Health Indicators for the Dallas/Fort Worth Combined Metropolitan Statistical Area

Our Community Health for the Dallas/Fort Worth Combined Metropolitan Statistical Area

Checkup 2007

for the Dallas/Fort Worth Combined Metropolitan Statistical Area

Brad Walsh and Sue Pickens Owens
Purpose

- Disproportionate Share Requirements (State requirement for hospitals service a disproportionate share of Medicaid and indigent populations)
- Community Benefit Standard (State requirement of non-profit hospitals)
- Meet IRS requirements for non-profit hospitals

Uses

- Tracking the health of the community
- Identifying community needs and promoting community health
- Guide for community health outreach targets
- Identifying need for public health interventions, monitoring effectiveness of interventions
- Starting place for regional healthcare planning (e.g. physician needs, medically underserved areas, locations of low income medically indigent populations)
- Guide for identifying new community health center clinic sites
- Establishing goals and objectives for grants

Support

- Supported through funding from a DFW-Hospital Collaborative of Disproportionate Share and Not-for-profit hospitals in the MSA.
- Dallas Fort Worth Health Industry Council – Health Status Report Card for Texas
Geography

- MSA
- Dallas County: analyses for 12 Service Areas based on Census Tracts, 84 Planning Districts (smaller groupings of census tracts – defined by the North Central Texas Council of Governments), and the whole county
- Tarrant County: analyses for 11 sub-county service areas, planning districts and the whole county
- Collin County: analyses for 3 service areas; Denton, Johnson and Parker Counties: 2 Service areas each; planning district analyses for each county and a county wide analysis

Changes in the Community Health Checkup

- New features in birth outcomes, market share trends and pediatric prevention quality indicators
- Future web based product that will allow the user more customization
Epidemiologic Analysis

- Demographic Population Variables
- Births & Birth Related Information
- Age Adjusted Death rates
- Prevention Quality Indicators (potentially preventable hospitalizations)
- Hospital Market Share
- Causes of Hospitalization
- Access to Primary Care
- Injury Data

- Communicable Disease Morbidity
- Chronic Disease Prevalence
- Health Insurance Estimates
- Healthcare Manpower Estimates
Any special studies of local interest

- City of Fort Worth public health assessment
- Tarrant County Drug Impact Index
- Rincon & Associates’ annual Hispanic market surveys
- Commercial data providers (Solucient, Gallup, etc.)
- United Way annual needs assessments
- Special sub-county BRFSS studies
- Anything else we can get our hands on (health department projects, marketing/focus group research, needs assessments, reports, theses, etc.)
Using Prevention Quality Indicators (PQI/PDI) and Inappropriate ED Utilization Data to Characterize Primary Care Need and Uncompensated Care Burden and Determine Service Location Geographies
The Prevention Quality Indicators (PQIs) are a set of measures that can be used with hospital inpatient discharge data to identify quality of care for "ambulatory care-sensitive conditions." These are conditions for which good outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease.

Even though these indicators are based on hospital inpatient data, they provide insight into the community health care system or services outside the hospital setting.

-- http://www.qualityindicators.ahrq.gov/pqi_overview.htm
Patients with diabetes may be hospitalized for diabetic complications if their conditions are not adequately monitored or if they do not receive the patient education needed for appropriate self-management. Patients may be hospitalized for asthma if primary care providers fail to adhere to practice guidelines or to prescribe appropriate treatments. Patients with appendicitis who do not have ready access to surgical evaluation may experience delays in receiving needed care, which can result in a life-threatening condition—perforated appendicitis.

-- http://www.qualityindicators.ahrq.gov/pqi_overview.htm
Because the PQIs are calculated using readily available hospital administrative data, they are an easy-to-use and inexpensive screening tool. They can be used to provide a window into the community—to identify unmet community health care needs, to monitor how well complications from a number of common conditions are being avoided in the outpatient setting, and to compare performance of local health care systems across communities.

-- http://www.qualityindicators.ahrq.gov/pqi_overview.htm
Adult Prevention Quality Indicators (PQIs)

- Diabetes, short-term complications (PQI 1)
- Perforated appendicitis (PQI 2)
- Diabetes, long-term complications (PQI 3)
- Chronic obstructive pulmonary disease (PQI 5)
- Hypertension (PQI 7)
- Congestive heart failure (PQI 8)
- Low birth weight (PQI 9)
- Dehydration (PQI 10)
- Bacterial pneumonia (PQI 11)
- Urinary infections (PQI 12)
- Angina without procedure (PQI 13)
- Uncontrolled diabetes (PQI 14)
- Adult asthma (PQI 15)
- Lower extremity amputations among patients with diabetes (PQI 16)
Pediatric Prevention Quality Indicators (PDIs)
Area-Level

- Pediatric Asthma (PDI 14)
- Diabetes, short-term complications (PDI 15)
- Pediatric gastroenteritis (PDI 16)
- Perforated appendicitis (PDI 17)
- Pediatric Urinary infections (PDI 18)
<table>
<thead>
<tr>
<th>Condition</th>
<th>South Dallas</th>
<th>Dallas Cnty.</th>
<th>% of Cnty rate</th>
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</thead>
<tbody>
<tr>
<td>Diabetes Short Term Comp – Adult</td>
<td>135.0</td>
<td>61.3</td>
<td>220.2%</td>
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<tr>
<td>Perforated Appendix – Adult</td>
<td>0.0%</td>
<td>26.9%</td>
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<tr>
<td>Diabetes Long Term Comp</td>
<td>320.0</td>
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<td>COPD</td>
<td>240.0</td>
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<tr>
<td>Essential Hypertension</td>
<td>120.0</td>
<td>57.1</td>
<td>210.2%</td>
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<tr>
<td>Congestive Heart Failure</td>
<td>1035.0</td>
<td>396.7</td>
<td>260.9%</td>
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<tr>
<td>Dehydration</td>
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<td>162.6%</td>
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<td>Bacterial Pneumonia</td>
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<tr>
<td>UTI – Adult</td>
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<td>Asthma – Adult</td>
<td>135.0</td>
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<tr>
<td>Lower Extremity Amputation Among Diabetics</td>
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<td>50.5</td>
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<td>3.7</td>
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<tr>
<td>Angina W/O Procedure</td>
<td>2.9</td>
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<td>Asthma – Adult</td>
<td>12.8</td>
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<td>39.1</td>
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<td>PQI INDEX</td>
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About the COPC Model

- Parkland’s Community Oriented Primary Care system is based on a model developed and promoted by the National Academy of Science Institute of Medicine.

- This model has been implemented in a number of settings – urban, rural, tribal populations, specific to disease, for establishment of health in primitive populations, and others.

- The COPC model consists of three key elements:
  - A practice actively engaged in primary care,
  - A defined community for which the practice has accepted responsibility for health care, and
  - A systematic process by which the practice, with the participation of the community, identifies and addresses the major health problems of the community.
Guiding Principles

The Community-Oriented Primary Care will provide a medical home in which the health professional assumes ongoing responsibility for health maintenance and therapy.

- Services should be **accessible** to people in geographic areas of greatest need.
- Services should be **comprehensive** in scope for the types of patients served.
- **Continuity** of care must be maintained between the primary care clinics and other specialty and inpatient services.
- Services should be provided in an **accountable** manner with regard to the quality and potential benefits or risk incurred.
- Services should be provided **efficiently**.
- Services provided should be **effective** in terms of achieving predetermined “outcomes” such as reduction in morbidity or disability.
- Services will be subject to Parkland’s **quality** assurance program overseen by the JCAHO.
An Updated Need Assessment

Parkland has adopted four new tools/information sources since the original need assessment was designed.

- The **Community Need Index (CNI)** is a product of Thompson-Reuters (previously Solicient)
  - The CNI aggregates five socioeconomic indicators known to contribute to health disparity – income, culture/language, education, housing status and insurance coverage.
  - These are applied at the zip code level to produce a score ranging from 1.0 (low need) to 5.0 (high need).
  - Residents with the highest CNI scores are shown to be twice as likely to experience preventable hospitalization for manageable conditions.

- The **Prevention Quality Indicator (PQI)** index is a product of Agency for Health Research and Quality (AHRQ).
  - AHRQ has defined 13 PQIs for adults and 5 for children that measure rates of inappropriate hospital admissions for illnesses that can be effectively managed with high-quality, community-based primary care.
  - For analytic purposes, we have compiled an index designed for adults and one designed for pediatrics.
  - Preventable hospitalizations are expensive – prevention through primary care can yield system savings.
The Dallas Fort Worth Hospital Council has established an Emergency Department data set

- We obtained the 2007 data set capturing visits for Dallas County residents seen and released without inpatient admission by participating Hospital Council member hospitals (includes all major Dallas County hospitals).
- By applying the New York algorithm, we have identified those visits that are sensitive to primary care intervention.
- We approximated the visits associated with our target population by using Medicaid, Self Pay and Charity visits.

The Parkland Community Health Plan enrollment by zip code

- The Plan enrolled membership represent a subset of our target patient population – persons covered by Medicaid.
- We obtained the number of Plan members by residence zip code and the number assigned to COPC sites or to non-Parkland providers.
Need Assessment Approach

Today

Four methods for need assessment

- CNI to PQI Relationship
- PQI weighted to Population
- Avoidable ER Utilization
- Assignment of PCHP Enrollees

Consensus on Candidate Areas

Develop Site-Specific Plans
The CNI map resembles the Williams Institute’s Wholeness Index, but data are available for each of the 12 counties in the DFW CMSA.
The need assessment includes those centers that serve as medical homes.

Included are the nine Health Centers, School-based Youth and Family Clinics and the HOMES program.

Excluded are the ACC and EPO centers.

The Health Center primary service areas are drawn in black outline.

The Health Centers provide good coverage of the higher CNI zip codes.

- COPC Health Centers
- (Pediatric Only)
- Other low income providers
Primary care interventions are most effective when targeting areas of highest prevention opportunity and highest community need.

**Prevention Quality Indicator Indexed to County Average**

- **<1.00**: Better than County average
- **1.00-1.99**: Up to two times worse than average
- **2.00-3.00**: From two to three times worse than average

**Community Need Index**

- **5.0**: Highest
- **4.5 – 4.9**: Moderate
The chart presents PQI / CNI intersect for each zip code.

The data trend line is mapped showing with weak correlation an increase in preventable admissions associated with a higher CNI.

The data points selected for the red shaded zone indicate those zip codes in which the preventable admissions are greater than 20 percent above the mean for all CNI greater than 3.00 – worse performance than average.

The data points selected for the blue zone indicate those zip codes in which preventable admissions are more than 20 percent below the mean – better performance than average.
Adult Population
Relationship between CNI and PQI

Map of Performance Zones
(red=worst, blue=better)

\[ y = 0.196x + 0.341 \]
\[ R^2 = 0.134 \]
Dallas County primary care improvement opportunity for the adult population, as weighted by population size, is stratified as presented in the map and defined by the legend below.

- **High Target Population**
  - High Prevention Opportunity

- **High/Moderate Target Population**
  - High/Moderate Prevention Opportunity

- **Moderate Target Population**
  - Moderate Prevention Opportunity
Pediatric Population
Prevention Quality Indicator

Interventions are most effective when targeting areas of highest prevention opportunity and highest community need.

Community Need Index

Higher need areas are indicated in darker colors, while lower need areas are in lighter colors.

Legend:
- Highest: 5.0
- Moderate: 4.5 - 4.9
- Low: 4.0 - 4.4
- Lowest: 3.0 - 3.9

Interventions are most effective when targeting areas of highest prevention opportunity and highest community need.
Pediatric Population
Relationship between CNI and PQI

Map of Performance Zones
(red=worse, blue-better)

\[ y = 0.055x + 0.838 \]
\[ R^2 = 0.007 \]
Dallas County primary care improvement opportunity for the pediatric population, as weighted by population size, is stratified as presented in the map and defined by the legend below.

- **High Target Population**
  - High Prevention Opportunity

- **High/Moderate Target Population**
  - High/Moderate Prevention Opportunity

- **Moderate Target Population**
  - Moderate Prevention Opportunity
Adult Population
Combined CNI, PQI and Population Basis
Pediatric Population
Combined CNI, PQI and Population Basis

PQI performance relative to CNI

PQI weighted by population size
This map presents the combined assessment for the adult and pediatric populations. Where both the adult and pediatric populations present need, the zip code is colored green; where the assessment indicates need for only one population base, the zip code is colored brown for adult only and rose for pediatric only.
Avoidable ED Visits

- This map presents the visits to Hospital Council participating hospitals from Dallas County residents with payer class of Medicaid, Self Pay and Charity.

- The visits summarized in this map represent 60 percent of all ED visits and fall into three categories:
  - Non emergency (24% of total ED visits).
  - Emergency care needed, but could have been treated in a primary care setting (27% of total ED visits).
  - Emergency care needed, but primary care could have prevented or avoided the problem (9% of total ED visits).
Adult and Pediatric Population
Avoidable Emergency Department Visits - 2007

ED Visits that were non-emergent (by quartiles)

ED Visits that were emergent but primary care preventable (by quartiles)

Analysis of avoidable ED visits by classification gives additional nuance

Data are ED visits by patient ZIP, excluding commercially-insured and Medicare insured
The findings from the evaluation methods are presented below.

The three zones of need/opportunity that are consistent in each method’s results are circled on each of the maps.

Several zones of need/opportunity identified by one or two of the methods are also noted.