



# **A GIS Portrait of Childrens Health System of Texas Population Health**

**ESRI Health GIS Conference  
November 3-5, 2014  
Colorado Springs, Colorado**

# Overview:

- The Presenters
- Children Health System of Texas (CHST)
- Population Health/Data Strategies
- GIS Portrait at CHST
- Challenges
- Success
- GIS Case Studies
- Next Steps
- Questions & Answers

# **The Presenters:**



**Summer Collins, MPH  
Vice President  
Population Health, Data Strategies**



**Aijaz Syed, GISP  
Visualization Specialist  
Population Health, Data Strategies**

# Children's Health System of Texas



## **Vision:**

**Children's will be among the very best medical centers in the nation.**

## **Mission:**

**To make life better for children.**



# CHST at a Glance

Celebrated centennial anniversary in 2013

1913










2014



Campuses (Dallas, Legacy, Southlake)	3
Licensed beds (6 <sup>th</sup> largest pediatric hospital in U.S.)	591
Pediatric Admissions (2 <sup>nd</sup> most pediatric admissions in U.S.)	27,753
ER visits (2 <sup>nd</sup> busiest among children's hospital)	163,661
Patient encounters	769,573
Pediatric Group Clinics	18
Employees	6,000
Community benefits	\$157m
Charity care (cost basis)	\$24m
Market share	60%

# Recognized for Excellence

	<p><b>7<sup>th</sup> consecutive year</b> named one of the top children's hospitals in the nation by <i>U.S. News &amp; World Report</i>; <b>ranked in all 10 specialties</b></p>
	<p>Received the Davies Award of Excellence, the highest <b>achievement in health information technology</b> recognized with Healthcare Information and Management Systems Society (HIMSS)</p>
	<p>Redesignated as a <b>Magnet</b> organization by the American Nurses Credentialing Center, the <b>highest national recognition for nursing excellence</b></p>
	<p><b>Only pediatric hospital in the nation</b> to be certified in 7 Joint Commission disease-specific certifications</p>
	<p><b>Best Place to Work</b> – <i>Becker's Hospital Review</i>, <i>Dallas Business Journal</i> and <i>Dallas Morning News</i></p>
	<p>MyChildren's recognized by National Committee for Quality Assurance (NCQA)</p>
	<p><b>Only</b> pediatric cancer program in region designated by <b>National Cancer Institute</b></p>

# Only academic pediatric health care facility in the region

- Primary teaching hospital for University of Texas Southwestern Medical Center (UTSW)
- Affiliation with Texas A&M Colleges of Dentistry and Medicine
- Jointly operate the Children's Research Institute with UTSW



CHILDREN'S MEDICAL CENTER  
**RESEARCH INSTITUTE**  
AT UT SOUTHWESTERN  
*Relentless discovery toward the treatments of tomorrow*

# Clinical: Telemedicine Sites located at 26 Schools

## Internal:

- Improving access to patients for our own physicians and staff
- Reducing travel time to different locations
- Improving access for complex conditions from multiple specialists

## External:

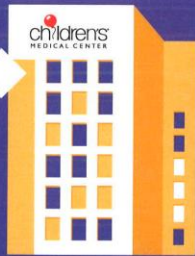
- Hospital-Hospital
  - Sub-specialty
- Primary Care
- Home





# Population Health Defined

## A Transformative Business Model for Pediatric Health

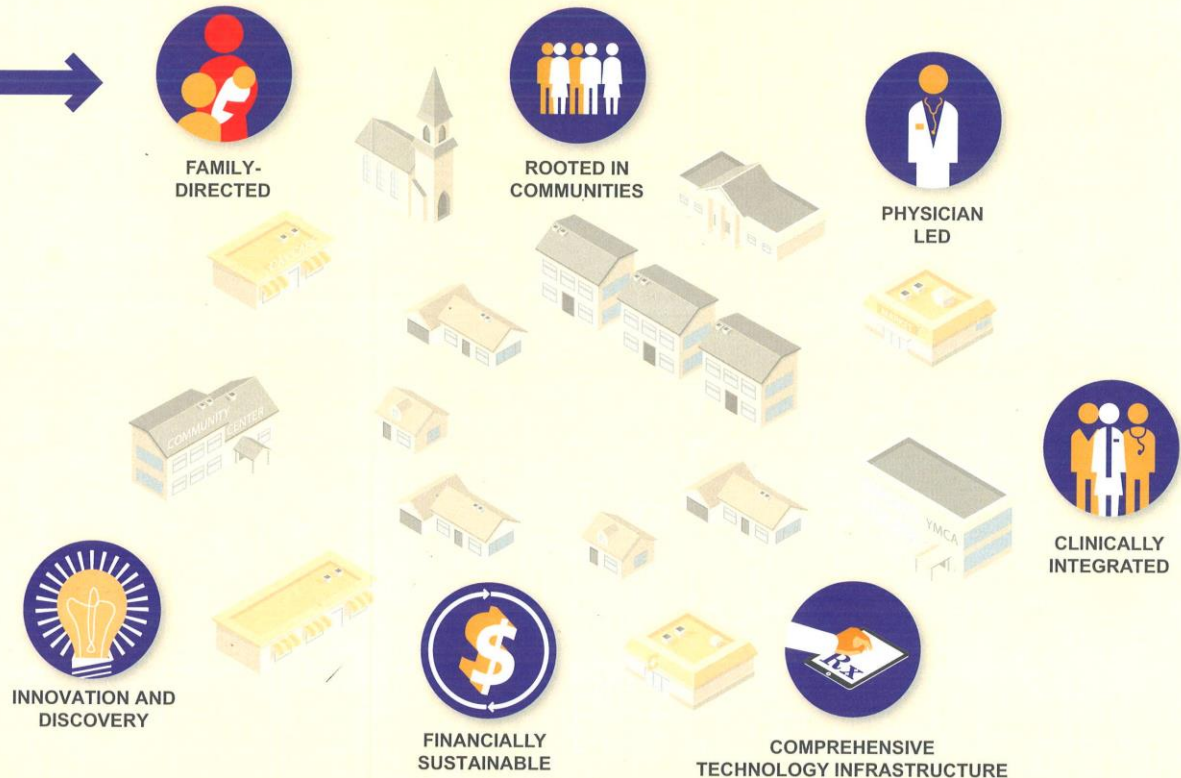


At Children's Medical Center Dallas, we are expanding our mission to *make life better for children* through transformational partnerships within the communities we have served for more than 100 years.

Our approach will improve the health and well-being of all children where they live and play.

### ELEMENTS OF TRANSFORMATION

- Family-Directed
- Rooted in Communities
- Physician Led
- Clinically Integrated
- Comprehensive Technology Infrastructure
- Financially Sustainable
- Innovation and Discovery



### PATIENTS/FAMILIES:

**Change:** Active control of their health and well-being  
**Benefits:** Greater sense of personal power, improved knowledge of health and wellness, more accessible affordable care; healthier children



### INSURERS:

**Change:** Shared risk/shared control with providers  
**Benefits:** Collaborative provider relationships, improved population outcomes



### PHYSICIANS:

**Change:** Leadership responsibility for optimizing care and cost  
**Benefits:** Improved population health, improved cost efficiency



### EMPLOYERS:

**Change:** Commitment to incentivized employee wellness programs  
**Benefits:** Reduced cost trends, improved productivity, healthier workforce



## Changing Roles and Responsibilities for Key Stakeholders

# Health and Wellness Alliance for Children (HWAC)



Coalition of more than **40** community organizations established to improve the health and well being of children in Dallas County.

Uses a “collective impact” approach, encourages collaboration across sectors including health, education, government, nonprofits and the faith community.

The Health and Wellness Alliance’s initial focus is pediatric asthma.

- ❖ ~60,000 children in Dallas have asthma
- ❖ Annual economic cost to Dallas is estimated to be a staggering \$60M

Metrics: Hospitalizations/ED visits from Asthma

Missed School days; parent missed work days



# Health and Wellness Alliance for Children (HWAC)

## MEMBER ORGANIZATIONS

American Heart Association

AVANCE

bcWorkshop

Blue Cross Blue Shield

Bryan's House

Champion Impact Capital

Child Care Group

Children's Medical Center

City of Mesquite

CitySquare

CitySquare Community Health Services

Cook Children's Medical Center

Cynthia Mickens Ministries

Dallas Area Rapid Transit

Dallas County Health and Human Services

Dallas Housing Authority

Dallas Independent School District

EPA Children's Environmental Health

Foremost Family Health Centers

H.I.S. Bridgebuilders

Head Start of Greater Dallas, Inc.

Health Resources and Services Administration

Jubilee Park & Community Center

Junior League of Dallas

Los Barrios Unidos Community Clinic

Medical City Children's Hospital

Mesquite Independent School District

Methodist Charlton Medical Center

MyChildren's

North Texas Council of Governments

Parkland Community Health Plan

Parkland Health & Hospital System

Parkland Youth and Family Centers

Path-Way to Life Center of Hope Church

PediPlace

Regional Hispanic Contractors Association

Samuelson Health and Wellness Solutions

Texas AHEC East

Texas Health and Human Services Commission

UnitedHealthcare

United Way of Metropolitan Dallas

The University of Texas Southwestern Medical Center

Walgreen Company

YMCA of Metropolitan Dallas



HEALTH & WELLNESS  
**ALLIANCE**  
FOR CHILDREN



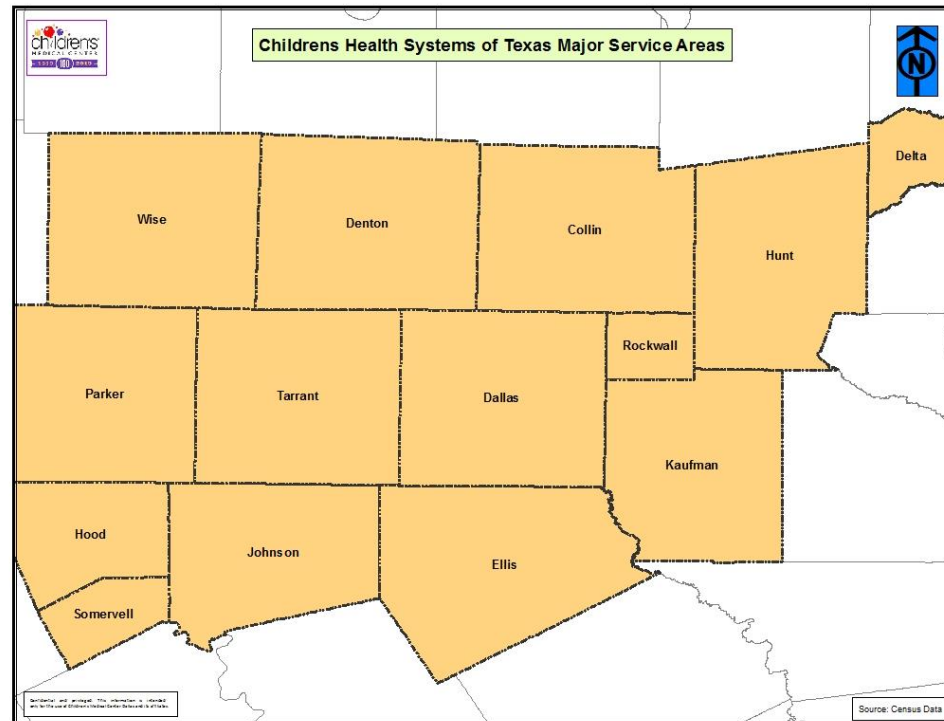
HEALTH & WELLNESS  
**ALLIANCE**  
FOR CHILDREN



**It's About the Kids**

# GIS Portrait:

- The Need to know the 5 W's: **Who, What, When, Where** and **WHY** in all of our Service areas including our 40+ community partners
- We wanted to know where everything was Spatially in terms of our Pediatric Population, Location of Hospitals, 18 Pediatric Group Clinics, 26 Telemedicine sites FQHC's, COPC, Providers and everything that relates to everyday needs for a healthy population
- Geographic Landscape is the same for everyone
- Started using GIS in May 2014 (trial version); Purchased our first ArcGIS License in June 2014



# Challenge: No data in a usable format



PPC Physician Roster 8\_8\_2014\_LAT\_LONG.xlsx - Microsoft Excel

FileHomeInsertPage LayoutFormulasDataReviewViewAdd-InsAcrobat

PasteCopyFormat Painter

ClipboardFontWrap TextAlignmentNumber

Calibri11AConditional FormattingTableStyles

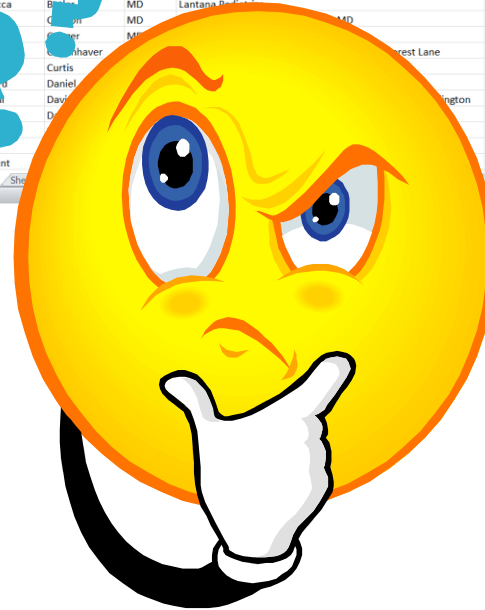
NormalBadGoodNeutralInsertDeleteFormatClearSort & FilterFind & Select

A1Network

	A	B	C	D	E	F	G	H	I	J	K	L	
1	Network	BSWQA	First Name	Last Name	Title	PPC Practice Name	Address	Address Li	City	ZIP	STD	CITY	STD_COU
2	PPC	Yes	Christopher	Abel	MD	Campbell Center Pediatrics Group	8350 N. Central Expy. Suite M102	-	Dallas	75206	DALLAS	DALLAS	
3	PPC	No	Omolara	Abitoye	MD	Acclaim Pediatrics	688 W. Pioneer Pkwy	Suite 120	Grand Prai	75051	GRAND PR	DALLAS	
4	PPC	No	Anuradha	Agrawal	MD	PGV Pediatrics PA	3310 Live Oak St	Suite 201	Dallas	75204	DALLAS	DALLAS	
5	PPC	No	Anisa	Ahmed	MD	Renner Pediatrics	3409 Spectrum Blvd	Suite 300	Richardson	75082	RICHARDSON	COLLIN	
6	PPC	No	Jae-koo	An	MD	Digestive Health Associates of Texas PA - Dallas Forest Ln	7777 Forest Ln	Suite B304	Dallas	75230	DALLAS	DALLAS	
7	PPC	No	Kerstin	Archer	MD	Mansfield Pediatrics	2140 FM 157 N	-	Mansfield	76063	MANSFIELD	TARRANT	
8	PPC	Yes	Carolyn	Ashworth	MD	Pediatric Associates of North Texas	3721 W 15th St	Suite 603	Plano	75075	PLANO	COLLIN	
9	PPC	No	Susan	Bacsik	DO	Campbell Center Pediatrics Group	8350 N. Central Expressway Suite	-	Dallas	75206	DALLAS	DALLAS	
10	PPC	No	Susan	Badaracco	MD	Kids First Pediatrics	2280 Highland Village Rd	Suite 130	Highland V	75077	LEWISVILLE	DENTON	
11	PPC	No	Carlos	Barcelo De La Isl	MD	International Craniofacial Institute	11970 N Central Expwy	Suite 270	Dallas	75243	DALLAS	DALLAS	
12	PPC	Yes	Kimberly	Barksdale	MD	Allen Pediatrics	1220 N. Alma Road	-	Allen	75013	ALLEN	COLLIN	
13	PPC	No	Paul	Bauer	MD	ENT For Children P.A. - Coppell	783 North Denton Tap Road, Suite	-	Coppell	75019	COPELL	DALLAS	
14	PPC	No	Evan	Beale	MD	International Craniofacial Institute	11970 N Central Expwy	Suite 270	Dallas	75243	DALLAS	DALLAS	
15	PPC	Yes	Liliyan	Blatt	DO	Pediatric Healthcare Associates - McKinney	3701 Eldorado Pkwy	Suite A	McKinney	75070	McKINNEY	COLLIN	
16	PPC	No	Amy	Brenski	MD	Frisco ENT for Children	11445 Dallas Parkway	Suite 240	Frisco	75033	FRISCO	DENTON	
17	PPC	No	Mary	Brown	MD	Clinical Pediatric Associates of North Texas- Irving	7200 N. State Hwy. 161	Ste. 100	Irving	75039	IRVING	DALLAS	
18	PPC	No	Kendall	MD	Digestive Health Associates of Texas PA - Dallas Forest Ln	7777 Forest Ln	Suite B304	Dallas	75230	DALLAS	DALLAS		
19	PPC	No	Melody	DO	Mansfield Pediatrics	2140 FM 157 N	-	Mansfield	76063	MANSFIELD	TARRANT		
20	PPC	No	Rebecca	MD	Lantana P	74 McMakin Rd	Suite 100	Bartonville	76226	BARTONVILLE	DENTON		
21	PPC	Yes	Chad	MD	Chad	3125 Matlock	Suite 108	Arlington	76015	ARLINGTON	TARRANT		
22	PPC	No	MD	MD	MD	2280 Highland Village Rd.	Suite 130	Highland V	75077	LEWISVILLE	DENTON		
23	PPC	No	MD	MD	MD	7777 Forest Ln	Suite B-304	Dallas	75230	DALLAS	DALLAS		
24	PPC	No	MD	MD	MD	8325 Walnut Hill Lane	Suite 225	Dallas	75231	DALLAS	DALLAS		
25	PPC	No	MD	MD	MD	3601 North Star Road	-	Richardson	75082	RICHARDSON	COLLIN		
26	PPC	No	MD	MD	MD	4927 S. Collins St	Suite 107	Arlington	76018	ARLINGTON	TARRANT		
27	PPC	No	MD	MD	MD	7777 Forest Lane	Suite C-88	Dallas	75230	DALLAS	DALLAS		
28	PPC	No	MD	MD	MD	2828 Duke of Gloucester	Ste. 106	DeSoto	75115	DESOTO	DALLAS		
29	PPC	No	MD	MD	MD	4112 W. 15th St.	Ste. 100	Plano	75093	PLANO	COLLIN		
30	PPC	No	MD	MD	MD	3101 Churchill Dr.	Ste. 200	Flower Mo	75022	FLOWER M	DENTON		

ReadyPQA-BQA PhysiciansSh

Count: 22100%





# **GIS Datasets:**

**Success**

- 1. Census data**
- 2. Dallas Independent School District (DISD) School Data**
- 3. Hospitals/Clinics/Health Centers**
- 4. Pharmacies**
- 5. Faith Based Organizations**
- 6. Community Centers**
- 7. Libraries**
- 8. Fire Stations**
- 9. Parks**
- 10. YMCA's**
- 11. Day Cares/Head Start Programs**
- 12. Dallas Home Owners Associations**
- 13. Dallas Neighborhood Associations**

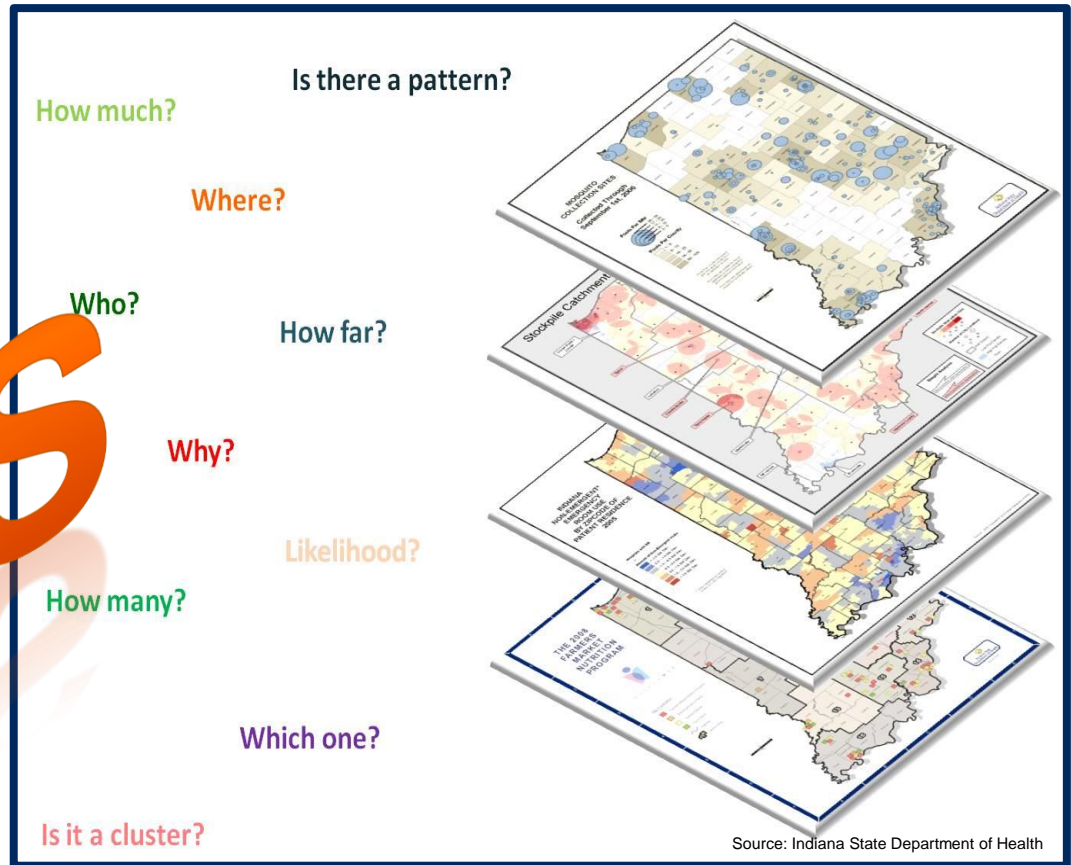


- 14. Zip Codes**
- 15. Counties**
- 16. City Council Districts**
- 17. County Commissioners**
- 18. Congressional Districts**
- 19. State House Districts**
- 20. State Senate Districts**
- 21. State Board of Education Districts**
- 22. DART Public Transportation Data, (Bus routes/stops, rail routes/stops)**
- 23. Public Housing (Dallas Housing Authority)**
- 24. Code Violations (Housing Condition)**
- 25. Crime Data**
- 26. Body Mass Index (BMI) Data (Childhood Obesity, reshaping Texas)**
- 27. Dallas Fort Worth Hospital Council DFWHC Data (75 member hospitals)**



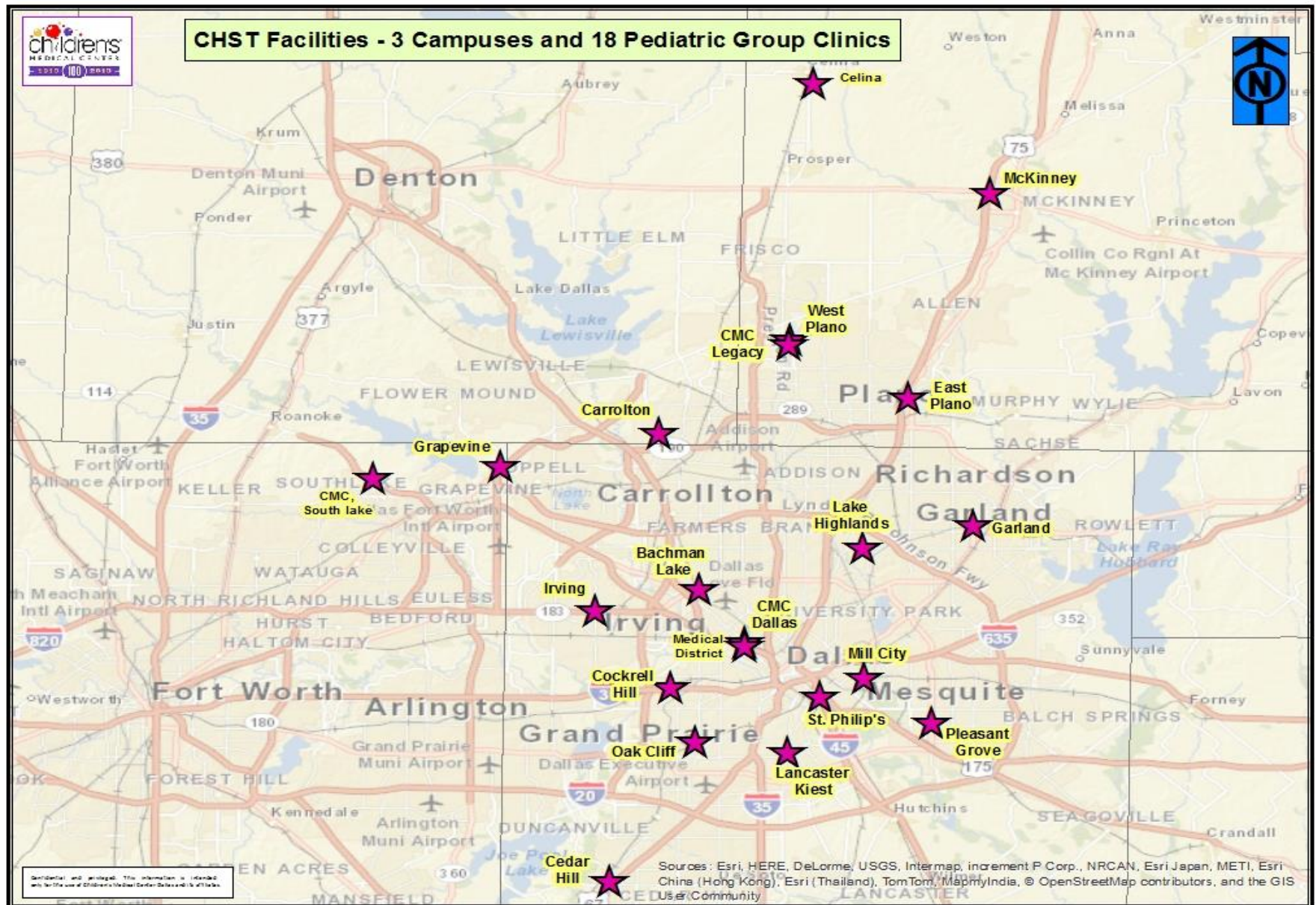
# From rows and columns To the Big Picture

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20	PPC	Yes	Kenneth	Carlson	MD	The Office of Dr. Kenneth Carlson MD	3125 Matlock		Arlington	76015	ARLINGTON	TARRANT
21	PPC	No	Maria	Conger	MD	Kids First Pediatrics	2280 Highland Village Rd	Suite 130	Highland V	75037	HIGHLAND VILLAGE	DENTON
22	PPC	No	Steven	Copenhaver	MD	Pediatric Pulmonary & Sleep Specialists LLP - Forest Lane	7777 Forest Ln		Dallas	75230	DALLAS	DALLAS
23	PPC	Yes	Claire	Curtis	MD	Pediatricians of Dallas	8325 Walnut Hill Lane		Dallas	75231	DALLAS	DALLAS
24	PPC	No	Richard	Daniel	MD	The Office of Dr. Richard Hartman Daniel MD	3601 North Star Road		Richardson	75082	RICHARDSON	COLLIN
25	PPC	No	Randal	Davidson	MD	Arlington Physicians Pediatric and Adolescent Clinic S. Arlington	4927 S. Collins St	Suite 107	Arlington	76018	ARLINGTON	TARRANT
26	PPC	No	Michael	Day	MD	Pediatric Heart Specialists	7777 Forest Lane	Suite C-882	Dallas	75230	DALLAS	DALLAS
27	PPC	No	Thomas	Deacon	MD	Pediatrics Southwest	2838 Duke of Gloucester	Ste. 106	Desoto	75115	DESOTO	DALLAS
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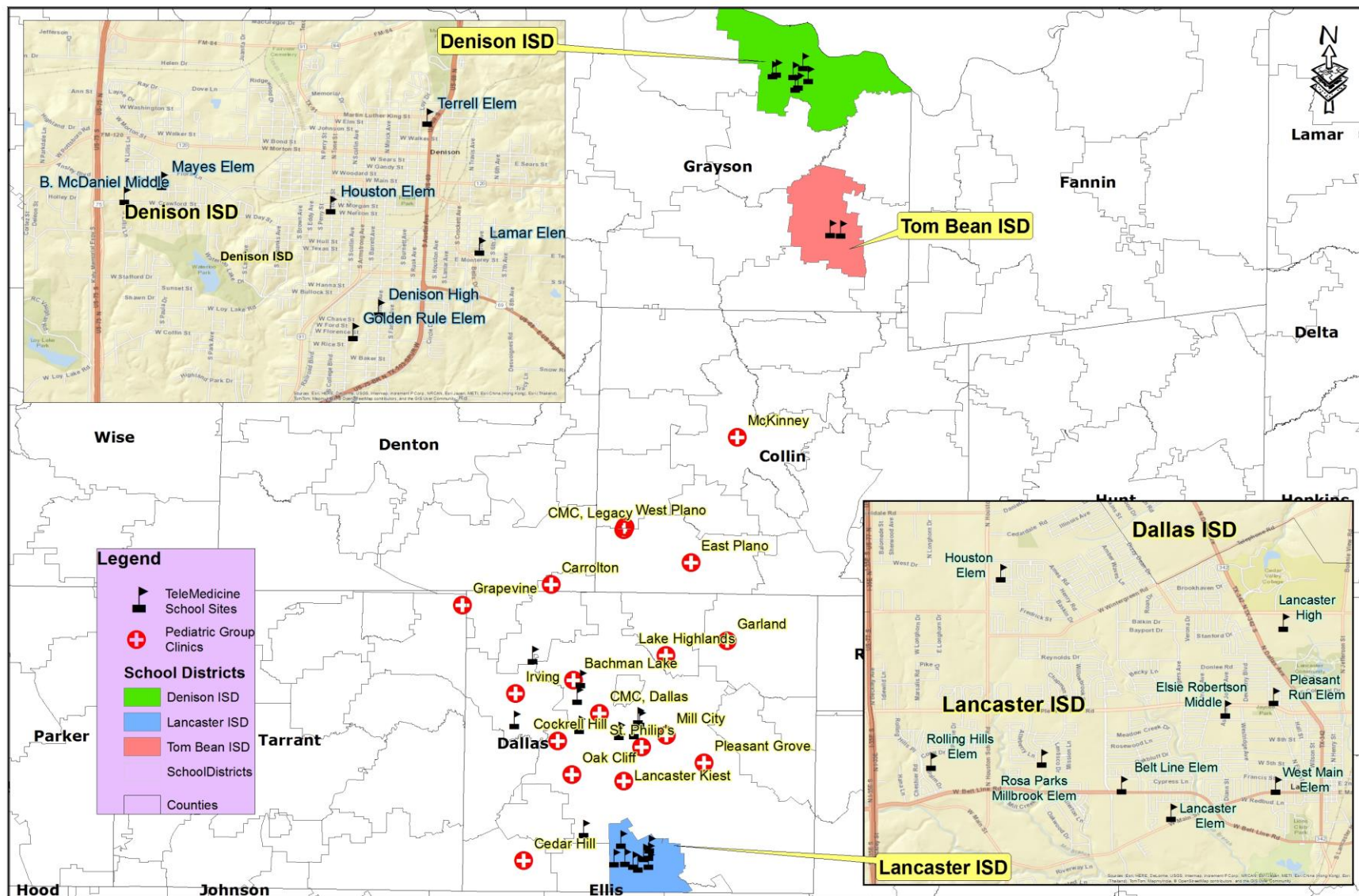




## WHERE are we in DFW – Location, Location, Location?

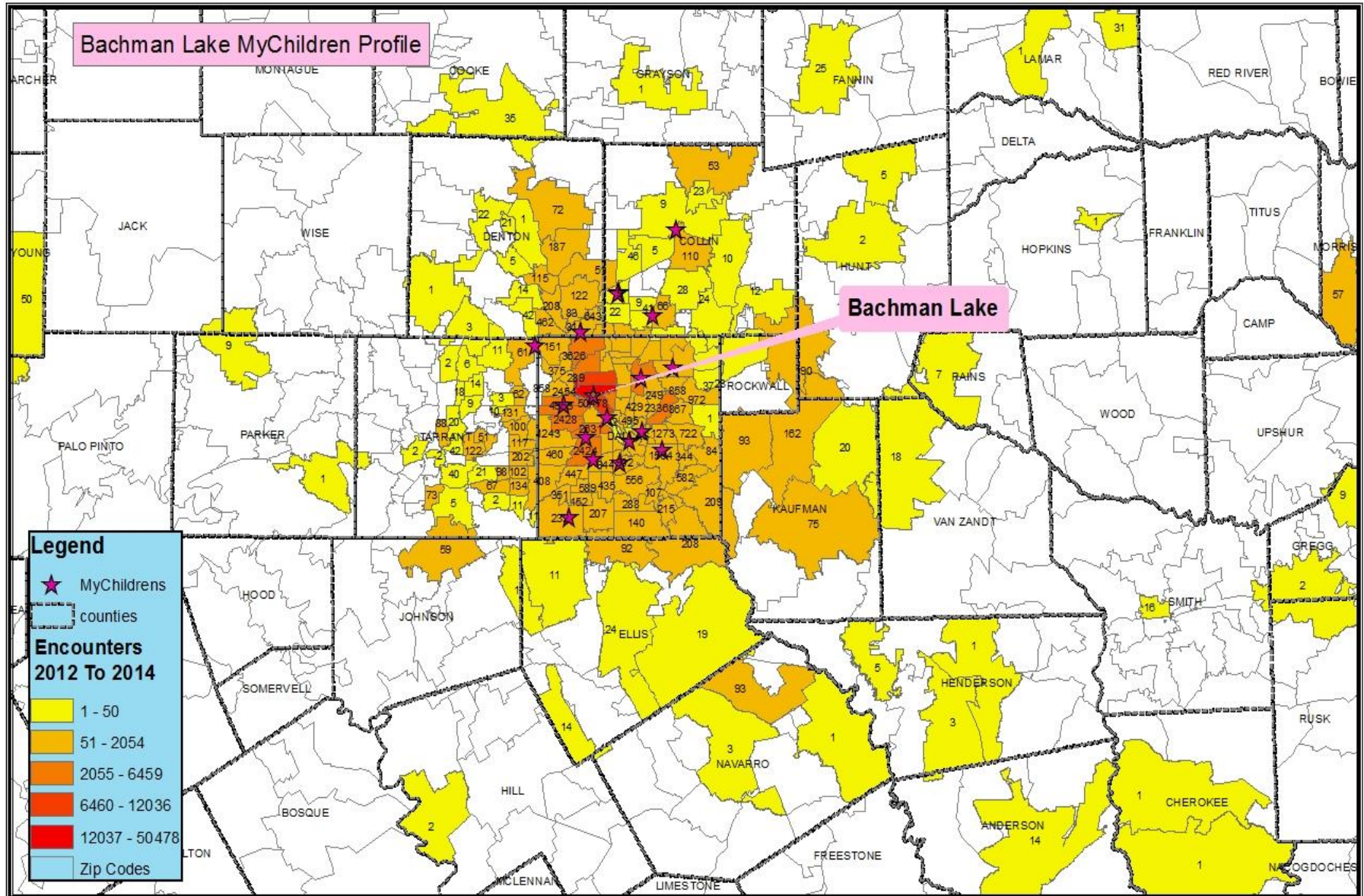


# Transforming Through Population Health

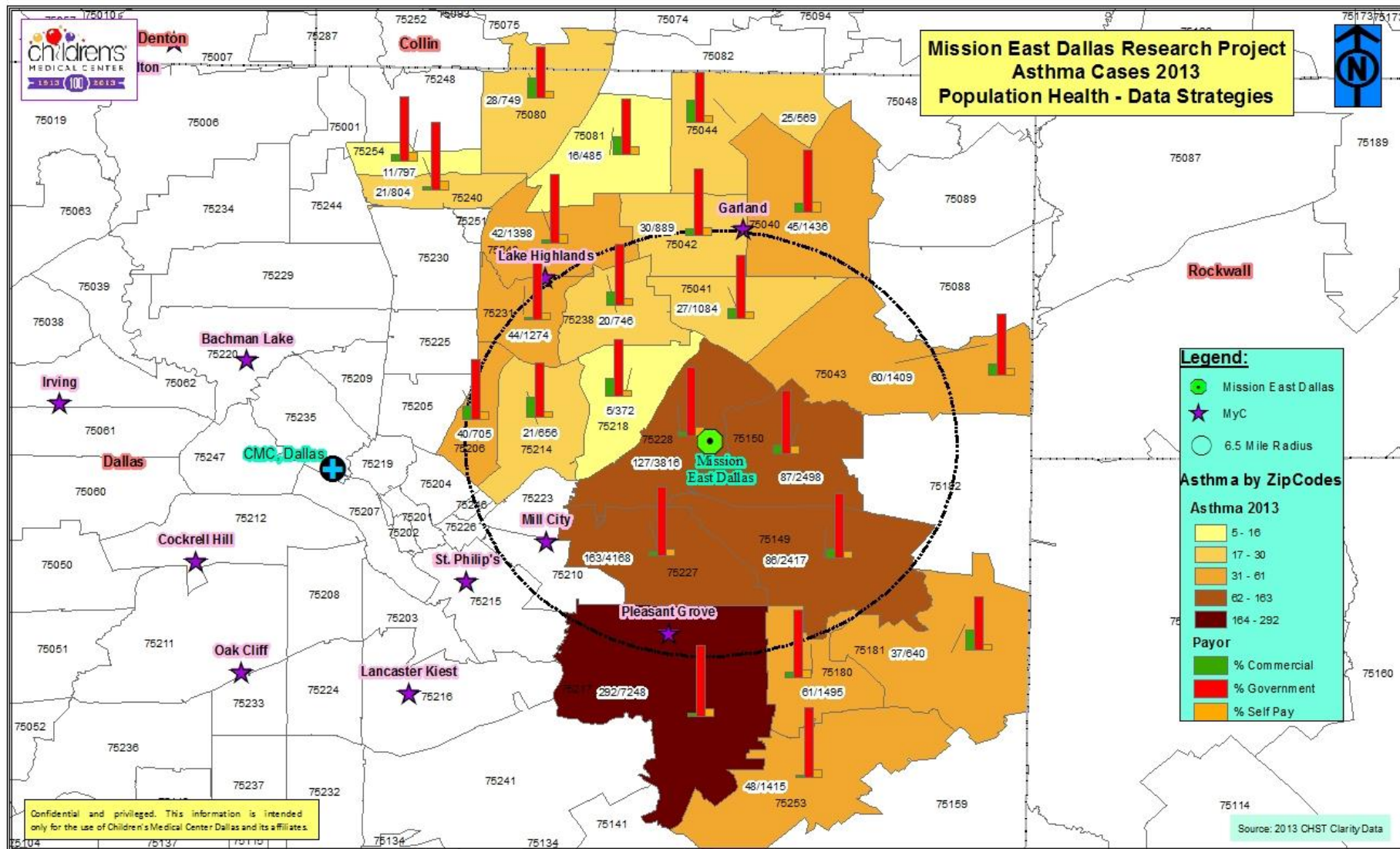




# Childrens Health Pediatric Group Patient Encounters Study: WHERE and WHO we Serve

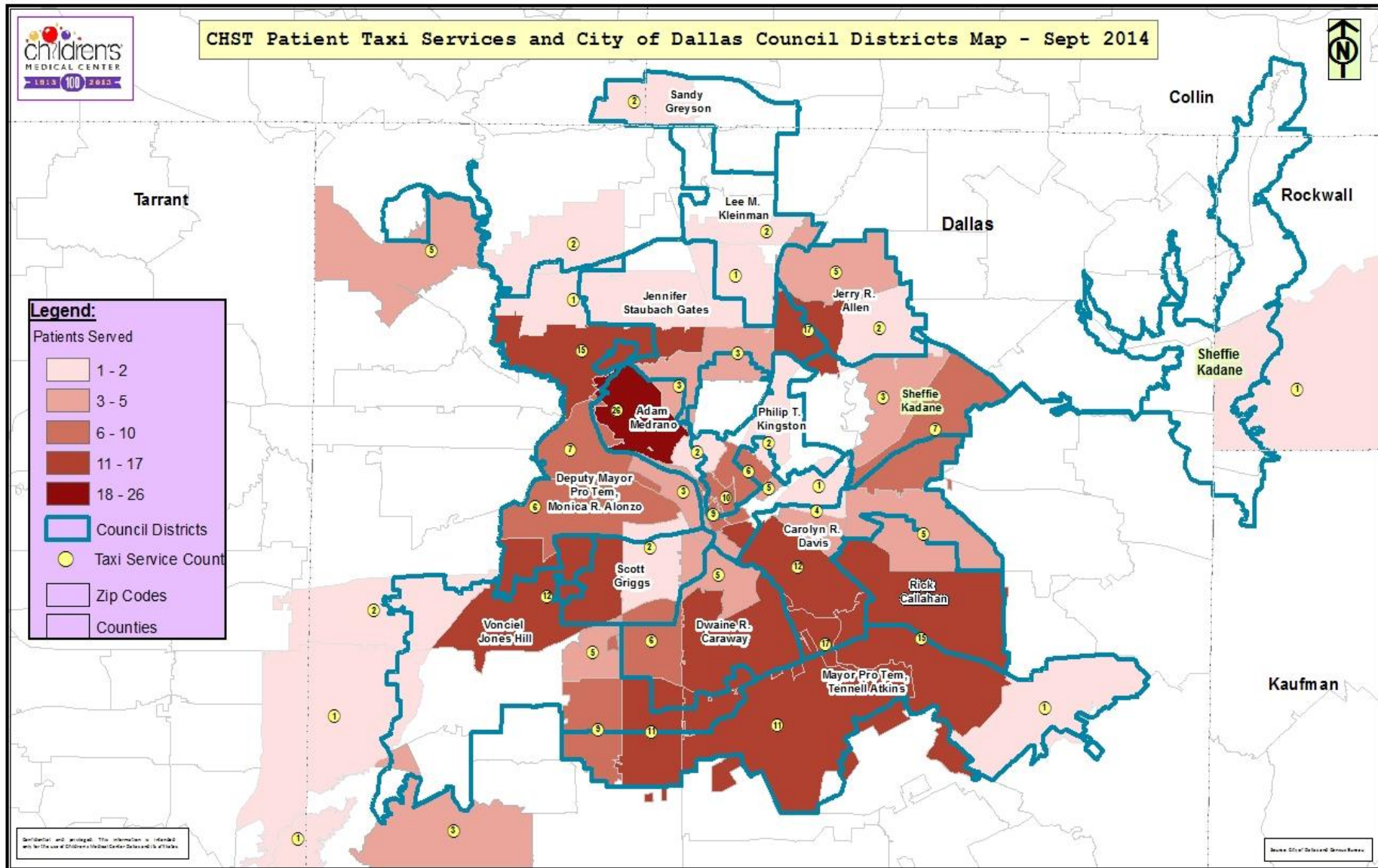


# Mission East Dallas Asthma Study: Is there a cluster?

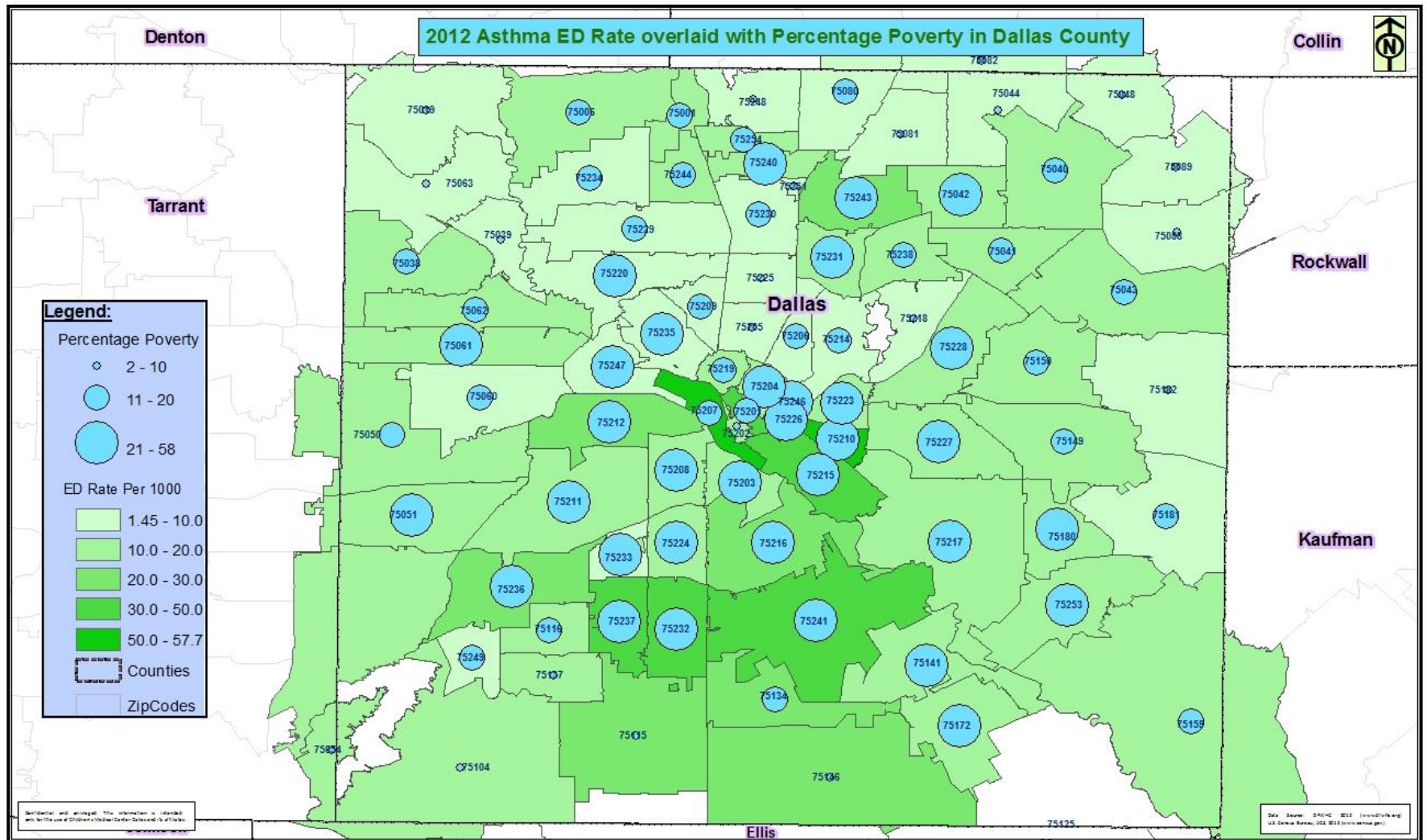




# CHST Patient Taxi Services & Dallas Council Districts Study: WHO are our Elected Officials

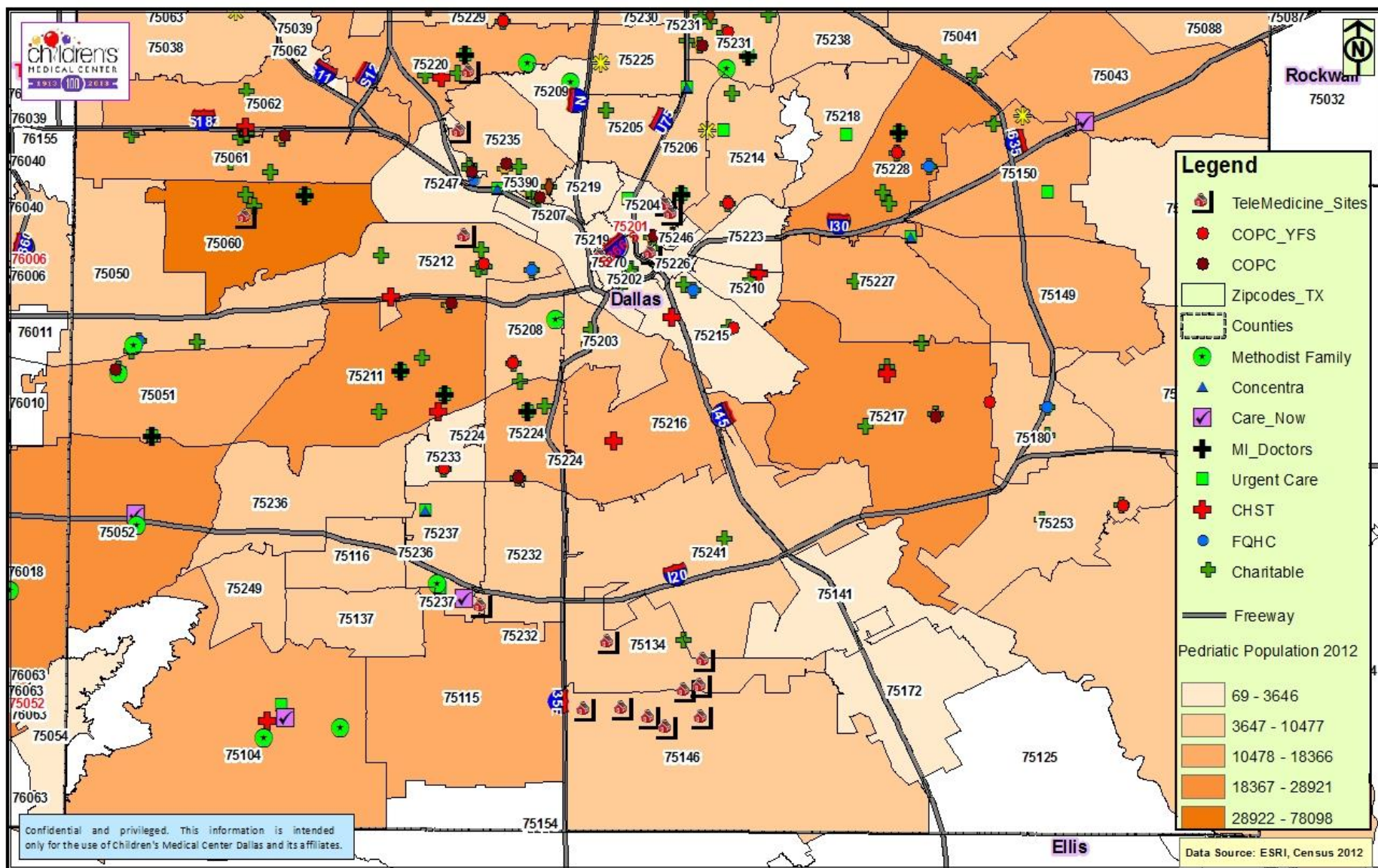


# 2012 Asthma ED Rate and % Poverty in Dallas County Study





# Transforming Through Population Health





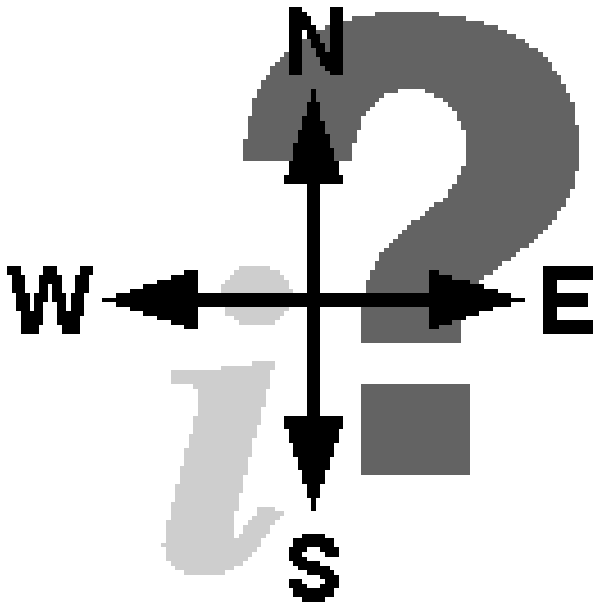
# Next Steps

- ✓ Design and Development of a Data Warehouse for Population Health
- ✓ Development of an Enterprise wide CHST GIS System



Source: Esri 2014 User Conference Technical Workshop - ArcGIS Online Best Practices

# Questions



# Thank You!



## Contact Info

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