



EXPLORING HEALTH EQUITY IN SAN DIEGO COUNTY THROUGH SPATIAL ANALYSIS

Maria D. Peña, MPH

Epidemiologist

*County of San Diego, Health and Human Services Agency,
Public Health Services, Community Health Statistics Unit*

July 22, 2015





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



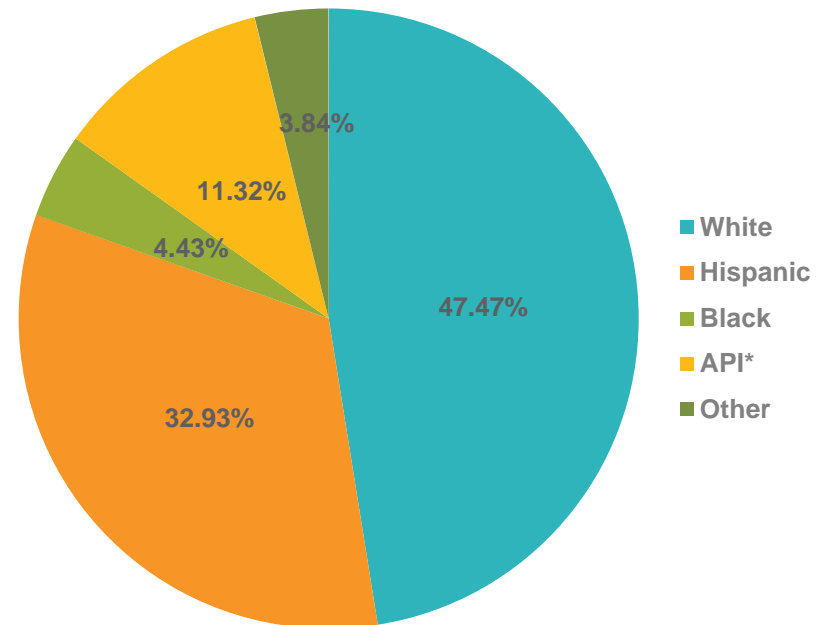
1. Identify the urbanicity of communities at the subregional level within San Diego County.
2. Identify areas, using urbanicity, with higher or lower burden of disease and injury in San Diego County.
3. Use ESRI Tapestry data to look into population characteristics within these sub-regional Areas (SRAs)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



SNAPSHOT OF SAN DIEGO COUNTY

- 5th largest county in the U.S. with very diverse communities from rural to very urban areas covering 4,200 sq. miles
- 41 Sub-regional Areas (SRAs)
- 3.14 million residents (2012)
- Median household income: \$70,926 (2012)

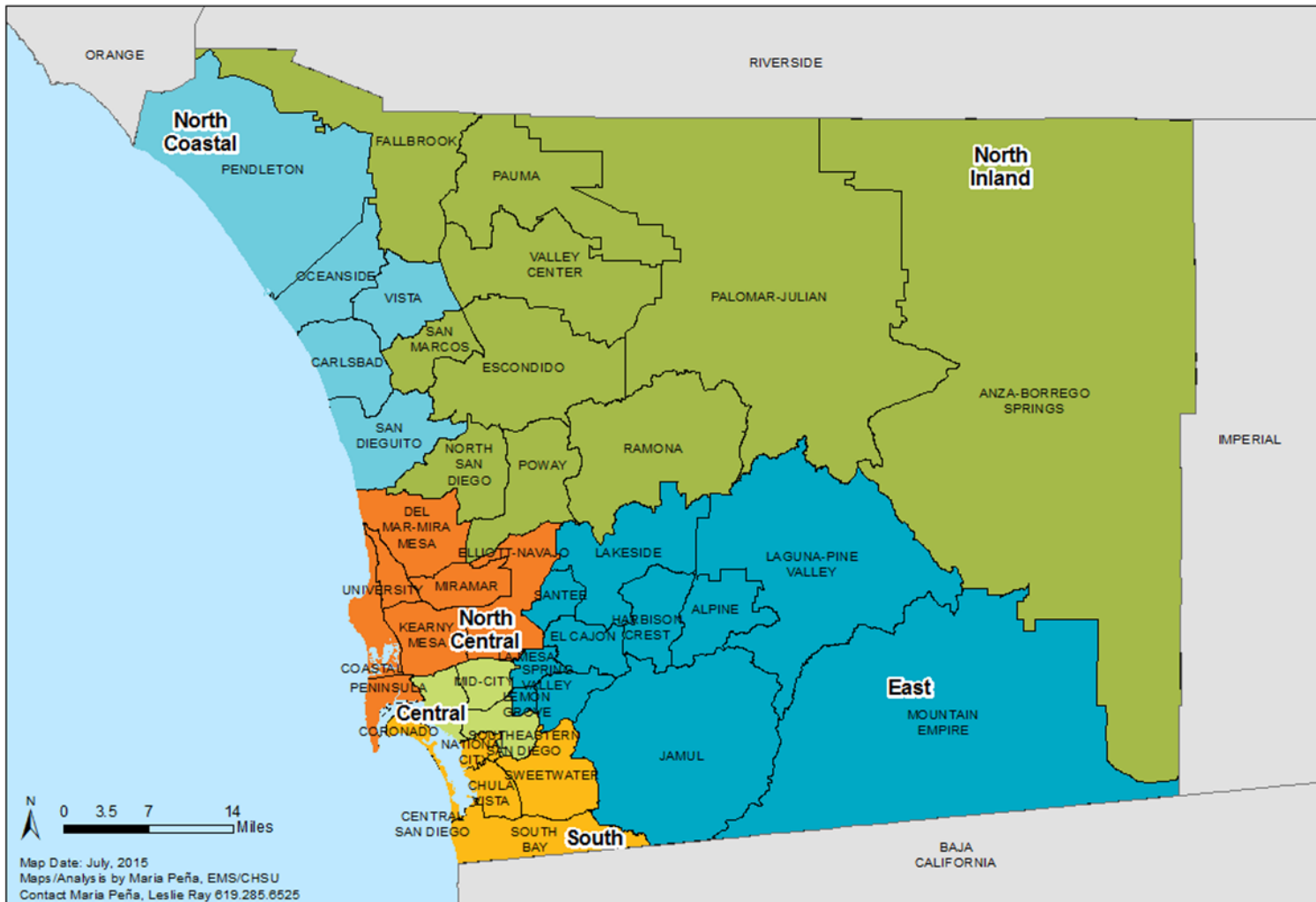
Race/Ethnicity Distribution among San Diego County Residents, 2012



*API includes Asian, Pacific Islander, and Native Hawaiian



San Diego County by HHS Region



Map Date: July, 2015
Maps/Analysis by Maria Peña, EMS/CHSU
Contact Maria Peña, Leslie Ray 619.285.6525



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

2012 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.

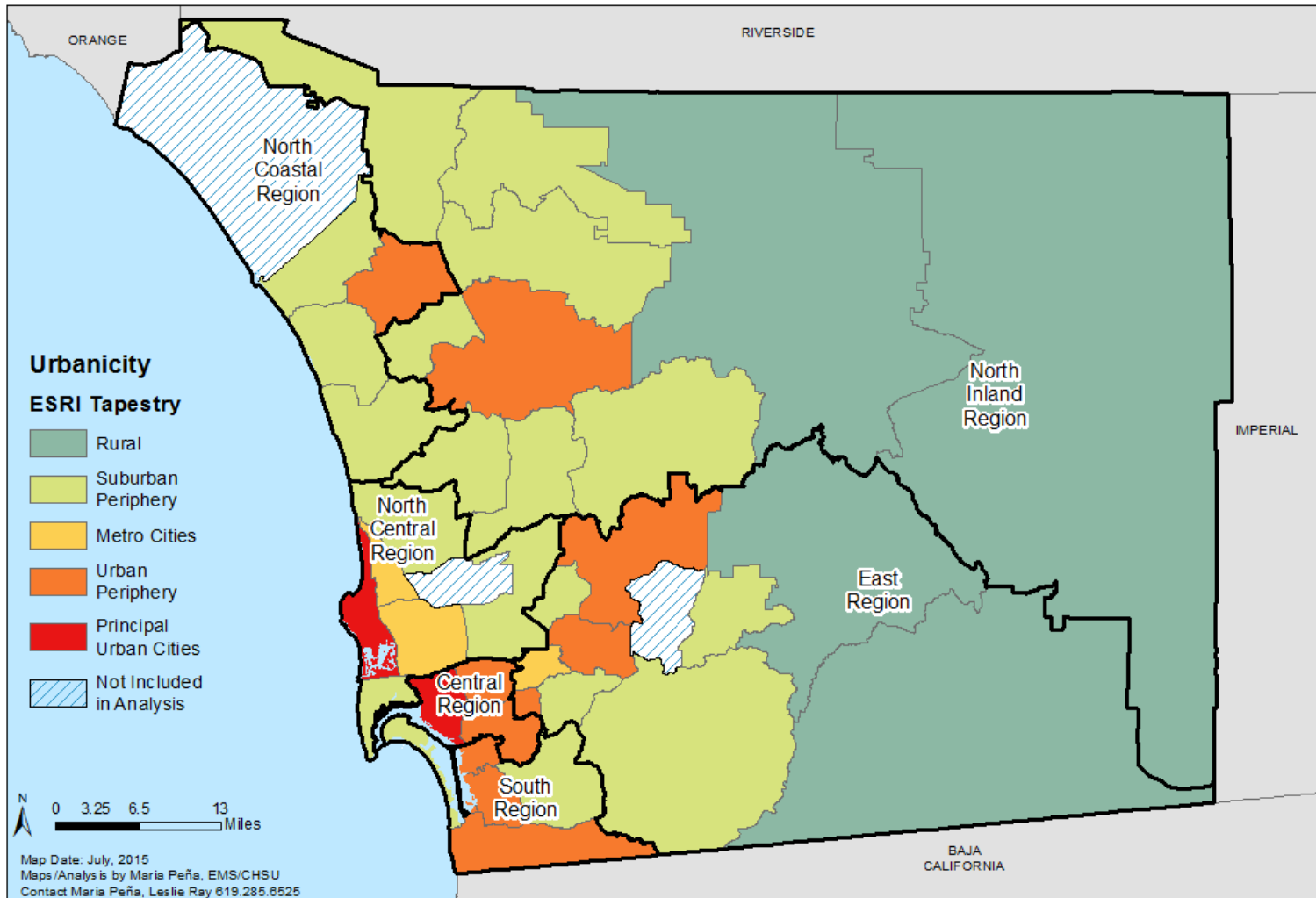
DATA USED



- 2014 Tapestry Segmentation data, 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.
- County of San Diego, Health & Human Services Agency, HIV, STD and Hepatitis Branch, Morbidity Database; SANDAG, Population Estimates, 10/2012.
- County of San Diego, Health & Human Services Agency, Tuberculosis Control Program, County TB Registry; SANDAG, Population Estimates, 10/2012
- County of San Diego, Health & Human Services Agency, Epidemiology & Immunization Services Branch , Communicable Disease Data; SANDAG, Population Estimates, 10/2012.



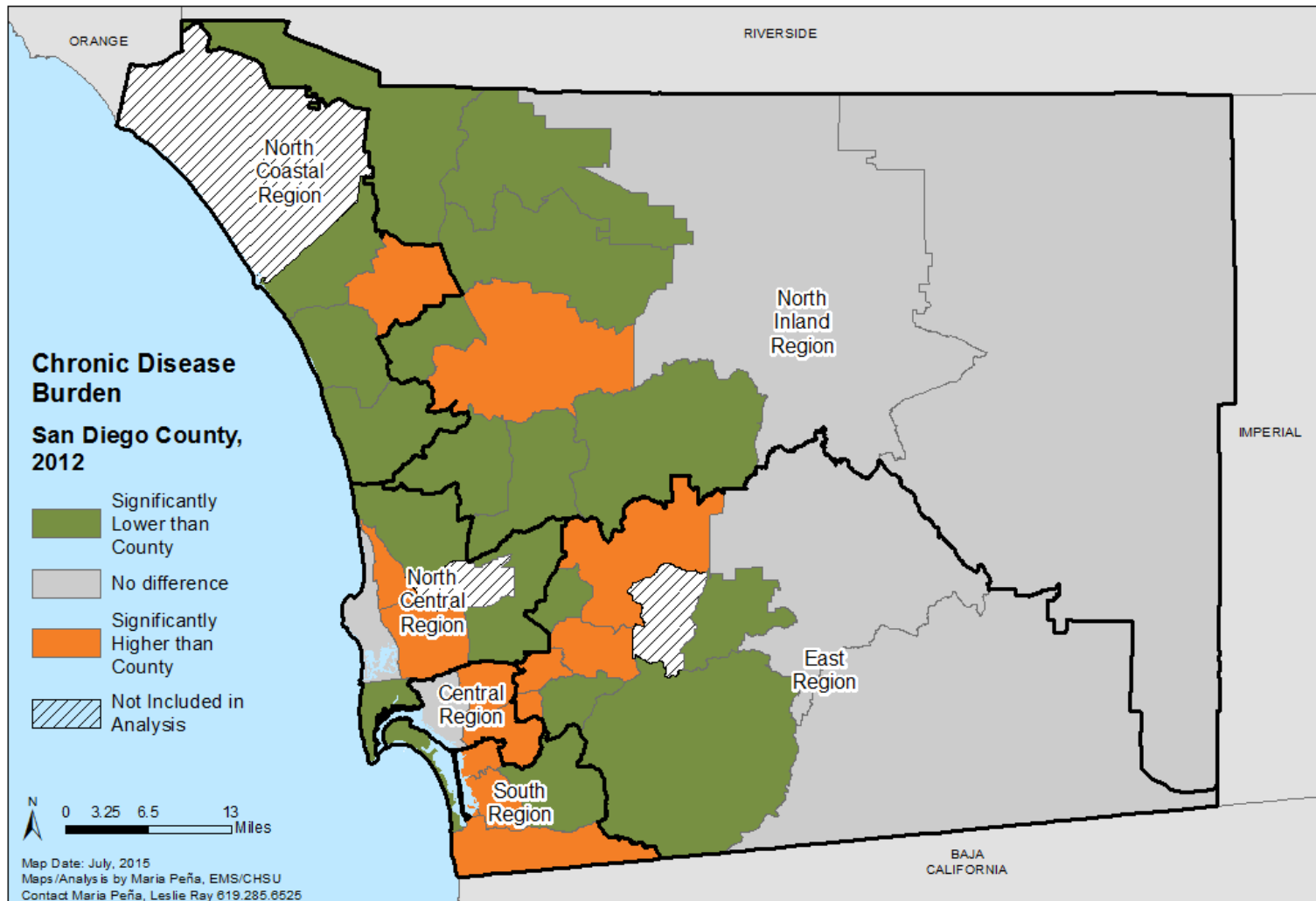
Urbanicity in San Diego County by HHS Region



RESULTS: CHRONIC DISEASE



Chronic Disease Burden From an Urbanicity Perspective, 2012



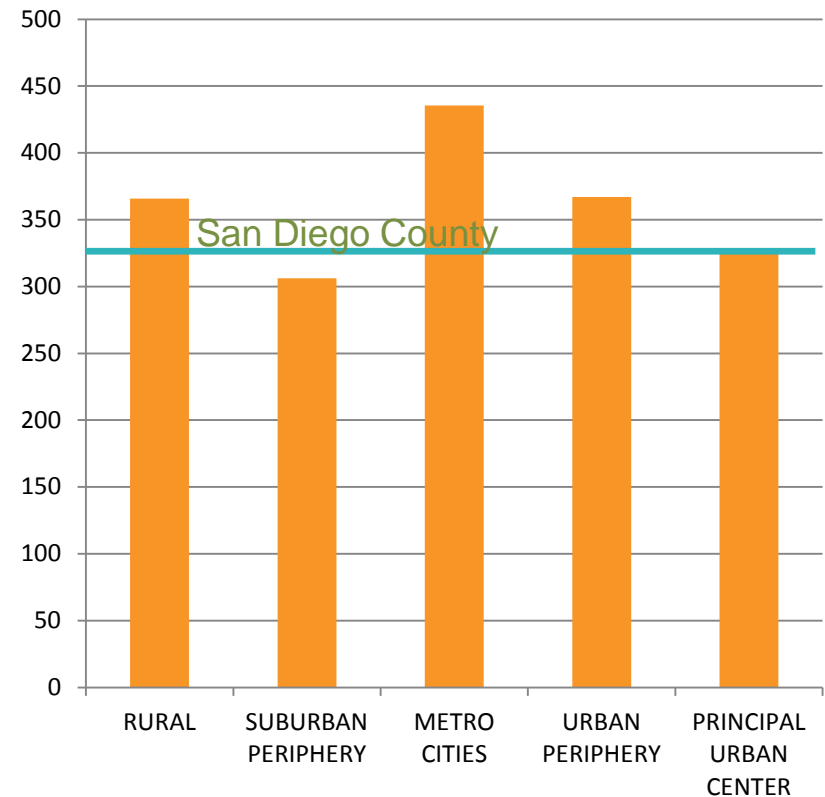
RESULTS: CHRONIC DISEASE



RESULTS

- Significantly higher:
 - Metro Cities
 - Urban Periphery
- Significantly lower:
 - Suburban Periphery
- No difference:
 - Rural
 - Principal Urban Center

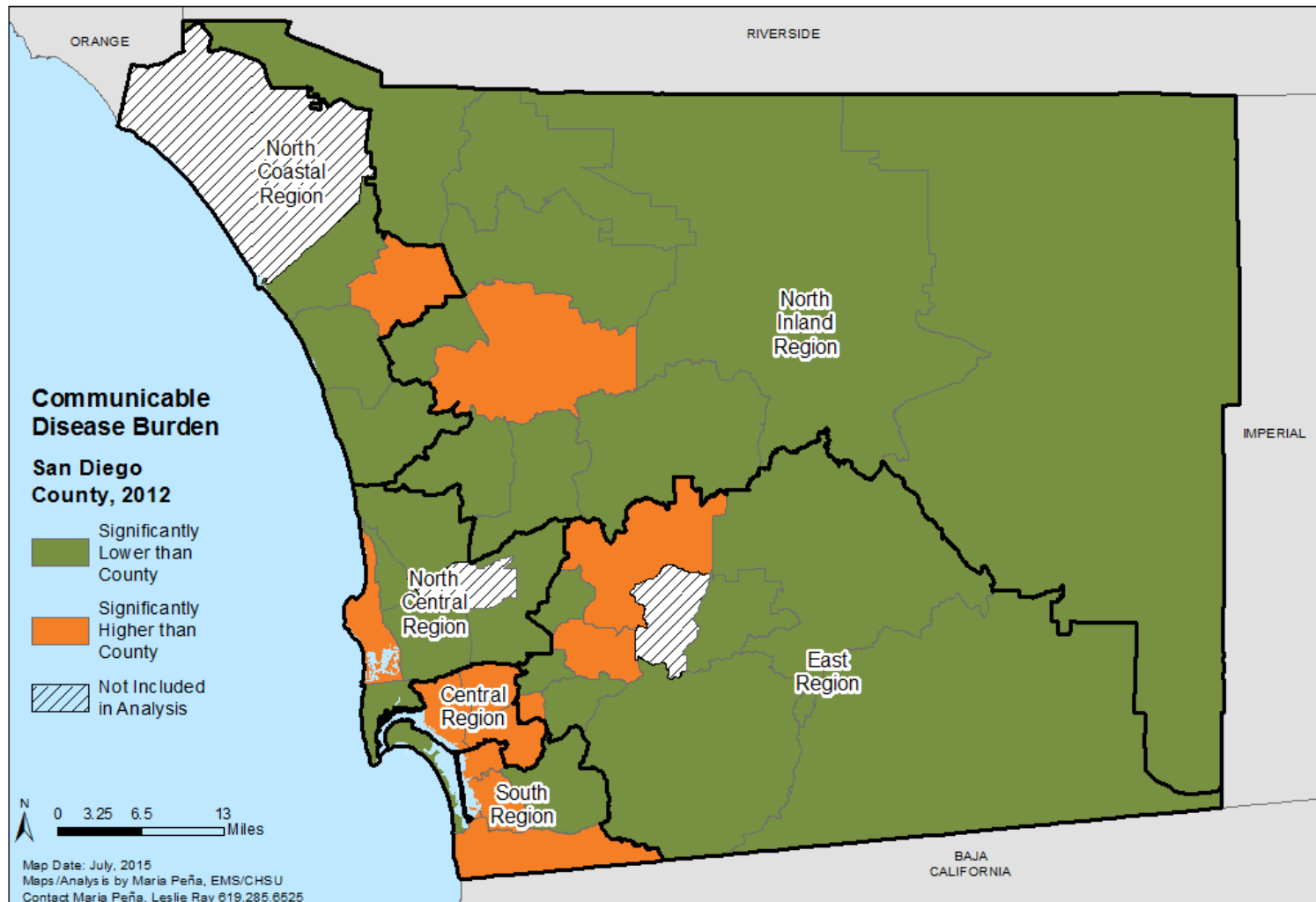
CHRONIC DISEASE BURDEN, 2012



RESULTS: COMMUNICABLE DISEASE



Communicable Disease Burden From an Urbanicity Perspective, 2012



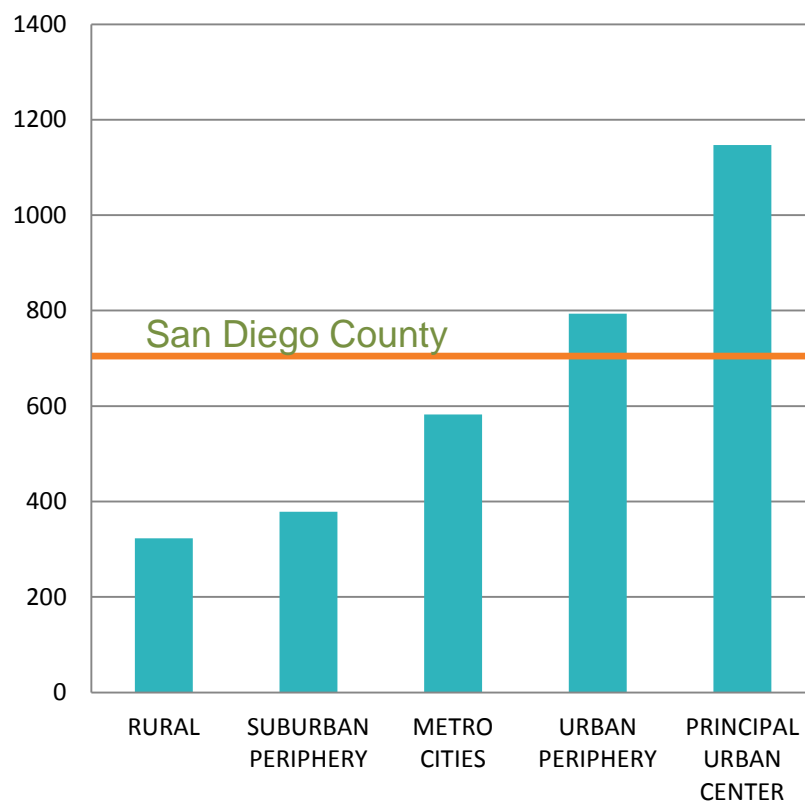
RESULTS: COMMUNICABLE DISEASE



RESULTS

- Significantly higher:
 - Urban Periphery
 - Principal Urban Center
- Significantly lower:
 - Rural
 - Suburban Periphery
 - Metro Cities

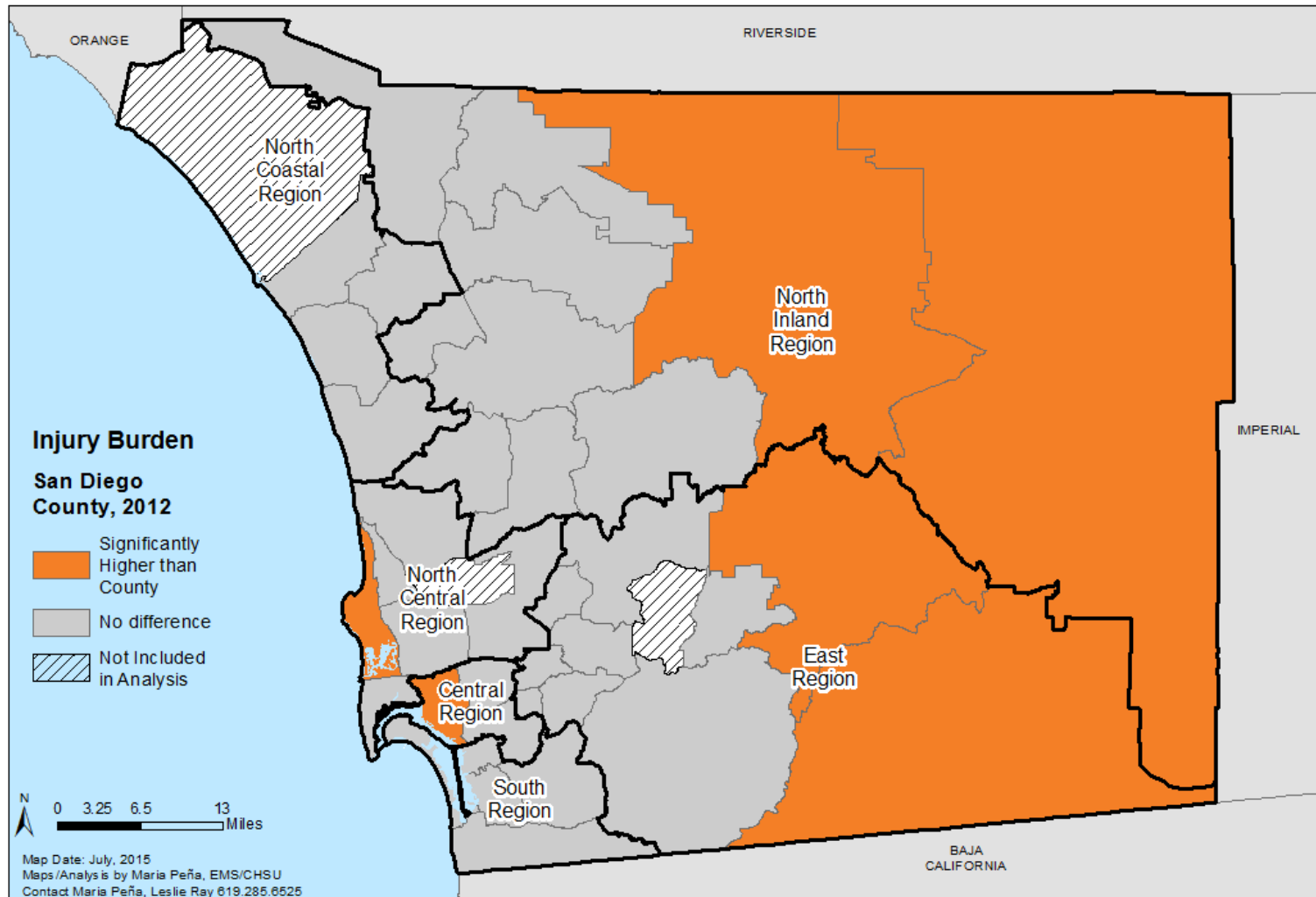
COMMUNICABLE DISEASE BURDEN, 2012



RESULTS: INJURY



Injury Burden From and Urbanicity Perspective, 2012

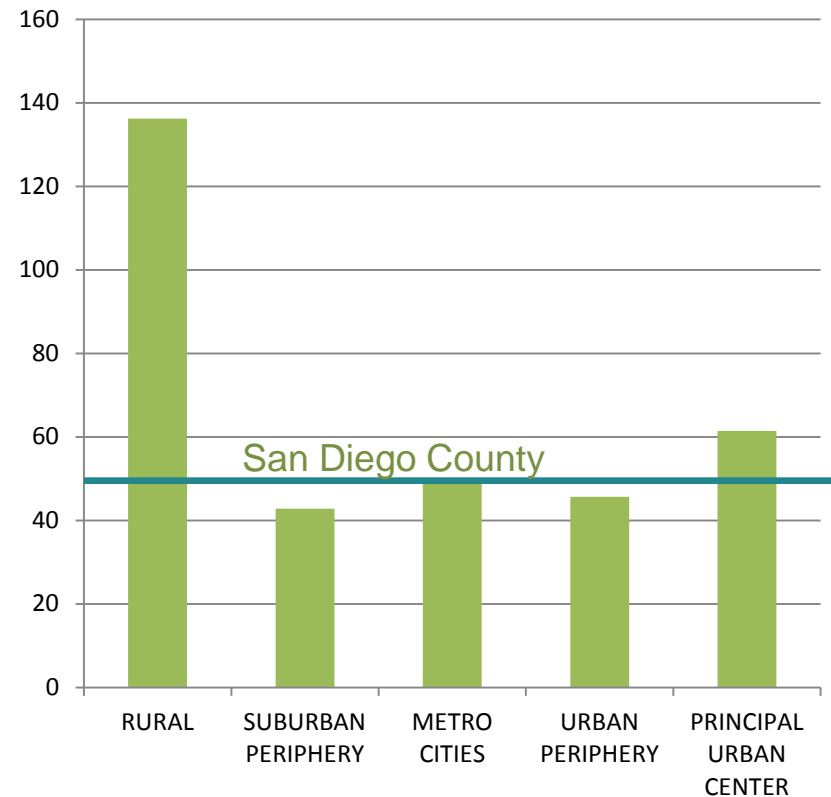


RESULTS: INJURY



- 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



LIVE WELL
SAN DIEGO

- 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.



LIVE WELL
SAN DIEGO

FOR MORE INFORMATION

Maria D. Peña, MPH

Epidemiologist

Maria.Pena@sdcounty.ca.gov

www.sdhealthstatistics.com