



**GHDx Center Course 2, Advanced Didactic and Laboratory Training for Global Health  
Aug 3<sup>rd</sup> – Aug 7<sup>th</sup>, 2009**

**Course Directors: Karen Stephens, Pat Totten, and Shelley Lankford**

*Sponsored by PATH, the Department of Global Health, University of Washington, and the Washington State Health Laboratories*

<http://www.path.org/dxcenter/training-developers-and-users.php>

<b>Monday, Aug 3rd</b>	<b>At WSHL: (Washington State Department of Health, Public Health Laboratories); 1610 NE 150th Street; Shoreline, WA 98155-9701; Telephone: (206) 418-5400</b>	
8:00	Buses pick up participants from Dorms.	
8:30 – 9:00	Welcome – overview of purpose of course, other training courses available. Housekeeping issues at WSHL	Pat Totten, Karen Stephens, Shelley Lankford, Bernhard Weigl
9:00 – 10:30	Students. Who they are, what they do, what they need in their settings (collaborations, opportunities, etc.), how course 1 helped them achieve their goals, what they hope to achieve in course 2.	Students – 5 min presentation each with discussion
10:30 – 11:30	<b>KEYNOTE ADDRESS:</b> Role and needs for POC diagnostics for global health	Rosanna Peeling
11:30 – 12:00	Questions/Discussion	
12:00 – 1:00	Lunch Rosanna, Karen, Pat, PATH, WSHL people, and students	
1:00 – 2:00	Bloodborne Pathogen Safety Class	Chuck Talburt
2:00 – 2:45	Novel strategies for POC diagnostics and how they work.	Paul Yager
2:45 – 3:00	Break/discussion	
3:00 – 3:30	Interface of POC technology with implementation in LRSs. The good and bad of microfluidics	Bernhard Weigl
3:30 – 4:00	Development of non-fluidic POC tests – challenges with immunostrip tests, PCR, sample prep isothermal amplification	David Boyle
4:00 – 4:30	Discussion/Break	
4:30 – 5:00	Homework assignments 1. Jane Kuypers to talk about WHO site and give students assignments – report on an interesting evaluation of a diagnostic test 2. Hand out problem sets – QC, sensitivity/specificity, validation, real-life problem solving 3. Assign groups for proposals – Development of a specific POC device for unmet need in resource-poor settings	Pat Totten, Karen Stephens, and Jane Kuypers
5:00	Buses to return to UW dorm.	

<b>Tuesday, Aug 4th</b>	<b>At Harborview Medical Center campus</b>	
	<b>Go to 7<sup>th</sup> floor R&amp;T building</b>	
8:00 – 11:30	Overview of HIV testing, QC, implementation	Bob Coombs
	<b>Go to 6<sup>th</sup> floor R&amp;T building</b>	
11:30 – 12:00	View viable <i>Treponema pallidum</i> in darkfield microscope	Barbara Molini; Lauren Tantalo
12:00 – 1 pm	Purchase lunch at the HMC cafeteria	
	<b>Go to NJB (Ninth and Jefferson Bldg), Room 1107</b>	
1 – 2:00	Strategy of POC and gold standard testing for STDs in HMC STD Clinic. Why the HIV POC tests are not appropriate for all settings. Tour STD clinic lab - See setup for BV, Trichomonas, GC Gram Stain, HIV POC, Syphilis, etc	Matt Golden
2:15-2:45	Refresher on TB diagnostics, how they are used, what they measure, and how they work, esp principles of Quantiferon test.	Jerry Cangelosi
2:45 – 3:00	Go to King Country Labs at HMC Basement	
3:00 – 3:15	Demonstration of, Quantiferon test and how it works.	Jean Pass; Song Cho
3:15 – 3:30	Go to Clinical Laboratory at HMC (Ground Floor)	
3:30 – 5:30	TB diagnostics at HMC. Lecture in lab and demonstration of: sputum processing for TB culture, Kinyoun's stain along with Carolyn using 10-head microscope and video monitor. Auramine stain in dark room with 2 fluorescent microscopes, TB plate cultures, broth culture, and susceptibility testing by MGIT system in BL3 facility. Description of Interaction between various labs in Seattle– culture, staining at HMC, TMA and agar susceptibility testing at state lab.	Carolyn Wallis
5:30	Buses to return to UW dorm	

<b>Wed, Aug 5th</b>	<b>At WSHL</b>	
8-12	HIV POC testing using Oraquick, Determine, and Capillus – theory of tests, applications, and lab practicum	Ron Ballard
11-12	Immunocomb test – theory and lab practicum	Roger Peck
12-1	Box lunches at WSHL	
1-2	Overview of syphilis diagnostics and QC/QA in remote settings	Ron Ballard
2-:230	Students to reconstitute syphilis serum vials for tomorrow	
2:30-3:15	State Health Lab tour, discuss TB TMA and susceptibility testing, Malaria and STD testing at the state lab.	Shelley Lankford
3:15 – 3:20	Buses leave for UW, Rosanna Peelings SPW lecture.	
4:00-5:00	Rosanna Peeling, San Pin Wang Memorial Lecture	Rosanna Peeling
5 pm - ?	Reception following SPW lecture	
Whenever	Participants walk back to dorms	
To Be Announced	Social Event: Ferry ride to Bremerton in evening	Pat Totten; Karen Stephens

<b>Thursday, Aug 6th</b>	<b>At WSHL labs</b>	
8-12	Laboratory practicum on syphilis diagnostics: TPPA, RPR, vs. Bioline, SPAN, and Chembio POC tests	Ron Ballard
12 - 1	Box lunches at WSHL	
1-4 pm	Lecture/slides on POC testing for STDs. How to perform a Gram stain (Shelley), Nugent testing for BV (Sabina), Amsell testing for BV (pH, clue cells, fishy odor), Trich (wet mounts and in pouch testing), yeast (wet mount of KOH prep) testing. Students to perform unique POC tests for BV, yeast, and trich.	Sabina Astete, Shelley Lankford, Pat Totten
4:30 – 5:30	Discuss homework problems	
5:30	Buses to return to UW dorm	

<b>Friday, Aug 7th</b>		
7:30	<b>Bus to WSHL</b>	
8 – 9:30	Glucometer presentation – 45 min for technical presentation via WebEx, 35 min hands-on use and questions	Christine Schulner; Pat Anderson
9:30 – 9:45	Break	
9:45 –12:00	Epocal technical and clinical presentation and hands-on testing ( <a href="http://www.epocal.com">www.epocal.com</a> ).	Sue Kent; Pat Anderson
12:00 – 1 pm	Box lunches at WSHL	
1-2	Review of state of the art malaria diagnostics, technical aspects of developing a lateral flow test for Malaria	Roger Peck and/or Gonzalo Domingo
2-3	Laboratory practicum on Malaria diagnostics – Giemsa staining and RDT. Discussion of issues of defining specificity and sensitivity when your tests are imperfect and infection does not mean clinical disease.	Gonzalo Domingo and Roger Peck
3-4:30	Discuss student proposals - two groups, each with a proposal. Discuss student needs, solutions with PATH group	Pat Totten, Karen Stephens, and PATH team
4:30 - 5	Have students fill out evaluation forms. Have students discuss how they would improve course to suit their needs as well as ours	
5 pm	Buses back to the UW	

## FACULTY

Pat Anderson, B.S. MS (ASCP)	Manager of Remote Sites and Point-of-Care, Department of Laboratory Medicine, UW <sup>3</sup>
Sabina Astete, PhD	Research Scientist, Department of Medicine, Division of Allergy and Infectious Diseases, UW <sup>3</sup>
Ron Ballard, PhD	Branch Chief, Laboratory, Reference, and Research Branch; Division of STD Prevention, CDC <sup>6</sup>
Barbara Molini, BS, MS	Research Scientist III, Department of Medicine, Division of Allergy and Infectious Diseases, UW <sup>3</sup>
David Boyle, PhD	Senior Research Scientist, PATH <sup>4</sup>
Jerry Cangelosi, PhD	Associate Member, SBRI <sup>7</sup> , Seattle, WA
Bob Coombs, MD, PhD	Professor, Departments of Laboratory Medicine and Medicine, UW <sup>3</sup>
Gonzalo Domingo, PhD <sup>2</sup>	Research Scientist, PATH <sup>4</sup>
Matt Golden, MD	Assistant Professor, Department of Medicine, Division of Allergy and Infectious Diseases, UW <sup>3</sup>
Sue Kent	Manager, Clinical Affairs, Epocal
Jane Kuypers, PhD	Senior Research Scientist, Department of Laboratory Medicine, UW <sup>3</sup>
Shelley Lankford, BS <sup>1</sup>	Training Program Manager, WSHL <sup>8</sup>
Sheila Lukehart, PhD	Professor, Department of Medicine, Division of Allergy and Infectious Diseases, UW <sup>3</sup>
Barbara Molini, BS, MS	Research Scientist III, Department of Medicine, Division of Allergy and Infectious Diseases, UW <sup>3</sup>
Jean Pass, BS	Assistant Laboratory Manager, Seattle King County Public Health Laboratories, Seattle, WA
Roger Peck, BS <sup>2</sup>	Research Scientists, PATH <sup>4</sup>
Rosanna Peeling, PhD	Professor and Chair of Diagnostics Research, Department of Infectious & Tropical Diseases, LSHTM <sup>5</sup>
Song Cho, BS	Senior Microbiologist, Seattle King County Public Health Laboratories, Seattle, WA
Christine Schulter	Roche
Karen Stephens, PhD <sup>1,2</sup>	Research Professor, Department of Laboratory Medicine, Divisions of Genetics and of Molecular Microbiology, UW <sup>3</sup>
Paul Swenson, PhD	Laboratory Director, Seattle King County Public Health Laboratories, Seattle, WA
Chuck Talburt, B.S.	Laboratory Program Advisor, WSHL <sup>8</sup>
Lauren Tantalo, B.S.	Research Scientist, Department of Medicine, Division of Allergy and Infectious Diseases, UW <sup>3</sup>
Pat Totten, PhD <sup>1,2</sup>	Research Associate Professor, Dept of Medicine, , Division of Allergy & Infectious Diseases, UW <sup>3</sup>
Carolyn Wallis, BS	Clinical Technologist Lead, Department of Laboratory Medicine, UW <sup>3</sup>
Bernhard Weigl, PhD <sup>2</sup>	Group Leader, Diagnostics Development Teams, PATH <sup>4</sup>
Paul Yager, PhD	Professor and Acting Chair, Bioengineering, UW <sup>3</sup>

<sup>1</sup>Directors of GHDx Center Course 2, Advanced Didactic and Laboratory Training for Global Health; <sup>2</sup>Director and Leaders of the Center for Point-of-Care Diagnostics for Global Health (GHDx Center); <sup>3</sup>UW, University of Washington, Seattle, WA; <sup>4</sup>PATH, Programs for Appropriate Technology for Health; LSHTM, <sup>5</sup>London School of Hygiene and Tropical

Medicine, London; <sup>6</sup>CDC, Centers for Disease Control and Prevention; <sup>7</sup>SBRI, Seattle Biomedical Research Institute; <sup>8</sup>WSHL, Washington State Health Laboratories.