



**GHDx Center Course 2, Advanced Didactic and Laboratory Training for Global Health
Aug 2nd–Aug 6th, 2010
Course Directors: Karen Stephens, Pat Totten, and Shelley Lankford**

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

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

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| Monday, Aug 2nd | At PATH, then at WSHL. | |
| 8:00 | Buses pick up participants from dorms; 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 min presentations each with discussion |
| 11:30–12:00 | Questions/Discussion. | |
| 12:00–1:15 | Lunch at PATH. | |
| 1:15–2:00 | Buses take participants to WSHL. | |
| | At WSHL (Washington State Department of Health, Public Health Laboratories): 1610 NE 150th Street: Shoreline, WA 98155-9701, 206-418-5400. | |
| 2–2:30 | 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 unmet need in a resource-poor setting Give them class time to discuss Assign groups. | |
| 5:30 | Buses to return to UW dorm. | |

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| Tuesday, Aug 3rd | 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 ferry ride. | |
| | Go to R&T building, 7th floor, Room 113. | |
| 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 pm | Purchase and eat lunch at Maleng Building Bistro. | |
| 1–1:15 | Go to NJB (Ninth and Jefferson Bldg), Room 1309. | |
| 1:15–1:45 | 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 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's 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 <i>Treponema pallidum</i> in darkfield microscope and fluorescently stained <i>T. pallidum</i> in fluorescent scope. Discussion of mechanics of darkfield and fluorescent microscope. | Barbara Molini |
| 5:00– | Cars and taxis pick up participants for dinner on Seattle waterfront, then take ferry ride to Bainbridge Island and back. | Pat Totten Karen Stephens Christine Makela Participants Faculty |
| 8:00? | Cars and taxis pick up participants to return to UW dorm. | |

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| Wed, Aug 4th | 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 Pat Totten |
| 5:30 | Buses take participants to dorm. | |

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| Thursday, Aug 5th | At WSHL | |
| 8:00 | Buses pick up participants at dorm, drive to WSHLs. | |
| 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 on 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. | |

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| Friday, Aug 6th | 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 pm | 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 | POC diagnostics to improve global health: promises and challenges | Rosanna Peeling |
| 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, solutions with PATH group | Participants Pat Totten Karen Stephens PATH team |
| 4:45–5:15 | Participants 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

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| 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, Laboratory, Reference, and Research Branch; Division of STD Prevention, 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. |
| Gonzalo Domingo, PhD ² | Research Scientist, PATH. ⁴ |
| Matt Golden, MD | Assistant Professor, Department of Medicine, Division of Allergy and Infectious Diseases, UW. ³ |
| Alfred Iqbal, PhD | Lead Microbiologist, Serology Laboratory, WSHL. ⁶ |
| Jane Kuypers, PhD | Senior Research Scientist, Department of Laboratory Medicine, UW. ³ |
| Shelley Lankford, BS ¹ | Training Program Manager, WSHL. ⁶ |
| Sheila Lukehart, PhD | Professor, Department of Medicine, Division of Allergy and Infectious Diseases, UW. ³ |
| Barbara Molini, BS, MS | Research Scientist III, Department of Medicine, Division of Allergy and Infectious Diseases, UW. ³ |
| Roger Peck, BS ² | Research Scientists, PATH. ⁴ |
| Rosanna Peeling, PhD | Professor & Chair of Diagnostics Research London School of Hygiene & Tropical Medicine. |
| Karen Stephens, PhD ^{1,2} | Research Professor, Department of Laboratory Medicine, Divisions of Genetics and of Molecular Microbiology, UW. ³ |
| Pat Totten, PhD ^{1,2} | Research Associate Professor, Dept of Medicine, , Division of Allergy & Infectious Diseases, UW. ³ |
| Carolyn Wallis, BS | Clinical Technologist Lead, Department of Laboratory Medicine, UW. ³ |
| Bernhard Weigl, PhD ² | Group Leader, Diagnostics Development Teams, PATH. ⁴ |

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