans, providers, and purchasers is required to make the complete transition from the volume-based, fee-for-service model to value-based payment.

Health Care Payment Learning & Action Network

Most recently, the Health Care Payment Learning & Action Network (HCP-LAN), an initiative spearheaded by Centers for Medicare & Medicaid Services' Alliance to Modernize Healthcare, convened the Alternative Payment Models Framework and Progress Tracking Work Group (Work Group) and charged it with creating a Framework for categorizing APMs and establishing a standardized and nationally accepted method to measure progress in the adoption of APMs across the U.S. health care system.

The Work Group recently released their final white paper titled "Alternative Payment Model (APM) Framework" to advance the goal of driving alignment in payment approaches across the public and private sectors of the U.S. health care system and have also created an alternative payment model (APM) framework.[xiii]

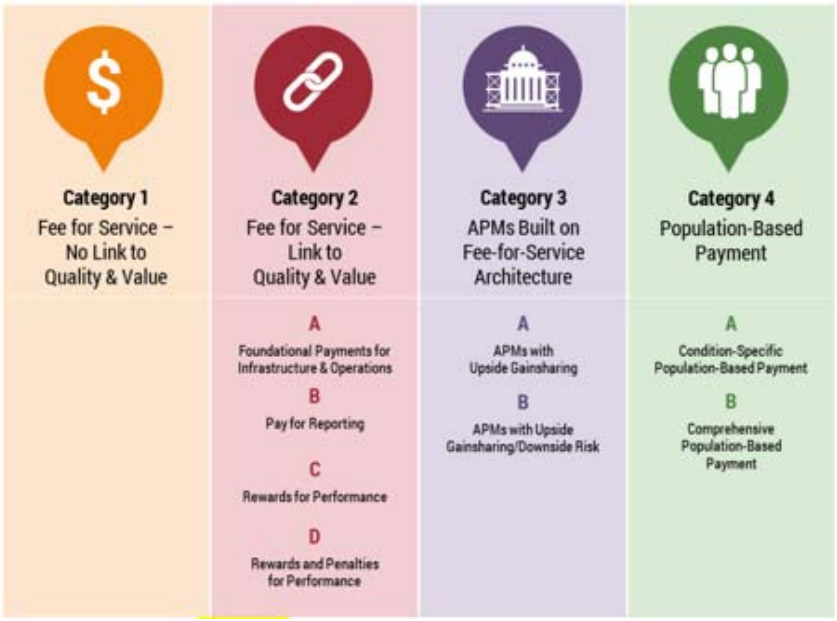
The Work Group based their APM framework on the following seven principles:

1. Changing providers' financial incentives is not sufficient to achieve person centered care, so it will be essential to empower patients to be partners in health care transformation.
2. The goal for payment reform is to shift U.S. health care spending significantly towards population based (and more person focused) payments.
3. Value-based incentives should ideally reach the providers that deliver care.
4. Payment models that do not take quality into account are not considered APMs in the APM Framework, and do not count as progress toward payment reform.

5. Value-based incentives should be intense enough to motivate providers to invest in and adopt new approaches to care delivery.
6. APMs will be classified according to the dominant form of payment when more than one type of payment is used.
7. Centers of excellence, accountable care organizations, and patient centered medical homes are examples, rather than categories, in the APM Framework because they are delivery systems that can be applied to and supported by a variety of payment models.

   Using the guidance of these seven principles, the Work Group developed the following APM Framework:

Figure 4: APM Framework (At-A-Glance)[xiv]



Alternate Payment Models & Federally Qualified Health Centers

Federally Qualified Health Centers (FQHCs) play an essential role in providing primary care services for vulnerable populations. Their reimbursement methodology was changed from a cost-based encounter rate to a Prospective Payment System (PPS) in 2000 with the passage of the Benefits Protection & Improvement Act (BIPA). PPS became fixed to the average of each FQHC's encounter rate for years 1999 and 2000 and inflated by the Medical Expense Index (MEI) for subsequent years. Federal statute continues to guarantee this pay-for-visit methodology to FQHCs for their Medicaid and/or Medicare insured patients. This is counter to the general direction that CMS and commercial payors are taking to transition providers to alternative payment methodologies that reward for outcomes (value) rather than the number of encounters (volume).

PPS methodology continues to be questioned. In a letter from the National Association of Medicaid Directors to then HHS Secretary Sebelius on February 24, 2014, they maintained that:

> *"The FQHC/RHC's unique payment methodology does not always promote efficiency and value and increasingly impedes some states' evolving delivery system and payment transformations."*

"The PPS rate-setting approach for health centers is not sufficiently aligned with the present and future realities in states' delivery system and payment improvement initiatives."

"States –like most public and private insurers including Medicare – are at least beginning to move away from predominance of fee-for-service (FFS) and most cost-based types of arrangements like the PPS and APM for FQHCs/RHCs."[xv]

Many FQHCs, their state primary care associations and their Medicaid agencies are exploring the value of an APM as a means of transitioning to value-based payment not only for their direct primary care services but also to align their efforts to achieving additional revenue based on managing utilization and cost across the full continuum of care.

The transition from PPS based fee-for-service to APMs and participation in an IDS is a challenging one. It pushes FQHCs out of their comfort zone and away from an incentive system they have become accustomed to over the last several decades. The practice transformation that it takes to successfully navigate this change requires a multi-payor approach that sends an aligned signal to the FQHC as to what is valued.

A Safety Net Perspective on National Trends in VBP

Public health and hospital systems have common financial and clinical goals with private sector physicians and hospitals; but publicly financed health care delivery systems have a variety of special and unique funding and performance expectations.

National trends in VBP models are moving towards risk-based payment that include bundled payments, quality/cost based outcomes, and overall a transition from volume based compensation to providers and hospitals towards what one might call "Whole Person Care Payments."

Safety net and public health and hospital systems that are supported largely by federal, state, and local tax funded programs are not insulated from the private and Medicare sector integrated health delivery and payment models. Public hospitals are pursuing alternate methods to provide ambulatory, hospital, and non-acute care services to the populations they serve.

These delivery and payment integration innovations will impact the continuum of medical and social care services for vulnerable and uninsured populations whether directly provided or through collaborative arrangements with other health care providers:

---

[i] Why we Need a Culture of Health. Robert Wood Johnson Foundation. Why We Need a Culture of Health. (n.d.). [Online] http://www.cultureofhealth.org/about/why-we-need-a-culture-of-health/.

[ii] From Vision to Action: A Framework and Measures to Mobilize a Culture of Health. Robert Wood Johnson Foundation. Accessed Jan. 27, 2017. [Online] http://www.rwjf.org/content/dam/COH/RWJ000_COH-Update_CoH_Report_1b.pdf.

[iii] Building a Culture of Health. Robert Wood Johnson Foundation. (n.d.). [Online] http://www.rwjf.org/en/how-we-work/building-a-culture-of-health.html.

[iv] From Vision to Action: A Framework and Measures to Mobilize a Culture of Health. Robert Wood Johnson Foundation. Accessed Jan. 27, 2017. [Online] http://www.rwjf.org/content/dam/COH/RWJ000_COH-Update_CoH_Report_1b.pdf.

[v] From Vision to Action: Measures to Mobilize a Culture of Health. Robert Wood Johnson Foundation. Jan. 27, 2017. [Online] http://www.rwjf.org/content/dam/files/rwjf-web-files/Research/2015/From_Vision_to_Action_RWJF2015.pdf.

[vi] Halfon N, Long P, Chang DI, Hester J, Inkelas M, Rodgers A. Applying a 3.0 Transformation Framework to Guide Large-Scale Health System Reform. Health Affairs (Millwood). 2014;33(11). Accessed Jan. 27, 2017. [Online] http://content.healthaffairs.org/content/suppl/2014/10/31/33.11.2003.DC1/2014-0485_Halfon_Appendix.pdf.

[vii] Halfon N, et.al. (2014).

[viii] Halfon N, et.al. (2014).

[ix] Maxwell J, Tobey R, Barron C, Bateman C, Ward M. National Approaches to Whole-Person Care in the Safety Net. JSI Research & Training Institute, Inc. March 2014. Accessed Jan. 27, 2017. [Online] http://www.jsi.com/JSIInternet/Resources/publication/display.cfm?txtGeoArea=US&id=14261&thisSection=Resources.

[x] Maxwell J, et. al. (2014).

[xi] Payment Reform Evaluation: Lessons from State and Regional Efforts. Department of Health Services, School of Public Health, University of Washington. (n.d.). [Online] http://depts.washington.edu/payeval/.

[xii] Conrad, Douglas, Grembowski, David, Gibbons, Claire, Marcus-Smith, Miriam. A Report on Eight Early-Stage State And Regional Projects Testing Value-Based Payment. Health Affairs. 2013. 998-1006.

[xiii] APM Framework White Paper. APM FPT Workgroup. Accessed Jan. 12, 2016. [Online] https://hcp-lan.org/groups/apm-fpt/apm-framework/.

[xiv] APM FPT Workgroup. (2016).

[xv] Directors, N. A. National Association of Medicaid Directors. Feb. 24, 2014. [Online] http://medicaiddirectors.org/wp-content/uploads/2015/08/namd_fqhc_letter_to_secretary_final_140224.pdf.

- ❑ Acute Care Hospital and Emergency Services
- ❑ Acute Psychiatric Care Hospital and Emergency Services
- ❑ Ambulatory primary, specialty, behavioral, and dental care
- ❑ Skilled Nursing Facility
- ❑ Rehabilitation Facility
- ❑ Palliative Care/Hospice
- ❑ Assisted Living
- ❑ Home Health/Day Care
- ❑ Non-emergency Transportation

VBP Models

Using identified funding streams, there are several options for pilots aimed at implementing alternative payment models in various components of the delivery system.

Pay for Reporting/Reward for Performance

Care management fees paid by managed care plans or by hospitals to clinics can be transitioned to a pay for reporting/reward for performance by establishing expectations for those dollars and required reporting of performance on those expectations. Possibilities include:

- An expectation that enrolled uninsured access members or Medicaid members receive an on-boarding call orienting them on how best to access the health care system, arranging a PCP visit if needed to update preventive services or to address gaps in chronic disease management and to perform a brief health risk assessment of actionable barriers to treatment plan compliance, such as social determinants of health or depression;
- An expectation that the PCP will use e-consults as appropriate to avoid unnecessary specialty care appointments;
- An expectation that the primary care provider will participate in a warm handoff from the inpatient discharge planner during transition of care post-hospitalization and arrange a follow-up visit to the primary care provider within 14 days;
- An expectation that the primary care provider will participate in a warm handoff from the emergency department nurse or care manager of patients identified as frequent ED utilizers to arrange a follow-up visit to the primary care provider as clinically indicated;
- The value-based payment for care management can be advanced to rewards and penalties for performance by withholding part of the care management fee and putting it at risk for meeting target performance on any of the above metrics.

APM Primary Care Payment Options

Reimbursement for primary care services is often restricted to face-to-face encounters with certain licensed clinicians such as physicians, nurse practitioners, physician assistants, midwives, clinical psychologists, medically licensed social workers, and dentists (“billable providers”). This excludes nurse visits, pharmacists, nutritionists, health educators, and other social workers and limits their independent functioning within the care team. Many current fee-for-service payments also disallow reimbursement for alternative primary care access such as nurse triage, team visits, phone, and patient portal consultations. Moving primary care from fee-for-service without regard for quality to either a bundled payment with upside risk only, or a bundled payment with up and downside risk allows the use of non-billable providers and alternative access in a member-centric fashion while reserving primary clinician time for tasks they are uniquely suited to provide.

Safety net providers can change from fee-for-service to a primary care capitated payment methodology which would free up clinics to provide access in the most member-centric and cost efficient fashion. Doing so would require reserving some of the dollars being currently spent to create VBP funds aimed at countering any tendency to reduce overall access through a pay-for-performance opportunity. Metrics should include monitoring for any reduction in preventive or chronic condition management services that can only be provided by a face-to-face visit with a “billable provider.” If possible, it should also monitor and incentivize a reduction in ED utilization as reduced access to primary care services usually results in increased use of the ED.

APM Specialty Care Payment Options

Outpatient specialty care usually is financed and delivered in a manner that requires a face-to-face encounter with the patient. Implementation of e-consult in other safety net populations has demonstrated that more than 30% of consultations can be delivered virtually without increased professional liability. Responses are timelier and much more convenient for the patient. Specialists can generally provide them in shorter periods of time and eliminate associated overhead expenses. Even when a subsequent face-to-face visit is required, the initial e-consult allows for proper pre-visit testing upon specialist recommendation so that the initial face-to-face visit is more productive. It allows specialists to prioritize scheduling of face-to-face visits based on urgency. Specialists can respond to e-consults during gaps created by no-shows. Because they are less resource intensive, the payor can pay for these virtual visits at lower rates.

These specialty physician arrangements can be applied to independent, contracted, or employed specialty physicians, often through an integrated practice unit model of care.

The transition from PPS based fee-for-service to APMs and participation in an IDS is a challenging one, especially for FQHCs and public hospital employed physicians. It pushes these providers out of their comfort zone and away from an incentive system they have become accustomed to over the last several decades. The practice transformation that it takes to successfully navigate this change requires a multi-payor approach that sends an aligned signal to the FQHC and other providers as to what is valued.

Governmental and commercial payors acknowledge that the transition from fee-for-service to outcomes-based reimbursement under an alternative payment methodology is an iterative process. Providers vary in their readiness to succeed under payment reform. It is particularly important for payors to offer safety net providers a clear but progressive glide path to value-based payment that does not compromise this resource-challenged, yet essential network, while at the same time does not enable it to remain mired in payment for service independent of results.

Readiness for transition depends upon existence of able and willing executive and clinical leadership, PCMH functionality, data analytic capacity, the portion of one's practice comprised of a payor's beneficiaries, and financial stability. Communities have used Medicaid Waivers and DSRIP programs to design a funding pool that will put providers at risk for performance based outcomes.

VBP Innovations in Medicaid and County Uninsured Access Programs

Medicaid programs nationally have pursued innovations using VBP pilots for whole person care - both ambulatory and inpatient - including the participation of Medicaid managed care organizations.

These models of Medicaid payments for whole person care also use uncompensated care pools and disproportionate share hospital funds, combined in some cases with local county taxes, to apply VBP and APM for uninsured populations served at public hospitals.

The payment and performance based incentive for public hospital inpatient care are, in part, connected to and dependent upon successful restructuring of primary and specialty care clinic services to reduce unnecessary hospital admissions and emergency department use and increase activity at patient centered medical homes.

Many pilot programs provide opportunities and incentives to increase coordination of care such as:

- Allow Medicaid managed care plans to develop APMs,
- Provide opportunities to create and test new approaches of purchasing primary and preventative care for the uninsured,

- Shift the focus of care for the uninsured from costly emergency care to a primary and preventative focus.

Several state Medicaid and county uninsured access programs also seek to coordinate behavioral health and substance use disorder treatment programs.

The following four categories are examples of alternative VBP systems for whole person care and include payment for services traditionally not covered by Medicaid in county access programs and, in some cases, for patients in a Medicaid Waiver or block grant arrangement.[xvi] These models include different ambulatory, telemedicine, home based, and hospital based services.

Category 1: Traditional Outpatient - This category includes traditional outpatient services provided by a public hospital system facility:

- Non-physician practitioner,
- Traditional, provider-based primary care or specialty care visit,
- Mental health visit,
- Dental,
- Public health visit,
- Post-hospital discharge,
- Emergency department/Emergency care,
- Outpatient procedures/surgery, provider performed diagnostic procedures.

Category 2: Non-Traditional Outpatient – This category includes encounters where care is provided by non-traditional providers or in non-traditional settings:

- Community health worker encounters,
- Health coach encounters,
- Care navigation.

Category 3: **Technology-Based Outpatient** – This category includes encounters that rely mainly on technology to provide care:

- Call line encounters,
- Texting,
- Telephone and email consultations between provider and patient,
- Provider-to-provider consults for specialty care,
- Telemedicine.

Category 4: Inpatient and Facility Stays – This category includes traditional inpatient and facility stays:

- Recuperative/respite care days,
- Sober center days,
- Sub-acute care days,
- Skilled nursing facility days.

Whole Person Care Strategies:

- Opportunity for local partnerships to integrate and coordinate otherwise siloed services to improve health outcomes for a highly vulnerable group of high utilizing beneficiaries with poor outcomes.
- Integration among county agencies, managed care plans, and providers.
- Increased care coordination and improved access.
- Reduced inappropriate ED and inpatient utilization.

- Improved data collection and sharing among agencies and managed care plans.
- Improved quality and health outcomes.
- Increased access to housing and supportive services (optional).
- Pilots can include county housing pools but cannot pay for room and board expenses.

Domain 5: Medical Education and Provider Supply

Medicaid and uninsured populations in areas of population growth often face a shortage of health care physicians, providers, and staff. Some of the trends include:

- A growing projected shortage in primary care physicians, increasing to 65,800 by 2025.[xvii]
- A "critical shortfall" in the number of physicians across specialties, growing over time.[xviii]
- A drop in the percentage of medical school graduates who said they intended to go into primary health care.[xix]

Health care delivery systems must address current and projected demand for these professionals through medical education and targeted staff recruitment. Some systems are already pursuing partnerships with regional health educational institutions to meet the growing demand for health care providers.

Texas is a state in which primary care physicians are in particularly short supply and with the state's projected, rapid population growth, the shortage of providers may become an impediment to care. Below is a review the major trends in medical education and provider supply impacting Tarrant County and JPS's strategy.

Multidisciplinary Team and Training

Multidisciplinary training is needed to support the increasingly diverse health care workforce. Graduates of health and medical training programs will increasingly work with a wide range of professions in interdisciplinary teams. Accreditation requirements in all physician training programs now require demonstration of competency and skills in working in multidisciplinary teams.[xx] Care of the sickest and most medically complex individuals will require collaborative teamwork to provide optimal care.

A number of schools have developed curricula in interdisciplinary care that will be of growing importance in all health education programs. The following graphic gives an indication of the kinds of interdisciplinary teams that will be providing care, especially to the sickest and most medically complex individuals. This example is for a child with cystic fibrosis, a chronic medical illness. For any chronic illness, training with team members should help prepare health professionals to function as an interdependent team.

Figure 5: A Multidisciplinary Team for Cystic Fibrosis[xxi]

Shortage of Specialists and Staff to Address Social Determinants

Physician specialists, behavioral health providers, oral health care providers, and staff to address the social determinants of health care are all in higher demand than supply.

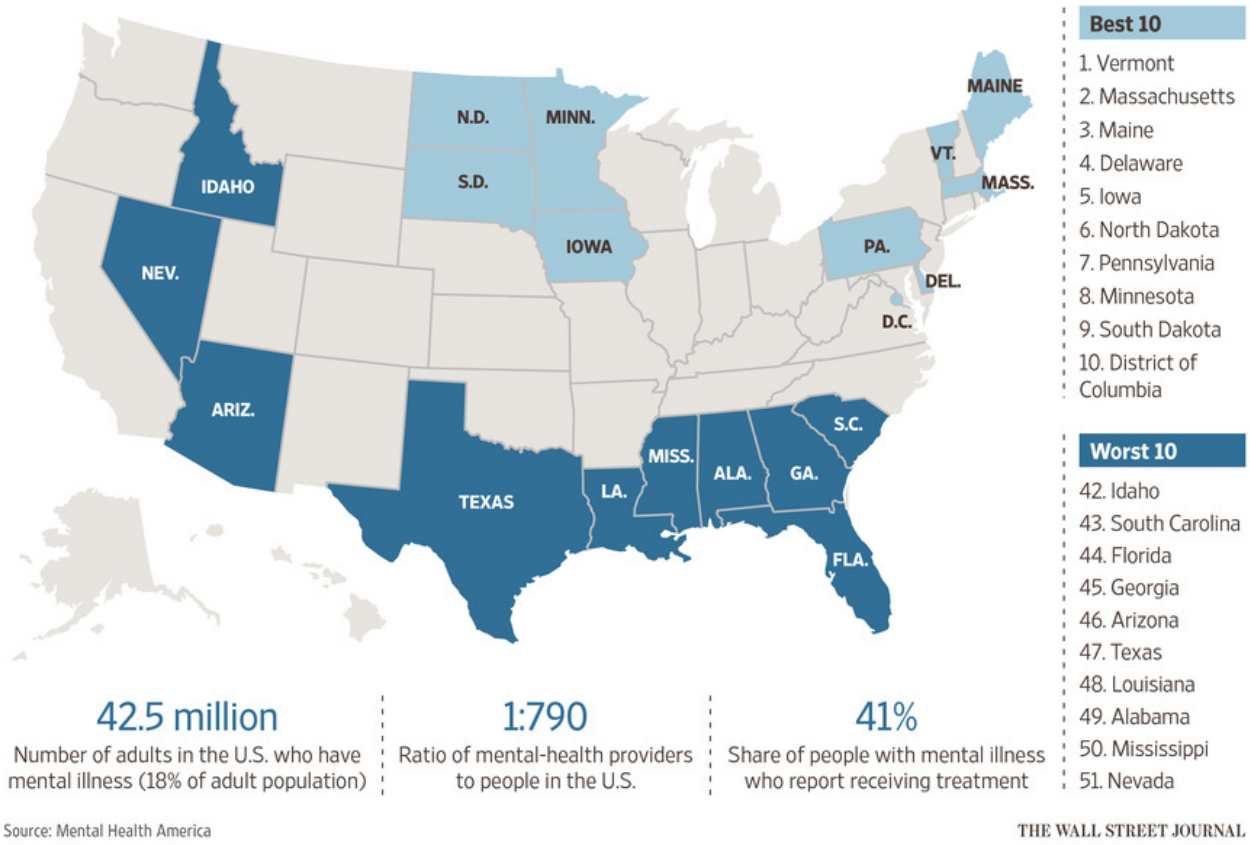
Specialty care

Physician specialty care is marked by limited access to care for many medically underserved populations, such as Medicaid and uninsured populations. Like primary care, subspecialty care demand is growing and the gap in provider access is particularly acute in several specialties.[xxii] Particularly acute are the needs forecast in areas such as cardiology, neurology, ophthalmology, general surgery, and psychiatry. Salaries for high-demand subspecialists have climbed – which is a disadvantage to many public hospitals that are less able to match salary increases offered by private providers.

Behavioral health

The need for behavioral health access has continued to grow. Shortages of psychiatrists, particularly child and gero-psychiatrists, are common. As expansion of health care for behavioral health issues has evolved with the growth of integrated care for physical and behavioral health, the demand for behavioral health providers has become more pronounced.[xxiii] Despite an increase in behavioral health services through new ways to integrate primary care with behavioral health in medical homes, many are unable to access needed care, in part due to the shortage of behavioral health providers. This problem is particularly widespread in Texas, as displayed in the graphic below. Behavioral health training programs at JPS and in Tarrant County, including not only psychiatrists but also psychologists and psychiatric social workers, need to be expanded to meet this growing need.

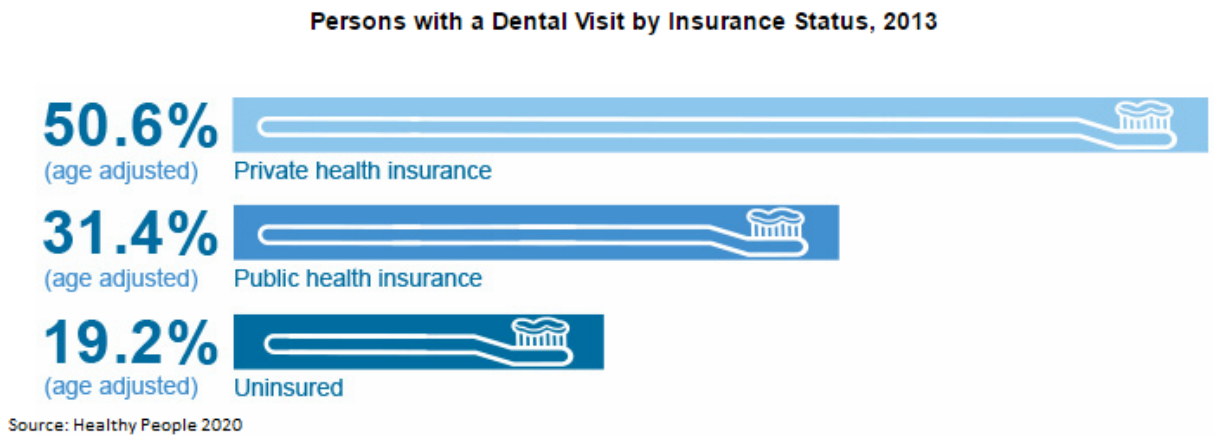
Figure 6: Access to Mental Health Care



Oral health

For medically underserved populations, access to care is limited and shortages of dental providers for these populations is widespread. The graphic below illustrates the relationship between insurance coverage and access to care. The literature has documented how oral health issues drive many emergency room visits in the absence of widespread general dentistry care.[xxiv] Communities without general dentistry residency programs are at a disadvantage when improving access to oral health providers.

Figure 7: The Link Between Dental Insurance and Access



Social needs

Increasingly, social determinants of health are found to have major influence on the outcomes of health status and accessing health care.[xxv] Health plans and providers increasingly recognize the importance of identifying and training staff to address these needs. Accreditation requirements for training programs for physicians increasingly include expectations for resident physicians to gain experience in addressing social issues. For the population seeking services at JPS, these social needs are major causes of care-seeking and complications of diseases. Many programs that offer training programs for health providers caring for underserved populations develop curricula[xxvi] and training experiences to better prepare providers to recognize and manage the social conditions contributing to ill health.

System and Policy Changes Affecting Demand for Medical Professionals

Shifts in the care setting, delivery method and scope of non-physician providers all affect the demand for medical professionals and associated training requirements.

Transition from inpatient to ambulatory and home care

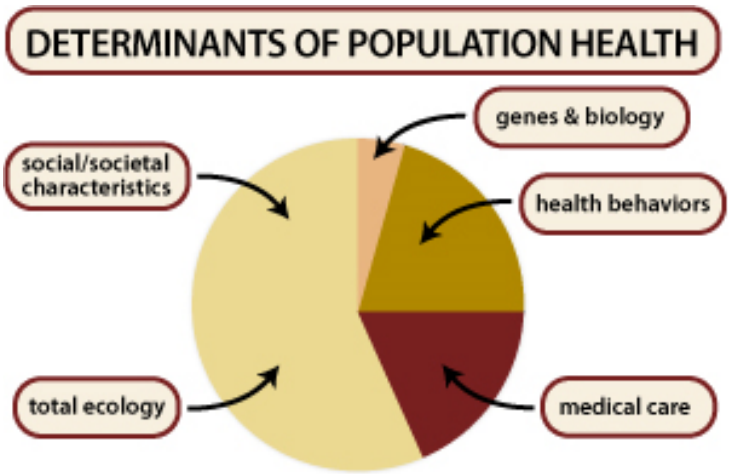
Medical care is increasingly shifting from the hospital to the outpatient and home settings. In part, this is driven by financial pressures related to the expensive costs of inpatient hospitalizations. Pressures by insurers to limit long inpatients stays and advances in health care that provide less invasive diagnostic and therapeutic treatments have each contributed to the decline in inpatient stays.

Increasingly, younger people are comfortable with and seeking care options that are more convenient. Care can be delivered in ambulatory settings and even in the home through mobile communication devices. This has contributed to the growth of telehealth options that distances care from the hospital campus even more. In addition to convenience for patients, the delivery of telehealth allows more efficient use of health providers and may provide ways to ease the demand for physician services.[xxvii]

Population health focus

A growing body of evidence[xxviii] has shown that care of the entire designated population through a series of phases, including risk screening, outreach, and preventive care, can mitigate or prevent the need for expensive care in the hospital (see Figure 8[xxix]). These "Determinants of Population Health" are an increasingly important concept in the education and training of all health providers. Instead of waiting for the ill patient to present at the emergency room or the office, care is directed outward to the patient to identify needs and close gaps in care. At the individual level, a population health focus demands a focus on the many factors, including medical, behavioral, social, and functional that affect health. Wellness is promoted through increased communication between the health team/system and the patient. Early identification and intervention for health needs that range from preventive care to complex medical management offer the system an opportunity to provide care that is timely, appropriate, and cost-effective. From a training standpoint, participation in population health demands new sets of knowledge, skills, and behaviors on the part of physicians, nurses, and others. Optimal care is best provided in settings of multidisciplinary teams and in integrated care of physical and behavioral health.

Figure 8: Population Health Determinants

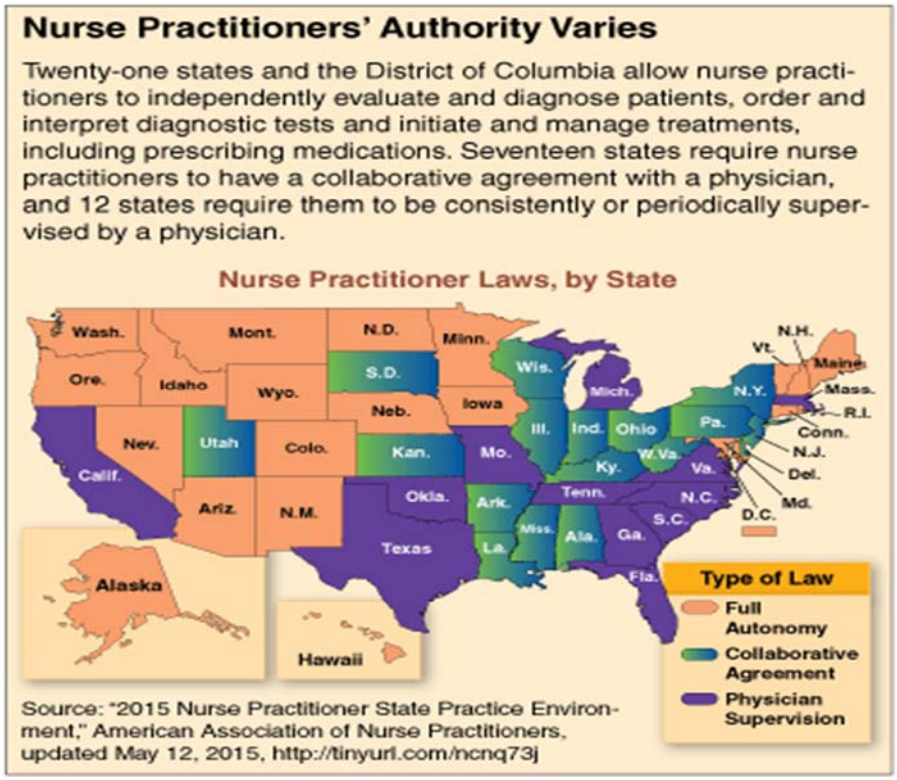


Non-physician clinical providers

With the growth in need for health services, there has been an explosion of care provided by non-physician health providers who make up the multidisciplinary team described above. This growth in the spectrum of health providers has allowed greater access to primary care, dental health, and behavioral health care. Nurse practitioners are the leading example of health providers that have greatly expanded in numbers nationally. For example, nurse practitioner graduates grew 15.3% from 2013 to 2014.[xxx]

State regulatory bodies have increasingly broadened the scope of care of nurse practitioners, physician assistants, psychologists, dental hygienists, and others. In Texas, however, more restrictive scope of practice rules apply and these non-physician providers must work under regular physician supervision (see Figure 9). Nonetheless, the two-decade trend is to an increasing scope of practice for non-physician providers. These supervisory agreements can allow for interdisciplinary teams to increase the reach, contact, and interaction with populations in need of health services.

Figure 9: Varying Authority of Nurse Practitioners



Physician Assistants are another example of a health provider group with tremendous expansion of numbers and scope of care in the last several decades. The number of Physician Assistants in the U.S. grew 14.7% from 2013 to 2014.[xxxi] Health systems across the country have recognized this trend and have begun collaborating with academic institutions to offer and nurture the growth of these programs. Meeting future health provider needs will necessitate an array of strategies and including non-physician clinical providers will be a major part of this effort.

Shortage of Graduate Medical Education Positions

Nationally, medical and osteopathic school enrollment has grown but the graduate medical education or residency position numbers have not kept pace. All graduating medical or osteopathic students must complete a residency in order to practice medicine. Residency positions are now largely funded by the Medicare Program, but Congress has essentially capped Medicare-funded Graduate Medical Education (GME) positions for the last 20 years. With an estimated cost of nearly $140,000 for each year of residency training[xxxii], hospitals have difficulty funding new GME residency slots without Medicare support.

Studies show that most physicians ultimately practice within 50 miles of the location of their residency training. If GME positions in a city or county are limited, attracting the best of the new physicians to the area could also be adversely affected. In recognition of this growing crisis across the state, the Texas Legislature has commissioned biennial reports to advise them of the state-wide implications and suggestions for change. The first of these reports was released in 2016.[xxxiii]

In the long run, the inability to train subspecialty physicians locally can contribute to difficulties with physician recruitment. The bidding war for these subspecialists will adversely affect public hospitals. The

lack of educational programs in many subspecialties can also inhibit the development of a local academic medical environment that combines academics, research, and ongoing medical education.

Public Hospital Training Strategies

Leading public hospitals across the nation are working closely with medical educational institutions to develop strategies to care more effectively and economically for safety net populations. The future success of public hospitals will be related to their ability to meet the demands of providing the best care to diverse and high-need populations.[xxxiv] The thriving public hospitals of today are also academic medical centers with an educational focus on care of the underserved. These academic public hospitals demonstrate a number of characteristics including:

- An institutional academic strategy and plan
- Educational and research activity goals incorporated into the medical center mission
- A close affiliation with a single medical school
- Physician leadership at the highest decision-making level
- GME programs that contribute to the institutional mission
- GME programs that serve as a pipeline for medical center physician recruitment
- Aligned physician staff that support and further the institutional mission
- Providers rewarded for productivity and contribution to mission
- Non-physician clinician training programs that help meet the clinician/provider needs of the institution
- A community-focused, population health strategy

Conclusion

The major trends in this chapter – Culture of Health, Whole Person Care, Value-Based Payment, Alternative Payment Methodologies and Health Profession Education and Workforce– apply to and must be key factors in Tarrant County and JPS Health Network decisions to maintain and improve the health status and financial resourcing for their population.

Tarrant County and JPS Health Network can adopt some of these approaches for the care of the uninsured and medically needy residents and to collaborate with other private sector health care systems, medical groups, providers, and health plans to harmonize innovation efforts affecting Texas Medicaid and Exchange plan members. These collaborative efforts can simplify access and navigation of services for Tarrant County residents while improving the engagement and support from front line physicians, providers, and staff without whose support transformation will be more difficult, expensive, and delayed.

Chapter 3. Community Health Needs Assessment

Introduction

Over the past six years, there have been several community health needs assessments/market analyses of Tarrant County. These include the *2010 JPS Community Needs Assessment* conducted by Premier; the *2013 Tarrant County Community Health Assessment Report* conducted by Tarrant County Public Health Department and the Mobilizing for Action through Planning and Partnerships (MAPP) Steering Committee; the *2013 JPS Community Health Needs Assessment* conducted by BKD CPAs and Advisors; and the *2015 United Way Tarrant County Community Assessment*. These assessments describe a diverse and growing county population with large numbers of low-income and working-class communities that have challenges affording health insurance and difficulties accessing and navigating the healthcare system. There are also some linguistically isolated immigrant and refugee communities.

HMA's community needs assessment (below) describes demographic trends in the County over the next 10 to 20 years and, on this basis, provides estimates related to the need for primary care, specialty care, and hospital beds. In general, Tarrant County is expected to experience substantial growth of almost a million people over the next 20 years. A significant percentage of this growth will be among low-income and minority groups who currently have poor access to healthcare services. Many of these populations are concentrated in the urban core of Fort Worth, to the west of the city, and in and around Arlington. New prevention, chronic disease, and community-based services will be needed to address the needs of a growing number of children, pregnant women, and older adults. To manage costs, these services should be delivered proactively and in community and ambulatory environments, rather than under emergent circumstances within hospitals. These services should address high rates of physical inactivity, smoking, obesity, high blood pressure, diabetes, cardiovascular disease, depression, and alcohol and substance abuse. The services should also mitigate low cancer screening rates among older adults, poor prenatal care among pregnant women, and inadequate rates of immunization among children.

Demographic Trends

Current profile

A comprehensive table of Tarrant County Demographics can be found in Appendix 5; this section will highlight particular demographics and trends most relevant to long range planning and analysis for the hospital district.

The U.S. Census American Communities Survey indicates that ass of 2015, Tarrant County had a population of 1,889,101 people. The Survey also estimates that for the 5 years between 2011-2015, 19.3% of the Tarrant County population had no health insurance, compared to 20.6% statewide.

Figure 10, below, summarizes the most recent census data for the County in terms of age, race/ethnicity, and educational attainment. Twenty-eight percent of the County's residents speak a language other than English at home.

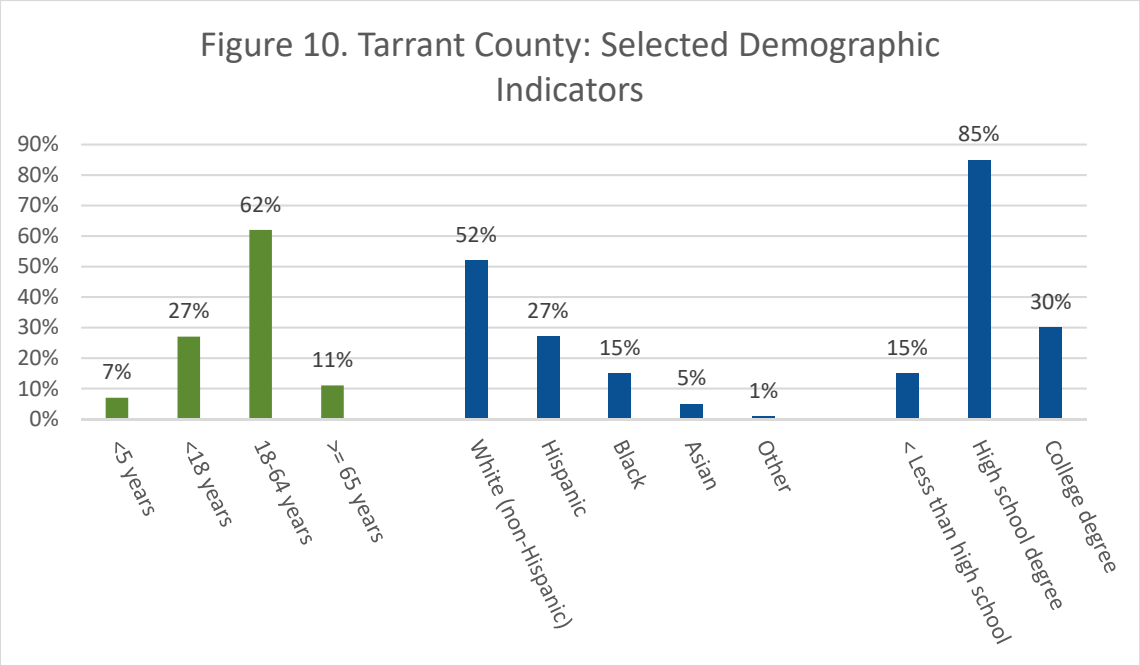
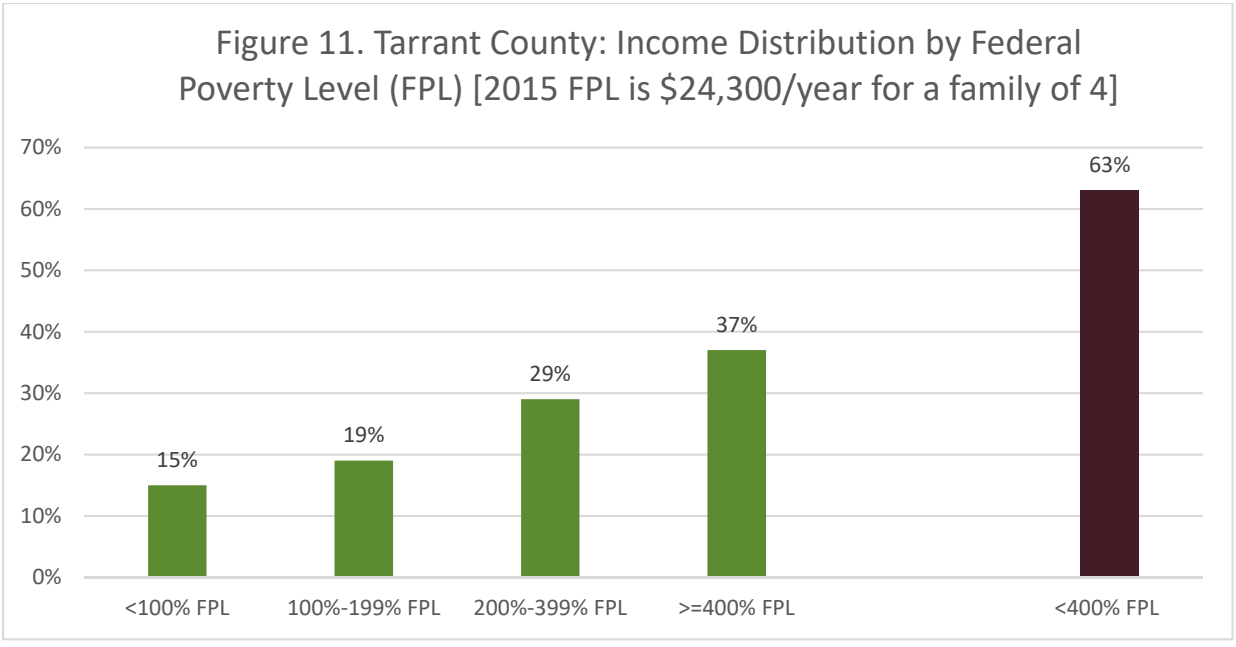


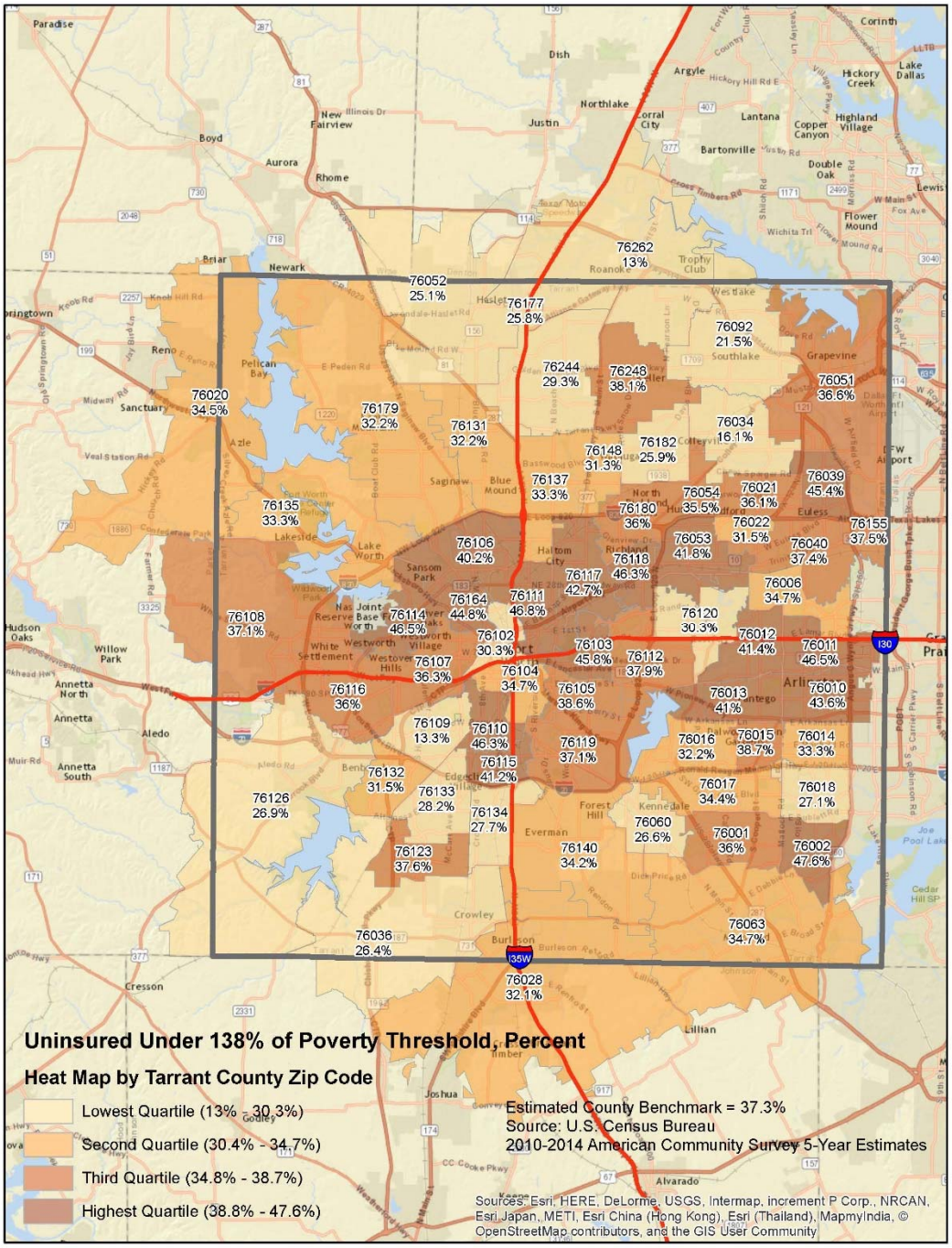
Figure 11 depicts county income distribution by percentage of Federal Poverty Level (FPL) which, in 2015, was $24,300/year for a family of four. The percent of residents living at less than 200% FPL is 34%, which is slightly less than Texas as a whole (39%). Large numbers of County residents (1,191,930 individuals or 63% of the total) are below 400% FPL which is significant because this is the cutoff for health insurance subsidies through the Health Exchange, operated in Texas by the Federal government.



States that have expanded Medicaid coverage have done so for people who are <138% of FPL ($33,534 for a family of four). Texas did not expand Medicaid. In Tarrant County, people at <138% FPL are geographically distributed non-evenly, as depicted in Map 1. These very low-income populations are concentrated in Fort Worth's urban center, in certain adjacent zip codes to the west, and in several zip codes of the Arlington area. A supplemental spreadsheet with all report maps and related data was

produced to enable customization of maps for particular purposes. (Refer to Supplemental Spreadsheet: Maps and Related Data Tables.)

Map 1: Uninsured Under 138% of Federal Poverty Level, Tarrant County, 2010-2014



Future trends: Over the next 20 years, through a combination of immigration, live births, and longer life expectancy, Tarrant County's population will increase rapidly by about 1 million people, from about two million to three million (an increase of 46%). Figure 11 illustrates these growth trends by % of FPL.

The population in Tarrant County is expected to grow rapidly in the coming years. While there are several organizations that have made population projections for Tarrant County, this report is using projections developed by the North Texas Council of Governments.[xxxv]

Table 3 below estimates the total population and population for each of these income bands for 2017, and projects population growth in increments of 5 years over the subsequent 20 years, through 2037.

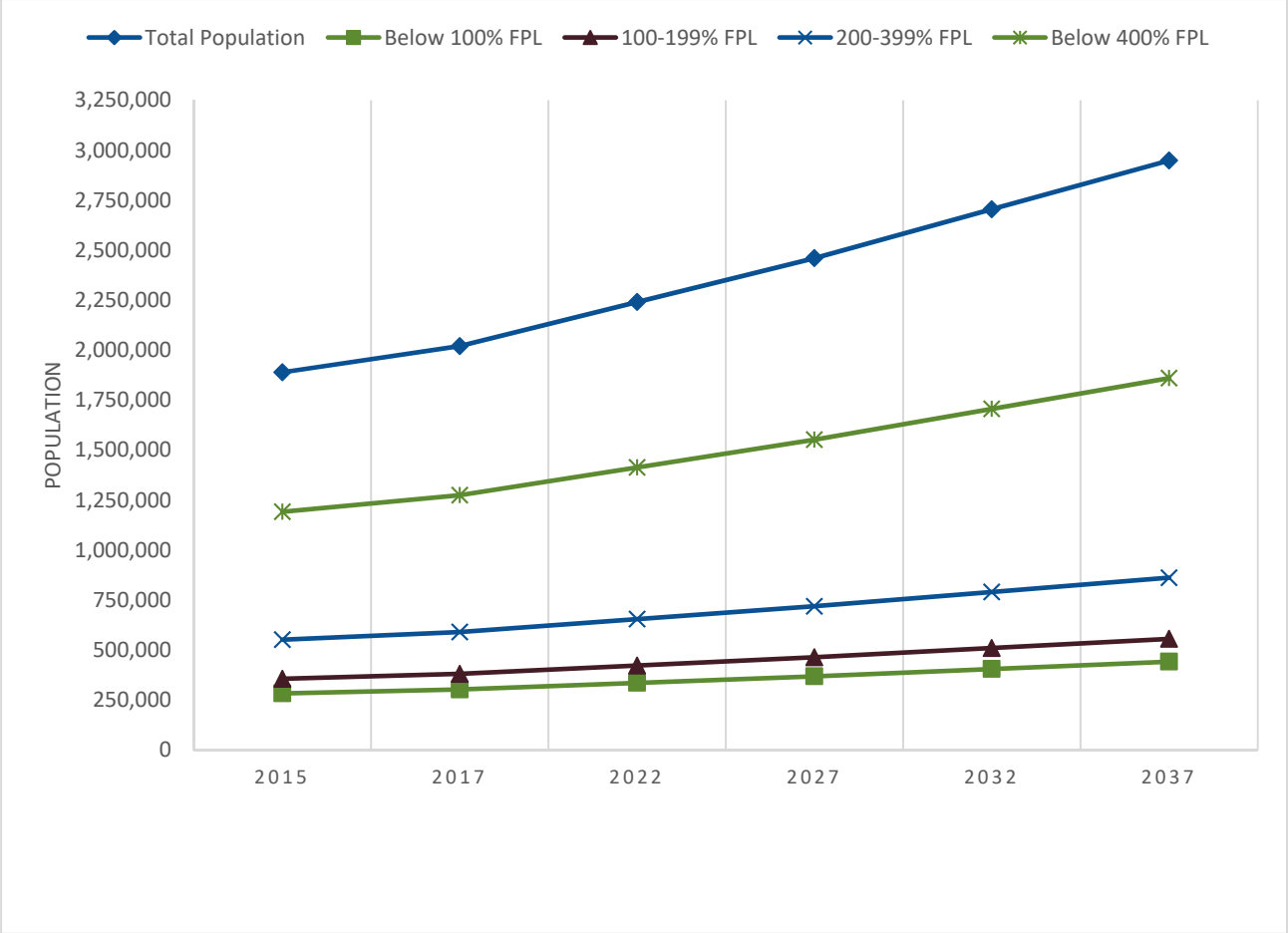
Table 3: Total Population Change from 2017 through 2037 by Percent Federal Poverty Level, Tarrant County, Texas[xxxvi]

Year	Total Population	Below 100% FPL	100-199% FPL	200-399% FPL	Cumulative Total Below 400% FPL
2015 Total Population	1,889,101	283,264 (14.99% of total pop)	356,414 (18.86% of total pop)	552,252 (29.23% of total pop)	1,191,930 (63.09% of total pop)
2017 projected population	2,020,278	302,934	381,163	590,600	1,274,696
2022 projected population	2,240,508 (10.9% increase from current 2017)	335,956	422,713	654,981	1,413,651
2027 projected population	2,460,061 (21.8% increase from current 2017)	368,877	464,136	719,164	1,552,178
2032 projected population	2,704,421 (33.9% increase from current 2017)	405,518	510,239	790,599	1,706,357
2037 projected population	2,948,206 (46% increase from current 2017)	442,073	556,234	861,866	1,860,173

Source: US Census for 2015 population, North Central Texas Council of Governments (NCTCOG) for projections.

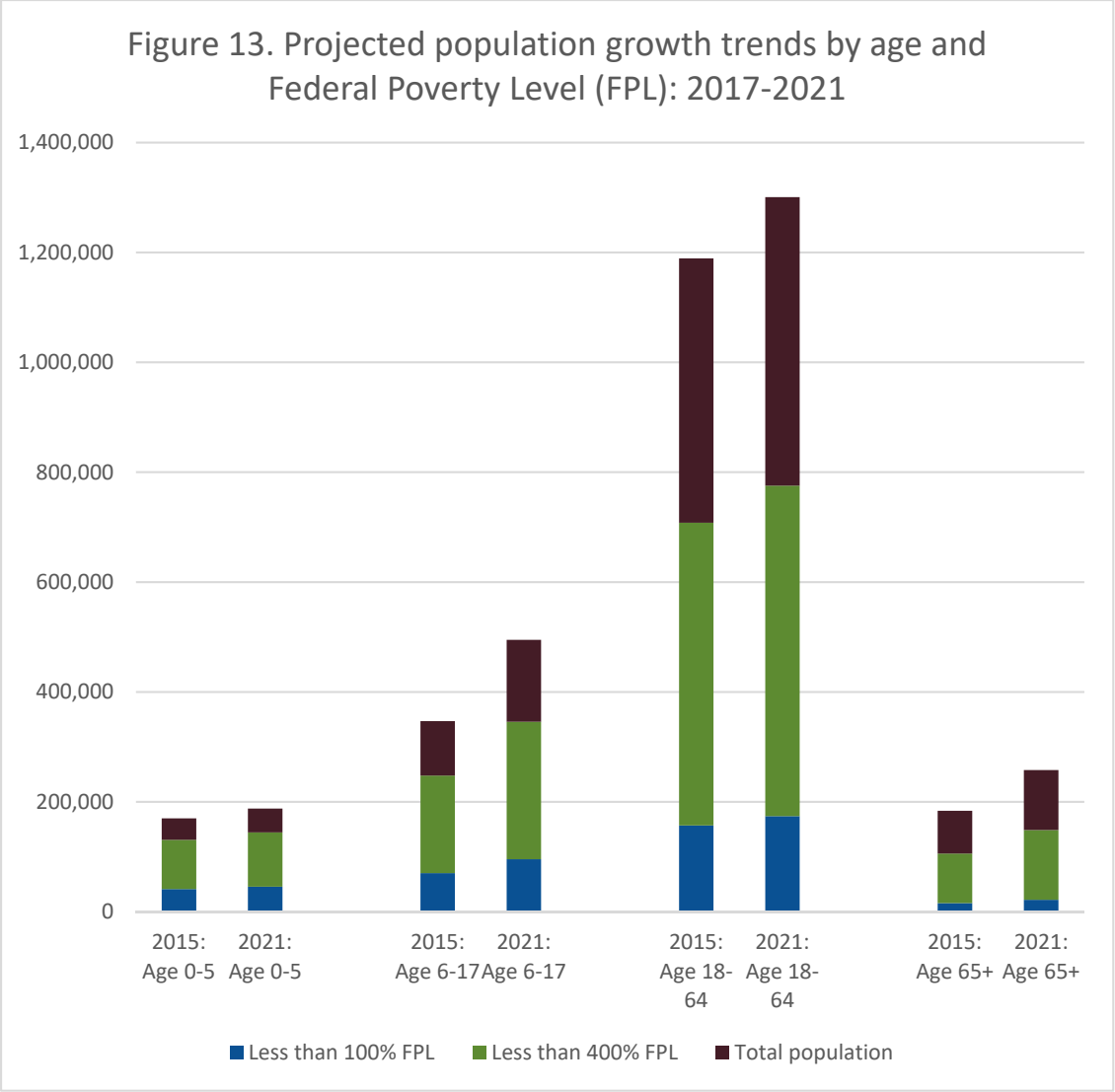
In the next 20 years, the total Tarrant County population will increase by about 1 million people; from about 2M to nearly 3M; a 46 percent increase in population. The graph below shows this steady projected increase in growth.

Figure 12: Population Projections by Percent FPL from 2017 – 2037, Tarrant County Texas



Source: US Census for 2015 population, North Central Texas Council of Governments.

Figure 13 illustrates projected population growth trends from 2017 through 2021 by age and FPL. Because population growth will be significant in the youngest (age 5 and younger) and oldest age groups (>65 years), this has important implications in terms of the need for future maternal and child health services, and for the management of chronic conditions and care at the end-of-life.



Different ages of the population will grow at different rates. The table below indicates population change in the youngest age group (0-5), the adult population (18+) and the oldest age group (over 64) by percent of the Federal Poverty Level between 2015 and 2021. Most notably, the population change in the over 18 population during this time is 13.54%, while the population change in the over 65 population is an astounding 40.51%.

Table 4: Total Population Change from 2015 through 2021 by Percent Federal Poverty Level and Age, Tarrant County, Texas

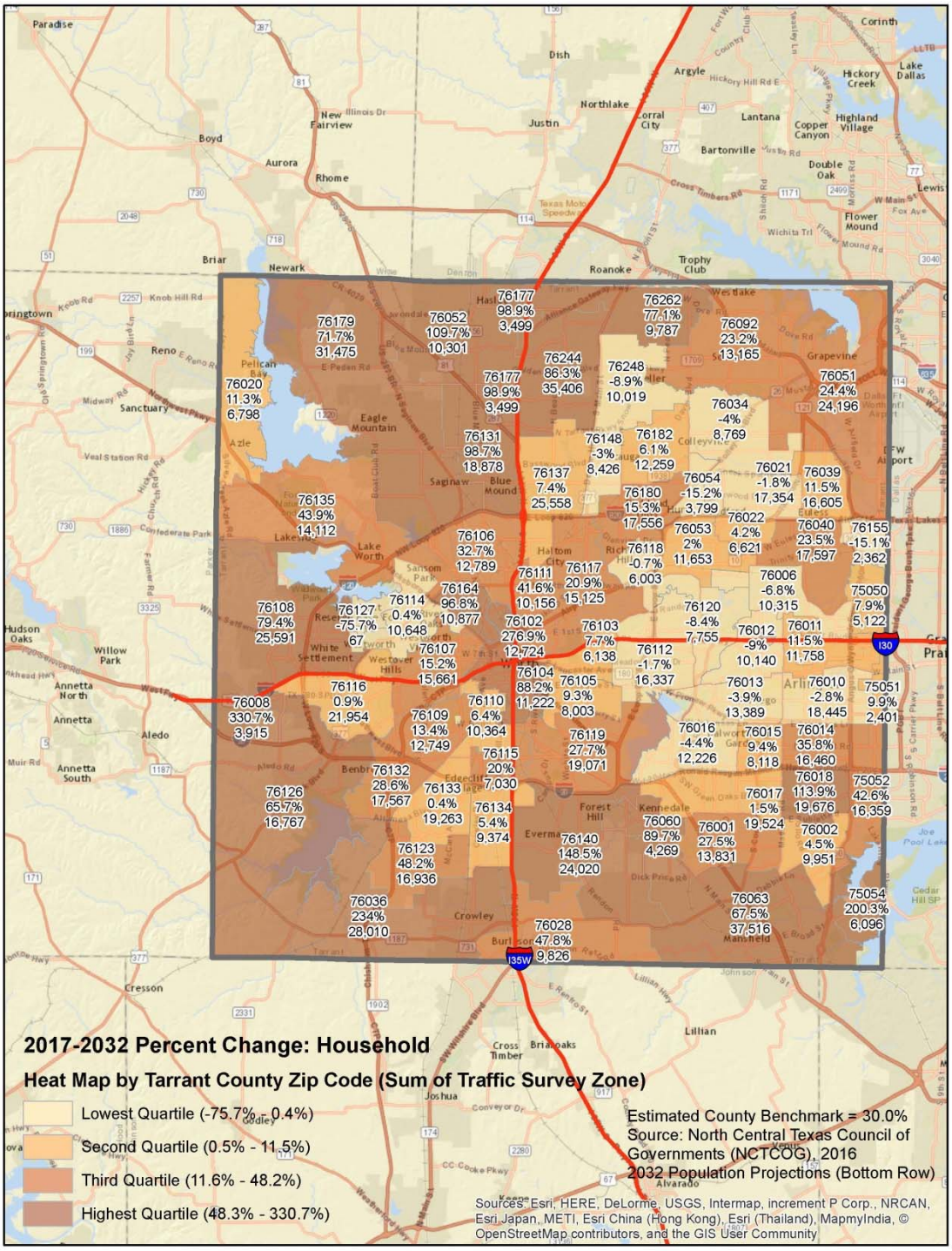
Year	Population Subgroup	Below 100% FPL	100-199% FPL	200-399% FPL	Cumulative Total Below 400% FPL
2015 Population Age 0-5	169,687	40,991	41,073	48,560	130,624

2021 Projected Population Age 0-5	187,506 (10.50% increase over from 2015)	45,296	45,386	53,659	144,341
2015 Population Age 18+	1,372,566	172,091	234,550	407,014	813,655
2021 Projected Population Age 18+	1,558,379 (13.54% increase from 2015)	195,388	266,303	462,114	923,805
2015 Population Age 65+	183,445	15,382	32,071	58,234	105,687
2021 Projected Population Age 65+	257,766 (40.51% increase from 2015)	21,614	45,064	81,827	148,505

Source: Data Source: US Census for 2015 population, Esri for projections.

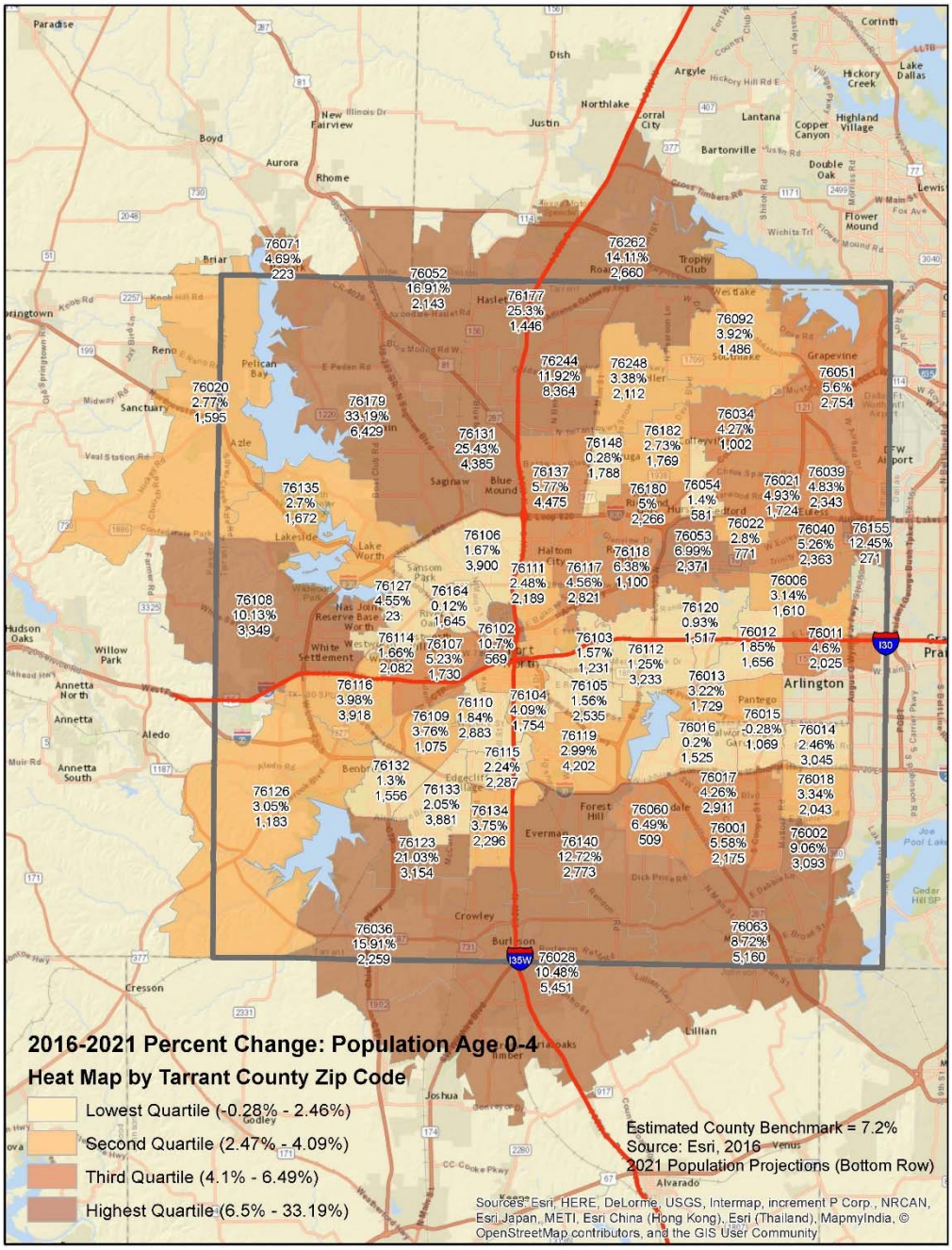
Map 2 indicates the growth in total households over the next 15 years (2017-2032), with highest growth in the periphery of the County.

Map 2: Number of Households - Percent Change from 2017 through 2032, Tarrant County, Texas (by quartile)



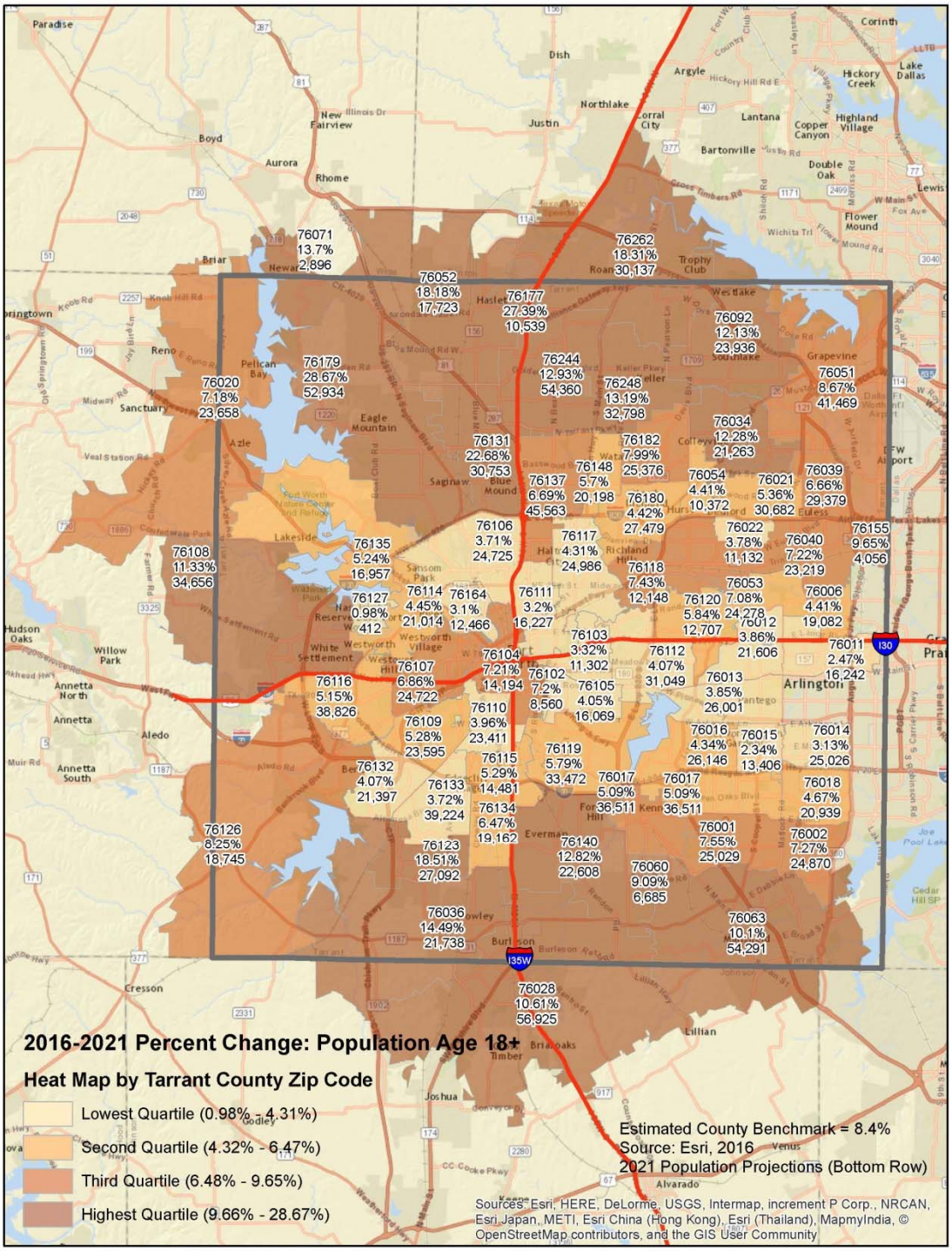
The maps below depict projected population growth by age cohort. Map 3 illustrates that over the next five years the greatest growth in the <5-year-old cohort will be in the north, south, and southeast of the County, with additional zip codes in the west and within Fort Worth.

Map 3: Population Percent Change from 2016 through 2021 for persons 0-4 Years, Tarrant County, Texas



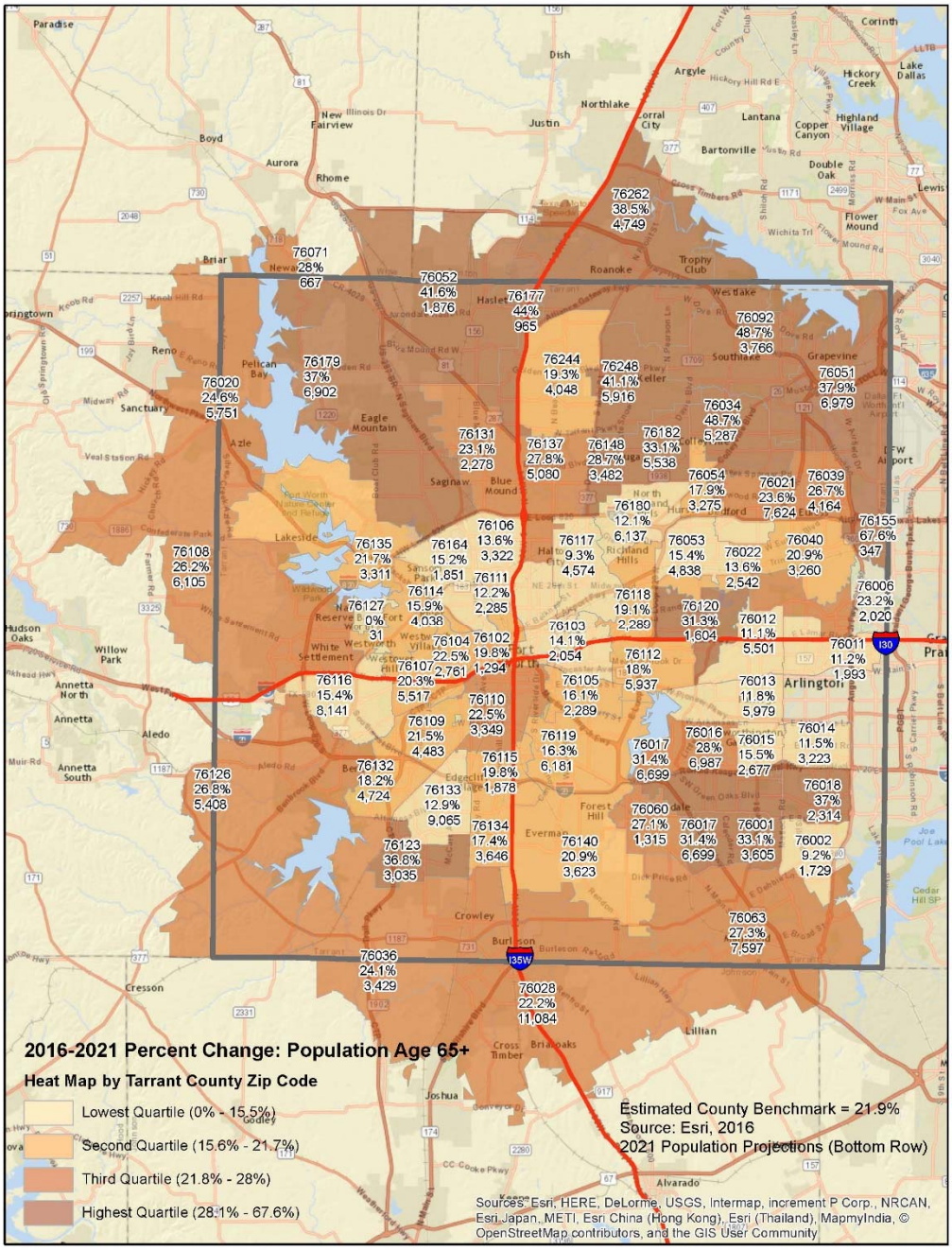
In Map 4, five-year growth in the over 18-year-old cohort will take place in the north, south, and southeast of the County, with additional zip codes in the west.

Map 4: Population Percent Change from 2016 through 2021 for Persons 18+ Years, Tarrant County, Texas



Map 5 illustrates that the over 65-year-old cohort will grow most significantly in the northeast, northwest, and southwest, with additional zip codes in Fort Worth.

Map 5: Population Percent Change from 2016 through 2021 for Persons 65 Years and Over, Tarrant County, Texas



Age-related population growth trends for lower-income residents of the County should be used to inform decisions about where to establish new medical homes, specialty physician services, ambulatory

surgery, and dental care sites. Further detail related to the need for an expanded ambulatory care network are discussed in the Delivery System chapter.

Population Projections related to Eligibility for the JPS Connection Program

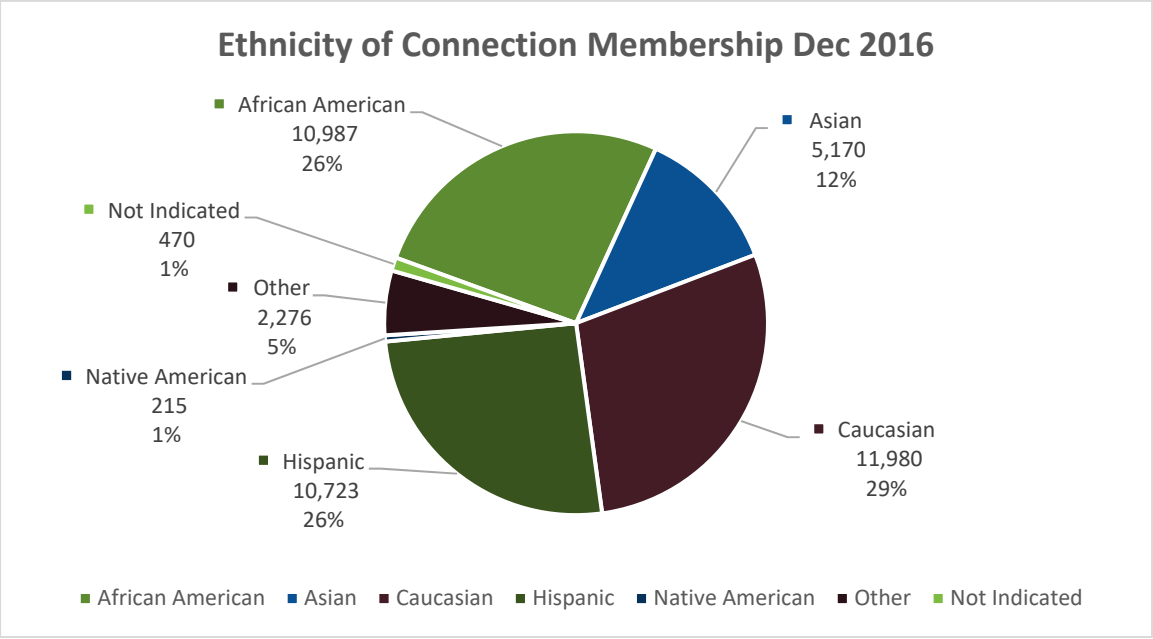
The JPS Connection program provides "affordable access to doctor appointments, specialized care and prescriptions for Tarrant County residents who qualify." The program serves the adult, non-Medicaid eligible, documented population below 250% of FPL. (Refer to JPS Connection Program Description in Appendix 4.)

As a payor of last resort, the JPS program has the following components:

- **JPS Connection:** Provides assistance to patients without health insurance.
- **JPS Connection Homeless Program:** Provides assistance to patients without health insurance who are experiencing homelessness.
- **JPS Connection Supplemental to Medicare:** Provides assistance to patients with Medicare Part A&B or a Medicare Plan contracted with JPS Health Network.
- **JPS Connection Supplemental to Insurance:** Provides assistance to patients with a primary insurance plan that is contracted with JPS Health Network.

Below is a breakdown of the ethnicity of JPS Connection membership. The predominant group is Caucasian, non-Hispanic (29%), followed by African-American and Hispanic (26% each), and Asian (12%).

Figure 14: JPS Connection Membership by ethnicity, December 2016



Source: JPS Health Network

Based on a projection tool that relies on certain assumptions, the table below illustrates the estimated JPS Connection-eligible population through 2037.

Table 5: Projections for JPS Connection-Eligible Population, Tarrant County, through 2037.

Year	Total population below 250% FPL*	Total population 18+ years, below 250% FPL, non-Medicaid	Age > 65	Undocumented residents under 250% FPL (ineligible for JPS Connection)	JPS Connection Eligible Population: 18+ years, below 250% FPL, non-Medicaid
2015 Population	801,827	466,068	64,551	113,346	398,060
2027 projected population	1,044,170	606,931	137,308	147,604	518,369
2037 projected population	1,251,364	727,364	201,470	176,892	621,228

** FPL – Federal Poverty Level.*
Source: Population of Texas and Counties in Texas by Age, Sex, and Race/Ethnicity from 2010 to 2050. University of Houston 2014. (Using 0.5 immigration scenario.)

Undocumented Populations

Undocumented populations are not eligible for Medicaid or the JPS Connection program. As of 2017, there are an estimated 141,419 undocumented individuals residing in Tarrant County (about 7% of the County's total population). Approximately 80% of undocumented Texas residents were born in Mexico.[xxxvii] The percent distribution of undocumented residents has remained stable in recent years despite concerns that the undocumented population has been growing. According to recent data from the Migration Policy Institute, more than half of the state's undocumented residents have lived in Texas for more than 10 years, and 41% are homeowners. Although 62% of undocumented residents in Texas are engaged in some form of employment, 72% do not have any form of health insurance.[xxxviii]

Undocumented populations receive emergency medical care (including for women going through active labor) from JPS and other Medicare-participating acute care hospitals in Tarrant County. This care is mandated in provisions of the Emergency Medical Treatment and Labor Act (EMTALA). This federal law requires that individuals who require emergency care receive the necessary examination, treatment, and–if necessary – transfer to another facility regardless of an individual's ability to pay. [xxxix]

Some undocumented populations receive emergency medical care from JPS and other Medicare-participating acute care hospitals in Tarrant County. The Emergency Medical Treatment and Labor Act (EMTALA) requires that individuals who go to the Emergency Department (ED) for urgent medical care must receive treatment regardless of their ability to pay. Depending on the individual's health care needs, treatment may include examination or transfer to another facility. [xl] Undocumented adults are primarily cared for at the North Texas Community Health Center, and/or free, faith-based clinics throughout the County. Undocumented children may receive services at JPS through Title V - Maternal Child Health Program.

Legal refugees

According to the Texas Refugee Health Program, Tarrant County accepts the third largest proportion of refugee arrivals of all Texas counties. In CY 2014, Tarrant County resettled 15% of all sanctioned Texas refugee arrivals — about 2,068 individuals in that year. The greatest proportion were from Iraq (24%), Cuba (24%), Burma (18%), Afghanistan (10%), and Somalia (6%). The Texas Refugee Health Screening

Program provides local health departments with resources to provide immunizations to and carry out health assessments for new refugee arrivals. The Tarrant County Health Department participates in this program, which screens for communicable diseases, including tuberculosis (25% test positive), HIV (0.5% test positive), hepatitis B (2% test positive), sexually-transmitted illnesses (0.8% test positive for syphilis), and intestinal parasites (the majority are not tested but presumptively treated). The program also provides general physical assessments to identify, educate, and refer for the evaluation and treatment of additional health problems. Upon arrival in the United States, all refugees are eligible for Medicaid.[xli]

Health Status of Tarrant County

Tarrant County has a high rate of adult obesity, age-adjusted diabetes prevalence, and diabetes mortality rate. These are all above the national severe benchmark (defined as the top 25th percentile nationally).

Table 6: Health Indicators Related to Diabetes and Obesity

Health Indicators Related to Diabetes and Obesity	Tarrant County	Texas	Top 25th percentile nationally
Age-Adjusted Diabetes Prevalence[1]	*10%*	11%	9%
Age-Adjusted Diabetes Mortality Rate[2]	*26%*	21%	25%
Adult Obesity Prevalence[1]	*33%*	32%	30%
Percent of diabetic Medicare enrollees not receiving a hemoglobin A1c (HbA1c) test[3]	15%	16%	20%
Percent of adults who currently smoke cigarettes[1]	15%	15%	20%
Percent of adults (18 years and older) with no physical activity in the past month[4]	24%	24%	27%

[1] Behavioral Risk Factor Surveillance Survey (BRFSS), 2014
[2] Centers for Disease Control and Prevention (CDC) WONDER, 2014
[3] Dartmouth Atlas of Health Care, 2013
[4] CDC Diabetes Interactive Atlas, 2013; Statewide data from County Health Rankings, 2016

Table 7: Health Indicators Related to Cardiovascular Disease

Health Indicators Related to Cardiovascular Disease	Tarrant County	Texas	Top 25th percentile nationally
Age-Adjusted Mortality from Diseases of the Heart (per 100,000 population)[1]	145.0	169.9	203.2
Age-adjusted cerebrovascular disease mortality (per 100,000)1	42.9	41.6	46.3
Proportion of Adults reporting diagnosis of high blood pressure[2]	31%	31%	31%
Percent of adults who have not had their blood cholesterol checked within the last 5 years[2]	19%	25%	26%

[1] CDC WONDER, 2014
[2] BRFSS, 2013

Table 8: Health Indicators Related to Cancer

Health Indicators Related to Cancer	Tarrant County	Texas	Top 25th percentile nationally
Age-adjusted colorectal cancer mortality (per 100,000 population)2	13	14	15
Age-adjusted breast cancer mortality (per 100,000 population)3	10	11	24
Cancer Screening — Percent of women 18 and older with No Pap test in past 3 years[1]	24%	23%	20%
Cancer Screening — Percent of women 40 and older with No Mammogram in past 2 years[1]	24%	23%	26%
Cancer Screening — Percent of adult 50 and older with No Fecal Occult Blood Test within the past 2 years[1]	66%	54%	85%

[1] *BRFSS, 2014*
[2] *CDC WONDER, 2014*
[3] *CDC WONDER, 2012-2014*

Table 9: Health Indicators Related to Perinatal and Prenatal Health

Health Indicators Related to Perinatal and Prenatal Health	Tarrant County	Texas	Top 25th percentile nationally
Low Birth Weight Rate, 5 year average[1]	8%	8%	9%
Infant Mortality Rate, 5 year average[1]	7%	6%	8%
Births to Teenage Mothers (15-19) (Percent of all births) [1]	7%	10%	10%
Late entry into prenatal care (entry after first trimester) (Percent of all births) [1]	39%	36%	21%
Cigarette use during pregnancy (Percent of all pregnancies) [1]	5%	4%	18%
Percent of births that are preterm (<37 weeks gestational age) [1]	11%	12%	13%

[1] *Texas Health Data Center for Health Statistics, 2013*

Map 6: Infant Mortality Heat Map, Tarrant County, 2013

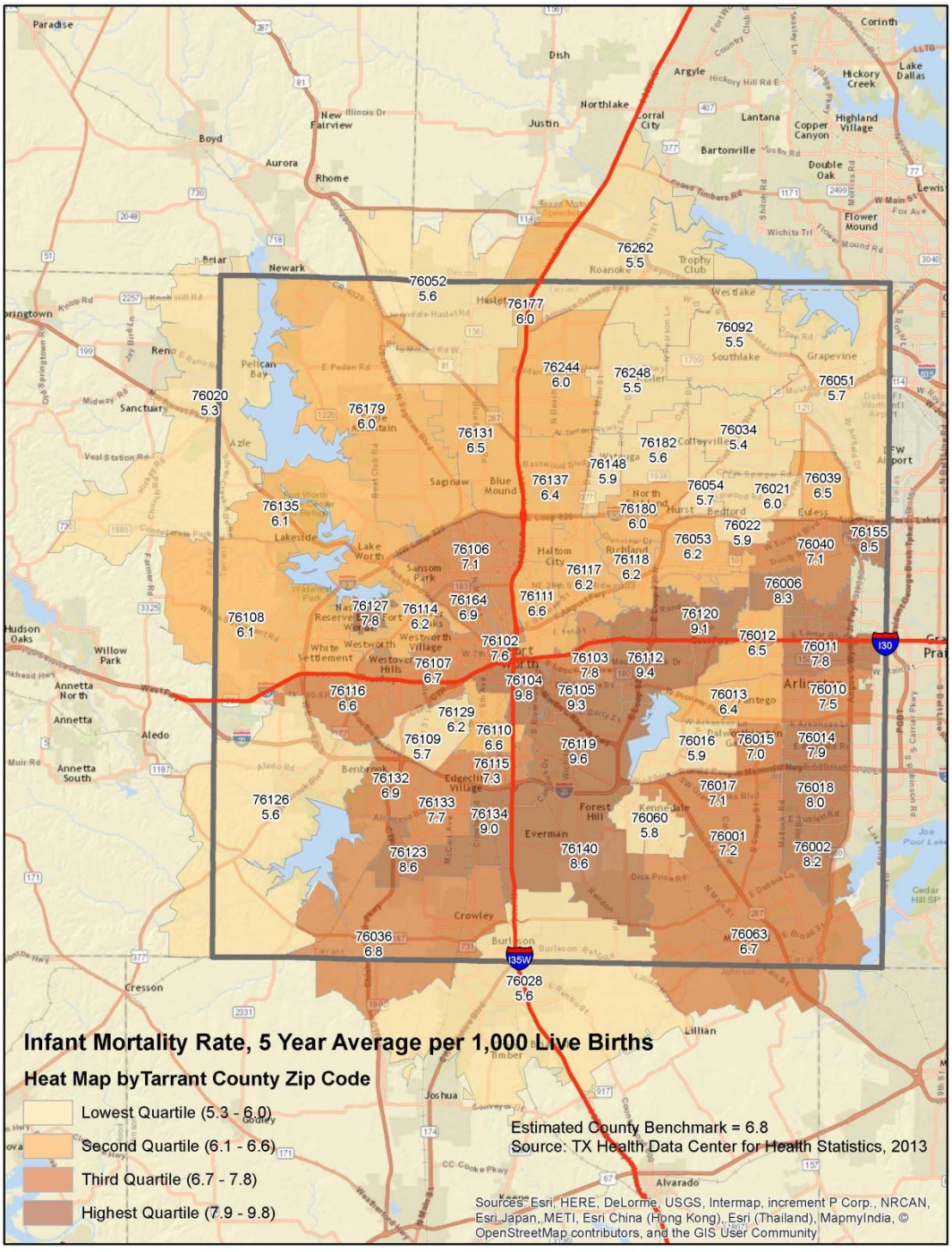


Table 10: Health Indicators Related to Child Health

Health Indicators Related to Child Health	Tarrant County	Texas	Top 25th percentile nationally
Percent of children (19-35 months) not receiving recommended immunizations 4-3-1-3-3-1-4[1 2]	*38%*	38%	35%
Percent of Children not tested for elevated blood lead levels by 72 months of age[1]	84%	82%	89%
Percent of children (10-17 years) who are obese[1]	*18%*	19%	18%

[1]CDC NIS, 2014; Texas Health Data Center for Health Statistics, 2011; Child Health Data, 2012
[2]4 doses of diphtheria-tetanus-pertussis (DTP), 3 doses of polio, 1 dose of measles-mumps-rubella (MMR), 3 doses of Hepatitis B, 3 doses of H. Influenza, type B (Hib), 1 dose of Varicella vaccine, and 4 doses of Pneumococcal conjugate vaccine (PCV). This recommendation is referred to in shorthand as "4:3:1:3:3:1:4".

Compared with an extreme national benchmark, there is a high percentage of children not receiving recommended immunizations and children (10-17) who are obese.

Table 11: Health Indicators Related to Behavioral Health

Health Indicators Related to Behavioral Health	Tarrant County	Texas	Top 25th percentile nationally
Percent of adults with at least one major depressive episode in the past year[1]	13%	16%	7%
Suicide Rate[2]	10	12	15
Binge alcohol use (Percent among population 12 and over) [3]	8%	7%	26%
Age-adjusted drug poisoning (i.e. overdose) mortality rate per 100,000 population[4]	9.0	9.5	14.8
Health Indicators Related to Behavioral Health	**Dallas-Fort Worth-Arlington MSA**	**Texas**	**Top 25th percentile nationally**
Substance use (persons 12 and older, use of any illicit drug in past year)[5]	13%	12%	NA

[1] BRFSS, 2012
[2] Texas Department of State Health Services, 2009-2013
[3] SAMHSA National Survey on Drug Use and Health, 2014
[4] CDC WONDER, 2012-2014
[5] SAMHSA NSDUH Report: Metro Brief, 2005 - 2010

In Texas, more than half (52%) of individuals in the state's psychiatric hospital system are part of the forensic population, and as of April of 2016, there were nearly 400 justice-involved individuals waiting in local jails pending admission to a state psychiatric hospital.[xlii]

Nearly all incarcerated men and women return to the community within two years, and the chronic diseases, mental illnesses and substance use disorders they may have had before remain with them during and after incarceration.[xliii]

The Tarrant County District Attorney's office reported that over 30,000 cases related to substance use (i.e., possession, DWI) were filed in 2013-2014. In addition, on a national basis, more than three of four (77.5%) federal, state, and local prison and jail inmates who are serving time for committing a violent crime as their primary offense were substance involved.[xliv]

Table 12: Other Health Indicators

Other Health Indicators	Tarrant County	Texas	National Benchmark
Age-Adjusted Death Rate (per 100,000)[1]	692.4	745.3	764.8
HIV Infection Prevalence[2]	0.2%	0.3%	0.2%
Percent Elderly (65 and older)[3]	9.8%	10.9%	15.2%
Three Year Average Influenza and Pneumonia Death Rate (per 100,000)[1]	11.8	12.3	18.6
Adult Current Asthma Prevalence[4]	7.6%	7.4%	9.0%
Age-adjusted Unintentional Injury Death Rate[1]	28.5	37.3	40.0
Percent of population linguistically isolated (percent of people 5 years and over who speak a language other than English at home)[3]	26.9%	34.9%	10.3%
Percent of adults (18+ years old) that could not see a doctor in the past year due to cost[5]	16.2%	17.6%	13.4%
Percentage of adults 65 years and older who have not had a flu shot in the past year[6]	38.9%	40.6%	32.6%
Chlamydia (sexually transmitted infection) rate (per 100,000)[7]	444.9	487.3	389.5
Oral Health (Percent without dental visit in last year)[6]	40.1%	41.2%	30.4%

[1] CDC WONDER, 2014
[2] CDC, 2013
[3] US Census American Community Survey, 2014
[4] BRFSS, 2010
[5] BRFSS, 2014
[6] BRFSS, 2012
[7] TX DSHS, 2015

For other health indicators, the percent of the population linguistically isolated (26.9%) is more than double the severe national benchmark. Refer to the Appendix 6h for Maps: Linguistic Isolation. The percent of adults that could not see a doctor in the past year due to cost (16.2%) is above the severe benchmark.

Chlamydia infection rate (444.9 per 100,000) is significantly higher than the severe benchmark and may be an indicator of rates of other sexually transmitted infections. The percent of adults without a dental visit in the last year (40.1%) is particularly high, exceeding the national benchmark by almost a third. Refer to Appendix 6i for Maps: Oral Health Care Access.

In summary, adult obesity, diabetes, high blood pressure, and cancer are key health concerns, among several, for the County. Infant mortality in particular zip codes and late entry into prenatal care are of significant concern, as is the high rate of sexually transmitted infection. Childhood immunization rates and obesity are also in need of attention. In terms of behavioral health, major depressive episodes are almost twice as high as the national average, and while substance use (for the MSA) is lower than the

national average, it has a significant impact on the community. Based on self-report, access to affordable primary care, and dental care for low-income persons appears to be difficult. Linguistic isolation of a large proportion of the population and significant transportation barriers make it all the more challenging to navigate and access the health care system.

Access to Primary Care

There are several barriers to accessing care in Tarrant County. The number of residents for each 1 FTE Primary Care Physician is just below the national benchmark (1,440 vs. 1,494), but superior to Texas overall.

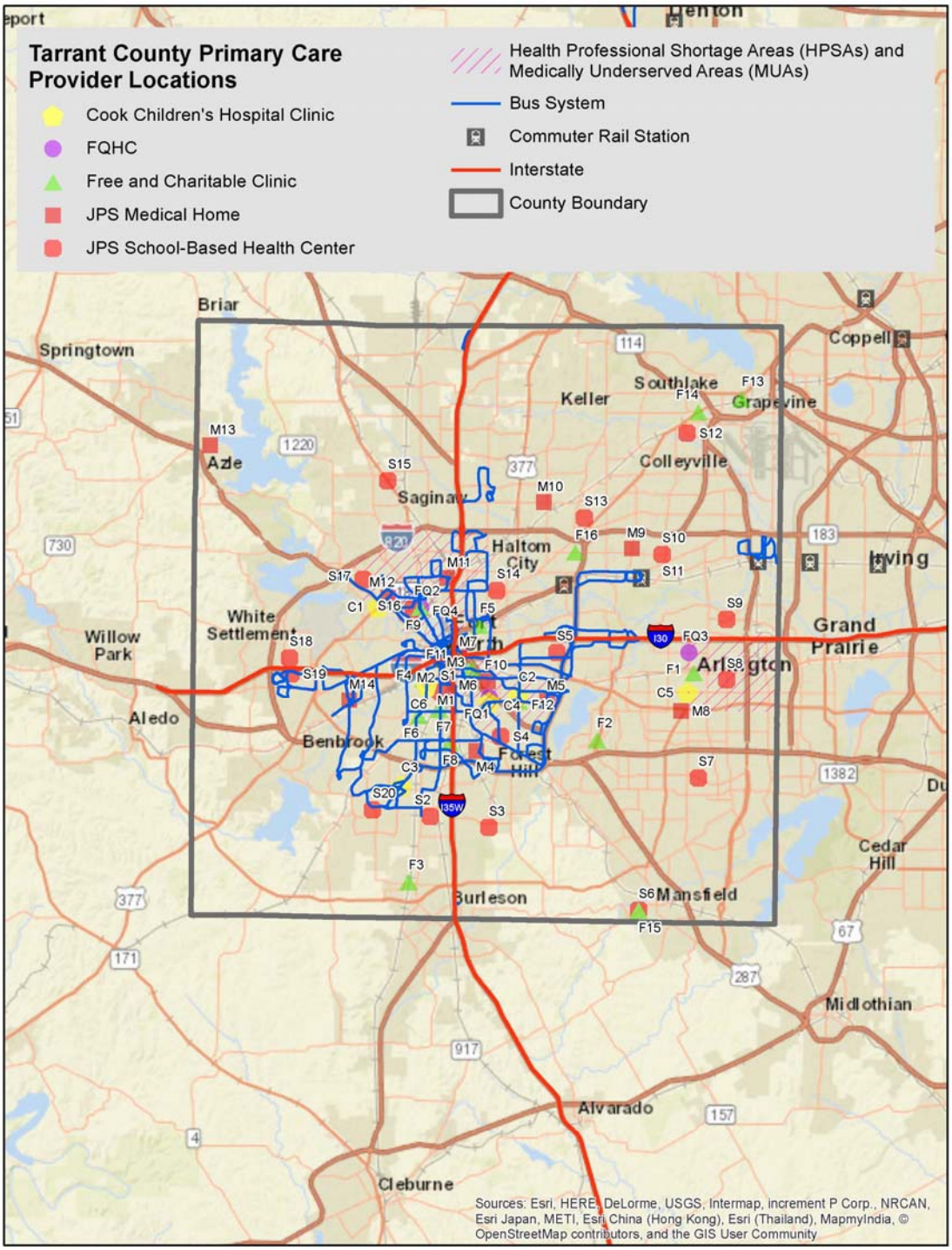
The main primary care organizations in Tarrant County's "safety net" include:

- JPS Health Network's 14 Medical Homes and 21 School-Based Health Centers;
- North Texas Area Community Health Center's three locations (Federally Qualified Health Center) with a fourth in the planning stages (this Federally Qualified Health Center has 8 FTE providers, and a primary care visit volume for 2016 estimated at 35,000);
- Twelve (12) Free and Charitable Clinics, predominantly sponsored by faith-based organizations.
- Cook Children's Hospital has multiple pediatric clinics in the County, six of which are well-child clinics with reduced fees for low-income families and accept Medicaid and most other insurance.

These providers are located throughout the County and are depicted on Map 7 below. This map also identifies the location of federally designated health professional shortage areas, medically underserved areas, and medically underserved populations which are predominately in Fort Worth and Arlington.

The map also includes transportation lines, depicting public bus and commuter rail stations that exist in the County. Bus routes are predominately in the Fort Worth metropolitan area, with a route going through the north part of the county, very limited bus lines in the east; rail lines are in Fort Worth serving limited areas in the east and northeast parts of the County.

Map 7: Tarrant County Safety Net Primary Care Provider Locations by Type with HPSA, MUA Designated Geographies, and Public Transportation Lines, November 2016.*



Map 1: Legend

Name of Health Center	Address	City	Health Center Type	Map Locator
Southeast Community Health Center	2909 Mitchell Blvd	Fort Worth	FQHC	FQ1
Northside Community Health Center	2106 N Main St	Fort Worth	FQHC	FQ2
Arlington Community Health Center	979 N Cooper St	Arlington	FQHC	FQ3
North Texas Area Community Health Centers, Inc.	2100 N Main St	Fort Worth	FQHC	FQ4
School-Based Health Center - Southside	2115 Hemphill Street	Fort Worth	JPS School-Based	S1
School-Based Health Center - Crowley	1320 W. Everman Parkway	Fort Worth	JPS School-Based	S2
School-Based Health Center - Everman	600 Townley Drive	Everman	JPS School-Based	S3
School-Based Health Center - Forest Oak	3250 Pecos Street	Fort Worth	JPS School-Based	S4
School-Based Health Center - Eastern Hills	5900 Yosemite Drive	Fort Worth	JPS School-Based	S5
School-Based Health Center - Mansfield	901 W. Broad Street	Mansfield	JPS School-Based	S6
School-Based Health Center - Ferguson	600 S.E. Green Oaks Blvd	Arlington	JPS School-Based	S7
School-Based Health Center - Central	600 New York Avenue	Arlington	JPS School-Based	S8
School-Based Health Center - Nichols	1850 Brown Blvd	Arlington	JPS School-Based	S9
School-Based Health Center - Georgia Kidwell	3115 W. Pipeline Road	Euless	JPS School-Based	S10
School-Based Health Center - HEB	3115 W. Pipeline Road	Euless	JPS School-Based	S11
School-Based Health Center - Grapevine/Colleyville	3050 Timberline Drive	Grapevine	JPS School-Based	S12
School-Based Health Center - Birdville	8200 OBrian Way	North Richland Hills	JPS School-Based	S13
School-Based Health Center - Haltom City	2807 Layton Avenue	Fort Worth	JPS School-Based	S14
School-Based Health Center - Eagle Mountain-Saginaw	1029 N. Saginaw Blvd	Saginaw	JPS School-Based	S15
School-Based Health Center - Northside	2011 Prospect Avenue	Fort Worth	JPS School-Based	S16

School-Based Health Center - Castleberry - Lake Worth	5300 Buchanan Road	Fort Worth	JPS School-Based	S17
School-Based Health Center - White Settlement	8301 Downe Drive	White Settlement	JPS School-Based	S18
School-Based Health Center - Western Hills	8376 Mojave Trail	Fort Worth	JPS School-Based	S19
School-Based Health Center - Chapel Hill Acad.	4640 Sycamore School Road	Fort Worth	JPS School-Based	S20
John Peter Smith Hospital	1500 S. Main Street	Fort Worth	JPS Medical Home	M1
Professional Office Complex	1400 S. Main Street	Fort Worth	JPS Medical Home	M2
Health Center for Women - Fort Worth	1201 S. Main Street	Fort Worth	JPS Medical Home	M3
Health Center - South Campus	2500 Circle Drive	Fort Worth	JPS Medical Home	M4
Health Center Stop Six/ Walter B. Barbour	3301 Stalcup Road	Fort Worth	JPS Medical Home	M5
Health Center - Polytechnic	1650 S. Beach	Fort Worth	JPS Medical Home	M6
Health Center - Cypress	1350 E. Lancaster	Fort Worth	JPS Medical Home	M7
Medical Home Southeast Tarrant	1050 W. Arkansas Lane	Arlington	JPS Medical Home	M8
Health Center - Northeast	837 Brown Trail	Bedford	JPS Medical Home	M9
Health Center - Gertrude Tarpley/Watauga	6601 Watauga Road	Watauga	JPS Medical Home	M10
Health Center - Diamond Hill	3308 Deen Road	Fort Worth	JPS Medical Home	M11
Health Center for Women & Children NW	2200 Ephriham Avenue	Fort Worth	JPS Medical Home	M12
Health Center - Northwest/Iona Reed	401 Stribling Drive	Fort Worth	JPS Medical Home	M13
Health Center - Viola M. Pitts/Como	4701 Bryant Irvin Road N	Fort Worth	JPS Medical Home	M14
Mission Arlington	210 W. South Street	Arlington	Free/Charitable Clinic	F1
Open Arms Health Clinic	3921 W. Green Oaks Blvd	Arlington	Free/Charitable Clinic	F2

Crowley House of Hope	208 N. Magnolia	Crowley	Free/Charitable Clinic	F3
Baylor Community Care @ Fort Worth	1650 W. Magnolia	Fort Worth	Free/Charitable Clinic	F4
Cornerstone Assistance Network	3500 Noble Avenue	Fort Worth	Free/Charitable Clinic	F5
Fort Worth Pregnancy Center	3221 Cleburne Road	Fort Worth	Free/Charitable Clinic	F6
Mercy Clinic	775 West Bowie Street	Fort Worth	Free/Charitable Clinic	F7
Mission Fort Worth	4401 Vermont Avenue	Fort Worth	Free/Charitable Clinic	F8
Northside Community Health Center	2106 N. Main Street	Fort Worth	Free/Charitable Clinic	F9
Christian Community Health Clinic	1709 E. Hattie Street	Fort Worth	Free/Charitable Clinic	F10
Healing Shepherd Clinic	1350 E Lancaster Avenue	Fort Worth	Free/Charitable Clinic	F11
Southside Community Health Center	3212 Miller Avenue	Fort Worth	Free/Charitable Clinic	F12
GRACE Community Clinic	837 East Walnut Street	Grapevine	Free/Charitable Clinic	F13
RealChoices Pregnancy Medical Clinic	2401 Ira E. Woods	Grapevine	Free/Charitable Clinic	F14
Caring Place	901 W. Broad Street	Mansfield	Free/Charitable Clinic	F15
Al-Shifa Clinic	7600 Glenview Drive	North Richland Hills	Free/Charitable Clinic	F16
Cook Children's Neighborhood Clinic-Northside	4405 River Oaks Blvd	Fort Worth	Cook Children's Hospital	C1
Cook Children's Neighborhood Clinic-Miller	2755 Miller Ave	Fort Worth	Cook Children's Hospital	C2
Cook Children's Neighborhood Clinic-McCart	6421 McCart Ave	Fort Worth	Cook Children's Hospital	C3
Cook Children's Neighborhood Clinic-Berry	2600 E Berry St	Fort Worth	Cook Children's Hospital	C4
Cook Children's Neighborhood Clinic-Arlington	1525 S Cooper Arlington	Fort Worth	Cook Children's Hospital	C5
Cook Children's Neighborhood Clinic- 8th Ave	1729 Eighth Ave	Fort Worth	Cook Children's Hospital	C6

JPS Health Network is the single largest provider of primary care to the low-income population. In 2010, Premier conducted a comprehensive market analysis for JPS including a primary care clinic capacity analysis of JPS primary care centers which identified over or under-utilization of primary care providers. The utilization performance was calculated by assessing the patient visit variance between the health centers and a national MGMA[xlv] median benchmark for the same number of full time equivalent primary care providers. In short, "overutilization" means a shortfall in the ability to meet community demand for services.

For the JPS community health centers, there was overutilization in nearly all geographic service areas with the greatest in South Arlington (3,874 visits or 33.6%) and North Arlington (11,227 visits or 31.2%). For all regions, there was an overutilization, with a total of 44,262 visits or approximately an 18% variance. The same analysis was conducted for the school-based health centers with similar findings. Overutilization was greatest in Hurst/Euless/Bedford (3,600 visits or 41.4%) and Grapevine/CV (862 visits or 29.7%.) While there were some school-based health centers with a negative variance, with the Northwest being the highest (-1,353 or -23.9%), there is an overall over utilization of 5,019 or 10.2%.[xlvi]

Premier identified the greatest needs for access and the areas with the least market share for JPS. They described these indicators together as a barometer for areas of greatest need. The five areas of greatest need include (in descending order of need): HEB, North West, Grapevine/CV, North Central, and West.[xlvii]

HMA recognizes that JPS has partially addressed this need though the Southeast Tarrant Regional Medical Home opened on September 20, 2014 and a now funded Northeast Tarrant Regional Medical Home.

JPS considers a number of parameters when determining new primary care clinic locations, including but not limited to:

- Community Need Index (accounts for five socio-economic indicators that can serve as barriers to health/healthcare: income, culture/language, education, health insurance, housing.)
- Percent of individuals under 200% Federal Poverty Level
- Number of individuals enrolled in JPS connections
- Location of JPS and other safety net clinics
- Indicators of how JPS and other safety net clinics are meeting demand
- Transportation/drive times to JPS and other safety net clinics
- Real estate opportunities

While the study by Premier was conducted in 2010, HMA reviewed a current indicator of access—the third next available appointment for new patients. As of September 2016, the JPS medical homes had a third next available appointment for new patients ranging between 7-114 days, with an average of 72 days. The JPS school-based clinics had a third next available appointment for new patients ranging between 2-8 days, with an average of 5 days. HMA confirms the directional findings of the Premier report and provides recommendations in the Delivery System chapter.

While HMA was unable to obtain the third next available appointment for the North Texas Area Community Health Centers (NTACHC), organization leaders indicate that demand is greater than the current supply and they are working to establish a new (fourth) health center site.

While some of the free and charitable clinics operate by appointment, most have walk-in type of arrangement. Mission Arlington, for example, has a clinic with seven exam rooms and a workforce of mostly volunteers with a limited number of paid staff. Given how the clinic operates, the practice

manager often does not know how many providers will be working in a given day and so the line of patients forms very early in the morning before the clinic opens. The reality is that many patients in line will not be seen that day.

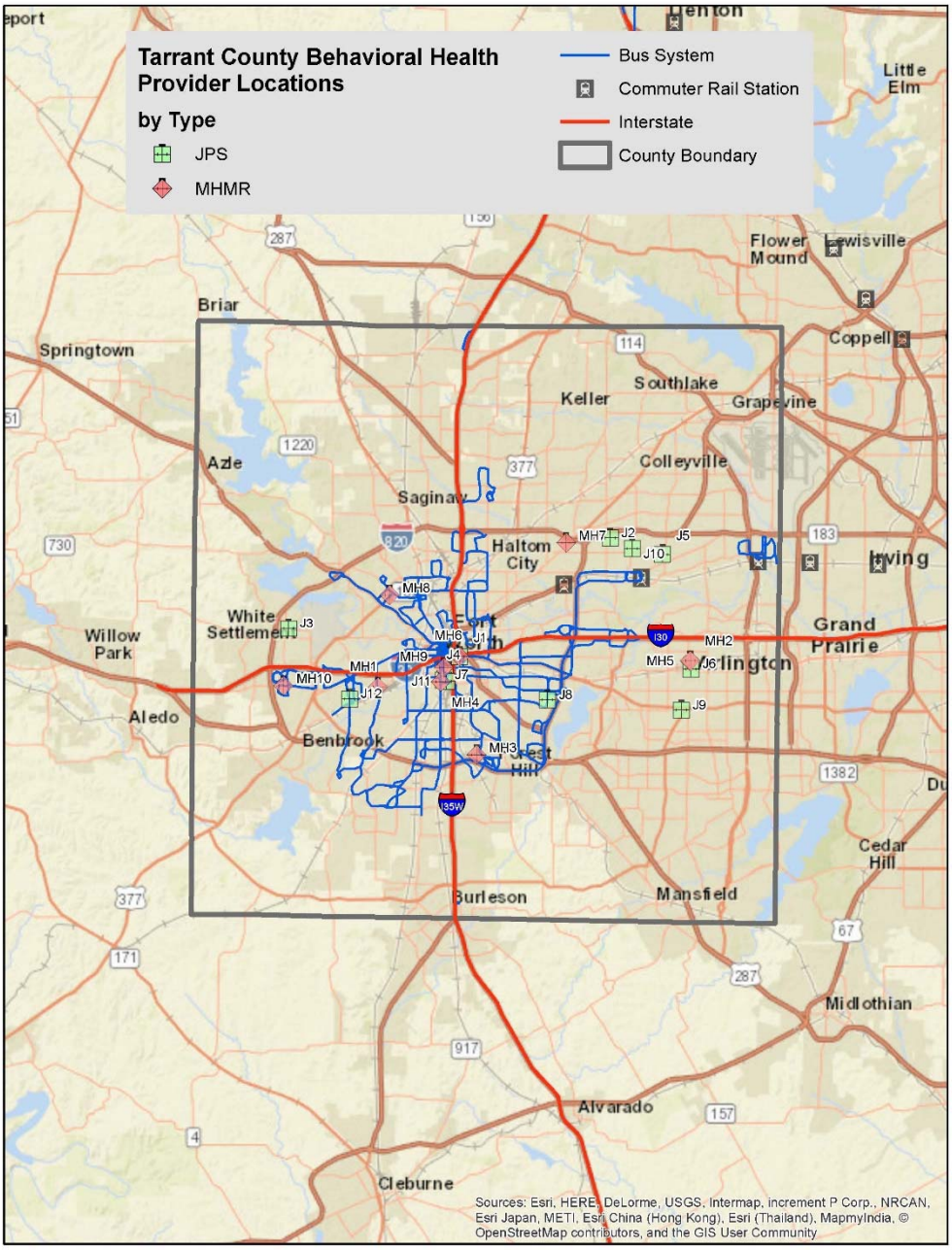
Access to Outpatient Behavioral Health Services

There are few organizations providing outpatient behavioral health services to low-income, uninsured in the County, the key organizations include:

- JPS Health Network's 11 behavioral health specialty outpatient clinics; JPS primary care health centers are increasingly integrating behavioral health in these locations as well.
- MHMR's 10 behavioral health outpatient clinics.

These providers are located primarily in the greater Fort Worth area with some sites east in the Arlington area and one west in White Settlement. The map below indicates locations of JPS and MHMR outpatient behavioral health services in Tarrant County.

Map 8: Behavioral Health Services in Tarrant County Serving Low-Income Populations, with Public Transportation Lines, November 2016.



Map 2: Legend

Behavioral Health Service	Address	City	Type	Map Locator
Health Center - Cypress	1350 E. Lancaster	Fort Worth	JPS	J1
EB Partial Hospitalization Program	700 Bedford Euless Road	Hurst	JPS	J2
Professional Office Complex	1350 S. Main Street	Fort Worth	JPS	J3
Trinity Springs North (inpt only)	St. Louis and Rosedale	Fort Worth	JPS	J4
School-based Health Center – HEB*	3115 W. Pipeline Road	Euless	JPS	J5
Central Arlington Behavioral Health*	501 W. Main Street	Arlington	JPS	J6
Trinity Springs Pavilion (inpt only)	1600 May Street	Fort Worth	JPS	J7
Health Center - Stop Six/Walter B. Barbour*	3301 Stalcup Road	Fort Worth	JPS	J8
Medical Home Southeast Tarrant	1050 W. Arkansas Lane	Arlington	JPS	J9
Health Center Northeast*	837 Brown Trail	Bedford	JPS	J10
John Peter Smith Hospital (inpt and PEC)	1500 S. Main	Fort Worth	JPS	J11
Health Center - Viola M. Pitts*	4701 Bryant Irvin Road North	Fort Worth	JPS	J12
Hemphill Behavioral Health Center	1617 Hemphill St.	Fort Worth	JPS	J13
Access to Care	3800 Hulen Street	Fort Worth	MHMR	MH1
Arlington Clinic	601 W. Sanford	Arlington	MHMR	MH2
Circle Drive Clinic	1200 Circle Drive	Fort Worth	MHMR	MH3
FAIR/West Clinic	1527 Hemphill Street	Fort Worth	MHMR	MH4
FAIR/East Clinic	501 W. Sanford	Arlington	MHMR	MH5
Homeless Clinic/Crisis Residential	1350 E. Lancaster	Fort Worth	MHMR	MH6
Mid Cities Clinic	4525 City Point Drive	North Richland Hills	MHMR	MH7
Northwest Clinic	2400 NW 24th Street	Fort Worth	MHMR	MH8
Penn Square	300 Pennsylvania Avenue	Fort Worth	MHMR	MH9
Western Hills	8808 W. Camp Bowie	Fort Worth	MHMR	MH10

JPS has a robust offering of adult behavioral health services including intake/assessment, five locations in the community for follow-up for adult individual therapy, one adult walk-in location if a patient needs to be seen in-between appointments, adult psychiatric day rehabilitation program, adult intensive outpatient program, and adult partial hospitalization program. Telepsychiatry has increased access to the partial hospitalization program, allowing admissions when a psychiatrist is not necessarily on-site.

Child and adolescent outpatient psychiatry services are limited to five community locations; these are indicated with an asterisk in the list above (Map 2: Legend). Northeast, Stop Six, and Viola Pitts have new patient and follow-up visits for children and adolescents, whereas only follow-up visits are provided at Arlington and the school-based behavioral health clinic. All the child and adolescent sites have very limited availability – four operate one-half day per week, and the site in Arlington operates one full day per week.

JPS Network wait times for behavioral health clinic appointments

Table 13: Next Available Appointment by Type of Behavioral Health Appointment at JPS Health Network (Adult)

Type of Behavioral Health Appointment	Time
Intake (LMSW, LCSW, LPC)	2-3 days*
New Patient Adult	2-3 weeks
Adult Follow Up	2-3 months
Adult Walk-In Clinic	12 appointments daily**
Psychiatric Day Rehabilitation Program	Next Day
Adult Partial Hospitalization Program (PHP)	Next Day
Adult Intensive Outpatient Program (IOP)	1-2 days
Adult Individual Therapy	2-4 Days***
Vocational Specialist	1 week between request and appointment

** If needed, same day; provider has limited availability to see patient post-intake.*
***Utilized for established patients and JPS Connected patients who are discharging from a community facility and returning for care .*
****Location specific – Space limitations in certain locations limit the amount of therapy offered. Therefore, those locations have less therapy available and this can create an additional. Patients are offered first available appointments at alternate location but sometimes, transportation is a barrier.*

Table 14: Next Available Appointment by Type of Behavioral Health Appointment at JPS Health Network (Child and Adolescent)

Type of Behavioral Health Appointment	Time
Child and Adolescent New Patient	4+ months
Child and Adolescent Follow Up	2 months
Child and Adolescent Therapy	4-5 Days**

***Location specific- Child and Adolescent therapy is primarily done in one location.*
Source: JPS Health Network. November 2016.

Other safety net providers' wait times for behavioral health clinic appointments

MHMR Tarrant provides mental health and related services to adults, adolescents, and children. Located in over 100 sites across Tarrant County and surrounding counties in North Texas, MHMR is an

independent local unit of government, funded primarily by the state and county. They provide services related to mental health, addiction and substance abuse, intellectual and developmental delays, early childhood delays, veterans, transportation, supported employment, and homelessness.

Sixty-five percent (65%) of the patients serviced by MHMR are uninsured. MHMR hosts a 24-hour crisis line where telephone screening/triage is conducted and medications are refilled. Individuals can be seen the same day at the Intake Center on Hulen Street, but will typically not be able to see a provider for ongoing treatment for some time, likely months; however, every day there is a walk-in clinic where individuals can see a provider. MHMR believes more behavioral health services are needed to better reduce psychiatric emergency department utilization.

The North Texas Area Community Health Centers (NTACHC) has very limited behavioral health services provided by a Licensed Clinical Social Worker.

Access to Ambulatory Specialty Services

JPS Network wait times for specialty care clinic appointments

JPS' Department of Medicine operates over 40 specialty care clinics in locations in Fort Worth and Arlington. A list of all specialties with third next available new patient appointments as of December 2016, is located in Appendix 7.

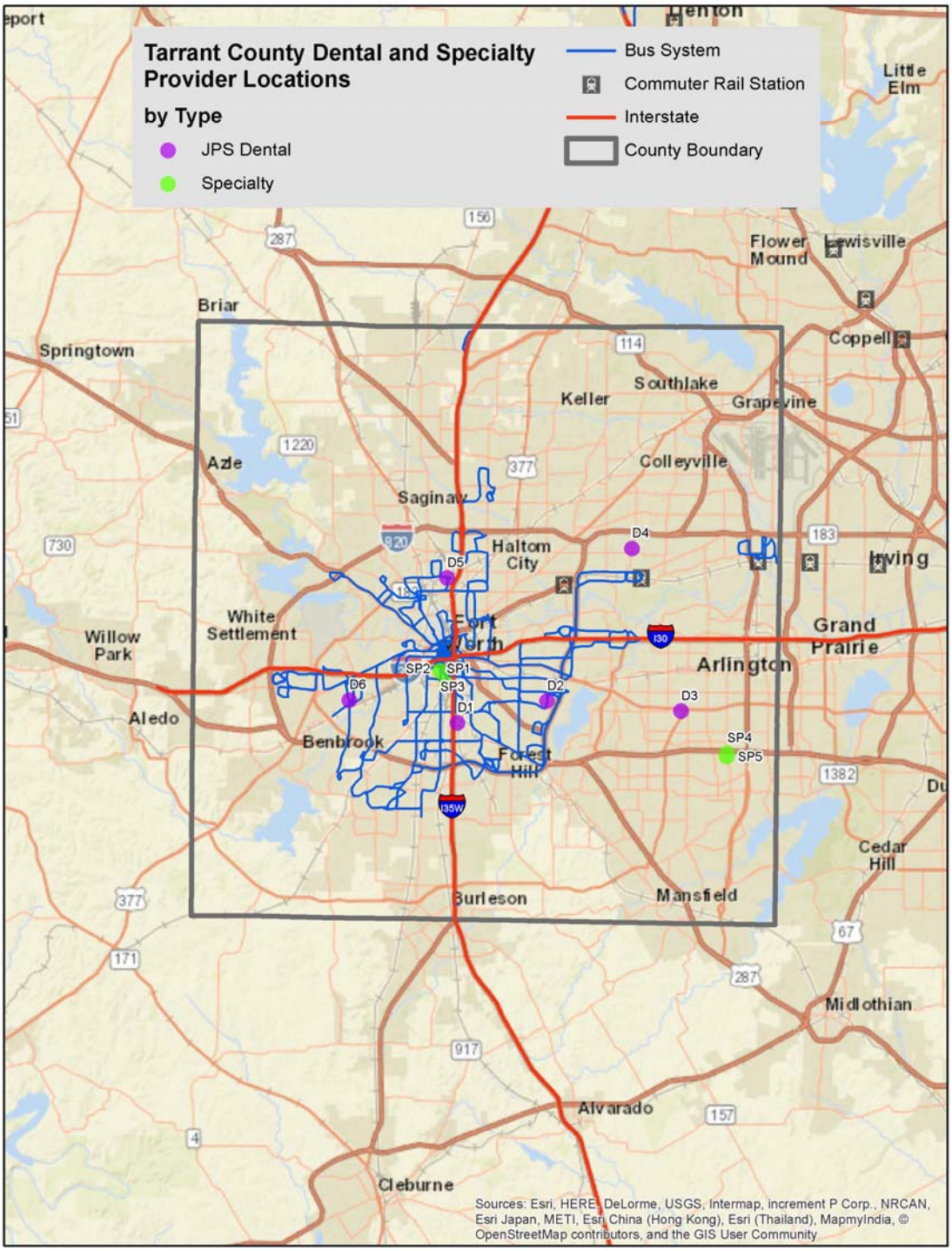
These appointments are for new patients with non-urgent problems; it is reported that those with urgent needs are scheduled more quickly. Third next available appointments ranged from 1 month or less (hypertension, wound care, vascular surgery, and one optometry clinic) to 12 month long waits for dermatology, gastroenterology, neurology, ophthalmology, and renal.

JPS does not provide pediatric specialty services because JPS and Tarrant County developed a collaborative relationship with Cook Children's Health Care System for provision of pediatric specialty and trauma care services.

We note that the availability of specialty care physicians to Medicaid and uninsured adult populations is limited by public system staffing resources, non-participation of private sector physicians in Medicaid, and limited ability to provide uncompensated care. These challenges are a significant issue for the North Texas Community Health Centers' ability to gain referral access to specialty physician ambulatory care or elective inpatient care for their undocumented, uninsured, or Medicaid patients especially in locations outside of Fort Worth. For Tarrant County residents not eligible for JPS Connection, the requirement for a sliding fee payment may cause some persons to delay or defer non-emergency care.

For locations of specialty clinics, refer to Map 9 below. There are three specialty centers in Fort Worth, and two in Arlington – Arlington Surgical Center and Bardin Road Specialty Clinic.

Map 9: JPS Specialty Care Locations and Dental Services



Other safety net providers wait times for specialty care clinic appointments

NTACHC and the free and charitable clinics do not offer much in the way of specialty service (Map 1: Legend). NTACHC offers OB/GYN services and some of the larger free clinics offer limited specialty. For uninsured, and particularly for the undocumented, they rely on Project Access of Tarrant County which has limited capacity, and so they attempt to identify volunteers or hospitals willing to accept specialty referral on a case by case basis which is difficult and time consuming.

Project Access of Tarrant County provides surgical and/or other specialty procedures for the uninsured and working poor in Tarrant County using a network of volunteer providers and collaborative partnerships. While this effort is laudable, the project only has capacity for about 350 patients per year.

Access to Dental Services

As indicated in the Health Status section of this report, the percent of adults without a dental visit in the last year (40.1%) in Tarrant County was called out as particularly high, exceeding the national benchmark by almost a third.

JPS Network wait times for dental clinic appointments

JPS has 6 dental clinics which are identified in the map above, Map 9: JPS Specialty and Dental Clinic Locations. Four of the clinics are in Fort Worth, one is in Arlington, and one in Bedford.

For JPS' 6 dental clinics — Diamond Hill Jarvis Dental, Northeast Dental, Southeast Dental, Stop Six Dental, Viola M. Pitts Dental, and Worth Heights Dental – there were a total of 1,631 visits in September 2016. At that time, the third next available patient appointment for a new patient was 16 calendar days; the third next available appointment for a follow-up visit was 31 calendar days.

Other safety net providers wait times for dental clinic appointments

Catholic Charities in Fort Worth has a dental clinic with 5 exam rooms, 2 FTE dentists and hygienists on staff yielding a total of approximately 3000 visits per year. This clinic is a private pay only and charges 40-50% of usual and customary rates. A significant number of patients request re-work of prior dental care done elsewhere. There is about a 4-6 week wait for services for new patients, and approximately a 2 week wait for existing patients. Urgent problems for existing patients are taken same or next day.

The NTACHC does not provide dental services; they provide information and referral to dental services.

A limited number of the Free and Charitable clinics provide dental services.

Hospital Bed Access – Acute Medical and Behavioral

The table below identifies the total hospital beds, segmented by type of bed – routine, acute, rehabilitation and psychiatric.

[xvi] Medi-Cal 2020: Global Payment Program Valuation Protocol Review. Stakeholder Webinar. California Department of Health Care Services. May 26, 2016. [Online] http://www.dhcs.ca.gov/provgovpart/Documents/Waiver%20Renewal/GPPValuWebinar_052616.pdf.

[xvii] AAMC Center for Workforce Studies.

[xviii] Association of American Medical Colleges. (2013).

[xix] Association of Americal Medical Colleges. (2008)

[xx] Common Core Requirements. ACGME Program Requirements in Graduate Medical Education. (n.d.). [Online] https://www.acgme.org/.../ProgramRequirements.

[xxi] Your CF Care Team. Cystic Fibrosis Foundation. Accessed Feb. 14, 2017. [Online] https://www.cff.org/Care/Your-CF-Care-Team/.

[xxii] The Complexities of Physician Supply and Demand. Projections from 2014 to 2025. 2016 Update. Prepared by IHS Inc. for the AAMC. April 5, 2016.

[xxiii] Where are the Mental Health Providers? Wall Street Journal. February 16, 2015. [Online] www.wsj.com/articles/where-are-the-mental-health-providers-1424145646.

[xxiv] Dental-Related Emergency Room Visits on the Rise in the United States. American Dental Association. (n.d.). [Online] www.ada.org/~/media/ADA/Science%20and%20Research/.../HPIBrief_0513_1.pdf.

[xxv] Healthy People 2020: An Opportunity to Address the Societal Determinants of Health in the United States. Secretary's Advisory Committee on Health Promotion and Disease Prevention Objectives for 2020. July 26, 2010. [Online] http://www.healthypeople.gov/2010/hp2020/advisory/SocietalDeterminantsHealth.htm.

[xxvi] Achieving Health Equity: How Academic Medicine is Addressing the Social Determinants of Health. AAMC. (n.d.). [Online] https://www.aamc.org/download/460392/data/sdoharticles.pdf.

[xxvii] Healthcare When You Need it Most and on Your Schedule. Telemed Plus+. (n.d.). [Online] http://www.slideshare.net/Aigilis1/telemedicine-46812598.

[xxviii] Prevention and Population Health Education Across the Health Professions. Health People 2020. CDC Webinar. September 2014.

[xxix] NCHHSTP Social Determinants of Health. CDC. Accessed Feb. 14, 2017. [Online] https://www.cdc.gov/nchhstp/socialdeterminants/faq.html.

[xxx] Salsberg, E. The Nurse Practitioner, Physician Assistant, And Pharmacist Pipelines: Continued Growth. Health Affairs Blog. May 26, 2015. [Online] http://healthaffairs.org/blog/2015/05/26/the-nurse-practitioner-physician-assistant-and-pharmacist-pipelines-continued-growth/.

[xxxi] Salsberg, E. (2015).

[xxxii] Regenstein, M., et al. The Cost of Residency Training in Teaching Health Centers. New England Journal of Medicine. (n.d.). [Online] www.nejm.org/doi/full/10.1056/NEJMp1607866.

[xxxiii] Texas Health and Human Services Commission. [Online] https://www.dshs.texas.gov/Legislative/Reports-2016.aspx

[xxxiv] Wartman, S.M., et al. Health Reform and Academic Medical Centers. Academic Medicine. December 2015; 90(12).

[xxxv] Disclaimer: "The North Central Texas Council of Governments makes no warranty, express or implied, including warranties of merchantability and fitness for a particular purpose. Responsibility for the use of these data lies solely with the user."

[xxxvi] 2017-2022, 2027, 2032, 2037 projected population estimated were based on traffic survey zones and spatially joined to zip codes using Esri ArcMap.

FPL data source: US Census, 2010-2014 5-year estimates.

5 year projected population estimates: Esri, 2016 and 2021.

[xxxix] Centers for Medicare and Medicaid Services CMS. GOV: https://www.cms.gov/Regulations-and-Guidance/Legislation/EMTALA/

[xl] Centers for Medicare and Medicaid Services CMS. GOV: https://www.cms.gov/Regulations-and-Guidance/Legislation/EMTALA/)

[xli] Texas Health and Human Services Commission. [Online] https://www.dshs.texas.gov/idcu/health/refugee_health/about/

[xlii]Recommendations for the Creations of a Comprehensive Plan for Forensic Services. Texas Health and Human Services Commission. Joint Committee on Access and Forensic Services. 2016. [Online]. From https://www.dshs.texas.gov/ConsumerandExternalAffairs/legislative/2016Reports/JCAFSlegislativeReportForensicPlan2016.pdf.

[xliii] Strugar-Fritsch, D. & Follenweider, L.. A Call for New Models of Care in Correctional Health. National Commission on Correctional Health Care. 2016.

[xliv] Challenge of Tarrant County. (2015). The Other Nine: A Community Needs Assessment of Substance Use Disorder in Tarrant County.

[xlv] MGMA is Medical Group Management Association; organization conducts regular, national surveys including number of visits per provider. JPS Community Needs Assessment. Premier. April 30, 2010. Appendix p. 66.

[xlvi] JPS Community Needs Assessment. Premier. April 30, 2010. Appendix p. 66-68.

[xlvii] JPS Community Needs Assessment. Premier. April 30, 2010. Appendix p. 88.

Table 15: Tarrant County Hospital Bed Summary * Hospital Beds as Reported on Hospital Medicare Cost Reports Ending in 2015

Hospital	Acute LTC Beds	Alcohol/ Drug Dependency	General Med/Surg Adult, incl. Intermed.	General Med/Surg Pediatric	Intensive Care (Med/Surg, Cardiac, Other)	Neonatal (Intensive care plus other)	OB	Other special care	Pediatric Intensive Care	Physical Rehab	Psych	Skilled nursing	Total	Number of Acute Care Beds **	% of County Acute Care Beds
Total Tarrant County	**133**	**28**	**1,794**	**206**	**785**	**345**	**493**	**428**	**33**	**470**	**550**	**15**	**5,280**	**4,084**	**100.0%**
Baylor All Saints Medical Center at Fort Worth	-	-	126	-	31	63	96	42	-	15	-	-	373	358	8.8%
Baylor Institute for Rehabilitation at Fort Worth	-	-	-	-	-	-	-	-	-	42	-	-	42	-	0.0%
Baylor Orthopedic and Spine Hospital at Arlington	-	-	24	-	-	-	-	-	-	-	-	-	24	24	0.6%
Baylor Regional Medical Center at Grapevine	-	-	40	-	20	22	52	110	-	-	-	-	244	244	6.0%
Baylor Surgical Hospital at Fort Worth	-	-	26	-	4	-	-	-	-	-	-	-	30	30	0.7%
Cook Children's Medical Center	-	-	-	194	10	80	-	19	33	16	11	-	363	336	8.2%
Cook Children's Northeast Hospital	-	-	-	3	-	-	-	-	-	-	-	-	3	3	0.1%
Ethicus Hospital - Grapevine	24	-	-	-	-	-	-	-	-	-	-	-	24	-	0.0%
HEALTHSOUTH City View Rehabilitation Hospital	-	-	-	-	-	-	-	-	-	62	-	-	62	-	0.0%

HEALTHSOUTH Rehabilitation Hospital - Mid-Cities	-	-	-	-	-	-	-	-	-	60	-	-	60	-	0.0%
HEALTHSOUTH Rehabilitation Hospital of Arlington	-	-	-	-	-	-	-	-	-	85	-	-	85	-	0.0%
HEALTHSOUTH Rehabilitation Hospital of Fort Worth	-	-	-	-	-	-	-	-	-	60	-	-	60	-	0.0%
JPS Health Network	-	-	188	4	36	35	29	114	-	-	132	15	553	406	9.9%
Kindred Hospital Tarrant County-Arlington	49	-	-	-	-	-	-	6	-	-	-	-	55	6	0.1%
Kindred Hospital-Fort Worth	-	-	48	-	6	-	-	-	-	-	-	-	54	54	1.3%
Kindred Hospital-Mansfield	50	-	-	-	5	-	-	-	-	-	-	-	55	5	0.1%
Kindred Rehabilitation Hospital Arlington	-	-	-	-	-	-	-	-	-	24	-	-	24	-	0.0%
Medical City Alliance	-	-	19	-	8	8	20	-	-	-	-	-	55	55	1.3%
Medical City Arlington (formerly Med Ctr Arlington)	-	-	153	-	30	28	54	-	-	-	-	-	265	265	6.5%
Medical City Fort Worth (formerly Plaza)	-	-	172	-	130	-	-	-	-	-	-	-	302	302	7.4%
Medical City North Hills (formerly North Hills)	-	-	56	-	88	-	-	-	-	-	20	-	164	144	3.5%
Mesa Springs	-	-	-	-	-	-	-	-	-	-	72	-	72	-	0.0%
Methodist Mansfield Medical Center	-	-	144	-	16	-	7	-	-	-	-	-	167	167	4.1%

Methodist Southlake Hospital								18					18	18	0.4%
Millwood Hospital	-	12	-	-	-	-	-	-	-	-	110	-	122	-	0.0%
Oceans Behavioral Hospital Fort Worth	-	-	-	-	-	-	-	-	-	-	48	-	48	-	0.0%
Sundance Hospital	-	16	-	-	-	-	-	-	-	-	100	-	116	-	0.0%
Texas Health (THR) Arlington Memorial Hospital	-	-	159	-	39	15	36	6	-	-	35	-	290	255	6.2%
THR Harris Methodist Hospital Alliance	-	-	34	-	14	8	18	-	-	-	-	-	74	74	1.8%
THR Harris Methodist Hospital Azle	-	-	25	-	6	-	-	-	-	-	-	-	31	31	0.8%
THR Harris Methodist Hospital Fort Worth	-	-	263	-	249	62	65	-	-	-	-	-	639	639	15.6%
THR Harris Methodist Hospital Hurst-Euless-Bedford	-	-	87	-	37	16	39	23	-	-	-	-	202	202	4.9%
THR Harris Methodist Hospital Southlake	-	-	18	-	-	-	-	-	-	-	-	-	18	18	0.4%
THR Harris Methodist Hospital Southwest Fort Worth	-	-	89	-	18	8	48	36	-	-	-	-	199	199	4.9%
THR Heart & Vascular Hospital Arlington	-	-	24	-	8	-	-	-	-	-	-	-	32	32	0.8%
THR Huguley Hospital Fort Worth South	-	-	61	5	26	-	29	54	-	-	22	-	197	175	4.3%
THR Specialty Hospital	10	-	-	-	-	-	-	-	-	-	-	-	10	-	0.0%

Texas Rehabilitation Hospital of Arlington	-	-	-	-	-	-	-	-	-	40	-	-	40	-	0.0%
Texas Rehabilitation Hospital of Fort Worth	-	-	-	-	-	-	-	-	-	66	-	-	66	-	0.0%
USMD Hospital at Arlington	-	-	30	-	4	-	-	-	-	-	-	-	34	34	0.8%
USMD Hospital at Fort Worth	-	-	8	-	-	-	-	-	-	-	-	-	8	8	0.2%

** Data was compiled from the American Hospital Association database in early February 2017, reflecting bed counts and hospital names as of that date.*
*** For purposes of the calculation, acute beds exclude long-term care, alcohol/drug dependency, physical rehab, psychiatric and skilled nursing.*

Continuation of Table 15 (above.)

Hospital Name	Hospital Beds - Routine	Hospital Beds – ICU	Hospital Beds - Coronary ICU	Hospital Beds - Surgical ICU	Hospital Beds - Trauma ICU	Hospital Beds - Pediatric ICU	Hospital Beds - Neonatal ICU	Hospital Beds - Total Acute	Hospital Beds - Distinct Part Rehab	Hospital Beds - Distinct Part Psych
Total Tarrant County	**3,058**	**362**	**47**	**45**	**20**	**43**	**293**	**3,868**	**15**	**161**
Baylor All Saints	264	31	-	-	-	-	63	358	15	-
Baylor Regional -Grapevine	271	20	-	-	-	-	22	313	-	-
Columbia -Arlington Subsidiary	217	24	6	-	-	-	28	275	-	-
Columbia - North Hills	137	20	-	-	-	-	-	157	-	-
Columbia Plaza – Fort Worth	174	41	-	-	-	-	-	215	-	-
Cook Children's	240	-	-	-	-	43	80	363	-	-
Methodist Mansfield	144	16	-	-	-	-	-	160	-	-
Tarrant County Hospital District	324	36	-	45	-	-	-	405	-	95

Texas Health Arlington Memorial	190	23	16	-	-	-	15	244	-	-
Texas Health Harris Methodist Azle	25	6	-	-	-	-	-	31	-	-
Texas Health Harris Methodist Fort Worth	485	69	25	-	20	-	53	652	-	-
Texas Health Harris Methodist Hospital Alliance	38	12	-	-	-	-	8	58	-	-
Texas Health Harris Methodist HEB	168	18	-	-	-	-	16	202	-	66
Texas Health Harris Methodist Southwest Fort Worth	196	18	-	-	-	-	8	222	-	-
Texas Health Huguley - Fort Worth South	185	28	-	-	-	-	-	213	-	-

Source: Based upon information provided by the American Hospital Association.

While the total number of acute medical beds at JPS is 405, about 10.5% of all acute medical beds in the County, JPS had 96 psychiatric beds in 2015 which was approximately 17% of psychiatric beds in the County. The table below, "JPS Beds in Service," further drills down the number of in-service beds at JPS, focusing on those beds currently in service.

Table 16: JPS Beds in Service, April 2016

Unit	Hospital Beds - Routine
Tower 11 – Respiratory/Pulmonary	19
Tower 8 – General Medical Unit	22
Tower 7 - Oncology	23
Tower 6 – Ortho/Neuro	20
Tower 5 – Surgical Unit	24
2 South – Antepartum/Gym/Gyn Oncology	39
2 North – Mother/Baby	25
T-2 – Cardiac Medical Unit	20
T3A – Med/Psych	15
E-3 East – Progressive Care	48
Pavilion 3 - ICU	36
Pavilion 4 – Cardiac Progressive Care Unit	36
Pavilion 5 – Surgical/Trauma Progressive Care Unit	36
Tower 9 – Medical/Surgical	16
NICU	35
IPA	8
Trinity Springs (PSY)	96
TOTAL	**553**
OB Triage	11
LD	15
Nursery (babies stay in room with moms)	
PACU	18
Clinical Decision Unit – CDU (formerly OBS)	34
ER	55

Source: JPS Health Network.

HMA and the Facilities Planning and Analysis consultant will review bed capacity criteria in the Blue Cottage analysis contained in the Strategic Facilities Utilization Plan and the Proposed Construction Project Plan.

Key Hospital Services: Emergency, Trauma, and Behavioral Health

Emergency Services

The table below, Total Emergency Room Activity-Tarrant County Hospitals, indicates that JPS is the second largest provider of Adult Emergency Department acute care hospital admissions, and ranks first for total Non-Emergency Out-Patient Admissions for all ages.

Table 17: Total Emergency Room Activity—Tarrant County Hospitals, October 2015-September 2016

Metric	JPS Number	JPS % of TC	JPS Rank
Total ER Inpatient Admits, 18+ y/o	17,235	13.3%	2
Total ER Inpatient Admits, <18 y/o	707	9.9%	2
Total ER Inpatient Admits, All ages	17,942	13.1%	2
Total ER Outpatient Visits, 18+ y/o	110,119	17.2%	2
Total ER Outpatient Visits, <18 y/o	5,240	2.6%	10
Total ER Outpatient Visits, All ages	115,359	13.6%	2
Total Non-ER O/P Visits, 18+ y/o	90,777	23.8%	1
Total Non-ER O/P Visits, <18 y/o	3,404	5.6%	5
Total Non-ER O/P Visits, All ages	94,181	21.3%	1

Source: Based upon information from the Dallas Fort Worth Hospital Council.

The next table, Emergency Services by Residence County, demonstrates that JPS serves a regional role with 12.7% of inpatient charges, 9.1% of inpatient discharges, and 8.2% of outpatient visits originating from non-Tarrant County areas.

Table 18: Emergency Services by Residence of County (by Descending Order of Inpatient Charges)

JPS Emergency Services (incl. Trauma) by Patient's County: Activity for the 12 Months Ending 9/30/2016					
% of Total - Tarrant	87.3%	90.7%	88.6%	90.2%	92.2%
% of Total - Next 5	6.9%	5.6%	6.1%	5.9%	4.8%
% of Total - All Other	5.8%	3.7%	5.3%	3.9%	3.1%
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
County	**Summary of Inpatient Charges**	**Summary of Outpatient Charges**	**Summary of Inpatient Days**	**Summary of Inpatient Discharges**	**Summary of Outpatient Visits**
TARRANT	$ 639,684,151	$ 399,462,429	75,782	13,795	93,385
JOHNSON	$ 16,217,751	$ 8,627,005	1,575	256	1,569
DALLAS	$ 12,072,723	$ 8,037,587	1,369	245	1,739
PARKER	$ 9,751,510	$ 4,343,291	1,018	176	867
WISE	$ 7,082,655	$ 1,909,811	685	131	334
HOOD	$ 5,788,367	$ 1,825,087	562	89	309

Source: Based upon information provided by JPS Health Network.

Trauma Center

JPS Health Network's Level 1 Trauma Center draws inpatient and outpatient trauma cases from throughout Tarrant County and from adjacent counties. The highest numbers outside the county are drawn from zip codes from the west — Parker County, and the lowest numbers from the east — Dallas County, home to Parkland's Level 1 Trauma Center.

The Table below, Trauma Services by Resident County, indicates that JPS serves a regional trauma role with 42.3% of inpatient charges, 38.5% of inpatient discharges, and 30.2% of outpatient visits originating from non-Tarrant County geographies.

Table 19: Trauma Services by Resident County, 2015-2016

JPS Trauma Services (Codes 68100001-68100003) by Patient's County: Activity for the 12 Months Ending 9/30/2016					
% of Total - Tarrant	57.7%	69.8%	58.0%	61.6%	69.7%
% of Total - Next 5	22.6%	15.4%	22.4%	22.2%	16.3%
% of Total - All Other	19.7%	14.7%	19.6%	16.3%	13.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%
County	Sum of Inpatient Charges	Sum of Outpatient Charges	Summary of Inpatient Days	Sum of Inpatient Discharges	Sum of Outpatient Visits
TARRANT	$ 70,098,852	$ 22,385,037	5,686	871	1,100
JOHNSON	$ 8,991,343	$ 1,790,342	679	72	79
WISE	$ 5,408,540	$ 776,899	500	94	50
PARKER	$ 5,358,217	$ 642,242	425	53	41
DALLAS	$ 4,263,911	$ 1,345,144	307	59	65
HOOD	$ 3,439,269	$ 392,052	287	36	23

Source: Based upon information provided by JPS Health Network.

Behavioral Health

The table below, "Behavioral Health ED Activity-Tarrant County Hospitals," indicates that JPS is the highest ranked provider of Behavioral Health Emergency and Non-Emergency Department Outpatient Visits for Adults in Tarrant County.

Table 20: Behavioral Health ER Activity—Tarrant County Hospitals, October 2015-September 2016

Metric	JPS Number	JPS % of TC	JPS Rank
Total ER Inpatient Admits, 18+ y/o	1,228	23.2%	1
Total ER Inpatient Admits, <18 y/o	369	35.6%	1
Total ER Inpatient Admits, All ages	1,597	25.3%	1
Total ER Outpatient Visits, 18+ y/o	10,536	59.1%	1
Total ER Outpatient Visits, <18 y/o	1,008	28.1%	2
Total ER Outpatient Visits, All ages	11,544	53.9%	1
Total Non-ER O/P Visits, 18+ y/o	2,382	48.9%	1
Total Non-ER O/P Visits, <18 y/o	99	30.6%	2
Total Non-ER O/P Visits, All ages	2,481	47.7%	1

Source: Based on information provided by the Dallas Fort Worth Hospital Council.

The table below, "Behavioral Health by Residence County," demonstrates that JPS serves a regional role with 11.3% of inpatient discharges and 7.4% of outpatient visits originating from non-Tarrant County geographies.

Table 21: Behavioral Health by Residence County (By Descending Order of Inpatient Charges)

JPS Behavioral Health Services by Patient's County: Activity for the 12 Months Ending 9/30/2016					
% of Total - Tarrant	88.1%	89.9%	89.2%	88.7%	92.6%
% of Total - Next 5	7.4%	6.7%	6.6%	7.2%	5.2%
% of Total - All Other	4.5%	3.3%	4.2%	4.1%	2.2%
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
County	Sum of Inpatient Charges	Sum of Outpatient Charges	Summary of Inpatient Days	Sum of Inpatient Discharges	Sum of Outpatient Visits
TARRANT	$ 58,476,538	$ 48,382,017	33,460	3,401	42,614
DALLAS	$ 1,819,924	$ 1,222,997	1,027	97	818
PARKER	$ 1,285,845	$ 744,831	594	69	457
JOHNSON	$ 1,040,725	$ 1,133,922	486	68	750
DENTON	$ 407,784	$ 359,253	193	25	219
HOOD	$ 352,395	$ 166,341	160	19	142

Source: Based upon information provided by JPS Health Network.

Patients coming from outside Tarrant County to Trinity Springs are predominately from zip codes in Dallas County to the east, Johnson County to the south and Parker County to the west, with some patients from Denton County in the north and Hood County in the southwest.

Readmission Rates for Ambulatory Care Sensitive Conditions Including Behavioral Health

The data in the table below, "Readmissions in Tarrant County - In Descending Order of Readmission Rate", accounts for all readmissions, including behavioral health admissions. Readmission rates have increasingly been used as a quality benchmark; this data can provide insight into the accountability of the care patients receive after being discharged from an acute facility, with post-discharge care potentially having a significant impact.

*Table 22: Readmissions in Tarrant County - In Descending Order of Readmission Rate **

Row Labels	Sum of Numerator	Sum of Denominator	Average of Readmit Rate
Plaza Medical Center of Fort Worth	1,677	8,886	18.9%
North Hills Hospital	1,090	6,220	17.5%
Texas Health Springwood Hospital	324	1,939	16.7%
Texas Health Heart & Vascular Hospital Arlington	193	1,168	16.5%
Texas Health Harris Methodist Hospital Azle	205	1,387	14.8%
Texas Health Harris Methodist Hospital Fort Worth	4,825	36,294	13.3%
Cook Children's Health Care System	1,351	10,518	12.8%

Texas Health Arlington Memorial Hospital	1,849	14,480	12.8%
JPS Health Network	2,870	23,434	12.2%
All Tarrant County Hospitals	**21,764**	**181,866**	**12.0%**
Texas Health Huguley Hospital Fort Worth South	1,228	10,626	11.6%
Texas Health Harris Methodist HEB	1,546	13,729	11.3%
Methodist Mansfield Medical Center	989	10,007	9.9%
Medical Center of Arlington	1,667	18,106	9.2%
Texas Health Harris Methodist Hospital Alliance	538	6,621	8.1%
Texas Health Harris Methodist Southwest	1,342	16,743	8.0%
Parkway Surgical and Cardiovascular Hospital	46	740	6.2%
Texas Health Harris Methodist Hospital Southlake	24	968	2.5%

Source: Based on hospital self-reported data submitted to the Dallas Fort Worth Hospital Council.
** Note: Readmission data was obtained from the Dallas Fort Worth Hospital Council (DFWHC), which indicated that only 17 hospitals provided such data during the 12-month reporting period.*

JPS' readmission rate of 12.2% is only slightly higher than the overall Tarrant County Hospitals rate of 12.0%. This is lower than expected given that JPS serves some of the sickest and most indigent patients. JPS' high case mix of Medicaid and Uninsured compared with the hospitals overall is described in the next section: Hospital Charity Care.

Hospital Charity Care

As depicted in the table below, "Tarrant County Hospitals Medicaid and Uninsured Unreimbursed Costs, FY 2015," the Tarrant County Hospital District [JPS Health Network] has the highest total Medicaid and uninsured unreimbursed costs in the County ($172,035, 280) which is nearly three times higher than the next highest individual hospital, Texas Health Harris Methodist Fort Worth Hospital at $60,667,065); followed by Baylor All Saints Medical Center ($39,013,178).

The combined Total Medicaid + Uninsured Unreimbursed Costs for all Tarrant County based Texas Health Resources hospital is $156,431,738 second only to JPS.

Table 23: Tarrant County Hospitals Medicaid and Uninsured Unreimbursed Costs, FY 2015[xlviii]

Hospital Name	Medicaid Shortfall – Payments Less Cost	Uninsured Payments Less Cost	Total Medicaid + Uninsured Unreimbursed Costs	Percent of Total Medicaid + Unreimbursed Costs
Baylor All Saints Medical Center	($28,430,085)	($10,583,092)	($39,013,178)	8.90
Baylor Regional Medical Center at Grapevine	($2,744,580)	($6,035,515)	($8,780,094)	2.00
Columbia Medical Center of Arlington	($6,688,745)	($4,942,065)	($11,630,810)	2.65
Columbia North Hills Hospital	($2,072,133)	($7,020,548)	($9,062,681)	2.07
Columbia Plaza Medical Center of Fort Worth	($4,601,180)	($3,564,896)	($8,166,076)	1.86
Cook Children's Medical Center	($22,898,101)	($2,020,692)	($24,918,793)	5.68
Methodist Mansfield Medical Center	($2,634,604)	($5,689,211)	($8,323,815)	1.90
Tarrant County Hospital District [JPS]	($43,621,034)	($128,414,245)	($172,035,280)	39.25
Texas Health Arlington Memorial Hospital	($11,311,476)	($12,849,041)	($24,160,518)	5.51
Texas Health Harris Methodist Azle	($1,730,716)	($3,539,713)	($5,270,429)	1.20
Texas Health Harris Methodist Fort Worth	($29,746,810)	($30,920,254)	($60,667,065)	13.84
Texas Health Harris Methodist Hospital Alliance	($469,088)	($2,647,115)	($3,116,203)	.71
Texas Health Harris Methodist Hurst-Euless-Bedford	($11,235,22)	($19,260,722)	($30,495,944)	6.96
Texas Health Harris Methodist Southwest Fort Worth	($9,738,241)	($7,590,551)	($17,328,792)	3.95
Texas Health Huguley Hospital Fort Worth South	($5,725,363)	($9,657,445)	($15,382,807)	3.51
TOTAL	**($183,647,378)**	**($254,735,105)**	**($438,352,485)**	**100**

Source: Based on information from the American Hospital Association.

As depicted in the table below, "Tarrant County Hospitals Medicaid and Uninsured Unreimbursed Inpatient Admissions, October 2015-September 2016," the Tarrant County Hospital District [JPS Health Network] has the highest total Medicaid and uninsured discharges in the County (34,594). This is more than six times higher than the next highest individual hospital, Columbia Medical Center of Arlington (5,522); followed by Texas Health Harris Methodist Fort Worth (4,566).

Table 24: Tarrant County Hospitals Medicaid and Uninsured Unreimbursed Inpatient Admissions, October 2015-September 2016

Hospital Name	Number of Inpatient Discharges - Medicaid	Number of Inpatient Discharges - Uninsured	Number of Inpatient Discharges – Medicaid and Uninsured	Percent of Total Inpatient Discharges – Medicaid and Uninsured
Baylor All Saints Medical Center	3,159	7	3,166	5.00
Baylor Regional Medical Center at Grapevine	167	8	175	.28
Columbia Medical Center of Arlington	5,461	61	5,522	8.71
Columbia North Hills Hospital	169	38	207	.33
Columbia Plaza Medical Center of Fort Worth	415	89	594	.94
Cook Children's Medical Center	3,743	4	3,747	5.91
Methodist Mansfield Medical Center	726	1	727	1.15
Tarrant County Hospital District [JPS]	34,203	391	34,594	54.59
Texas Health Arlington Memorial Hospital	2,612	49	2,661	4.20
Texas Health Harris Methodist Azle	62	33	95	.15
Texas Health Harris Methodist Fort Worth	4,204	362	4,566	7.20
Texas Health Harris Methodist Hospital Alliance	786	23	809	1.28
Texas Health Harris Methodist Hurst-Euless-Bedford	2,099	44	2,143	3.38
Texas Health Harris Methodist Southwest Fort Worth	2,789	9	2,798	4.42
Texas Health Huguley Hospital Fort Worth South	1,494	74	1,568	2.47
TOTAL	**62,089**	**1,193**	**63,372**	**100**

Source: Based on information from the Dallas Fort Worth Hospital Council.

For information on charity care policies for each of the Tarrant County hospitals, refer to Appendix 8, Tarrant County Non-Profit Hospitals, Charity Care Policies.

Implications of Population Increase, Health Status and Current Service Capacity on Service Capacity for the Future

Population Growth. In twenty years from now, one can expect an overall population percent change in Tarrant County of 46%, from 2,020,278 (2017) to 2,948,206 (in 2037). The JPS Connection-eligible

population percent change is expected to be approximately the same, from 425,701 (2017) to 621,228 (in 2037). The growth of the population has enormous implications for the public health, health care and social service systems.

Health Status. The assessment of health status in the county points to adult obesity, diabetes, high blood pressure and cancer as key health concerns among several. Infant Mortality in particular zip codes and late entry into prenatal care are of significant concern, as is the high rate of sexually transmitted infection. Childhood immunization rates and obesity are also in need of attention. Behavioral health — with self-reported depressive episodes as the indicator — is a significant concern.

Social Determinants of Health. Based on self-report via the Behavioral Risk Factor Survey, access to affordable primary care and dental care for low income persons in Tarrant County appears to be difficult. Linguistic isolation of a large proportion of the population and very limited public transportation in the county makes it all the more challenging to navigate and access the health care system.

Preventing and improving management of the most prevalent and controllable conditions must be emphasized, for example, diabetes and hypertension. This should include partnerships with public health and community-based organizations.

Healthcare Workforce. Population growth and the aging of the population will have significant implications for the JPS workforce. HMA estimated primary and specialty care workforce in tables below which uses North Central Texas Council of Governments (NCTCOG) for projections.

Primary Care Workforce. The table below indicates the total number of Primary Care Provider Full Time Equivalent (FTE) workforce in Tarrant County that is estimated to be needed to serve the low-income (<250%FPL) population now and over the next 20 years. These calculations exclude the undocumented.

Table 25: Total Primary Care Provider Workforce Required to Meet Primary Care Needs of the Low-Income (<250% FPL) Population* in Tarrant County in the Next 20 Years

	2017 (current)	2022 (5yr)	2027 (10yr)	2032 (15yr)	2037 (20yr)
Number of Current and Estimated Primary Care FTEs Needed Based on Population Projections	378	423	469	521	573
PCPs Needed for Pts < 65 Years	319	349	377	408	437
PCPs Needed for Pts > 65 Years	59	75	92	113	136

**Projection excludes individuals who are undocumented immigrants.*

There are significant unmet primary care needs in the county as evidenced by heavy utilization of JPS primary care providers, wait times for new patient appointments, and low acuity ER utilization. Expanding primary care capacity for low-income adults, including the undocumented, will help to reduce the burden on JPS and other Tarrant County hospitals emergency services which is significant as evidenced by Table 23, "Tarrant County Hospitals Medicaid and Uninsured Unreimbursed Costs, FY 2015," earlier in this Section, on total uncompensated care. This "emergency" access is serving as a highly expensive workaround to primary care. The tools provided in this document can assist JPS in examining the recruitment and financial implications of increased primary care market share.

Specialty Care Workforce. Specialty care needs and workforce requirements are expected to increase in the coming decades as well.

This analysis has been done for multiple specialties and is presented in subsequent chapters. The tools provided in this document can be used to examine the implications of increasing the percentage of need met.

Hospital Bed Needs. Finally, with the population growth and the aging of the population, the need for acute medical hospital beds is also expected to increase. Table 26 below indicates that there are currently 1.9 acute medical hospital beds (total for all hospitals) per 1,000 population in Tarrant County. With very high efficiency, some communities in the U.S., have 1.3 acute medical hospital beds per 1,000 population, but a target of 1.55 might be more reasonable for Tarrant County and is used in the calculations below. With the projected population increase described earlier in this chapter, the increased preliminary estimates for acute medical hospital bed need for the <250% FPL adult population across the county is presented below. These estimates are subject to review by facilities planning consultant.

Table 26: Acute Medical Hospital Bed Needs Over Next 20 Years, Tarrant County, TX

	2017 (Current)	2022 (5yr)	2027 (10yr)	2032 (15yr)	2037 (20yr)
Target number of beds/1,000 population	1.9	1.81	1.72	1.64	1.55
Total new beds needed given population growth at target number of beds/1000 population	n/a*	206	381	569	727
New beds needed in Tarrant County for population <250% FPL	n/a	145	290	451	612
New beds needed in Tarrant County for JPS Connection population	n/a	72	144	224	304

*While there appears to be an adequate number of beds per population, the distribution of beds in the county may not be optimal.

Assumptions for Table Above	
Total Tarrant County Acute Care Beds	4,084
Bed rate decline maximum per 5-year period	5%

Behavioral Health Services. As the number of individuals with Severe and Persistent Mental Illness (SMI) grows with the population increase, a concomitant expansion of ambulatory behavioral health and substance abuse care services, as well as acute psychiatric hospital capacity will be required. HMA estimates the need for psychiatric public beds in Tarrant County to increase to approximately 1032 by 2037 using an adjusted benchmark of approximately 35 public beds per 100,000 population, with JPS needing to meet about 50% of the expected need (516 beds). The bed need and associated Behavioral Health System of Care recommended for Tarrant County is discussed in the Delivery System Chapter.

So too, trauma cases are likely to increase proportional to the population resulting in a need for additional capacity.

Correctional Health-Justice Involved Healthcare. According to JPS, the average daily inmate census for the four facilities in Tarrant County in 2016 is approximately 3190. In the same year, there were an average of 6 inmates hospitalized at JPS at any one time, and an average of 35 inmates in the infirmary each day[xlix]. The number of inmates will likely grow proportionally to the population, as will the homeless population, requiring an expansion in the workforce dedicated to the healthcare and social service needs of these populations.

Refugee Population. Tarrant County receives the third largest refugee population per year of counties in Texas. While the future of this in-migration is not known, refugees, even though they are eligible for Medicaid upon arrival for a brief period of time in the United States, require approaches and services that are unique in many ways.

Undocumented Population. The undocumented adult population in Tarrant County, currently estimated at 7%, is not eligible for government subsidized care. Due to the limited availability of primary and specialty care for the undocumented population, they are significant users of emergency department services.

Engaging Diverse Populations. The public health and healthcare entities in Tarrant County need to help create pipelines from increasingly diverse, local communities into health professions training programs, and use creative approaches to engaging these communities, such as community health workers and/or navigators from target neighborhoods.

Aging Population. Segments of the population are growing at different rates, with the most critical being the 65 and older population. In 2021, less than five years from now, it is expected that the over 65 population to be over a quarter million (257,766) in Tarrant County, an estimated 40.5% increase from 183,445 projected this year. The need for home and community-based long-term services and supports (HCBS) is expected to grow for several decades as the baby boom generation ages. Many seniors and others with disabilities will need assistance with daily activities to remain in their homes and communities. People with functional limitations or cognitive impairments may need assistance with activities of daily living such as bathing, dressing, and using the toilet, or instrumental activities of daily living such as shopping, managing money and medications, etc.

Transportation. With rapid population growth in a geography with limited public bus and rail transportation that limits health care access, it is in the county's best interest to consider creative ways to bring healthcare to the people — contract with existing healthcare entities in communities with limited access, forge site partnerships with Tarrant County Public Health or other entities, consider telemedicine, mobile health care, etc. At the same time, continuing efforts to expand public transportation, and/or build on existing private transportation options.

Chapter 4. System Capacity and Population Needs

An important component of the marketplace assessment is to understand the current primary care, specialty care, and hospital bed needs of the target population(s) and the percentage of that need that is currently being fulfilled by JPS. This not only brings context to current strains in the JPS delivery system, but more importantly, by identifying both the current and projected future gaps, JPS can make more informed strategic decisions on the size and constitution of their professional staff, as well as their facilities, necessary to anticipate and meet future needs.

Methods used to calculate the need for primary care providers and community health centers, specialists and inpatient hospital beds are described in detail in Appendix 10: Methodology for PCP, Health Center, Specialists and Inpatient Bed Needs.

It is important to note that the tools used to develop estimates are intended to inform ongoing planning rather than to create a static output. Because current assumptions may change, these tools should be used to check assumptions and modify plans over time. **(Refer to Supplemental Spreadsheet: Population Estimates and Predicted Demand.)**

Population Growth

Population growth has enormous implications for public health, health care, and social service systems. Over the next twenty years, Tarrant County's population is expected to grow by 46%, from 2,020,278 in 2017 to 2,948,206 in 2037, with the JPS Connection-eligible population percent change expected to be approximately the same, growing from 425,701 in 2017 to 621,228 in 2037. The following sections detail the impact of population growth on primary care, specialty care, and acute psychiatric and medical hospital bed needs.

Primary Care

The table below depicts the need for primary care providers (PCPs) for the entire Tarrant County population over the next 20 years. Given the estimated total number of licensed primary care physicians, we estimate that approximately 75% of the total primary care need in the county is currently being met. In other words, Tarrant County as a whole has fewer physician FTEs than needed to meet demands. The gap is certainly met in part by non-physician PCPs, but these advanced practice nurses and physician assistants are not likely filling the entire 25% gap. The demand for those under the 250% of the Federal Poverty Level (FPL) is only a portion of the overall need.

Table 27: Primary Care Demand for all of Tarrant County, TX

Primary Care Demand for all of Tarrant County, TX					
	2017	2022	2027	2032	2037
Total Number of FTEs Needed in County	1,043	1,168	1,294	1,437	1,581
Number of Physician PCP FTEs in County[7,10]	778				
Percent of demand met	75%				

Table 28, below, provides estimates of the number of full-time equivalent (FTE) primary care providers (PCPs) required to meet the needs of Tarrant County residents that have an annual income below 250% of the Federal Poverty Level (FPL).

Table 28: Primary Care Demand for Population < 250% poverty - Tarrant County, TX

Primary Care Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Total Number of FTEs Needed in County	378	423	469	521	573
Age < 65	319	349	377	408	437
Age 65 and older	59	75	92	113	136

Note: Excludes undocumented.

At present, JPS could meet 26% of the target population's primary care needs through its existing medical homes. Much of the balance of that need (74%) is likely being met in low acuity Emergency Department (ED) visits, in other hospitals, and through charity care and private practices. The mismatch between the supply (some portion of the 26% plus the amount delivered by other systems) and the need will prevent JPS from achieving other goals laid out in this report. To achieve the reduction in the morbidity that now results in preventable emergency department visits and hospitalizations at JPS, JPS needs to place greater emphasis on ambulatory care services. Particularly given the limited options for primary care for the target population, JPS must consider strategies to meet or otherwise ensure that a significantly greater percentage of the primary care need for this population is met.

The table below provides a projection of the number of PCPs needed over the next 20 years for the target population if JPS were to continue to meet 26% percent of the primary care need versus incrementally increasing the percent need met to 50% over 20 years.

Table 29: Number of JPS PCPs Needed to Meet Current (26%) and an Enhanced Percent (50%) of Primary Care Demand for Population < 250% FPL - Tarrant County, TX

Primary Care Demand for Population < 250% FPL - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of JPS PCP FTEs Needed to Continue to meet current 26% of Demand through 2037	98 (current)	110	122	135	149
Percent of demand met by JPS	26.0%	26.0%	26.0%	26.0%	26.0%
Number of JPS PCP FTEs Needed to Meet 50% of demand by 2037	98 (current)	135	178	229	287
Percent of demand met	26.0%	32.0%	38.0%	44.0%	50.0%

Note: Excludes undocumented.

The increase in overall primary care need in Tarrant County over the next 20 years will negatively impact lower income populations disproportionately unless a sustained effort is made by JPS to increase the percent of the target population need met from 26% to a much higher level. While we present two scenarios above, one in which the status quo is maintained, and one in which JPS meets a significantly higher percentage of primary care needs of the <250% FPL population, we created a tool that allows for changes in primary care coverage assumptions that auto-calculates the resulting primary care FTE requirements. (Refer to Supplemental Spreadsheet – Population Estimates and Predicted Demand.)

As depicted in Table 30 below, in order for JPS to increase their primary care capacity to meet 50% of need of the target population as modeled above, an additional 188 FTEs beyond attrition would be needed by 2037. While new health centers could be developed and/or existing health centers expanded, this increase in PCPs would require the equivalent of approximately 19 new health centers of a recommended size of 18 exam rooms by 2037.

Table 30: Incremental Primary Care FTEs and Health Center Needs with Assumptions to Meet 50% Need of Population <250% FPL, Tarrant County, TX

Incremental Primary Care FTEs and Health Center Needs for < 250%FPL – Tarrant County, TX					
	2022	2027	2032	2037	Total in 20 Years
Number of FTEs Needed to be Added by the Indicated Year	37	43	51	57	188
Number of Health Centers Needed to be Added by the Indicated Year	4	4	5	6	19

It is important to note that maintaining the current level of 26% of needs met for the population <250% FPL is projected to result in a *falling percentage of need met* for the JPS Connection-eligible population over time, as demonstrated in Table 31 below.

Table 31: Primary Care Demand for JPS Connection-eligible Population - Tarrant County, TX

Primary Care Demand for JPS Connection - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	263	301	340	386	433
Age < 65	204	226	248	273	297
Age 65 and older	59	75	92	113	136
Number of JPS PCP FTEs (extrapolated across years at same demand met)	98 (current)	110	122	136	149
Percent of demand met by JPS	37.4%	36.6%	35.9%	35.2%	34.4%

Assumptions:

- Generalist visits per 1,000 population[1]: 1,718
- Medicare primary care visits per 1,000 beneficiaries[2] 2,949
- Average primary care cost per beneficiary[3] $524
- Total revenues[4] $634,928.95
- Average compensation per primary care physician[5] $241,273

- Percent of revenues from physician costs[6] 38%
- Number of visits seen by average primary care physician[4] 3,574
- Percent of FTEs of primary care providers spent in primary care[7] 67%
- Number of primary care visits in US[1] 490,831,000
- Estimated number of primary care providers[8] 205,000
- FTEs per health center with 18 exams rooms, 36K visits[9] 10
- Percent of undocumented in Tarrant who are over age 65 2%
- Assumed Percentage of Primary Care Needs Met 26%
- Visits to primary care in JPS in FY2015 351,052
- Number of FTEs are estimated for primary care providers; this includes physicians, as well as advanced nurse practitioners and physician assistants expected to have a panel size close to the size of the physician panels.

[1] National Ambulatory Medical Care Survey
[2]Calculated estimate from other sources in this list
[3]2012 CommonWealth: Paying More for Primary Care: Can It Help Bend the Medicare Cost Curve
[4]Calculated estimate from other sources in this list
[5]http://blogs.aafp.org/fpm/gettingpaid/category/Physician+compensation
[6]MGMA Cost Survey: 2014 Report Based on 2013 Data
[7]Estimate to get visits close to separately identified of 3,600
[8]HRSA Health Workforce: Projecting the Supply and Demand for Primary Care Practitioners Through 2020
[9]Assumes 3,600 visits per year
[10]Dartmouth Atlas 2011 for Fort Worth Service Area, 57.5 primary care physicians per 100,000 population

Note: Methods used to calculate the need for primary care providers and community health centers are described in detail in the Appendix.

Specialty Care

Specialty care needs and workforce requirements also are expected to grow over the next two decades, and it is widely recognized that JPS is the main provider of specialty care for the < 250% FPL population. For the specialties covered (see Table 32 below), JPS currently has FTE capacity that would be expected to be able to serve on average 27% of specialty demand. This ranges from JPS meeting approximately 6% (dermatology) to 72% (infectious disease) of the estimated need of the population with incomes below 250% FPL. Two hospital-based specialties appear to have enough FTEs to serve more than the total population under 250% FPL. This could be for a number of reasons, including that a broader population is served, academic work is causing each FTE to be less than one FTE of clinical time, or other efficiency issues.

There is no correlation between wait times and the calculated percentage of need identified. For example, general surgery FTEs are only sufficient to serve 14% of the estimated need and yet have a much shorter wait time than gastroenterology, which is expected to meet nearly 50% of the estimated need. The reason for the lack of correlation may be that post-surgical visits are the largest feeder of clinic visits and there may not be adequate surgical capacity to create this flow. With gastroenterology, non-urgent new visits and procedures are fed in from primary care, the Emergency Department, and other systems of care. Differences in service efficiencies could also be present. In any case, it is clear that the FTEs are only sufficient for a fraction of most specialty needs and that population growth will result in the need for a great deal of additional specialty capacity. In addition to the overall estimated need, specific specialties were analyzed to determine the number of specialists needed if the current percentage of population need were to continue to be met. Current FTEs were estimated by visit data when FTE data were not available.

Table 32: Total Specialty FTEs needed for population <250% poverty

Total Specialty FTEs needed for population <250% poverty								
Specialties	JPS FTEs 2017	Estimated need Tarrant County 2017	Percent of need met by JPS FTEs	Wait times (months)	Estimated need Tarrant County			
					2022	2027	2032	2037
Allergy & Immunology	0	7.6	0%	no data	8.4	9.2	10.1	11.0
Cardiology	8	30.5	26%	no data	35.0	39.8	45.3	51.0
Cardiovascular Surgery	5	11.2	45%	1 to 2	12.9	14.6	16.7	18.8
Child Psychiatry	1	24.6	4%	no data	26.9	29.0	31.4	33.7
Dermatology	1	17.6	6%	12	19.8	22.0	24.4	26.9
Endocrinology	2.5	6.6	38%	4 to 10	7.4	8.2	9.1	10.0
Gastroenterology	7.8	16.7	47%	5 to 12	18.8	20.8	23.2	25.6
Hematology-Oncology	8.0	19.7	41%	no data	22.6	25.7	29.2	32.9
Infectious Diseases	4	5.5	72%	8	6.2	6.8	7.4	8.1
Neonatology	11.5	6.3	182%	no data	6.9	7.5	8.1	8.6
Nephrology	6	8.8	68%	4 to 12	10.1	11.5	13.1	14.7
Neurology	4.4	17.7	25%	4 to 12	20.3	23.1	26.3	29.6
Neurosurgery	2	9.4	21%	2	10.5	11.7	13.0	14.3
Ophthalmology	7	26.4	26%	12	29.7	32.9	36.7	40.4
Orthopedic Surgery	9.7	37.7	26%	2 to 9	42.3	47.0	52.3	57.7
Otolaryngology	2.2	20.3	11%	3 to 4	22.7	25.3	28.1	31.0
Physical Med & Rehab	5	10.5	47%	4	11.8	13.1	14.6	16.1
Plastic Surgery	1	10.5	10%	no data	11.6	12.7	14.0	15.2
Psychiatry	32	62.3	51%	no data	69.1	75.8	83.3	90.8
Pulmonary Diseases	2	10.2	20%	10	11.5	12.7	14.2	15.6
Rheumatology	2.4	9.6	25%	4	10.8	12.0	13.3	14.7
Surgery, General	9	63.3	14%	2 to 5	71.0	78.9	87.8	96.8

Thoracic Surgery	1	7.6	13%	no data	8.8	9.9	11.3	12.8
Urology	2.6	24.6	11%	6 to 9	28.3	32.1	36.5	41.1
Anesthesiology	77	52.2	147%	no data	58.6	65.1	72.5	79.9
Emergency Medicine	90	40.4	223%	n/a	45.4	50.4	56.1	61.9
Pathology	8.5	40.0	21%	n/a	44.9	49.9	55.5	61.2
Radiology	6.5	46.0	14%	n/a	51.6	57.3	63.8	70.4
TOTAL	317	644			724	805	897	991

For many specialties, the current percentage of need met is not adequate, as evidenced by both the analysis and the wait times. The specialty-specific projection tables below show the current "capacity-to-meet-need" being kept the same into the future. This projection tool can also be used to plan for a higher level of specialty support, which may be of strategic importance. Tables are prepared for cardiology, dermatology, endocrinology, gastroenterology, oncology, neurology, orthopedics, psychiatry, pulmonology, and urology, all at existing percent of demand met levels and all for physician FTEs. Advanced practice nurses (APNs) and physician assistants (PA) can and should be part of a plan to meet need, but this analysis is restricted to physician FTE estimations. Additionally, the estimates are based on a typical inpatient/outpatient mix and in services that are currently called upon to meet more inpatient need within Tarrant County, such as psychiatry, the analysis may show more need being met than actually is. The analysis would need to be adjusted in order to use for planning purposes in these cases.

To the extent that plans are made to continue to meet a relatively low percentage of need, such as in dermatology and urology, a variety of other strategies can be used to improve access, including partnering with other institutions (potentially rationalizing charity care to incorporate population strategies and innovations), strengthening referral rules to decrease inappropriate/low-need patients being placed in urgent/same day spots, deploying innovative access initiatives such as e-consults, and organizing space and staff to more specifically respond to the highest need/highest impact specialty services.

Table 33: Cardiology: Cardiology Demand for Population < 250% poverty* - Tarrant County, TX

Cardiology: Cardiology Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	30	35	40	45	51
Age < 65	21	22	24	26	28
Age 65 and older	10	12.6	15.5	19.0	23
Number of FTEs in JPS (extrapolated across years at same demand met)	8.0 (current)	9.2	10.5	11.9	13.4
Percent of demand met by JPS	26.3%	26.3%	26.3%	26.3%	26.3%
Incremental FTEs needed	n/a	1	1	2	1

Excludes undocumented

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 26.3%

Table 34: Dermatology: Dermatology Demand for Population < 250% poverty* - Tarrant County, TX

Dermatology: Dermatology Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	18	20	22	24	27
Age < 65	15	16	17	19	20
Age 65 and older	3	3.8	4.7	5.8	7
Number of FTEs in JPS (extrapolated across years at same demand met)	2.0 (current)	2.2	2.5	2.8	3.1
Percent of demand met by JPS	11.4%	11.4%	11.4%	11.4%	11.4%
Incremental FTEs needed	n/a	0	0	1	0

Excludes undocumented

2017 includes a planned increase of FTEs to 2, other tables show 1 FTE meeting 6% demand

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 11.4%

Table 35: Endocrinology: Endocrinology Demand for Population < 250% poverty* - Tarrant County, TX

Endocrinology: Endocrinology Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	7	7	8	9	10
Age < 65	5	6	6	7	7
Age 65 and older	1	1.4	1.8	2.2	3
Number of FTEs in JPS (extrapolated across years at same demand met)	2.5 (current)	2.8	3.1	3.5	3.8
Percent of demand met by JPS	38.1%	38.1%	38.1%	38.1%	38.1%
Incremental FTEs needed	n/a	0	1	0	0

Excludes undocumented

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 38.1%

Table 36: Gastroenterology: Gastroenterology Demand for Population < 250% poverty* - Tarrant County, TX

Gastroenterology: Gastroenterology Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	17	19	21	23	26
Age < 65	14	15	16	18	19
Age 65 and older	3	3.6	4.5	5.5	7
Number of FTEs in JPS (extrapolated across years at same demand met)	7.8 (current)	8.8	9.7	10.8	11.9
Percent of demand met by JPS	46.7%	46.7%	46.7%	46.7%	46.7%
Incremental FTEs needed	n/a	1	1	1	1

Excludes undocumented

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 46.7%

Table 37: Oncology: Oncology Demand for Population < 250% poverty* - Tarrant County, TX

Oncology: Oncology Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	20	23	26	29	33
Age < 65	13	15	16	17	18
Age 65 and older	6	8.1	10.0	12.3	15
Number of FTEs in JPS (extrapolated across years at same demand met)	8.0 (current)	9.2	10.4	11.9	13.4
Percent of demand met by JPS	40.7%	40.7%	40.7%	40.7%	40.7%
Incremental FTEs needed	n/a	1	1	2	1

Excludes undocumented

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 40.7%

Table 38: Neurology: Neurology Demand for Population < 250% poverty* - Tarrant County, TX

Neurology: Neurology Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	18	20	23	26	30
Age < 65	12	13	14	15	16
Age 65 and older	6	7.3	9.0	11.1	13
Number of FTEs in JPS (extrapolated across years at same demand met)	4.4 (current)	5.1	5.7	6.6	7.4
Percent of demand met by JPS	24.9%	24.9%	24.9%	24.9%	24.9%
Incremental FTEs needed	n/a	1	0	1	1

Excludes undocumented

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 24.9%

Table 39: Ortho: Orthopedic Surgeon Demand for Population < 250% poverty* - Tarrant County, TX

Ortho: Orthopedic Surgeon Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	38	42	47	52	58
Age < 65	31	34	37	40	43
Age 65 and older	6	8.1	10.0	12.3	15
Number of FTEs in JPS (extrapolated across years at same demand met)	9.7 (current)	10.9	12.1	13.5	14.8
Percent of demand met by JPS	25.8%	25.8%	25.8%	25.8%	25.8%
Incremental FTEs needed	n/a	1	1	2	1

Excludes undocumented

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 25.8%

Table 40: Psychiatry: Psychiatry Demand for Population < 250% poverty* - Tarrant County, TX

Psychiatry: Psychiatry Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	62	69	76	83	91
Age < 65	56	62	67	72	77
Age 65 and older	6	7.4	9.1	11.2	13
Number of FTEs in JPS (extrapolated across years at same demand met)	32.0 (current)	35.5	38.9	42.8	46.7
Percent of demand met by JPS	51.4%	51.4%	51.4%	51.4%	51.4%
Incremental FTEs needed	n/a	3	4	4	4

Excludes undocumented

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 51.4%

Table 41: Pulmonary: Pulmonary Demand for Population < 250% poverty* - Tarrant County, TX

Pulmonary: Pulmonary Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	10	11	13	14	16
Age < 65	8	9	10	11	12
Age 65 and older	2	2.2	2.7	3.4	4
Number of FTEs in JPS (extrapolated across years at same demand met)	2.0 (current)	2.2	2.5	2.8	3.1
Percent of demand met by JPS	19.6%	19.6%	19.6%	19.6%	19.6%
Incremental FTEs needed	n/a	0	0	1	0

Excludes undocumented

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 19.6%

Table 42: Urology: Urology Demand for Population < 250% poverty* - Tarrant County, TX

Urology: Urology Demand for Population < 250% poverty* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Number of FTEs Needed	25	28	32	37	41
Age < 65	17	18	20	21	23
Age 65 and older	8	10.1	12.5	15.4	18
Number of FTEs in JPS (extrapolated across years at same demand met)	2.6 (current)	3.4	3.9	4.5	5.0
Percent of demand met by JPS	12.2%	12.2%	12.2%	12.2%	12.2%
Incremental FTEs needed	n/a	1	0	1	0

Note: Excludes undocumented

Assumptions: Goal Percentage of Needs Met for Population <250% FPL: 12.2

Note: Methods used to calculate the need for specialties are described in detail in the Appendix.

Psychiatry Bed Needs

The number of psychiatric beds, unlike acute care medical beds for Tarrant County as a whole, are well below the current need level, and projected population growth will only increase the gap. Table 43 below bases public bed need on total population, with 70 beds per 100,000 patients. (See Delivery System chapter and Table 51 for more detail). Although the total number of public psychiatric beds needed by 2037 will be 2,064, as outlined in JPS Delivery System chapter, a robust system of community

behavioral health services could result in reducing this need to 1,032. If JPS plans to meet about one-half of this need, 516 beds will be needed, compared to the 132 current beds.

Table 43: Psychiatric Bed Needs - Tarrant County, TX*

Psychiatric Bed Needs* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Total public beds needed at literature-supported level	1,414	1,568	1,722	1,893	2,064
Total public beds needed with investments in new programing	707	784	861	947	1,032
JPS beds required to meet target of 50% of need	354	392	431	473	516
JPS actual (current) beds	132	132	132	132	132
Proportion of target contribution met	37%	34%	31%	28%	26%

Excludes undocumented
Assumptions:

- *Current literature-supported need for public beds per 100,000: 70*
- *Percentage decrease from literature-supported level possible with enriched services: 50%*
- *Target percentage need met by JPS: 50%*

Note: Methods used to calculate the need for psychiatric beds are described in detail in the Appendix.

Acute Medical Hospital Bed Needs

Population growth and an aging population will increase the need for acute medical hospital beds. The table below projects the beds per thousand available *if no further capacity was built in Tarrant County*. Total beds for Tarrant County were calculated by subtracting the rate if no capacity was built from the target rate of beds per thousand and multiplying this by the total population. The number of beds for the population under 250% FPL was calculated differently by using only the incremental population and applying the final target bed rate. Therefore, the estimation methodology assumes that the additional under 250% FPL population (the growth) will all be well managed.

Given these assumptions, 770 beds will be needed in the next 20 years in Tarrant County. The number of beds needed for the population growth in the <250% FPL segment is 648. Decreasing bed rates in the current <250% FPL population (due to better management) will likely offset the need for a portion of the 648 beds. The extent of this offset is dependent on the relative reduction in bed use in this population versus others.

Table 44: Acute Medical Hospital Bed Needs - Tarrant County, TX*

Acute Medical Hospital Bed Needs* - Tarrant County, TX					
	2017	2022	2027	2032	2037
Beds per thousand for Tarrant County predicted population if no further capacity built	2.0	1.8	1.7	1.5	1.4
Target beds per thousand for Tarrant County population	n/a	1.92	1.82	1.73	1.65
Number of new beds needed for Tarrant County population	n/a	219	404	603	770
Number of new beds needed just for growth of population < 250% FPL at final target rate	n/a	154	307	478	648

**Bed needs in this table are for Tarrant County as a whole.*

Assumptions:

- *Current Total Tarrant County Acute Care Beds: 4,084*
- *Bed Rate Decline Maximum per 5 Year Period: 5%*

Table 45 analyzes bed need for a particular target population currently served by JPS: adults eligible for JPS Connection and Medicare beneficiaries below 250% FPL. Similar to primary care and specialty care analyses, the percentage of need being met is estimated now and in the future, with some of the need being met by other Tarrant County hospitals. The table demonstrates that if the current number of beds were to be maintained, the percent of bed need met by JPS for the target population would decrease from 34% to 23% between now and 2037.

JPS currently has 406 medical beds and would require an additional 100 beds in 2037 if they were just to continue to meet demand for 34% of this population; however, the significant queues for admission at the JPS emergency room certainly indicate that a larger percentage of the need should be met at JPS. In any particular day, it is not unusual to have 40 people waiting for a medical bed at JPS.

Table 45: Acute Medical Hospital Bed Needs for JPS Connection-eligible Population and Medicare <250% FPL- Tarrant County, TX

Acute Medical Hospital Bed Needs for JPS Connection-eligible plus Medicare < 250% FPL Population - Tarrant County, TX					
	2017	2022	2027	2032	2037
Beds needed per thousand adjusted for payer mix and bed need reductions in Table 44, and changing demographics	1.547	1.560	1.563	1.563	1.553
Number of beds needed for target population (JPS Connection-eligible and Medicare <250% FPL)	659	737	810	890	964
Total JPS acute care hospital beds	406	406	406	406	406
Number of beds available for target population+	224	224	224	224	224
Percent of bed need met by JPS for target population	34%	30%	28%	25%	23%

+Estimated percentage of JPS beds used by JPS Connection, Medicare and Self-Pay (based on 2016 charges) is 55.1%.

Note: Methods used to calculate the need for acute care hospital beds are described in detail in the Appendix.

Chapter 5. Market Assessment: Medical Education

The JPS Health Network has a long history of involvement and promotion of medical and health education training. It offers several outstanding programs for training future health professionals at JPS and participates with other educational institutions in providing the setting for the training of a wide set of future health care providers. As described in Chapter 2 – Macro Trends in U.S. Health Care System, Medical Education and Provider Supply, trends in medical practice and health education will lead to changing demands for the types of health providers needed and for the health system's ability to provide up-to-date and relevant educational experiences. HMA interviews with a wide array of stakeholders in the Dallas-Fort Worth area produced a remarkable degree of consensus on findings outlined below.

For both Tarrant County and JPS, proposed changes in the administration of medical and health education programs should be focused on clear goals and outcomes. The major priority for JPS should be the preparation of health professionals who can help meet the growing provider needs for JPS specifically, as well for Tarrant County. Tarrant County and JPS may increasingly find that it makes more sense to provide this training collaboratively with others. This requires close partnerships with educational institutions which can help address JPS' future needs for highly-skilled physicians and other clinicians. It may also require new partnerships, agreements and investments in areas of increasing need for providers at JPS and in Tarrant County. Mental Health and dental health professionals are two examples cited in Macro Trends, above, of the kinds of providers needed increasingly in Tarrant County.

At the current time, the initial goals should include the development of a strategic plan for health professions education. This plan should guide affiliations with other institutions to best meet JPS and Tarrant County goals. As a part of this affiliation re-assessment, JPS should identify and prioritize the full range of health professions education programs for which it should partner with others.

JPS is currently undergoing a major reorganization of its medical education leadership and offices. Talks have begun with key educational partners about the health educational needs in Tarrant County. In the view of HMA, these discussions are timely and should specifically target four major strategic challenges:

1. The role JPS should play and the resources that should be allocated to the evolving new medical education organization UNTHSC/TCU have created for undergraduate medical education.
2. JPS's role in the identification and prioritization of new GME programs that should be developed in Tarrant County. In Texas, the growth of new medical and osteopathic schools has developed without a concomitant growth in GME residency training as discussed above in Health Care Trends.
3. The prioritization of existing or new non-physician clinical education programs in the JPS educational organization structure that can help address health care provider needs over the coming decades.
4. The development of strategies to increasingly recruit JPS health professions trainees to meet JPS and Tarrant County provider needs.

Meeting these four strategic goals should incorporate approaches that account for the major trends and best practices in medical and health education that were outlined in Health Trends, above. The salient trends with the long-term impact on educational training at JPS include the following:

1. Growth of multidisciplinary/interdisciplinary health team practices and the need for interdisciplinary training.

2. Increasing focus on training of non-physician health providers including nurse practitioners, physician assistants, and other clinician providers to meet the needs for access to health care.
3. Shift in settings of training from the acute-care hospital to ambulatory and community-based care settings, as well as telehealth.
4. Focus on population health – necessitating attention to the health needs of the citizens of Tarrant County.
5. The development and applications to patient care of highly technical areas of medicine, such as genomics. Institutions such as JPS will be unlikely to conduct bench research in these areas but should consider partnering with educational or research institutions to ensure these advances "are brought to the bedside" in order to serve the JPS population.
6. Training of physicians and other providers in techniques and skills of continuous quality improvement for improving efficiency and performance of care.

To support and integrate JPS engagement in these advances in care, JPS educational partnerships must be reassessed with a view to further the goals of the publicly-funded health system of Tarrant County. Key academic partnerships must be nurtured and new collaborations developed. JPS has developed long-standing relationships with numerous educational partners in the Dallas-Fort Worth area over the last decades. As an educational strategy is developed at JPS, there should be a clear-eyed reassessment of the value and costs of each of these partnerships.

University of North Texas Health Sciences Center (UNTHSC). This longstanding sole source of medical education within Tarrant County has been a key partner with JPS. JPS has been a major training site for UNTHSC students. The osteopathic orientation of UNTHSC is becoming less of a differentiating characteristic in medical education. With the ongoing agreements between the ACGME and AOA, as of June 30, 2020, all graduate medical education will be integrated and will be operated by the ACGME. Both DO and MD faculty at JPS now participate in undergraduate osteopathic medical education at UNTHSC. UNTHSC graduates join JPS training programs. While JPS has a long-standing relationship with UNTHSC, other medical institutions in Tarrant County also participate in providing clinical sites for student learning. Several opportunities for closer collaboration between JPS and UNTHSC may be increasingly valuable in the future. In addition to medical education, JPS participation in UNTHSC clinical pharmacy, dentistry and health administration programs could play more direct roles in meeting JPS staffing needs. Underway are talks on how to increase collaboration in grant and research efforts, and how these can be strengthened. JPS has the best opportunity to further partner with UNTHSC in the evolution of many of clinical training programs and this opportunity should be seized.

Texas Christian University (TCU). The new medical school is due to matriculate its first class in the Fall of 2018. Planning for undergraduate curriculum and faculty development is underway. It is still unclear the extent of the role JPS will play - as the new curriculum will be quite time-intensive for faculty. On the other hand, the creation of TCU's medical school will be an important force in Tarrant County medical education including the development of increased educational programs in GME starting in about 2022. JPS should position itself to be a ley collaborator in the development of TCU GME programs. Ideally, JPS would play a lead role in many new GME programs. The JPS educational strategic plan needs to include definition of how JPS goals, commitment and resource allocation can be used to play a role in the creation of new GME programs.

University of Texas Southwestern Medical School (UTSW). UTSW is the largest medical school in the region. Most of UTSW students and GME programs are based in Dallas at Parkland and other hospitals. A few UTSW GME programs have relationships with JPS. Moncrief Cancer Center is now an affiliate of UT

Southwestern Harold C. Simmons Comprehensive Cancer Center in Dallas. There may be opportunities to collaboratively develop Oncology postgraduate medical educational activities at JPS and this would fill an educational and, potentially, a patient care need at JPS. However, UTSW is unlikely to be a source of growth for most of JPS GME needs. The UNTHSC-TCU partnership may ultimately prove to be a more likely regional center for medical education and medical training in the DFW region that could best meet Tarrant County needs.

Baylor University. JPS participates as a major site for the Baylor General Surgery residency. There are no general surgery residencies sponsored by hospitals in the Fort Worth area. Though its main training site is 40 miles away in Dallas, the Baylor-JPS program appears to have high-quality residents and the sponsor is committed to the JPS site. JPS needs to make the most of this relationship and set a goal of recruitment of graduates from the Baylor program to JPS. At the same time, JPS should strongly consider participating in the development of any new surgical residency developed in the Fort Worth area. TCU will ultimately need GME surgery residencies and JPS should position itself to play a leading role in a full range of surgical subspecialty program development. JPS's current Orthopedics residency could become the TCU Orthopedics program and catalyze sports medicine and other orthopedics-related program development in the Fort Worth area.

JPS GME programs. The Family Medicine, Emergency Medicine, Psychiatry and OB-GYN, and Orthopedics programs are fully accredited, well-regarded and integral to the delivery of care at JPS. While these programs will continue to be important, there are nonetheless many types of programs not sponsored by JPS that may be very important to the medical center and Tarrant County in the long-term. The lack of Tarrant-County sponsored general surgical residencies and surgical subspecialties, other than Orthopedic Surgery, was discussed above. The most glaring absence in Tarrant County is the lack of GME programs in Internal Medicine and Internal Medicine subspecialties such as Cardiology, GI, Pulmonary Critical Care, Oncology and others. As fewer internal medicine program graduates pursue general internal medicine practice, the graduates of internal medicine residency have become a major source of hospitalists and provide the source of trainees that later enter internal medicine subspecialty fellowships. Recruiting and retaining physicians from these subspecialties will be vital to the access and quality of care in these subspecialties at JPS. There is no doubt that, over time, such programs will develop in Tarrant County, demanded by both TCU and other hospitals in the region. To meet future needs, JPS cannot afford to be left out of the GME development process for internal medicine subspecialties.

Nursing and Health Profession Education Programs. Training in these areas at JPS has historically been less of a priority and at JPS. Macro trends in medical care, described above, have shown the increasing importance of nurse practitioners, physician assistants, nurse clinicians, dental assistants and hygienists, psychologists and psychiatric social workers to meet future health provider needs formerly seen as physician duties. In line with the expansion of opportunities for these trainees, has been the growing scope of practice afforded to these professions by states. Their role in supplementing the practice needs of primary care providers, subspecialists, and many other providers will only grow in future years. JPS needs to more proactively participate in this training to meet future health manpower needs.

The following is a more detailed gap and SWOT analysis for medical and health education within JPS and Tarrant County. This analysis includes recommendation for the Tarrant County and JPS health system with respect to both medical and non-physician clinical education.

Medical Education

Strengths of JPS Medical Education

- The JPS GME programs are fully accredited.
- The Family Medicine residency is nationally recognized and highly competitive.
- Other strong Psychiatry, Emergency Medicine and other GME programs exist at JPS.
- JPS is a desirable location for training —both for medical students and for residents from other academic medical centers for the "public hospital" experience.
- Changes in the medical education leadership at JPS have brought new ideas and initiatives as well as a much-needed organizational overhaul.
- There are current moves to develop a long-range JPS educational plan.
- Discussions with UNTHSC and TCU are underway

Weaknesses of JPS Medical Education

- There is a nascent JPS institutional plan to support recruitment of JPS GME program graduates to become JPS attending staff faculty.
- The lack of JPS Internal Medicine/Internal Medicine subspecialty GME programs and the few surgical/subspecialties training programs may adversely affect future patient care access, attending physician recruitment and quality of care.
- JPS' partnership with UNTHSC is incomplete. Nationally, most outstanding public hospitals have an integrated partnership with a medical school.
- There is a need for a JPS system plan for involvement in undergraduate medical education. With the addition of the TCU school, it is unclear if the need for JPS faculty to meet the demands for education of medical students can be fully supported.
- Physical facility limitations at JPS affect teaching space and resources
- There is relatively little GME training in JPS community sites. Most GME training is on the main hospital campus.

Opportunities for JPS Medical Education

- JPS programs are the best potential source of future JPS staff and faculty physicians.
- JPS has an opportunity to play a major role in shaping undergraduate medical education planning for TCU and UNTHSC.
- Discussions on GME consortium planning is underway in Tarrant County for internal medicine and, potentially, surgery residency training in Fort Worth. JPS should play a leading role in the development of these programs.
- JPS can play a significant role in the creation of an undergraduate and graduate medical education curricula that addresses the health needs of medically underserved populations.
- JPS community-based training sites provide an opportunity to train future physicians in practice locations where future demand for ambulatory care is increasing.

Threats to JPS Medical Education

- Other hospitals in Fort Worth may desire and have the resources to play the leading role in regional medical education planning, which could sideline JPS.
- There are insufficient GME graduates in Tarrant County to meet growing population needs - new programs are needed. JPS needs to be involved in plans to increase GME slots for training.
- Recruitment from JPS GME programs should better address recruitment needs at JPS. A recruitment gap may be become exacerbated if JPS physician salaries are below market rate for the region.
- Despite having a nationally recognized Family Medicine residency, success in recruiting those resident graduates to work in the JPS system can be improved. Helping prepare residents for international and rural practice is a worthwhile goal. At the same time, selecting and preparing graduates for work at JPS or in Tarrant County should be another residency goal. Ensuring that both of these missions are met, while maintaining the attractiveness and excellence of the residency, will be an important goal for JPS.
- JPS should sponsor or play a role in a more diverse array of primary care and specialty GME programs to meet Tarrant County physician needs.
- Inadequate facilities and resources for training may have a negative effect on recruitment of quality residents and faculty.
- Physicians must have protected time to teach students and residents, otherwise the quality of attending physician supervision and satisfaction will decline.

Non-Physician Clinical Education

Strengths of JPS non-Physician clinician education

- JPS is a strongly desired site for clinical placement and training.
- JPS has a good reputation for providing clinical experience.
- There are many nursing and advanced nurse training programs in the region.
- There are efforts underway to more closely examine JPS role in these training areas.
- There appears to be fine leadership at JPS in identifying clinical experiences to satisfy educational program needs.

Weaknesses of JPS non-Physician clinician education

- There is no clear institutional plan that addresses issues in allocating clinical space and supervision across the various competing educational programs.
- Nursing training receives little prioritization in allocation of sites for training.
- Nurse practitioner training has few dedicated resources or staff for clinical oversight of trainees.
- There is no clear institutional plan to recruit graduates of these clinician programs to JPS practice sites.
- There are no diversity goals evident in choosing among trainee programs for clinical placements.
- There are no general dentistry or dental assistant programs in Fort Worth and only one dental hygiene program in Hurst which is inadequate for Tarrant County oral health needs.

- There is no current American Psychological Association internship at JPS, though this is under consideration.

Opportunities for JPS non-Physician clinician education

- JPS could be an outstanding training venue for advanced nursing practice training. These trainees could be recruited to JPS to help meet primary care clinician needs.
- JPS should organize and prioritize training for nurses to best recruit top-notch candidates who have experience working at and interest in staying at JPS.
- With the various competing programs seeking training at JPS, there may be an opportunity to capture funds through affiliations with these educational institutions to support the training process.
- There should be formalization of faculty roles for the cadre of educators for nurse practitioner, physician assistant and other clinician training programs.
- Some vocational high schools in Tarrant County prepare students to successfully sit for the RN licensing exam; these young nurses will likely want to serve their own communities. JPS may benefit from training partnerships with these schools – particularly those in minority communities -- to help ensure recruitment of staff with backgrounds that more closely match the communities served.

Threats to JPS non-Physician clinician education

- The competition and demand for clinical training space and faculty may cause top programs and students to go elsewhere for training.
- There is a need to consider prioritization of those programs that have diverse student bodies to recruit a more diverse JPS workforce.
- Persons with experience and interest in JPS should be actively recruited and may be lost without a dedicated recruitment strategy for building the clinician workforce.

Recommendations for Medical and Health Education

Recommendations for JPS Medical Education

1. Consider a tighter affiliation with UNTHSC/TCU that should include a definition of the goals/scope of undergraduate and graduate medical education cooperation and the expected benefits to JPS.
2. JPS should participate in local consortium residency planning for Internal Medicine and, in the future, Surgery GME programs in Tarrant County.
3. JPS should identify and incorporate institutional goals within affiliation agreements.
4. There should be an active strategy for recruiting GME residency graduates to the JPS system as staff physicians.
5. The educational facilities on campus need upgrading.
6. There should be a core population health curriculum included in JPS-based GME programs that addresses the needs of Tarrant County.
7. Training in JPS community-based settings should be increased.

Recommendations for JPS Non-physician clinician education

1. A plan for prioritization and allocation of resources to clinician training programs at JPS facilities should be developed.
2. The projected needs for clinicians to serve the JPS system should be a primary factor in this prioritization
3. An explicit process and goal of recruiting and employing graduates of JPS programs should be developed.
4. A faculty development curriculum for teaching trainees in these programs should be developed to improve their teaching and supervisory skills.
5. JPS institutional diversity goals should be enumerated and considered in the recruitment of clinicians.
6. Facilities on the JPS campus should be upgraded for education and teaching.
7. A consortium approach to Tarrant County planning for general dentistry and oral health training programs should be developed.
8. Increasing support for training programs in behavioral health should be strongly considered.

Special Trend Considerations: The Aging Population of the United States

The national concern for the growing 65+ population is a driver for many of the transformation models and pilot programs in the Medicare space. For older populations living in poverty, the Medicaid program provides Long Term Services and Supports (LTSS) for at home, day care, skilled nursing, and long term residential services and increasingly through a managed care payment model rather than fee-for-service. Programs of All-Inclusive Care for the Elderly (PACE) and the Aged, Blind, and Disabled (ABD) programs for persons dually eligible for Medicare and Medicaid, among other such programs, will need expansion and revision to accommodate the projected demand nationally and in Tarrant County.

Chapter 6. JPS Delivery System

This chapter presents a high-level overview of the JPS delivery system. HMA conducted a wide-ranging assessment of the current JPS delivery system concentrating on network design, capacity and integration in the context of current and future healthcare trends and needs. Delivery system qualities that were evaluated as part of the assessment included comprehensiveness of the network, accessibility of services, delivery system integration and coordination, quality of the care provided, technology integration and optimization, and workforce strategies that meet future healthcare skill needs. The HMA Delivery System team toured various JPS facilities and met with various leadership from inpatient, specialty, trauma, ED, Behavioral Health (BH) and community health services. Interviews were conducted with various community stakeholders and healthcare leaders from surrounding Tarrant County hospital and healthcare entities that included the VA Medical Center, Cook Children's, Texas Health Resources, Baylor All Saints, Methodist Mansfield, MHMR and homeless providers. Other sources of information included existing needs assessment reports for the county, JPS's Strategic Facilities Utilization Plan, the American Hospital Association (AHA) Database, Dallas-Fort-Worth Hospital Council reports (DFWHC), JPS internal reports, and general research.

Introduction

JPS is a large and complex publicly funded health system that has been responsible for serving the healthcare needs of a disproportionally larger percentage of the low income and uninsured residents of Tarrant County. As a tax-supported health care network for Tarrant County, JPS will continue to be a vital healthcare provider for Tarrant County communities. The JPS Network operates a large acute care hospital (565 beds), provides emergency services and trauma care at the only Level 1 Trauma Center in Tarrant County and operates over 40 community health and school-based services throughout the Tarrant County communities. JPS is the only Tarrant County healthcare entity that provides emergency psychiatric services. JPS teaching and training programs are well recognized and the Family Medicine program is currently the largest nationally recognized Family Medicine training program in the nation.

JPS as a premier healthcare provider	
Trauma	• Tarrant County's only Level 1 Trauma Center
Behavioral Health	• JPS Provides Psychiatric Emergency Services • Leads county in DSRIP projects that have improved the BH delivery system
Training/Academics	• Renowned Family Medicine Residency Programs • Fully accredited GME programs
Quality	• Certified Stroke Center • Certified Chest Pain Center • Low BH Readmission Rates • JC Accreditation • Accredited American College of Cancer Surgery Center • Level III Neonatal Intensive Care Unit • NICHE Program Designation
Primary Care	• Level 3 NCQA PCMH recognition
Population Health	• Large number of DSRIP projects impacting socio-economic disparities

Workforce 	• Highly engaged workforce (84th nationally) • JPS is one of Tarrant County's largest employers • Only public entity named among regions best employers by Dallas Morning News for 2016
Technology	• Network EPIC Implementation

JPS is to be commended for its mission driven strategies that are positioning it for the ever-changing healthcare environment. The Tarrant County community values the work JPS does with limited resources to serve the more complex and high cost healthcare needs of the vulnerable populations of Tarrant County.

The following outlines some of the major external forces JPS must navigate through as it builds and expands its delivery system:

National (USA)
• **Health Care Reform – ACA Appeal/Replacement** • **Drug Pricing and New Pharmaceuticals** • **Information Technology Disruptions** • **Mergers and Acquisitions** • **Value Based Payments** • **Less Federal Spending** • **Aging Population** • **Provider Shortages**
State (Texas)
• **Medicaid Non-Expansion State** • **Reduction in Medicaid Spending**
Local (Tarrant County)
• **Significant Population Growth** • **Highest Growth in 65+ Age Group** • **Transportation Infrastructure Challenges** • **Increasingly Diverse Population**

JPS has current strategies and initiatives around service, quality of care, population health management, costs of care and workforce engagement that set direction for the current and future healthcare delivery system needs of the county. Future healthcare trends include more focus on preventative and community based care. **Delivery of care will increasingly be defined and measured by the quality of care and the health outcomes achieved.** New technologies will continue to be developed that will improve access to care and move healthcare systems towards population health management through better integration and coordination of care. Quality programs will expand to include regulatory compliance and process improvement programs that lead to more safe and reliable care.

Although JPS has an impressive and comprehensive network for the population it serves, it cannot and will not be able to provide all the care for the growing safety-net healthcare needs. JPS will therefore,

need to continue to develop strategies that address access to primary care, specialty care, and behavioral health care. These strategies will also need to be developed to account for the projected physician shortages in primary and specialty care. Additional strategies will need to be explored that foster partnerships with other Tarrant County health care entities in order to provide care for Tarrant County residents and to improve health outcomes. Increased use of advanced practice professionals and other non-physician healthcare providers, such as clinical pharmacists, will need to be considered to address provider shortages. Furthermore, technology will need to be optimized across the Tarrant County delivery system to increase information sharing and leverage care integration.

This following report will review several components of the JPS delivery system and look at areas for new growth. HMA's report also identifies additional opportunities for JPS to consider as it continues to build and restructure its delivery system. Lastly recommendations that align with healthcare trends and the JPS mission are presented.

A Closer Look at the JPS Delivery System

1. Primary Care Services

As in most geographies across the nation, safety-net primary care services are distributed outside of the county supported hospital. JPS currently provides the vast majority of the primary care needs of the Tarrant County safety net population. JPS has a rich and widely distributed network of community health centers that currently provide primary (adult and pediatric), specialty (adult), dental, behavioral health, social service, optometry, acute care, diagnostic, lab, and pharmacy services.

Nationally, hospital care is shifting from high cost hospital settings to lower cost primary care settings. As the population grows there will be more demand for primary care services. The expected shortage of primary care providers will make it challenging for healthcare systems like JPS to meet the growing primary care demand. Nationally, primary care is moving towards models of care such as patient-centered medical homes and accountable care organizations that emphasize quality, care teams, care coordination, patient engagement and lower costs for populations of patients. Again, the delivery of care will increasingly be defined and measured by the quality of care and the health outcomes achieved in primary care and other aspects of the delivery system.

JPS has significant strength in its primary care network. The large number of primary care centers are embedded in the communities JPS serves and are staffed by dedicated staff and providers. The primary care providers are part of a recently formed physician group (Acclaim) that is positioned to align the quality and delivery of care across primary care settings that moves toward value-based care and reimbursements. Almost all of the primary care settings are Level 3 NCQA certified patient-centered medical homes (PCMH). Lastly, JPS is using current available technology to improve access to care, integrate and coordinate care and develop population health programs.

Primary care needs were consistently identified by the Tarrant County residents as being the main priority healthcare need for the County. The CHNA chapter reported high rates of obesity, age-related diabetes and hypertension for Tarrant County as compared to national rates. As with many safety-net healthcare entities, JPS faces challenges with primary care access as the demand for these services grow as evident by longer waits for new appointments and long time to answer calls in the call center. This is especially concerning since safety-net populations seek care late and are sicker upon first presenting. Primary care access challenges at JPS present downstream challenges as patients seek primary care in higher cost settings such as emergency care and emergency department settings. This is further compounded by the transportation challenges JPS patients incur. The CHNA addresses the county's transportation system that creates barriers for some Tarrant County residents being able to access

"right" sites of care. Lastly, additional primary care providers are needed to fill open positions as physicians retire and leave.

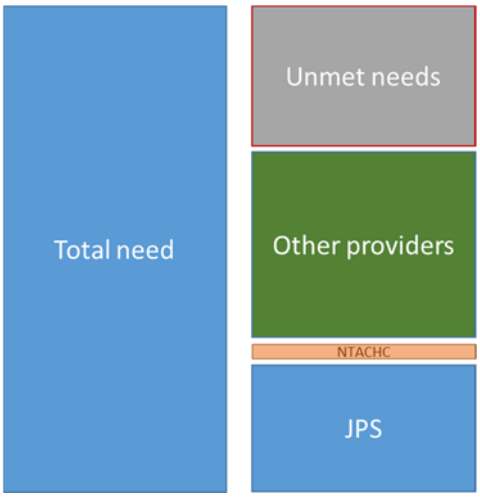
JPS has worked to create additional access through extended hours and Saturday hours, central scheduling and addition of acute care and same day visit appointments. The patient portal, MY CHART, allows established patients to request appointments. JPS tracks the access to new primary care appointments using the industry standard measurement of third next available appointment (TNAA). The following shows TNAA for JPS community health centers as of September 2016 and represents an average of all centers combined.

Table 46: Third Next Available Appointment for Primary Care Visit (Average)*

Third Next Available Appointment for Primary Care Visit (Average)*	
Community Health Centers	72 days (Range 7-114 days)
School Based Clinics	5 days (Range 2-8 days)

**As of September 2016- Provided by JPS*

The residents of Tarrant County clearly see JPS as a vital resource in providing primary care to communities in the county. JPS, however, clearly cannot provide all the current and projected primary care for the safety-net population of Tarrant County and will need to continue to find ways to improve access to primary care.



As in most geographies, safety-net primary care in Tarrant County is distributed beyond the county-supported (JPS) and federally-supported (NTACH) institutions. Using methodologies described in the section on population demand, JPS is estimated to be fulfilling about one quarter of the primary care needs of the population under 250% federal poverty level and North Texas Area Community Health

Centers (NTACHC, the only FQHC) seems to be serving well under 5%. Together therefore, they provide less than 30% of the predicted demand. Although the level of true unmet need for the safety net population is not known, it is clear that JPS currently provides care for the majority of this population with assistance from federally supported health centers (NTACH), institutions with charitable missions and small number of private practices. These sources will need to be considered and supported by the strategies developed by the county in meeting the needs of this population.

Additional recommendations include:

- Optimize the patient empanelment system by empaneling all patients to a PCP; this will enable JPS to more accurately measure primary care capacity and population served, and serve as a foundation for population health management. This includes a system to risk stratify empaneled patient to ensure that the highest risk patients are enrolled in care management.
- Continue to create and build upon new ways for patients to access medical homes through patient portals (EHR), virtual access (telehealth), and secure text messaging applications.
- Consider greater integration of specialty services into primary care settings.

- Assess primary care facilities for improved efficiencies (capacity, throughput)
- Further brand and promote community health centers internally and externally
- Develop partnerships with other health care providers and organizations to provide additional access.
- Consider greater use of advanced practice providers in primary care settings to address current and future provider shortages.

Pediatric Services

Nationally, children's access to healthcare has improved since 2000 as more children received health insurance coverage. This improvement has been greatest in the more vulnerable populations. Challenges and threats for the future of pediatrics include the growing shortage of pediatric subspecialists as evidenced by increasing delays in receiving timely appointments to specialty care.

Cook Children's in Fort Worth is the largest provider of inpatient and outpatient children's services in Tarrant County and is a Level 2 Pediatric Trauma Center. JPS does not provide pediatric inpatient or pediatric specialty services. JPS provides the majority of primary pediatric care in school based clinics that serve as medical homes for the children and their families of Tarrant County that are enrolled in the area school. Outpatient pediatric services are also provided at JPS and in many of the community centers. The school based clinics are staffed by nurse practitioners and the community centers are staffed by pediatricians. All provide well and acute care services for children from age 0-18 years of age. Pediatric specialty care is provided by Cook Children's and Dallas Children's. Despite this network of pediatric services in Tarrant County, pediatric care in the county continues to be fragmented and the county continues to see high rates of childhood obesity, low rates of recommended childhood immunizations, low birth rates and high infant mortality.

Below are some of the current pediatric health indicators that were presented in the CHNA section.

Table 47: Pediatric Health Indicators

Child Health Indicator	Tarrant County	Texas	National Benchmark	Severe Benchmark
Percent of children (19-35 months) not receiving recommended immunizations 4-3-1-3-3-1-4[I]	37.8%	37.8%	30.0%	34.6%
Percent of children not tested for elevated blood lead levels by 72 months of age[Ii]	83.9%	82.2%	84.1%	89.3%
Percent of children (10-17 years) who are obese[Iii]	17.8%	19.1%	15.0%	18.1%

JPS Pediatric services are monitoring and addressing many of the Tarrant County preventative health concerns through data analysis and evidenced-based practices. There are, however, opportunities for JPS to form greater collaborations with other pediatric healthcare entities in Tarrant County to improve pediatric health status and outcomes of the pediatric populations served in the JPS Network. This collaboration includes sharing and exchange of medical records and information, developing collaborative population health programs to manage obesity and developing integrated care coordination programs that direct children to proper places of care.

Behavioral Health, including pediatric behavioral health services, is a priority concern of the community. Cook Children's behavioral health services provides a range of services for children between the ages of 3 and 12 years. JPS school based clinics have a grant that will add 2 behavioral health workers to help address some of the pediatric behavioral health needs.

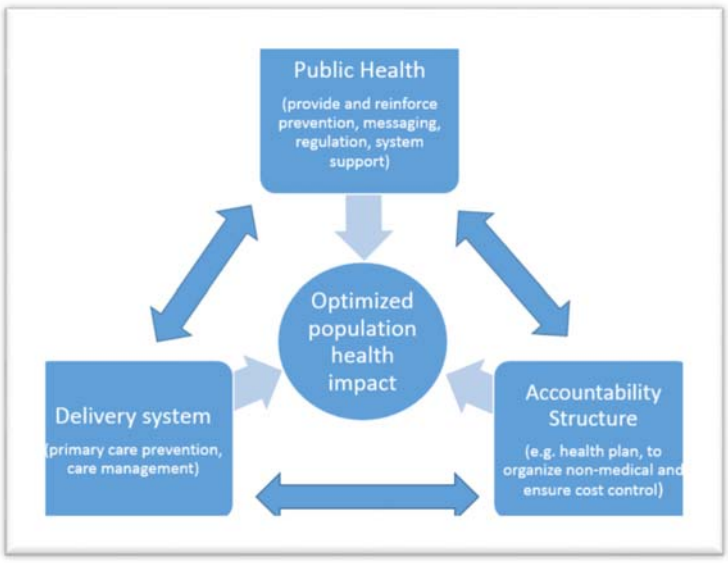
Based on the stakeholder interviews, infant mortality, defined as the death of a baby before its first birthday, is a major concern. As reported in the CHNA section, infant mortality rates for Tarrant County were among the highest for the state of Texas. The CHNA also reported higher rates for certain zip codes of Tarrant County and higher rates among African Americans. Nationally the infant mortality rate for African American infants is more than twice that of White infants. Tarrant County reported higher preterm birth rates and late entrance into prenatal care compared to state and national rates. Race, ethnicity, age, location, access to care, education and income all influence pregnancy outcomes. Lower income African Americans of Tarrant County experienced higher rates of infant mortality compared to other Tarrant County populations. The 2015 Tarrant County Fetal Infant Mortality Review[liii] reported maternal unhealthy weight as one of the largest risk factors for infant death in Tarrant County accounting for 67 percent of infant deaths in 2012. Furthermore, only 52% of women started prenatal care in the first trimester and Medicaid was the predominant insurance source.

Tarrant County has a large number of community, faith and business leaders, health care organizations including JPS and government agencies that are committed to lowering the infant mortality rate of Tarrant County. The County has established a Tarrant County Infant Health Network that serves as the Community Action Team and receives recommendations from the Tarrant County Infant Mortality Review Care Team.

Recommendations:

- Infant Mortality: The Tarrant County community will need to identify a community or organizational leader that reviews, assesses, monitors and more importantly coordinates efforts and programs to address this high-priority concern.
- JPS should continue to develop and enhance partnerships and programs with Cook Children's in the care of children in Tarrant County to improve health outcomes.
- JPS should continue to enhance partnerships with community organizations to address social disparities that contribute to poor health outcomes.
- JPS would benefit from improved care coordination and management programs to span across all continuums of care in the county including women's health and school based clinic programs.
- JPS should continue to expand behavioral health services in school based clinics.

For further information on infant mortality in Tarrant County, see Appendix 11: Infant Mortality Rate in Tarrant County.



Population Health Management

Population Health is defined as "the health outcomes of a group of individuals, including the distribution of such outcomes within the group." Population health management is defined as "the iterative process of strategically and proactively managing clinical and financial opportunities to improve health outcomes and patient engagement, while also reducing costs."

JPS is developing and implementing population health strategies through its DSRIP projects. With empanelment of patients, JPS is equipped to identify common conditions and populations in need of population focused care. Current population health activities include common clinical core measures and action plans displayed on strategic initiative white boards across community health settings. Diabetic populations are being monitored for hemoglobin A1C, a measure that helps manage the care of diabetics. JPS continues to develop the technology and data analytics capabilities for current and future population health management programs, however, will need to develop more robust health information exchange (HIE) systems that provide information on care outside of the JPS system and allows for improved health management.

To have a greater impact on population health, a closer collaboration with Tarrant County Public Health and other relevant organizations is needed to focus on prevention initiatives and social determinants of health. For example, partnerships to improve food security, food policies and availability of healthy foods can help prevent and manage diabetes and obesity.

Care Management

As inpatient service utilization is declining nationwide, JPS will need to continue to move from hospital-centric care to outpatient and community-centric care. Key to this shift will be a strong care coordination and care management program that allows for early identification of health problems and for the right care to be delivered in the right setting and at the right time. In the coming decades, Tarrant County will see an increasing number of patients with chronic diseases including diabetes, high blood pressure, heart disease and cancer.

JPS is early in the development of a robust care management program that moves away from traditional utilization management hospital function programs to a programs that are tailored to managing a patients care and/or disease. JPS' Care Management Plan, dated October 3, 2016 outlines a robust care management plan for both inpatient and outpatient programs, as well as transitions of care between the two programs. Full implementation of the plan is estimated to be complete in late 2017. In primary care, the model for care coordination is to include a triad of a RN Care Manager, LCSW and an unlicensed care coordinator in every community health center. This will be critical to implement as the sites prepare for the PCMH recertification under new NCQA requirements that include care management components.

While JPS is building and strengthening an integrated care management program across the JPS Health Network, JPS at this time has very few linkages with other hospital systems as it related to care management and care coordination programs. An integrated care management program across the county is extremely important in managing the care of patients who receive care in multiple health care settings across the county. Virtual integration of disparate health systems has the potential not only to improve health outcomes for patients receiving health care in multiple health systems, but saves costs by reducing duplications of care (testing, procedures). The current JPS' Care Management plan should expand to include county wide integrated care management programs.

Information Technology and Data Use

The delivery of medical care is continuing to become more and more dependent on information technology and the effective use of data. Information technology, from the foundation of the electronic medical record (EMR) to basic phone routing technology, can frustrate and hobble an organization or enable and facilitate excellence. New uses of data such as individual predictive analytics and sophisticated customer relation management are important keys to success in a new and changing payment environment.

EMR. JPS uses Epic which is a best-in-class industry standard. Not every installation of Epic leads to effective documentation and billing. Epic has to be configured and used in a manner that supports best practices. Epic use does not necessarily equal best use of EMRs, but clearly this EMR choice allows for best practices. JPS seems to be doing well in the use of Epic and will be able to take advantage of advances made by this leading EMR. This includes portal technology which JPS has in use (Epic's MyChart). Another advantage to Epic use in Tarrant County is the fact that there is a concentration of hospital system users, allowing for the use of Epic's Care Everywhere which facilitates data sharing at the point of care.

Mobile Health. Mobile health (or mHealth) is a broad term, sometimes used to mean health interactions occurring through the use of mobile devices (phones, pads, other connected devices). JPS does not have mobile health applications in use, though patients can use mobile devices to access appointments. JPS does provide patient portal/web-access to MyChart and a pharmacy application for requesting and fulfilling medication refills. Although this an important area to be aware of, there would be significant opportunity costs to focusing on this. Fortunately, innovative companies are very focused on mHealth (mobile health) and these will be fully available for use at JPS when particular applications align with initiatives. Innovations in digital behavioral health may be of particular importance in increasing the impact of limited human resources and physical facilities that cannot fulfill the entire need. Some companies deliver person-specific educational and support content to help patients manage symptoms and use their strengths more effectively. Others allow patient-health system interactions as well as monitoring of larger populations than otherwise would be able to be handled by a care manager. Careful vetting of solutions is critical in this fast-evolving IT realm, particularly with complicated and quickly shifting reimbursement and liability issues.

Telemedicine technology. Telemedicine is a broad term sometimes used to mean the same things meant by mHealth. More specifically though, telemedicine can be defined as the delivery of healthcare services remotely through use of technology. These could be visits with a physician while the patient is at a distant site, even home. This has particular utility in rural environments. Such tele-visits, however, tend not to increase capacity but rather provide access for those who would otherwise be unable to travel. JPS will probably find the investment in econsults more fruitful. Econsults increase capacity for meeting the specialty needs of populations because the interaction is peer to peer, making it more time efficient as well as transferring knowledge and skills more efficiently to primary care providers, making

future consultations less likely to be needed. JPS is building experience with peer-to-peer telemedicine interactions within the Delivery System Reform Incentive Program (DSRIP).

Data aggregation tools. Creating a data warehouse and data marts for various users has become a necessary infrastructure for health systems that are seeking to go beyond the basic transactional care of bed-days and DRG billing. The EMR is designed to compliantly document care, facilitate the care of individual patients, and bill for care events. Many sources of data outside of the EMR need to be married to the clinical data in order to efficiently deliver care, incorporate global payments, and to succeed in covering populations (through contract or through public responsibility). Data to be aggregated for various purposes include human resources (time, productivity, performance, patient feedback, wellness, etc.), customer relations (managing contacts with patients and members), cost accounting, and utilization events external to hospital (e.g. re-admissions at other hospitals). Today data aggregation can occur as a cloud based service external to the hospital, allowing for less investment to translate to earlier wins. But the IT infrastructure (the data warehouse) is only part of the equation of data aggregation. Also needed is human capital in the form of data analysts able to leverage the power of the aggregated data. JPS does not have robust data aggregation capabilities and will need to plan for ongoing investments to build this important capability.

Population Health. The IT tools to succeed in population health are health plan-like customer relation management (CRM) applications, population enrollment capabilities (not just the patients seen, but ability to manage files from a payer of people who have not yet been seen), health information exchange, data warehousing, and robust data analytic capabilities. Data aggregation discussed above is a key function to create population health capabilities. JPS uses Epic which has modules for a number of the population health functions. JPS already uses Healthy Planet, a patient registry module that allows management of sub-populations such as diabetics and to monitor quality metrics across the population. Crimson (not an Epic module) is used specifically for JPS Connection population management, though Crimson serves as a patient registry and does not provide population enrollment capabilities at a level of a health plan.

Consumer Driven Health Care Technology. In the IT marketplace "Consumer Driven Health Care" has tended to mean price transparency in the setting of high deductibles and cost-sharing. This has little meaning for JPS: JPS is unlikely to need to build or use such technology. However, another way this term is used is as a synonym for patient-centric care and high engagement. This meaning is very relevant to JPS and a successful future. There are specific types of technology that JPS will need to employ to maximize effectiveness. An example is text messaging as a tool for patient communication. Specific companies and software solutions are being created rapidly and existing technologies are adding text messaging capabilities. JPS will need to think about this in terms of a cohesive experience for consumers and solving for high-impact use cases. Uses cases for text messaging include:

- Supporting care paths such as sending patients' text about their upcoming procedure (e.g. "Start clear liquids now"). Companies such as CareWire are doing this.
- Direct patient communication through secure text messaging. Relay is an example among many.
- Automated coaching messages to support patients with specific conditions. Companies such as CareMessage are doing this.
- Appointment reminders are a basic but impactful use case. Above companies can do this along with many others such as West, PatientPrompt, Mutare and many others.

Text messaging can be particularly impactful in populations being served by JPS.

Another emerging area of creating a patient centric care environment through technology is patient decision support and patient values communication tools. PatientWisdom is an example of a solution in this space. Populations that are historically underserved, and the individuals within these populations who are experiencing serious illnesses, are in particular need of support in expressing their goals of care and connecting more deeply with their care team. Technology can assist with this.

These are some of the high impact areas in "consumer-driven health care" for JPS to explore to meet other strategic goals.

2. Specialty Care Services

Nationally, there are and will continue to be increasing demands for specialty care as the population grows and ages. Further complicating this will be a short supply of specialists that may not be sufficient to keep pace with future specialty care needs. Much like primary care services, specialty care services will continue to shift from hospital settings to outpatient multispecialty Centers of Excellence. With this shift, new and innovative care delivery models for specialty care will need to be developed including "virtual" referral networks that have shared medical records, shared best practices and shared education and research programs. Specialty care is an integral part of preventative care and population health management. For example, Breast Clinic must be available to care for women who receive screening mammograms and are found to have findings that require more advanced and specialized breast care. Specialist and sub-specialists also are often called upon to provide care to hospitalized patients.

The CHNA report shows that there will be considerable growth in the Tarrant County population and with the aging population. Furthermore, Tarrant County ranks high in prevalence of diabetes, hypertension and cancer compared to national rates and chronic disease prevalence will remain health concerns for the county as population ages and grows. As outlined in the primary care section, there currently are unmet needs for specialty care services for the safety net population of Tarrant County and this can be expected to grow as the population grows and number of uninsured continues to expand. Specialty services are minimally provided at FQHCs, free clinics and school based health centers and many of these health care sites rely on JPS to provide the needed specialty care. Transportation to specialty care appointments will remain a challenge for the JPS population. Furthermore, recruitment and retention of specialists will be challenged by the inadequate supply of specialists to meet the increasing demand for their services. JPS will need to continue to pursue partnerships with other Tarrant County healthcare entities to provide additional specialty access especially for those specialties that JPS has found difficult to recruit for.

JPS currently has over 40 specialty clinics in the Fort Worth and Arlington area. Locations are provided in the CHNA section (Map 9). JPS continues to evaluate and develop areas of specialty focus such as cancer and geriatric care. As mentioned earlier, JPS has a well aligned physician group (Acclaim) that tracks quality and health outcomes.

As with primary care services, JPS experiences long delays in access to some of their specialty services as evidenced by long time to next available appointment. Primary care providers report difficulty in receiving timely referrals for their patients, thus resulting in some patients receiving delayed care or patients showing up in the Emergency Room for care. The JPS Community Advisory Group echoed the difficulties in obtaining outpatient specialty care, citing pulmonary, neurology, and behavioral health as the most difficult services to access.

Despite the poor design of some specialty spaces, JPS has worked to optimize efficiencies in the specialty areas. Most notably is how the surgical clinic is designed with the waiting area located in the

corridors surrounding a centrally closed-in clinic area making wayfinding, privacy and throughput challenging for the patients that use this service.

Finally, there is opportunity for JPS to improve disease and population management by moving appropriate specialty care services, based on the needs of the community served, into primary care centers. Primary care centers that care for large numbers of patients with diabetes and hypertension would benefit from co-located specialties such as podiatry, diabetes education, eye services, renal and cardiology services to provide more coordinated and integrated care.

3. Inpatient Services

Inpatient care is defined as care provided for those patients admitted to a hospital. Nationally, hospital inpatient admissions and necessity for inpatient beds is decreasing while, at the same time, the need for outpatient care is increasing as hospital care shifts from hospital to ambulatory settings. Despite this shift, there will continue to be a need for certain care to be provided in a hospital setting (trauma). A movement to value-based reimbursement and greater use of chronic disease management and care management programs, as discussed in the Primary Care section, are expected to support hospital efficiencies, quality of care, and number of admissions and readmissions.

JPS is Joint Commission Accredited and has an established regulatory program which responds to opportunities for improvement and changes in the hospital regulatory environment. Based on the projected population growth and taking into account the shift of more services to outpatient settings, Tarrant County will not have enough inpatient capacity by 2037. JPS does not have sufficient capacity currently for populations served and will need significant additional capacity just to maintain current population coverage. The 2011 Strategic Facilities Utilization Plan looks to increase the number of inpatient beds by 52. This increase of inpatient beds will not meet the projected future inpatient needs of the county. HMA recommends that consideration should be given to expanding the number of inpatient beds by building out the shell space outlined in the facility plan.

Some JPS inpatient units are housed in an outdated and aging facility that presents inherent quality (patient experience, confidentiality and safety) and operational challenges. Multi-bed rooms in the aging facility contribute to capacity and throughput challenges for patients needing to be admitted, and limit the ability to maximize reimbursement. JPS continues to work within these limitations to improve efficiencies in the inpatient areas.

Additional inpatient care recommendations include:

- JPS will need to continue to assess the type of beds needed and change designation of beds to meet the needs of the JPS population. As care management programs expand and more surgical procedures are moved to ambulatory services, one can anticipate that fewer medical/surgical beds will be needed.
- JPS will benefit by continuing to expand its care coordination and care management programs. This will direct care to right places, right time and at lower costs.
- Where appropriate, JPS will need to continue to assess and look for opportunities to move services from an inpatient setting to an outpatient setting. This will include moving ambulatory surgical procedures currently being performed in the hospital setting to ambulatory surgery centers and looking for more of cancer care being provided in outpatient cancer centers.
- As discussed in the Trauma section, addition strategically located Level I Trauma services may need to be expanded when the population exceeds two million depending on utilization of JPS' existing capacity. JPS will need to partner with the county to determine when and potentially

where additional trauma services should be established and help direct and coordinate new trauma services for the county.

4. Emergency Department Services

(Behavioral ED services will be discussed in the Behavioral Health section)

The Emergency Department (ED) is often the front door for care for safety net populations, especially for those who have challenges accessing care in the outpatient settings. Future growth in safety-net populations will further tax public and private hospital Emergency Departments. Even as care is being shifted to outpatient settings, EDs continue to experience high volumes. As population demographics age, there is predicted higher ED utilization of this subset of the population.

Tarrant County ED services will continue to experience high use as the Tarrant County population increases and ages. The growing uninsured population will continue to use emergency settings as the front door for healthcare as they find it difficult to navigate other more appropriate places for care.

JPS ED has a highly dedicated and skilled staff that is budgeted to see 122,000 ED visits for fiscal year 2017. JPS is one of the busiest EDs in the county and like other safety-net hospitals, JPS generates a large number of its hospital admissions through the ED. ED throughput is taxed by an insufficient number of readily available inpatient beds. Patients are often held for long periods of time in the ED waiting to be admitted to the inpatient areas. At the time of HMA's visit with ED leadership, 41 patients were waiting to be admitted from the ED with no available beds. Although JPS has a direct admit procedure from the community and specialty clinics, patients often are sent to the ED to wait for an inpatient bed.

The JPS ED also experiences delays in obtaining rapid follow-up appointments from emergency care and patients are often discharged from the ED without a follow-up appointment to an appropriate care setting. Although JPS ED can identify the PCP through EPIC, they are currently unable to appoint patients back to their PCP. This often results in return visits to the ED. Through its care management program, in collaboration with other community resources, JPS is now identifying frequent ED utilizers and addressing access, transportation and housing factors that drive unnecessary and frequent ED use. JPS will need to continue to develop its care management network (inpatient, outpatient, pharmacy, specialty, social services) that help direct patients to appropriate care settings.

The current JPS Emergency Services space has outgrown the volume presenting for service and need for additional ED space will need to be addressed in the Cumming Corporation's Long Range Facilities Planning analysis. JPS has worked to centralize ED triage so patients can be moved upon presentation to appropriate places of care; thus minimizing the movement and transfer of patients from one emergency service to another.

As with many Emergency Departments, operational efficiencies cannot be addressed independently and are affected by both inpatient and outpatient efficiencies. There is opportunity for JPS ED to more closely collaborate with inpatient and outpatient services to develop policies and procedures that address the interdependent operational inefficiencies.

5. Trauma Services

Nationally, trauma is the number one cause of death for Americans between 1 and 46 years of age and is the number three cause of death overall. Each year trauma accounts for 41 million visits and 2 million hospital visits. Trauma centers are given a facility designation with Level 1 being the most

comprehensive and highest level of trauma care. Level 1 Trauma Centers provide trauma education, training and research in trauma injury prevention for physicians, nurses and other health care providers.

The American College of Surgeons estimates that one Level 1 Trauma Center is needed for every 1 million people. Today, Tarrant County population is close to 2 million people. With projected population growth, and depending on utilization of JPS' existing capacity, Tarrant County may need an additional, strategically located Level 1 Trauma Center in the near future. JPS is well positioned to take the lead in helping the county determine future Level 1 Trauma needs for the county.

At the time of this report, the following were designated Trauma Centers in Tarrant County:

Table 47: Trauma Centers in Tarrant County

Hospitals in Tarrant County	Designation
John Peter Smith Hospital **Fort Worth**	Level I
Cook Children's Medical Center **Fort Worth**	Level II
Texas Health Harris Methodist Hospital **Fort Worth**	Level II
Baylor All Saints Medical Center **Fort Worth**	Level III
Texas Health Harris Methodist **Hurst-Euless-Bedford**	Level III

Source: Department of State Health Services.

As the only Level 1 Trauma hospital in Tarrant County, it is viewed by the county as a premier trauma center. JPS has dedicated and strong leadership over Trauma services and has established relationships with other Tarrant County trauma services. Most notably, JPS has been recognized by the American College of Surgeons for its first-of-a-kind geriatric trauma program in Tarrant County.

The opportunities for JPS Trauma services include (1) additional training and education programs to prepare future providers in trauma care, (2) coordination and integration of trauma services with other hospital services (3) partnerships with other Tarrant County entities to provide post hospital care programs and services including long-term care, skilled nursing facilities and rehabilitation services and (4) partnerships with community and public health programs to enhance community health through injury prevention education.

6. Behavioral Health Services

One in five US citizens has a diagnosable mental disorder[liv] with only 40% receiving *any* treatment for their condition. Of those who do receive care, only a quarter sees a behavioral health specialist,[lv] leaving the rest to be treated in physical health settings by primary and specialty medical care clinicians, alternative medicine settings, or social service agencies. In the primary and specialty medical outpatient

setting, patients with behavioral disorders are often not recognized or engaged in effectively delivered treatment, resulting in a mere 13% of patients receiving minimally effective treatment.[lvi] The impact of untreated mental illness on total healthcare costs is significant, increasing health care costs two to three times with most of the excess cost related to "facility-based care" (i.e., emergency room and inpatient treatment), and unrecognized, behavioral health conditions can lead to decreased adherence to recommended medical/surgical treatments and lack of follow-up for care.[lvii]

In Texas, the need to expand access to behavioral health care is also pressing. The Hogg Foundation has documented that many more adults and children need mental health services than are currently served in the public mental health system.[lviii] The demand for services is simply over pacing the capacity of the specialty behavioral health system. The increase in demand is related to general population growth—one of the highest in the country at the rate of 9.2%—as well as service gaps and challenges in meeting full capacity.[lix] According to the Hogg Foundation analysis, as many as 27.6% of the 240,088 adults in Texas with serious mental illness who meet criteria for 200% of the Federal Poverty Level (FPL) (66,273 adults) did not receive services in community mental health centers.[lx] Even worse, 62.5% of children with serious emotional disturbances (SED) living below 200% of the FPL (78,763 young people) did not receive these critical services.[lxi] This is despite the fact that the average number of people (adults and children) served in the community behavioral health system increased from 2013 to 2015.

With high poverty and uninsured population rates also comes a significant need for behavioral health services. Tarrant County has 12.8% of adults who self-report major episodes of depression, which is more than twice the national benchmark and significantly higher than the severe benchmark of 7.3%. While the percentage indicators for suicide and substance use disorders fall below the national benchmarks, the hundreds of thousands of individuals suffering from these disorders call for much needed services in the county.

Recognizing the high demand for behavioral health services, JPS has made significant investments, including service expansion and quality improvements through the Delivery System Reform Incentive Payment (DSRIP) program and other funding sources. These dedicated efforts and increased resources have positively impacted the mental health care provided within JPS and across Tarrant County evidenced by the fact that most performance metrics reported exceed national benchmarks. [lxii],[lxiii] JPS has prioritized programming that has helped reduce readmission rates by focusing on high need patients, as well as supported improvements in the behavioral health delivery system within the county.

The JPS Psychiatric Emergency Center (PEC) is a significant community asset. Many communities across the country are just beginning to build psychiatric emergency departments or provide dedicated psychiatric beds in emergency departments, offer 23-hour observation units or crisis stabilization units, and community triage centers. The fact that JPS has a long standing, dedicated PEC and started staffing it with psychiatric providers 24 hours per day over ten years ago speaks to the recognition that people experiencing behavioral health crises require targeted assessment and a variety of solutions, which often do not include an inpatient stay.

JPS is viewed by stakeholders as the "go-to" Tarrant County provider for people with the most complex behavioral health needs. There are specific areas where improvements at JPS are needed to ensure a robust and quality system of care. The aging JPS inpatient units (Trinity Springs) and PEC physical spaces impose significant challenges for patients and staff alike. The PEC can become crowded, and the limited space and room configuration hampers JPS' ability to fully maximize inpatient admission diversion. On the inpatient units, all rooms are double occupancy. As a result, there are times not all beds can be used, as some patients require private space for clinical reasons such as physical agitation or sexually inappropriate behavior.

Further, the Trinity Springs units are small and the physical layout is cramped. In addition, the units have cinderblock walls, limited natural light, and can have heating and cooling challenges. While there is outdoor space available, there is very limited indoor recreation space for patients. Psychiatric patients are best served when there is ample space for groups of people to meet, people have room to find quiet locations within the shared or common areas where noise and other stimulation can be more tolerable, and room to pace or walk is available. Without this physical environment people experiencing psychiatric crises can become easily overwhelmed and psychiatric symptoms exacerbated.

In addition, the location(s) of both Trinity Springs inpatient facilities and the PEC in relationship to the emergency department (ED) and medical staff are less than desirable. The PEC is on 10th floor of the main hospital, some distance from the ED and easy drop off for families or patients. If medical clearance is required, transfer to the main ED requires transportation and navigation of elevators. If admitted to a JPS inpatient psychiatric bed, staff must transport patients through a long corridor ("tunnel"), in between buildings and across parking lots. The "tunnel" is dark and has several doors along the way that pose elopement risks. If a medical emergency takes place at the Trinity Springs pavilion staff report the quickest they have been able to transport a patient through the tunnel for medical care is eight minutes.

Walking through the JPS facilities, care of the physical space, both maintenance upkeep and building improvements that are reasonably feasible have been priorities. Spaces have been updated to ensure that they are safe and attractive within the confines of the facilities. Staff have done what is possible in terms of minimizing risks. Despite these efforts the limitations that the aging facilities and physical layout present remain significant clinical impediments and safety issues.

In addition, JPS has limited capacity and programming in areas that will be critical to expand within Tarrant County in the future in order to meet behavioral health demands including:

- Services for children and adolescents
- Targeted services for the geriatric and aging populations
- Inpatient beds and longer-term beds
- Integration of behavioral health supports into community-based, ambulatory primary care settings
- Urgent behavioral health care/ED diversion for behavioral health-related issues outside of Fort Worth and the main JPS campus
- A substance abuse strategy and services—currently there are no SUD-treatment services provided at JPS
- A behavioral health population health strategy and behavioral health care management programming and infrastructure

To meet the current and growing behavioral health needs in Tarrant County it is critical that a **county-wide behavioral health system of care be developed**. It is recommended that JPS convene providers, and lead efforts that will result in a map of the current system of care, clarify eligibility criteria for current services, and ensure mechanisms are in place to help people access available services. Future tasks to be undertaken include identification of system gaps and planning to fill priority areas of need in collaboration with partners, to develop a shared population health strategy, risk stratification methodology, assessment, care plans, and care management resources, and explore mechanisms to share pertinent health information across the system of care. Creation of a Tarrant County Mental Health and Substance Abuse Wellness Campaign, that catalogues current prevention and wellness programming, promotes what is offered, and identifies opportunities to expand services, is needed to help keep people healthy and promote early identification of people struggling with behavioral health issues. Priority partners to include in this effort are private and other psychiatric hospital providers, including Cook Children's, MHMR (Tarrant County's Local Mental Health Authority), other Community

Based Organizations (CBOs), social service organizations, and corrections health leadership from JPS and MHMR.

A successful behavioral health system of care helps people stay healthy and manages costs by ensuring access to evidence-based, community-based services, demonstrated to be effective. Access to a continuum of behavioral health services across the system of care promotes ongoing care needed to proactively manage behavioral health issues and are shown to minimize the need for emergency room visits, avoidable inpatient admissions, and involvement with the criminal justice system. Tarrant County will need to **continue to invest in the development of evidence-based outpatient services**. Recommendations include expansion of behavioral health providers integrated into primary care settings to enhance health promotion and intervene when risk factors or concerns are identified such as drinking, occasional depression and anxiety. Brief interventions from a behavioral health provider and psychiatric medication prescribed by the primary care provider with support from a consulting psychiatrist should be available. If this is not sufficient or higher risks are identified, specialty behavioral health services are required. These specialty services can take place within community behavioral health settings and include a variety of evidence-based practices, many already available yet are limited across the county. The goal is to make available the full continuum that can be utilized in a manner that treats an individual with the lowest intervention needed in the most appropriate setting. Recommendations include developing a robust system of care for people with both mental health and substance abuse issues.

No one behavioral health provider can meet current service needs or anticipated future demand for services. JPS must lead and partner with other organizations to develop solutions. However, given demonstrated expertise with the most complex behavioral health patients JPS must embrace a leadership role both as a community-based provider and hospital-based, emergency care provider. Given that 12.8% of Tarrant County's population (or approximately 253,000 people) need psychiatric services for depression and 8-9% (or approximately 178,000 people) experience a drug overdose each year, the total of 1,146 state and private psychiatric beds in the county are insufficient to meet the need. This issue is further compounded by the high rate of uninsured individuals in Tarrant County (20.33%), many of whom need access to these services. Even with JPS as the predominant public inpatient psychiatric provider for the county, its 148 public beds (which include adult, adolescent and Local Commitment Alternative beds) do little to mitigate the need.

Determining how many inpatient beds a community needs within the private or publicly funded behavioral health system is difficult at best. It is universally agreed across the behavioral health field that the need for inpatient psychiatric beds must be evaluated in the context of the full array of available state and community mental health services. The Treatment Advocacy Center (TAC), considered the experts on this topic, published a white paper in 2008, describing a standard ratio of 50 *public* behavioral health beds for every 100,000 people.[lxiv]

The recommendation included adult, children and forensic beds but did not provide estimates for each group. In March of 2016, TAC updated its recommendations to 60-80 beds per 100,000 including adult, child and forensic beds.[lxv] Per the American Association of Geriatric Psychiatry and American Academy of Child and Adolescent Psychiatry, experts assert that there is no existing information available to determine number of inpatient beds needed for children and adolescents[lxvi] or geriatric populations[lxvii] specifically.

In the United States, the average number of beds per 100,000 declined 34% between 1998 and 2013, from 34 to 22 beds per 100,000, while suicide rates increased between 1999 and 2014 by 24%.[lxviii] In 2016, the ratio of State facility beds to United States residents was a mere 11.7 beds per 100,000 people across the country.[lxix]

In Texas, the Joint Commission on Access and Forensic Services' 2016 Legislative Report Forensic Plan reported an existing 2,463 public psychiatric beds across the state, equating to 10.5 beds per 100,000 Texans, as well as an estimated need to add 1,800 beds over the next eight years—1,400 immediately and 50 more each year to keep up with population growth.[lxx] According to Cannon Design's 2015 report, the estimated total need for privately and publicly funded inpatient beds in Texas was 5,425 beds in 2014, a number that will increase to 6,032 by 2024, a growth of 607 beds in the next 10 years.[lxxi]

Today Tarrant County has 524 private and public psychiatric beds, 25 beds per 100,000 people in the county[lxxii]. JPS inpatient beds represent approximately 25% of the total dedicated psychiatric beds (does not include the med/psych beds) in Tarrant County:

- 132 total psychiatric beds
  - 116 acute adult beds
  - 16 adolescent beds
- 15 med/psych beds

Due to lack of capacity, in fiscal year 2015 JPS transferred 3,100 patients to other hospitals for inpatient admission (JPS 2015 Transfer Volumes) and paid $3.1M dollars to private hospitals for these patients who had no resources. JPS believes overall costs would be lower if JPS cared for these patients directly.

The following assumptions were used for estimating future psychiatric bed needs. Building a significant number of new beds will require a phased in approach and may not be will be challenging. Planning will require a strategy that includes building out the community-based system of care to minimize hospital-based services. In addition, JPS should build Electroconvulsive Therapy (ECT) services critical for managing depression and geriatric populations.

1. Over time with the development and investment of community-based services, diversion programming and enriched evidence based services, Tarrant County will be able to effectively manage inpatient psychiatric admissions with lower bed numbers. Therefore, estimates used half of the public bed estimate from the current literature, equating to 35 public beds/100,000 people.
2. Given JPS' positive performance with the most complex patients, 50% of public bed need should be located within the JPS facility.
3. Given lack of available beds within the state psychiatric facilities and similar growth needs, estimates do not include these beds. If new state beds become available or JPS is able to refer more patients to these facilities bed recommendations should be revised.
4. JPS will continue to contract with private facilities and identify opportunities to support improved outcomes for complex patients at these facilities, as well as direct lower need patients to private facilities. JPS should consider incorporating pay for performance contracting with private facilities to incentivize improved performance.
5. If any one of the above assumptions is not correct, revised estimates will be required.

Table 48: Recommended Inpatient Public Psychiatric Beds

Year	Recommended Tarrant County Inpatient Psychiatric Beds	JPS Recommendations (based on 50% County need)	Bed Gap Based on Current Number of JPS Psychiatric Beds at Time of Publication: 132 beds

	*35 public beds per 100,000 (see previous population estimates)		
2017	707 beds	354 beds	222
2022	784 beds	392 beds	260
2027	861 beds	431 beds	299
2032	945 beds	473 beds	341
2037	1032 beds	516 beds	384

Additional recommendations include:

- integrate psychiatric beds within the main hospital structure, in proximity to the PEC and ED;
- create flexible unit space/structure so that beds can be flexed to serve adult, adolescent, geriatric, and the forensic populations;
- build a combination of private and double occupancy rooms;
- build enhanced physical spaces that will be required to manage the growing geriatric population and develop specialized geriatric inpatient services;
- assess the opportunity to expand services for children (12 and younger) in collaboration with Cook Children's;
- develop a plan for expansion of medical/psychiatric beds (not included in the counts above);
- develop plan to add inpatient medical detox and other dedicated substance abuse treatment beds (not included in above estimates);
- continue to invest in evidence-based and evidence-informed services that divert people from needing to use the PEC, being admitted to inpatient psychiatric services, and entering the criminal justice system;
- include Electroconvulsive Therapy (ECT) services as part of treatment options; and
- **expand and relocate the Psychiatric Emergency Center** such that capacity is increased by 10* and a designated psychiatric observation space with capacity for 16 patients* is created. The PEC should be located in proximity to the ED and psychiatric inpatient units.[1] In addition a space within the PEC should be developed and designated for substance abuse service assessment and needs, e.g., sobering beds.

Growth of Services in JPS Health Network

HMA identified two services that are well positioned to respond to demographic changes and healthcare needs of the county—geriatric care and cancer care.

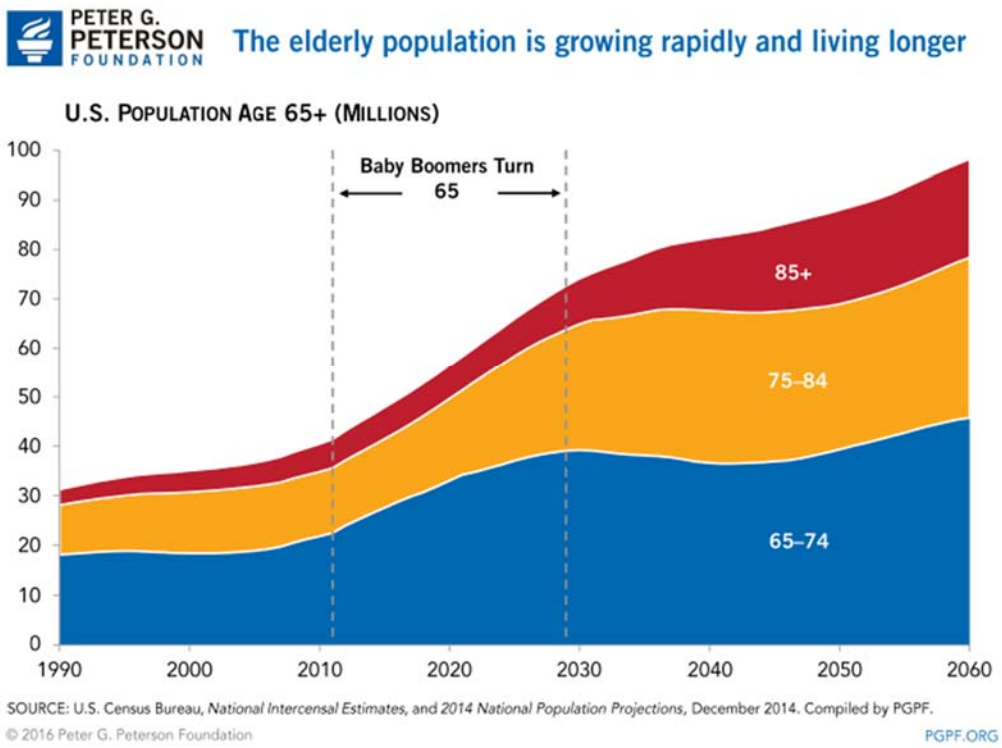
Geriatric Care

As described in Section 3, Community Health Needs Assessment, the population over 65 years old in Tarrant County is growing at an increasingly rapid rate. In 2011, the first Baby Boomers turned 65 years

[1] Endorse JPS 2016-130 Attachment B Proposed Construction Project 2015.

old. By 2029, all Boomers will be at least 65 (see Table below). This group, totaling an estimated 70 million people, will have a significant impact on the U.S. health care system. The combination of the aging of the Baby Boom population, an increase in life expectancy, and a decrease in the relative number of younger persons, will mean that older adults make up a much larger percentage of the U.S. population than ever before. The implications for care of the elderly are sobering. A diminishing number of younger persons will be available to provide family support and care for the elderly.

A review of geriatrics data in Tarrant County show that it parallels the growth in elderly and increasing demands for geriatric care nationally. A review of the needs of older adults in Tarrant County was published in 2009. Many of those observation and recommendations still ring true today[lxxiii]. The top health conditions affecting the region are Diabetes, Obesity, Hypertension, Chronic Lung Disease and Congestive Heart Failure. Leading causes of death include Heart Disease, Cancer, Stroke and Respiratory diseases- which in Tarrant County were all more common than the statewide Texas rate. All of these conditions become increasingly prevalent with age and point to priority needs for developing and directing health services within the County. Additionally, there will be an increased need for geriatric consultative, long-term care, rehabilitative and home care resources to meet the consequences of this increased prevalence of illness.



Care for chronic diseases

As Americans have increased their years of life, the prevalence of chronic conditions associated with age has also increased. It is estimated that by 2040, almost 160 million people in the US, most of them elderly, will be living with chronic conditions. Chronic conditions can cause limitations in daily activities, hospitalization, transition to a nursing home, and poor quality of life. High-quality care for older adults with multiple complex chronic conditions requires a diverse range of skills for addressing their physical, mental, cognitive and behavioral needs. Care for today's older adults requires a high-volume of health care services in many settings and this complex care will only increase[lxxiv]:

- Within twenty years, one in five Americans will be over 65 and an estimated 90 percent of those Americans will have one or more chronic condition. [lxxv]
- By 2050 the number of Americans over 85, who make up the highest rates of chronic illness, poverty, and need for assistance with activities of daily living, will quadruple to 19 million [lxxvi]
- Adults over 65 account for nearly 26 percent of all physician visits, 47 percent of all hospital stays, 34 percent of all prescriptions, 34 percent of all physical therapy patients, and 90 percent of all nursing home stays.[lxxvii]
- 7.7 million people will have Alzheimer's disease in 2030, up from 4.9 million in 2008[lxxviii]

While many older adults with chronic conditions remain independent and active, others decline into frailty and dependence. Chronic conditions are often worsened by the high prevalence of depression and other behavioral health disorders in the elderly that are often underdiagnosed and undertreated[lxxix]. Variation in condition severity, available treatments and resources available to elderly individuals may lead to widely divergent outcomes and, consequently, the need for care and health resources. For example, the common diseases of the elderly require lifestyle changes and preventative action. Without these action the conditions worsen and demand increasing health system resources for care. A lack of follow-up care and coordination of caregiver roles and the patient's inability to maintain the proper health regimen also increase the complications of disease.

Older adults need a variety of resources to help them manage chronic conditions, especially when several chronic conditions are present, a common occurrence. Medical help for treatment of chronic disease conditions is available to many older adults through Medicare and historically custodial care is provided through Medicaid for those with limited financial resources. The care resources needed to manage chronic conditions in day-to-day life are not as readily available. In order to balance behavioral changes, medications, and symptom relief strategies, older adults need knowledge about what to do, the belief that they can achieve success, and family to help. When elders do not have family members close by, additional financial resources may be needed to acquire assistance.

The current health care system is already overwhelmed by demands for geriatric care. Those specializing in the care of older adults cannot meet the current demand let alone the projected needs for eldercare.

- More than one million additional direct-care workers will be needed by 2018, according to the latest employment projections [lxxx]
- There are only 7,029 certified geriatricians practicing in the U.S. -- roughly half the number currently needed, and falling[lxxxi]
- Approximately 55,000 social workers are currently needed in long-term care. By 2050, this number will nearly double to approximately 109,000 (DHHS, 2006). While nearly 75% of licensed social workers work with older adults in some capacity, many have not received training or education in gerontology (NASW, 2006a). In 2009–2010, only 2.8% of BSW graduates and 6.7% of MSW graduates completed a specialization in aging, or an average of 5% across all social work graduates (CSWE, 2011)[lxxxii]
- By 2020, the nursing workforce is expected to drop 20 percent below projected requirements[lxxxiii]

- In 2010, physical therapists and physical therapist assistants had demonstrated vacancy rates of 18.6% and 16.6%, respectively, in skilled nursing facility settings across the U.S. [lxxxiv]
- Only 3 percent of practicing psychologists devote the majority of their practice to older adults and the current median age of practicing psychologists is 55[lxxxv]
- In 2001, there were about 2,600 geriatric psychiatrists. In 2005, that number was reduced to 2,100, less than half of the 5,000 that are needed to provide adequate care for the current population of older adults[lxxxvi]

Older adults and their families face many financial issues in acquiring treatments and resources to support health. Financial resources can be quickly drained by paying for inpatient, specialty care or multiple prescriptions for chronic conditions.

As adults age, some need help only with daily activities, such as cleaning, cooking, or personal care, in order to remain in their own homes. Unfortunately, Medicare does not reimburse for this type of care, so older individuals who need this "custodial" help must pay for it out-of-pocket or rely on unpaid caregivers, often family members or other support persons. With the changing demographics fewer family caregivers are available to help care for elderly individuals. Tarrant County residents have identified income issues related to health care, prescriptions, transportation and other factors to be some of their highest priority concerns for the future.[lxxxvii] Many of these same concerns were echoed in the community forums conducted by HMA in Tarrant County.

Significant recent reductions in hospital length of stay have produced a number of other consequences for families caring for acutely and chronically ill elders. Families need increasing support to help navigate the complicated financial and emotional demands of caring for elderly individuals. The increasing number without family supports are even more at risk of isolation financial loss and worsening health. The health issues of the elderly often intersect with cost concerns, family support issues and public infrastructure limitations to present immense challenges to comprehensive and effective health care.

JPS Geriatric Services

JPS offers a variety of services to meet the needs of the elderly in the system. But providing these services is not entirely without controversy. Other health systems in the Fort Worth area have made it clear they feel JPS services should be directed to the uninsured and Medicaid populations and that JPS should not compete with them for Medicare patients. On the other hand, many elderly have difficulty with access to health care. By providing care for a segment of elderly, JPS can provide some of these needed services and, through proper insurance remuneration, keep the system more financially healthy. Current JPS initiatives in Geriatric care include the following:

1. JPS Magnolia Health Center provides a multi-disciplinary team of geriatric doctors, nurse practitioners, nurses, social workers, pharmacists and others to provide care for those over 60 years of age. While the JPS Magnolia Center has many existing facilities and services specifically for geriatric patients, due to the facility's location and parking, it is still not an ideal location for elder patients. The Magnolia Center is located on the fourth floor of the building and does not have immediate parking outside of the building. The distance from transportation to the point of services poses a health risk for patients who are prone to falls and further complicates access to care for patients with mobility impairments or who are visually impaired.

2. JPS Home Visits provides care to qualified elderly in assisted living, independent living, or retirement communities.
3. Inpatient Geriatric Consultation Services are available for patients over 64 years in the hospital or emergency department. Services include a complete clinical evaluation of medical, psychological, social and functional status as well as cognitive evaluation and assistance with managing medication. Home transitions can also be facilitated.
4. The Care Transitions for Long-Term Care Team works to develop partnerships between JPS and skilled nursing facilities in Tarrant County.
5. The HELP program is an evidence-based patient program that provides an opportunity to tap the skills of volunteers. HELP connects trained volunteers with patients in the hospital who would benefit from a little extra attention during their stay in the hospital.
6. GT-55 Program Support for geriatric trauma.

JPS offers a fellowship in Geriatric Medicine. Under the auspices of the Family Medicine Residency Program, up to four family physicians and/or general internists can undertake a one year fellowship leading to a Certification of Added Qualifications in Geriatric Medicine. Fellows work in a wide variety of settings serving in academic and clinical roles. The fellowship is a one year interdisciplinary program. The fellows train under current national leaders in geriatric medicine in a variety of locations enabling the fellow to care for the full spectrum of geriatric patients. Fellows provide care to an ethnically, culturally and socioeconomically diverse population of elders. Opportunities to provide team-based interdisciplinary care in coordination with Family Medicine Residents, mid-level practitioners and medical students abound.

Despite these programs and services there still exists a substantial gap in care for elderly at JPS. Gaps in care are most evident in chronic disease management. The staff, resources and expertise to manage chronic disease must be built programmatically. For example, disease management programs are excellent mechanisms to build multidisciplinary care resources teams and processes for care coordination for the sickest of elderly patients. The recent initiation of the JPS Disease Management program in Diabetes Mellitus, in coordination with the Joslin Diabetes Center, is a good example of a targeted new resource for a high-need patients. These programs use evidence-based processes of care to help mitigate complications and provide comprehensive care for many common diseases. These programs will help prepare many physicians, nurses and other staff to help provide evidence-based and comprehensive care for many elderly with Diabetes Mellitus.

There is a need for other disease management programs which can lay the foundation for development of multidisciplinary care teams needed in geriatric care. This care management capability is an important educational issue, not just for MDs, but for nurses, behavioral health professionals, social workers and others. The focus of care management should be on improving quality of life and addressing functional limitations in the elderly. The goal should be to keep elderly persons living independently in their homes. A parallel strategy to promote independence in the elderly would be to increase care provision in community and ambulatory settings, like the Magnolia Health Center, close to seniors' homes.

Recommendations for Geriatric Care at JPS and in Tarrant County

1. Develop disease management programs that include interdisciplinary team building and use evidence-based processes of care;

2. Develop resources in care management capability including health information system technology, team building and outreach to community resources;
3. Increase training in geriatric care issues and approaches for the entire spectrum of the JPS work force;
4. Consider increasing the size or scope of educational programs directed to geriatric professionals such as geriatric physician specialists, geriatric nurse practitioners, social workers and others;
5. Conduct a system-wide review of JPS health care to assess for elderly care issues that can encourage access to care and quality of life. This review should include a special focus on ambulatory facilities in communities with high proportion of elderly residents;
6. Work with nursing and other professions to increase skills and capabilities in providing for smooth transitions of care (i.e. from hospital to home, assisted living to hospital, hospital to nursing facility, etc.);
7. Increase system focus on obtaining Advance Directives from JPS patients;
8. Create a task force to review and advise JPS and Tarrant County periodically on issues of the care of the elderly and health system accommodation; and
9. Integrate geriatric care across all areas.

Cancer Care

Nationally, more cancer patients are surviving and living longer with advancements in cancer care. More hospitals are creating new cancer centers that have coordinated care with multispecialty teams of care (primary care, specialty care, pharmacy, cancer rehabilitation services). Cancer care is moving from the inpatient setting to patient-centered outpatient centers. With advancements in genetic targeted therapies, treatment plans are becoming more personalized. As reported earlier, there will be increasing shortages of specialty care providers to provide specialized cancer care.

As the Tarrant County population grows and ages, there will be increasing needs for cancer care services. The CHNA indicated greater need for cancer screening prevention with Tarrant County reporting lower than state and national rates for breast and cervical cancer screening. Colorectal screening although higher than national rates, was lower than state rates. Tarrant County currently provides cancer care for low and uninsured patients through the following resources: (1) Tarrant County Indigent Care Program, (2) FQHCs, (3) JPS Connection, (4) UTSW Moncrief Cancer Center, (5) Veterans Medical Center, (6) Breast and Cervical Cancer Services (BCCS) Program and (7) Bridge Breast Center.

JPS will continue to be responsible for the care of the safety-net population of Tarrant County and is well-positioned to be a major provider of future cancer care needs for this population. The cancer center is recognized for providing quality cancer care and is an Accredited Cancer Care Center with diagnostic and pharmacy services. The cancer center provides infusion and radiation treatment services in a kind and caring environment. Multidisciplinary teams (Hope Team) located in the center provide comprehensive cancer care. Representatives from the Cancer Society and Moncrief Cancer Center are located within the cancer center to provide additional healthcare and social needs.

The future needs of the JPS population will outgrow the current facility. JPS will need to consider expanding the current site, building additional cancer services in the community and developing new partnerships with Moncrief Cancer Center and others to provide additional cancer needs for the safety net population.

Additional recommendations include:

- Continue to build robust care coordination and management programs that extend across continuum of care and services that include transitions of care, post-cancer care and end-of-life care.
- Educate communities of cancer prevention services and importance of screening.
- Partner with community and public health programs to provide education and cancer screening.
- Continue to use electronic health record (EPIC) to track and monitor cancer screening and care and expand sharing of information throughout the county.

Chapter 7. Tarrant County Public Health: Role and Relationship with JPS Health Network

Tarrant County Public Health

Established in the 1950s, Tarrant County Public Health (TCPH) has been a valuable presence, working to promote, achieve and maintain a healthy standard of living for Tarrant County residents. The Department has a staff of more than 380 public health professionals and annual funding of approximately $58 million.

Local public health departments in the U.S. are entrusted to provide ten essential public health services:

1. Monitor health status to identify and solve community health problems.
2. Diagnose and investigate health problems and health hazards in the community.
3. Inform, educate, and empower people about health issues.
4. Mobilize community partnerships to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable.
8. Assure a competent public and personal health care workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.

In 2013, key stakeholders from across Tarrant County assessed TCPH to identify areas of strength and areas for improvement in performance for each of the ten services. TCPH is perceived to be doing an excellent job in important functions such diagnosing and investigating health problems/hazards; monitoring health status to identify and solve community health problems; enforcing laws and regulations that protect health and ensure safety; developing policies and plans that support individual and community health efforts.

Opportunities for improvement were identified by lower scores in areas such as evaluating effectiveness, accessibility, and quality of personal and population-based health services; mobilizing community partnerships to identify and solve health problems; educating and empowering people about health issues; and assuring a competent public and personal health care workforce. Listed, as recommendations, are opportunities for TCPH to work more closely with JPS and other healthcare and social service agencies to strengthen efforts in these areas.

Complementary Missions of the TCPH and JPS Health Network

TCPH's mission is "safeguarding the community's health" with a vision of being recognized as the public health expert within the communities it serves. TCPH focuses on promoting quality of life, healthy development and healthy behavior across the life span. TCPH does not provide primary care, behavioral health, or dental services.

The JPS Health Network has a mission of "transforming healthcare delivery for the communities we serve," and strives to be a leader in improving the patient and family experience, improving the quality and outcomes of population health, and improving access to care. JPS provides primary care, behavioral health, dental care, specialty and tertiary care.

While the missions are different, they are complementary and share the goal of having a healthy community. TCPH is focused primarily on promoting and safeguarding the health of the public – all residents of the county. JPS is focused primarily on health care delivery, with public funds subsidizing care for low-income populations. There are numerous opportunities for synergy, and the two organizations currently work together in several areas – collaboration to ensure timely and accurate reporting of notifiable diseases, partnerships to control communicable diseases such as TB, and classes to support self-management of chronic conditions such as diabetes. Bi-directional referrals between the organizations creates synergy, for example, TCPH's Freedom from Smoking classes and JPS' nicotine replacement therapy are complementary. The two organizations also work together to advocate for selected health policy issues.

To fundamentally improve community health, a broad collaborative infrastructure is required. Such an infrastructure typically starts with one or more anchor organizations – often a public health department and non-profit hospital – that bring in others over time to achieve success in galvanizing communities, citizens, businesses, schools and others to pay more attention to community health and work collectively on improvements.

The following are recommendations for consideration by TCPH and JPS Health Network to achieve a closer working relationship to benefit of the residents of Tarrant County:

1. Create a Formal Process for Collaboration

Create a formal process to ensure that strategic initiatives, organizational priorities and campaigns are communicated in the idea generation or early planning phases to enable TCPH and JPS to engage in collaborative planning to address health issues of vulnerable populations. It is recommended that JPS and TCPH also attend selected strategic planning staff meetings of the other organization.

A formal process at the highest levels of the organization is needed to develop a strategic partnership, and to speak in a unified voice. It is suggested that the approach ensures staff at both organizations become more familiar with each other's services, and take the time to regularly and intentionally identify opportunities for synergy and programmatic collaboration. For example, TCPH partnering in JPS School-Based Health Centers to focus on prevention; TCPH Public Health's Nurse-Family Partnership linkage with JPS around healthy pregnancy and infancy; TCPH/JPS partnership to ensure higher rates of immunization for the aging population – flu, pneumonia, shingles vaccines; TCPH/JPS partnership to ensure front line staff at both organizations are aware of respective services and make appropriate referrals across the agencies.

2. Work Together to Sustain Priority DSRIP Initiatives

The Region 10 Regional Healthcare Partnership (RHP) is the result of a shared commitment by the Region's providers to a community-oriented, Regional health care delivery system. The Region's Delivery System Reform Incentive Payment (DSRIP) program is the blueprint for improved individual and population health at a lower cost.

JPS is the anchor for the Regional DSRIP program and also a participant with 27 active DSRIP projects that include improving access to care, integration of primary care and behavioral health, disease specific projects, and coordination with other regional providers. In Demonstration Year (DY) 2- 5 (starting in 2011), JPS' estimated DSRIP funds totaled $465 million

As a qualified provider, TCPH participates in the DSRIP Program and received approximately $38M for DY 2-5 for their projects. The funding supported Health Information Exchange in RHP 10; expansion of TB clinic hours; implementation of evidence-based strategies to reduce low-birth weight in three Tarrant

County hospitals; efforts to reduce STD rates; disease self-management; TB medication/treatment; tobacco cessation efforts.

JPS should work with the TCPH and others to prioritize the most meaningful initiatives to sustain and begin to transfer them into standard operating and capital budgets.

3. Work Together to Support Health Policy Focused on Prevention and Social Determinants of Health

In conversations with stakeholders, focus groups and community forums, an emphasis was placed on the role of JPS in prevention and the social determinants of health. Social determinants of health refer to the highly interconnected social and economic factors that affect health. As the population grows, stakeholders recognize that in addition to building more capacity for health care services, JPS should work with TCPH to increase efforts to prevent disease and address those things that raise the community standard of living such as education, jobs, transportation, access to healthy food, safe housing, etc.

While it is recognized that JPS' mission is about healthcare delivery, HMA also suggests that JPS has a role in reducing longer-term avoidable demand for their services not only through preventive screening and early intervention, but also by using their influence. For example, TCPH is working on "Tobacco 21", an effort that seeks to raise the age at which one can legally purchase tobacco products. If JPS were to join this effort, bringing patient stories, speaking to the long-term costs of smoking, the credibility and the likelihood of success of this effort may increase. So too, working on policy issues related to other sectors of the economy that address the social determinants of health referenced above.

4. Work Together to Mobilize Community Partnerships to Address Particular Health Issues and/or Close Health Service Gaps

More and more public health departments are taking on the role of convener of non-profit hospitals and other safety net providers; health departments and their sponsoring county or city governments are viewed as a neutral entity serving as an honest broker among competitors aiming to adopt health care policies and programs to meet community health goals. Competitors can be collaborators toward a common goal; several non-profit hospitals in a limited geography interact with the same population base, are faced with similar issues, and could be more effective and efficient when working with one another toward the same goals.

TCPH serves as such a convener, working to move non-profit hospitals toward collaboration in the development of Community Health Needs Assessments that are required by IRS regulations for non-profit status hospitals; Tarrant County non-profit hospitals are required to regularly undertake these assessments. There is a similar requirement that non-profit hospitals develop a Community Health Improvement Plan based on their assessment findings, and actually implement the plan as a "community benefit." Currently, for the most part, the hospitals in Tarrant County develop and implement these plans in isolation; this is an opportunity.

Once the trust and commitment of the members develop, partners can begin working toward the development of common priorities, collaborative strategies and plans, and perhaps even the pooling of resources to target particular health issues or meet gaps in services in the safety net, e.g., premature birth, dental services, etc. Others, such as health plans and businesses, will ultimately benefit and will need to be brought to the table to engage and contribute financially as appropriate.

Successful public health and hospital partnerships often leverage the anchor model to adopt collaborative Community Health Improvement Plans. JPS serves as the anchor in Region 10's DSRIP initiative and could serve as a partner with the TCPH to bring along other non-profit hospitals in a collaborative planning process for "community benefit" over time.

TCPH could serve not only as convener, but as community health strategist, bringing critical skills to help ensure success such as: stakeholder engagement, community health planning, fundraising, program implementation, project management and evaluation.

5. Expand Evidence-based Community Programming to Prevent Disease and Injury, and Manage Chronic Conditions

TCPH and JPS work together to implement some programs to prevent disease and injury, and engage, teach and empower groups of individuals with chronic conditions to manage their conditions. For example, one or both of the organizations have implemented evidence-based tobacco cessation programs, fall prevention programs for the elderly, and chronic disease management programs. These programs are sometimes implemented in collaboration with community-based health and social service organizations.

These programs require trained facilitators and standardized materials. TCPH and JPS could expand their training of trainers from communities that bear the greatest health disparities, extending their reach and building capacity for culturally appropriate, effective prevention and disease management programming.

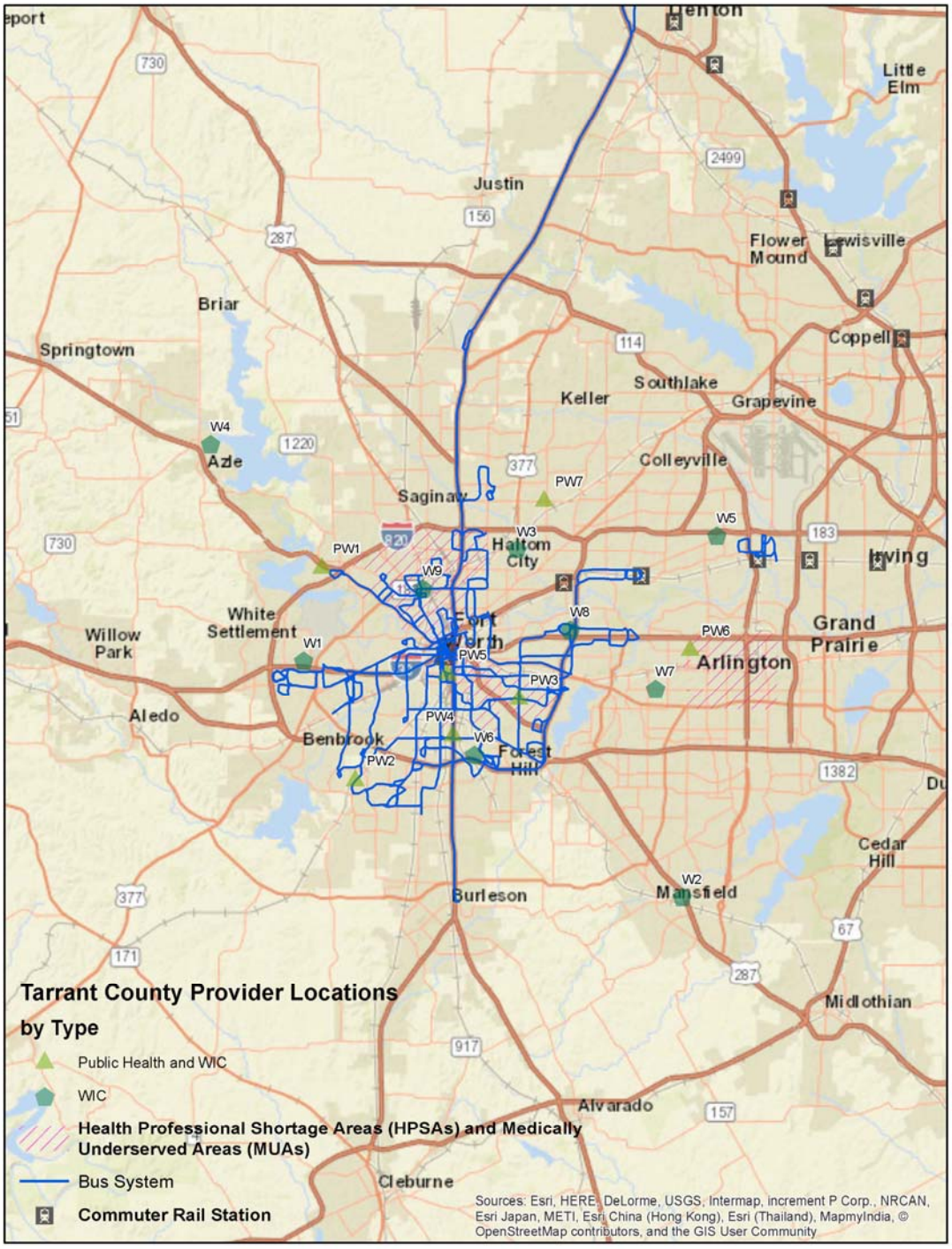
6. Continue to Consider Existing Facilities for Potential Service Expansion Sites

Currently, JPS and TCPH share space to conduct self-management support workshops, discussed above, but continued exploration of facility sharing and/or jointly planning new locations could potentially further the reach of one or both organizations in the community. Map 10 below depicts TCPH sites, and Map 11 depicts a total of 50 sites between the two organizations: TCPH's seven public health locations, and nine WIC only clinics; JPS' 14 medical homes, and 20 school-based health centers. Could JPS have a walk-in clinic at a public health location in communities they do not currently serve? Could TCPH use the JPS school-based clinics as a base for prevention work in the schools?

We recommend that the firm conducting the Long Range Facilities Planning, the Cumming Corporation, include TCPH sites and services in their ambulatory network review.

Map 10 Tarrant County Provider Locations by Type:

Tarrant County Public Health Locations and WIC Only Clinics



Map 11: Tarrant County Provider Locations by Type: JPS Health Network Medical Homes, School-Based Health Centers, Tarrant County Public Health Locations and WIC Only Clinics

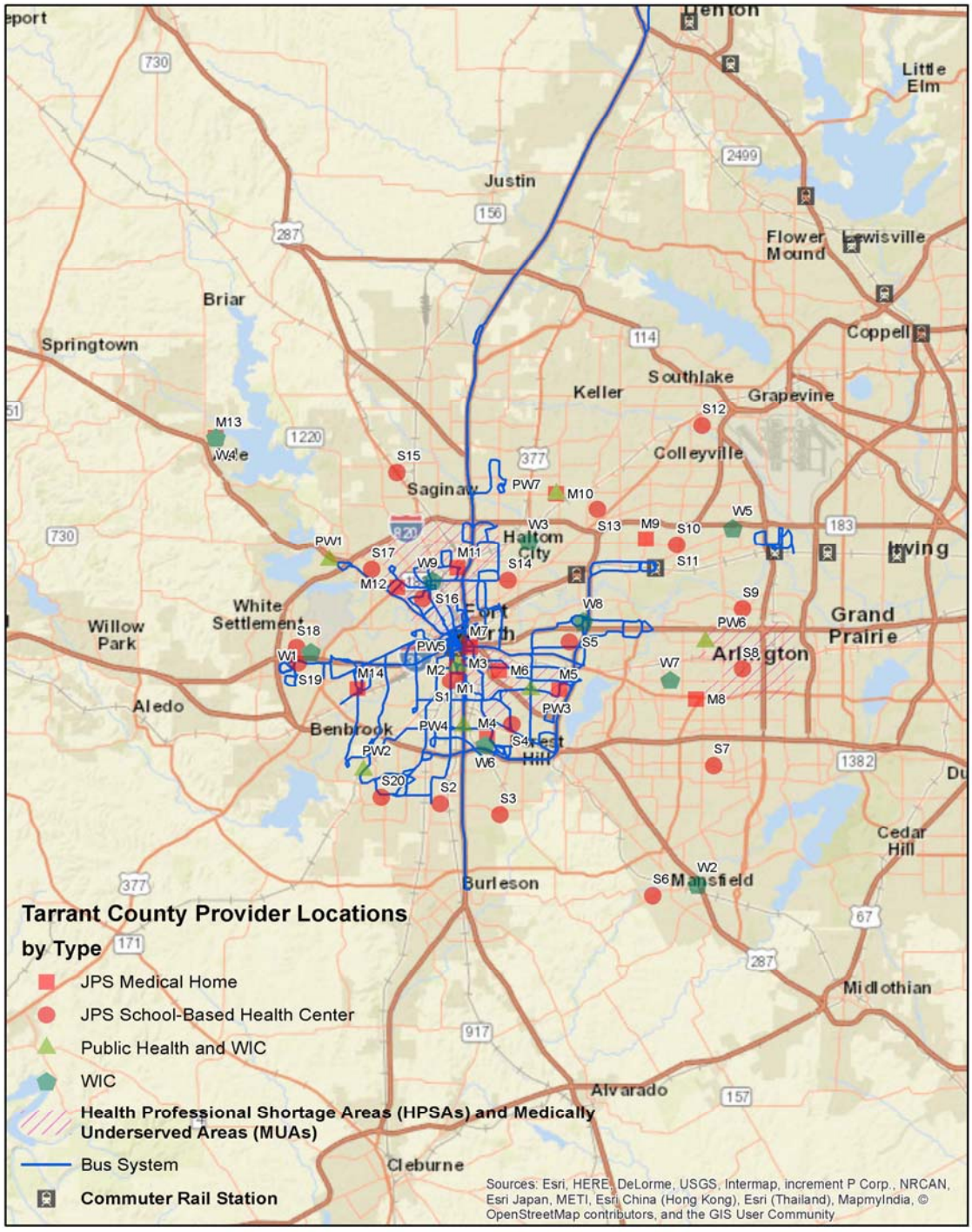


Table 49: JPS Locations

Site Name	Street /City	Type	Label
School-Based Health Center - Southside	2115 Hemphill Street / Fort Worth	JPS School-Based Health Center	S1
School-Based Health Center - Crowley	1320 W. Everman Parkway / Fort Worth	JPS School-Based Health Center	S2
School-Based Health Center - Everman	600 Townley Drive / Everman	JPS School-Based Health Center	S3
School-Based Health Center - Forest Oak	3250 Pecos Street / Fort Worth	JPS School-Based Health Center	S4
School-Based Health Center - Eastern Hills	5900 Yosemite Drive / Fort Worth	JPS School-Based Health Center	S5
School-Based Health Center - Mansfield	901 W. Broad Street / Mansfield	JPS School-Based Health Center	S6
School-Based Health Center - Ferguson	600 S.E. Green Oaks Blvd / Arlington	JPS School-Based Health Center	S7
School-Based Health Center - Central	600 New York Avenue / Arlington	JPS School-Based Health Center	S8
School-Based Health Center - Nichols	1850 Brown Blvd / Arlington	JPS School-Based Health Center	S9
School-Based Health Center - Georgia Kidwell	3115 W. Pipeline Road / Eueless	JPS School-Based Health Center	S10
School-Based Health Center - HEB	3115 W. Pipeline Road / Euless	JPS School-Based Health Center	S11
School-Based Health Center - Grapevine/Colleyville	3050 Timberline Drive / Grapevine	JPS School-Based Health Center	S12
School-Based Health Center - Birdville	8200 OBrian Way / North Richland Hills	JPS School-Based Health Center	S13
School-Based Health Center - Haltom City	2807 Layton Avenue / Fort Worth	JPS School-Based Health Center	S14
School-Based Health Center - Eagle Mountain-Saginaw	1029 N. Saginaw Blvd / Saginaw	JPS School-Based Health Center	S15

School-Based Health Center - Northside	2011 Prospect Avenue / Fort Worth	JPS School-Based Health Center	S16
School-Based Health Center - Castleberry - Lake Worth	5300 Buchanan Road / Fort Worth	JPS School-Based Health Center	S17
School-Based Health Center - White Settlement	8301 Downe Drive / White Settlement	JPS School-Based Health Center	S18
School-Based Health Center - Western Hills	8376 Mojave Trail / Fort Worth	JPS School-Based Health Center	S19
School-Based Health Center - Chapel Hill Acad.	4640 Sycamore School Road / Fort Worth	JPS School-Based Health Center	S20
John Peter Smith Hospital	1500 S. Main Street / Fort Worth	JPS Medical Home	M1
Professional Office Complex	1400 S. Main Street / Fort Worth	JPS Medical Home	M2
Health Center for Women - Fort Worth	1201 S. Main Street / Fort Worth	JPS Medical Home	M3
Health Center - South Campus	2500 Circle Drive / Fort Worth	JPS Medical Home	M4
Health Center Stop Six/ Walter B. Barbour	3301 Stalcup Road / Fort Worth	JPS Medical Home	M5
Health Center - Polytechnic	1650 S. Beach / Fort Worth	JPS Medical Home	M6
Health Center - Cypress	1350 E. Lancaster / Fort Worth	JPS Medical Home	M7
Medical Home Southeast Tarrant	1050 W. Arkansas Lane / Arlington	JPS Medical Home	M8
Health Center - Northeast	837 Brown Trail / Bedford	JPS Medical Home	M9
Health Center - Gertrude Tarpley/Watauga	6601 Watauga Road / Watauga	JPS Medical Home	M10
Health Center - Diamond Hill	3308 Deen Road / Fort Worth	JPS Medical Home	M11
Health Center for Women & Children NW	2200 Ephriham Avenue / Fort Worth	JPS Medical Home	M12
Health Center - Northwest/Iona Reed	401 Stribling Drive / Fort Worth	JPS Medical Home	M13

Health Center - Viola M. Pitts/Como	4701 Bryant Irvin Road N / Fort Worth	JPS Medical Home	M14
White Settlement	1638 S. Cherry Lane / Fort Worth	WIC	W1
Mansfield	1585 E. Broad St / Mansfield	WIC	W2
Haltom City	4113 Denton Highway / Haltom City	WIC	W3
Azle	401 Stribling Drive / Azle	WIC	W4
Euless	417 W. Euless Blvd / Eules	WIC	W5
Resource Connection	1500 Circle Drive / Fort Worth	WIC	W6
Pantego	2208 W. Parkrow Drive / Pantego	WIC	W7
Eastside	1100 Bridgewood Drive / WIC	WIC	W8
Fiesta Plaza	245 N.E. 28th St / Fort Worth	WIC	W9
Northwest Public Health Center	3800 Adam Grubb / Lake Worth	Public Health and WIC	PW1
Southwest Public Health Center	6551 Granbury Road / Fort Worth	Public Health and WIC	PW2
Bagsby-Williams Public Health Center	3212 Miller Avenue / Fort Worth	Public Health and WIC	PW3
LaGran Plaza Mall Public Health Center	4200 S. Freeway / Fort Worth	Public Health and WIC	PW4
Tarrant County Public Health Main Campus / Southside	1101 S. Main Street / Fort Worth	Public Health and WIC	PW5
Southeast Public Health Center / Randol Mill	536 W. Randol Mill Road / Arlington	Public Health and WIC	PW6
Watauga Public Health Center / Watauga	6601 Watauga Road / Watauga	Public Health and WIC	PW7

Chapter 8. Market Assessment – Financial Perspectives

Introduction

A financial review provides a baseline to assess performance and trends related to JPS, establishes a benchmark against other facilities, and creates a context for the strategic assessment of strengths, weaknesses, opportunities, and threats (SWOT) necessary to assess the key role that JPS serves in Tarrant County. To conduct this assessment, HMA interviewed key stakeholders including Tarrant County and JPS personnel; and reviewed internal statistical and financial JPS information, JPS audited financial statements, comparisons to other Texas public hospitals, and comparisons to other facilities within Tarrant County. HMA also assessed JPS' profile and service capacity and utilization within Tarrant County.

The analysis looked at the following six issues affecting JPS' role in Tarrant County's long range plan:

1. **Services & Expenditures to Medically Needy Populations** – Provides context for overall strategic assessment.
2. **Medicaid and Exchange Managed Care** – External factors related to Medicaid and Exchange managed care likely will impact the local environment.
3. **Role of MCOs in System of Care for Medically Needy Populations** – How will managed care organizations (MCOs) and integrated delivery systems bring value to managing the health of a population with complex medical needs?
4. **Delivery System Reform Incentive Payment (DSRIP)/Medicaid Waivers/Disproportionate Share Hospitals (DSH)/Uncompensated Care** – Factors that are material to the continued fiscal and operational integrity of public health care delivery systems.
5. **JPS Health Network Positioning-JPS Connection** – The link between JPS and those individuals who might otherwise not have access to health care services.
6. **Viable Academic Public Hospital Models** –Key characteristics of JPS and its local environment within Tarrant County, and the challenges of public hospitals in general.

Overall Approach and Data Sources

Our financial review took a very broad approach to gain a better understanding of JPS Health Network and its environment including:

- ❑ Insight from meetings with key JPS financial representatives, along with review of notes from other JPS, Tarrant County, and community stakeholders;
- ❑ Analysis of JPS financial and statistical trends, current status, and service profile within Tarrant County;
- ❑ Review of JPS financial performance and challenges compared to other Texas public hospitals; and
- ❑ Conformity with HMA's experience with other public hospital systems, safety net environments, as well as subject matter experts' knowledge of Medicaid, supplemental funding, and waivers in Texas.

HMA acquired and analyzed data and other information as follows:

- ❑ We interviewed key JPS executives, including but not limited to: Sharon Clark, EVP/CFO; Jeanna Adler, VP Finance; and Wayne Young, Senior Vice President Operations and Administrator - Trinity Springs Pavilion.
- ❑ We examined data including, but not limited to:

- **JPS** – JPS provided audited financial statements, internal financial statements and statistical information, including pertinent departmental data. HMA reviewed and analyzed Emergency Department (ED), trauma, behavioral health (BH), maternity, pediatrics, and neonatal intensive care unit (NICU) activity levels by county and zip code.
- **Dallas Fort Worth Hospital Council (DFWHC) reports** – HMA requested and examined data from DFWHC related to ED and BH inpatient and outpatient activity by hospital. Analysis was conducted comparing distribution of activity for patients age 18 years old and over as well as those under age 18 years old; high-level readmission metrics by hospital; inpatient billed charges, days, and discharges by Tarrant County hospital for each of the four major payor types; and outpatient billed charges and visits/discharges by Tarrant County hospitals for each of the four major payor types. This data was collected between November 2016 and January 2017.
- **American Hospital Association (AHA) database**[lxxxviii]– HMA collected data including beds in service by type for all Tarrant County hospitals; service line profiles, by Tarrant County hospital, of available services related to behavioral health, trauma, women's services, pediatric services, community services, and extended services; case mix indices for Texas public hospitals; uncompensated care costs; net income from services to patients for Texas public hospitals during the most recent 4-year period; utilization profiles of the top eight Texas public hospitals; comparison of JPS operating expenses per adjusted patient day (APD) vs. (1) those of other Tarrant County hospitals and (2) those of the top 8 Texas public hospital systems plus Brackenridge Hospital in Austin, Texas. This data was collected between September 2016 and March 2017.
- **Texas Health Care Information Collection (THCIC) database**.[lxxxix]

❑ Internet research and other Texas public reports, including
- Charity policies of Tarrant County non-profit hospitals, and
- News articles.

Health Care Provider Services & Expenditures to Medically Needy Populations

What is being addressed?

HMA's review and evaluation included, but was not limited to, JPS internal statistical and financial information, JPS audited financial statements, comparisons to other Texas public hospitals, and comparisons to other facilities within Tarrant County. HMA also assessed JPS' profile and service capacity and utilization within Tarrant County.

Why are these issues important?

These issues are essential to provide sufficient context for the strategic assessment of strengths, weaknesses, opportunities and threats (SWOT), baseline performance and trends related to JPS, benchmarking against other facilities, and central to assessing the key role that JPS serves in Tarrant County.

How did HMA acquire and analyze the information?

Over the course of this engagement, JPS has been very helpful in providing historical and FY2016 financial and statistical data at both detail and summary levels, as well as audited financial statements for FY2011 through FY2016. This includes a special request related to service line data by county and zip code of patients receiving services at JPS. In addition, HMA submitted two special data requests to the DFW Hospital Council related to: (1) Tarrant County hospital ER and BH activity by inpatient and outpatient, including a breakdown for those age 18 years old and over vs. those under age 18 years old,

and (2) Tarrant County inpatient and outpatient activity by major payor type covering Medicare, Medicaid, Insured, and Uninsured. From the AHA database, HMA also obtained data related to uncompensated care, case mix, and various revenues and expenses for comparisons against other Texas public hospitals, as well as comparisons to all Tarrant County hospitals as appropriate.

What are the key findings and interpretations?

We will discuss key findings and interpretations by category.

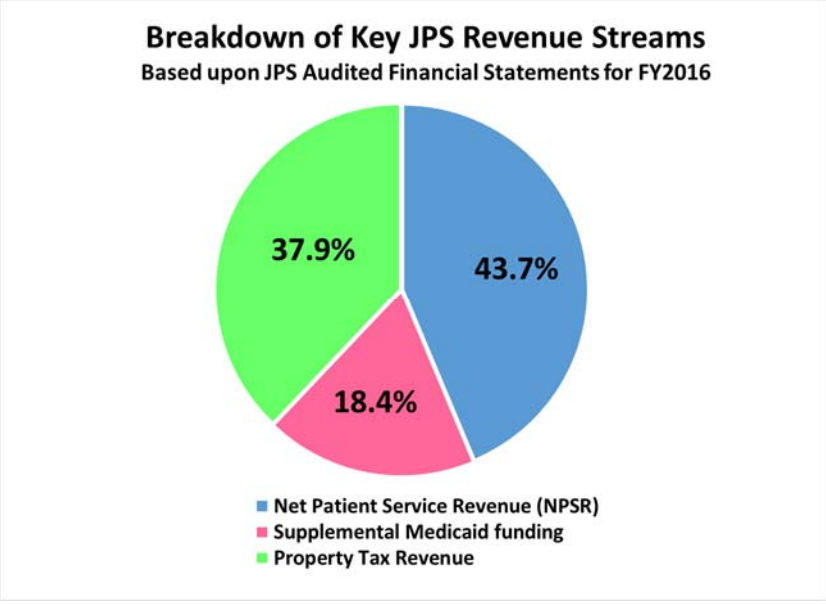
JPS Financial Performance Trends

From FY2011 to FY2016, the following changes were noted:

- Net patient service revenues (NPSR) increased by more than 39% at a reasonably steady rate, although the percentage increase between FY2014 and FY2016 was at a much faster rate (23% over two years).
- Supplemental Medicaid funding in the aggregate increased significantly from FY2011 and FY2013, but has been lower since then, with the 2016 figure of $155 million being 50% higher than the FY2011 figure of $103 million. Components of those funding streams are described in a later section of this narrative.
- Property tax revenues allocated to JPS also increased at fairly steady rate, with a total increase of slightly more than 16% during that time period, much less than the rate of increase for NPSR.

Each of these three key revenue streams plays a significant role in supporting the revenue base as evidenced by their relative proportions reflected in the pie chart below.

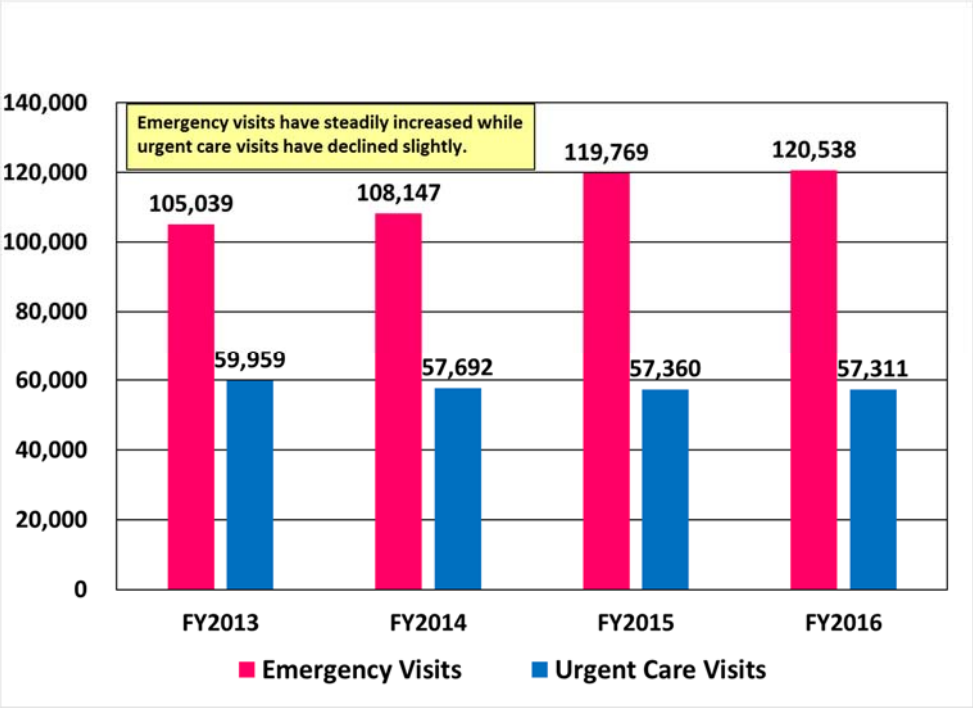
Table 50: Breakdown of Key JPS Revenue Streams



HMA also examined the activity levels for emergency visits and emergency care visits from FY2013 to FY2016, noting that emergency visits have increased by nearly 15% during that time period, while urgent care visits have declined by more than 4%. These trends are likely not consistent with the goals of operating an emergency care component, although facility constraints likely impede the redirection of non-Emergency cases to the Emergency care Clinic, an observation reinforced by HMA's physical tour of JPS facilities.

Table 51: Emergency and Urgent Care Visits

FY2013 through FY2016



Based upon information from JPS, some statistics – particularly those related to outpatient and ancillary departments – may be somewhat distorted during the 4-year trend period due to changes in the methodology for counting those statistics. HMA did, however, observe the high-level trends of various JPS patient revenue streams. For the 4-year period in question, HMA noted changes in the billed charges for various service areas, recognizing that pricing changes for selected services could inappropriately suggest changes in volume for those services. Given that, HMA observed the following key changes in gross revenues from FY2013 to FY2016:

- Inpatient acute billed charges increased by approximately 8%, a fairly modest increase in terms of historical national increases in hospital pricing.
- Inpatient psychiatric billed charges increased by 23%, primarily due to the opening of a new unit in 2016 and the corresponding demand for those services.
- Emergency billed charges increased by 36%, due in part to the 15% increase in visits.
- Revenue cycle management – Despite the increase in NPSR of more than 39% from FY2011 to FY2016, Patient Accounts Receivable (A/R) declined by more than 7% during the same time period, due to what appears to be a significant improvement in revenue cycle management.

- Salaries and related expenses grew at a steady rate, increasing by 39% from FY2011 to FY2016, with the biggest increase of approximately 11% occurring in FY2016.
- Long-term debt steadily declined from FY2011 to FY2016, with a cumulative decrease of nearly 29%.

Comparison to other Texas Public Hospitals

JPS Health Network's financial performance is generally comparable with that of other Texas public hospital systems based upon information accessible from the American Hospital Association (AHA) database, with the biggest differentiator between the various public systems being their size. For example:

- JPS' loss from service to patients is significantly less than the corresponding figures for the public hospital systems in Houston, Dallas, and San Antonio, but higher than that of El Paso, and significantly higher than those of the much smaller public hospital systems in Texas (see Appendix 9: Exhibit F-4), all due to differences in bed size and outpatient total visit volume.
- JPS' uncompensated care cost for the most recently reported year per the AHA database was less than half and less than one-third of the corresponding amounts for the public hospital systems in Harris and Dallas counties, respectively, and it was between the corresponding figures for San Antonio and El Paso (see table below).

Table 52: Texas Public Hospitals: Uncompensated Care Cost: AHA Database*

Hospital Name	City	Most Current Year	First Historical Year	Second Historical Year	Oldest Historical Year
Harris Health System	Houston	$656,000,784	$695,291,978	$502,205,793	$480,680,901
Parkland Health & Hospital System	Dallas	$445,213,713	$417,420,346	$415,414,262	$381,261,289
University Health System	San Antonio	$228,766,993	$165,401,312	$145,399,634	$145,763,998
JPS Health Network	Fort Worth	$198,625,999	$252,675,244	$130,809,731	$184,687,549
University Medical Center of El Paso	El Paso	$189,702,483	$188,678,854	$187,370,892	$189,122,285
University Medical Center	Lubbock	$66,943,212	$50,125,723	$70,647,924	$47,409,121
Medical Center Health System	Odessa	$24,016,448	$31,798,393	$29,761,505	$29,803,583
Midland Memorial Hospital	Midland	$20,272,732	$23,226,466	$17,204,510	$16,768,995
Wise Regional Health System	Decatur	$16,955,290	$11,236,107	$10,724,061	$9,920,536
OakBend Medical Center	Richmond	$13,567,328	$11,996,035	$10,575,889	$10,694,939

** Sort is by "most current year", which could be either 2015 or 2016, depending upon the hospital/system's fiscal reporting year.*

- Amongst the top 8 Texas public health systems plus Brackenridge (Travis County), JPS' operating expenses of $2,791 per adjusted patient day (APD) were equal to the median within that group, with the highest and lowest figures being $4,033 and $2,112 for San Antonio and Odessa, respectively.

- The overall Case Mix Index reported for JPS for the most recent year in the AHA database was slightly less than 1.85, third highest amongst Texas public hospital systems, and higher than the case mix indices reported for the public hospital systems in Harris and Dallas counties).

Statistical and Financial Performance Profile within Tarrant County

Within Tarrant County, it should be noted that JPS Health System provides more than three times the amount of total uncompensated care as the Tarrant County hospital providing the second greatest amount of such care, based upon data from the AHA databases. Meanwhile, JPS' expenses per adjusted patient day (APD) were nearly 10% above the mean for all County hospitals, but JPS' patient acuity is more complex than that of the typical hospital. In addition, JPS expenses per APD are only slightly higher than that of Texas Health Harris Methodist Hospital Fort Worth ($2,721) and significantly lower than that of Cook Children's Medical Center ($5,047).

HMA also received some high-level information on readmission rates from the DFW Hospital Council. In examining that data, HMA noted that JPS' reported readmission rate of 12.2% is only slightly higher than the Tarrant County mean (12.0%). These rates seem favorable compared to May 2015 readmission rates of 17.8% and 13.1% for targeted and non-targeted conditions, respectively, as described in a study reported in the New England Journal of Medicine.[xc] JPS's readmission rate as reported through this database was lower than expected given that JPS serves some of the sickest and most indigent patients.

What are the key recommendations, conclusions and validations?

JPS Health System has a significant health care presence in Tarrant County, and its activity levels, payor mix, and service profiles are indicative of an organization that plays a critical role in keeping the County healthy. JPS' roles in emergency and behavioral health services are particularly noteworthy. Its performance amongst other Texas public hospitals is in line with what would be expected, with expenses per APD comparing favorably to Texas public hospitals and within Tarrant County. As the JPS management team implements both productivity and cost accounting systems, there will be opportunities for enhanced efficiency levels to the extent not impeded by the facility configuration and logistics. Both productivity and cost accounting systems are essential to future value-based payment (VBP) models, including block grants and possible capitation by managed care organizations (aka "health plans") as further discussed in the following Finance sections, as well as other sections of this report. Finally, the combination of high patient acuity/severity (as characterized by a very high case mix index) amongst Texas public hospitals with a readmission rate that is near the Tarrant County median should be viewed in a favorable light.

Medicaid and Exchange Managed Care

What is being addressed?

As the county and JPS move forward with the long term strategic planning for the Tarrant County health care delivery system, external factors related to Medicaid and Exchange managed care likely will impact the local environment and require monitoring.

Why are these issues important?

As with all counties and health entities, Tarrant County and JPS have some control over their own destiny in terms of factors they can realistically manage. However, there are many factors that also are beyond their control. These include but are not limited to:

- Ongoing and ever-changing health care industry trends
- National, state and local priorities, policies, and budget constraints

Community Health Needs Assessments (CHNAs) and JPS' mission reinforce both the responsibilities and opportunities for JPS in serving Medicaid and Exchange populations, where population health management becomes a more important objective. Whatever approaches are implemented due to current federal efforts to reshape Medicaid and the private market exchanges, there likely will be a significant impact upon states, counties and local health care providers, both public and private. These changes will create opportunities as well as challenges.

How did HMA acquire and analyze the information?

Much of this information is acquired and updated as part of HMA's day-to-day commitment to staying abreast of key issues regarding health care across the country, as well as in each of the individual states where HMA serves its clients. Information is gleaned from many sources, and then it is compiled, analyzed, and updated on a regular basis. During this engagement, HMA further identified, through additional research and discussions with stakeholders, issues that are pertinent to the long term strategic planning process for which HMA were engaged.

To augment the knowledge of publicly financed health care and Texas Medicaid, HMA conducted interviews with key stakeholders, including the CEOs of various hospitals in Tarrant County

What are the key findings and interpretations?

The key issues discussed in this section are as much qualitative as they quantitative. Some of the potential impacts issues are:

- The Texas Comptroller projects a biennial revenue estimate of approximately $104.9 billion during the 2018-2019 biennium.[xci] This represents a 2.7 percent decrease from the amounts available for the 2016-2017 biennium. This shortfall could impact the funding available to JPS for the Medicaid program if the decision is made to cut reimbursement to hospitals and other providers. It is too early in the legislative process to determine if the final budget will include any types of cuts to Medicaid providers.
- Under the Affordable Care Act (ACA), Texas did not expand the Medicaid program for low-income adults. With the ACA Exchange, Texas' uninsured rate has decreased from approximately 24% to 17%, but the rate is still the highest in the nation.[xcii]
- Texas has one of the largest unauthorized immigrant populations who are not eligible for Medicaid or Exchange coverage.
- Texas currently experiences significant population growth relative to other states.

Taken together, these elements will continue to cause challenges for the state due to increasing health care needs and costs of care, and the current environment suggests that it will experience what some have labeled as the "unseen cost of losing federal support of uncompensated care."[xciii]

There may be opportunities for JPS to more strongly embrace Medicaid managed care, which would provide opportunities to increase activity and efficiency, while more broadly serving Tarrant County and enhancing JPS NPSR as well. For example, Cook Children's Health Plan currently contracts with JPS for inpatient care and with the physician group Acclaim. JPS provides primary care medical home services and is a substantial backbone for the adult medical population. There also might be an opportunity for JPS to partner with Cook Children's Health Plan regarding STAR+PLUS, Texas' Medicaid managed care program for people who have disabilities or are age 65 or older. People in STAR+PLUS get Medicaid health-care and long-term services and support through a health plan, one that could partner with JPS by providing the platform and creating a JPS STAR+PLUS product. This is just one example of how Cook Children's or another MCO could function as an ASO similar to the Aetna/Parkland arrangement in Dallas County.

The Network Access Improvement Program (NAIP), which the Texas Legislature put forth to further the state's goal of ensuring primary care access for the Medicaid population, could be another opportunity to generate additional funding for JPS.

What are the key recommendations, conclusions and validations?

The state has requested an additional 21 months of level funding for the UC and DSRIP pools in the 1115 Waiver renewal. The additional 21 months allows for the Texas 86th Legislature (which will convene in January of 2019) to respond to any federal changes and sufficient time for Texas to develop a new 1115 Waiver proposal. This extension also provides financial and operational certainty for Texas providers to continue to serve Medicaid and low-income uninsured populations that benefit from the waiver while the Trump administration determines its policies.

Tarrant County and JPS should pursue discussions with Cook Children's, Texas Health Resources, other Tarrant County hospitals, and other community stakeholders as appropriate to determine whether there are opportunities to collaborate on service delivery, coordinate on broader county issues such as transportation, and determine whether there are ways to bring additional funding into the County.

Role of MCOs in System of Care for Medically Needy Populations

What is being addressed?

We need to consider how the integration of JPS' role within one or more managed care organizations (MCOs) and integrated delivery systems could bring value to JPS, value to Tarrant County, and enhanced performance in effectively managing the health of a defined population, particularly more vulnerable populations.

Why are these issues important?

MCOs throughout the country have been entrusted in managing population health for an enrolled group of beneficiaries. Medicaid managed care is the prime example of this, and it has the capacity to employ innovative approaches utilizing Integrated Care Management (ICM) teams to deliver person-centered care that addresses physical health, behavioral health (BH), and social determinants of health (SDOH) for vulnerable populations. Although not an MCO, JPS Health Network is a publicly funded delivery system that serves significant numbers of Medicaid beneficiaries and uninsured persons. As a result, it might be able to enhance its long term strategic viability by partnering with MCOs and other integrated delivery systems to achieve the Triple Aim goals of improved patient experience of care, improved health of populations, and reduced per capita cost of health care.

How did HMA acquire and analyze the information?

Through HMA's review of data and the stakeholder interview process, HMA gained a better understanding of JPS' current role within the community, the expectations that others have of JPS, and the opportunities that JPS may have to partner with payors and other providers to improve the delivery of care, maintain and improve the health of Tarrant County residents, and slow or even reduce the per capita costs of health care in the county.

What are the key findings and interpretations?

JPS Health System clearly is committed to serving medically needy populations. JPS inpatient and outpatient activity across many service lines predominantly serves the residents of Tarrant County. Trauma services is the most notable area where residents of other counties rely heavily on the services provided by JPS. In fact, more than 42% of inpatient trauma charges were rendered on behalf of patients

residing in other counties, including 22.6% for Johnson, Wise, Parker, Dallas, and Hood counties collectively, and the remaining 19.7% spread across more than 75 other counties. JPS is one of only 17 Level I trauma centers in Texas, and only those trauma centers in Lubbock and El Paso are directly west of Tarrant County in the central to northern part of the state, with San Antonio being far to the south. Thus, JPS's trauma center services might be more heavily impacted because of this geographic distribution. The geographic service profiles for inpatient and outpatient billed charges related to all six service lines are summarized below.

Table 53: Geographic Service Profiles for Inpatient and Outpatient Billed Charges by Service Line

JPS Service Line	% of Inpatient Charges on Behalf of Tarrant County Residents	% of Outpatient Charges on Behalf of Tarrant County Residents
Behavioral Health	88.1%	89.9%
Emergency-related (including trauma)	87.3%	90.7%
Maternity	95.1%	97.5%
Neonatal Intensive Care	93.2%	N/A
Pediatrics	89.6%	93.3%
Trauma	57.7%	69.8%

Source: JPS Health Network.

In terms of volume of services provided in comparison to other Tarrant County hospitals, JPS carries a heavy workload for emergency room services and behavioral health services. Specifically, for a recent 12-month period, JPS provided:

- More than 90,000 non-ED outpatient visits for those ages 18 and over, more than any other facility in Tarrant County;
- More than 1,200 BH ED inpatient admissions for those ages 18 and over, more than any other facility in Tarrant County;
- More than 350 BH ED inpatient admissions for those under age 18, more than any other facility in Tarrant County;
- More than 17,200 ED inpatient admissions for those ages 18 and over, second only to Texas Health Resources, Fort Worth;
- Nearly 7,200 ED inpatient admissions for those under age 18, second only to Cook Children's Hospital; and
- More than 110,000 ED outpatient visits for those ages 18 and over, second only to Texas Health Resources, Fort Worth.

Despite the relatively significant role that JPS plays in providing the health care services described above in relation to those provided by other Tarrant County facilities, JPS lacks the managed care contracts that are risk-based and offer incentives for maximizing value to the consumer and the payor. Transition to more value-based reimbursement methodologies could help JPS transition to a more integrated model that focuses on population health.

What are the key recommendations, conclusions and validations?

JPS has an opportunity to gradually but progressively move from a hospital-centric, episode-based fee-for-service model to an integrated delivery system model in which Tarrant County and JPS provide leadership for a full County commitment that includes the private sector hospitals, community advocates, and other community stakeholders. Such a process should address not just the availability and delivery of clinical services but also the social determinants of health and countywide issues such as

transportation. Achieving these goals will require key strategic, financial, and operational changes including: (1) migration to value-based contracting, (2) accelerated commitment to improving productivity and monitoring costs, and (3) the continued development of community partnerships that leverage JPS' services and capabilities.

DSRIP/Medicaid Waivers/DSH/Uncompensated Care

What is being addressed?

It is critical that HMA discuss Medicaid waivers and Medicaid supplemental funding streams, which have been a cornerstone of state, county, and local resources across the country to ensure the financial integrity of public health systems and, to a lesser degree, private hospitals that also serve safety net populations.

Why are these issues important?

Even with 1115 state waivers, innovative local initiatives, and Medicaid supplemental funding, a clear majority of public health systems are hard pressed to finance health care services for populations they serve without also receiving county general fund revenues, property taxes, private sector funding, grants, and/or other resources to ensure the continued delivery of health care to the safety net populations they serve. Therefore, it is important to highlight the dynamic and sometimes severe healthcare financial climate that exists, since those factors are material threats to the continued fiscal and operational integrity of public health care delivery systems.

How did HMA acquire and analyze the information?

For this topic, HMA utilized subject matter experts' knowledge of publicly financed health care and Texas Medicaid and the 1115 Transformation Waiver including the two pools of financing: uncompensated care and delivery system reform incentive payments (DSRIP). This institutional knowledge was supplemented by interviews with key JPS staff as well as data sources from JPS, DFWHC, and AHA. Analysis focused on the following priorities:

- Insight from the EVP/CFO and VP Finance in terms of key concerns related to the Texas 1115 waiver, Medicaid supplemental funding streams, recent CMS actions, and future concerns they might have with respect to regulatory actions or other reimbursement impacts.
- Insight and detailed information from the JPS DSRIP coordinator regarding JPS' role as the lead DSRIP entity within Tarrant County, the DSRIP projects currently under management, and the uncertainties that exist relative to the State's waiver and future IGT funding for and uncompensated care and DSRIP projects.
- Comparison of JPS to other Texas public hospital systems relative to the Net Income (Loss) from Services to Patients.

What are the key findings and interpretations?

DSRIP

Background

In 2011 Texas developed and the federal government approved a five year 1115 Medicaid Waiver to transform the Texas Medicaid health care delivery system that included two pools of funds: 1) uncompensated care; and 2) Delivery System Reform Incentive Payments (DSRIP). The state created an administrative governance structure for twenty (20) Regional Healthcare Partnerships (RHP) throughout the state, and those leadership anchors work directly with the state in the development of the DSRIP

project structure, metrics, measures, and value of each project. The RHPs are anchored by public hospitals, academic institutions, and county governments. Tarrant County Hospital District – dba John Peter Smith Hospital (JPS) – is the anchor for the RHP 10 region that includes nine counties: Tarrant, Ellis, Hood, Navarro, Somervell, Erath, Johnson, Parker, and Wise. Approximately 30% of the DSRIP clients are Medicaid eligible and 45% are low income, uninsured.

For the Demonstration Year (DY) 6 time period, the state negotiated a 15-month extension to the waiver which covers October 1, 2016 through December 31, 2017. The state is currently in negotiations with the federal government for a waiver renewal to continue the waiver through September 2019.

Performance to Date

In addition to the JPS anchor responsibilities, JPS is also a DSRIP participant and has 27 active DSRIP projects that include improving access to care, integration of primary care and behavioral health, disease specific projects, and coordination with other regional providers. In Demonstration Year (DY) 5 JPS' estimated DSRIP funds was $135 million. JPS has been successful in achieving more than 88% of their metrics in each DY. In DY 6, JPS expects to meet 86% of its metrics which would result in payment of $142 million.

Table 54: JPS DSRIP Accomplishments

JPS + Cat 4 (no PG)	DY2	DY3	DY4	DY5
Total Valuation	$ 85,123,856	$ 118,105,543	$ 126,426,980	$ 135,563,116
DY $ Received	$ 80,218,708	$ 107,649,060	$ 115,316,023	$ 118,964,686
CF $ Delayed *	$ 4,905,148	$ 10,456,483	$ 11,110,957	$ 16,598,430
CF $ Received *	$ 4,905,148	$ 8,432,238	$ 7,669,195	
Total Received	**$ 85,123,856**	**$ 116,081,298**	**$ 122,985,218**	**$ 118,964,686**
Achieved %	100.0%	98.3%	97.3%	87.8%*

Note: CF = carryforward.
** The achieved percentage for DY5 will increase once the delayed dollars are achieved in the current year.*

JPS also provides the intergovernmental transfers (IGT) for 17 DSRIP providers in Tarrant County and other surrounding counties. The aggregate IGT amounts for these 17 providers total $235 million.

For more detail on the RHP 10 DSRIP projects, please see Appendix 9: Exhibit F-10 in the Appendix. In that exhibit, HMA grouped the hospitals into the following four categories:

1. JPS DSRIP projects including JPS Physician Network
2. Texas Health Resources (THR) – includes 10 hospitals in the community that are part of THR
3. Other Hospitals – 4 hospitals that have 1-7 projects each
4. Academic Institution (University of North Texas Health Science Center)

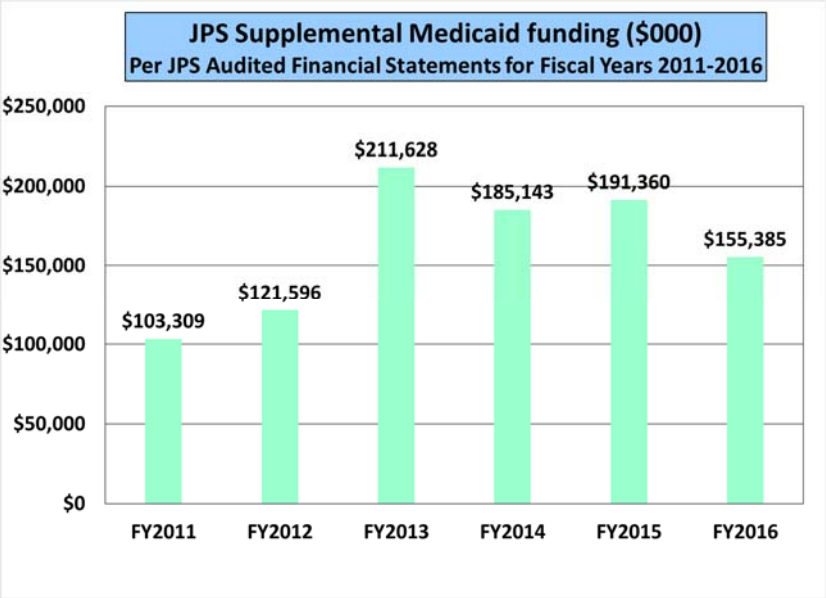
For items 2-4 above, JPS puts up the IGT for these Tarrant County hospitals (dollars represent total IGT funds).

Supplemental Funding Streams in Total

Taken together, the three key Medicaid supplemental funding streams of disproportionate share hospital (DSH) dollars, uncompensated care (UC) dollars, and Texas Delivery System Reform Incentive Payment (DSRIP) dollars are a significant source of JPS revenues, representing the third key revenue source behind NPSR and Ad Valorem taxes. The supplemental funding amounts shown in the graph below are based upon their presentation in the JPS audited financial statements for the years in question.

Table 55: JPS Supplemental Medicaid Funding

FY2011 through FY2016



As might be expected, Supplemental Medicaid Funding showed significant variation across the six years delineated above, with a low in FY2011 and a high in FY2013. It also should be noted that year-to-year delineation of such funding can vary between audited and unaudited data due to timing and recognition issues. For simplicity, HMA has chosen to display the audited data. It is important to recognize that these funding streams can show considerable variation year over year, and are likely to become increasingly uncertain in future years.

While the funding streams summarized above are generally predictable within a modest range over the next 12 months, the multi-year trend is unclear and subject to many unanswered questions to say the least. As an example, there is uncertainty regarding approval – by The Centers for Medicare & Medicaid Services (CMS) – of the Texas 1115 waiver renewal for Demonstration Year 7-10. Texas has requested another 21-month extension to negotiate a full renewal. If denied by CMS, DSRIP would not stop immediately but rather would be reduced by 25% per over a 4-year period. In addition, CMS' withhold of Intergovernmental Transfer (IGT) funding related to uncompensated care costs moves the decision to the CMS appeals process for ultimate resolution, creating yet further uncertainty related to UC funding streams.

Through the Tarrant County Indigent Care Corporation, JPS is able to IGT approximately $30 million annually on behalf of other Tarrant County hospitals, which also has the impact of reducing JPS' own

DSH funding by about $5 million per year. Thus, to the extent that IGT funding approaches are challenged by CMS, the supplemental funding streams for other Tarrant County facilities could be at risk as well.

Taking a broader view, public hospitals throughout Texas, and across the nation for that matter, heavily rely on supplemental funding because their other NPSR typically falls short of the dollars needed to cover salaries and related expenses, and far short of their total operating expenses which include non-labor expenses such as supplies, purchased services, etc. This is further highlighted by the graph included later in this section (see Table 59).

What are the key recommendations, conclusions and validations?

As Medicaid basic funding streams and Medicaid supplemental funding streams continue to be put under pressure, and the burden of uncompensated care continues to exist, public hospitals in general – and JPS Health System in particular – will need to adapt both strategically and financially to the shifting landscape. For Tarrant County, JPS cannot shoulder the entire burden of uninsured and underinsured care. However, JPS can maintain and even enhance the fulfillment of its mission by continued investment in its physical plant, operational infrastructure, and collaborative partnerships with the other hospitals and community stakeholders in Tarrant County.

JPS Health Network Positioning—JPS Connection

What is being addressed?

JPS Connection is a program that was designed to assist Tarrant County residents in having a medical home to keep them healthy. There are four such programs as follows:

1. **JPS Connection** – Provides assistance to patient without health insurance.
2. **JPS Connection Homeless Program** – Provides assistance to patients without health insurance who are experiencing homelessness.
3. **JPS Connection Supplemental to Medicare** – Provides assistance with copayments and deductibles for those patients who have Medicare Parts A & B, or a Medicare Plan contracted with JPS Health Network.
4. **JPS Connection Supplemental to Insurance** – Provides assistance to patients with a primary insurance plan contracted with JPS.

Why are these issues important?

JPS Connection is the payor of last resort, thus providing a vital link between JPS and those individuals who might otherwise not have access to health care services at all. The program offers retroactive eligibility when there is an unpaid medical bill for a service received from JPS within three full months immediately before the month of application, if eligibility requirements are met. To be eligible for this program, a patient must, at a minimum:

- ❑ Be a Tarrant County resident
- ❑ Be a U.S. citizen, naturalized citizen, or legal permanent resident
- ❑ Meet income guidelines, with income up to 250% or less of the federal poverty income levels, adjusted according to family size
- ❑ Pursue all available health insurance options prior to receiving JPS Connection assistance

In summary, non-Tarrant County residents receiving services from JPS Health Network are not eligible for JPS Connection and therefore not eligible for services that might otherwise be considered as charity care for a Tarrant County resident.

How did HMA acquire and analyze the information?

HMA had several discussions regarding JPS Connection with Sharon Clark, JPS Executive Vice President and CFO. Ms. Clark and other key JPS representatives were very helpful in explaining the JPS Connection program, including the key role that it plays in the delivery of services by JPS Health Network. JPS provided HMA with internal financial data for all 12 months of FY2016, including revenues by major payor type. Those payor types included Medicare, Medicaid, Commercial, JPS Connection, Self-Pay, and Other Government. HMA also examined population growth estimates for Tarrant County, along with projections of other demographics including stratified income levels across the County through the year 2037.

What are the key findings and interpretations?

For FY2016, JPS Connection clearly shows as a significant payor type across each of the key service categories, accounting for the following proportions of billed charges for the respective services below:

- 13.4% of acute inpatient
- 12.7% of psychiatric inpatient
- 14.4% of emergency services
- 33.7% of non-ER outpatient services
- 28.2% of clinic services
- 12.6% of outpatient pharmacy

Based upon the above service category percentages for JPS Connection, it has a much greater presence for the ambulatory services (non-ED outpatient and clinic) than it does for the inpatient services and pharmacy. Thus, in terms of helping those without other insurance sources find and receive services through a medical home, JPS Connection may, in fact, be providing a significant benefit for those individuals and families. In addition, due to the requirements of the Emergency Medical Treatment and Active Labor Act (EMTALA), other Tarrant County hospitals also provide access for emergency care that represent demand for safety net care by persons who also have obtained JPS Connection services.

HMA also assessed future growth potential for JPS Connection. Based upon the calculations of population growth and income over the next 20 years, it appears that the Tarrant County population that is eligible for the JPS Connection program could increase from approximately 425,000 in 2017 to more than 621,000 in 2037.

In terms of long range strategic planning, the more relevant question centers around the potential capacity of the program to fulfill an even greater role than does its current and projected footprints. The increasing uncertainty with respect to CMS policy related to Texas IGTs and the looming and somewhat unpredictable changes to federal health care policy in general suggest that Tarrant County and JPS should explore as many strategic options as possible while keeping in mind potential financial impacts to the hospital district and how to make improvements in a systematic manner. One of those options would be to consider whether there are opportunities involving JPS Connection that could enhance access to even greater numbers of people. HMA will briefly identify some of those possibilities below.

What are the key recommendations, conclusions and validations?

The JPS Connection program is a great service to Tarrant County residents that also meet other criteria required by the program. In addition, however, it is a database that likely is filled with a wealth of information as a result of individuals and families entering and leaving the program. From a strategic planning standpoint, much could be gained by considering the following options:

- Conducting a formal and detailed analysis of the program data, both as a current snapshot and longitudinally, to gain additional insight. In fact, as countywide collaborations develop regarding safety net care strategies, Tarrant County hospitals' common use of EPIC's electronic health record platform – including the option for its population health management module – could facilitate such an analysis.
- Analyzing a small but statistically meaningful sample of data to validate that the level of historical vetting of JPS Connection applications supports the basic requirement that JPS Connection is truly serving as the payor of last resort.
- Stratifying and analyzing data by age to support long range strategic objectives for building Medicare business. For instance, nearly all JPS Connection members between the ages of 55 and 64 will likely become Medicare beneficiaries over the ensuing 10 years. Committed outreach to that population hopefully could help JPS retain a significant percentage of those individuals once they are eligible for Medicare coverage. In addition, perhaps a partnership could be developed with JPS contracted Medicare plans to offer a commercial plan sooner at a reduced cost to JPS Connection members age 62 and over (for instance) if they are willing to commit to at least two years of coverage under the payor's Medicare Advantage plan upon reaching age 65. Obviously, there are legal and logistical issues that would need to be explored, but there might be options here worth considering.
- Conducting additional demographic analysis of the JPS Connection population to determine if there are opportunities to support a potential partnership with the Medicaid MCOs, as mentioned earlier. Under such an arrangement, the MCO could serve as either an Administrative Services Organization (ASO) or a Third-Party Administrator (TPA). This likely would be much easier and more practical for JPS than attempting to create its own MCO, particularly given that JPS likely would have a difficult time competing for members solely on its own.
- Also, as mentioned earlier, Cook Children's might be interested in a partnership with JPS to be their TPA for the STAR+PLUS population (adults).

Depending upon the fate of the Affordable Care Act and any legislative replacements or modifications, both the Medicaid and Insurance Exchange programs likely will be heavily impacted. That could result in an opportunity for JPS to expand its income eligibility threshold above 250% of the federal poverty limit if additional funding became available to support such an expansion. Enhancing JPS' role within Tarrant County and extending its outreach could have long range strategic benefits for the population health of the County.

Viable Academic Public Hospital Models

What is being addressed?

HMA believes it is important to highlight the payor mix and service profiles of JPS Health System, particularly in relation to other Tarrant County facilities and to other Texas public hospital systems.

Why are these issues important?

HMA must consider the key characteristics of JPS, the local environment within Tarrant County, and the challenges of public hospitals in general. It is imperative that data from multiple sources is examined, that context is provided for that data, and consideration is given to how the interpretation of that data pragmatically affects the observations and recommendations related to the collaborative strategic approach being developed by Tarrant County and JPS.

How did HMA acquire and analyze the information?

In addition to the overall data sources mentioned earlier in this narrative, HMA particularly focused on the following three sources of data for the purposes of the findings and interpretations that follow:

1. JPS Health System provided internal payor mix data for FY2016;
2. The Dallas Fort Worth Hospital Council provided data for the 12 months ending September 30, 2016, comparing the breakdown of inpatient and outpatient activity by major payor type for JPS compared to other Tarrant County hospitals; and
3. We accessed the Texas Health Care Information Collection (THCIC) 2014 database to obtain information related to inpatient self-pay/charity activity by major diagnostic category (MDC) for purposes of identifying which types of diagnostic and clinical services are the most likely to have higher percentages of self-pay/charity funded.

What are the key findings and interpretations?

The JPS payor mix, as would be expected for a public health system, is heavily oriented toward uninsured and underinsured patients, with the following breakdown of Medicaid, JPS Connection, Self-Pay, and other non-Medicare Government patients based upon FY2016 financial data.

Table 56: JPS FY2016: Uninsured and Underinsured Percentages

Payor Category	Inpatient	Psychiatric	Emergency Room
Medicaid	31.4%	20.9%	17.6%
JPS Connection	13.4%	12.7%	14.4%
Self-Pay	16.4%	31.2%	40.6%
Other/Grants	4.5%	13.3%	2.4%
Total	**65.7%**	**78.1%**	**75.0%**

Source: JPS Health Network.

As evidenced by the above table, most JPS inpatient revenues, as well as the majority of JPS psychiatric and emergency revenues, are generated for services provided to patients served through Medicaid, JPS Connection, Self-Pay, and Other/Grants. This is particularly important given JPS' significant role within Tarrant County. For instance, JPS is:

- ❑ Second only to Texas Health Resources, Fort Worth in terms of the numbers of adult ED inpatient admissions and adult ED outpatient visits.
- ❑ Second only to Cook Children's Hospital for ER inpatient admissions for those under age 18.
- ❑ First in Tarrant County in terms of the numbers of BH inpatient admissions for both adults and children.

Next, HMA considered the breakdown of inpatient discharges and outpatient visits for the four major payor categories of Insured, Medicare, Medicaid, and Uninsured.

Table 57: JPS and Tarrant County Inpatient/Outpatient Payor Mix: 12 Months Ending 9/30/16

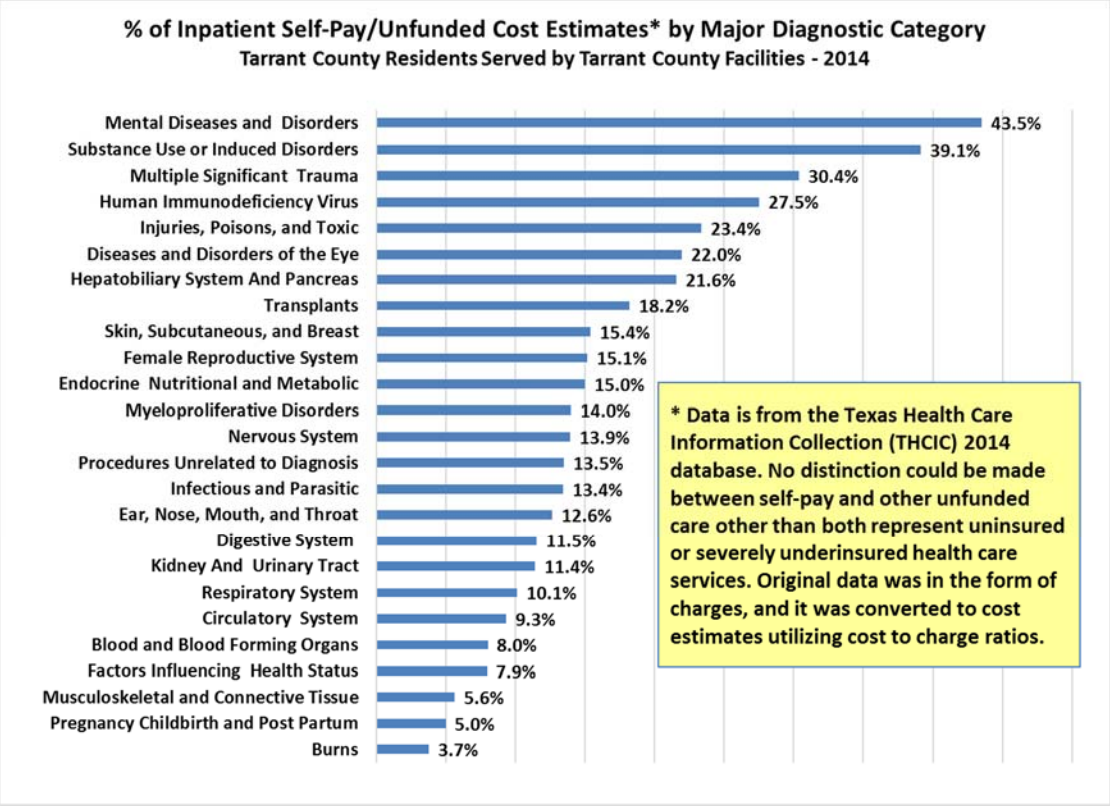
Category	JPS Percentage of TC Total
Inpatient – Insured	13.7%
Inpatient – Medicare	6.1%
Inpatient - Medicaid	21.7%
Inpatient - Uninsured	32.0%
Outpatient – Insured	**18.5%**
Outpatient – Medicare	**8.9%**
Outpatient - Medicaid	**8.6%**
Outpatient - Uninsured	**39.8%**

Source: DFW Hospital Council Database.

In evaluating the data, it is striking but not particularly surprising that JPS accounts for 21.7% and 32.0% of the total Tarrant County Medicaid and Uninsured discharges (respectively) but only 13.7% and 6.1% of the corresponding Insured and Medicare discharges (respectively). On the outpatient side, JPS accounts for nearly 40% of the Uninsured outpatient visits (likely including JPS Connection) but only 8.9% and 8.6% (respectively) of the Medicare and Medicaid outpatient activity.

Additionally, HMA examined inpatient self-pay/charity cost estimates based upon an analysis that was completed using 2014 data obtained from the Texas Health Care Information Collection (THCIC). This is summarized in the table below.

Table 58: Inpatient Self-Pay/Unfunded Cost Estimates by Diagnostic

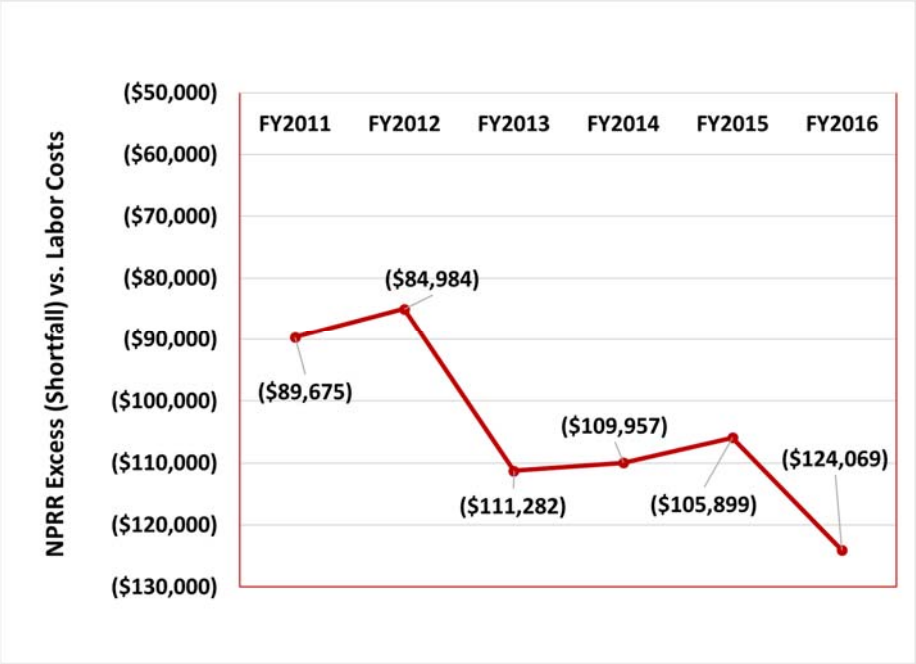


From the above graph, the key finding appears to be that the first and third highest inpatient services in terms of self-pay/charity care percentages throughout Tarrant County are (A) Mental Diseases and Disorders and (B) Multiple Significant Trauma, respectively. As a public hospital system, these two services are a particularly heavy load for Tarrant County and, with respect for trauma, beyond Tarrant County. Although trauma centers in Texas receive some funding from surcharges assessed through the Texas Driver Responsibility Program based upon a point system and conviction-based driving offenses, that funding does not come close to covering the cost of uninsured and underinsured trauma care. This is particularly significant for JPS given the extensive geographic reach provided by its trauma center as indicated in Table 53. A strong argument can be made for augmenting the funding provided through the Driver Responsibility Program by working with the state and other counties in determining whether those counties whose residents benefit from JPS trauma services have a responsibility to contribute additional funding to support Level I trauma services provided by JPS.

Providing many complex services that are heavily used by those who are uninsured or underinsured is a challenge for most public hospital systems and this is certainly reflected by public systems in Texas. In fact, looking at the Top 10 Texas Public Hospital Systems and their Net Income (Loss) from Services to Patients as self-reported in the American Hospital Association (AHA) database, JPS' loss from service to patients has remained relatively flat while the corresponding losses of the public hospitals in Houston, Dallas and San Antonio have increased considerably over the past three to four years based upon reported data. (See Appendix 9: Exhibit F-4). JPS has the potential to avoid such trends by (1) fulfilling its commitment to implementing productivity and cost accounting systems, (2) maintaining the gains that have been made in revenue cycle management, and (3) collaborating with MCOs, other hospitals, and community stakeholders to further enhance JPS' service profile and reputation in Tarrant County.

Such a commitment to ongoing improvement and collaboration is critical because JPS does experience funding and expenditure realities that are like those of other public health care delivery systems. For example, based upon JPS audited financial statements, its annual shortfall of NPSR relative to labor costs increased from less than $90 million in FY2011 to slightly more than $124 million in FY2016, as indicated by the graph below.

*Table 59: Excess (Shortfall) of NPSR vs. Labor Costs**



Source: JPS audited financial statements

Based upon HMA's experience, the shortfall described above is typical for many public health care systems. This is due in large part to the historically unfavorable payor mix that public health systems experience, and it accounts for the heavy reliance on Medicaid Supplemental Funding and other local revenue streams to support these public entities.

Each of the issues discussed above present challenges to being a financially viable academic public model. These issues are further complicated by the great uncertainty relative to the future of the Affordable Care Act (ACA) and its full or partial replacement, including what such replacement will mean for Medicaid supplemental funding streams, not to mention the future of Medicaid funding in general. Medicaid could very well move to a block grant process, with the likelihood of shifting both the financial burden and the financial risk from the federal government to the states and ultimately the counties. In addition, it is unknown to what extent the levels of uncompensated care could increase depending upon whether repeal, replacement, or modification of the ACA has the potential to increase the numbers of uninsured because of reductions in either pre-ACA Medicaid eligibility or coverage through the insurance exchange.

What are the key recommendations, conclusions and validations?

JPS' mission to serve the uninsured populations and those with Medicaid coverage is clear. However, JPS' long-term viability would be significantly improved if it were to increase its market share of Medicare, Exchange, and private sector revenues, including county staff benefit plan incentives. This would allow JPS to develop and sustain a patient-based revenue flow that is not dependent upon ever-increasing property taxes/property levels or increasing Medicaid supplemental funding. Without bringing some type of balance to its payor mix, JPS will not be able to serve its constituents properly and its financial shortfalls with respect to NPSR and supplemental funding streams will increase, thus putting its future at risk or placing pressure to significantly increase the share of ad valorem taxes required to sustain JPS into the future. In addition, operational efficiency and effectiveness must continue to

improve, which needs to be reflected in JPS' commitment and current efforts toward implementing productivity and cost accounting systems. Without more modern, efficient facilities that allow it to better serve its clientele in a more operationally efficient manner, there will be significant obstacles to improvement in efficiency, quality, and other key operational metrics.

HMA recognizes that an in-depth review of existing JPS facilities and prioritization of needs is required to complete the long range strategic planning process. HMA also believes that redirecting the delivery of care to a great ambulatory focus is essential. As Tarrant County and JPS have expressed, HMA supports a collaborative public-private process that fosters partnerships and addresses countywide issues such as transportation.

[xlviii] Evaluation of Uncompensated Care and Medicaid Payments in Texas Hospitals and the Role of Texas' Uncompensated Care Pool. Health Management Associates. 2016. [Online] https://www.healthmanagement.com/wp-content/uploads/HMA-UC-Study-Report-8-26-16-FINAL.pdf.

[xlix] The infirmary holds unstable patients that don't require hospitalization and post-hospital patients for observation.

[l] Data Resource Center for Child & Adolescent Health. 2012.

[li] Ibid.

[lii] Ibid.

[liii] Fetal Infant Mortality Review. Tarrant County. 2008-2012.

[liv] Substance Abuse and Mental Health Services Administration, Results from the 2011 National Survey on Drug Use and Health: Mental Health Findings, *NSDUH Series H-45, HHS Publication No*. (SMA) 12-4725. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2012.

[lv] Wang PS, Lane M, Olfson M, Pincus HA, Wells KB, Kessler RC: Twelve-month use of mental health services in the United States: results from the national comorbidity survey replication. *Archives of General Psychiatry.* 2005;62(6):629-640.

[lvi] Wang PS, Demler O, Kessler RC: Adequacy of treatment for serious mental illness in the United States." *American Journal of Public Health.* 2002;92(1):92-98.

[lvii] Melek S, Norris D, Paulus J: Economic impact of integrated medical-behavioral health: implications for psychiatry, Milliman *American Psychiatric Association Report,* Feb 2013.

[lviii] Hogg Foundation for Mental Health. (November 2016). A guide to understanding mental health systems and services in Texas. Retrieved from www.hogg.utexas.edu

[lix] Hogg Foundation for Mental Health. (November 2016). A guide to understanding mental health systems and services in Texas. Retrieved from www.hogg.utexas.edu

[lx] Hogg Foundation for Mental Health. (November 2016). A guide to understanding mental health systems and services in Texas. Retrieved from www.hogg.utexas.edu

[lxi] Hogg Foundation for Mental Health. (November 2016). A guide to understanding mental health systems and services in Texas. Retrieved from www.hogg.utexas.edu

[lxii] JPS Department of Psychiatry. (2017). JPS Behavioral Health Quality Overview

[lxiii] JPS Health Network. (2017). DSRIP Project Snapshot

[lxiv] Torrey F, Entsminger K, Geller J, Stanley J, Jaffe DJ: The Shortage of Public Hospital Beds for the Mentally Ill, Treatment Advocacy Center (TAC) white paper, 2008

[lxv] Interview with Torrey Fuller MD, Treatment Advocacy Center – 12/16/2016

[lxvi] Interview Dan Sewell, MD, President of the American Association of Geriatric Psychiatry – 12/20/2016

[lxvii] Interview Gregory Fritz, MD, President American Association of Child and Adolescent Psychiatry - 12/22/2016

[lxviii] Bastiampillai T, Sharfstein SS, Allison S. Increase in US Suicide Rates and the Critical Decline in Psychiatric Beds. JAMA. 2016;316(24):2591-2592. doi:10.1001/jama.2016.16989

[lxix] Torrey, E. F., Fuller, D. A., Geller, J., Jacobs, C., & Ragosta, K. (2012). No room at the inn: Trends and consequences of closing public psychiatric hospitals. Arlington, VA: Treatment Advocacy Center.

[lxx] Texas Health and Human Services Commission. [Online]. https://www.dshs.texas.gov/mhsa/SB1507/SB-1507.aspx

[lxxi] Texas Health and Human Services Commission. [Online]. http://www.dshs.texas.gov/legislative/2015/Rider83-state-hospital-long-term-plan.pdf

[lxxii] Texas Department of State Health Services Regulatory Services, Health Facility Information Report 12/20/16

[lxxiii] Addressing the Needs of Older Adults in Tarrant County. The Center for Health Development. Texas A&M Health Sciences Center School of Rural Public Health. May, 2009
[lxxiv] Eldercare Workforce Alliance. www.eldercareworkfroce.org/research/issue-briefs/
[lxxv] Chronic Conditions: Making the Case for Ongoing Care. February 2010. Robert Wood Johnson Foundation
[lxxvi] Alzheimers Association. Alzheimers Disease Facts and Figures. 2010
[lxxvii] IOM report. Retooling for an Aging America: Building the Health Care Workforce
[lxxviii] Alzheimers Association. Alzheimers Disease Facts and Figures 2010
[lxxix] Addressing the Needs of Older Adults in Tarrant County. ibid
[lxxx] PHI Fact Sheet: Who are Direct Care Workers. [Online]. DirectCareClearingHouse.org
[lxxxi] American Geriatric Society. Projected Need for Geriatricians. 2009.
[lxxxii] CSWE. Why Recruit Students to Gerontological Social Work.
[lxxxiii] American Nursing Association. [Online]. www.nursingworld.org/nursingshortage.
[lxxxiv] American Physical Therapy Association Research Department. 2010 Practice Profile Survey
[lxxxv] American Psychological Association. [Online] www.apa,org/pi/aging
[lxxxvi] American Association of Geriatric Psychiatrists. [Online] www.aagpga.org/advocacy/agenda
[lxxxvii] Addressing the Needs of Older Adults in Tarrant County. Ibid

[lxxxviii] HMA license access to AHA online database ("AHA DATA\VIEWER")

[lxxxix] Created by the 74th Texas Legislature in 1995, THCIC's mission is to collect data and report on health care activity to provide information that enables consumers to have an impact on the cost and quality of health care in Texas.

[xc] Zuckerman, Rachael, MPH, et al; *Readmissions, Observation, and the Hospital Readmissions Reduction Program*; New England Journal of Medicine, April 2016.

[xci] "Texas Comptroller Glenn Hegar Releases Biennial Estimate". Jan. 9 2017 News Release. Texas Comptroller of Public Accounts. [Online] https://www.comptroller.texas.gov/about/media-center/news/2017/170109-bre.php.

[xcii] "Evaluation of Uncompensated Care and Medicaid Payments in Texas Hospitals and the Role of Texas' Uncompensated Care Pool", prepared by Health Management Associates, August 2016 with correction, reissued on September 13, 2016. HHSC:[Online] https://hhs.texas.gov/sites/hhs/files/documents/laws-regulations/policies-rules/1115-docs/DY5/UC-Study-Report-091316-FINAL-corrected.pdf

[xciii] "Rocks in the Water: The Unseen Cost of Losing Federal Support for Uncompensated Care", Study by Texas Association of Community Health Plans, Texas Hospital Association, Texas Interfaith Center for Public Policy, and Texas Association of Business, Dec. 2016.[Online] http://texasimpact.org/sites/default/files/resource-files/Rocks_in_the_Water_Uncompensated_Care_Report.pdf

APPENDIX

Appendix 1: Stakeholder Interview List

As of December 1, 2016

Interviewee	Position	Organization	Status of Interview
Tarrant County Commissioners Court			
Roy Charles Brooks	Commissioner Precinct 1	Tarrant County Commissioners Court	Complete
Andy Nguyen	Commissioner Precinct 2	Tarrant County Commissioners Court	Complete
Gary Fickes	Commissioner Precinct 3	Tarrant County Commissioners Court	Complete
J.D. Johnson	Commissioner Precinct 4	Tarrant County Commissioners Court	Complete
Glen Whitley	County Judge	Tarrant County Commissioners Court	Complete
Tarrant County			
G.K. Maenius	County Administrator	Tarrant County	Complete
Jay Singleton	County Assistant Administrator	Tarrant County	Complete
Vinny Taneja	Public Health Director/Lead Staff	Tarrant County	Complete
JPS Health Network			
Ralph Waldo Emerson, Jr., Rev.	Board Chair	JPS	Complete
Charles Powell	Board Vice Chairman	JPS	Complete
Dorothy DeBose	Board Member	JPS	Complete
Roger Fisher	Board Member	JPS	Complete
Rex Hyer, MD	Board Member	JPS	Complete
Roy Lowry, DO	Board Member	JPS	Complete

Warren Norred	Board Member	JPS	Complete
Steve Montgomery	Board Member	JPS	Complete
D.T. Nguyen	Board Member	JPS	Complete
Trent Petty	Board Member	JPS	Complete
Charles Webber, BD	Board Member	JPS	Complete
Robert Earley	President, CEO	JPs	Complete
Bill Whitman	Exec VP, COO	JPS	Complete
Jeanna Adler	VP Finance	JPS	Complete
Sharon Clark	Exec VP, CFO	JPS	Complete
Lara Burnside	Chief Patient Experience Officer	JPS	Complete
Wanda Peebles	RN, Exec VP, CNO	JPS	Complete
Melinda Costin	VP, CIO	JPS	Complete
David Mendenhall	Chief Technology Officer	JPS	Complete
Scott Rule	VP, Chief of Staff	JPS	Complete
Merianne Roth	VP, Chief Strategy Officer	JPS	Complete
J.R. Labbe	VP, Communications/Community Affairs	JPS	Complete
Wayne Young	Sr. VP, Behavioral Health	JPS	Complete
Dr. Johnson	President/CEO	JPS/Acclaim Physician Group	Complete
Dianna Prachyl	Sr. VP, Community Health COO	JPS/Acclaim Physician Group	Complete
Nikki Sumpter	Sr. VP, Human Resources	JPS	Complete
Frank Rosinia, MD	Exec VP, Chief Quality Officer	JPS	Complete
Kathleen Whelan	VP, Operations	JPS	Complete

Ron Skillens	Sr. VP, Enterprise Risk Management	JPS	Complete
Kia Jackson	Director, SBHCs	JPS School-Based Centers	Complete
Virginia Chandlee		JPS (Non-physician Allied Health Ed)	Complete
Paul Celestin	Director	JPS Correctional Health	Complete
Jaime Pillai	VP, Support Services	JPS	Complete
Elected Officials			
Jeff Williams	Mayor of Arlington	City of Arlington	Complete
Mattie Parker, Chief of Staff for Mayor Betsy Price	Mayor of Fort Worth	City of Fort Worth	Complete
Patricia Ward	Executive Director	Mayor's Council	Complete
Mayor David Cook	Mayor	City of Mansfield	Complete
The Honorable Ron Jensen	Mayor	City of Grand Prairie	Incomplete
Gerald Joubert	Mayor	Forest Hill	Complete
Jim Griffin	Chairman (Mayor of Bedford)	Mayor's Council	Complete
Educational Affiliates			
Michael Williams, DO	President	University of North Texas Health Science Center (UNTHSC)	Complete
Stuart Flynn, MD	Dean -TCU-UNTHSC Medical School	Texas Christian University (TCU) / University of North Texas Health Science Center (UNTHSC)	Complete
Robert Goldstein, MD	Program Director, Department of Surgery, Baylor University Medical Center, Dallas	Baylor University Medical Center	Complete
Nursing and Allied health school leads			

Troy A. Moran Sr. MBA	Director, Department of Health Sciences (Allied health contact for TC)	Tarrant County College - Trinity River East Campus	Complete
De Ann Mitchell, PhD, RN	Director, Department of Nursing (Nursing contact for TC)	Tarrant County College - Trinity River East Campus	Complete
Shawn Tindell, MSN, RN	Program Manager, Undergraduate Clinical Facilities Coordination Clinical Assistant Professor NLN Center of Excellence in Nursing Education to Enhance Student Learning and Professional Development	University of Texas - Arlington (UTA)	Complete
Health Facilities/Organizations			
High Volume Hospitals			
Barclay Berdan	CEO	Texas Health Resources (THR)	Complete
Janice Whitmire	COO &Interim President	Baylor All Saints	Complete
Fowad Choudhry		North Texas Specialty Physicians	Incomplete
Clay Franklin instead (CEO of our Plaza Medical Center Ft. Worth)	CEO of the Plaza Medical Center Ft. Worth	HCA North Texas	Complete
John Phillips	President	Methodist Mansfield	Complete
Rick Merrill	CEO	Cook Children's Medical Center	Complete
Psych Hospitals			
Rick Harding	CEO	Sundance	Complete
Barbara Schmidt	CEO	Mesa Springs	Complete
Dwight Lacey	CEO	Milwood	Complete
Skilled Nursing/Rehab/Other			
Jay Grinney	President & CEO	HealthSouth	Incomplete

Matt Malinak	CEO	Kindred Hospital Fort Worth	Incomplete
Dr. Keith Argenbright	Director	Moncrief Cancer Center	Incomplete
Primary Care/Behavioral Health			
Kristyn Taylor	Administrator for the VA-Fort Worth Outpatient Clinic	Veteran Affairs North Texas Health Care System	Complete
Larry Tatum, MD	CEO	Texas Health Care	Incomplete
Dr. Liz Treviño	CEO	North Texas Area Community Health Centers (FQHC in Tarrant County)	Complete
Law Enforcement/Behavioral Health			
Susan Garnett	CEO	MHMR	Complete
Cedric Simon*	Chief Deputy Confinement	Tarrant County Sheriff's Department	Complete
Tim Randall*	Chief Deputy	Tarrant County Sheriff's Department	Complete
Kevin Kolbye*	Assistant Police Chief	City of Arlington	Complete
Kenn Bennett*	Mental Health Liaison	HEB (Hurst/Euless/Bedford) Police Department	Complete
Chief Moore*	Chief of Police	Hurst Police Department	Complete
Chief Brown*	Chief of Police	Euless Police Department	Complete
Ronnie Morris*	Assistant Chief of Police	City of Grand Prairie	Complete
Tracy Aaron*	Chief of Police	City of Mansfield	Complete
Chief Gibson*	Chief of Police	Bedford	Complete
Medicaid Managed Care Organizations			
Tisch Scott	President, Texas Medicaid Plan	Amerigroup	Complete
Patrina Fowler	CEO	Aetna	Complete

Robert Watkins	President - Cook Children's Health Plan at Cook Children's Health Care System	Cook Children's Health Plan (CCHP)	Complete
Selected Community Groups			
Heather Reynolds	President and CEO	Catholic Charities	Complete
Otis Thornton	Executive Director	Tarrant County Homeless Coalition	Complete
Father Stephen Jasso	Pastor	JPS Joint Council/ All Saints Catholic Church	Complete
Patsy Thomas	CEO	Mental Health Connection (MHC)	Incomplete
Philanthropy			
Amanda Stallings	Executive Director	JPS Foundation Board	Complete
Pete Geren	President and CEO	Sid Richardson Foundation	Complete
The Honorable Mike Moncrief	Former Mayor	Fort Worth	Incomplete
Mark L. Johnson	President	Carter Foundation	Incomplete
Businesses/Civic Organizations			
Dee Jennings	President	Fort Wort Metropolitan Black Chamber of Commerce	Complete
John Hernandez	President	Fort Worth Hispanic Chamber of Commerce	Complete
Bill Thornton	President and CEO	Fort Worth Chamber of Commerce	Complete
Michael Jacobson	President and CEO	Arlington Chamber of Commerce	Complete
W. Stephen Love	President and CEO	Dallas/Fort Worth Hospital Council	Complete
Brian Swift	Executive Vice President	Tarrant County Medical Association	Complete

Dr. Marcelo Cavazos	Superintendent	Arlington ISD	Complete
Dr. Susan Simpson Hull	Superintendent	GrandPrairie, ISD	Complete
Michael Steinert	Assistant Superintendent	Fort Worth, ISD	Complete
Ted Blevins	Executive Director	True-Worth (Homeless Groups)	Complete
Aaron Proctor	Director	Salvation Army, Arlington	Complete
Tillie Bergen	Executive Director	Mission Arlington	Complete
Matt Zavadsky	Public Affairs Director	MedStar	Complete
ADDITIONAL INTERVIEWS - External			
Stacy Marshall	CEO	Southeast Fort Worth Inc.	Complete
Carlos Walker	Director Historic Stop Six Initiative	Fort Worth ISD	Complete
Dr. Robert Munoz	Vice-president for Continuing Education Services	Tarrant County College	Incomplete
Carmen Castro	TCU Hispanic Alumni Alliance	TCU	Incomplete
Dr. Olga Hickman	Senior Field Trainer Analyst	Institute for Public School Initiatives The College of Education The University of Texas at Austin	Incomplete
Dr. Serafin Garcia	Director of Campus Strategic Planning and Effectiveness	Tarrant County College	Complete
Tony Martinez	Principal	North Side High School-Fort Worth ISD	Incomplete
Jeff Postell	President/Operations	Post L Group	Complete
Sabrina Norris Conner	Program Director, Healthy Community Collaborative Tarrant	MHMR of Tarrant County	Complete
SaJade Miller	Principal	Dunbar High School -Fort Worth ISD	Incomplete

Rodney White	Principal	Young Men's Leadership Academy	Incomplete
June Davis	Director Special Programs	Fort Worth ISD	Incomplete
Dr. Lonzetta Allen	President/Executive Director	Institute for Educational Excellence	Incomplete
Troy Moran, MBA	Director Health Sciences	Tarrant County Community College	Complete
DeAnn Mitchell, PhD, RN	Director Nursing	Tarrant County Community College	Complete
Shawn Tindel, MS, RN	Program Manager	University of Texas at Arlington	Complete
W. Steven Love	President and CEO	Dallas Fort Worth Hospital Council	Complete
Katherine Narumiya	Program Manager, Project Access	Tarrant County Medical Society	Complete
Dr. John Freese	Retired Physician		Incomplete
ADDITIONAL DELIVERY SYSTEM INTERVIEWS - JPS			
James Johnson, M.D.	President	Acclaim	Complete
Frank Rosinia, MD [Follow-up Meeting]	Exec VP, Chief Quality Officer	JPS	Complete
Virginia Chandlee	Manager, Clinical Experience	JPS	Complete
Dr. Andrey Manov	Internal Medicine Physician	JPS	Complete
Alan Podawiltz, DO	Chair of Behavioral Health	JPS	Complete
JoAnna Lueck, M.D.,	Physician, Emergency Medicine	JPS	Complete
Daniel Casey, MD	Program Director, Family Medicine	JPS	Complete

Jason Brewington, M.D.	Physician, Family Medicine	JPS	Complete

*Interviewed as part of a stakeholder group or round table.

Appendix 2: Focus Group Report

Tarrant County Focus Groups: Community-Based Organizations Leaders and Patients

Long-Range Planning for JPS Health Network, November 2016

Introduction

Health Management Associates worked with Tarrant County administrative staff and JPS Health Network leadership to identify community health advocates including members of the JPS Joint Council, as well as JPS Health Network users, including members of the JPS Family Advisory Council, to participate in focus groups. HMA developed a focus group guide including questions for the groups.

HMA conducted two focus groups on November 3, 2016 with a total of 20 participants. A diverse group of actively engaged stakeholders participated. The focus group discussions were transcribed word for word by a court reporter. HMA reviewed the transcripts and identified key themes from each focus group and combined them to identify themes and comments.

In no particular order, the themes include the following: JPS improvements are recognized and appreciated by the community; Interest in having JPS focus more on prevention and social determinants of health; Service expansion and creativity in service delivery is required to meet current and future needs; There is room to improve patient experience; JPS services should be more systematically promoted; Community partnerships are required to overcome challenges in meeting the needs of a diverse population; Behavioral health services and supports are a priority; More attention should be paid to caregiver support; Concerns about polypharmacy, overmedicating seniors and the cost of medications.

Overall Themes

A summary and analysis of the overall themes is presented below.

1-JPS Improvements Are Recognized and Appreciated by the Community

Community leaders and patients expressed satisfaction with JPS improvements under current leadership. Several patient anecdotes of “very good people inside of JPS.”

On the flip side, JPS is making such rapid improvements that it’s difficult for some community organizations to keep up with the changes. “There’s a new program, and then the leadership changes, or they call it a different name or it’s now in a different building…”

2-Interest in Having JPS Focus More on Prevention and Social Determinants of Health

Many of the community advocates agreed that the system needs to be reengineered to focus more on community, prevention and treatment of chronic conditions. They emphasized social determinants of health including healthy food, access to care, social networks, and transportation.

Focus on Prevention and Treatment of Chronic Conditions

Community members indicated need to focus on children and prevention of chronic conditions. Patients indicated that TVs in the waiting rooms could be used for prevention education for common chronic conditions. JPS involvement in food policy, food security, and nutrition education were all emphasized.

Patients concurred that an emphasis on prevention is what is needed. One patient suggested that "Like [JPS} has volunteers in the hospital, have volunteers come out and do community service for JPS [such as prevention education, promotion of JPS.]"

Community leaders discussed evidence-based programs to reduce risk, improve management of chronic conditions and reduce preventable emergency department visits and hospitalizations. There was consensus among community leaders to strengthen partnerships with community-based organizations to implement these types of programs. Some examples of programs JPS currently sponsors include: "A Matter of Balance" which is a fall prevention program, and Stanford University's "Chronic Disease Self-Management Program."

Community leaders indicated that JPS should be more pragmatic in the way they work with community-based organizations. For example, one participant said and others concurred: "Show us a list of 70 people with frequent preventable admissions, and let's figure out how we can work together to keep these individuals well managed in the community."

Public Health and Social Services

We need an entity that can "truly work in a public health mode; that can really coordinate something." Participants expressed disappointment that DSRIP waiver partnerships were not sustained. Community advocates lauded the Tarrant County Public Health Department: "We have a great public health department. There needs to be more synergy between JPS and the Health Department."

A community leader shared that he believes there's "a huge chasm between medical care and social services. All the money is on the medical care side, and I sense a kind of a condescension toward the social service community by the medical community." Others concurred and added that "JPS is positioned to be a champion for the integration of medical care and social services in Tarrant County."

Transportation

Transportation is a huge barrier to healthcare in the county. Community advocates indicated: "People have JPS Connection but they go to free clinics because they don't have transportation to the JPS clinic."

A patient indicated that the Cancer Center needs transportation; "we have patients that do not have transportation to get their chemo or radiation." A community leader indicated that a patient with diabetes may need to have a test this week and a doctor's appointment the following week, and they have to choose between the two. "Because we don't have the transportation, we need that to happen in one visit." "It would be nice to have all the services, your one-stop shop as much as possible…"

Patients emphasized that all the departments at JPS need to know transportation options and inform patients about them. "When you ask [about transportation in some departments] at the hospital, [staff respond} 'I don't know.'"

3-Service Expansion and Creativity in Service Delivery is Required to Meet Current and Future Needs

Current access issues

Community leaders and patients indicated the need to expand emergency department capacity. "Not only are people in the emergency room halls, they stay there sometimes for two days or longer. That's just not acceptable in health care."

Patients indicated that the call center has very long wait times and needs to be addressed.

Patients also indicated difficulty getting into the JPS system and wait times for appointments. "And then once you do get into the system, you wait another two months to see a doctor."

One patient indicated that many are in chronic pain and there is insufficient capacity in the pain management clinic.

Other patient shared an anecdote about a relative with a "new diagnosis of life-threatening neurological disease and neurology did not have an appointment for three months"; patient indicated that there needs to be better triage and expanded specialty care capacity.

JPS footprint

There was agreement that JPS needed to continue to expand satellite sites – new clinics and potentially an additional hospital. "Not everyone can come to Fort Worth." "I think health care needs to be taken into the community to the people." There were advocates for acute care facilities in the far North and Northeast. "There's no reason for there to be just one acute facility in a central location. You can't get here. It's just too expensive to get here."

"We need to look at different ways of delivering care that is easily accessible to people in their communities." Examples shared included using school-based clinics as multi-generational clinics, or the expansion of pharmacies with nurse practitioners.

4-There is Room to Improve Patient Experience

Patients cited "communication both within and between different departments" and the "lack of standardization" in the communication procedures of hospital departments is confusing and problematic. Some specialty departments do not return calls.

A patient described trying to be seen in a JPS dental clinic. The clinic opens at 8am; several people are there prior to 8am since they do not take appointments. Patients sign in at 8am but no one knows who was there first which creates a chaotic environment with people not knowing whether they will be seen that day.

Community leaders and patients complained of difficulty navigating the JPS system. One patient suggested having more volunteers at stations to help give directions within the hospital, or having volunteers demonstrate how to use the patient portal, 'My Chart.'

Patients suggested having a "secret shopper" to assess service quality and report back to leadership. One patient mentioned that JPS has a patient experience leader that has people in waiting rooms report to her on how they were treated by the front desk staff.

5-JPS Services Should Be More Systematically Promoted

One patient suggested the use of public service announcements and an advertising firm to promote JPS: "Most people do not know that they have a school-based clinic and some people in the communities in which they live do not know that there's a clinic located there."

Another patient who lives in a senior citizen residence indicated that she "arranged to have someone from JPS come out to speak to our seniors about the different things JPS offers and a lot of them was, 'oh, we didn't know that."

6-Community Partnerships Are Required to Overcome Challenges in Meeting Needs of a Diverse Population

Partnership with Diverse Communities

Community advocates agreed that JPS needed to "broaden [their] strategy to include more partnerships with diverse communities." Patient emphasized "community outreach" and "more focus groups." A community advocate suggested there be "liaisons or ombudsman to JPS from [the diverse] communities throughout the County."

One community leader indicated: "We have over 350 Asian physicians that have come together and we have to basically service our own community because we don't know who else and where else to go. Our physicians donate their time and money for all of the vaccines."

Community advocates and patients emphasized the need to ensure culturally and linguistically appropriate services. "Health care providers need to speak in languages that everyone can understand."

Treating the Undocumented

Several patients indicated that "if there are no legal obstacles, the County should serve undocumented residents." A compelling case was made by several patients to cover the undocumented. "The undocumented are working and educating their children." "They pay taxes." "We want to keep them healthy [so they are not using the emergency room for their care.]" Community advocates indicated that a network of free clinics are struggling to manage undocumented patients and reduce preventable visits to the JPS emergency department.

7-Behavioral Health Services and Supports are a Priority

A patient indicated the need for more support and empowerment opportunities for newly diagnosed people with behavioral health issues.

A community advocate indicated that behavioral health conditions carry a "quiet stigma" in the Asian community that needs to be addressed. Patients also indicated the need for efforts to reduce stigma and better promote existing behavioral health services.

Patients also indicated a need for increased capacity of mental health services – both outpatient and inpatient.

8-More Attention Should Be Paid to Caregiver Support

Agreement on the need to support caregivers. The African American community was highlighted here. "Dementia is increasing; we need health–related services for caregivers of people with dementia such as respite to keep people in the community and delay premature nursing home placement." Support the "Care Act" that focuses on assisting caregivers during transitions of care.

A community leader asked: "How can we mirror a family for post-hospital patients [many of whom are elderly] who don't have a family?"

9-Concerns about Polypharmacy[2], Overmedicating Seniors and the Cost of Medications

Community leaders identified polypharmacy as an issue, with emphasis on the overmedication of seniors. Meals on Wheels runs a program called "Home Meds" where they use screening questions to reduce overmedication of seniors.

Community leaders indicated: prescriptions continue to be written by some providers seemingly without regard to cost. "JPS should be active in keeping prescription costs down, including involvement in policy around prescription drug costs."

Appendix 3: Notes by Community Forum

Community Forum 1: Fort Worth

Commenter 1

- Not sufficient capacity due to population growth
- Needs a single emergency department focused on behavioral health
- Commenter's family member has psychotic episodes and when the commenter has brought the family member to JPS, they have difficulty accessing care due to the design of the facility. For example, they must first park in the parking lot, then walk with their family member to the waiting room and wait to be seen.
- The emergency department is now often at capacity and that makes it difficult for someone with BH issues
- They have waited up to 24 hours for a psych. evaluation
- Trinity Springs needs additional resources
    - Commends staff for diligence
    - Trinity Springs may already be at capacity
    - If it is at capacity, the patient is referred to another facility which may be further away and poses an additional risk due to extended travel
    - Police department is on 10th floor which can also pose a risk
    - Likes Trinity Springs but the facility hasn't kept up with growth

Commenter 2

- MHMR employee
- Capacity issues from psych emergency room, Trinity Springs, State Hospital
- Would like to increase beds (both inpatient and outpatient)
    - This would help reduce the escalation of BH/psychotic episodes

Commenter 3

- JPS is doing well with partnerships
- Outreach to older adults is good and hopes that this will continue

Commenter 4

- Aging population needs creative outreach such as flyers and church groups, to get input for JPS from smaller, informal groups
- Smoking is an issue especially for lower income individuals and the African American community
- Transportation is an issue

- How do we get people to the hospital? They have to go all the way downtown to the hospitals
- Need (local) clinics that are available beyond 8-5 and on weekends—maybe every other Saturday and Sunday mornings

Community Forum 2: Arlington

Commenter 1

- With NAMI—self-advocate for BH
- Cites UCLA's Resnick Neuroscience and Behavioral Health Center as examples
  - Don't like the antiquated term "psychiatric hospital"
  - Prefer "neuro-psychiatric" or "neuroscience and behavior"
- Need young adult and early intervention (BH) for those 18-26
  - JPS has a high readmission rate
- Youth program (BH)
  - Improved health notes recording
  - Need sharing capacity with other providers
- Need to designate an entrance for people experiencing a psychotic episode
- Need proper admissions training for staff so that they can accommodate these patients

Commenter 2

- Supports NAMI's statements
- There on behalf of Rep. Chris Turner
- JPS needs to expand scope of services for mental health
- Provide more support for families
- Training and collaboration with school districts

Commenter 3

- Ambassadors for Aging Well group leader
- Would like to see an increased use of telemedicine services
- Reimbursements to be the same for a telemedicine visit as a face-to-face
- Especially for monitoring chronic conditions (diabetes, COPD)
- Would also be useful for stroke victims in the ER—could use telemedicine for fast responses from neurologists

Commenter 4

- Administrator of Caring Place Clinic in Mansfield

- Free clinic for uninsured and insured
- JPS pediatrics is half of business
- Would like for more adult clinics because commenter has seen a lot of adults who go to children's clinic for care but they can't be seen there
- Would also like to see more pediatric clinics because the one in Mansfield is always very busy

Commenter 5

- NAMI
- Would like to see more BH –early/ YA intervention
- Her son has bi-polar disorder
- Thankful for JPS staff who helped her son by extending his hospital stay; as a result, he is doing much better now
- Sometimes JPS didn't have enough rooms for her son and "he suffered"

Commenter 6

- MHMR—Medical Director for Tarrant County
- JPS plays a critical role
- Concerned with population growth and capacity for Mental Health services
- No place for services for psychiatric care
- Thinks they are doing a phenomenal job

Commenter 7

- Teacher at Crowley Middle School
- Appreciates JPS for all it does for his students; Concerns are outlined below
- Transportation
    - It is hard to get to central location from southeast Tarrant County (SE TC)
    - Have to get a ride to the bus stop, ride the bus, ride the bus back, get a ride home from the bus stop
- No clinics or surgery centers in SE TC
- No free-standing centers in SE TC serving the general public
    - Only have 1 clinic in Mansfield that serves students and their families maybe twice per week
    - General public doesn't get info on JPS services
- Infant mortality rate
    - Is highest in the county in SE TC but no well-baby or parental services

- Need better outreach and marketing
- Services need to be more accessible for people accessing care
- Mission statement doesn't mention serving the indigent
- Work with local transportation to facilitate transportation to medical facilities

Commenter 8

- NAMI
- Daughter has a mental illness
- Concerned with population growth—DFW is big and getting bigger
- JPS is only psych emergency department in area and 1 in 5 adults experience mental illness each year
- Need BH for youth
- Concerned about population growth and aging

Commenter 9

- First Methodist Church in Mansfield
- Concerns include:
    - Mental Health issues
    - Transportation
- SE TC in need of more clinics and maybe even emergency department because southern end to downtown is extremely difficult given time and lack of transportation
- Aging population will need more care

Commenter 10

- Works at new charity, Colorful World Foundations, which is focused on outreach to the Asian population for health and behavioral health services
    - Specifically, hepatitis B & C and diabetes
- Stressed culture-specific obstacles to seeking care and resulting need in this population
- Would like to partner with JPS for care and outreach

Commenter 11

- City Council member from Kennedale
- Kennedale has an aging population and fixed income; the senior center there would be a good potential for a JPS clinic
- Need a school clinic
- Population is small now but expected to grow quickly

- Tarrant County Community College has capacity for a clinic (maybe in a temporary building) as well
- Cited a personal experience with a TCCC student who experienced a behavioral health episode in the classroom. When the commenter urged her to seek care, the student replied, **"I don't have insurance or a car so I couldn't get there even if I wanted to."**

Commenter 12

- Executive Director of Dental Health Arlington
- JPS has done a great job providing dental health care
- People can't get care at ER for dental care
- Suggests creating a local coalition of dental clinics to identify where specific services are provided which could provide better coordination of care and improved access for patients (who would know which clinic to visit)

Commenter 13

- NAMI; also a registered nurse
- Has daughter with a mental illness who is also a cancer survivor
- Emphasizes that crisis intervention for mental health should be a high priority

Commenter 14

- Commenter has a family member with schizophrenia
- Thinks there should be a focus on behavioral health
- Focus on those who can't afford care
- Focus on preventative care

Commenter 15

- Goes to JPS board meetings and thinks that they're "top-notch"
- There are diverse needs and desires of the community but it all needs to be paid for somehow
- JPS' budget and spending has increase drastically in the past 20 years
- Believes the review should look at ways to reduce the spending and the budget
- They have very little waste but can't support the people who need care with "the things they're doing"

Commenter 16 (2nd time speaking)

- NAMI
- Thinks that JPS needs
    - More beds
    - Bigger hospital

    - More support
    - More collaboration across providers
    - Need love and support so JPS can serve needy community
    - Outpatient clinics
- Emphasized importance of teaching hospital for the community

Commenter 17

- MHMR Tarrant County—Criminal Justice and Continuity of Care
- Capacity issues for behavioral health
    - State Hospital also at capacity, so folks at JPS who need a longer inpatient stay have nowhere to go and people coming in have nowhere to go
- It's not a luxury—it's a necessity to have more in-patient beds
- JPS does well working with police

Commenter 18

- Talking a lot about downtown hospital but people in other parts of Tarrant County need help
- **"Everyone in Tarrant County pays for this hospital and everyone in Tarrant County should benefit from this hospital."**
- Transportation is an issue
    - It's also important for families to be close to patients
- Need ambulatory care for needy who can't access services downtown

Commenter 19

- MHMR Connection—SE TC; Directs child and adolescent clinic with JPS
- Transportation is a big issue
    - **"Our families can't get to downtown Fort Worth."**
- Aging population is also a concerns
- Urges that they don't forget SE TC
- There's also a mental health need and family members need to be close to patients

Commenter 20 (second time speaking)

- Shares that she learned when JPS talked about having a bond election, that people who cannot be served by JPS due to capacity issues are required to be sent to a private hospital and taxpayers pay the going market rate for the care of those individuals

Commenter 21

- Public/Private partnerships

- JPS has valuable role but there are other entities in the community that can be tapped into and utilized more efficiently

Community Forum 3: Lake Worth

Community Forum 3 had a slightly different format than the previous forums. The beginning of the forum followed the familiar format but towards the end there was more prompting by the presenter. Any prompting questions have been provided.

Commenter 1

- MedStar—Northwest Fort Worth
- MedStar and JPS collaboration to help navigate care and facilities
- Feeding into ER and serving no matter what isn't the best way to provide care
- They focus on navigation of patients through health care
- Need to expand provider network; clinic network
- Need to provide better coordination of care
- Outreach about services
- Build upon the BH infrastructure
- Need outpatient services

Commenter 2

- MHMR of Tarrant County—Correctional Facility
- JPS inpatient psychiatric beds are beyond capacity
    - **"We're at a critical place now"**
- JPS does a good job working with police offices—good for public health

Commenter 3

- What you're really talking about is transportation
- **"If you're not getting them there, you can't treat them."**
- We're never going to have a centralized bus system in Tarrant County so need local care

Commenter 4

- MHA—Mental Health America
- JPS Connection
    - Leaves people who are homeless without an option
    - Need to find a way for the people who need assistance/need the care to access care even if they don't qualify for ACA coverage

What is JPS doing well?

- Resource for other counties as well
- Trauma center
    - Provided good care for someone's mother who fell

Commenter

- Lack of understanding about JPS providing care beyond ER—people don't know that they don't have to wait to seek care
- Transportation is an issue

Commenter

- JPS has a culture of positivity

Commenter (GK)

- People don't realize that the importance of the trauma center at JPS
- For a long time, people had to go all the way to Parkland which is far away and can be critical for someone during the "golden hour" when immediate care can be the difference between life and death

Commenter (MedStar)

- Community clinics are done well
- Located well but are at capacity
- By charter the undocumented cannot receive care
- We need a safety-net for them as well

Commenter

- JPS does education program well—commenter has friends who have gone through the residency there and have stayed and opened practices in Fort Worth

Commenter

- Partial hospitalizations for BH are done well
- Homeless can also walk to these programs which reduces the issues caused by lack of accessible transportation

What can JPS do better?

Commenter (Dr. Steve Simmons; former Chief Resident at JPS for 11 years)

- Transportation
    - Remembers an older lady who was brought into the ER at JPS via ambulance so that she could talk about a rash because she had no other transportation options
- Specialty programs are very good

  - If you increase services in community, and if you have to expand to provide more primary care, residents are a good cost-effective way to do so

- Expanding into community and expanding locations could help reduce the patients who are using the higher level/higher cost services that they don't necessarily need
- Types of residency to be expanded:
  - When he was at JPS, the primary care residency was the largest in the nations (thinks this is still the case)
  - Having residents out in clinics will need to happen if you want to relieve ER utilization
  - **"One of the best bangs for your buck, so to say, are the resident physicians."**
  - Need urgent care with extended hours nearby
- Long wait times for follow-up care, so sometimes patients will go back to the ER rather than wait the weeks until their follow-up appointment

What are the other providers that are most needed besides primary care? Where are the shortages of personnel that you see?

Commenter

- JPS does a good job with psychiatrists
  - There is a shortage of psychiatrists statewide
  - Any expansion of that would be positive

Commenter

- Transportation limitation
  - Need creative solutions; cites English system of sending testing kits to patients as a preventative measure which could help public health and reduce the transportation limitation

Community Forum 4: Hurst

Commenter 1

- VP NAMI Tarrant County
- Need improved psychiatric facility for growing population in Tarrant County
- Young adult early intervention and pediatric care is needed
- Outsourcing psychiatric patients to private hospitals doesn't solve bed shortage

Commenter 2

- Had a family member who they had to commit to JPS BH wing last night
- Concerned about high costs for immediate access to care for behavioral health services
- Capacity issues are especially important for behavioral health patients because if these individuals don't receive care, it could lead to the individuals conducting self-harm

- Had a negative experience with the patient experience and transfers from the clinic to the "10th floor"/behavioral health wing

Commenter 3

- Need to focus on how to reduce the burden of chronic diseases in the population such as diabetes, heart disease
- Need to re-examine how they manage people's wounds; concerned with payments for wound treatment are not consistent with the cheapest and most effective patient outcomes

Commenter 4

- Changes from the new administration are forthcoming
- Believes that there is a portion of the population that needs assistance with health care but the federal government should leave everyone else alone
- Hopes that JPS' changes reflect the will of the people of Tarrant County

Commenter 5

- Member of criminal justice commission at TCCC
- There was a study with A&M to focus on issues in the criminal justice system
    - One portion of that study was mental health
- There is a real need to identify some kind of new process to divert people who need mental health care out of the jails and into a professional mental health environment
- No beds for psychiatric care—don't have capacity to handle the intake
- Some individuals have been a threat to the public/posed a danger to the public and you look back and they've been through the system before
- Nothing about off-setting revenues or cost-saving—JPS is not operationally efficient
    - What cost-saving is there from a new facility that is more functional?

Commenter 6

- Hospitals are also not prepared to take these folks with psychiatric issues
- Nurses at other hospitals don't have training to take care of those citizens with mental health issues until they can be transferred to JPS
- There's an urgent need for more beds/training because there's an increase in utilization of psychiatric care
- Thinks this is likely one of the top needs for all emergency rooms in the county
- Hopes JPS will reach out for partnerships with the other hospitals
- Expressed support for JPS and desire to help support them

Commenter 7

- Financial aspect of addressing these needs
- Has personal experience with JPS—believes they do wonderful work despite difficult circumstances—commends all that they do
- Acknowledges that the population is growing and that some changes will need to be made
- Calls for fiscal responsibility when it's time to make those decisions
- System set up for the poor and indigent in the county and not meant to compete with Baylor

Commenter 8

- Euless resident
- Has no experience with the health network
- Curious about 20% of uninsured patients
    - Is there any way to see what percentage of this population doesn't buy insurance because they "know there's a safety valve"?

Commenter 9 (NAMI representative/Commenter 1)

- Supports the need for a criminal justice initiative that focuses on mental health
    - Will need more beds to do this
- Emphasized the need for training for mental health diversion
    - It's a safety issue
    - Entrance to the psychiatric hospital facility is dangerous and so people who are seeking psychiatric care are sometimes arrested

Commenter 10 (Commenter 2)

- Sometimes you could be working/the working poor but your insurance is too high to purchase for yourself
- Was born at JPS, worked there, and was injured on the job so she has received care there
- **"Health care should be a right to everyone"**
- You need to make sure it's affordable and accessible
- Some people are scared to go to JPS and get care because they still have other things they have to pay for like their car insurance, their mortgage, feeding their children

Commenter 11

- Recording malfunction

Commenter 12

- Works at MHMR
- Supports the need for more psych beds

- One thing JPS is doing well is working with local law enforcement and JPS has made it easier for law officers to drop off people who need care
    - Make it easy for officers, so that it's an incentive for officers to go there when needed

Commenter 13

- Is part of a non-profit that tends to the needs of seniors
- There's a growing population of seniors
    - Will need additional assistance and resources
- Would like this population to get some consideration going forward

Commenter 14

- Recording malfunction

Commenter 15

- Recording malfunction

Commenter 16

- Works for Cigna for STAR+ (Medicaid for Aged, Blind and/or Disabled population)
- Serves on Joint Council Committee at JPS
- What JPS is doing well
    - Robert Early has made himself accessible to the members of the committee regarding specific issues in the community
- Not enough community outreach
    - The representation at the community forum shows this
    - There's a very diverse community in Tarrant County but you don't see it right now—the schools/PTA aren't there, Hispanic community isn't there, the Vietnamese community isn't there
    - The council is very diverse
- JPS does a lot for the community
- Was a social worker and people didn't used to want to go to JPS; but it's changed and has opened the community's eyes and people appreciate what JPS does now

Commenter 17 (NAMI Representative/Commenter 1)

- Fiscal responsibility is important
- The beneficiary is the public
- Must take into consideration how expensive it is to house a person in the local jails versus of providing behavioral health treatments which allow people to return to society

Commenter 18

- Indirect contact with JPS—His younger brother went to JPS and was diagnosed with liver damage, untreated diabetes and nerve damage as a result. His health had deteriorated so much he was effectively indigent because he could no longer work
- Says JPS has done well helping his brother with some of his conditions and stabilizing others
- Has lived a long time between poverty and working while he bought himself catastrophic insurance that he was scared to use because of the cost
- Disturbs him that JPS is looking at some of its expansions to compete with private industry
- JPS was put together to care for the indigent and for trauma
- You're looking at needs first and then at funding
- Needs, efficiency and funding need to work together
- Expressed concern that those receiving care at the hospital who are indigent received better care than his family could get with their insurance

Commenter 19

- Recording malfunction

Commenter 20

- Recording malfunction

Commenter 21 (Commenter 2)

- Care is not free—What they do have is flexibility
- No meeting in South Campus or Diamond Hill—where communities are majority African American and Hispanic—there should be more and the people who go to JPS are the ones who should be providing input
- **"It has been a blessing but at the same time there are barriers there"**
- She's paying taxes, too
- People go there because they are sick
- Appreciates all they do
- Thinks there are other ways to cut money—taking away excessive bandages and signs
- Keep good employees by getting the money to them

Commenter 22

- Recording malfunction

Commenter 23

- A thank you to Commissioner Andy Nguyen who pushed for the public meetings

Commenter 24

- Provided suggestion that if these kinds of meetings happen in the future is it possible to work with the city to provide notifications—perhaps through the utilities company

Centered in Care
Powered by Pride

1500 South Main Street
Fort Worth, Texas 76104

phone 817-702-3431

JPShealthnet.org

Appendix 4: JPS Connection Program Description

JPS Connection program

As Tarrant County's community health network, JPS Health Network wants to make sure all county residents have a medical home to keep them healthy.

JPS offers four JPS Connection programs that provide affordable access to doctor appointments, specialized care and prescriptions for Tarrant County residents who qualify:

JPS Connection: Provides assistance to patients without health insurance

JPS Connection Homeless Program: Provides assistance to patients without health insurance who are experiencing homelessness

JPS Connection Supplemental to Medicare: Provides assistance to patients with Medicare Part A&B or a Medicare Plan contracted with JPS Health Network

JPS Connection Supplemental to Insurance: Provides assistance to patients with a primary insurance plan that is contracted with JPS Health Network.

JPS Connection is the payor of last resort, meaning if you are eligible for state, federal or pharmaceutical assistance programs, you need to seek that assistance first. If you qualify for health insurance under the Affordable Care Act, you must sign up for insurance before you apply for JPS Connection. A JPS Eligibility and Enrollment specialist can help you apply for the appropriate programs during a screening appointment.

JPS Connection offers retroactive eligibility when there is an unpaid medical bill for a service provided within (3) three full months immediately before the month of application providing the individual meets all the eligibility criteria. An applicant does not need to be eligible in the month of application (or current month) to be eligible for one or more months of retroactive eligibility.

It is the responsibility of JPS Connection members to notify the Eligibility & Enrollment department of any change in residence, household income, employment, family size or insurance coverage. Call 817-702-1001 to report status changes. Failure to do so will cause a suspension of membership benefits.

JPS Connection Minimum Requirements

- Tarrant County resident
- U.S. citizen, naturalized citizen or legal permanent resident
- Pursue all available health insurance options prior to receiving JPS Connection assistance

Centered in Care
Powered by Pride

1500 South Main Street
Fort Worth, Texas 76104

phone 817-702-3431

JPShealthnet.org

- Meet income guidelines: 250% of federal poverty income levels, adjusted according to family size

Outreach

JPS participates in a number of county-wide health events every year at which JPS has representatives from Eligibility and Enrollment available to speak with participants about JPS Connection. Onsite screening is also provided monthly to different community partners throughout Tarrant County.

How to apply

1. Fill out an application – available for download at jpshealth.org or at any JPS Eligibility & Enrollment office
2. Include documentation:

- Picture ID for all applicants (Government Issued, School and Work)
- Immigration Documentation (Resident Alien Cards, Passports, Certificate of Naturalization, I-94, Birth Certificates)
- Birth Certificates for all child dependents
- Shelter Letter, Approved Agency Residence Letter or Valid Homeless Scan Card
- Agency award letters (Food Stamps, TANF, Housing, CHIP/Medicaid, RSDI, SSI, etc.)
- Completed Application (Incomplete applications are not be accepted)
- Application signed and dated by applicant and spouse
- Complete and sign form 4506T
- Review, initial and sign the Membership Responsibility Form
- Homeowners, self-employed, or clients receiving Social Security must provide a current 30-day bank statement for all accounts.
- Proof of Income for all household members (check stubs, award letters, financial aid refund, self-employment forms, etc.)

3. Submit application and required documents

Email: enroll@jpshealth.org

Fax: 817-702-3834
Mail: JPS Enrollment & Eligibility Center
1325 S. Main Street, Fort

Appendix 5: Tarrant County Demographics – Quick Facts

People	Tarrant County, Texas	United States
Population		
Population estimates, July 1, 2015, (V2015)	1,982,498	321,418,820
Population estimates base, April 1, 2010, (V2015)	1,809,531	308,758,105
Population, percent change - April 1, 2010 (estimates base) to July 1, 2015, (V2015)	9.6	4.1
Age and Sex		
Persons under 5 years, percent, July 1, 2015, (V2015)	7.2	6.2
Persons under 5 years, percent, April 1, 2010	7.9	6.5
Persons under 18 years, percent, July 1, 2015, (V2015)	26.9	22.9
Persons under 18 years, percent, April 1, 2010	28.0	24.0
Persons 65 years and over, percent, July 1, 2015, (V2015)	10.5	14.9
Persons 65 years and over, percent, April 1, 2010	8.9	13.0
Female persons, percent, July 1, 2015, (V2015)	51.1	50.8
Female persons, percent, April 1, 2010	51.0	50.8
Race and Hispanic Origin		
White alone, percent, July 1, 2015, (V2015) (a)	74.7	77.1
White alone, percent, April 1, 2010 (a)	66.6	72.4
Black or African American alone, percent, July 1, 2015, (V2015) (a)	16.4	13.3
Black or African American alone, percent, April 1, 2010 (a)	14.9	12.6
American Indian and Alaska Native alone, percent, July 1, 2015, (V2015) (a)	0.9	1.2
American Indian and Alaska Native alone, percent, April 1, 2010 (a)	0.7	0.9
Asian alone, percent, July 1, 2015, (V2015) (a)	5.4	5.6
Asian alone, percent, April 1, 2010 (a)	4.7	4.8
Native Hawaiian and Other Pacific Islander alone, percent, July 1, 2015, (V2015) (a)	0.2	0.2

Native Hawaiian and Other Pacific Islander alone, percent, April 1, 2010 (a)	0.2	0.2
Two or More Races, percent, July 1, 2015, (V2015)	2.3	2.6
Two or More Races, percent, April 1, 2010	3.0	2.9
Hispanic or Latino, percent, July 1, 2015, (V2015) (b)	28.2	17.6
Hispanic or Latino, percent, April 1, 2010 (b)	26.7	16.3
White alone, not Hispanic or Latino, percent, July 1, 2015, (V2015)	48.6	61.6
White alone, not Hispanic or Latino, percent, April 1, 2010	51.8	63.7
Population Characteristics		
Veterans, 2011-2015	112,758	20,108,332
Foreign born persons, percent, 2011-2015	15.8	13.2
Housing		
Housing units, July 1, 2015, (V2015)	747,684	134,789,944
Housing units, April 1, 2010	714,803	131,704,730
Owner-occupied housing unit rate, 2011-2015	60.9	63.9
Median value of owner-occupied housing units, 2011-2015	141,000	178,600
Median selected monthly owner costs -with a mortgage, 2011-2015	1,478	1,492
Median selected monthly owner costs -without a mortgage, 2011-2015	541	458
Median gross rent, 2011-2015	913	928
Building permits, 2015	8,984	1,182,582
Families and Living Arrangements		
Households, 2011-2015	673,737	116,926,305
Persons per household, 2011-2015	2.81	2.64
Living in same house 1 year ago, percent of persons age 1 year+, 2011-2015	82.7	85.1
Language other than English spoken at home, percent of persons age 5 years+, 2011-2015	28.0	21.0
Education		
High school graduate or higher, percent of persons age 25 years+, 2011-2015	85.1	86.7

Bachelor's degree or higher, percent of persons age 25 years+, 2011-2015	30.3	29.8
Economy		
In civilian labor force, total, percent of population age 16 years+, 2011-2015	68.6	63.3
In civilian labor force, female, percent of population age 16 years+, 2011-2015	61.3	58.5
Total health care and social assistance receipts/revenue, 2012 ($1,000) (c)	11,276,184	2,040,441,203
Total retail sales per capita, 2012 (c)	15376	13443
Transportation		
Mean travel time to work (minutes), workers age 16 years+, 2011-2015	26.5	25.9
Income and Poverty		
Median household income (in 2015 dollars), 2011-2015	58,711	53,889
Per capita income in past 12 months (in 2015 dollars), 2011-2015	29,058	28,930
Persons in poverty, percent	13.1	13.5
Businesses	Tarrant County, Texas	UNITED STATES
Total employer establishments, 2014	39,633	7,563,085
Total employment, 2014	756,293	121,079,879
Total annual payroll, 2014 ($1,000)	35,785,439	5,940,442,637
Total employment, percent change, 2013-2014	3.7	2.4
Total non-employer establishments, 2014	158,872	23,836,937
All firms, 2012	173,389	27,626,360
Men-owned firms, 2012	89,352	14,844,597
Women-owned firms, 2012	66,250	9,878,397
Minority-owned firms, 2012	71,133	7,952,386
Nonminority-owned firms, 2012	96,361	18,987,918
Veteran-owned firms, 2012	16,470	2,521,682
Nonveteran-owned firms, 2012	149,220	24,070,685
Geography	Tarrant County, Texas	UNITED STATES

Population per square mile, 2010	2094.7	87.4
Land area in square miles, 2010	863.61	3,531,905.43

Source: U.S. Census, QuickFacts.

The vintage year (e.g., V2015) refers to the final year of the series (2010 thru 2015). Different vintage years of estimates are not comparable.

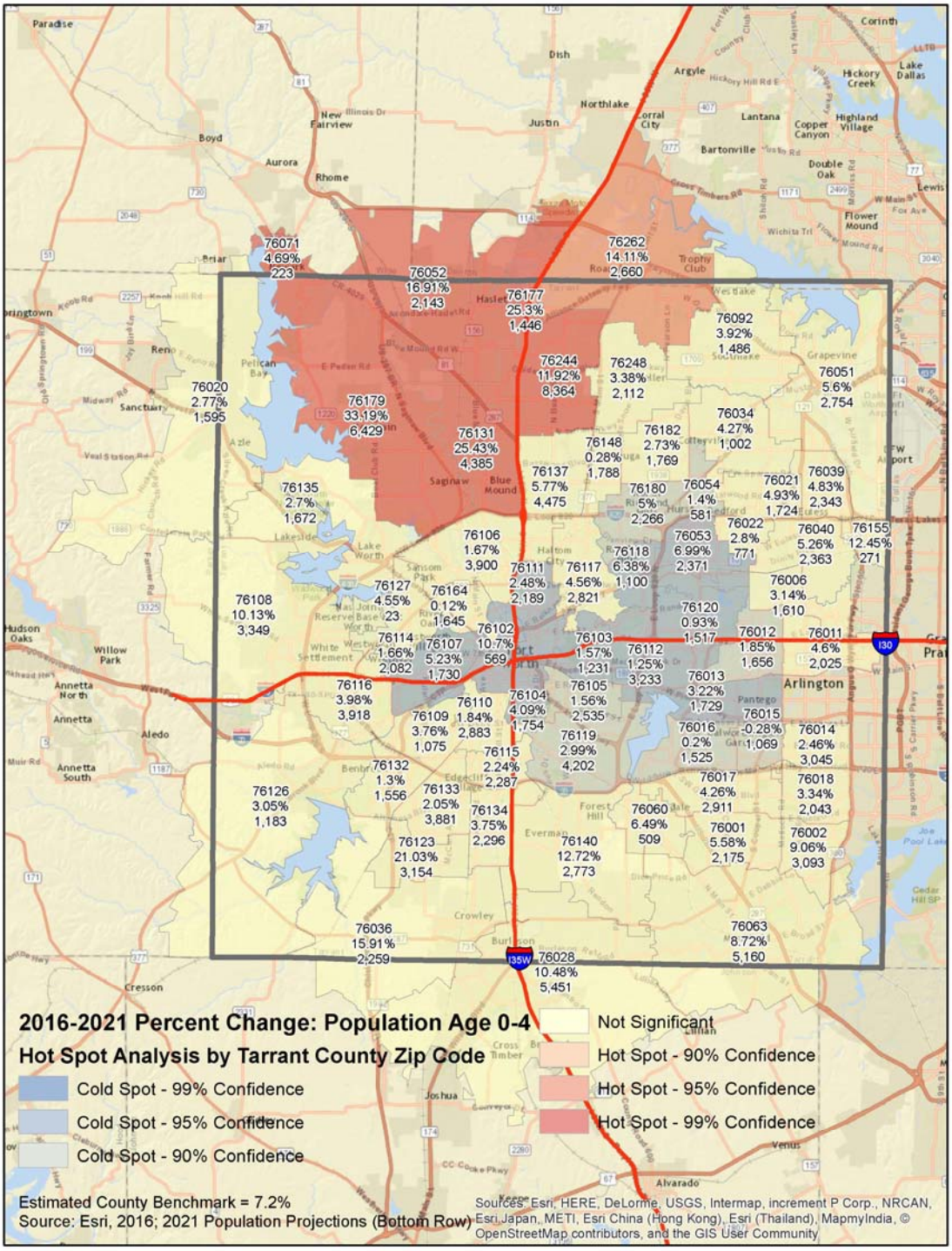
(a) Includes persons reporting only one race

(b) Hispanics may be of any race, so also are included in applicable race categories

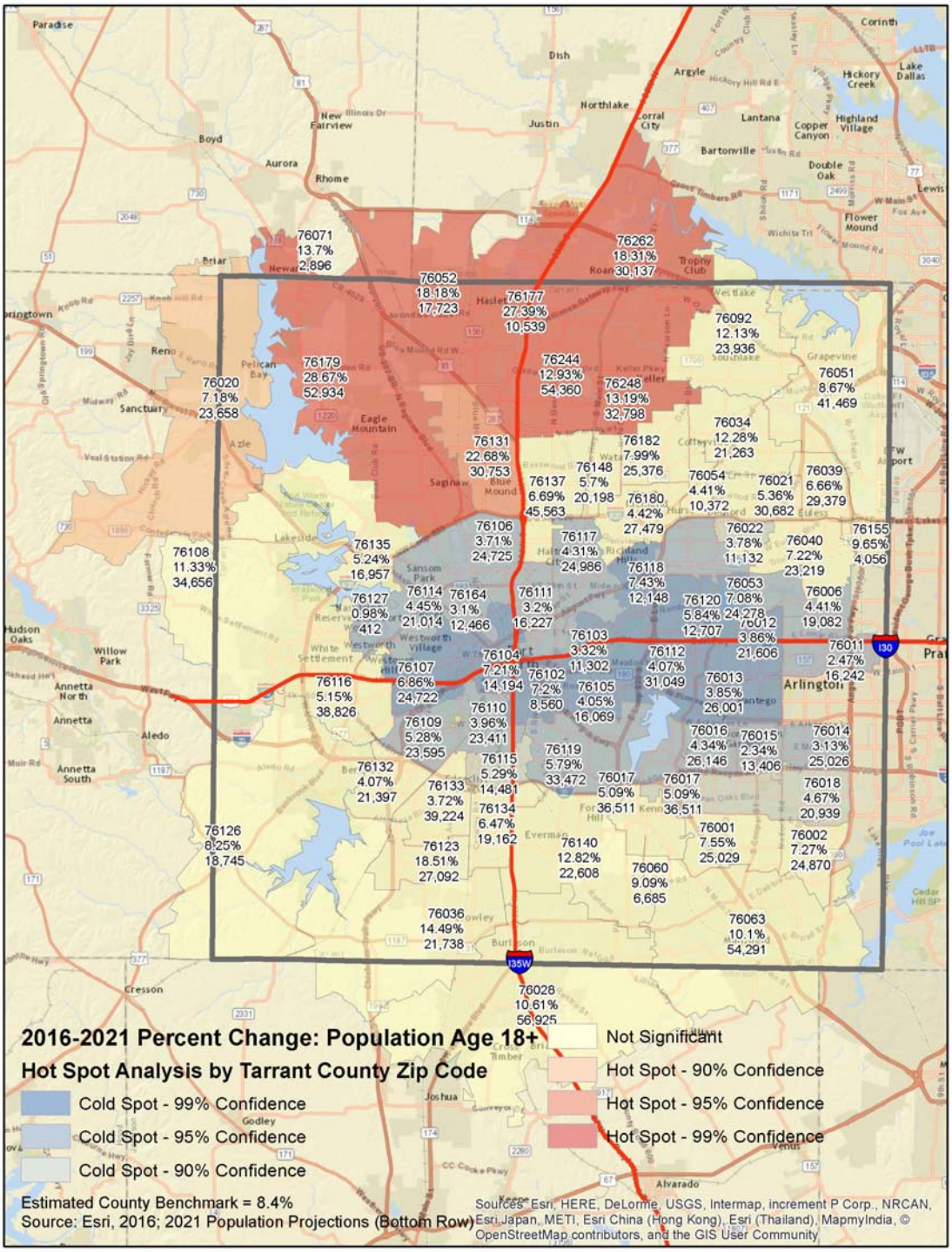
QuickFacts data are derived from: Population Estimates, American Community Survey, Census of Population and Housing, Current Population Survey, Small Area Health Insurance Estimates, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Non-employer Statistics, Economic Census, Survey of Business Owners, Building Permits.

Appendix 6: Population Maps

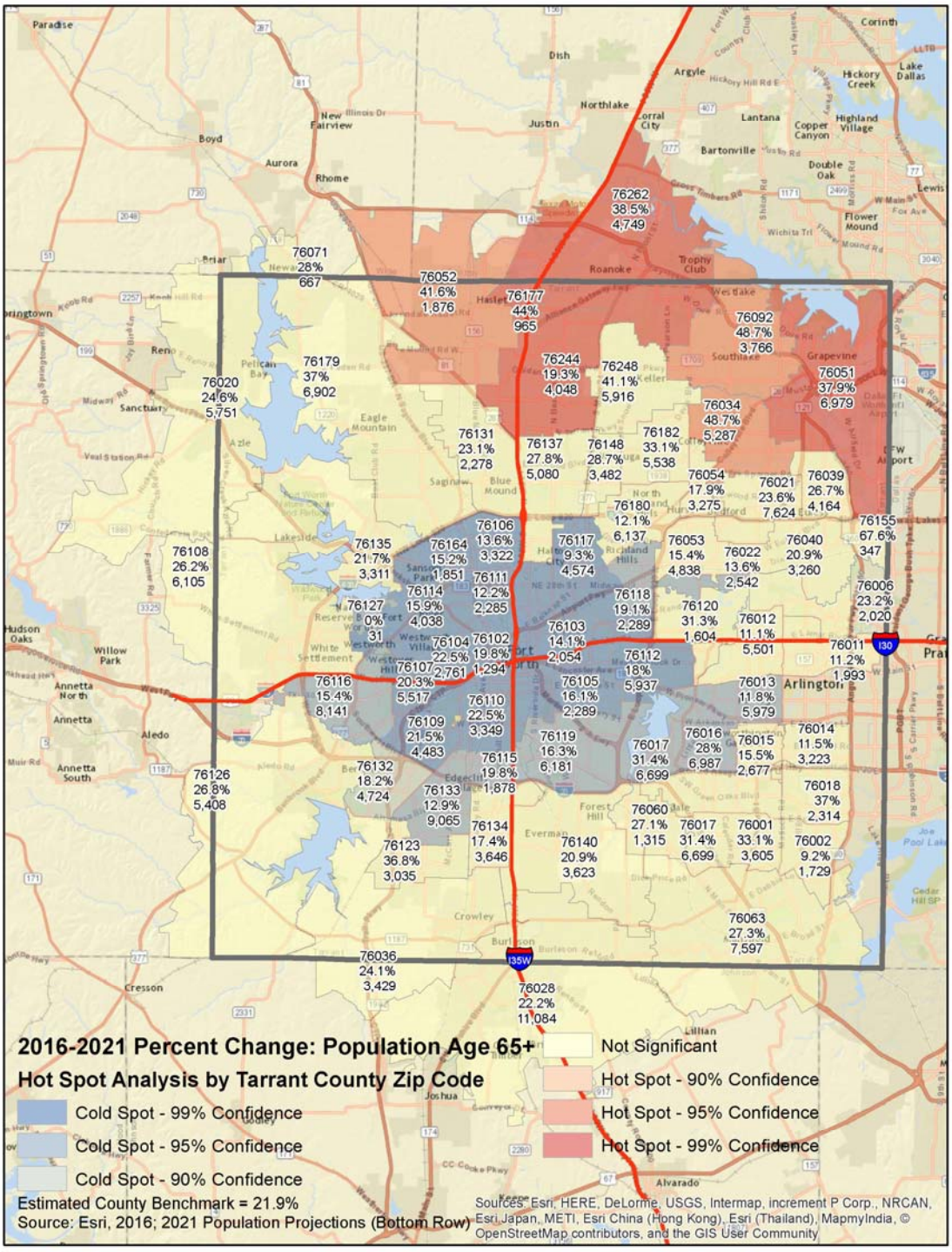
Appendix 6a: Hot Spot Map, 0 – 4 Population Change



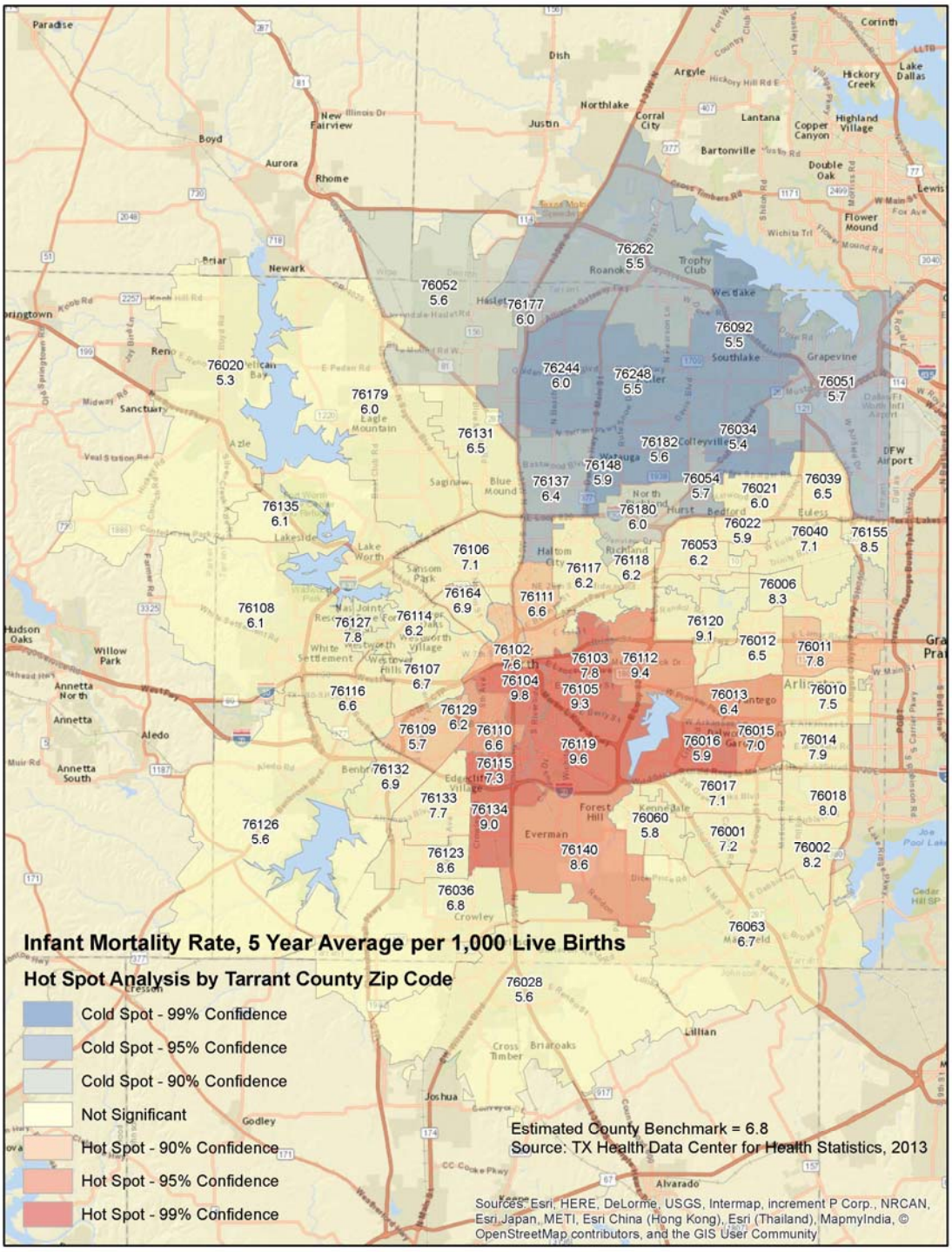
Appendix 6b: Hot Spot Map, 18+ Population Change



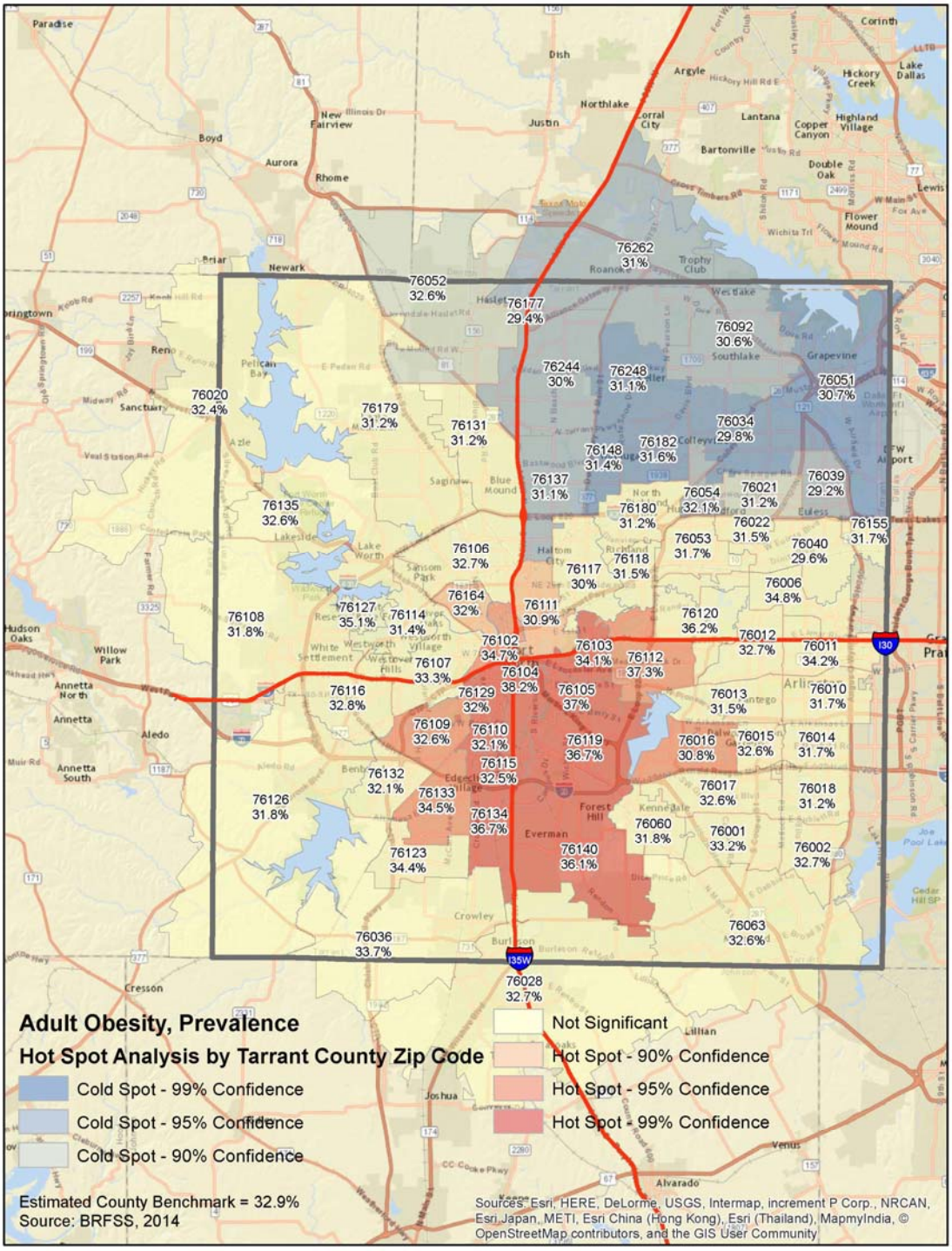
Appendix 6c: Hot Spot Map, 65+ Population Change

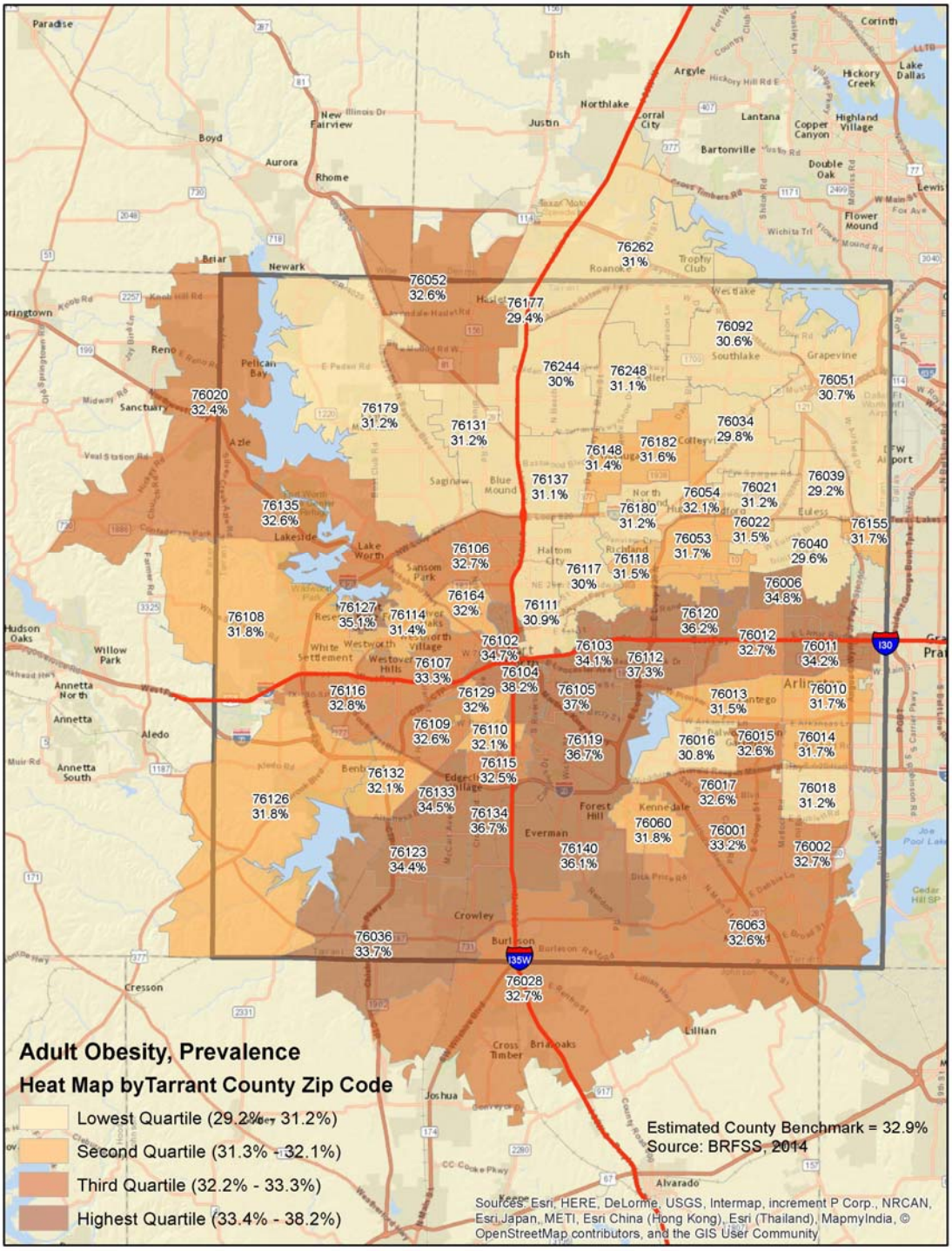


Appendix 6d: Hot Spot Map for Infant Mortality

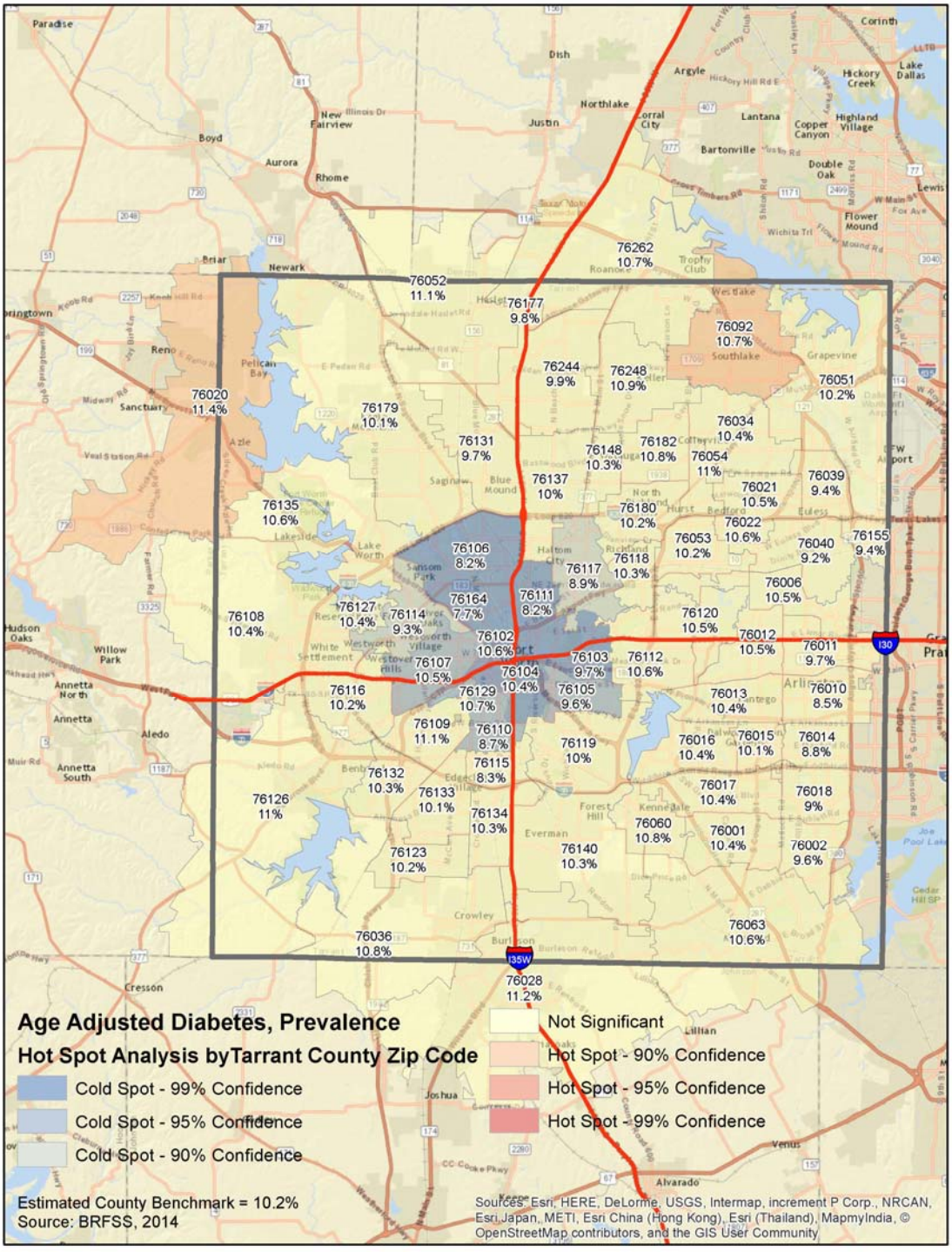


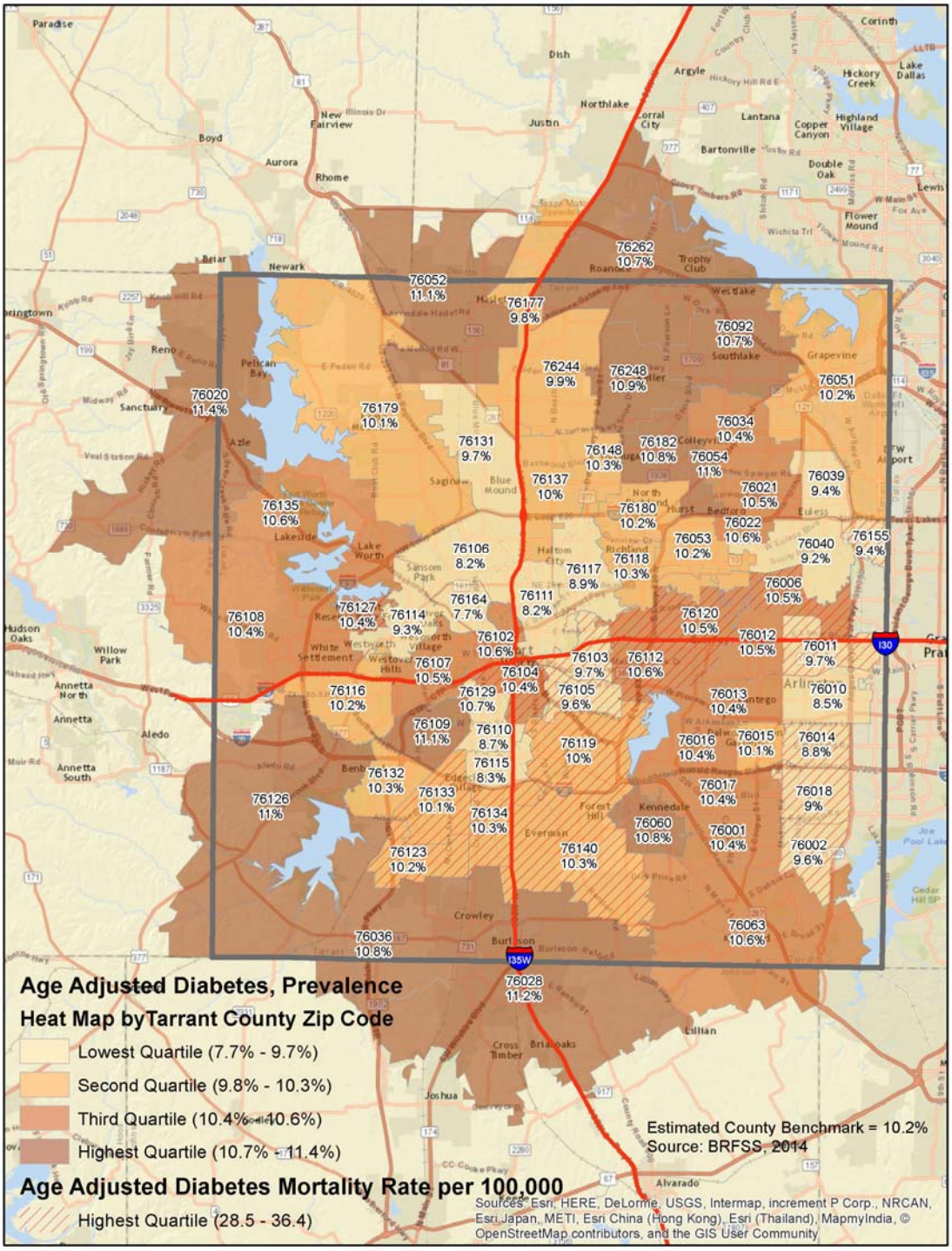
Appendix 6e: Heat Map and Hot Spot Map for Adult Obesity



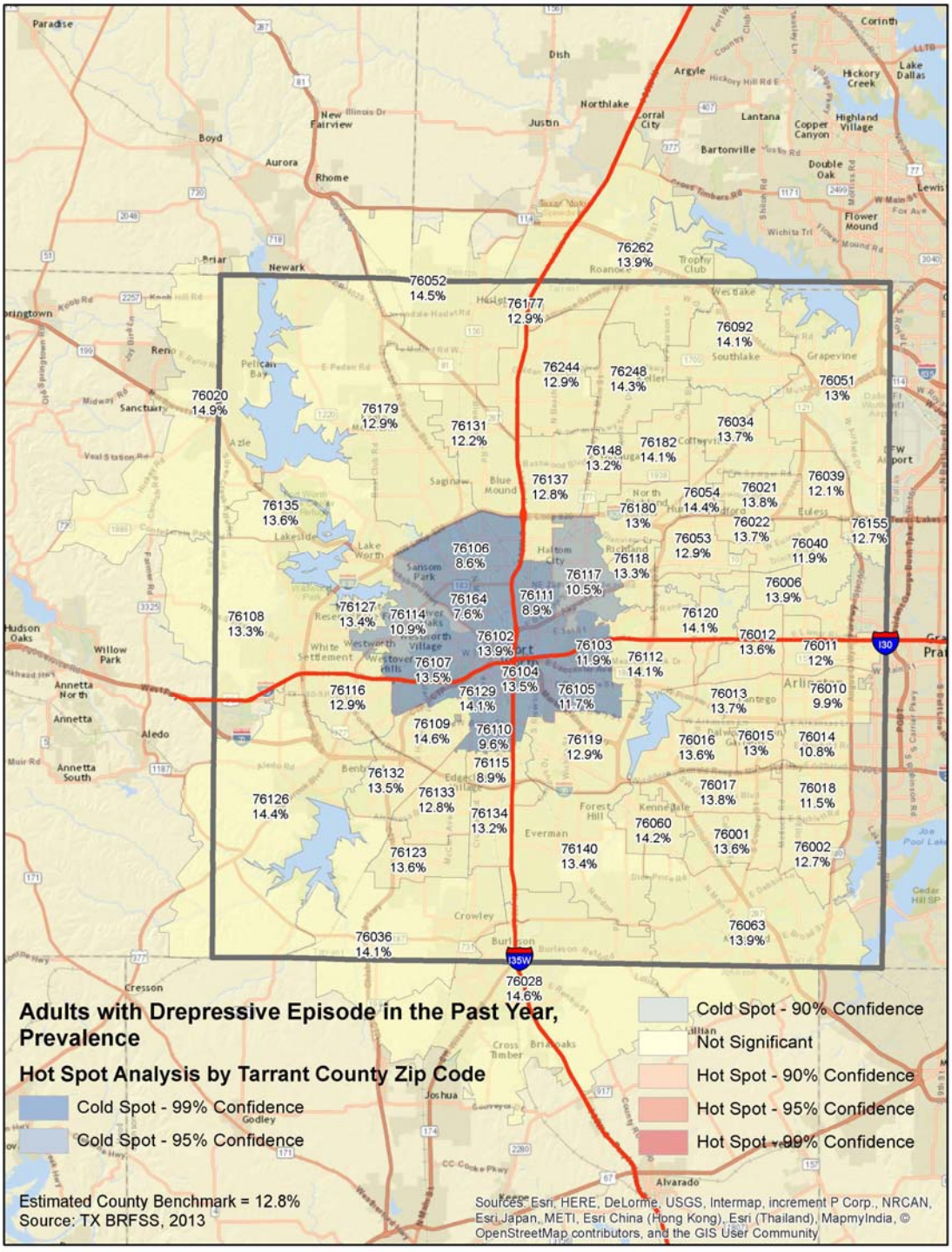

Adult Obesity, Prevalence
Heat Map byTarrant County Zip Code
Lowest Quartile (29.2% - 31.2%)
Second Quartile (31.3% - 32.1%)
Third Quartile (32.2% - 33.3%)
Highest Quartile (33.4% - 38.2%)
Estimated County Benchmark = 32.9%
Source: BRFSS, 2014
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
76262 31%
76052 32.6%
76177 29.4%
76092 30.6%
76244 30%
76248 31.1%
76051 30.7%
76020 32.4%
76179 31.2%
76131 31.2%
76034 29.8%
76148 31.4%
76182 31.6%
76137 31.1%
76039 29.2%
76135 32.6%
76054 32.1%
76021 31.2%
76180 31.2%
76022 31.5%
76155 31.7%
76053 31.7%
76040 29.6%
76106 32.7%
76118 31.5%
76117 30%
76006 34.8%
76164 32%
76111 30.9%
76127 35.1%
76114 31.4%
76108 31.8%
76120 36.2%
76012 32.7%
76011 34.2%
76102 34.7%
76103 34.1%
76112 37.3%
76107 33.3%
76104 38.2%
76116 32.8%
76129 32%
76105 37%
76013 31.5%
76010 31.7%
76109 32.6%
76110 32.1%
76119 36.7%
76016 30.8%
76015 32.6%
76014 31.7%
76115 32.5%
76132 32.1%
76133 34.5%
76017 32.6%
76018 31.2%
76126 31.8%
76134 36.7%
76060 31.8%
76001 33.2%
76140 36.1%
76002 32.7%
76123 34.4%
76063 32.6%
76036 33.7%
76028 32.7%

Appendix 6f: Heat Map and Hot Spot Map for Age-Adjusted Diabetes

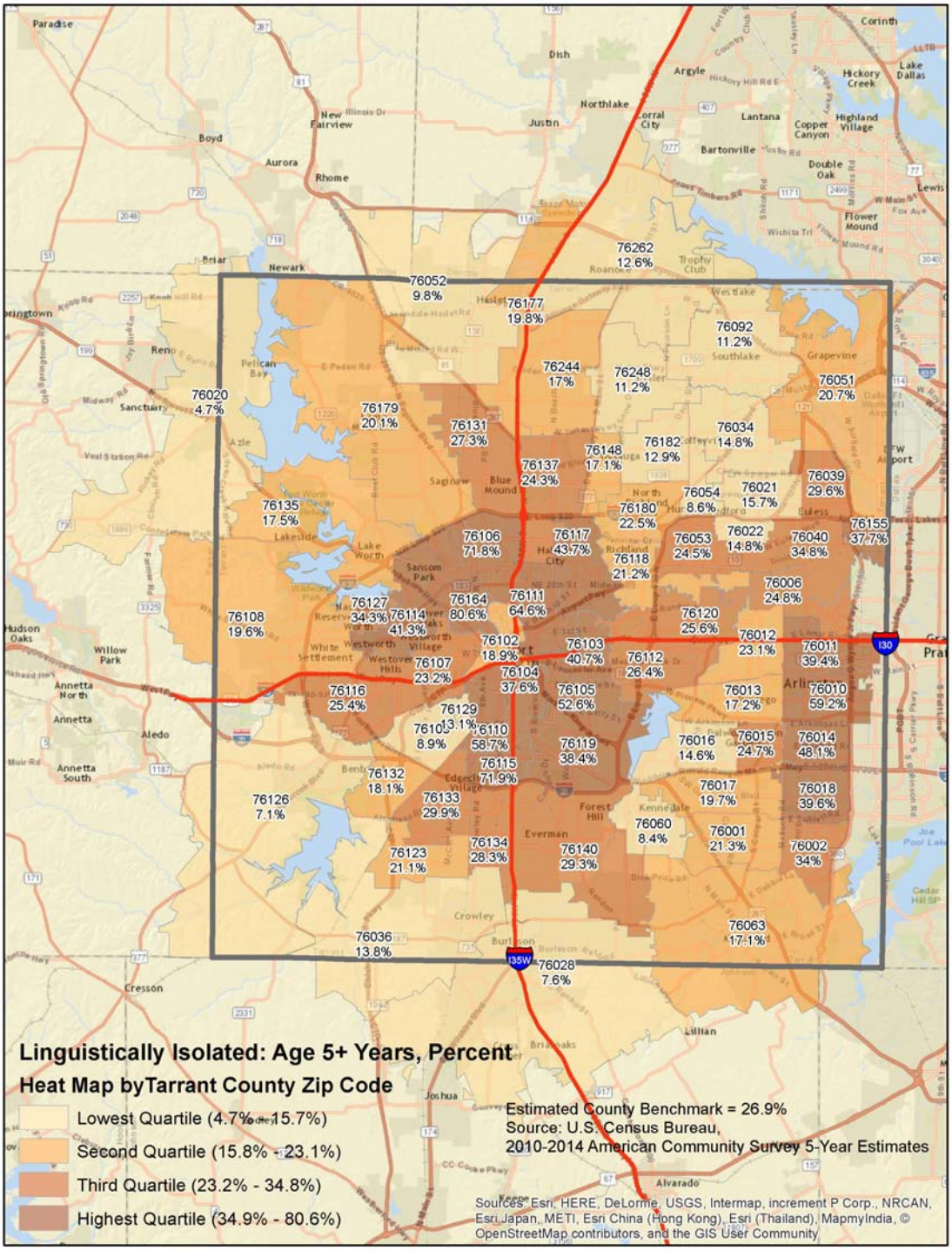


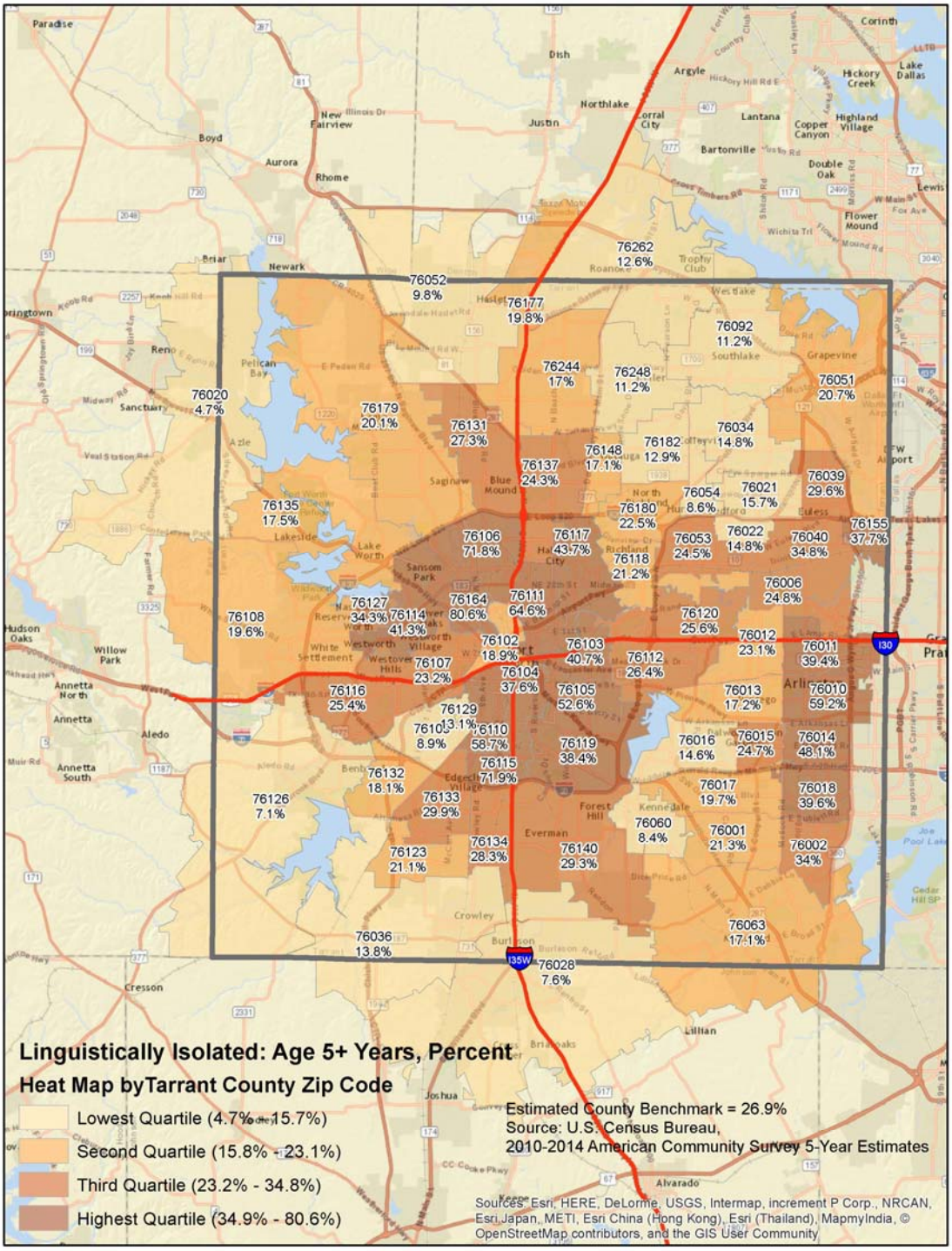

Age Adjusted Diabetes, Prevalence
Heat Map byTarrant County Zip Code
Lowest Quartile (7.7% - 9.7%)
Second Quartile (9.8% - 10.3%)
Third Quartile (10.4% - 10.6%)
Highest Quartile (10.7% - 11.4%)
Age Adjusted Diabetes Mortality Rate per 100,000
Highest Quartile (28.5 - 36.4)
Estimated County Benchmark = 10.2%
Source: BRFSS, 2014
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
76052 11.1%
76177 9.8%
76262 10.7%
76092 10.7%
76244 9.9%
76248 10.9%
76051 10.2%
76020 11.4%
76179 10.1%
76034 10.4%
76131 9.7%
76148 10.3%
76182 10.8%
76054 11%
76039 9.4%
76137 10%
76021 10.5%
76135 10.6%
76180 10.2%
76022 10.6%
76053 10.2%
76040 9.2%
76155 9.4%
76106 8.2%
76118 10.3%
76117 8.9%
76006 10.5%
76111 8.2%
76164 7.7%
76127 10.4%
76114 9.3%
76108 10.4%
76120 10.5%
76012 10.5%
76011 9.7%
76102 10.6%
76103 9.7%
76112 10.6%
76107 10.5%
76104 10.4%
76116 10.2%
76129 10.7%
76105 9.6%
76013 10.4%
76010 8.5%
76109 11.1%
76110 8.7%
76119 10%
76016 10.4%
76015 10.1%
76014 8.8%
76115 8.3%
76132 10.3%
76133 10.1%
76017 10.4%
76018 9%
76126 11%
76134 10.3%
76060 10.8%
76001 10.4%
76123 10.2%
76140 10.3%
76002 9.6%
76036 10.8%
76063 10.6%
76028 11.2%

Appendix 6g: Heat Map and Hot Spot Map for Self-Reported Episodes of Depression

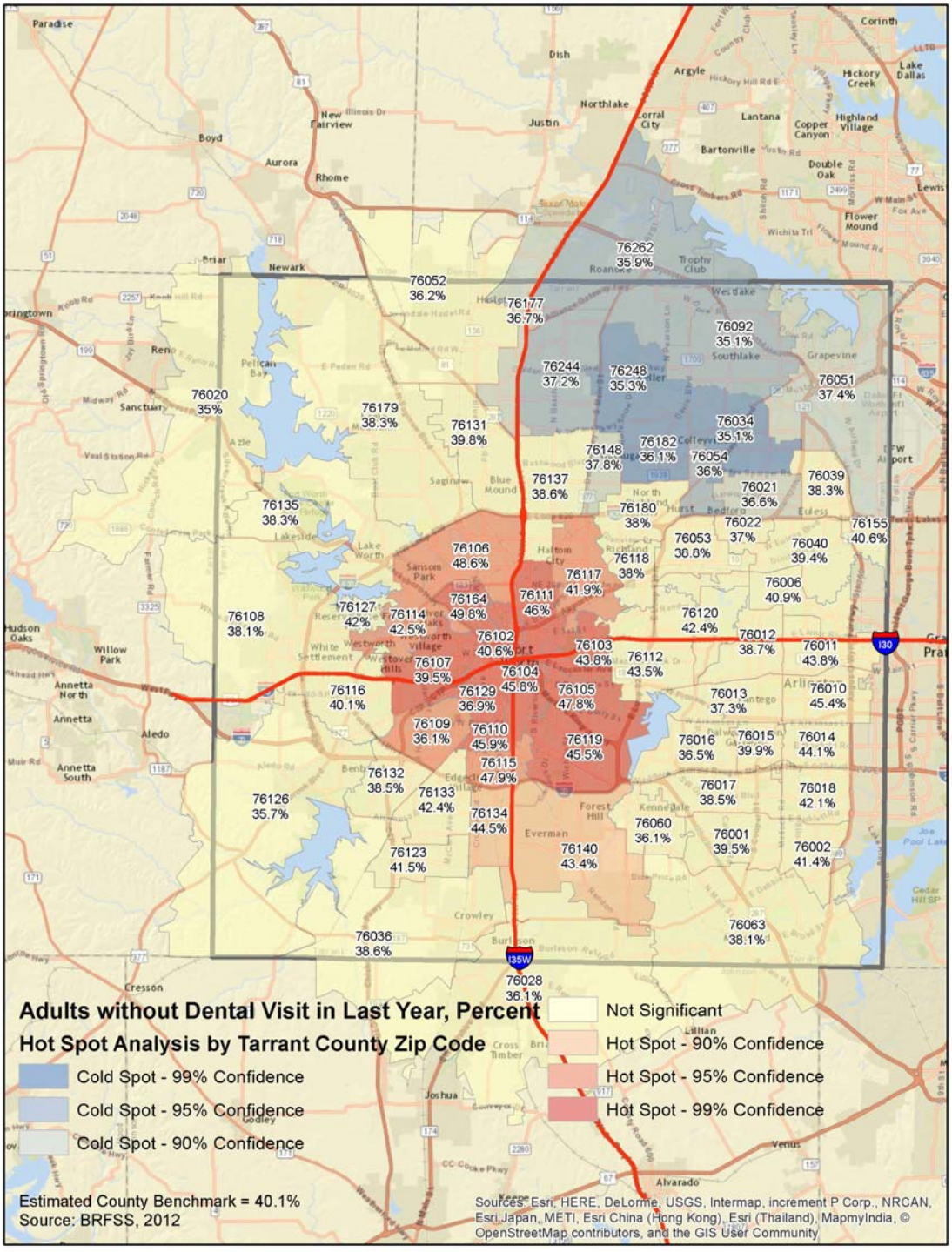


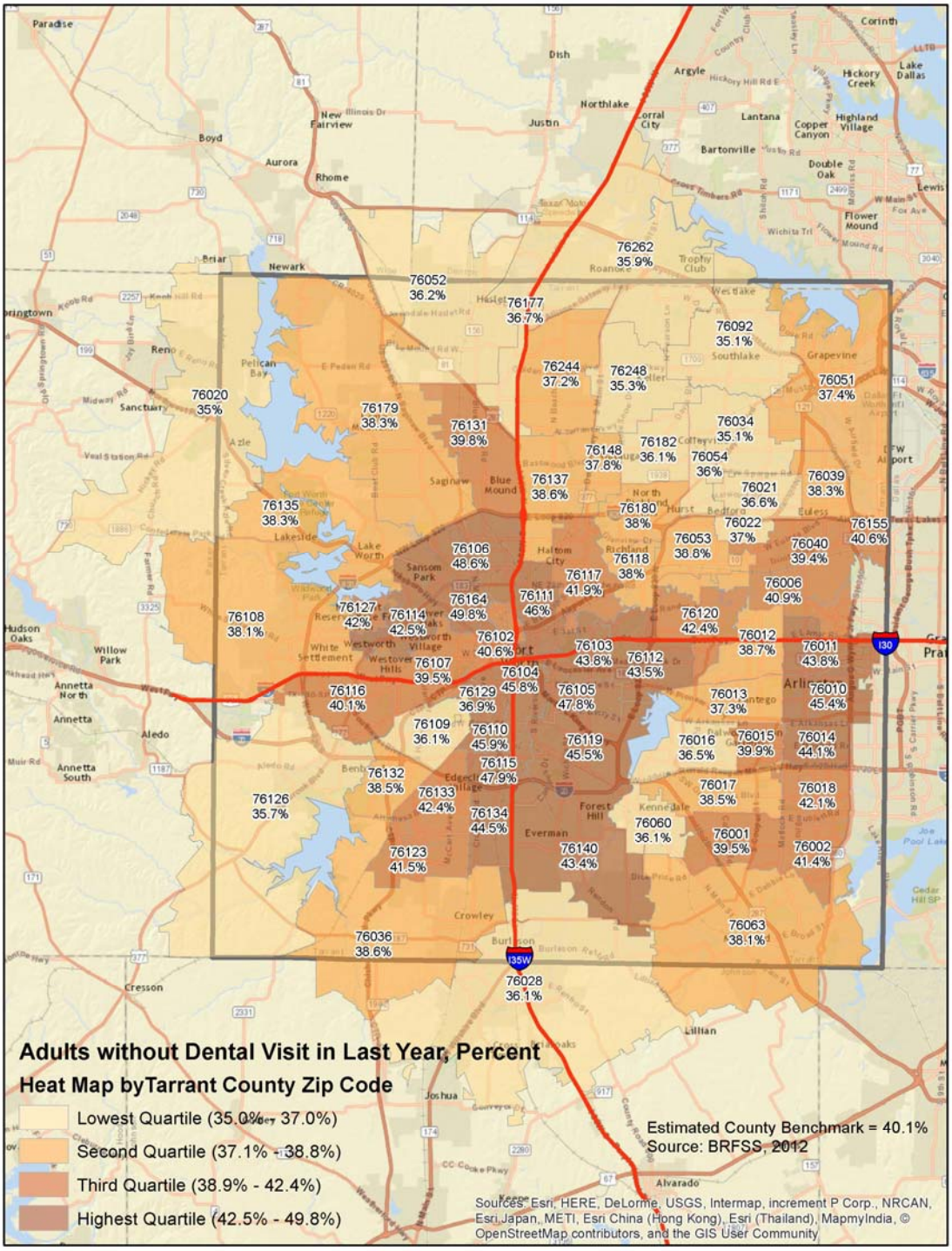
Appendix 6h: Heat Map and Hot Spot Map for Linguistic Isolation




Linguistically Isolated: Age 5+ Years, Percent
Heat Map byTarrant County Zip Code
Lowest Quartile (4.7% - 15.7%)
Second Quartile (15.8% - 23.1%)
Third Quartile (23.2% - 34.8%)
Highest Quartile (34.9% - 80.6%)
Estimated County Benchmark = 26.9%
Source: U.S. Census Bureau,
2010-2014 American Community Survey 5-Year Estimates
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
76052 9.8%
76177 19.8%
76262 12.6%
76092 11.2%
76244 17%
76248 11.2%
76051 20.7%
76020 4.7%
76179 20.1%
76131 27.3%
76034 14.8%
76148 17.1%
76182 12.9%
76137 24.3%
76039 29.6%
76135 17.5%
76054 8.6%
76021 15.7%
76180 22.5%
76155 37.7%
76106 71.8%
76117 43.7%
76053 24.5%
76022 14.8%
76040 34.8%
76118 21.2%
76006 24.8%
76127 34.3%
76164 80.6%
76111 64.6%
76108 19.6%
76114 41.3%
76120 25.6%
76012 23.1%
76102 18.9%
76103 40.7%
76011 39.4%
76107 23.2%
76112 26.4%
76104 37.6%
76116 25.4%
76105 52.6%
76013 17.2%
76010 59.2%
76129 13.1%
76110 58.7%
76016 14.6%
76015 24.7%
76014 48.1%
76119 38.4%
76115 71.9%
76132 18.1%
76017 19.7%
76018 39.6%
76126 7.1%
76133 29.9%
76060 8.4%
76001 21.3%
76134 28.3%
76140 29.3%
76002 34%
76123 21.1%
76063 17.1%
76036 13.8%
76028 7.6%

Appendix 6i: Heat Map and Hot Spot Map for Oral Health Care Access




Adults without Dental Visit in Last Year, Percent
Heat Map byTarrant County Zip Code
Lowest Quartile (35.0% - 37.0%)
Second Quartile (37.1% - 38.8%)
Third Quartile (38.9% - 42.4%)
Highest Quartile (42.5% - 49.8%)
Estimated County Benchmark = 40.1%
Source: BRFSS, 2012
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
76262 35.9%
76052 36.2%
76177 36.7%
76092 35.1%
76244 37.2%
76248 35.3%
76051 37.4%
76020 35%
76179 38.3%
76131 39.8%
76034 35.1%
76148 37.8%
76182 36.1%
76054 36%
76039 38.3%
76137 38.6%
76021 36.6%
76135 38.3%
76180 38%
76022 37%
76155 40.6%
76053 38.6%
76040 39.4%
76106 48.6%
76118 38%
76117 41.9%
76006 40.9%
76164 49.8%
76111 46%
76127 42%
76114 42.5%
76108 38.1%
76120 42.4%
76012 38.7%
76011 43.8%
76102 40.6%
76103 43.8%
76112 43.5%
76107 39.5%
76104 45.8%
76116 40.1%
76129 36.9%
76105 47.8%
76013 37.3%
76010 45.4%
76109 36.1%
76110 45.9%
76119 45.5%
76016 36.5%
76015 39.9%
76014 44.1%
76115 47.9%
76132 38.5%
76133 42.4%
76017 38.5%
76018 42.1%
76126 35.7%
76134 44.5%
76060 36.1%
76001 39.5%
76123 41.5%
76140 43.4%
76002 41.4%
76063 38.1%
76036 38.6%
76028 36.1%

Appendix 7: JPS Specialty Services: Third Next Available New Patient Appointment

SPECIALTY CLINIC	LOCATION	Clinic Availability	Months to non-urgent NP Appointment
Cardiothoracic Surgery			
JPS SURGICAL SPECIALTY CARDIOTHORACIC	2nd Flr OPC - Fort Worth	Tuesday PM (1 provider)	2 Months
Dermatology			
JPS MEDICINE SPECIALTY DERMATOLOGY	1400 JPOC - Fort Worth	Mon-Thu ALL, Fri PM (1 provider)	12 Months
Endocrine			
JPS MEDICINE SPECIALTY ENDOCRINE	1400 JPOC - Fort Worth	Mon-Fri ALL (3 providers)	10 Months
JPS SOUTHEAST ENDOCRINOLOGY	SETCMH - Arlington	Mon/Wed ALL (2 providers)	4 Months
ENT & Audiology			
JPS SURGICAL SPECIALTY AUDIOLOGY	2nd Flr OPC - Fort Worth	Mon-Thur ALL (2 providers)	3 Months
JPS SURGICAL SPECIALTY EARS NOSE THROAT	2nd Flr OPC - Fort Worth	Mon-Fri ALL (2 providers)	4 Months
Gastroenterology			
JPS MEDICINE SPECIALTY GASTROENTEROLOGY	1350 JPOC - Fort Worth	Mon-Fri ALL (10 providers)	12 Months
JPS BARDIN SPECIALTY GASTROENTEROLOGY	Bardin - Arlington	Mon-Tue, Thu-Fri ALL (4 providers)	4.5 Months
General Surgery			
JPS SURGICAL SPECIALTY GENERAL SURGERY	2nd Flr OPC - Fort Worth	Mon-Fri ALL (1 provider)	5 Months

JPS BARDIN SPECIALTY GENERAL SURGERY	Bardin - Arlington	2nd Mon PM, Tue PM ALL, Thur ALL (3 providers)	2 Months
Hepatitis C			
JPS MEDICINE SPECIALTY HEPATITIS C	1350 JPOC - Fort Worth	Mon, Tue, Thu, Fri (1 provider)	8 Months
Hypertension			
JPS MEDICINE SPECIALTY HYPERTENSION	1350 JPOC - Fort Worth	2nd/4th Wed (1 provider)	1 Month
Neurology			
JPS MEDICINE SPECIALTY NEUROLOGY	1400 JPOC - Fort Worth	Mon-Fri (alternating providers)	12 Months
JPS BARDIN SPECIALTY NEUROLOGY	Bardin - Arlington	Tues (1 provider)	4 Months
Neurosurgery			
JPS SURGICAL SPECIALTY NEUROSURGERY	2nd Flr OPC - Fort Worth	Fri AM (1 provider)	2 Months
Ophthalmology & Optometry			
JPS SURGICAL SPECIALTY OPHTHALMOLOGY	2nd Flr OPC - Fort Worth	Mon-Fri (alternating providers)	12 Months
JPS NORTHEAST OPTOMETRY CLINIC	Northeast - Fort Worth	2 Mondays/month (provider rotate from a different site)	refer to SE if patient is able, no provider at this site currently
JPS SOUTHEAST OPTOMETRY	SETCMH - Arlington	Mon-Fri	Less than 1 Month
JPS SOUTH CAMPUS OPTOMETRY	South Campus - Fort Worth	Mon-Fri	7 Months
JPS DIAMOND HILL JARVIS OPTOMETRY	Diamond Hill - Fort Worth	Mon-Fri	1.5 Months

Oral & Maxillofacial Surgery			
JPS SURGICAL SPECIALTY ORAL MAXILLOFACIAL/DENTAL	2nd Flr OPC - Fort Worth	Mon-Fri (special procedures on Mon/Fri)	4 Months
Orthopedics			
JPS SURGICAL SPECIALTY ORTHOPEDIC - ELECTIVE	2nd Flr OPC - Fort Worth	Thursday (alternating providers)	5 Months
JPS SURGICAL SPECIALTY ORTHOPEDIC - JOINT	2nd Flr OPC - Fort Worth	Wednesday 1/3 Fri AM	3 Months
JPS SURGICAL SPECIALTY ORTHOPEDIC - HAND	2nd Flr OPC - Fort Worth	Tue AM, 2/4th Fri AM	5 Months
JPS BARDIN SPECIALTY ORTHOPEDIC SURGERY - HAND	Bardin - Arlington	1/3/5 Tue PM	3 Months
JPS SURGICAL SPECIALTY ORTHOPEDIC - SPINE	2nd Flr OPC - Fort Worth	Mon All (2 providers)	7 Months
JPS BARDIN SPECIALTY ORTHOPEDIC SURGERY - SPINE	Bardin - Arlington	1/3 Thur AM	9 Months
JPS BARDIN SPECIALTY ORTHOPEDIC SURGERY - SPORTS	Bardin - Arlington	Monday	1.5 Months
JPS BARDIN SPECIALTY ORTHOPEDIC SURGERY - TOTAL JOINT	Bardin - Arlington	1st/3rd Fri	4.5 Months
Pain Management			
JPS LEUDA PAIN MANAGEMENT CLINIC	Leuda - Fort Worth	Mon-Fri	3.5 Months
JPS NORTHEAST PAIN CLINIC	NEC - Fort Worth	-	no provider at this site currently

JPS SOUTHEAST PAIN MANAGEMENT	SETCMH - Arlington	-	no provider at this site currently
JPS FAMILY HEALTH PAIN MANAGEMENT	FHC - Fort Worth	-	no provider at this site currently
JPS STOP SIX PAIN MANAGEMENT	Stop Six - Fort Worth	-	no provider at this site currently
Podiatry			
JPS SURGICAL SPECIALTY PODIATRY	2nd Flr OPC - Fort Worth	Mon, Tue, Thu	4 Months
JPS BARDIN SPECIALTY PODIATRY	Bardin - Arlington	-	no provider at this site currently
Pulmonary Medicine			
JPS MEDICINE SPECIALTY PULMONARY	1400 JPOC - Fort Worth	3 days/week (alternating provider schedule)	10 Months
JPS MEDICINE SPECIALTY SLEEP MEDICINE	1400 JPOC - Fort Worth	1 day/wk (Tuesdays)	-
Renal			
JPS MEDICINE SPECIALTY RENAL	1350 JPOC - Fort Worth	Mon-Thu (alternating provider schedule)	12 Months
JPS SOUTHEAST RENAL	SETCMH - Arlington	1/3/5 Tue PM	4 Months
Rheumatology			
JPS MEDICINE SPECIALTY RHEUMATOLOGY	1400 JPOC - Fort Worth	Mon-Fri	3.5 Months
Sports Medicine			
JPS BARDIN SPECIALTY SPORTS MEDICINE	Bardin - Arlington	Mon-Fri (fellowship program)	6 Months
Urology			

JPS SURGICAL SPECIALTY UROLOGY	2nd Flr OPC - Fort Worth	Tue AM, Wed ALL	9 Months
JPS SOUTHEAST UROLOGY	SETCMH - Arlington	Tue/Thur ALL	6 Months
Vascular Surgery			
JPS SURGICAL SPECIALTY VASCULAR	2nd Flr OPC - Fort Worth	Tue PM, Wed PM, Thur PM	1 Month
Wound Care			
JPS SURGICAL SPECIALTY WOUND CARE CLINIC	1350 JPOC - Fort Worth	Mon AM, Tue AM, Fri ALL	Less than 1 Month

Appendix 8: Tarrant County Non-Profit Hospitals: Charity Care Policies

Tarrant County Non-Profit Hospitals

Summary of 2014 DSHS/CHS/ASCBS Part II Required

Hospital	City	% of FPL on which eligibility for charity care is based	Charity Care Policy?	Uses an Asset Test for Charity Care Eligibility?	# of Days to Complete Elig. Determination	Duration of Eligibility	Charity Care Exclusions
Texas Health Arlington Memorial Hospital	Arlington	<200%	Yes	Yes – cash & assets that can be readily converted	Within 30 days	Per admission	Cosmetic procedures
Texas Health Harris Methodist Hospital Azle	Azle	<200%	Yes	Yes – cash & assets that can be readily converted	Within 30 days	Per admission	Cosmetic procedures
Texas Health Harris Methodist Hospital Hurst-Euless-Bedford	Bedford	<200%	Yes	Yes – cash & assets that can be readily converted	Within 30 days	Per admission	Cosmetic procedures
Baylor All Saints Medical Center	Fort Worth	<200%	Yes	No	"Varies"	One year, with reaffirmation after 6 months	Initial transplant services + physician services billed sep
Cook Children's Medical Center	Fort Worth	At or below 400%	Yes	No	Typically 30 days	Up to 1 year but re-verified	Transplant, ER, OP, physician, cosmetic
Texas Health Harris Methodist Hospital FW	Fort Worth	<200%	Yes	Yes – cash & assets that can be readily converted	Within 30 days	Per admission	Cosmetic procedures
Baylor Regional Medical Center at Grapevine	Grapevine	<200%	Yes	No	"Varies"	One year, with reaffirmation after 6 months	Initial transplant services + physician services billed sep
Texas Health Huguley Hospital FW South	Burleson	<200%	Yes	Yes – mandatory only for Medicare; uses formula	Question was not answered	Less than six months	Transplant, ER, OP, physician, cosmetic
Texas Health Harris Methodist Hosp Southwest Fort Worth	Fort Worth	<200%	Yes	Yes – cash & assets that can be readily converted	Within 30 days	Per admission	Cosmetic procedures
Texas Health Specialty Hospital	Fort Worth	<200%	Yes	Yes – cash & assets that can be readily converted	Within 30 days	Per admission	Cosmetic procedures
Texas Health Harris Methodist Springwood	Bedford	<200%	Yes	Yes – cash & assets that can be readily converted	Within 30 days	Per admission	Cosmetic procedures
Methodist Mansfield Medical Center (MMMC)	Mansfield	100%	Yes	Yes – multiple variables, including income/demo	Approximately 3 weeks	Per admission	Bariatric, cosmetic, transplant surgeries
Texas Health Harris Methodist Hospital Alliance	Fort Worth	<200%	Yes	Yes – cash & assets that can be readily converted	Within 30 days	Per admission	Cosmetic procedures

Appendix 9: Financial Exhibits

Exhibit F—1

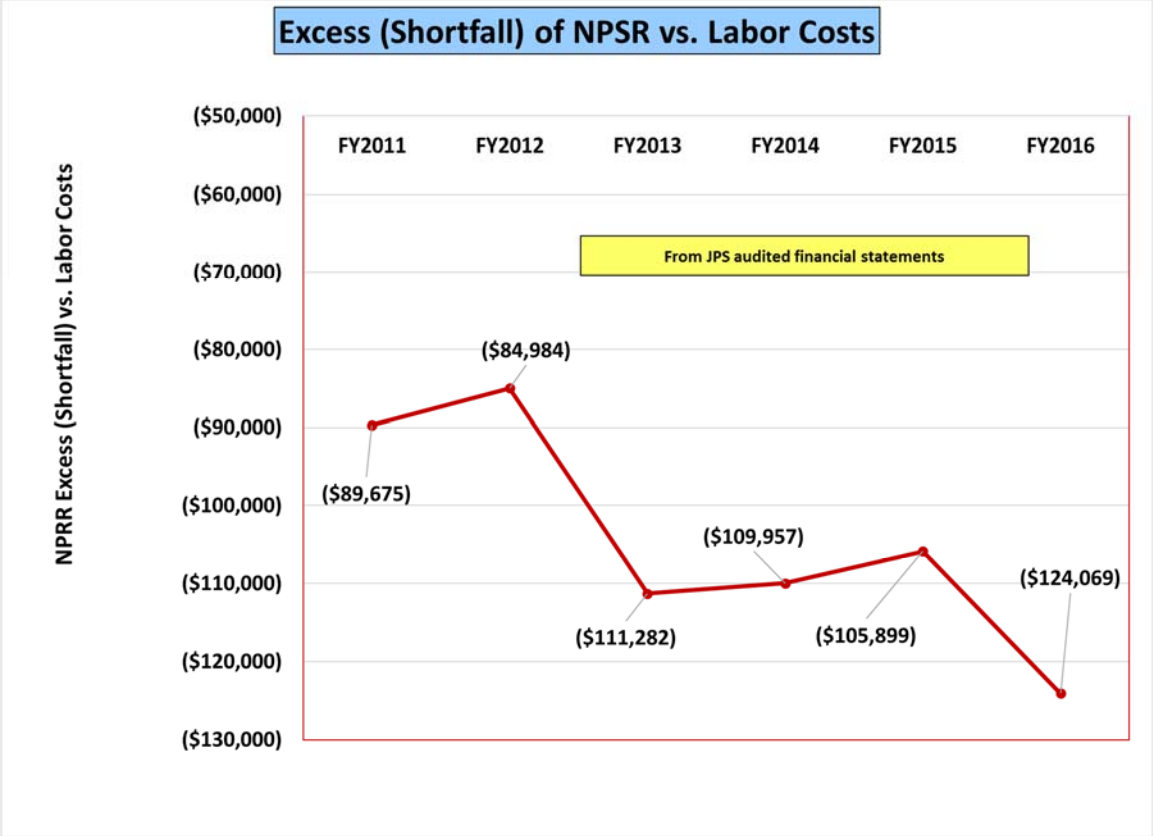


Exhibit F—2

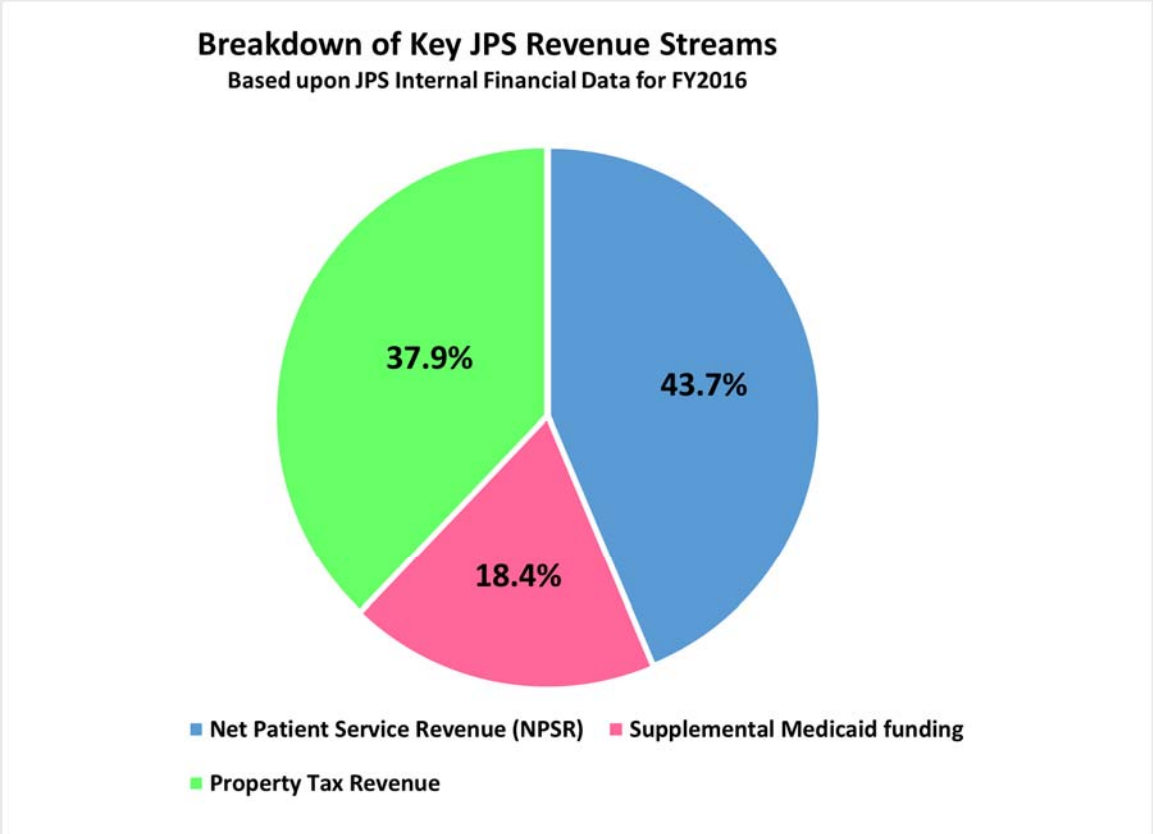

Breakdown of Key JPS Revenue Streams
Based upon JPS Internal Financial Data for FY2016
37.9%
43.7%
18.4%
Net Patient Service Revenue (NPSR)
Supplemental Medicaid funding
Property Tax Revenue

Exhibit F—3

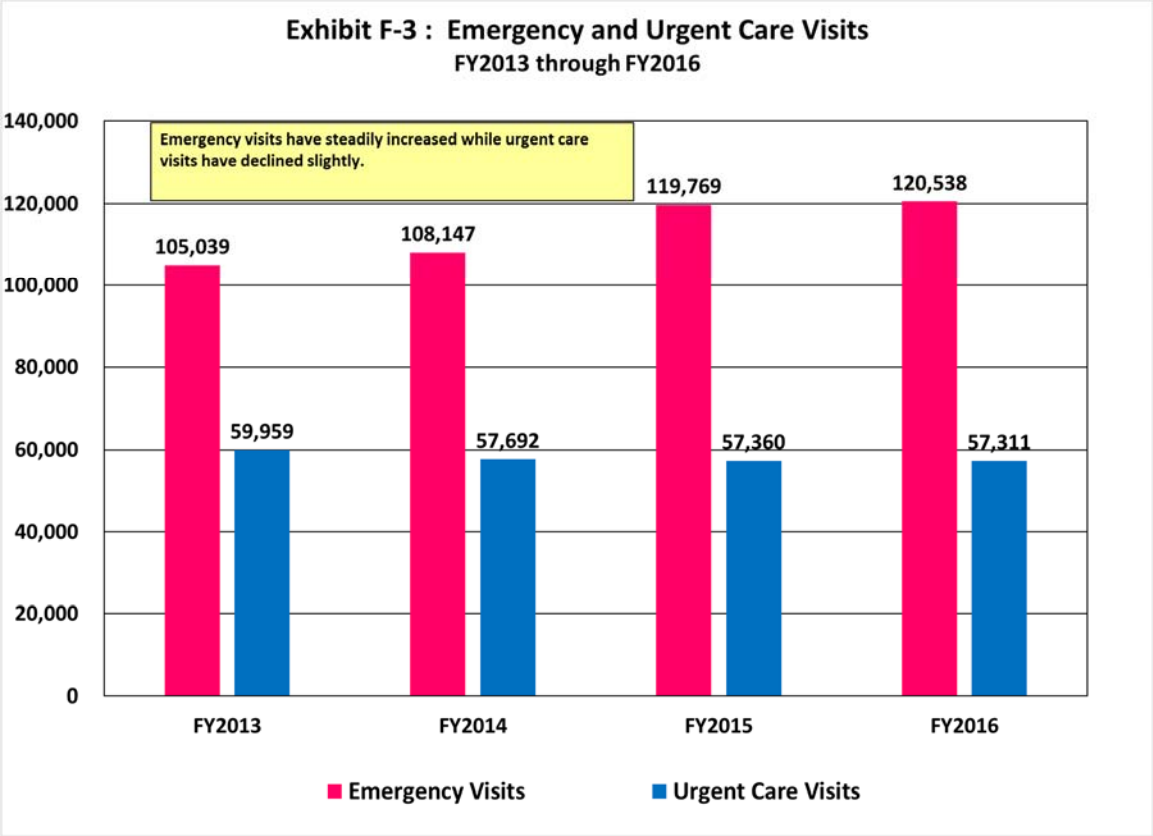


Exhibit F-3 : Emergency and Urgent Care Visits
FY2013 through FY2016
Emergency visits have steadily increased while urgent care visits have declined slightly.
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
105,039
59,959
108,147
57,692
119,769
57,360
120,538
57,311
FY2013
FY2014
FY2015
FY2016
Emergency Visits
Urgent Care Visits

Exhibit F—4

Top 10 Texas Public Hospitals: Net Income (Loss) from Service to Patients: AHA Database *					
Hospital/System	**City**	**Most Current Year**	**First Historical Year**	**Second Historical Year**	**Oldest Historical Year**
Harris Health System	Houston	$ (932,087,270)	$ (918,427,877)	$ (865,261,908)	$ (539,152,431)
Parkland Health & Hospital System	Dallas	$ (864,886,626)	$ (560,407,910)	$ (525,496,870)	$ (524,658,815)
University Health System	San Antonio	$ (813,486,838)	$ (672,088,221)	$ (338,472,353)	$ (269,200,039)
JPS Health Network	**Fort Worth**	**$ (236,895,446)**	**$ (483,418,674)**	**$ (474,741,720)**	**$ (429,750,278)**
University Medical Center of El Paso	El Paso	$ (166,205,206)	$ (175,393,845)	$ (155,521,672)	$ (147,546,126)
Medical Center Health System	Odessa	$ (75,076,303)	$ (62,718,394)	$ (65,852,908)	$ (61,720,564)
University Medical Center	Lubbock	$ (54,661,006)	$ (107,639,298)	$ (34,716,785)	$ (42,243,840)
Midland Memorial Hospital	Midland	$ (26,593,624)	$ (16,597,311)	$ (7,859,580)	$ (193,472)
Nacogdoches Memorial Hospital	Nacogdoches	$ (23,259,851)	$ (20,846,726)	$ (23,476,490)	$ (32,752,155)
Hunt Regional Medical Center	Greenville	$ (22,117,847)	$ (18,918,948)	$ (16,501,470)	$ (6,391,963)
*** Sort is by "Most Current Year", which is either 2014 or 2015 depending upon the reporting hospital and its fiscal year.**					

Exhibit F—5

Texas Public Hospitals: Uncompensated Care Cost: AHA Database *					
Hospital Name	City	Most Current Year	First Historical Year	Second Historical Year	Oldest Historical Year
Harris Health System	Houston	$ 656,000,784	$ 695,291,978	$ 502,205,793	$ 480,680,901
Parkland Health & Hospital System	Dallas	$ 445,213,713	$ 417,420,346	$ 415,414,262	$ 381,261,289
University Health System	San Antonio	$ 228,766,993	$ 165,401,312	$ 145,399,634	$ 145,763,998
JPS Health Network	Fort Worth	$ 198,625,999	$ 252,675,244	$ 130,809,731	$ 184,687,549
University Medical Center of El Paso	El Paso	$ 189,702,483	$ 188,678,854	$ 187,370,892	$ 189,122,285
University Medical Center	Lubbock	$ 66,943,212	$ 50,125,723	$ 70,647,924	$ 47,409,121
Medical Center Health System	Odessa	$ 24,016,448	$ 31,798,393	$ 29,761,505	$ 29,803,583
Midland Memorial Hospital	Midland	$ 20,272,732	$ 23,226,466	$ 17,204,510	$ 16,768,995
Wise Regional Health System	Decatur	$ 16,955,290	$ 11,236,107	$ 10,724,061	$ 9,920,536
OakBend Medical Center	Richmond	$ 13,567,328	$ 11,996,035	$ 10,575,889	$ 10,694,939

*** Sort is by "most current year", which could be either 2014 or 2015, depending upon the hospital/system's reporting and fiscal year.**

Exhibit F—6

Operating Expenses per APD - Top 8 Texas Public + Brackenridge *				
Hospital Name	City	Oper. Expenses per APD	Operating expenses	Adjusted patient days
University Health System	San Antonio	$ 4,033	$ 1,220,559,188	302,677
University Medical Center at Brackenridge	Austin	$ 3,063	$ 387,991,174	126,681
Parkland Health & Hospital System	Dallas	$ 2,890	$ 1,530,686,240	529,658
University Medical Center of El Paso	El Paso	$ 2,798	$ 343,376,755	122,723
JPS Health Network	Fort Worth	$ 2,791	$ 794,570,167	284,652
University Medical Center	Lubbock	$ 2,350	$ 527,764,652	224,600
Midland Memorial Hospital	Midland	$ 2,215	$ 256,277,650	115,702
Harris Health System	Houston	$ 2,127	$ 1,298,172,555	610,325
Medical Center Health System	Odessa	$ 2,112	$ 265,004,199	125,463

*** Based upon most current year reported in American Hospital Association database.**

Exhibit F—7

Texas Public Hospitals by Case Mix Index for Most Current Year (Descending): AHA Database *			
Medicare Provider ID	**Hospital/System**	**City**	**Case Mix Index for Most Current Year ****
450213	University Health System	San Antonio	2.0910
450686	University Medical Center	Lubbock	1.8751
450039	JPS Health Network	Fort Worth	1.8485
450271	Wise Regional Health System	Decatur	1.7433
450024	University Medical Center of El Paso	El Paso	1.7309
450289	Harris Health System	Houston	1.7195
450015	Parkland Health & Hospital System	Dallas	1.7015
450132	Medical Center Health System	Odessa	1.6863
670091	ContinueCARE Hospital at Midland Memorial	Midland	1.6750
450133	Midland Memorial Hospital	Midland	1.6270
450330	OakBend Medical Center	Richmond	1.5428
450508	Nacogdoches Memorial Hospital	Nacogdoches	1.4600
450465	Matagorda Regional Medical Center	Bay City	1.4507
450352	Hunt Regional Medical Center	Greenville	1.3846
450236	CHRISTUS Mother Frances Hospital - Sulphur Springs	Sulphur Springs	1.3439
450154	Val Verde Regional Medical Center	Del Rio	1.3267
450090	North Texas Medical Center	Gainesville	1.2967
450080	Titus Regional Medical Center	Mount Pleasant	1.2911
450597	Cuero Community Hospital	Cuero	1.2366
450177	Uvalde Memorial Hospital	Uvalde	1.2285
450055	Rolling Plains Memorial Hospital	Sweetwater	1.2106
450584	Wilbarger General Hospital	Vernon	1.2048
450369	Childress Regional Medical Center	Childress	1.1959
450586	Seymour Hospital	Seymour	1.1629
450235	Memorial Hospital	Gonzales	1.1478
450565	Palo Pinto General Hospital	Mineral Wells	1.1373
450221	Moore County Hospital District	Dumas	1.1307
450108	Connally Memorial Medical Center	Floresville	1.1220
450641	Nocona General Hospital	Nocona	1.1181

450694	El Campo Memorial Hospital	El Campo	1.1087
450451	Glen Rose Medical Center	Glen Rose	1.0756
450144	Permian Regional Medical Center	Andrews	1.0628
450411	Eastland Memorial Hospital	Eastland	1.0575
450399	Brownfield Regional Medical Center	Brownfield	1.0537
450746	Knox County Hospital	Knox City	1.0341
450155	Hereford Regional Medical Center	Hereford	1.0312
450654	Starr County Memorial Hospital	Rio Grande City	1.0248
450489	Medical Arts Hospital	Lamesa	1.0242
450754	Hamilton General Hospital	Hamilton	1.0169
450243	Hamlin Memorial Hospital	Hamlin	0.9927
450578	Hemphill County Hospital	Canadian	0.9488
450460	Tyler County Hospital	Woodville	0.9467
450241	Faith Community Hospital	Jacksboro	0.9351
450306	Stamford Memorial Hospital	Stamford	0.9034

*** Data was reported for only "Most Current Year", which is 2014 or 2015 based upon a hospital's fiscal year.**

**** Of 90 Public Hospitals, 44 reported a case mix index for the most current fiscal year while 46 did not.**

Exhibit F—8

Tarrant County Hospitals: 4-Year Trends for Total Uncompensated Care Costs					
Hospital	**Current Year**	**First Historical Year**	**Second Historical Year**	**Oldest Historical Year**	**Current Year % of TC Total**
Total for Tarrant County	**$ 424,615,587**	**$ 458,138,463**	**$ 302,230,659**	**$ 333,033,172**	**100.0%**
JPS Health Network	$ 198,625,999	$ 252,675,244	$ 130,809,731	$ 184,687,549	**46.8%**
Texas Health Harris Methodist Hospital Fort Worth	$ 59,032,073	$ 41,900,651	$ 34,408,693	$ 33,417,106	**13.9%**
Methodist Mansfield Medical Center	$ 18,664,453	$ 16,804,024	$ 18,297,945	$ 10,212,150	**4.4%**
Texas Health Harris Methodist Hospital Hurst-Euless-Bedford	$ 18,627,168	$ 13,132,386	$ 6,491,583	$ 6,244,306	**4.4%**
Baylor All Saints Medical Center at Fort Worth	$ 18,313,809	$ 19,071,353	$ 31,339,700	$ 35,358,612	**4.3%**
Texas Health Huguley Hospital Fort Worth South	$ 17,162,166	$ 15,517,010	$ 18,067,474	$ 11,358,995	**4.0%**
Texas Health Arlington Memorial Hospital	$ 15,127,082	$ 29,942,320	$ 12,879,539	$ 13,571,793	**3.6%**
Baylor Regional Medical Center at Grapevine	$ 10,814,791	$ 11,814,226	$ 14,382,168	$ 11,042,169	**2.5%**
Texas Health Harris Methodist Hospital Southwest Fort Worth	$ 10,789,053	$ 12,240,088	$ 7,918,061	$ 7,157,048	**2.5%**
Medical City Arlington	$ 10,168,084	$ 10,626,222	$ 5,314,500	$ 1,908,122	**2.4%**
Cook Children's Northeast Hospital	$ 7,592,845	$ 8,400,715	$ 4,911,392	$ 2,688,674	**1.8%**
Medical City Fort Worth	$ 6,774,478	$ 3,449,500	$ 3,095,440	$ 3,399,119	**1.6%**
Medical City North Hills	$ 6,634,152	$ 8,985,411	$ 3,707,900	$ 2,873,145	**1.6%**
Texas Health Harris Methodist Hospital Alliance	$ 6,326,589	$ 2,054,497			**1.5%**
Medical City Alliance	$ 5,998,685				**1.4%**

Texas Health Harris Methodist Hospital Azle	$ 5,263,504	$ 3,424,372	$ 3,678,010	$ 3,658,924	**1.2%**
USMD Hospital at Arlington	$ 3,566,333	$ 2,946,065	$ 2,961,244	$ 635,915	**0.8%**
Texas Health Heart & Vascular Hospital Arlington	$ 2,707,704	$ 2,905,621	$ 1,541,195	$ 2,376,075	**0.6%**
Baylor Emergency Medical Centers - Burleson	$ 780,921				**0.2%**
Baylor Orthopedic and Spine Hospital at Arlington	$ 707,183	$ 459,359	$ 511,213	$ 426,285	**0.2%**
Texas Health Harris Methodist Hospital Southlake	$ 442,795	$ 1,203,187	$ 1,052,672	$ 930,449	**0.1%**
USMD Hospital at Fort Worth	$ 356,419	$ 421,388	$ 400,251	$ 384,432	**0.1%**
Baylor Surgical Hospital at Fort Worth	$ 323,413	$ 349,177	$ 659,411	$ 892,070	**0.1%**
Kindred Hospital-Mansfield	$ -	$ -	$ -	$ (70,040)	**0.0%**
Kindred Hospital-Fort Worth	$ -	$ -	$ (60,419)	$ -	**0.0%**
Kindred Rehabilitation Hospital Arlington	$ -	$ -	$ -	$ (12,711)	**0.0%**
Ethicus Hospital - Grapevine	$ -	$ -	$ -	$ -	**0.0%**
Texas Rehabilitation Hospital of Fort Worth	$ -	$ -	$ -	$ -	**0.0%**
Cook Children's Medical Center	$ -	$ -	$ -	$ -	**0.0%**
Texas Health Specialty Hospital	$ (558)	$ -	$ (369)	$ -	**0.0%**
HEALTHSOUTH Rehabilitation Hospital - Mid-Cities	$ (13,739)	$ -	$ -	$ -	**0.0%**
HEALTHSOUTH City View Rehabilitation Hospital	$ (31,730)	$ (41,464)	$ (28,272)	$ (21,596)	**0.0%**
Baylor Institute for Rehabilitation at Fort Worth	$ (38,736)	$ (30,764)	$ (22,471)	$ (22,941)	**0.0%**
HEALTHSOUTH Rehabilitation Hospital of Fort Worth	$ (47,824)	$ (66,417)	$ (18,111)	$ (31,140)	**0.0%**
HEALTHSOUTH Rehabilitation Hospital of Arlington	$ (51,525)	$ (45,708)	$ (67,821)	$ (31,338)	**0.0%**

Exhibit F—9

Level 1 Trauma Designations in Texas
Baylor University Medical Center **Dallas, 75246 (TSA-E)** **Expires 04/01/2018**
Children's Medical Center of Dallas **Dallas, 75235 (TSA-E)** **Expires 2/1/2017 (Extended 5/1/2017)**
Dell Children's Medical Center **Austin, 78723 (TSA-O)** **Expires 8/1/2018**
East Texas Medical Center - Tyler **Tyler, 75711 (TSA-G)** **Expires 5/1/2019**
Harris Health System Ben Taub Hospital **Houston, 77030 (TSA-Q)** **Expires 9/1/2018**
John Peter Smith Hospital **Fort Worth, 76114 (TSA-E)** **Expires 8/1/2018**
Memorial Hermann Hospital **Houston, 77030 (TSA-Q)** **Expires 11/1/2018**
Methodist Dallas Medical Center **Dallas, 75203 (TSA-E)** **Expires 11/1/2017**
Parkland Memorial Hospital **Dallas, 75235 (TSA-E)** **Expires 7/1/2018**

San Antonio Military Medical Center **Fort Sam Houston, 78234 (TSA-P)** **Expires 4/1/2018**
Scott and White Memorial Hospital **Temple, 76508 (TSA-L)** **Expires 12/1/2018**
Texas Children's Hospital **Houston , TX 77030 (TSA-Q)** **Expires 11/1/2019**
University Hospital **San Antonio, 78229 (TSA-P)** **Expires 7/1/2017**
University Medical Center at Brackenridge **Austin, 78701 (TSA-O)** **Expires 9/1/2018**
University Medical Center **Lubbock, 79415 (TSA-B)** **Expires 6/1/2019**
University Medical Center of El Paso **El Paso, 79905 (TSA-I)** **Expires 9/1/2017**
University of Texas Medical Branch **Galveston, 77555-0128 (TSA-R)** **Expires 4/1/2017**

Exhibit F—10

JPS DSRIP

TOTAL: $ 407,138,957

Project	Description	Cost
Behavioral health expanding hours JPS Hospital	Increase patient visits and hours of operation, establish urgent outpatient consult service	$ 8,168,564
Call center JPS Hospital	Decrease utilization of ED for preventable ambulatory care conditions	$ 31,101,501
Expanded specialty care JPS Hospital	Incorporate ophthalmologist into primary care	$ 14,360,016
PHP JPS Hospital	Operate 4 partial hospitalization programs and/or intensive outpatient programs	$ 15,796,379
Innovation and Transformation Center JPS Hospital	Establish a System Transformation Center to be the central authority for organizing, evaluating and documenting change efforts.	$ 20,652,313
Expand pain management care services JPS Health Network Physician Group	Increase access to specialized pain management	$ 16,428,515
Diabetes JPS Hospital	Establish chronic care model for patients with diabetes	$ 36,018,686
PCMH JPS Hospital	Decrease avoidable ED admissions by implementing a patient-centered medical home in JPS' primary care sites	$ 40,435,589

Homeless Connect JPS Hospital	Station multidisciplinary team on the street to provide care to homeless populations to reduce admissions and improve chronic care conditions	$ 2,998,984
CHF Program JPS Hospital	Establish dedicated CHF clinic	$ 1,360,094
Care transitions JPS Hospital	Develop standardized clinical protocols to improve care following inpatient/ED visits by connecting patients with access to key resources	$ 10,643,884
Integrated behavioral health care JPS Hospital	Embed 5 behavioral health care managers	$ 19,534,166
Discharge management JPS Hospital	Implement discharge management program	$ 13,396,292
MedStar patient navigation JPS Hospital	Expand 911 Nurse Triage program and MedStar CHF program	$ 6,091,181
Virtual psychiatric JPS Hospital	Increase adherence to guidelines for specific behavioral health conditions	$ 33,048,146
Community Connect JPS Hospital	Provide care to underserved population	$ 5,083,246
Patient experience: JPS Cares JPS Hospital	Establish a patient experience team to improve patient satisfaction scores	$ 10,665,513
Sepsis JPS Hospital	Increase compliance with application of sepsis bundles	$ 33,663,843
Palliative Program JPS Hospital	Implement a comprehensive palliative care consultation program for patients with serious or life-threatening illnesses.	$ 25,666,438

Integrated care model with outcome based payments JPS Hospital	Establish an integrated care model with outcome based payments	$	22,482,696
Journey to Life: prenatal care and healthy babies initiative JPS Hospital	Provide Perinatal Services Program for low-income women of childbearing age in Tarrant County	$	22,091,380
School Based Care JPS Hospital	Expand chronic disease management services in schools to serve underserved children and adolescents.	$	1,023,016

JPS HEALTH NETWORK PHYSICIAN GROUP

Project	Description	Cost	
162334001.1.1 Expand pain management care services JPS Health Network Physician Group 162334001	Increase access to specialized pain management	$	16,428,515
	TOTAL:	**$**	**407,138,957**

TEXAS HEALTH RESOURCES

TOTAL: $ 71,056,933

METHODIST MANSFIELD MEDICAL CENTER

Project	Description	Cost	
186221101.2.1 Establish a patient care navigation program Methodist Mansfield Medical Center 186221101	Develop patient navigators to engage and guide patients through integrated health care delivery systems	$	2,143,422

186221101.2.2 Expand chronic care management models Methodist Mansfield Medical Center 186221101	Develop and implement chronic disease management interventions	$	1,048,372

TEXAS HEALTH ARLINGTON MEMORIAL HOSPITAL

Project	Description	Cost
130614405.1.100 Implement a new, hospital-based behavioral health services department to provide care to adolescent and adult community members with mental health and/or substance abuse disorders. Texas Health Arlington Memorial 130614405	Implement a new, hospitalbased behavioral health services department to provide care to adolescent and adult community members with mental health and/or substance abuse disorders. The project would include an inpatient unit and outpatient services (partial hospitalization) as well as a behavioral health intake center and a response team to assist in the evaluation and navigation of patients presenting to the emergency department with behavioral health needs.	$ 9,349,366

TEXAS HEALTH HARRIS METHODIST HOSPITAL AZLE

Project	Description	Cost
127304703.1.1 Walk-in Care Center Texas Health Harris Methodist Hospital Azle 127304703	Create walk-in primary care/non-emergency care clinic	$ 565,714

127304703.2.1 Health education and lifestyles program and the chronic disease self-management program Texas Health Harris Methodist Hospital Azle 127304703	Establish HELP to offer team-based outpatient care to patients	$	1,534,516
127304703.2.100 The project will implement an ED-based case management program. Texas Health Harris Methodist Hosptial Azle 127304703	The project will implement an ED-based case management program to identify patients who are frequent users of the ED and assist them in more effective and appropriate utilization of health care resources.	$	3,127,864

TEXAS HEALTH HARRIS METHODIST HOSPITAL FORT WORTH

Project	Description	Cost
112677302.2.1 Redesign the outpatient delivery system to coordinate care for patients with diabetes Texas Health Harris Methodist Hospital Fort Worth 112677302	Partner with primary care clinicians to improve outpatient diabetes education	$ 1,405,151
112677302.2.2 Heart failure clinic Texas Health Harris Methodist Hospital Fort Worth 112677302	Prevention of potentially avoidable heart failure readmissions	$ 1,864,620

112677302.2.3 Establish/expand a patient care navigation program Texas Health Harris Methodist Hospital Fort Worth 112677302	Assign nurse case managers to lead process to reduce inappropriate ED utilization	$	9,853,560
112677302.2.4 Sepsis Texas Health Harris Methodist Hospital Fort Worth 112677302	Implementation of sepsis resuscitation bundle	$	8,704,759
112677302.2.5 Wellness for life mobile health services Texas Health Harris Methodist Hospital Fort Worth 112677302	Create a mobile health service	$	4,907,001
112677302.1.100 Increase access and availability to equipment and physical therapy staff for patients with cystic fibrosis (CF). Texas Health Harris Methodist Hospital Fort Worth 112677302	Increase access and availability to equipment and physical therapy staff for patients with cystic fibrosis (CF).Having more access to staff and equipment allows patients to direct their care and participate in their treatment plan.	$	1,609,028
112677302.2.100 Early intervention with a Child Life Specialist will be part of the weeCare Palliative care team consultation Texas Health Harris Methodist Hospital Fort Worth 112677302	Early intervention with a Child Life Specialist will be part of the weeCare Palliative care team consultation. The Child Life Specialist will assess the needs of the family and base a care plan from this assessment.	$	1,609,028

112677302.2.101 This project will create unique intervention opportunities to improve the management of medications. Texas Health Harris Methodist Hospital Fort Worth 112677302	This project will create unique intervention opportunities to improve the management of medications in the target population to prevent or reduce admissions for conditions that should be treated through the ambulatory care environment.	$ 3,764,739

TEXAS HEALTH HARRIS METHODSIT HOSPITAL HURST-EULESS-BEDFORD

Project	Description	Cost
136326908.2.1 Diabetes management program Texas Health Harris Methodist Hospital Hurst Euless Bedford 136326908	Establish program to transition ED patients to primary care providers, and decrease length of stay for diabetes inpatients	$ 508,160
136326908.2.2 Expand chronic care management models: redesign the outpatient delivery system to coordinate care for patients with chronic disease (CHF) Texas Health Harris Methodist Hospital Hurst Euless Bedford 136326908	Develop process to identify heart failure patients and improve health via reduction in acute readmission	$ 508,416
136326908.2.3 Expand chronic care management model Texas Health Harris Methodist Hospital Hurst Euless Bedford 136326908	Develop care management program for behavioral health and primary care	$ 2,617,836

136326908.2.4 Establish patient care navigation program Texas Health Harris Methodist Hospital Hurst Euless Bedford 136326908	Provide navigation services to targeted patients who are at high risk of disconnect from institutionalized health care (the seniors, self-pay, frequent flyers chronically ill and the mentally ill)	$ 1,915,333

TEXAS HEALTH HARRIS METHODIST HOSPITAL SOUTHWEST FORT WORTH

Project	Description	Cost
120726804.2.1 Redesign the outpatient delivery system to coordinate care for patients with diabetes Texas Health Harris Methodist Hospital Southwest Fort Worth 120726804	Partner with primary care clinicians to improve outpatient diabetes patient education	$ 342,906
120726804.2.2 Sepsis Texas Health Harris Methodist Hospital Southwest Fort Worth 120726804	Implementation of sepsis resuscitation bundles	$ 1,508,076
120726804.2.3 Identify frequent ED utilizers and use navigators as part of a preventable ED reduction program Texas Health Harris Methodist Hospital Southwest Fort Worth 120726804	Develop and expansion of ED liaison collaboration	$ 1,842,478

120726804.2.4 NTSP extensivist clinic Texas Health Harris Methodist Hospital Southwest Fort Worth 120726804	Apply the extensivist chronic care model to patients with chronic conditions (CHF, MI)	$ 3,485,670

TEXAS HEALTH HARRIS METHODIST HOSPITAL CLEBURNE

Project	Description	Cost
131036903.1.1 Johnson County Hope Clinic and APRN Urgent Care Clinic Texas Health Harris Methodist Hospital Cleburne 131036903	Increase HOPE clinic resources, improve access to care for patients, and augment access for under insured	$ 1,120,653

TEXAS HEALTH HARRIS METHODIST HOSPITAL STEPHENVILLE

Project	Description	Cost
121794503.2.1 Redesign the outpatient delivery system to coordinate care for patients with diabetes Texas Health Harris Methodist Hospital Stephenville 121794503	Partner with primary care clinicians to improve outpatient diabetes education	$ 106,906

TEXAS HEALTH HARRIS METHODIST ALLIANCE

Project	Description	Cost

316296801.2.100 Improved management of patient health care needs resulting in a reduction of inappropriate ED utilization for nonemergent conditions Texas Health Harris Methodist Alliance 316296801	Improved management of patient health care needs resulting in a reduction of inappropriate ED utilization for non-emergent conditions and increased navigation of patients to appropriate health care resources, including establishing a PCP.	$	3,785,736

HUGULEY MEMORIAL MEDICAL CENTER

Project	Description	Cost
109574702.2.1 CHF project THR – Huguley Memorial Medical Center 109574702	Improve health of patients with CHF	$ 818,747
109574702.2.2 Apply process improvement methodology to improve quality/efficiency – sepsis THR – Huguley Memorial Medical Center 109574702	Reduce the number of sepsis-related deaths	$ 1,008,876
	TOTAL :	**$ 71,056,933**

OTHER HOSPITAL PROVIDERS

TOTAL $ 62,539,753

BAYLOR MEDICAL CENTER AT SOUTHWEST FORT WORTH

Project	Description	Cost

135036506.1.1 Expand existing primary care capacity Baylor All Saints Medical Center Fort Worth 135036506	Open PCMH/primary care services to new patients	$	3,511,421
135036506.1.2 Improve access to specialty care Baylor All Saints Medical Center Fort Worth 135036506	Expand specialty care services and referrals to increase access to specialty care and procedures/ diagnostics	$	2,891,377
135036506.2.1 Expand chronic care management models Baylor All Saints Medical Center Fort Worth 135036506	Increase patients served with better clinical outcomes	$	3,124,889
135036506.2.4 Develop care management function that integrates primary and behavioral health needs of individuals Baylor All Saints Medical Center Fort Worth 135036506	Unduplicated patients will receive behavioral health services	$	3,010,479
135036506.2.5 Establish/expand a patient care navigation program Baylor All Saints Medical Center Fort Worth 135036506	Increase patients served, and increase confirmed appointments within 14 days post discharge	$	2,869,724

135036506.2.100 This project will provide medication management and reconciliation services to uninsured and Medicaid patients at the Baylor Clinic on the Baylor All Saints campus. Baylor All Saints Medical Center at Fort Worth 135036506	This project will provide medication management and reconciliation services to uninsured and Medicaid patients at the Baylor Clinic on the Baylor All Saints campus. A clinical pharmacist will be responsible for oversight of prescriptions, educate patients about how and why to take their medications and review utilization, appropriateness and efficacy of medications that patients have been prescribed.	$	1,788,078
135036506.1.1 Expand existing primary care capacity Baylor All Saints Medical Center Fort Worth 135036506	Open PCMH/primary care services to new patients	$	3,511,421
135036506.1.2 Improve access to specialty care Baylor All Saints Medical Center Fort Worth 135036506	Expand specialty care services and referrals to increase access to specialty care and procedures/ diagnostics	$	2,891,377

COOK CHILDRENS MEDICAL CENTER

021184901.1.1 Establish 1 additional Cook Children's pediatric neighborhood clinic in an identified area of need Cook Children's Medical Center 021184901	Expand pediatric primary care by adding 1 additional clinic	$	12,071,608

021184901.1.2 Develop 1 additional Cook Children's pediatric urgent care clinic Cook Children's Medical Center 021184901	Establish 1 additional pediatric urgent care which will see increased visits annually	$	10,753,314
021184901.1.3 Increase, expand and enhance oral health services (Establish one new Cook Children's pediatric dental clinic) Cook Children's Medical Center 021184901	Establish pediatric dental clinic which will see increased visits annually	$	8,196,015

PLAZA MEDICAL CENTER OF FORT WORTH

Project	Description	Cost	
094193202.2.1 Redesign to improve patient experience Plaza Medical Center Fort Worth 094193202	Increase percentile on CMA HCAPS grand composite scores	$	4,353,261
094193202.2.2 Apply process improvement methodology to improve quality/efficiency Plaza Medical Center Fort Worth 094193202	Increase compliance in identification/diagnosis of sepsis, increase compliance with sepsis bundles application	$	2,442,514

ENNIS REGIONAL MEDICAL CENTER

Project	Description	Cost

121822403.1.1 Expand primary care capacity in Ennis Regional Medical Center primary service area Ennis Regional Medical Center 121822403	Increase access to primary care services	$	1,124,275
	TOTAL:	**$**	**62,539,753**

ACADEMIC INSTITUTIONS

TOTAL: $ 13,415,990

UNIVERSITY OF NORTH TEXAS HEALTH SCIENCE CENTER (UNTHSC)

138980111.1.7 Expansion of Plaza/UNTHSC/TCOM Family Medicine Residency program University of North Texas Health Science Center (UNTHSC) 138980111	Increase primary care providers through expanding the 4-4-4 Plaza Hospital/UNTHSC Family Medicine Residency Program to a 6-6-6 program	$	13,415,990
	TOTAL:	**$**	**13,415,990**

Exhibit F—11

JPS Health Network
FY2016

Inpatient Revenue	Billed Charges ($ Millions)	Payor Mix
Medicare	$ 214.5	22.7%
Medicaid	$ 295.8	31.4%
Commercial	$ 109.1	11.6%
JPS Connection	$ 126.2	13.4%
Self Pay	$ 155.2	16.4%
Other Government	$ 42.7	4.5%
Total	**$ 943.4**	**100.0%**

Psychiatric Revenue	Billed Charges ($ Millions)	Payor Mix
Medicare	$ 8.1	11.8%
Medicaid	$ 14.4	20.9%
Commercial	$ 7.0	10.2%
JPS Connection	$ 8.7	12.7%
Self Pay	$ 21.5	31.2%
Other Government	$ 9.1	13.3%
Total	**$ 68.7**	**100.0%**

ER Revenue	Billed Charges ($ Millions)	Payor Mix
Medicare	$ 30.9	10.6%
Medicaid	$ 51.5	17.6%
Commercial	$ 41.9	14.4%
JPS Connection	$ 42.1	14.4%
Self Pay	$ 118.5	40.6%
Oher Government	$ 7.1	2.4%
Total	**$ 292.1**	**100.0%**

Outpatient Revenue	Billed Charges ($ Millions)	Payor Mix
Medicare	$ 95.8	21.6%
Medicaid	$ 90.8	20.5%
Commercial	$ 61.1	13.8%
JPS Connection	$ 149.7	33.7%
Self Pay	$ 34.6	7.8%
Oher Government	$ 11.8	2.7%
	$ 443.8	**100.0%**

Clinic Revenue	Billed Charges ($ Millions)	Payor Mix
Medicare	$ 32.0	15.5%
Medicaid	$ 60.7	29.4%
Commercial	$ 23.1	11.2%
JPS Connection	$ 58.2	28.2%
Self Pay	$ 18.5	9.0%
Other Government	$ 14.0	6.8%
	$ 206.6	**100.0%**

Outpatient Pharmacy Revenue	Billed Charges ($ Millions)	Payor Mix
Medicare	$ 14.4	33.6%
Medicaid	$ 3.5	8.2%
Commercial	$ 10.9	25.4%
JPS Connection	$ 5.4	12.6%
Self Pay	$ 3.3	7.6%
Other Government	$ 5.3	12.4%
	$ 43.0	**100.0%**

Supplemental Funding	Dollars	Percentage
Disproportionate Share	$ 34.5	19.6%
Uncompensated Care	$ 65.0	37.0%
DSRIP Revenue	$ 52.9	30.1%
Other Professional Fees	$ 23.4	13.3%
	$ 175.8	**100.0%**

Appendix 10: Methodology for PCP, Health Center, Specialists and Inpatient Bed Needs

Projections for primary care providers and health centers

Estimates of primary care needs of the population were calculated using two methods.

1. Population age under 65: Primary care visits per person were used from the National Ambulatory Medical Care Survey. These visits per person were multiplied by the population, resulting in total visits. The total visits were divided by the number of expected visits per primary care FTE. Expected visits for each primary care FTE were calculated based on the number of primary care visits in the U.S., the number of primary care providers in the U.S., and an estimate of the average time spent in clinical work. This calculation resulted in 3,574 expected visits per primary care provider. Visits per FTE is institution-dependent but 3,600 is not an unreasonable average number to project in the safety net with some FTEs representing new hires and some FTEs having other non-clinical responsibilities. The result is a number of expected FTEs for the population under age 65 and under 250% poverty which is 343 in 2017.

2. Populated age 65 and older: A similar process was used for age over 65 population, with the exception of the number of primary care visits which were calculated based on Medicare data rather than the National Ambulatory Care Survey. The Medicare visits per beneficiary are based on the average revenue per primary care practice divided by the Medicare per beneficiary payments for primary care. This gives the number of Medicare beneficiaries an FTE could see. Taking the number of visits seen by a primary care provider and dividing this by the number of Medicare beneficiaries for an FTE gives the number of visits on average for each beneficiary (2.949). Multiplying by 1,000 gives the rate of visits per 1,000 beneficiaries.

Projections for specialists

In order to estimate the specialty needs for the defined populations, one methodology was used for the non-Medicare population and these results were adjusted to reflect the needs of the Medicare population. The specialty need population assumptions were derived from multiple sources including the Graduate Medical Education National Advisory Council, the American Medical Association, Mulhausen Staff Model HMO, and various other public and non-public sources. The populations served in the source materials were heterogeneous, as were the models of care that were assessed (ranging from highly managed to fee-for-service). Across sources, the highest and lowest estimates for each specialty were dropped and the remaining averaged. In addition to these benchmarks, HMA used data from prior engagements in safety net systems for select specialties when adequate data were available. Importantly, the safety net experience modifies, rather than substitutes for, the multiple sources above. The second column (Medicaid/Safety Net Population Served by One FTE) in Table A-1 shows this estimate.

To estimate the needs among those ages 65 and over, a Medicare adjustment was applied, derived from select specialties. To determine the adjustment, the total number of Medicare beneficiaries (52.5 million) was divided by a 2013 Medicare NPI analysis of number of specialists serving Medicare beneficiaries, adjusted for the percentage of Medicare patients likely in a given specialty practice (see Table A-2). The adjuster for each specialty is reflected in the fourth column of Table A-1. Finally, the sum of visits by Medicare beneficiaries within the model was

summed and the population served for each specialty adjusted so that the total visits matched the Medicare published figures for specialty visits per beneficiary. The resulting estimate of the population served by one specialist is in the 5th column of Table A-1.

The resultant model was tested against the actual number of specialists in Tarrant County in 2011 with an average result 109%, meaning that the actual number of specialists in Tarrant County is somewhat higher than predicted by the needs model, but very close. The number of specialists predicted in the model, which does not include all specialties, in Tarrant County is 1,624, and the actual in 2011 was 1,939. Both indicate the model is somewhat conservative, which is a reasonable outcome given that the analysis is for the safety net.

Table A-1: Specialty FTEs needed and model testing

Specialty FTEs needed and model testing									
	Estimated population served in population <250%				Test of model in *entire* population of Tarrant County (actual vs. predicted)				
Specialty	Medicaid/ Safety Net Population Served by One FTE[1]	Multi-source estimate[2]	Medicare Adjustment Factor[3]	Medicare Population Served by One FTE	Specialists per 100,000 Ft. Worth Hospital Referral Region 2011[4]	Total population served by one specialist Ft. Worth 2011	Predicted need for all Tarrant County in model	Actual FTEs in Tarrant County	Percent predicted
Allergy & Immun	96,967	96,967	70%	101,309	0.7	142,857	19.4	13.2	68%
Cardiology	32,258	31,256	15%	7,222	4.7	21,277	78.3	88.8	113%
CV Surgery	87,684	87,684	15%	19,631	no data	no data	28.8	n/a	n/a
Child Psychiatry	27,000	27,000	n/a	not applicable	no data	no data	20.5	n/a	n/a
Dermatology	45,455	44,883	35%	23,745	2.5	40,000	45.3	47.2	104%
Endocrinology	121,929	121,929	35%	63,694	0.6	166,667	16.9	11.3	67%
Gastroenterology	47,911	47,911	35%	25,028	3.5	28,571	42.9	66.1	154%
Hem-Onc	50,000	53,690	15%	11,194	2.9	34,483	50.5	54.8	108%
Infect. Disease	132,000	132,000	70%	137,910	0.9	111,111	14.3	17.0	119%
Neonatology[7]	105,263	187,000	n/a	not applicable	1.4	71,429	19.2	26.4	138%
Nephrology	111,995	111,995	15%	25,074	2.2	45,455	22.5	41.6	184%
Neurology	55,556	49,933	15%	12,438	2.9	34,483	45.5	54.8	121%
Neurosurgery	85,467	85,467	35%	44,647	no data	no data	24.1	n/a	n/a
Ophthalmology	30,303	21,103	35%	15,830	no data	no data	67.9	n/a	n/a
Ortho Surgery	21,235	21,235	35%	11,093	no data	no data	96.9	n/a	n/a
Otolaryngology	39,508	39,508	35%	20,639	no data	no data	52.1	n/a	n/a
Ped Allergy	271,000	271,000	n/a	not applicable	no data	no data	2.0	n/a	n/a
Ped Card	356,000	356,000	n/a	not applicable	no data	no data	1.6	n/a	n/a

Ped Endoc	304,000	304,000	n/a	not applicable	no data	no data	1.8	n/a	n/a
Ped Hem-Onc	148,000	148,000	n/a	not applicable	no data	no data	3.7	n/a	n/a
Ped Nephrology	696,000	696,000	n/a	not applicable	no data	no data	0.8	n/a	n/a
Phys Med& Rehab	76,000	76,000	35%	39,701	no data	no data	27.1	n/a	n/a
Plastic Surgery	70,000	70,000	70%	73,134	no data	no data	26.9	n/a	n/a
Psychiatry	11,757	11,757	70%	12,283	no data	no data	160.0	n/a	n/a
Pulm diseases	78,453	78,453	35%	40,983	0.8	125,000	26.2	15.1	58%
Rheumatology	83,333	120,348	35%	43,532	0.6	166,667	24.7	11.3	46%
Surgery, General	12,650	12,650	35%	6,608	no data	no data	162.6	n/a	n/a
Thoracic Surgery	128,991	128,991	15%	28,879	no data	no data	19.6	n/a	n/a
Urology	40,000	36,541	15%	8,955	no data	no data	63.1	n/a	n/a
Anesthesiology	15,332	15,332	35%	8,009	no data	no data	134.2	n/a	n/a
Emergency Med	19,798	19,798	35%	10,342	7.5	13,333	103.9	141.7	136%
Pathology	20,000	20,000	35%	10,448	no data	no data	102.8	n/a	n/a
Radiology	17,402	17,402	35%	9,091	no data	no data	118.2	n/a	n/a
						Total	1,624	Average	109%

Assumptions: Visits analysis adjustment[5]: 67%

[1]Includes modification based on data from multiple county-level safety net institutions for specialties where available. Uses just the multi-source estimate where further safety net data not available.

[2]Health Management Associates, based on multiple sources including but not limited to:

Graduate Medical Education National Advisory Council

Health Manpower Report

Solucient (from Merritt and Hawkins paper), based on 2003 data

[3]See Tab titled "Spc Bnchmrk Medicare Modifier"

[4]Dartmouth Atlas: http://www.dartmouthatlas.org/data/map.aspx?ind=141

[5]An adjustment to create a total Medicare visit rate that is in line with CMS visit numbers for beneficiaries

[6]Dartmouth atlas 2011 total specialist per 100,000 population was 104.8 multiplied by 1.85M in 2011

[6]Dartmouth atlas 2011 subspecialist per 100,000 population 50th percentile 0.95 per 100,000

Table A-2: Total Specialty FTEs needed for population <250% poverty

Total Specialty FTEs needed for population <250% poverty								
	Existing JPS FTEs	Estimated need Tarrant County 2017	Percent of need met by FTEs	Wait times (months)	Estimated need Tarrant County (<250 FPL as per whole table)			
Specialties					2022	2027	2032	2037
Allergy & Immun	0	7.6	0%	no data	8.4	9.2	10.1	11.0
Cardiology	8	30.5	26%	no data	35.0	39.8	45.3	51.0
Cardiovasc Surgery	5	11.2	45%	1 to 2	12.9	14.6	16.7	18.8
Child Psychiatry	1	24.6	4%	no data	26.9	29.0	31.4	33.7
Dermatology	1	17.6	6%	12	19.8	22.0	24.4	26.9
Endocrinology	2.5	6.6	38%	4 to 10	7.4	8.2	9.1	10.0
Gastroenterology	7.8	16.7	47%	5 to 12	18.8	20.8	23.2	25.6
Hematology-Onc	8.0	19.7	41%	no data	22.6	25.7	29.2	32.9
Infectious Diseases	4	5.5	72%	8	6.2	6.8	7.4	8.1
Neonatology	11.5	6.3	182%	no data	6.9	7.5	8.1	8.6
Nephrology	6	8.8	68%	4 to 12	10.1	11.5	13.1	14.7
Neurology	4.4	17.7	25%	4 to 12	20.3	23.1	26.3	29.6
Neurosurgery	2	9.4	21%	2	10.5	11.7	13.0	14.3
Ophthalmology	7	26.4	26%	12	29.7	32.9	36.7	40.4
Orthopedic Surgery	9.7	37.7	26%	2 to 9	42.3	47.0	52.3	57.7
Otolaryngology	2.2	20.3	11%	3 to 4	22.7	25.3	28.1	31.0
Ped Allergy	0	2.5	0%	no data	2.7	2.9	3.1	3.4
Ped Cardiology	0	1.9	0%	no data	2.0	2.2	2.4	2.6
Ped Endocrinology	0	2.2	0%	no data	2.4	2.6	2.8	3.0
Ped Hem-Onc	0	4.5	0%	no data	4.9	5.3	5.7	6.1

Ped Nephrology	0	1.0	0%	no data	1.0	1.1	1.2	1.3
Phys Med & Rehab	5	10.5	47%	4	11.8	13.1	14.6	16.1
Plastic Surgery	1	10.5	10%	no data	11.6	12.7	14.0	15.2
Psychiatry	32	62.3	51%	no data	69.1	75.8	83.3	90.8
Pulmonary diseases	2	10.2	20%	10	11.5	12.7	14.2	15.6
Rheumatology	2.4	9.6	25%	4	10.8	12.0	13.3	14.7
Surgery, General	9	63.3	14%	2 to 5	71.0	78.9	87.8	96.8
Thoracic Surgery	1	7.6	13%	no data	8.8	9.9	11.3	12.8
Urology	2.6	24.6	11%	6 to 9	28.3	32.1	36.5	41.1
Anesthesiology	77	52.2	147%	no data	58.6	65.1	72.5	79.9
Emergency Med	90	40.4	223%	n/a	45.4	50.4	56.1	61.9
Pathology	8.5	40.0	21%	n/a	44.9	49.9	55.5	61.2
Radiology	6.5	46.0	14%	n/a	51.6	57.3	63.8	70.4
TOTAL	317	656			737	819	913	1007

Notes:

- *Cardiology, oncology, and psychiatry estimated based on number of outpatient visits*
- *Some specialties do not fully match between JPS and benchmark sources (e.g. 4 FTEs sports medicine placed in physical medicine, 3 FTE optometry added to ophthalmology)*
- *OB/Gyn not assessed, primary care separate*
- *Specialty FTEs not in table: 36.6 hospitalists, 6 intensivists, 7 pain management, 4.4 podiatrists, 43 OB/Gyn*

Table A-3: Medicare Modifiers for Population Served per FTE by Specialty Types

Medicare Modifiers for Population Served per FTE by Specialty Types					
Specialty	Number of providers[2]	Percent of usual practice[3]	Population served by one FTE	Safety net/Medicaid population served by one FTE	Percent of Safety Net/Medicaid Benchmark
Hematology/Oncology	10,323	65%	7,825	53,690	15%
Ophthalmology	14,473	50%	7,256	21,103	34%
Rheumatology	3,769	40%	34,828	120,348	29%
Radiation Oncology	3,912	65%	20,649	61,000	34%
Dermatology	7,492	40%	17,521	44,883	39%
Cardiology	19,650	60%	4,453	31,256	14%

Based on above analysis, the following modifiers to the Safety Net/Medicaid population served by one FTE are used in subsequent analysis:

- High geriatric concentration specialties 15%
- Medium geriatric concentration 35%
- Low geriatric concentration 70%
- Very low 140%
- Number of Medicare beneficiaries: 52,506,598

[1]*Kaiser Medicare Number: http://kff.org/medicare/state-indicator/total-medicare-beneficiaries/?currentTimeframe=2*

[2]*2013 - NPI analysis for Medicare www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2015-Fact-sheets-items/2015-06-01-2.html*

[3]*60% of all cancers occur in age > 65, 70% of cancer deaths: http://www.hopkinsmedicine.org/gec/series/cancer_aging.html*

Projections for Psychiatric Bed Needs

Determining how many inpatient beds a community needs within the private or publicly funded behavioral health system is difficult at best. It is universally agreed across the behavioral health field that the need for inpatient psychiatric beds must be evaluated in the context of the full array of available state and community mental health services. The Treatment Advocacy Center (TAC), considered the experts on this topic, published a white paper in 2008, describing a standard ratio of 50 *public* behavioral health beds for every 100,000 people.[xciv] The recommendation includes adult, children and forensic beds but did not provide estimates for each group. In March of 2016, TAC updated its recommendations to 60-80 beds per 100,000 including adult, child and forensic beds.[xcv] Per the American Association of Geriatric Psychiatry and American Academy of Child and Adolescent Psychiatry, experts assert that there is no existing information available to determine number of inpatient beds needed for children and adolescents[xcvi] or geriatric populations[xcvii] specifically.

In the United States, the average number of beds per 100,000 declined 34% between 1998 and 2013, from 34 to 22 beds per 100,000, while suicide rates increased between 1999 and 2014 by

24%.[xcviii] In 2016, the ratio of State facility beds to United States residents was a mere 11.7 beds per 100,000 people across the country.[xcix]

In Texas, the Joint Commission on Access and Forensic Services' 2016 Legislative Report Forensic Plan reported an existing 2,463 public psychiatric beds across the state, equating to 10.5 beds per 100,000 Texans, as well as an estimated need to add 1,800 beds over the next eight years—1,400 immediately and 50 more each year to keep up with population growth. The report recommended that beds be added through "a significant initial expansion of state-operated and state-funded inpatient capacity," to include additional maximum security beds, followed by a gradual increase in beds to meet both the current and future demand.[c] According to Cannon Design's 2015 report, the estimated total need for privately and publicly funded inpatient beds in Texas was 5,425 beds in 2014, a number that will increase to 6,032 by 2024, a growth of 607 beds in the next 10 years.[ci]

In 2016 existing bed estimates within Tarrant County for children and adolescents included:

- 11 beds dedicated to children <12 years old (Cook)
    - Millwood serves children (including under age 12), with a fluctuating, flexible total number of dedicated beds
- 16 beds dedicated to adolescents >12 years old (JPS)
- 60 beds dedicated to children and youth ages 5 – 18 years old (Sundance)

JPS inpatient beds represent approximately 24% of the total dedicated psychiatric beds (does not include the med/psych beds) in Tarrant County:

- 132 total psychiatric beds
    - 116 adult beds
    - 16 adolescent beds
- 15 med/psych beds

Due to lack of capacity, fiscal year 2015 JPS transferred 3,100 patients to other hospitals for inpatient admission. JPS paid $3.1M dollars to private hospitals for these patients who had no resources. Of the patients admitted at JPS, 80% are civil commitment or involuntary admissions. There are no dedicated forensic beds at JPS currently.

For the purpose of estimating future psychiatric bed needs, the following assumptions were used:

6. Over time with the development and investment of community-based services, diversion programming and enriched evidence based services, Tarrant County will be able to effectively manage inpatient psychiatric admissions with lower bed numbers. Therefore, estimates used half of the public bed estimate from the current literature, equating to 35 public beds/100,000 people.
7. Given JPS' positive performance with the most complex patients, 50% of public bed need in Tarrant County should be located within the JPS facility.
8. Given lack of available beds within the state psychiatric facilities and similar growth needs, estimates do not include these beds. If new state beds become available or JPS is able to refer more patients to these facilities bed recommendations should be revised.
9. JPS will continue to contract with private facilities and identify opportunities to support improved outcomes for complex patients at these facilities, as well as direct lower need patients to private facilities.

10. If any of the above assumption is not correct, revised estimates will be required.

Projections for Acute Medical Hospital Bed Needs

In determining bed acute medical hospital bed needs, an assumption was made that the current beds in all of Tarrant County, taken as a whole, are just adequate to meet the needs of the population. This assumption is supported by the fact that the area is near the 50th percentile of beds per population per Dartmouth Atlas data. Bed needs have been steadily falling throughout the U.S. and are significantly lower than Tarrant County in many areas (see Table A-4). Some continued reduction should be assumed when estimating bed needs. For this bed estimate, a 5% reduction in bed needs in each five year period is assumed, eventually lowering beds per thousand from the 50th percentile of hospital service areas to what would have been the 10th percentile in 2012 (1.65 beds per thousand).

The bed estimates for the target population, defined as the JPS Connection-eligible population and Medicare below 250% poverty, were derived by creating a beds per 1,000 specific to the population mix and adjusted to the projected rate in Tarrant County. JPS Connection population was assumed to have a hospitalization rate similar to other uninsured populations in US, in terms of ratios, not absolute numbers. A hospital bed rate was calculated for the whole US and this was then adjusted to a bed rate consistent with Tarrant County.

Table A-4: Method for defining bed demand in target population of JPS Connection-eligible and Medicare < 250% FPL

Payer bed demand rates*							
Payer	Total Admits in US, 1,000s	Length of Stay	Bed-days in 1,000s	Beds filled if 100% occupancy	Estimated Population in 2012, Millions	Beds filled (if 100% occupancy) per 1,000	Adjusted to weighted average of 2.0 beds per 1,000
Medicare	14,300	5.2	74,360	203,726	52.0	3.9	5.7
Medicaid	7,600	4.3	32,680	89,534	54.1	1.7	2.4
Insured	11,200	3.8	42,650	116,603	159.9	0.7	1.1
Uninsured	2,000	4.0	8,000	21,918	48.0	0.5	0.7
			Total	431,781	314.0	1.4	2.0

*Overview of Hospital Stays in the United States, Statistical Brief #180, 2012, AHRQ

The rates of 5.7 beds per thousand for Medicare and 0.7 for uninsured were then used to define the blended rate for target population in each of the years based on the population blend in those years. The hospital rate for this target population was fairly steady because the increasing proportion of elderly increased the rate at the same time that assumed improvements in care coordination and primary care access pushed the rate down, reflected in Beds per Thousand in Table A-1.

Appendix 11: Infant Mortality Rate in Tarrant County

Definitions

Infant Mortality—Death of a baby before its first birthday
Infant Mortality Rate (IMR)—Number of deaths that occurred for every 1000 live births

Facts

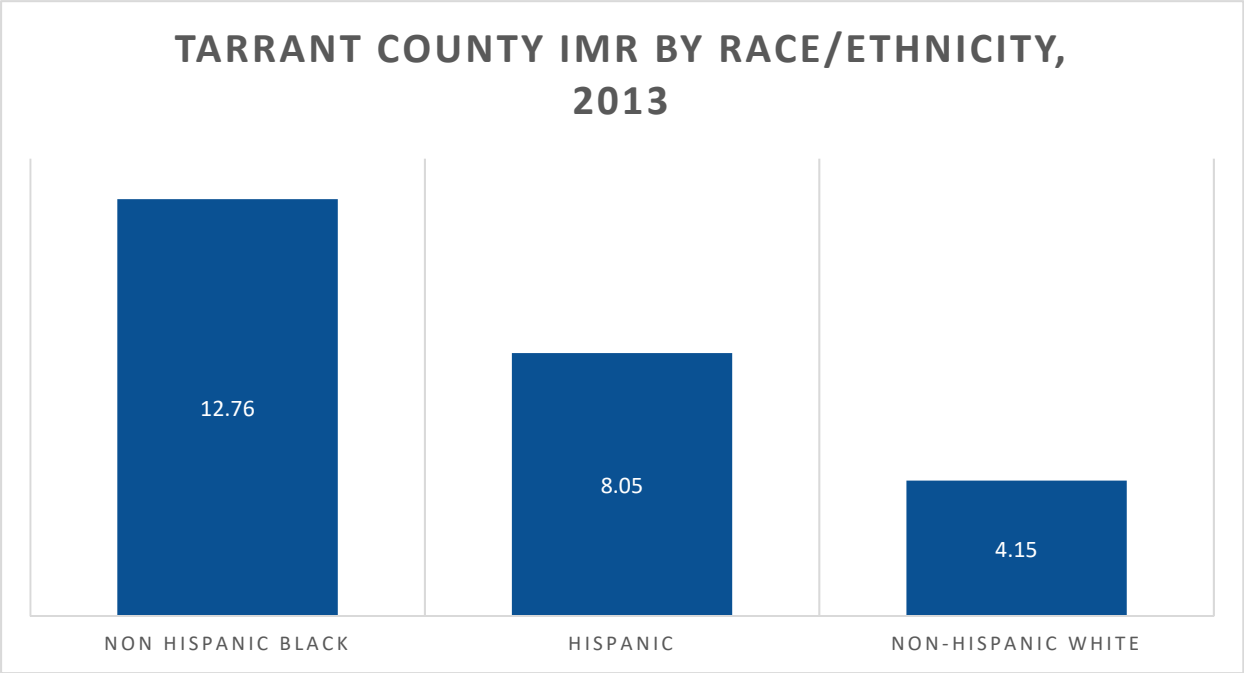
- Nationally, infant mortality rate has declined over past 30 years.[cii]
- Racial disparities in IMR remain.[ciiiciv]
    - The infant mortality rate for infants born to well-educated African American women (Non-Hispanic Black mothers with college degrees) is significantly higher than infants born to Hispanic and Non-Hispanic White women with less than a high school education (10.0 vs. 8.5 and 6.4).[cv]
    - Babies born to African American woman are at greater risk of dying before their first birthday even when prenatal care was initiated early.
- In 2013 Tarrant County had the **highest** infant mortality rate among Texas counties with 10,000 or more live births.[cvicvii]
- Preventable infant deaths continue.

Table 1: Infant Mortality Rates, 2013

Infant Mortality Rates			
National	**Texas**	**Tarrant County**	**Fort Worth**
5.96	5.82	7.11	8.59

Source: Tarrant County.

Table 2: Tarrant County IMR by Race/Ethnicity, 2013



Source: Tarrant County. 2013 Tarrant County Infant Mortality Summary.

Table 3: Causes of Infant Mortality

Causes of Infant Mortality	
National	**Tarrant County**
1. Preterm birth (<37 weeks gestation)	1. Preterm birth (<37 weeks gestation)
2. Maternal complications of pregnancy	2. Late entrance into prenatal care (48% of women enter pregnancy after first trimester)
3. Sudden Infant Death Syndrome	3. Sudden Infant Death Syndrome
4. Birth Defects	
5. Injuries (Suffocation)	

Source: Tarrant County. 2013 Tarrant County Infant Mortality Summary.

Tarrant County

The 2015 Tarrant County Infant Mortality Review Care Team reported maternal weight (underweight and obesity) as the largest risk factor contributing to IMR and contributed to 67% of infant deaths in 2012.

How is Tarrant County Responding to this issue?

Tarrant County has a large number of community, faith and business leaders, health organizations and government agencies committed to lowering the infant mortality rate. The County has established a Tarrant County Infant Mortality Network that receives recommendations from the Tarrant County Infant Mortality Review Care Team. Current recommendations include (1) providing education and training to hospital chaplains, (2) promoting safe sleep programs in the community, and (3) reproductive life programs for women and men.

Other county programs working to combat infant mortality include:

- **One Key Question** – This is a grant that Tarrant County Public Health received from the State of Texas to implement a systems change addressing infant mortality. JPS is working with the Health Centers for Women and the providers to implement 'One Key Question', asking all women of child bearing age at their well women exam if they are planning to expand their family in the next year. Depending on the response, the provider will have additional items to discuss and the appropriate patient education will be pulled into their after visit summary.[cviii]
- **Healthy Texas Women** – Grant from the State of Texas to provide coverage for women 15-44.[cix]
- **Safe Infant Sleep Initiative** – This initiative is led by Cook Children's Center for the Prevention of Child Maltreatment and increases safe sleep environment awareness
- **Prenatal Education Jail Program** – This program provides prenatal education to pregnant inmates at the Tarrant County Jail and provides hand-off of care once pregnant mothers are released.
- **JPS DSRIP projects** – These projects include initiatives focused on breastfeeding, Centering Pregnancy and Preconception/Inter-conception.
- **Healthy Start and March of Dimes** – JPS partners with both programs.

Areas of Risk and Interventions

Below are identified areas of risk for infant mortality and some evidence-based programs that are being used to address infant mortality.

Social

1. Socio-economic Disparities
    - Home visiting services (depression, domestic violence, substance abuse, mental health)
    - Connect communities with housing, transportation, education and job resources
2. Maternal Health/Prematurity
    - Preconception health programs- peer education
    - Identify high risk neighborhoods and provide enhanced care management services for both pregnant and non-pregnant women to improve health status and future birth outcomes

- ❑ Use community health workers who live in the neighborhoods to assist with outreach and help connect pregnant women to health care and other community resources

3. Maternal Care
   - ❑ Centering Pregnancy- evidence based health care delivery model that integrates maternal health care assessment, education and support.
   - ❑ Reduce unnecessary scheduled early deliveries (36-39 weeks gestation)
   - ❑ Improve the administration of Progesterone (17P) to women at risk for preterm babies.
   - ❑ Smoking cessation programs
4. Newborn Care
   - ❑ Improved discharge planning from neonatal intensive care
   - ❑ Identification of high risk babies for care management
5. Infant/Child Health
   - ❑ Infant Safe Sleep Education
     - o Set up model nursery in hospital that demonstrate home safety
   - ❑ Breastfeeding – Lactation consultants
   - ❑ Immunizations
   - ❑ Home visiting programs to assure safe environment
   - ❑ Injury prevention education

Recommendations

1. Develop and enhance partnerships and population health programs in Tarrant County to address social and health disparities of high risk populations
2. Identify perinatal regions that develop population specific programs around infant mortality
3. Improve integrations between the many county IMR programs and initiatives.
4. Develop common goals and metrics between public health, community organizations and primary care to improve IMR
5. Work to reduce racial and economic inequities and health disparities by developing policies to reduce poverty, improve access to housing, employment and healthcare services

[xciv] Torrey F, Entsminger K, Geller J, Stanley J, Jaffe DJ: The Shortage of Public Hospital Beds for the Mentally Ill, Treatment Advocacy Center (TAC) white paper, 2008

[xcv] Interview with Torrey Fuller MD, Treatment Advocacy Center – 12/16/2016

[xcvi] Interview Dan Sewell, MD, President of the American Association of Geriatric Psychiatry – 12/20/2016

[xcvii] Interview Gregory Fritz, MD, President American Association of Child and Adolescent Psychiatry - 12/22/2016

[xcviii] http://jamanetwork.com/journals/jama/fullarticle/2580183

[xcix] Torrey, E. F., Fuller, D. A., Geller, J., Jacobs, C., & Ragosta, K. (2012). No room at the inn: Trends and consequences of closing public psychiatric hospitals. Arlington, VA: Treatment Advocacy Center.

[c] Retrieved from https://www.dshs.texas.gov/mhsa/SB1507/SB-1507.aspx

[ci] http://www.dshs.texas.gov/legislative/2015/Rider83-state-hospital-long-term-plan.pdf

[cii] MacDorman M.F., Mathews T.J. NCHS Data Brief: Recent Trends in Infant Mortality in the United States. April 2017. [Online]. http://www.cdc.gov/nchs/data/databriefs/db09.htm.

[ciii] 2015 Annual Report. America's Health Rankings. United Health Foundation. April 2017. [Online]. http://www.americashealthrankings.org/explore/2015-annual-report/measure/IMR/state/ALL.

[civ] MacDorman MF, Mathews TJ. Understanding racial and ethnic disparities in US infant mortality rates. NCHS data brief no. 74. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2011. [Online]. https://www.cdc.gov/nchs/data/databriefs/db74.pdf.

[cv] Moerbe, Micky M. Tarrant County Public Health. Tarrant County Infant Mortality: Data to Action. Sept. 2016. [Online]. http://www.tarrantfatherhood.org/uploads/2/0/5/0/20505242/2016.09.16_mmoerbe_im_in_tc_data_to_action_ih_summit.pdf.

[cvi] Tarrant County. Tarrant County Infant Mortality 2013. April 2017. [Online]. http://access.tarrantcounty.com/content/dam/main/public-health/PH%20DOCUMENTS/Epi/Infant%20Mortality%20Reports/2013_TC_IM_Summary_Updated.pdf.

[cvii] Tarrant County. 2013 Tarrant County Infant Mortality Summary. April 2017. [Online]. http://access.tarrantcounty.com/en/public-health/epidemiology-and-health-information/health-data-and-information/infant-mortality/infant-mortality-reports---summaries.html and http://access.tarrantcounty.com/content/dam/main/public-health/PH%20DOCUMENTS/Epi/Infant%20Mortality%20Reports/2013_TC_IM_Summary_Updated.pdf.

[cviii] Oregon Foundation for Reproductive Health. One Key Question. April 2017. [Online]. http://www.onekeyquestion.org/.

[cix] Texas Health and Human Services Commission. Healthy Texas Women. April 2017. [Online]. https://www.healthytexaswomen.org/.