



# Enhanced Epidemiologic Surveillance Surrounding Super Bowl XLIX and Associated Events in Maricopa County, Arizona, 2014-2015

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# Presentation Goals



- Super Bowl Planning Structure
- Epidemiologic Surveillance Strategies
- Surveillance Results - Highlights
- Lessons Learned and Next Steps



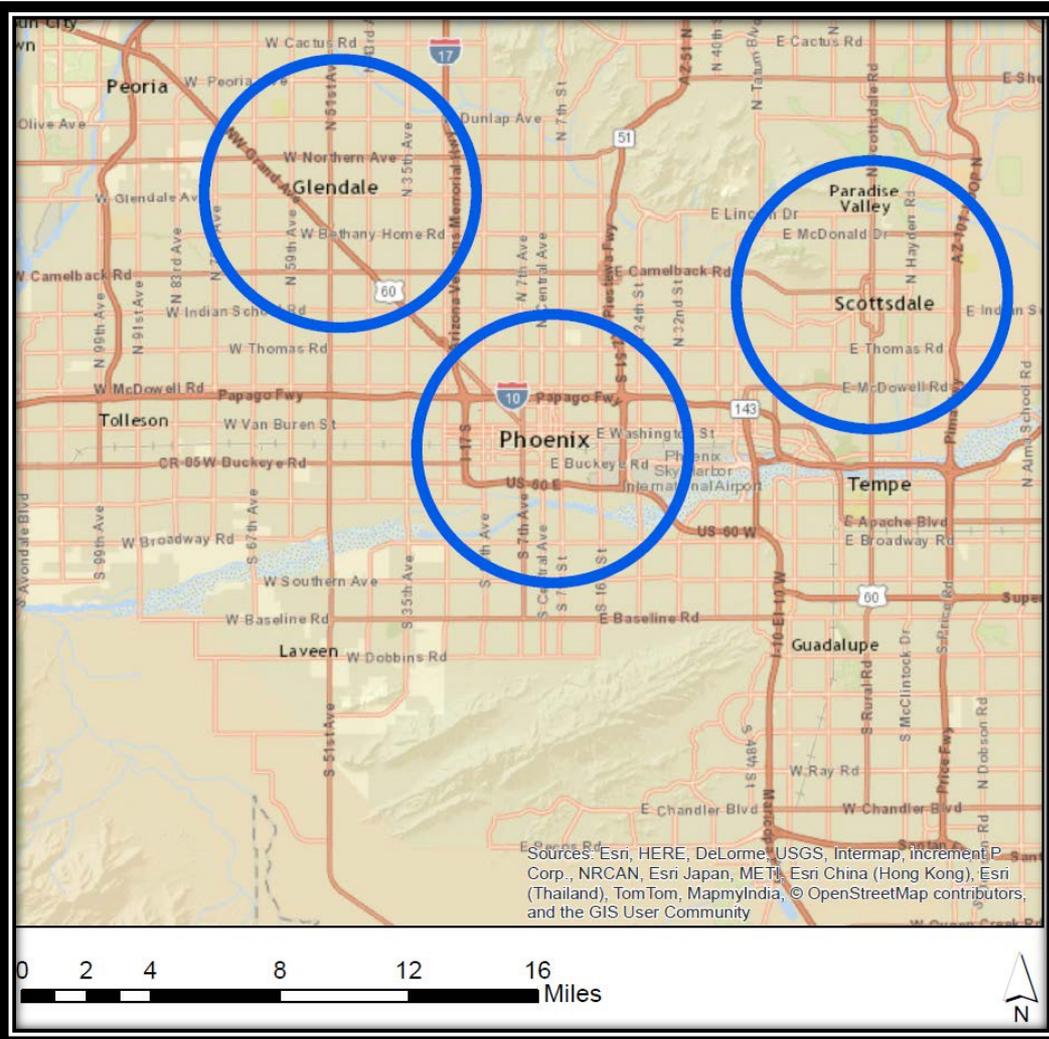
# University of Phoenix Stadium



- 63,400 seats, expandable to 72,200
- Super Bowl XLII- paid attendees 71,000(+)



# Location of Venues



- Fiesta Bowl - Glendale
- NFL Pro Bowl – Glendale
- Waste Management Open - Scottsdale
- Super Bowl Central, 12 city blocks in downtown Phoenix
- Super Bowl XLIX - Glendale

# Calendar of Events



|                   | Sun                   | Mon | Tue | Wed | Thu | Fri | Sat |
|-------------------|-----------------------|-----|-----|-----|-----|-----|-----|
| January           | 18                    | 19  | 20  | 21  | 22  | 23  | 24  |
| <b>Pro Bowl</b>   | 25                    | 26  | 27  | 28  | 29  | 30  | 31  |
|                   | WM Phoenix Open       |     |     |     |     |     |     |
|                   | Super Bowl Activities |     |     |     |     |     |     |
| <b>Super Bowl</b> | 1                     | 2   | 3   | 4   | 5   | 6   | 7   |
| February          |                       |     |     |     |     |     |     |
|                   | 9                     | 10  | 11  | 12  | 13  | 14  | 15  |

# Monthly Planning Schedule



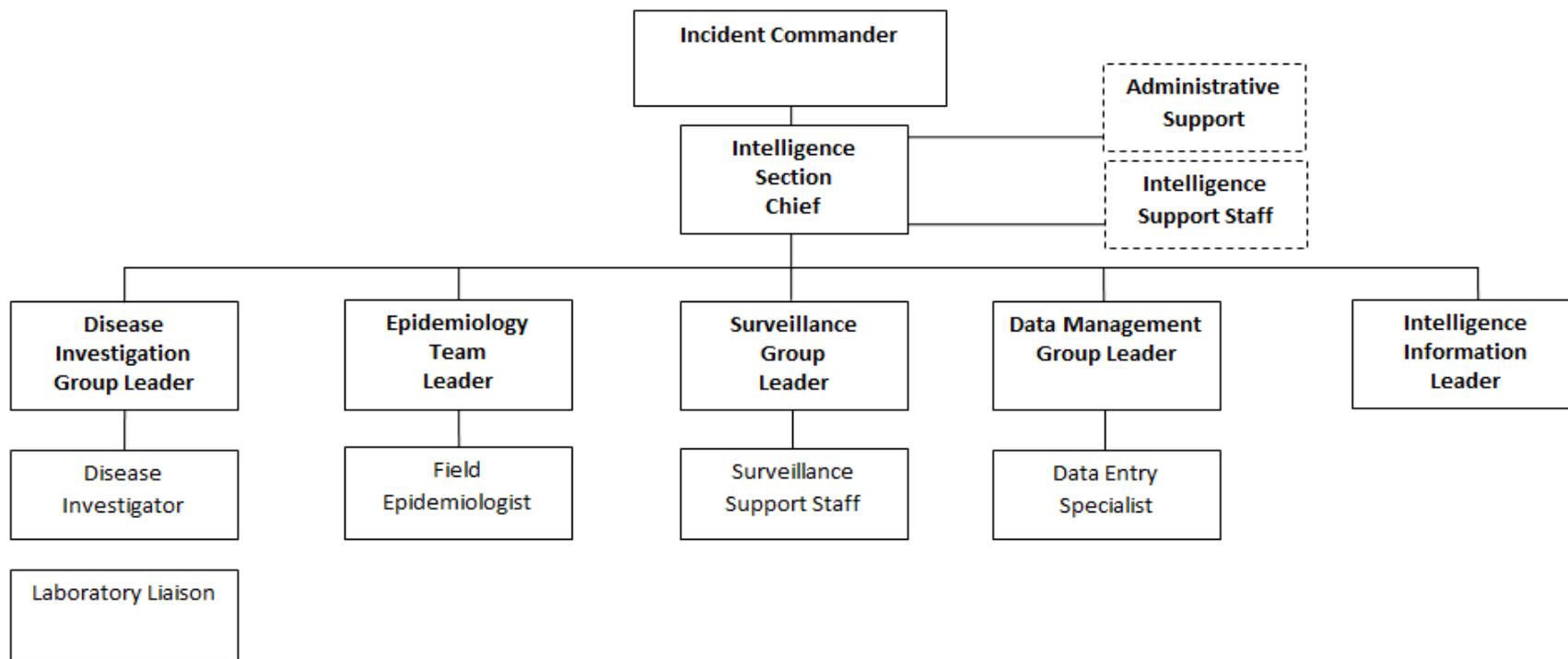
# Resource Work Groups



# Intelligence Section Organization Chart



Maricopa County Department of Public Health  
Incident Command Center  
Intelligence Section Organization Assignment Chart



# Epidemiologic Surveillance Strategies – Event Specific



- Enhanced surveillance alert (SURV)
  - Sent to healthcare providers
  - Enhanced surveillance in place from 1/22/15 to 02/06/15
- Enhanced animal surveillance
  - Contacted agencies that work with animal populations
  - Sent a SURV alert
  - Be on the look-out for any animal disease cases or outbreaks considered unusual or that could involve BT agents/diseases and may signal a significant increase over background levels
    - Plague, tularemia, anthrax, smallpox
  - 24/7 contact list



# Epidemiologic Surveillance Strategies – Event Specific



- Field syndromic surveillance at first aid stations
  - Syndromic surveillance at First Aid Stations
    - GI, respiratory, dermatological, neurological
  - Collected injury data in addition to syndromic data
  - Pilot tested during Fiesta Bowl
  - Pro Bowl, Super Bowl, NFL Experience
- Alarm room (main dispatch room) for Phoenix Fire and Scottsdale Fire



# Epidemiologic Surveillance Strategies



- Hotel syndromic surveillance

- Partnered with 32 hotels
- Located within 5 mile radius of major Super Bowl activities
- Provided educational information (e.g., hand-washing)
- Requested daily reports



- Urgent care syndromic surveillance

- Partnered with 16 urgent care sites
- Located within 5 mile radius of major Super Bowl activities
- Requested daily reports

# Epidemiologic Surveillance Strategies – Event Specific



- Registry form in case there was an emergency evacuation, to obtain participant information
- Coordinated with NFL Medical team, daily line list transmission
- Travelers- Coordinated with epidemiologists from the other NFL team states



# Epidemiologic Surveillance Strategies - Ongoing



- School surveillance
  - Voluntary reporting, school absenteeism
  - 83 schools currently participating
- ILI surveillance
  - Sentinel sites: local emergency departments, outpatient clinics
- 24/7 Disease Reporting Line/Poison Control Center (PCC) data
  - A key word/code was added for Super Bowl
  - Pilot tested during Fiesta Bowl
  - Direct access to PCC data, reviewed daily



# Epidemiologic Surveillance Strategies - Ongoing



- Mortality Surveillance
  - All hazards enhanced mortality surveillance used to identify recent deaths that could impact public health
  - Office of Vital Registrar's database
  - Line list from Medical Examiner
  - Identify cases where circumstances of death involve exposure to chemical, radiological, biological, and mass casualties

# Epidemiologic Surveillance Strategies – Other Partners



- BioWatch
  - Air monitoring
- Hospitals
  - Bed availability, hospital diversions
- Maricopa County Environmental Services
  - Food inspections at all venues
- Arizona State Lab
  - Testing support



# Epidemiologic Surveillance Strategies – Refined



- Aberration detection algorithms
  - For MEDSIS (Medical Electronic Disease Surveillance Intelligence System)
    - AZ’s notifiable conditions surveillance system
- Daily outbreak report
  - Brief summary of ongoing and newly identified outbreaks in the county
- EMS/Injury data
  - Arizona pre-hospital information and EMS Registry System (AZ-PIERS)
  - Monitored emergency medical services for ILI, GI
- Media surveillance
  - Social and news media surveillance
  - Twitter (nowtrending.hhs.gov)



# Epidemiologic Surveillance Strategies - Refined



- BioSense syndromic surveillance
  - Emergency room visits
  - Banner Hospitals, Dignity Health
  - Look at the front-end of BioSense daily during the enhanced surveillance period
  - C2 method to detect increases, using default options
  - Focus on ILI and GI
  - Running code for Super Bowl related terms, out of state (focus on states where teams are from) and a list of diseases of interest such as BT agents
  - If an alarm comes up, discuss if real or artifact with ADHS (available to MCDPH 24/7)
  - Look at data using R code to identify suspect cases, and order medical records if needed





That was the plan. But then....

# Measles!!!



- Ongoing measles investigation linked to exposure at Disneyland
  - Health Alert sent on 1/23/15
  - Two confirmed cases, over 500 people estimated to be likely exposed
- Decided to run a daily Biosense rash report and a daily measles report
- Identify high suspects (mostly rash and fever and a mention of measles)
- Order medical records



## Separate ICC activations





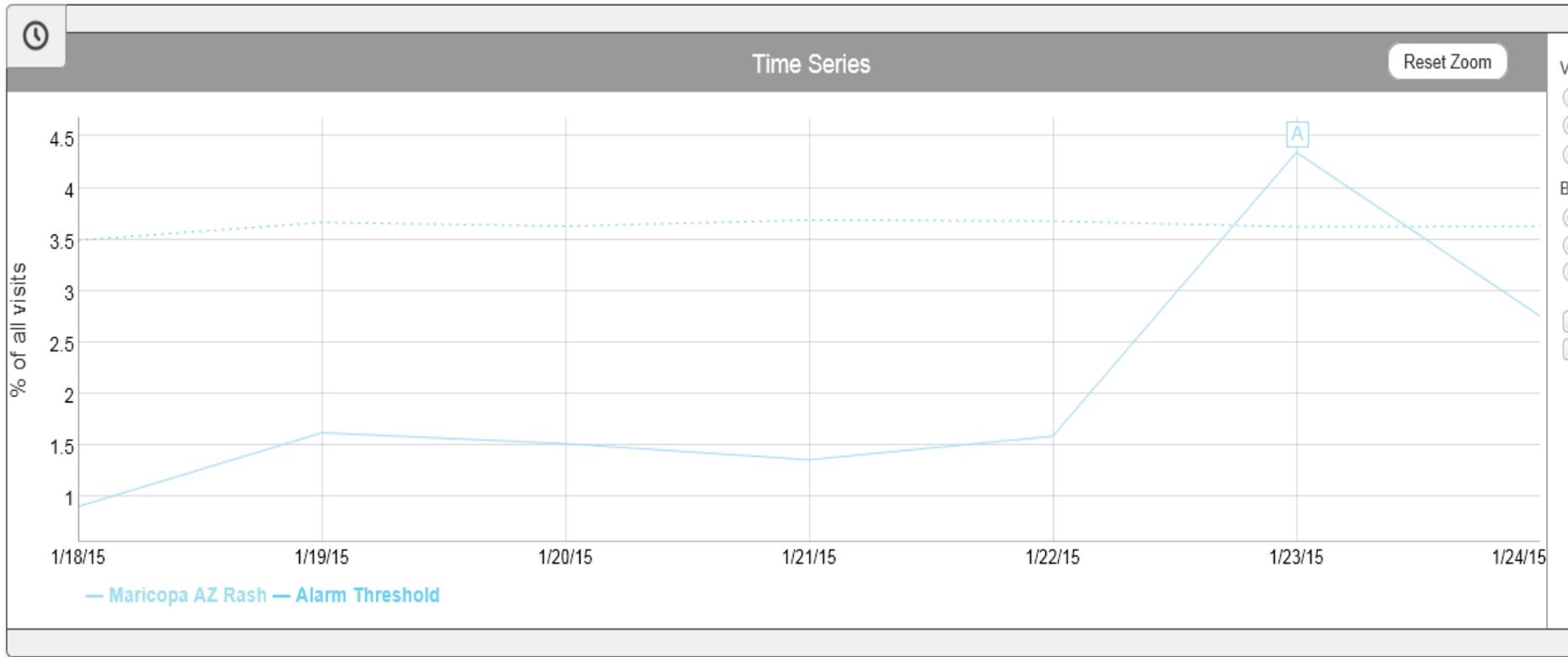


# Results - Highlights

# Daily Rash Report



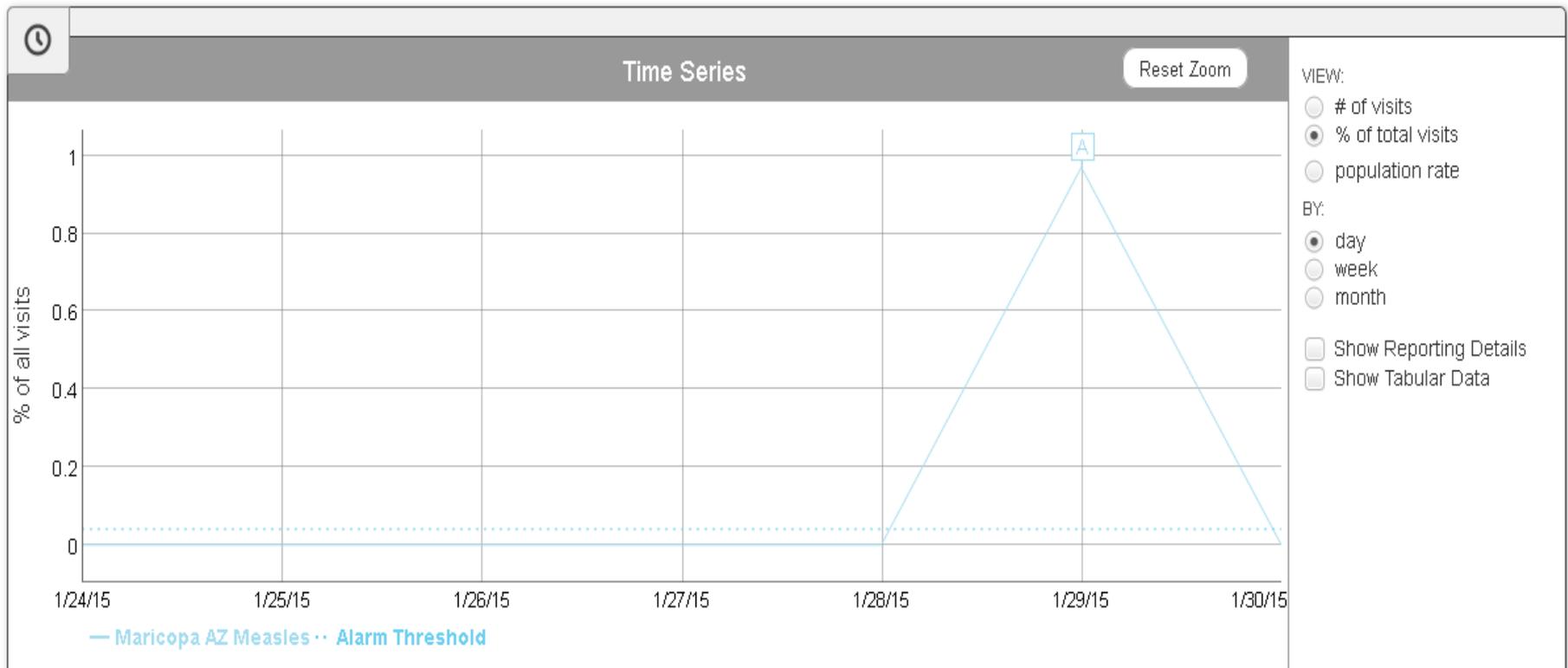
Viewing 136 visits for 1 syndrome in 1 location from 1/18/2015 - 1/24/2015 from 1 source for Male, Female, and Unknown, ages all ages.



# Daily Measles Report



Viewing 1 visits for 1 syndrome in 1 location from 1/24/2015 - 1/30/2015<sup>2</sup> from 13 sources for Male, Female, and Unknown, ages all ages.





# Field Surveillance – Pro Bowl

|                          | Number of Reports |
|--------------------------|-------------------|
| <b>Illness</b>           | <b>15</b>         |
| Gastrointestinal Illness | 6                 |
| Respiratory Illness      | 1                 |
| Rash Illness             | 2                 |
| Neurological Illness     | 10                |
| <b>Injury</b>            | <b>19</b>         |
| Cut                      | 4                 |
| Sprain                   | 4                 |
| Concussion               | 0                 |
| Fracture                 | 0                 |
| Dental                   | 0                 |
| Bruise                   | 8                 |
| Cramp                    | 2                 |
| Other                    | 6                 |

# Field Surveillance – NFL Experience



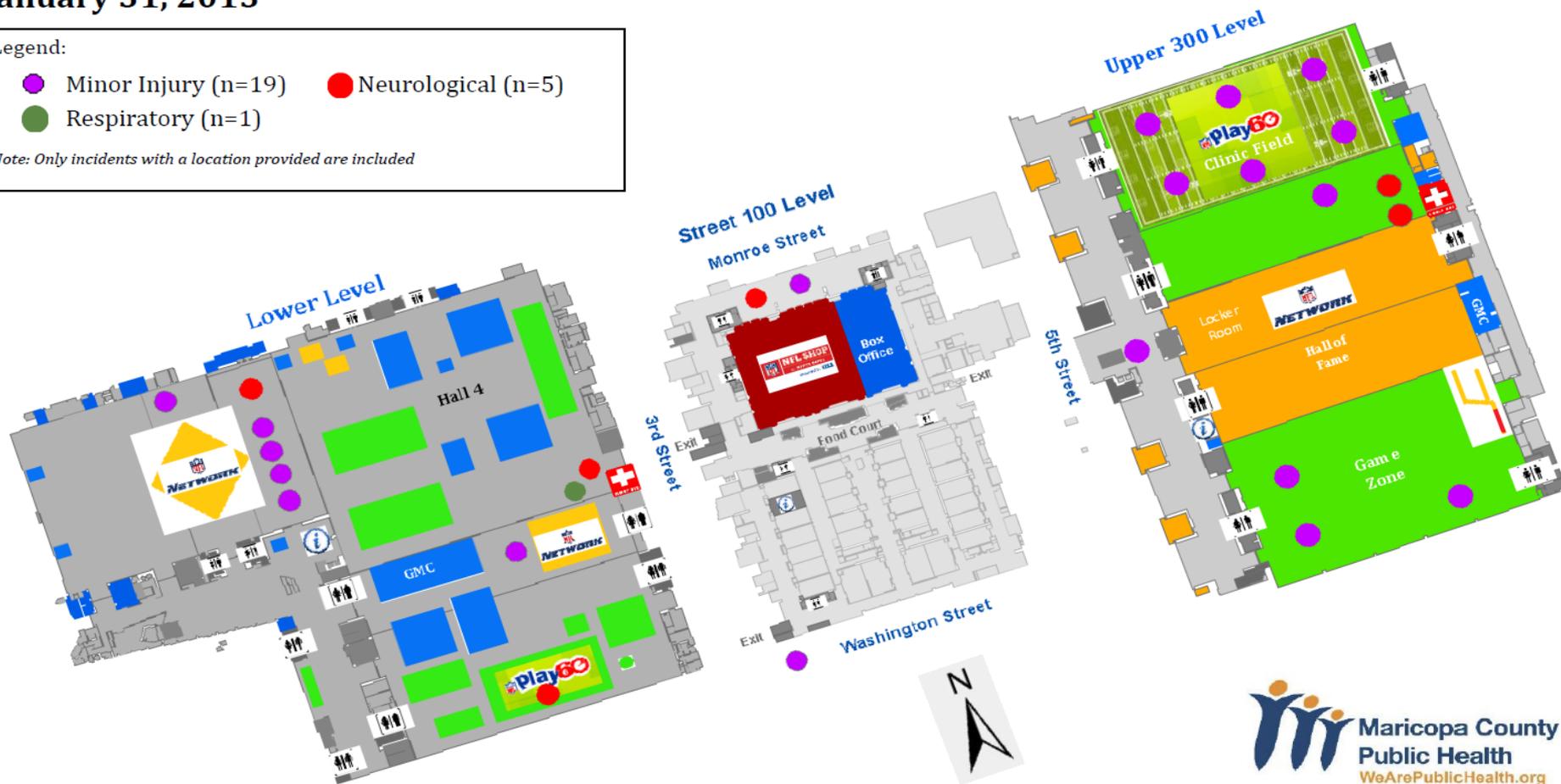
## NFL Experience Field Surveillance

January 31, 2015

Legend:

- Minor Injury (n=19)
- Neurological (n=5)
- Respiratory (n=1)

*Note: Only incidents with a location provided are included*



# Field Surveillance – NFL Experience

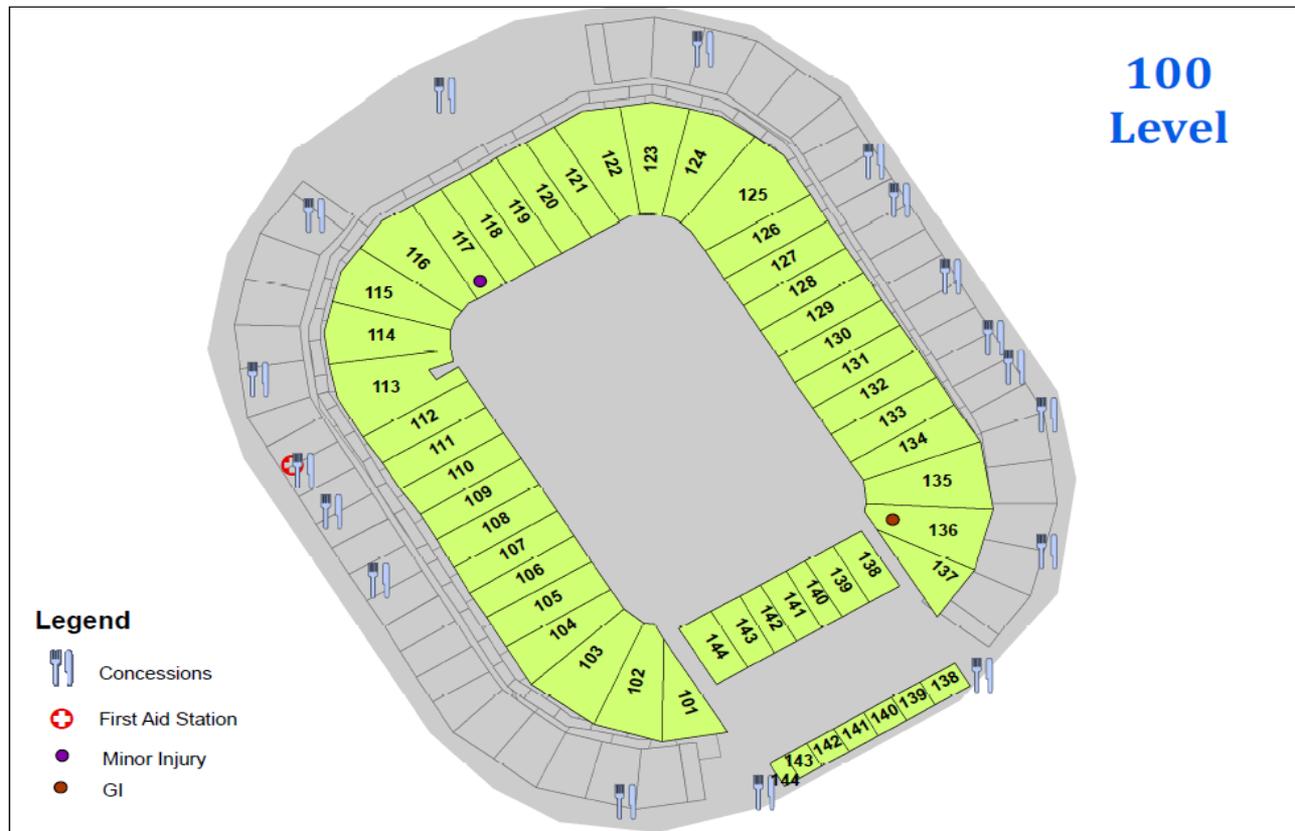


|                          | Number of Reports |
|--------------------------|-------------------|
| <b>Illness</b>           | <b>46</b>         |
| Gastrointestinal Illness | 7                 |
| Respiratory Illness      | 10                |
| Rash Illness             | 2                 |
| Neurological Illness     | 33                |
|                          |                   |
| <b>Injury</b>            | <b>151</b>        |
| Cut                      | 56                |
| Sprain                   | 27                |
| Concussion               | 4                 |
| Fracture                 | 3                 |
| Dental                   | 2                 |
| Bruise                   | 20                |
| Cramp                    | 9                 |
| Other                    | 39                |

# Field Surveillance- University of Phoenix Stadium



## University of Phoenix Stadium Field Surveillance



# Field Surveillance – Super bowl

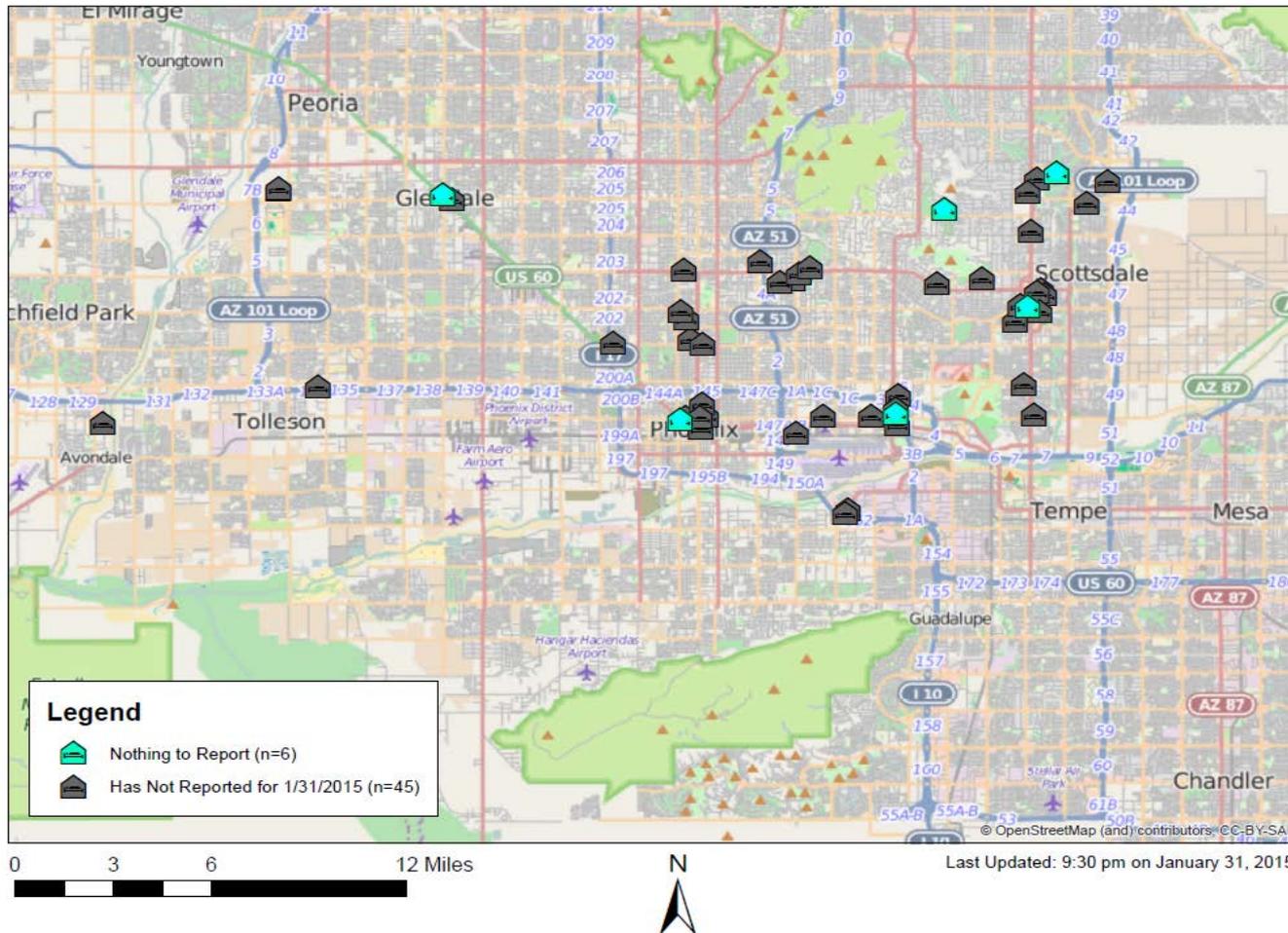


|                          | Number of Reports |
|--------------------------|-------------------|
| <b>Illness</b>           | <b>13</b>         |
| Gastrointestinal Illness | 6                 |
| Respiratory Illness      | 1                 |
| Rash Illness             | 2                 |
| Neurological Illness     | 10                |
|                          |                   |
| <b>Injury</b>            | <b>19</b>         |
| Cut                      | 4                 |
| Sprain                   | 1                 |
| Concussion               | 0                 |
| Fracture                 | 0                 |
| Dental                   | 0                 |
| Bruise                   | 2                 |
| Cramp                    | 1                 |
| Other                    | 6                 |

# Hotel Surveillance



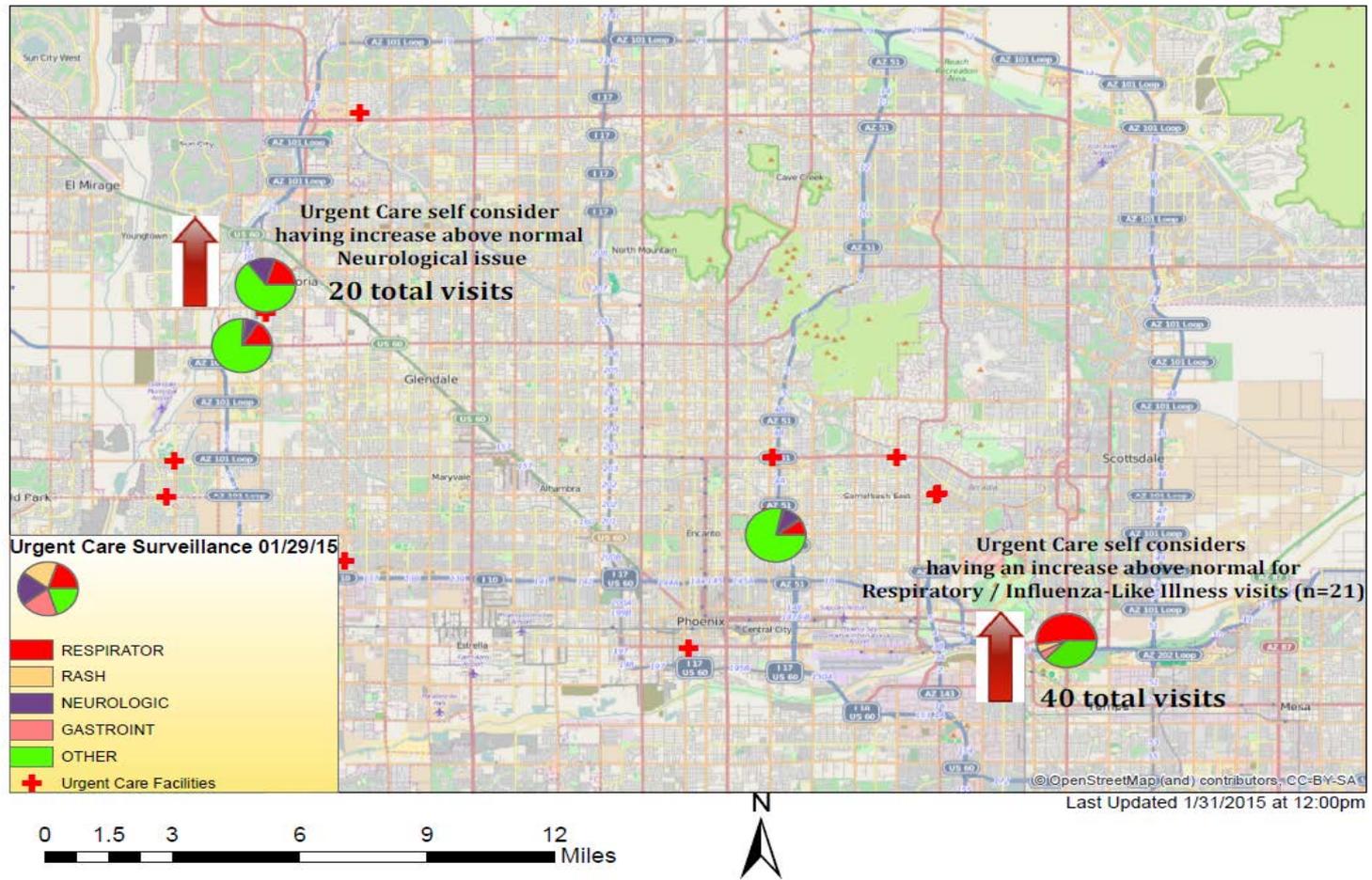
Super Bowl Hotel Surveillance January 31, 2015



# Urgent Care Surveillance



## Super Bowl Urgent Care Surveillance January 29, 2015



# Hotel Surveillance



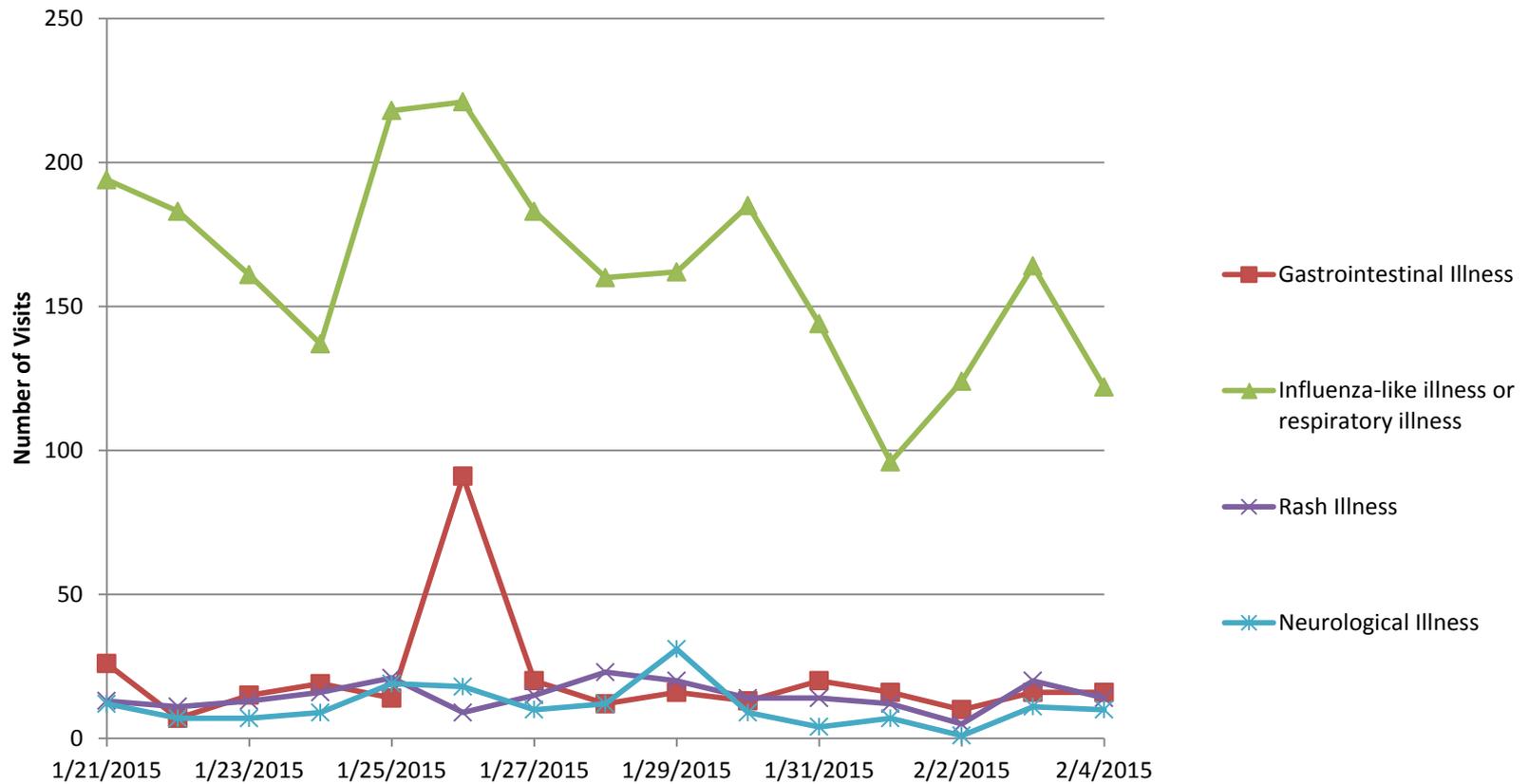
A total of 26 hotels reported over 16 days

| Reporting Date | Number of Responses | Gastrointestinal Illness | Influenza-like illness or Respiratory illness | Rash Illness | Neurological Illness |
|----------------|---------------------|--------------------------|---|--------------|----------------------|
| 1/21/2015      | 5                   | 0                        | 0   | 0            | 0                    |
| 1/22/2015      | 19                  | 0                        | 1   | 0            | 1                    |
| 1/23/2015      | 9                   | 0                        | 0   | 0            | 0                    |
| 1/24/2015      | 7                   | 0                        | 1   | 0            | 0                    |
| 1/25/2015      | 9                   | 0                        | 0   | 0            | 0                    |
| 1/26/2015      | 19                  | 0                        | 1   | 0            | 1                    |
| 1/27/2015      | 9                   | 0                        | 0   | 0            | 0                    |
| 1/28/2015      | 14                  | 0                        | 0   | 0            | 0                    |
| 1/29/2015      | 5                   | 0                        | 0   | 0            | 0                    |
| 1/30/2015      | 18                  | 0                        | 0   | 0            | 0                    |
| 1/31/2015      | 6                   | 0                        | 0   | 0            | 0                    |
| 2/1/2015       | 9                   | 0                        | 0   | 0            | 0                    |
| 2/2/2015       | 10                  | 1                        | 0   | 0            | 0                    |
| 2/3/2015       | 1                   | 0                        | 0   | 0            | 0                    |
| 2/4/2015       | 1                   | 0                        | 0   | 0            | 0                    |
| 2/5/2015       | 5                   | 0                        | 0   | 0            | 0                    |
| <b>Total</b>   | <b>146</b>          | <b>1</b>                 | <b>3</b>                                      | <b>0</b>     | <b>2</b>             |

# Urgent Care Surveillance



A total of 14 Urgent Care Centers reported over 15 days



# Urgent Care Surveillance



A total of 14 Urgent Care Centers reported over 15 days

| Reporting Date | Number of Center Reporting | Gastrointestinal Illness | Number of Clinics Reporting Above Average Visits | Influenza-like illness or Respiratory illness | Number of Clinics Reporting Above Average Visits | Rash Illness | Number of Clinics Reporting Above Average Visits | Neurological Illness | Number of Clinics Reporting Above Average Visits |
|----------------|----------------------------|--------------------------|--|---|--|--------------|--|----------------------|--|
| 1/21/2015      | 8                          | 26                       | 1  | 194   | 3  | 13           | 0  | 12                   | 0  |
| 1/22/2015      | 9                          | 7                        | 0  | 183   | 2  | 11           | 0  | 7                    | 0  |
| 1/23/2015      | 9                          | 15                       | 0  | 161   | 0  | 13           | 0  | 7                    | 0  |
| 1/24/2015      | 10                         | 19                       | 0  | 137   | 1  | 16           | 0  | 9                    | 0  |
| 1/25/2015      | 11                         | 14                       | 0  | 218   | 4  | 21           | 0  | 19                   | 0  |
| 1/26/2015      | 12                         | 91*                      | 1  | 221   | 4  | 9            | 0  | 18                   | 0  |
| 1/27/2015      | 8                          | 20                       | 0  | 183   | 4  | 15           | 0  | 10                   | 0  |
| 1/28/2015      | 7                          | 12                       | 0  | 160   | 2  | 23           | 0  | 12                   | 0  |
| 1/29/2015      | 8                          | 16                       | 0  | 162   | 1  | 20           | 0  | 31                   | 1  |
| 1/30/2015      | 7                          | 13                       | 0  | 185   | 2  | 14           | 0  | 9                    | 0  |
| 1/31/2015      | 8                          | 20                       | 0  | 144   | 1  | 14           | 0  | 4                    | 0  |
| 2/1/2015       | 8                          | 16                       | 0  | 96  | 1  | 12           | 0  | 7                    | 0  |
| 2/2/2015       | 6                          | 10                       | 0  | 124   | 1  | 5            | 0  | 1                    | 0  |
| 2/3/2015       | 8                          | 16                       | 0  | 164   | 3  | 20           | 0  | 11                   | 0  |
| 2/4/2015       | 7                          | 16                       | 0  | 122   | 0  | 14           | 0  | 10                   | 1  |
| <b>Total</b>   | <b>126</b>                 | <b>311</b>               | <b>2</b>   | <b>2454</b>                                   | <b>29</b>  | <b>220</b>   | <b>0</b>   | <b>167</b>           | <b>2</b>   |

7/28/2015\*2 The increased gastro visits occurred at 2 clinics

# Daily Reports



## Maricopa County Department of Public Health Office of Epidemiology Office of Preparedness and Response

February 1, 2015  
12:30 PM

### Public Health Surveillance Report Super Bowl and Related Events

#### REPORTS INSIDE THIS ISSUE:

|                        |   |
|------------------------|---|
| Social Media           | 1 |
| Communicable Diseases  | 1 |
| Death Surveillance     | 3 |
| NFL Clinic             | 3 |
| Health Alerts          | 3 |
| Syndromic Surveillance | 4 |

#### Special points of interest:

- State of Arizona at widespread activity level for influenza
- Ongoing multistate measles outbreak investigation including the state of Arizona
- Officials: Up to 1K possibly exposed to measles in Arizona

#### Maricopa County Update Social Media Reports Relevant to Health

As of 02/01/2015 12:00 PM

Most twitter highlights in Maricopa County are unrelated to Super Bowl. Measles pro-vaccine sentiments and the measles outbreak dominated tweets.

Maricopa County Public Health monitors and scans several sources for media reports of public health relevance. While this is not an exact science, it gives us an idea of what is happening in our community and beyond. What we are looking for when seeking out information are disease spread and public

health threats within the community, as well as emerging disease and public health threats in the United States and throughout the world. Some of the ways we accomplish this project is through scanning news websites, monitoring aggregated Twitter feeds, as well as subscribing to several news websites,

government websites, and breaking news alerts. The information we gather is provided to others within our agency as a way to keep informed in order to implement prevention and intervention measures when necessary.



#### Communicable Disease Surveillance Increases in Communicable Diseases

As of 02/01/2015 12:00 PM

THERE IS AN ONGOING MEASLES INVESTIGATION LINKED TO EXPOSURE AT DISNEYLAND THAT IS UNRELATED TO SUPER BOWL AND OTHER CURRENT EVENTS.

There is heightened disease surveillance in Maricopa County. All exposures are being actively followed. Two confirmed cases identified. No new symptomatic cases.

- It is estimated that more than 500 people (children and their family members) were likely exposed.
- All 195 exposed families have been contacted.
- Of those contacted, 67% have been reached, interviewed and excluded from child care, school or work if unvaccinated. Of those interviewed no symptomatic cases have been identified.
- Information has been provided to partners (health care facilities, schools and daycares) regarding the outbreak.

# Surveillance Results - Summary



- Influenza
  - Widespread activity
  - Few cases within NFL family
- Measles outbreak
  - One suspect case identified from field surveillance at the NFL experience, but was ruled out
  - An individual arrested in one of the events claimed to have been exposed to measles, also ruled out
  - 20,000 cases screened in BioSense, no confirmed measles cases identified through BioSense
- Minor injuries reported at all events
- Cyanide exposure
  - Single event, ruled as suicide

# Lessons Learned/Next Steps



- Planning phase- meetings with other jurisdictions that have done epidemiologic surveillance for large events in the past
- Which special events should be monitored? Level of monitoring?
- How to decide if and when an additional IC activation is needed during monitoring of a special event?
- Develop scripts to communicate with partners
- Continue to work on reliable data transmissions
- Continue to build systems and enroll facilities
- Which diseases/syndromes to focus on?
- Syndromic algorithms for high suspects

# Questions?

