



# EXPLORING HEALTH EQUITY IN SAN DIEGO COUNTY THROUGH SPATIAL ANALYSIS

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# LIVE WELL SAN DIEGO

Building  
Better  
Health

Living  
Safely

Thriving

The Live Well San Diego initiative focuses on creating an environment that encourages all San Diego County residents to live healthy, safe, and thriving lives.



## VOCABULARY TO KEEP IN MIND

Health equity is achieved when every person has the opportunity to “attain his or her full health potential” and no one is “disadvantaged from achieving this potential because of social position or other socially determined circumstances.”

CDC, Healthy Communities Program

Health inequities are “types of unfair health differences closely linked with social, economic or environmental disadvantages that adversely affect groups of people.”

CDC, Health Communities Program

Urbanicity refers to the degree of population density, size of city, and location relative to a metropolitan area.

ESRI

# OBJECTIVES



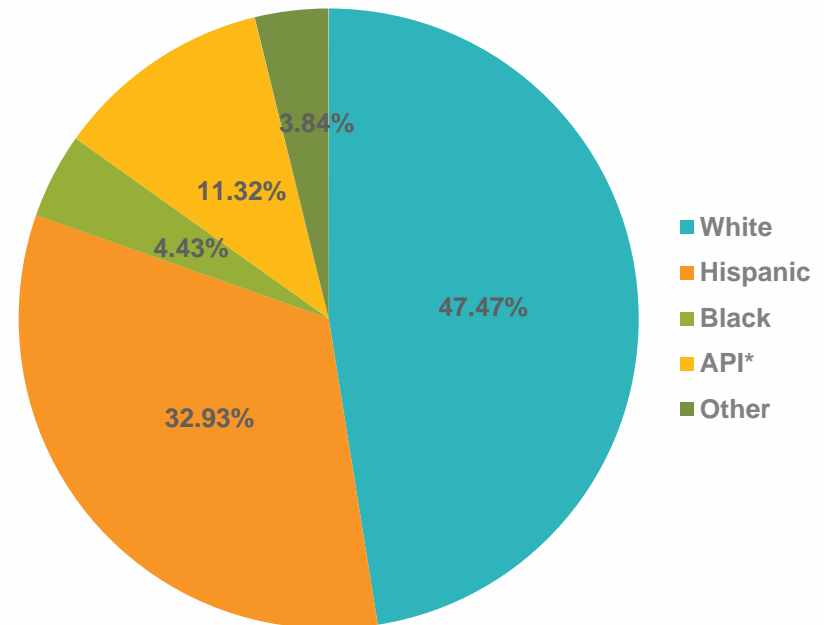
1. Identify the urbanicity of communities at the subregional level within San Diego County.
2. Identify areas, using urbanicity, with higher or lower burden of disease and injury in San Diego County.
3. Use ESRI Tapestry data to look into population characteristics within these sub-regional Areas (SRAs) to explore possible venues for interventions.



## SNAPSHOT OF SAN DIEGO COUNTY

- 5<sup>th</sup> largest county in the U.S. with very diverse communities from rural to very urban areas covering 4,000 sq. miles
- 41 Sub-regional Areas (SRAs)
- 3.14 million residents (2012)
- Median household income: \$70,926

Race/Ethnicity Distribution among San Diego County Residents, 2012





# Urbanicity in San Diego County by HHSA Region





## OVERALL METHODS

- § Using ESRI's Tapestry Segmentation Urbanization Groups, sub-regional areas (SRAs) were aggregated into one of six categories of urbanicity: rural, semirural, suburban periphery, metro cities, urban periphery, principal urban centers.
- § Chronic disease, communicable disease, and injury rates were calculated for each urbanicity category.
- § One-sample T-tests ( $\alpha=0.05$ ) were conducted to determine urbanicity areas with rates of disease higher or lower than the county rates.
- § ESRI Tapestry Urbanization groups were used to look into population characteristics to explore possible venues for interventions.



## CHRONIC DISEASE

2012 Death data:

- Coronary Heart Disease
- Stroke
- Diabetes
- Asthma
- Chronic Obstructive Pulmonary Disease (COPD)
- Cancer

## INJURY OUTCOMES

Death data:

- Unintentional Injury
- Homicide
- Suicide

## COMMUNICABLE DISEASE

2012 Incidence of:

- Tuberculosis
- Chronic Hepatitis C
- Chlamydia
- Gonorrhea
- Syphilis

2012 Death data:

- Pneumonia
- Flu

Note: Pendleton, Miramar, and Harbison Crest sub-regional areas were not included in analysis due to statistical instability.



# DATA USED



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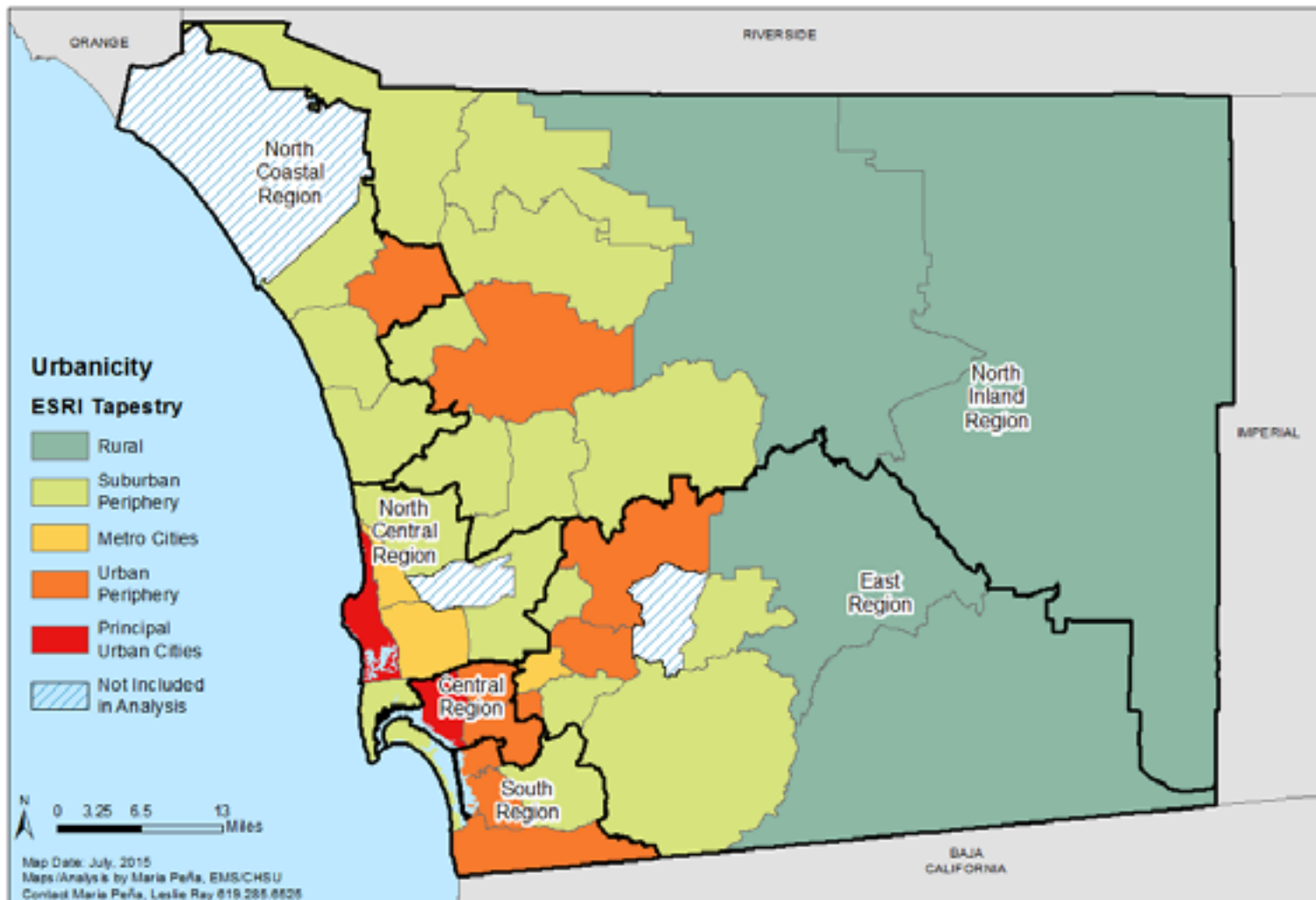
2014 Tapestry Segmentation data

[www.esri.com/tapestry](http://www.esri.com/tapestry)

Death Statistical Master Files (CDPH), County of San Diego, Health & Human Services Agency, Public Health Services, Epidemiology & Immunization Services Branch;  
SANDAG, Population Estimates, 10/2012.



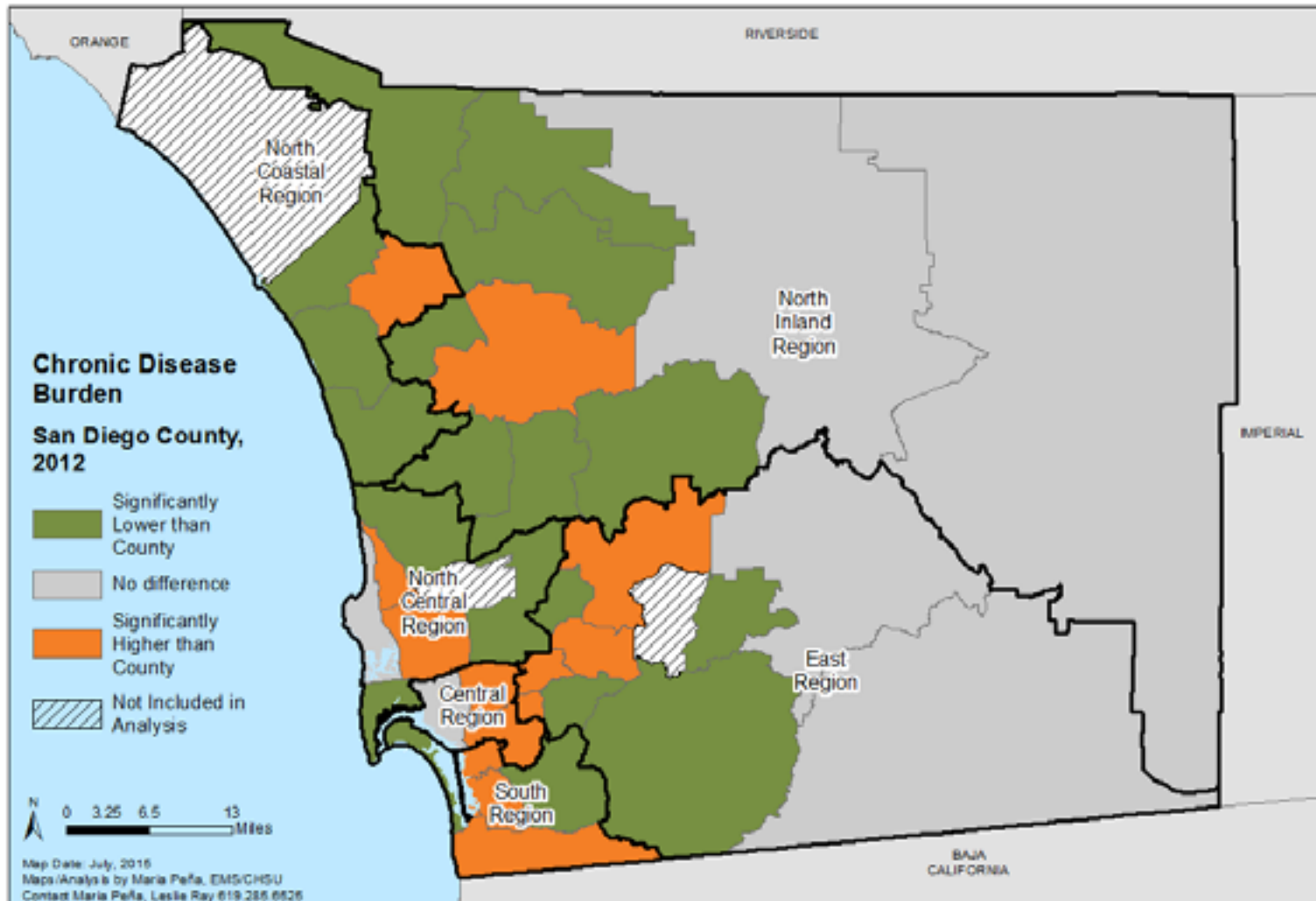
## Urbanicity in San Diego County by HHS Region



# RESULTS: CHRONIC DISEASE



## Chronic Disease Burden From an Urbanicity Perspective, 2012



# RESULTS: CHRONIC DISEASE



## RESULTS

§ Significantly higher:

§ Metro Cities

§ Urban Periphery

§ Significantly lower:

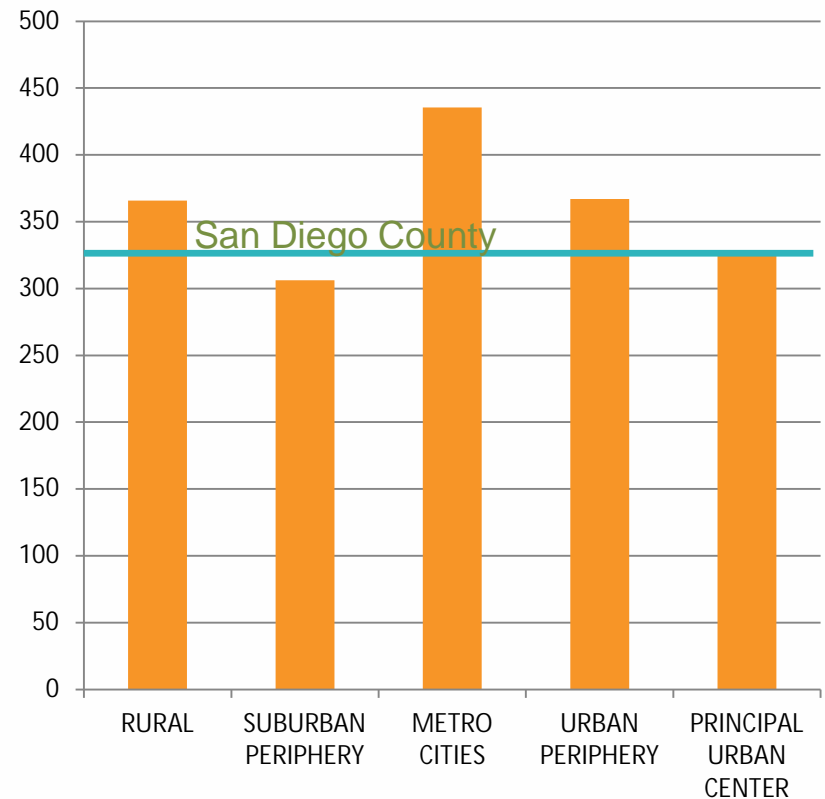
§ Suburban Periphery

§ No difference:

§ Rural

§ Principal Urban Center

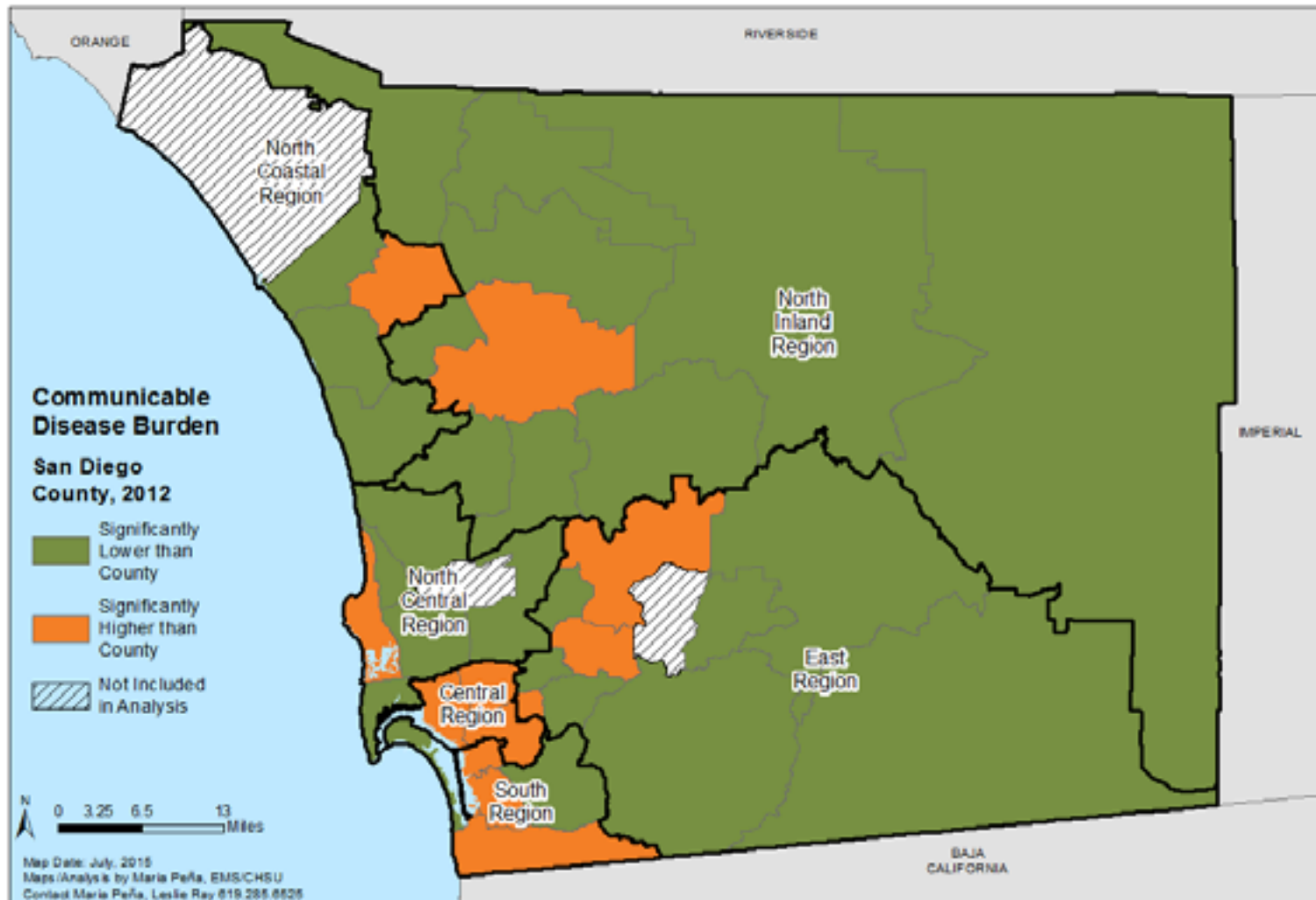
## CHRONIC DISEASE BURDEN, 2012



# RESULTS: COMMUNICABLE DISEASE



## Communicable Disease Burden From an Urbanicity Perspective, 2012



# RESULTS: COMMUNICABLE DISEASE



## RESULTS

§ Significantly higher:

§ Urban Periphery

§ Principal Urban Center

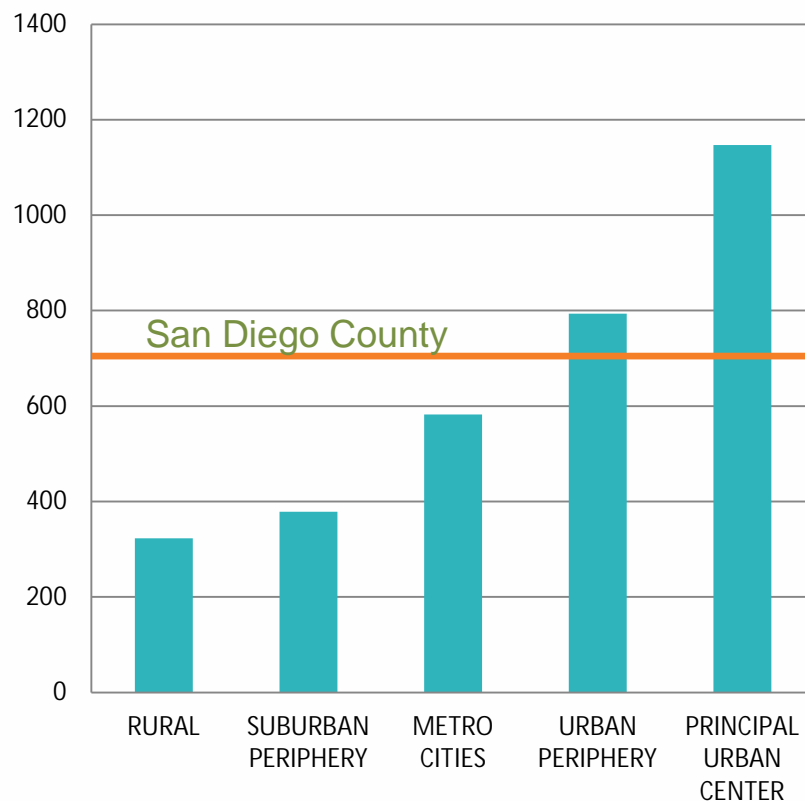
§ Significantly lower:

§ Rural

§ Suburban Periphery

§ Metro Cities

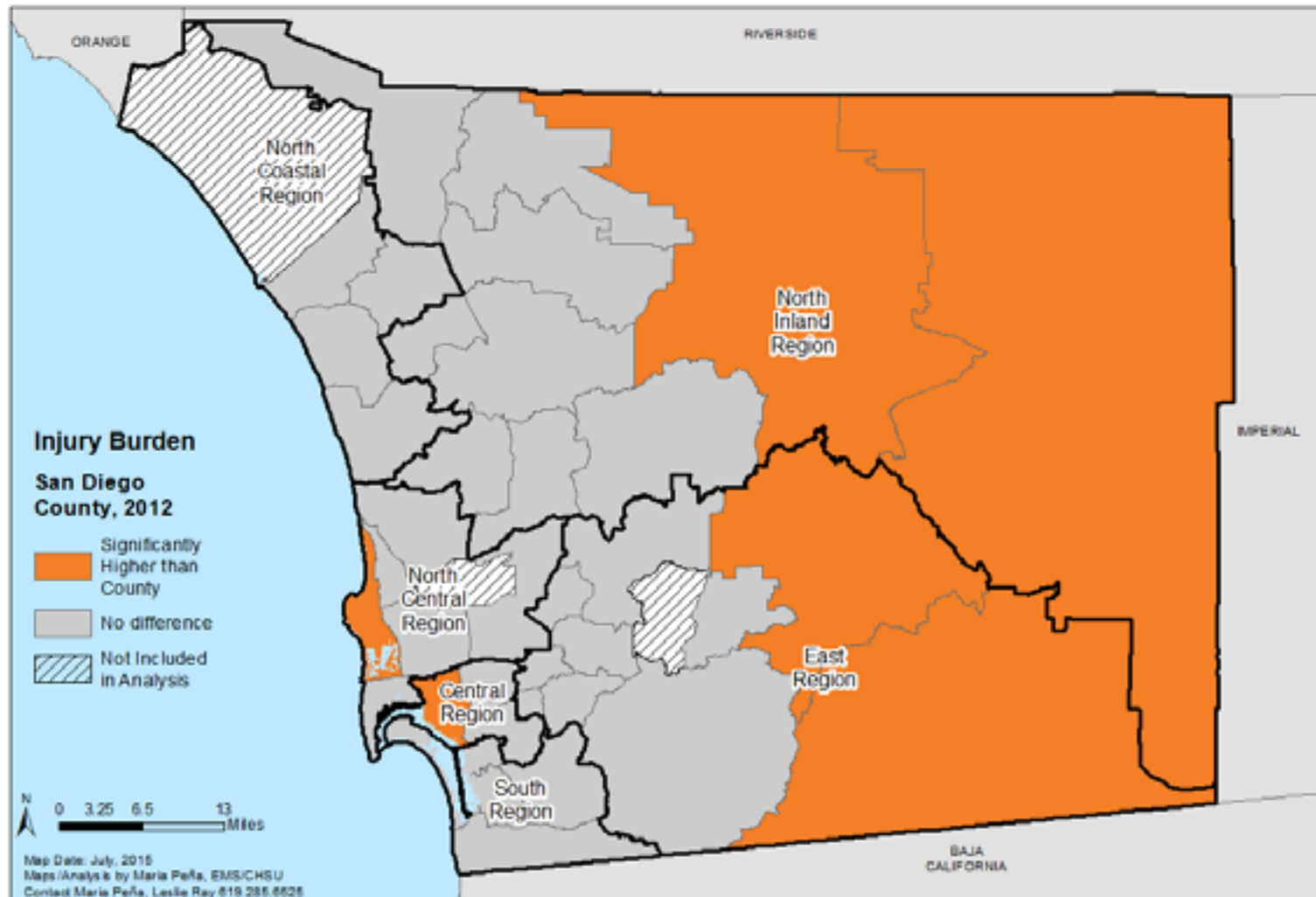
## COMMUNICABLE DISEASE BURDEN, 2012



# RESULTS: INJURY



## Injury Burden From and Urbanicity Perspective, 2012



# RESULTS: INJURY



§ Significantly higher:

§ Rural

§ Principal Urban Center

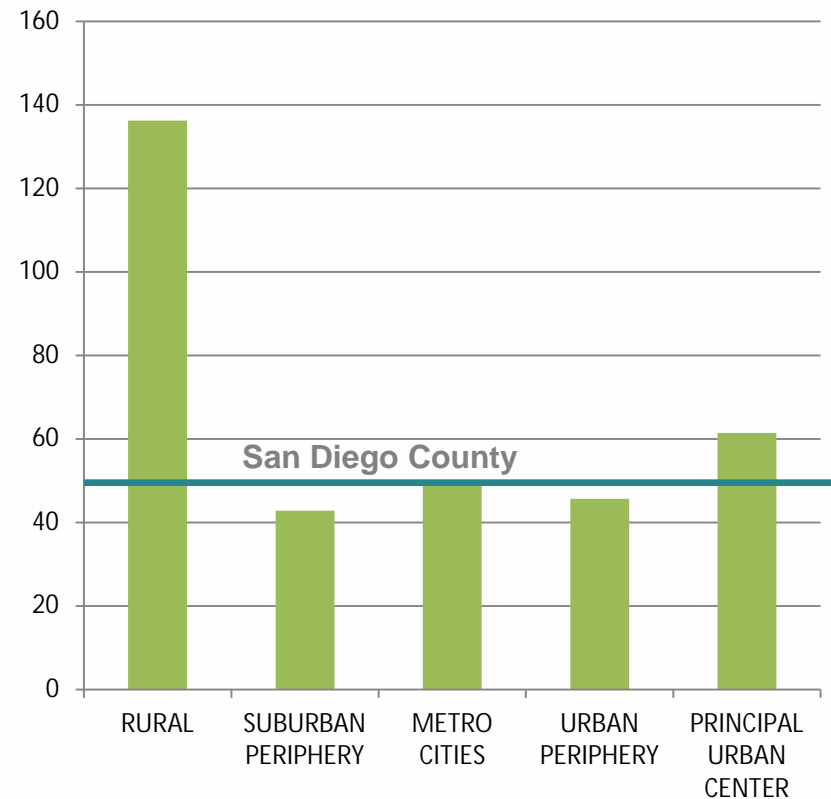
§ No difference:

§ Suburban Periphery

§ Metro Cities

§ Urban Periphery

## INJURY BURDEN, 2012





# DISCUSSION



Urbanicity	Chronic Disease	Communicable Disease	Injury
Rural	↔	↓	↑
Suburban Periphery	↓	↓	↔
Metro Cities	↑	↓	↔
Urban Periphery	↑	↑	↔
Principal Urban Centers	↔	↑	↑

- ↑ Significantly higher than county
- ↓ Significantly lower than county
- ↔ No significant difference from county

We can use ESRI Tapestry data to explore the characteristics of these communities which could help explain the difference in chronic and infectious disease burden and injury.



## WHO LIVES IN THESE NEIGHBORHOODS?



## Chronic Disease

### *Metro cities*

- College students, Gen x couples, retired
- Rely on internet and cellphones
- City life

### *Urban Periphery*

- Young families with children
- Leisure focus on children activities
- Fast food and family restaurants
- Smartphones are popular for social contacts, shopping, music

## Communicable Disease

### *Urban Periphery*

- Young families with children
- Leisure focus on children activities
- Smartphones are popular for social contacts, shopping, music

### *Principal Urban Centers*

- Crowding
- Full access to urban amenities
- 1 in 2 use public transportation, bicycles or walk to work

## Injury

### *Rural*

- 55+ older
- Married w/o children at home
- Self-employed, retired, or receiving SS
- Satellite TV, Landline phones

### *Principal Urban Centers*

- Crowding
- Full access to urban amenities
- 1 in 2 use public transportation, bicycles or walk to work

# CONCLUSIONS



- § Using ESRI Tapestry Urbanization to assess the burden of disease and injury within communities can provide valuable insights on health inequities among populations
- § With this information, potential social and economic factors can be further explored to explain these health disparities
- § Using this information, the County of San Diego can outline and prioritize public health efforts to eliminate health inequities.

# LIMITATIONS



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- § Urbanicity classification for each sub-regional area (SRA) was based on the ESRI Urbanization category with the highest percentage
- § Not all health diseases and/or outcomes were included in this analysis
- § Using 2014 tapestry data to look at population characteristics while using 2012 health outcome data.
  
- § NEXT STEPS: Utilize the paired lifestyle, disease, and injury data to identify target interventions and health promotion activities.



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## FOR MORE INFORMATION

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