# SAT5424 Project Presentation

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**Presentation Title:**
Public Health in the Digital Age: Informatics Approach to Emerging Infectious Diseases

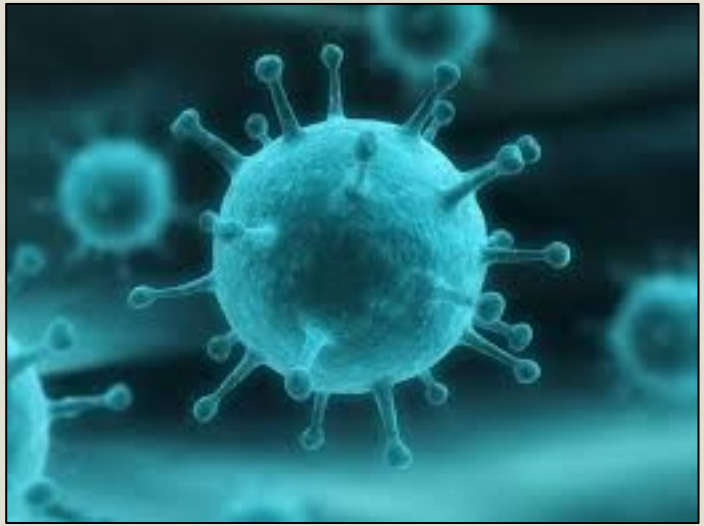
# Introduction to Emerging Infectious Diseases

What Are They?

- Newly appeared in a population
- Rapidly increasing in incidence

Examples:

- Ebola
- SARS
- COVID-19



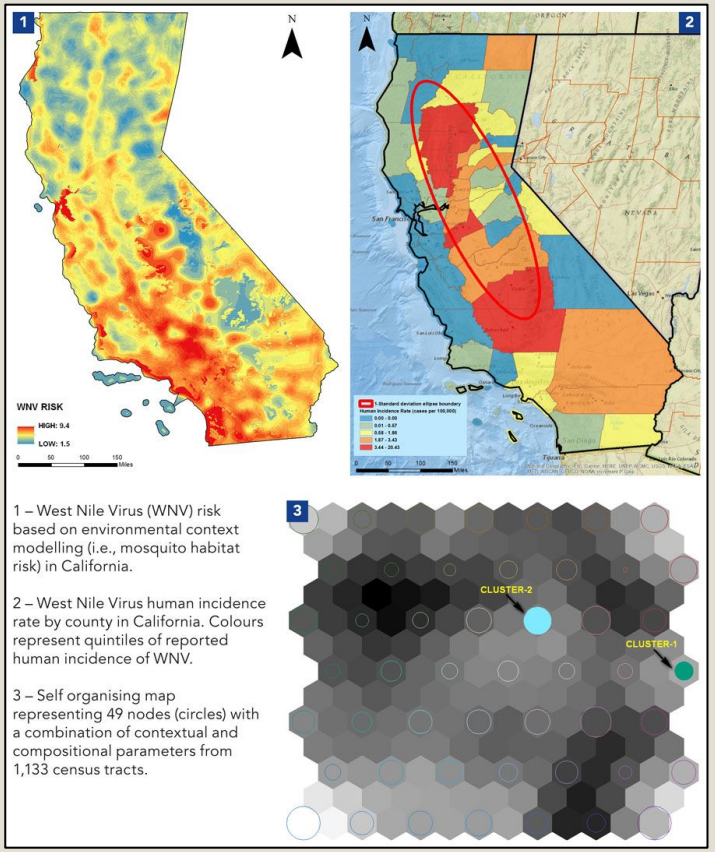
# Informatics in Public Health Surveillance

Tools:

- Electronic Health Records (EHRs)
- Geographic Information Systems (GIS)
- Digital Surveillance Platforms

Benefits:

- Faster Data Collection
- Information Interoperability
- Better Analysis




1 – West Nile Virus (WNV) risk based on environmental context modelling (i.e., mosquito habitat risk) in California.

2 – West Nile Virus human incidence rate by county in California. Colours represent quintiles of reported human incidence of WNV.

3 – Self organising map representing 49 nodes (circles) with a combination of contextual and compositional parameters from 1,133 census tracts.

Speaker: Eli

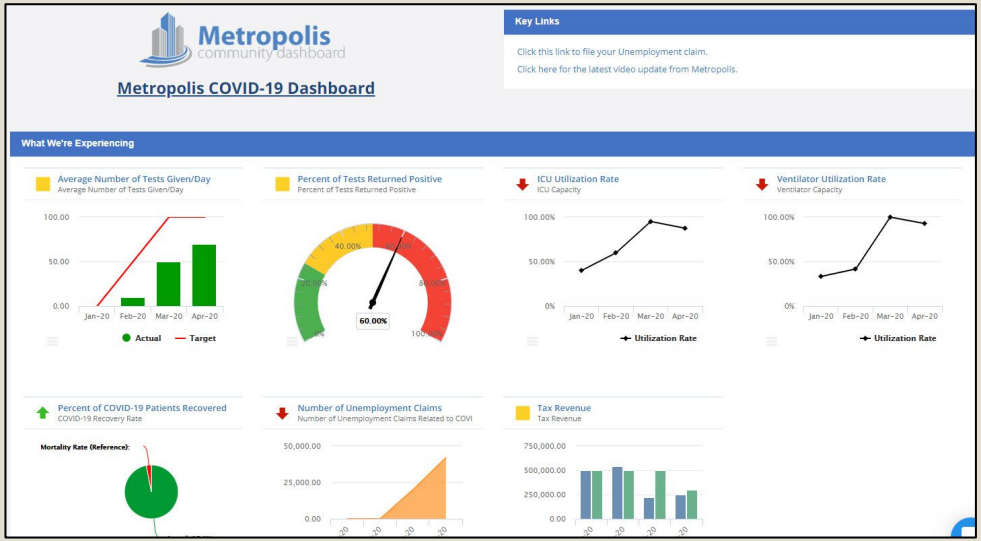
# Impact on the Population and Public Health

Improvements:

- Outbreak response times
- Enabled real-time tracking
- Supports predictive modeling

Example:

- COVID-19 pandemic saw the use of dashboards

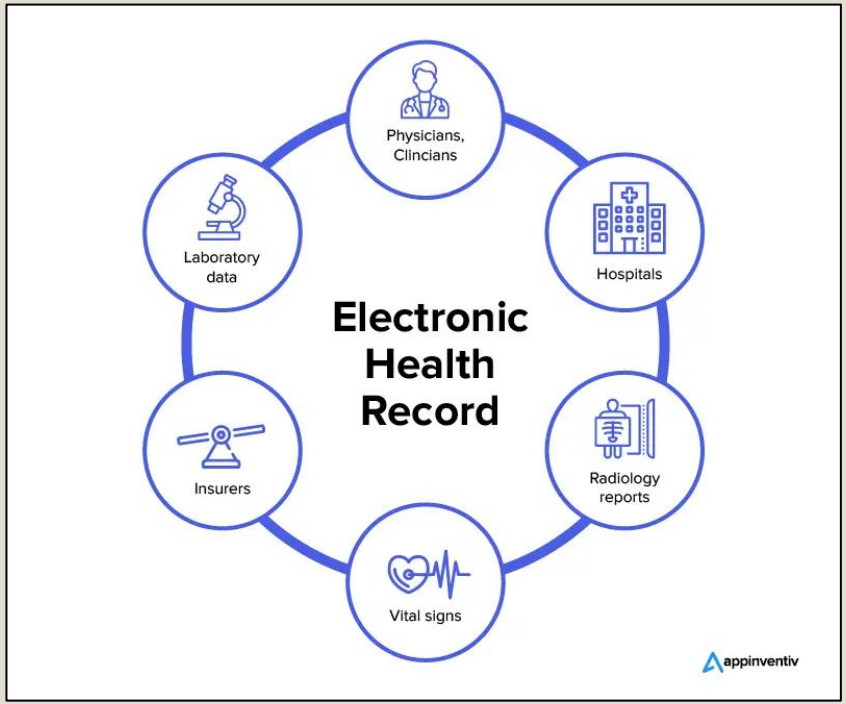


Speaker: Eli

# Key Challenges in Public Health Informatics

Challenges:

- Interoperability between EHR systems
- Steep learning curves for GIS tools
- Data privacy
- Data standardization
- Resource disparities between regions



Speaker: Daniel

# Case Studies and Related Work

Case Study:

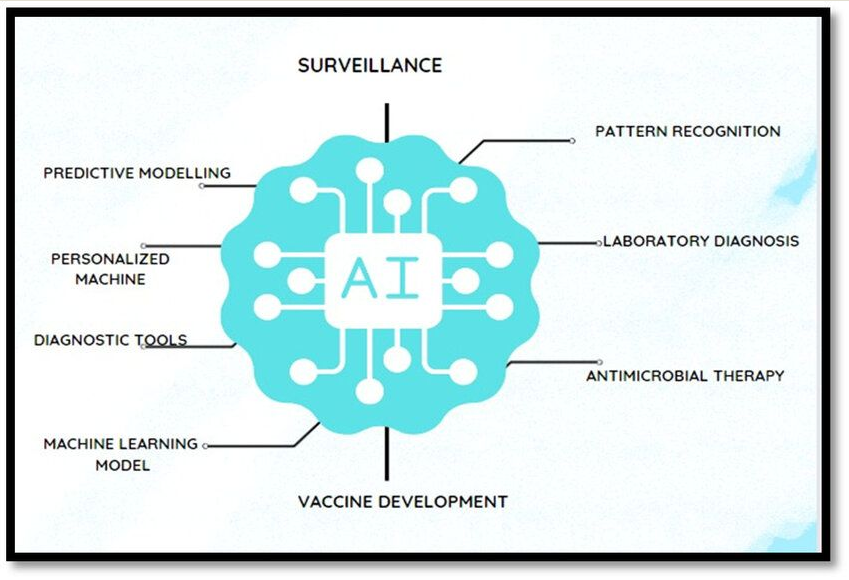
- CDC's BioSense platform
- DHIS2 open source tool
- Collaboration across disciplines

Speaker: Daniel

# Areas for Future Research and Innovation

Future Improvements:

- Artificial Intelligence (AI)
- Machine learning models
- Improving GIS user interfaces
- Standardizing different EHR systems



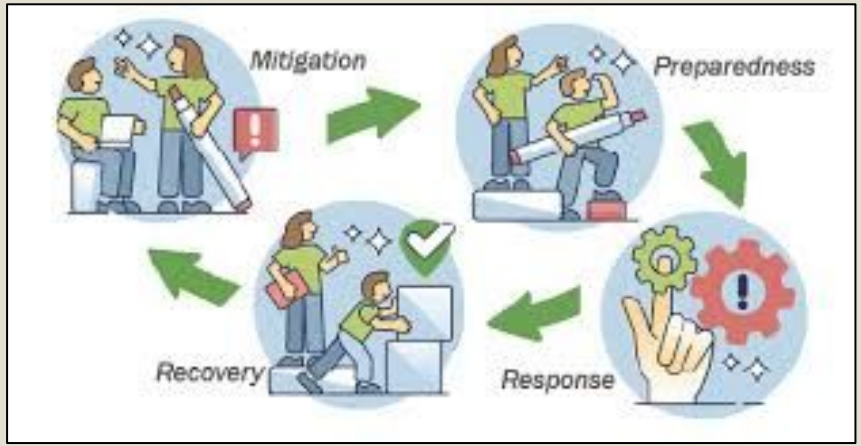
# Conclusions and Recommendations

Strengths:

- Informatics has made a positive impact:
  - Quicker responses, efficient data handling, collaboration
  - Revolutionized our responses to infectious diseases

Recommendations:

- Cross-disciplinary collaboration
- User-focused designs



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# Thank You!