



# Climate Change and Health Adaptation in North America

*Maricopa County Experience*

*Rasneet Kumar, 5/18/2017*

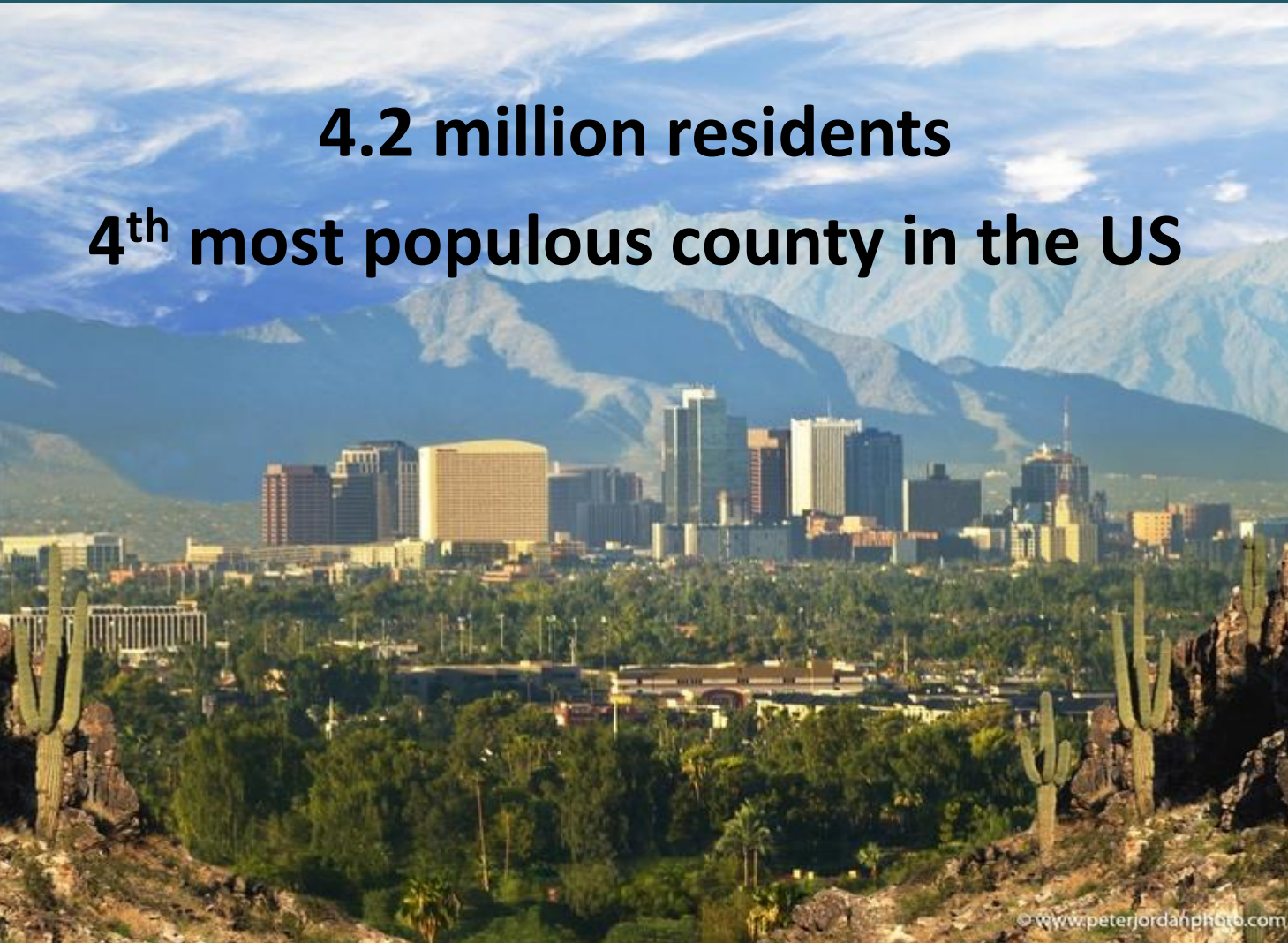
*Syndromic Surveillance Epidemiologist*



# Maricopa County, AZ, USA



**4.2 million residents**  
**4<sup>th</sup> most populous county in the US**





# Climate-sensitive Public Health Hazards



# Extreme Heat



During a typical year:	
“Heat season” when environmental temperatures $\geq 100^{\circ}\text{F}$ ( $38^{\circ}\text{C}$ )	mid-May $\rightarrow$ early October
Average days where maximum temperature $\geq 110^{\circ}\text{F}$ ( $43^{\circ}\text{C}$ )	26 days
Average days with minimum temperature $\geq 90^{\circ}\text{F}$ ( $32^{\circ}\text{C}$ )	13 days

- Heat-related illness is a public health priority
- Surveillance since 2005
  - **Mortality**
    - Office of Medical Examiner
    - Office of Vital Registration
  - **Morbidity:** Hospital discharge data
  - **Temperature:** National Weather Service

# Data Gaps



- Real-time heat morbidity monitoring
- Data to understand individual level vulnerabilities and barriers to adaptation
- Climate data to better understand the changing environment

# Outcome Data Solutions



- Case based → Syndromic Surveillance
  - Emergency department, inpatient, and weather station data
  - National collaborations:
    - CSTE Heat Syndrome Workgroup
    - CSTE Syndromic Surveillance Climate and Health Meeting
    - ISDS Syndrome Definition Workgroup



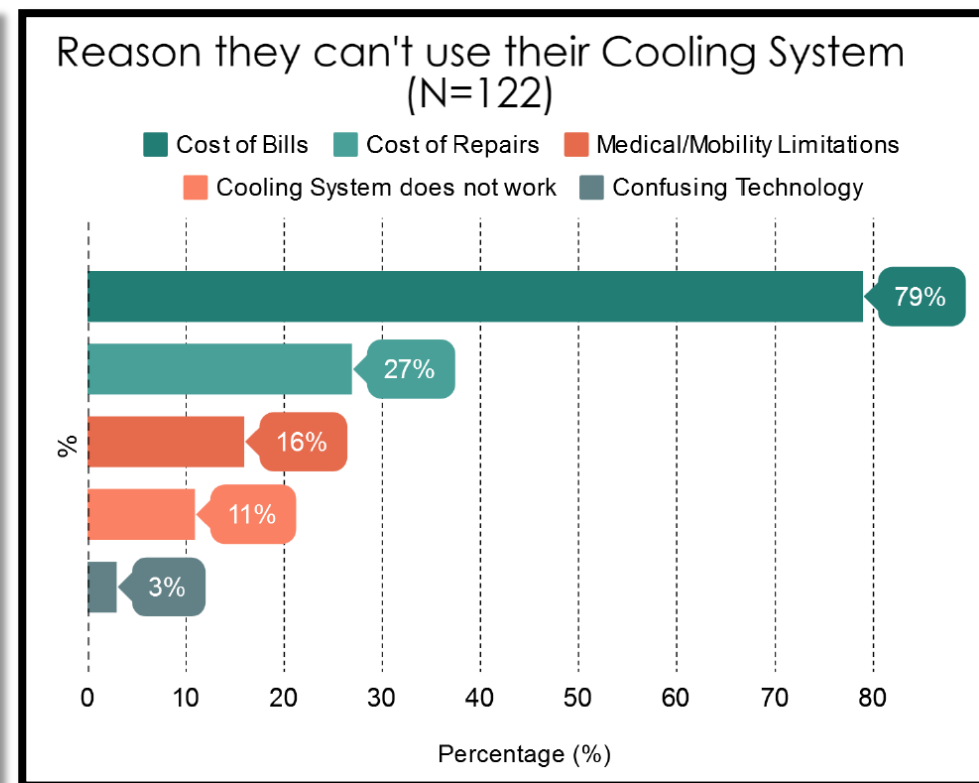
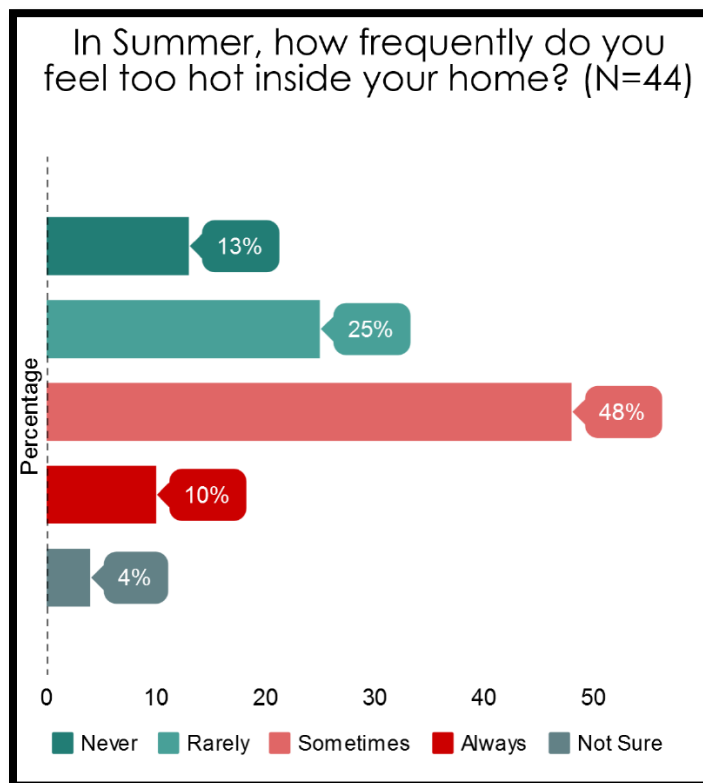
- Emergency Medical Services Data
  - AZ-PIERS

# Adaptation Data Solutions



Surveys and studies to understand individual level vulnerabilities and barriers to adaptation

- Cooling Center Evaluation
- Community Assessment for Public Health Emergency Response (CASPER)
- Homebound Study



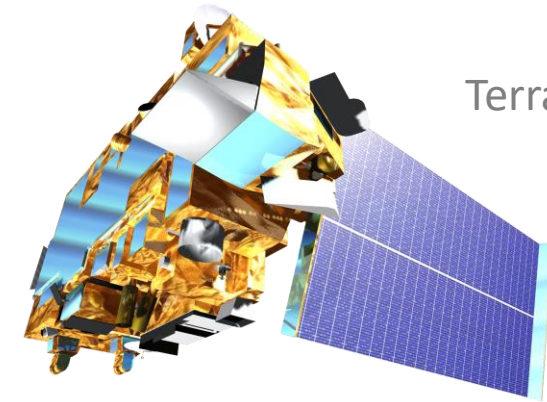


# Climate Data Solutions



## Satellite based data

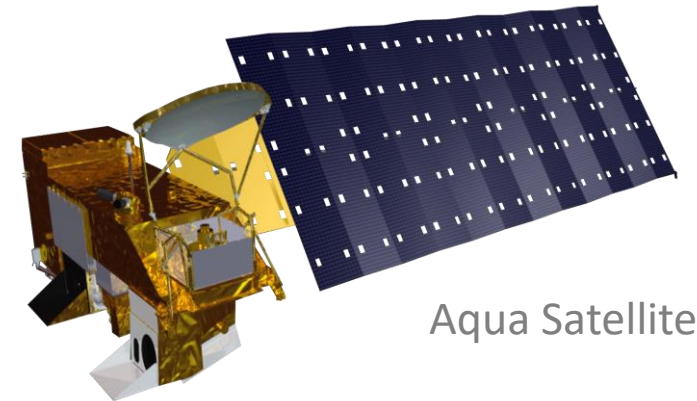
- NASA DEVELOP
  - Land surface temperatures
  - Precipitation levels
  - Particulate matter
  - Vegetation



Terra Satellite



Landsat 5 Satellite



Aqua Satellite



# Challenges



- Integration of these data into one platform
- Resources are needed to analyze, interpret and evaluate the data for public health decision making
- Data and systems vary across jurisdictions

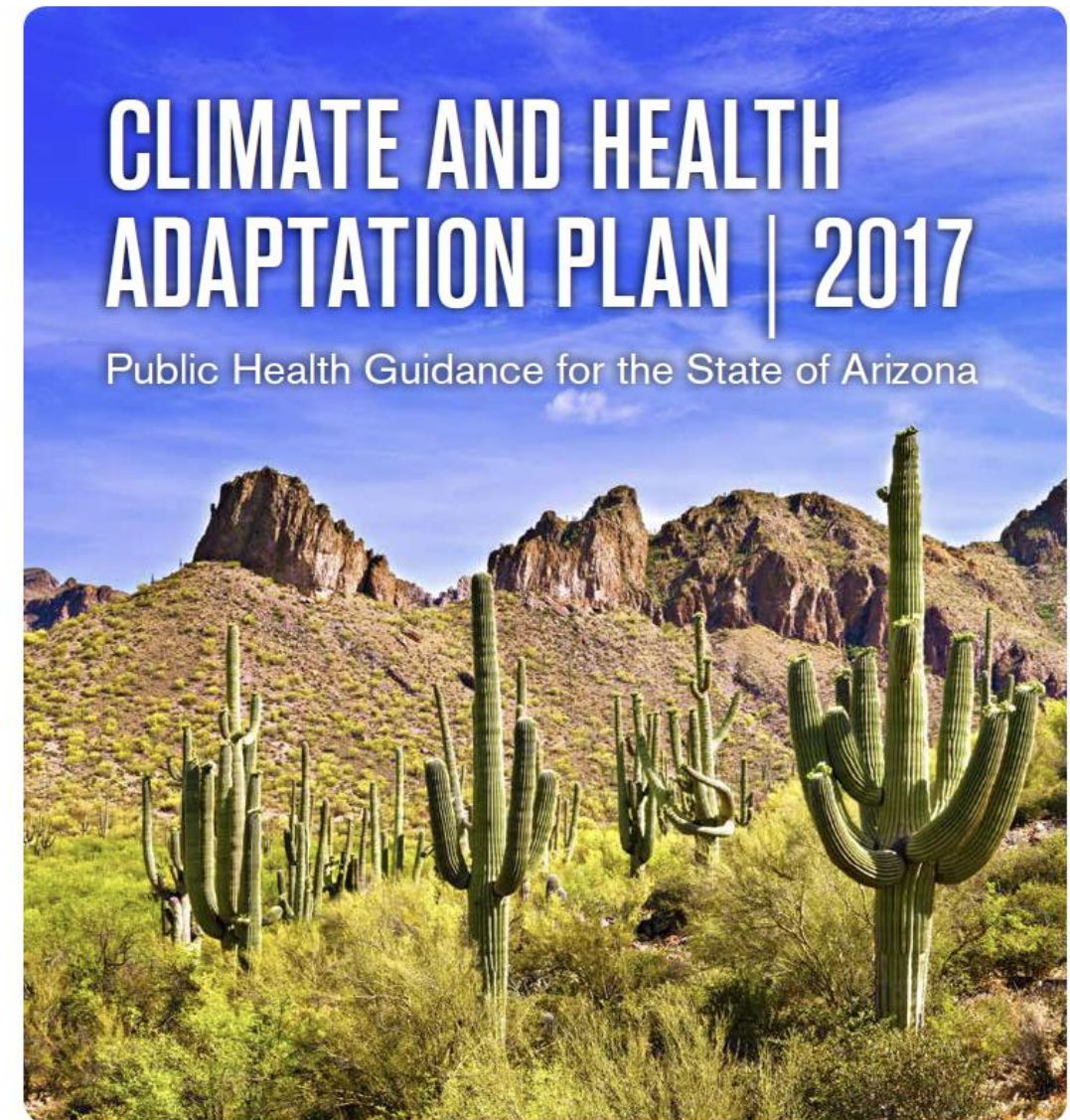


# Adaptation Efforts





# Arizona Climate and Health Adaptation Plan





# Adaptation Efforts



- Bridging Climate change and Public Health Initiative
  - Cross-sector effort to mitigate climate change



# More work to be done



- Maricopa county is in the beginning stages climate and health adaptation
- More collaboration between jurisdictions, experts from different fields
- Need to replicate the cycle of information gathering, solutions, actions, and evaluation for other climate-related hazards



# Questions

Rasneet Kumar

Syndromic Surveillance Epidemiologist

Maricopa County Department of Public Health

[Rasneetkumar@mail.Maricopa.gov](mailto:Rasneetkumar@mail.Maricopa.gov)