APHL 2014



Research at the Washington State PHL: Past, Current, and Future

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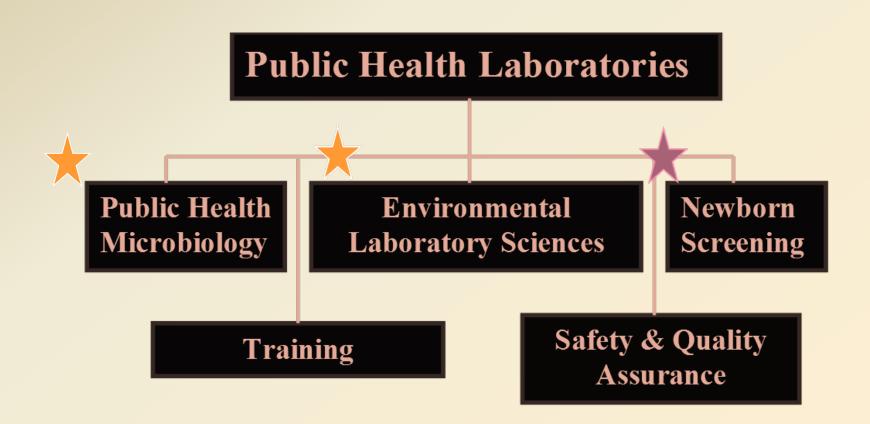
Disclosures

NONE





Organization





WA State PHL Mission

Provide a wide range of diagnostic and analytical functions for the assessment and surveillance of infectious/communicable diseases, genetic conditions, as well as environmental contamination.





Basic vs. Applied Research



- Basic
 - Performed for knowledge enhancement
 - Example: Understanding how gliding motility works

- Applied**
 - Performed to solve a practical problem of the modern world, rather than to acquire knowledge for knowledge sake
 - Example: Assay development for the detection of a pathogen or disease



Health Newborn Screening Research



Past Research

Type I Diabetes

(Pertussis)
Effectiveness of maternal vaccination during pregnancy

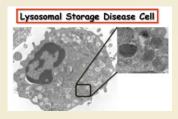
Vitamin D and childhood brain tumors

High throughput methods to measure childhood exposure to tobacco smoke



Current Research

Lysosomal Storage Diseases detection



Source: Dr. Gustavo Maegawa Johns Hopkins Medicine

Future Research

Use of DNA sequencing in newborn screening



http://www.abstruze.com/category/dna



Environmental Sciences Research

Past Research

Isotopic Uranium, Plutonium, Americium, Thorium detection in water

Diarrhetic Shellfish Poison (DSP) detection

Speciated Aresenic in urine

Metabolic Toxins Panel for urine



Current Research

Saxitoxins (PSP)
Detection

Inorganic Arsenic in Shellfish

Future Research

Mercury and Manganese in urine

Cesium in seawater





Public Health Microbiology Research

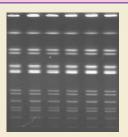
Past Research

Improved PFGE method development

Bordetella pertussis PCR Assay

Molecular detection of Vibrio parahaemolyticus

Drug Resistance Screening by Sequencing (DRSS) for Mycobacterium tuberculosis



Current Research

Vibrio parahaemolyticus virulence profiling

Whole Genome Sequencing (WGS) of foodborne pathogens

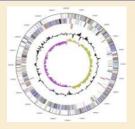
Carbapenem-resistant enterobacteriaceae (CRE) surveillance methods



Future Research

Whole genome sequencing methods for drug resistance & bacterial typing

Sensititre microbroth AST Mycobacterium tuberculosis





Research Challenges

Funding

- Shrinking grant awards
- Maintaining funding levels

IRB Approval

- Ethical debate
 - Metadata
 - Anonymous testing

Personnel

- Workload
- Expertise

Information Technology

- Software approval
- Infrastructure for future



Research Funding/Resources

Private Foundation Grants





Federal Grants Funding











Collaborative NIH Grants





Company Product Evaluations



APHL/CDC Contract Projects



Laboratory Budget



Development Contract Grants







Research Staffing



Committee on Postdoctoral Educational Programs (CPEP)
Fellows in Clinical and Public Health Microbiology
Directorship



Emerging Infectious Disease Fellows



Undergraduate and Graduate Students
Interns



Oak Ridge Institute For Science and Education (ORISE)
Fellows



Cultural Vistas International Fellows



WA PHL Research Scientists and Staff





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Stay Tuned for Panel Q&A



PUBLIC HEALTH ALWAYS WORKING FOR A SAFER AND HEALTHIER WASHINGTON