GHDx Center Course 2, Advanced Didactic and Laboratory Training for Global Health
August 1–5, 2011
Course Directors: Karen Stephens, Pat Totten, and Shelley Lankford

Directed by the Departments of Medicine (Infectious Diseases) and Laboratory Medicine, and the Washington State Department of Health, Public Health Laboratories
Sponsored by the National Institute of Biomedical Imaging and Engineering (NIH), and the Department of Global Health

Monday, August 1	At PATH, then at WSHL	
8:00	**Buses pick up participants from dorms and drive to PATH**	
	PATH: 2201 Westlake Ave., Suite 200, Seattle, WA 98121 206-285-3500	
8:45–9:00	Welcome – overview of purpose of course, other training courses available	Pat Totten, Karen Stephens, Shelley Lankford, Bernhard Weigl
9:00–11:30	Participants. 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.	Participants – 12 minutes presentation each with discussion
11:30–12:00	Questions/discussion	PATH GHDx directors
12:00–1:15	Lunch at PATH	
1:15–2:00	**Buses to take participants to WSHL**	
	At Washington State Department of Health, Public Health Laboratories (WSHL): 1610 NE 150th Street: Shoreline, WA 98155, (206) 418-5400	
2:00–2:30	Housekeeping issues at WSHL and bloodborne pathogen and laboratory safety class	
2:30–3:30	Discussion of POC diagnostics at University of Washington	Pat Anderson
3:30–5:00	Hands-on training with glucometer	Pat Anderson
5:00–5:15	Discuss homework and assignment for Friday presentations: Development of a specific POC device for an unmet need in a resource-poor setting. Provide class time to discuss. Assign groups	
5:30	**Buses to return to UW dorm**	

Tuesday, August 2	At Harborview Medical Center campus	
8:00–8:30	**Buses pick up participants at dorm, drive to R&T building: Note to students; leave valuables and computers locked in the dorm. Do not** take them to class. We will have no safe place to lock them during our social event this evening.	
	Go to R&T building, Room 121	
8:45–9:45	The basics of immunochromatographic strip (ICS) tests	Roger Peck
9:45–10:00	Break/discussion	
10:00–11:45	Overview of HIV testing, QC, implementation etc, discussion, questions	Bob Coombs
11:45–1:00	Lunch at Maleng Building Bistro	
1:00–1:15	Go to NJB (Ninth and Jefferson Bldg), Room 1309	
1:15–l:45	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
1:45–2:00	Break and discussion	
2:00–2:45	Overview of TB diagnostics at HMC	Carolyn Wallis
2:45–3:00	Walk to clinical laboratory at HMC (ground floor, room GWH-47)	
3:00–4:00	Lab demonstration—TB diagnostics at HMC: sputum processing for TB culture, view Kinyoun stain on light microscope, Auramine stain with 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
4:00–4:15	Walk to the R&T building	
4:15–5:00	View viable *Treponema pallidum* in darkfield microscope and fluorescently stained *T. pallidum* in fluorescent scope. Discussion of mechanics of darkfield and fluorescent microscope.	Barbara Molini
5:00	**Cars and taxis** pick up participants for social event	Pat Totten, Karen Stephens, Christine Makela, course participants and faculty
8:00–?	**Cars and taxis pick up participants to return to UW dorm**	

Wednesday, August 3	At WSHL	
8:00	**Buses pick up participants at dorms, drive to WSHL**	
9:00–12:00	HIV POC testing using Oraquick, Determine, and Capillus – theory of tests, applications, and lab practicum	Ron Ballard
12:00–1:00	Box lunches at WSHL	
1:00–2:00	Overview of syphilis diagnostics and QC/QA in remote settings	Ron Ballard
2:00–2:30	Participants to reconstitute syphilis serum vials for tomorrow	
2:30–3:30	Immunocomb test – theory and lab practicum	Roger Peck
3:30–4:30	TB acid fast stain and gram stain review and lab practicum. Discussion of mechanics of light microscope.	Shelley Lankford
4:30–5:30	Discuss homework #1. Sensitivity, specificity, PPV, NPV, evaluation of tests for which there is no gold standard.	Karen Stephens and Pat Totten
5:30	**Buses take participants to dorm**	

Thursday, August 4	At WSHL	
8:00	Buses pick up participants at dorm, drive to WSHL	
8:30–12:00	Laboratory practicum on syphilis diagnostics: TPPA, RPR, vs. Bioline, SPAN, and Chembio POC tests.	Ron Ballard, Alfred Iqbal
12:00–1:00	Box lunches at WSHL	
1:00–3:00	Lecture/slides and hands-on training for POC testing for STDs. Nugent (Gram stain) and Amsell (pH, clue cells, fishy odor) testing for bacterial vaginosis, Trichomonas, (wet mounts and in pouch), yeast (wet mount of KOH prep) testing. POC testing for BV. Participants to perform unique POC tests for BV, yeast, and trich.	Sabina Astete
3:00–4:00	NAAT tests – diversity, applications, and how they work	Jane Kuypers
4:00–4:15	Break	
4:15–5:15	Homework # 2 Discussion of papers assigned from WHO web site. http://csde.washington.edu/WHOSTI/literature_reviews/	Jane Kuypers
5:30	**Buses to return to UW dorm**	

Friday, August 5	At WSHL	
8:00	**Buses pick up participants, drive to WSHL**	
8:30–10:00	TwistDx test (recombinase/polymerase amplification POC test for HIV)	David Boyle
10:00–10:30	Break/discussion	
10:30–12:00	Presentation and laboratory practicum on malaria diagnostics. Microscopy and RDT. Discussion of issues of defining specificity and sensitivity when your tests are imperfect and infection does not mean clinical disease.	Gonzalo Domingo
12:00–1:00	Box lunches at WSHL	
1:00–2:00	State Health Lab tour, discuss TB TMA and susceptibility testing, malaria and STD testing at the state lab	Craig Colombel
2:00–3:00	TBD	
3:00–3:15	Break	
3:15–4:45	Participants to present proposals for the development of a POC device for an unmet need in a developing country. Two groups, each with a proposal. Discuss student needs and solutions with PATH group.	Participants, Pat Totten, Karen Stephens, and PATH team
4:45–5:15	Participants to fill out evaluation forms, discuss how they would improve course to suit their needs. Group picture.	
5:15 pm	**Buses back to the UW**	

FACULTY

Pat Anderson, BS, MS (ASCP)	Manager of Remote Sites and Point-of-Care, Department of Laboratory Medicine, UW[3]
Sabina Astete, PhD	Research Scientist, Department of Medicine, Division of Allergy and Infectious Diseases, UW[3]
Ron Ballard, PhD	Branch Chief, Associate Director, Laboratory Science, Global Health, CDC[5]
Craig Colombel, BS	Supervisor, TB and General Microbiology Laboratory, WSHL[6]
Bob Coombs, MD, PhD	Professor, Departments of Laboratory Medicine and Medicine, UW[3]
Gonzalo Domingo, PhD[2]	Research Scientist, PATH[4]
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Roger Peck, BS[2]	Research Scientists, PATH[4]
Rosanna Peeling, PhD	Professor & Chair of Diagnostics Research London School of Hygiene & Tropical Medicine
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Carolyn Wallis, BS	Clinical Technologist Lead, Department of Laboratory Medicine, UW[3]
Bernhard Weigl, PhD[2]	PI and director of Center to Advance Point-of-Care Diagnostics for Global Health, PATH[4]

[1]Directors of GHDx Course 2, Advanced Didactic and Laboratory Training for Global Health; [2]Director and Leaders of the Center for Point-of-Care Diagnostics for Global Health (GHDx Center); [3]UW, University of Washington, Seattle, WA; [4]PATH, Program for Appropriate Technology in Health; London School of Hygiene and Tropical Medicine, [5]CDC, Centers for Disease Control and Prevention; [6]WSHL, Washington State Health Laboratories.