

Emerging Viral Diseases

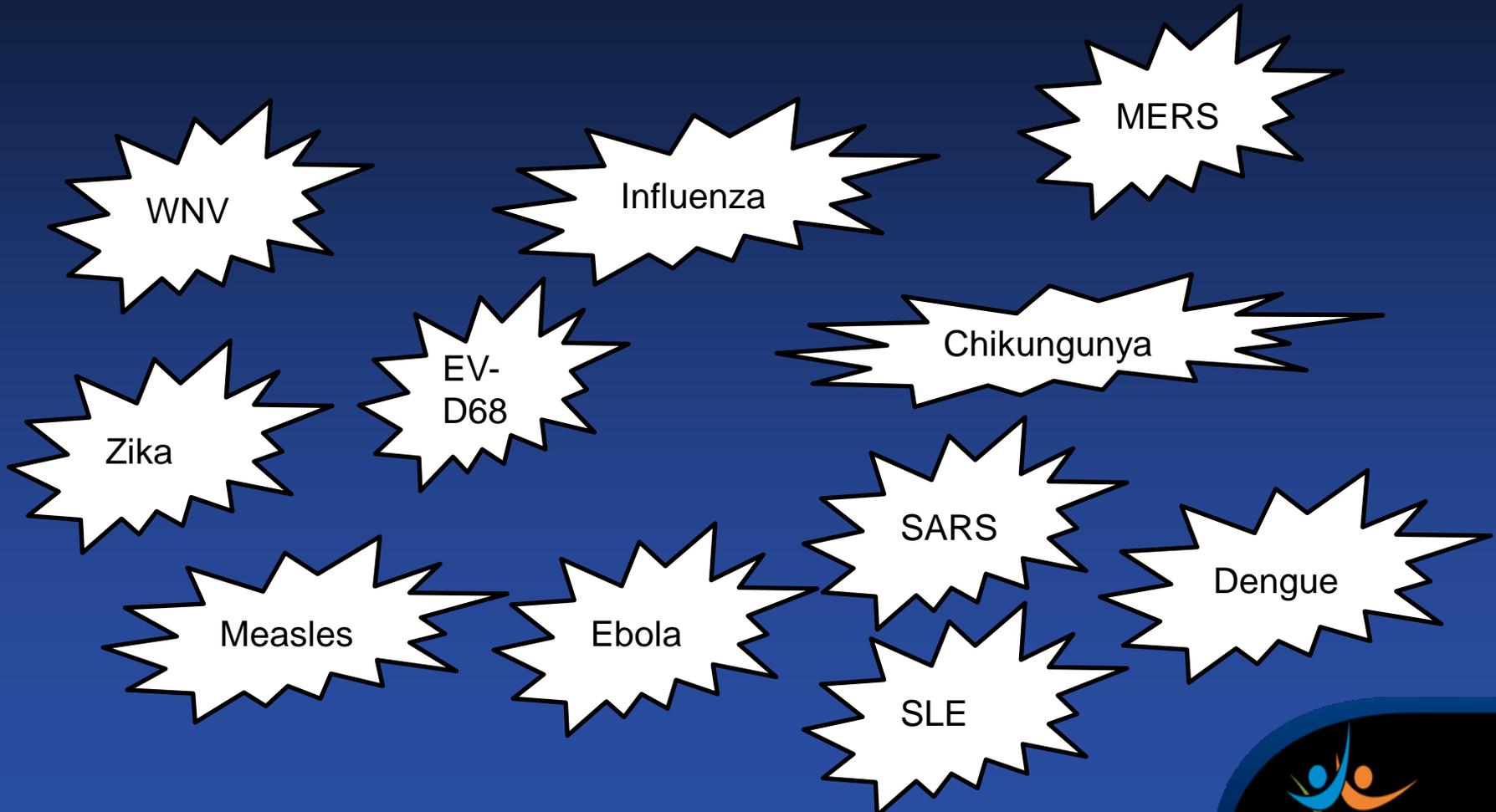
CAPHLD/CACDC Joint Annual Meeting October 6, 2015

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Center for Infectious Disease

-
- Why are emerging viral diseases important?
 - Are we prepared?
 - Which ones keep me up at night?

Viral Diseases Are Always Emerging



Emerging Viral Diseases Pose Different Public Health Challenges

- Widespread illness



Influenza



WNV

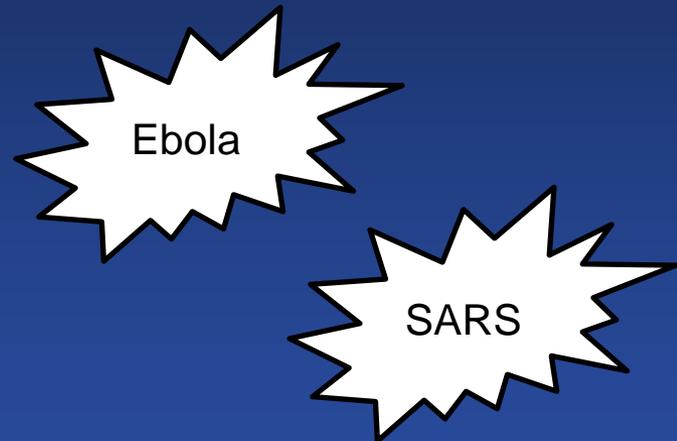
Emerging Viral Diseases Pose Different Public Health Challenges

- Widespread illness
- Significant public health responses and surge



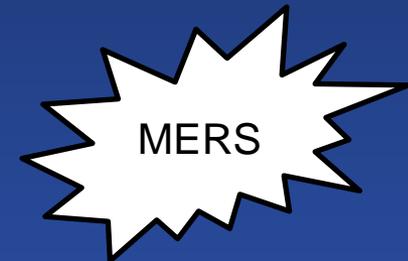
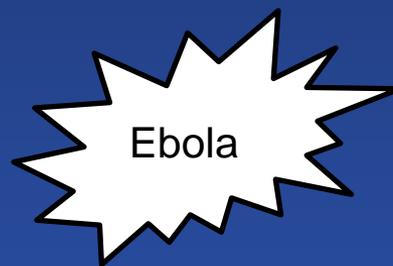
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- Outbreak potential and public concern



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- Potential impact on health care system
- Special biosafety concerns
- Challenges for virologic surveillance
 - Increased need for viral typing

A white starburst graphic with a black outline, containing the text 'EV-D68'.

EV-
D68

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Influenza



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 - Increased need for viral typing
 - Diagnostic difficulties

Zika

Dengue

WNV

SLE

Are We Prepared?

- Special biosafety concerns
- Significant public health responses

WNV

Influenza

MERS

Zika

EV-
D68

Chikungunya

Measles

Ebola

SARS

Dengue

SLE

Special Biosafety Concerns—Ebola Experience

- Initial situation—testing available at CDC
 - Hospital concerns about packaging and shipping
 - Questions about carriers
 - PHLs played important role providing:
 - ✓ Guidance
 - ✓ On-site assistance
 - ✓ Training
- Later—test available to PHLs
 - Biosafety concerns for PHLs
 - PPE availability
 - Training and staffing
 - Physical space
 - Waste management



Biosafety Follow Up

- Internal review at VRDL
- CDC and APHL support for biosafety outreach
- Survey of PHLs
- Strategic assessment of biosafety needs
- Response to needs, as possible
 - Policies/procedures
 - Training
 - Coordination

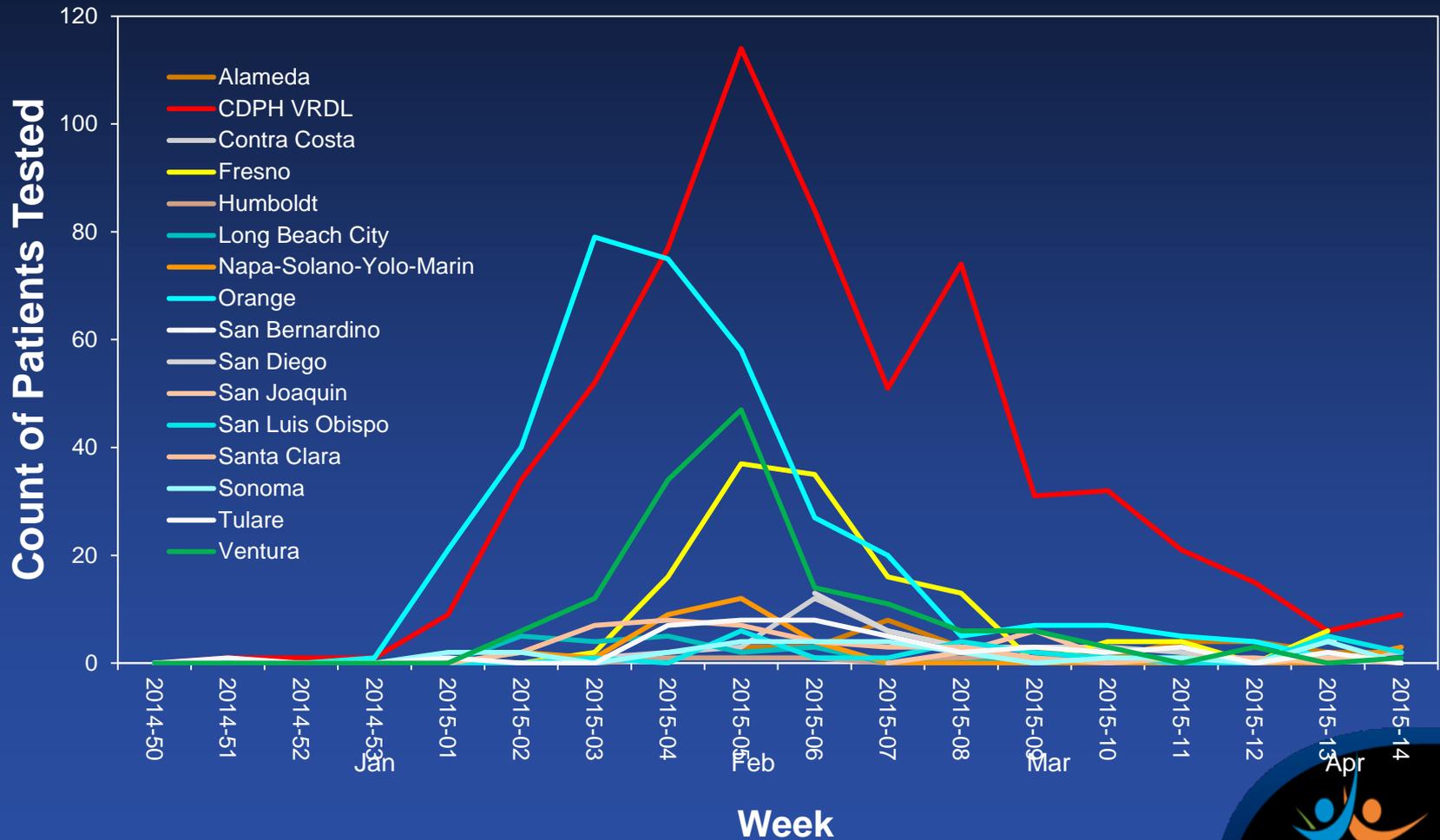
Significant Public Health Responses and Surge—Measles Experience

- Measles control
 - Intensive contact investigation
 - Provision of post-exposure prophylaxis to high risk, susceptible persons
 - Laboratory input critical
 - ✓ Case confirmation
 - ✓ Viral typing
 - ✓ Susceptibility determination
- Frequent introductions of measles virus

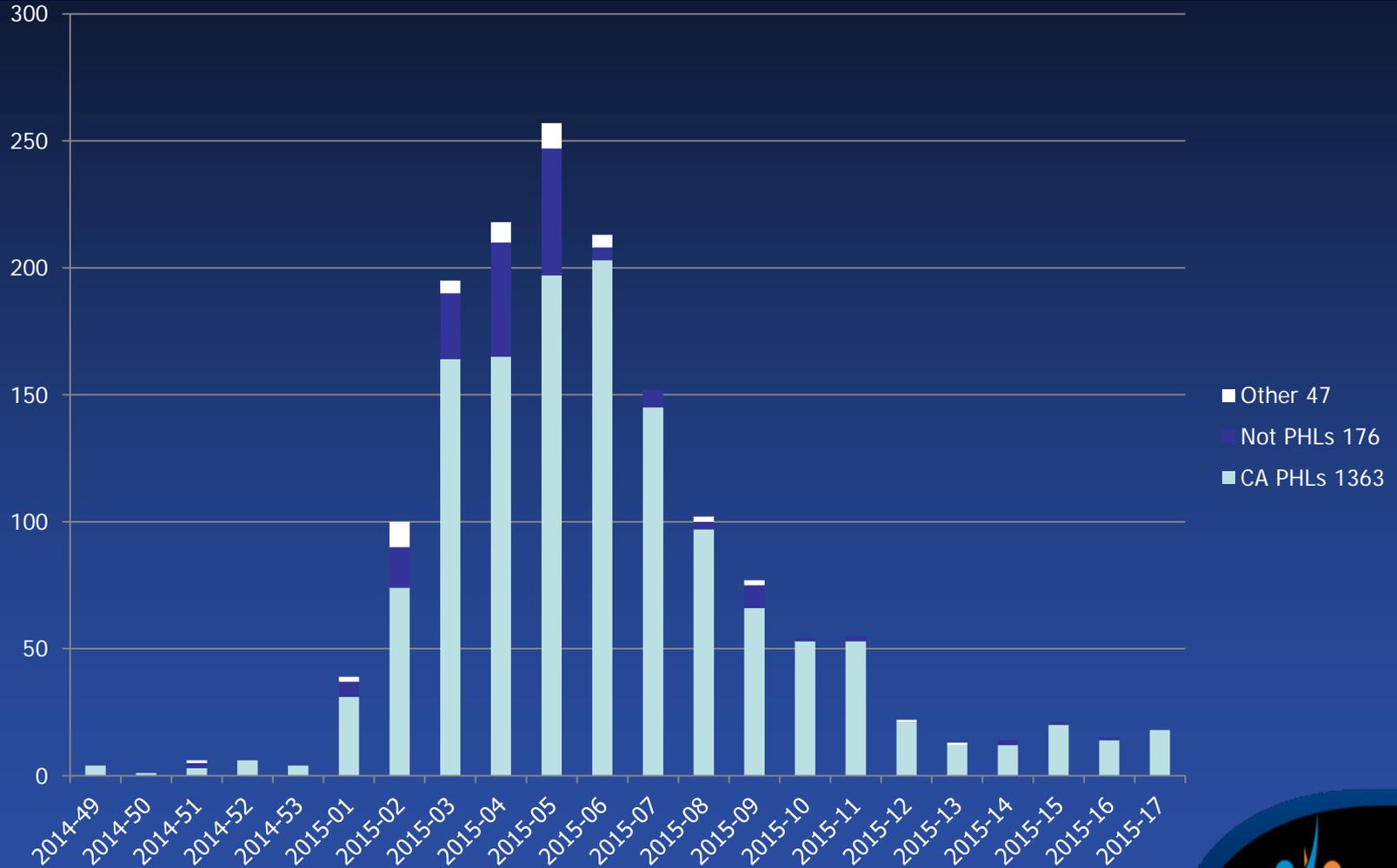
2014/15 Measles Outbreak

- Initial exposure mid-December
- Large outbreak
 - 131 cases in California
 - 178 cases in 6 states, Mexico, and Canada
- Secondary transmission in multiple settings
- “Recipe” for transmission
 - Large numbers of people at venue
 - Many international visitors
 - Transmission amplified by unvaccinated persons

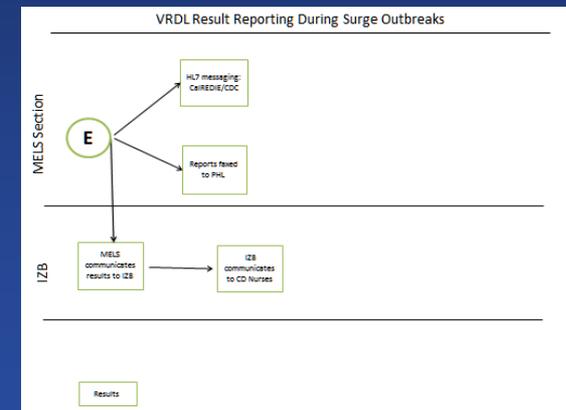
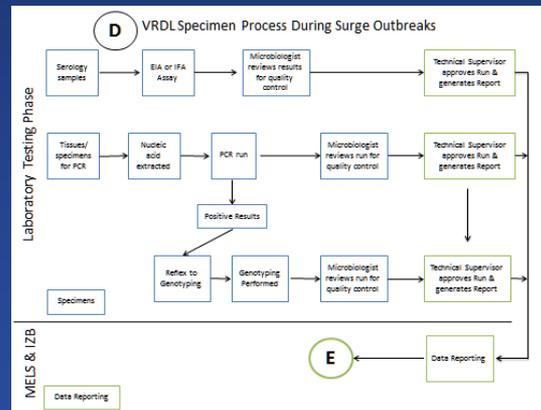
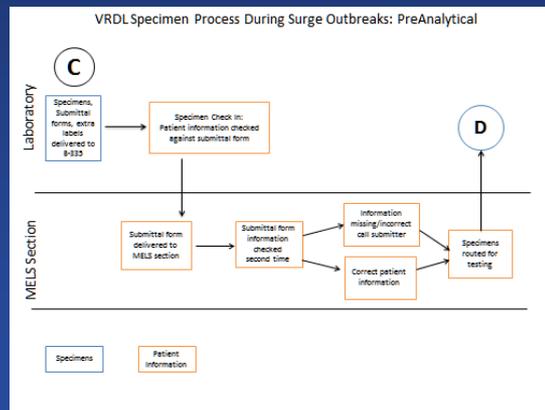
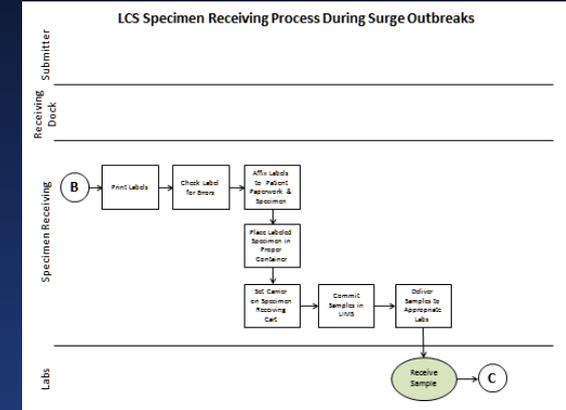
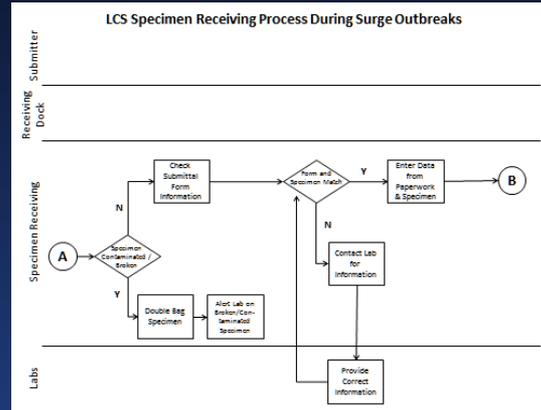
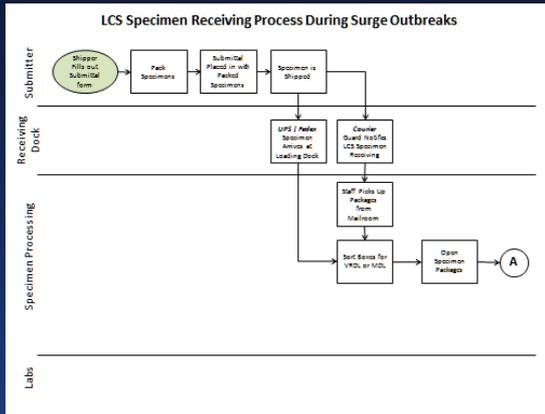
Surge in Laboratory Testing



Samples Sent to VRDL, by Submitter



Specimen and Information Flow



Challenges

- Pre-Analytic
 - Specimens
 - ✓ Packaging
 - ✓ Labeling
 - ✓ Lack of information
 - Communication
- Analytic
 - Prioritization
 - Scheduling
- Post-Analytic
 - Communication

DCDC Strategic Initiative

- Modernize specimen tracking and laboratory communication system
- Goals
 - Machine readable specimen labeling by submitter
 - On-line specimen data submission
 - Integrated specimen tracking system at CDPH
 - Electronic data availability
 - ✓ Specimen status
 - ✓ Results
 - ✓ Integrated with CalREDIE

Next Steps

- More information tomorrow
- Formation of workgroup with CAPHLD and CACDC representation
 - Set goals
 - Determine options
 - Identify customer needs

Which Ones Keeps Me up at Night?

- MERS
 - 71 PUIs to date (all tested negative)
 - Potential to cause large health care associated outbreaks
 - Potential impacts
 - ✓ Health care system disruption
 - ✓ Surge for PHLs

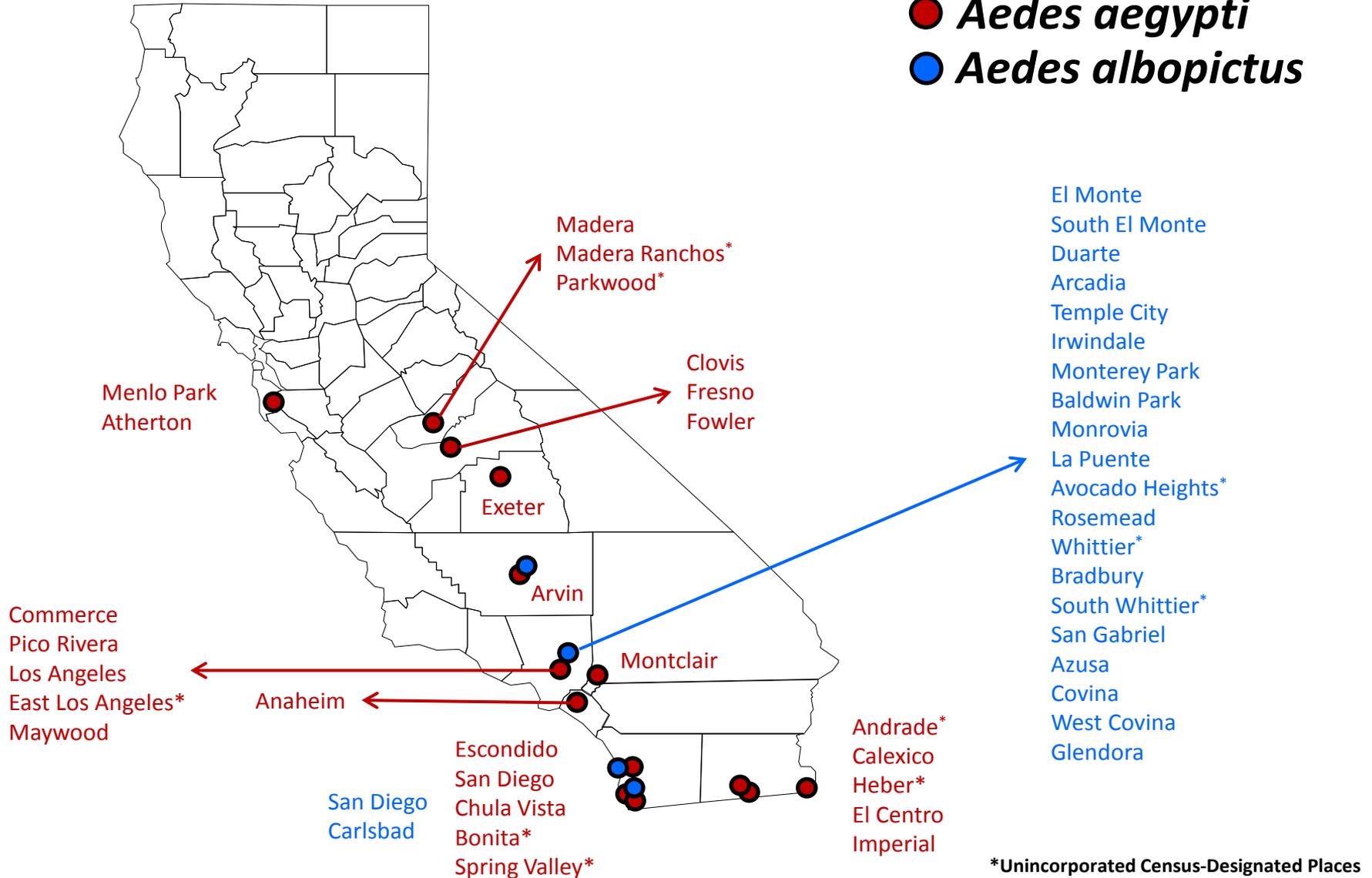
Which Ones Keeps Me up at Night?

- Chikungunya and Dengue
 - Widespread transmission in Mexico
 - Establishment of vectors along border
 - Extensive human movement across border
 - Prior local transmission in US
 - Potential impacts
 - ✓ Public concern
 - ✓ Extensive disease control activities
 - ✓ Surge for PHLs

Aedes aegypti and *Aedes albopictus* Mosquitoes Detection Sites in California, 2011-2015

Updated October 2, 2015

● *Aedes aegypti*
● *Aedes albopictus*



Which Ones Keeps Me up at Night?

- Influenza
 - Avian strains causing human disease in other countries
 - Highly pathogenic avian strains impacting birds in US
 - Changes in circulating human viruses
 - Potential impacts
 - ✓ Public concern
 - ✓ Human surveillance workload
 - ✓ Increased disease
 - ✓ Surge for PHLs

Questions?
