13 LABORATORY COMPONENT

The following section applies to site laboratory (e.g., in-clinic, mobile unit, reference lab, hospital lab, local laboratory, processing lab) performing a study under the guidance of the HPTN Laboratory Center (LC). These laboratories will be referred to as Clinical Research Site (CRS) laboratories in the remainder of this document.

All CTU/CRS laboratories are required to adhere to standards of the Division of AIDS (DAIDS) Clinical Research Laboratory and Specimen Management, which includes specific requirements for US Laboratories and non-US laboratories. These policies also include compliance with DAIDS Good Clinical Laboratory Practice (GCLP) standards. For additional information on laboratory related DAIDS policies and standards, refer to the DAIDS Clinical Research Laboratory and Specimens Management policies website:

https://www.niaid.nih.gov/research/daids-clinical-research-laboratory-specimens-management

The DAIDS GCLP standards outline specific elements that clinical research laboratories should follow. GCLP training is accessible online through the DAIDS Learning Portal (DLP) and through periodic regional offerings:

https://daidslearningportal.niaid.nih.gov/

References for applicable United States (US) federal and non-US regulations are also included. In addition, US CTU/CRS laboratories should follow the Clinical Laboratory Improvement Amendments (CLIA) Act and CLIA certification and/or waiver policies:

https://www.cms.gov/Regulations-and-Guidance/Legislation/CLIA/index.html?redirect=/clia/

Each laboratory should also have the following in place (in addition to the aforementioned GCLP standards): 1) a specimen management procedure that outlines the documentation of the chain of custody throughout the acquisition, receipt, processing, testing, storage and shipment of protocol samples; 2) a laboratory data management plan that documents the data integrity and reporting of results including data quality procedures; 3) a well-defined QMP that comprehensively covers contingency plans, assay validations, training and competency, corrective action/preventive action identification and management, monitoring of Key Quality Indicators (KQI), instrument and equipment maintenance and procedures for QA and QC.

In addition to these guidelines and policies, the Study Specific Procedures (SSP) Manual developed for each protocol contains a section on laboratory procedures that includes detailed instructions for the specific protocol.

13.1 CTU/CRS Laboratory-related Site-specific Protocol Activation Requirements

A specific set of protocol activation requirements will be created for each HPTN protocol. Requirements may be study- and site-dependent. Examples of these requirements are:

- Laboratory Quality Management Plan
- Standard operating procedure (SOP) for study-specific specimen management plan and "chain of custody" related to clinical/safety testing and management of samples for study endpoints. This should be in place prior to site activation
- Confirmation of current CVs of key laboratory personnel
- Protocol Analyte Lists/spreadsheets

- Verification of Laboratory Data Management System (LDMS) training and validation
- Verify current International Air Transport Association (IATA) specimen shipping certification for all staff members involved in the specimen management plan
- GCLP training for the appropriate laboratory staff per DAIDS Laboratory and Specimen Management guidelines
- The following for non-US accredited laboratories
    - Proficiency in performing protocol-required testing
    - Appropriate validation and documentation of validation for protocol analytes
    - Any other applicable certification
    - Laboratory Data Management Plan
    - QMP

The HPTN LC will work with the DAIDS program officer to determine acceptability of laboratory evidence of the aforementioned items. After acceptance by the DAIDS Program Officer, the HPTN LC will notify the site, laboratory, Office of Clinical Site Oversight (OCSO) representative, DAIDS Program Officer, and appropriate protocol team members, that the laboratory has completed all requirements/items for protocol-specified laboratory activation. If there is a failure in maintaining key systems or requirements, such as failure to appropriately use the LDMS, follow GCLP standards or other items of concern, the HPTN LC will discuss the issues with the protocol team leadership and HPTN LC Quality Management Team (QMT) and follow the HPTN LC QM process for escalation. If the laboratory is a multi-network participating laboratory, other network laboratory centers will be informed.

13.2 CTU/CRS Laboratory Performance Assessment

CTU/CRS laboratories may be evaluated by DAIDS contracted monitoring groups to ensure that they meet an established standard for data quality and laboratory GCLP compliance. Key performance areas are monitored through collection, recording, and investigation of data pertaining to the laboratory area; findings are evaluated to identify trends and ensure overall compliance with the laboratory QMP. A DAIDS auditing contractor performs the laboratory review and generates a report while a second DAIDS contractor summarizes and lists items of non-compliance. When indicated, corrective actions will be implemented and documented. Monitoring is on-going to ensure appropriate action is taken and that those actions result in successful remediation.

13.2.1 Non-US CRS Laboratories

For each HPTN protocol the HPTN LC will send the non-US CRS laboratory a study specific Protocol Analyte List (PAL), which must be completed by the laboratory. This document is reviewed by DAIDS Clinical Laboratory Oversite Team (DCLOT) and may be forwarded to a DAIDS contractor. DAIDS has arranged for many of the existing laboratories outside of the US that participate in DAIDS-funded research to receive proficiency panels from vendors through DAIDS for protocol-related analytes as deemed appropriate. When a new CTU/CRS laboratory is included in a new or existing HPTN protocol, the HPTN LC will work with the site to produce a study-specific PAL to inform DAIDS of protocol analyte coverage. Costs related to participation in Proficiency Testing (PT) programs may be supported by DAIDS or a DAIDS-supported contractor, the site, or through the protocol. Each year, the appropriate DAIDS contractor will re-enroll sites based on the assays that are anticipated to be performed at the specific CTU/CRS laboratory in support of a DAIDS-sponsored protocol.

To facilitate communication between the LCs of different networks and CRSs outside of the US, the leadership of the various DAIDS clinical trials networks has assigned a Primary Network Laboratory (PNL) to each non-US site. A list of PNL assignments is maintained on the HIV/AIDS Network Coordination HANC website (see Section 13.13 for URL).

DAIDS staff and/or DAIDS contractors may conduct laboratory-specific audit visits. These audits are conducted periodically, at sites outside of the US, unless the laboratory has been certified by College of American Pathologists (CAP) and/or has been deemed to be in good standing by the DCLOT. CTU/CRS laboratories will be audited for GCLP compliance. DAIDS reserves the rights to conduct for cause or ad-hoc audits at any laboratory that is participating in DAIDS-sponsored clinical trials. Audits may be performed in person or remotely. After an audit, an audit report will be distributed to the laboratory following DAIDS policy. The CTU/CRS laboratory is responsible for working with DAIDS, their DAIDS-assigned contractors, the HPTN LC, and any other affiliated network LC to resolve the audit report findings. Action items are closed by DAIDS contractor. Audit report findings must be adequately addressed by the CTU/CRS laboratory to maintain a satisfactory performance standard.

13.2.2 Non-affiliated External Laboratories Outside the US.

In certain circumstances (e.g., analyzer repair or breakdown, lack of available consumables, lack of required reagents or control material, continued failure in an External Quality Assurance (EQA) program), a laboratory may need to use back-up equipment or a back-up laboratory for testing and reporting study specimen results.

The guidelines for the use of back-up equipment and/or laboratories for DAIDS-sponsored clinical trials is available on the HANC website.

13.2.3 Proficiency Testing

Prior to protocol activation, the CTU/CRS laboratory must be in good standing for protocol-relevant EQA, as determined by the HPTN LC staff. After a protocol is activated at the site, the recommendations for PT are as follows:

- Any proficiency deficiency (<100%), regardless of the scoring, will require an investigational response by the CTU/CRS laboratory. The HPTN LC considers scores between 80% and 100% to be acceptable, which is consistent with the standards of US commercial proficiency providers. Any non-protocol analyte that has been evaluated and scores <100% requires an internal investigation.
- If a CTU/CRS laboratory fails to report to the appropriate DAIDS contractor and appropriate proficiency provider that a panel has not been received or cannot be tested for any reason this will be considered unsatisfactory.
- If the results are not graded by the proficiency provider because the results were submitted late, the appropriate DAIDS contractor, may make an effort to grade the results and will document that the panel is considered late.
- If the results of an analyte are not graded by the proficiency provider for any reason, the DAIDS contractor or designated group may decide that they will determine if grading is applicable.
- For CTU/CRS laboratories that receive unsatisfactory results (failures), the HPTN LC will provide instructions to the laboratory on what additional measures, if needed for the HPTN LC, must be taken in addition to the corrective action reporting.

- For CTU/CRS laboratories that receive unsatisfactory results on three consecutive panels, the HPTN LC may stop all testing for that analyte and implement a back-up plan at the CTU/CRS. Other LCs may communicate their decisions about testing (e.g., stop/continue) directly with the site staff or through the PNL. Determinations will be on a case-by-case basis, depending on the reason for the PT failure and the standing of the back-up option at that time.
- DAIDS contractors may periodically provide reports regarding EQA to the network laboratories, sponsors, other DAIDS contractors.

13.2.4 US CRS Laboratory Certification

CTU/CRS laboratories within the US that participate in HPTN protocols are required to have CLIA certification and/or waiver; documentation of this certification must be provided to the HPTN LC. For US labs, due to different local and State requirements, attainment of appropriate certification and following the necessary regulatory requirements is the responsibility of the site leadership, not the HPTN LC.

13.3 HPTN LC Oversight of CTU/CRS Laboratories

In addition to the annual assessments described above, the CTU/CRS may undergo a periodic in person or remote visit (protocol training or protocol-related assessment visit) by HPTN LC QA/QC Coordinator and or Deputy Director to assess the implementation of laboratory QA procedures. The purpose and scope of the visit are discussed with site personnel prior to the visit. At these visits, the HPTN LC will provide the CTU/CRS with any recommendations or corrective actions deemed necessary and will send this information to the appropriate site representatives, LOC, other LCs if appropriate, and the DAIDS HPTN LC program officer. In some circumstances, additional visits by the HPTN LC may be warranted. HPTN LC will work directly with the site to address and resolve any QC or quality assessment problems identified either through PT or site visits, or by the site during study preparation or implementation. In addition, the HPTN LC may place an HPTN LC staff member on-site or regionally.

13.4 Laboratory Data Management

Each CTU/CRS laboratory should have documented procedures for handling and processing of specimens to be used in DAIDS-sponsored clinical trials. Such information will often be detailed in the SSP. In addition, each CTU/CRS laboratory is required to utilize the LDMS for collection, testing (specific to HIV RNA if protocol required), storage, and labeling of certain biological samples identified by the HPTN LC for each HPTN protocol, as described below. Each CTU/CRS should ensure that the laboratory has enough freezer space for storage of protocol related aliquots as per protocol requirements. Samples will be stored locally unless requested for shipment or destruction.

LDMS training may be provided at annual meetings, regional meetings, at the Frontier Science and Technology Research Foundation (FSTRF), onsite or remotely e.g., webinar. Each CTU/CRS is required to maintain the training records of their staff members and is fiscally responsible for the training. The CTU/CRS is responsible for maintaining and performing end user validations of their LDMS system, including hardware and software upgrades. HPTN LC staff will provide protocol related data entry information for the LDMS in the laboratory section of the protocol SSP. This ensures that specimens are entered correctly into the system.

All CTU/CRS laboratories must establish SOPs for weekly reconciliation and verification of all archived specimens including (but not limited to): plasma, serum, whole blood, PBMCs, dried blood spots (DBS), tissue, breast milk, amniotic fluid, and genital secretions. These SOPs must be followed throughout the study, including SOPs for the use of the SDMC Sample Data Quality Control (SDQC) Tool for specimen reconciliation.

13.4.1 Specimen Shipping

HPTN specimens must be transported in accordance with International Air Transport Association (IATA) regulations and with US federal, international, and local laws and regulations. This applies to transportation of specimens onsite, to and from clinics and laboratories, from CTU/CRS to the HPTN LC, or from sites or external laboratories to other laboratories or sites, including the HPTN LC.

IATA shipping certification renewal is required every two years with a review of the IATA Dangerous Guidelines annually to check for any new or changed requirements. Each staff member who handles shipments must be trained and certified. Each CTU/CRS is responsible for obtaining the appropriate training and annual IATA dangerous goods guidelines.

Each site should follow local regulations regarding transportation of samples by dedicated couriers. The US Department of Transportation (DOT) regulates the transportation of infectious substances within the US. Sites within the US must follow the DOT requirements (see 49 CFR Part 171). Sites outside the US are subject to their own country's government regulations for transportation of infectious substances.

Importation of human pathogens to the US from abroad requires an importation permit from the US Centers for Disease Control and Prevention (CDC). The HPTN LC maintains a worldwide importation license that covers all materials sent from CTU/CRS sites to the HPTN LC at Johns Hopkins University and its affiliated laboratories. Specimens sent from the sites to other locations within the US not part of the HPTN LC are not covered under this importation permit.

Sites may also require a separate Material or Specimen Transfer Agreement (MTA) between the site and the HPTN LC. This is determined by the site and the site is responsible for communicating with the HPTN LC about the specific details they require. The HPTN LC will liaise with the JHU Office of Research Administration (ORA) to ensure that legal concerns are addressed. The ORA official will sign on behalf of the HPTN LC.

Useful websites with information concerning specimen handling and shipment are provided in Section 13.13.

13.5 Validation of HIV Antibody Testing Algorithms

The HPTN LC may require validation of HIV testing algorithms at a CTU/CRS site. For a given protocol, the HPTN LC will determine if a validation study is needed, and if so, what type of validation study is needed for each site/algorithm. The Cross-Network Guidelines for Diagnosing HIV-1 Infection in DAIDS-sponsored Clinical Trials Protocols is available on the HANC website; however, sites should follow instructions provided in the SSP manual regarding determination of infection status.

13.6 Biohazard Containment

As the transmission of HIV and other blood-borne pathogens can occur through contact with contaminated needles, blood, and blood products, appropriate blood and secretion precautions will be employed by all study personnel in the drawing of blood and shipping and handling of all specimens for HPTN studies.

13.7 HPTN Laboratory Center

HPTN LC laboratories performing diagnostic assays for the HPTN protocols that will be reported back to participants are required to be CLIA- certified. Quality assurance testing performed at the HPTN LC may fall under GCLP guidelines. HPTN LC laboratories will receive guidance from the HPTN LC QMT and will adhere to the HPTN LC Cross Laboratory SOPs. Some HPTN LC laboratories may not fall under CLIA or GCLP guidelines because they perform only research testing. Each of these labs will have their own QMP as deemed appropriate for the type of testing performed.

The HPTN LC will oversee any non-standardized or specialized testing (e.g., testing that must be standardized across the sites or across HPTN protocols) and any QA/endpoint confirmation testing, unless prior approval has been granted by the HPTN LC for another arrangement. Endpoint QA testing and specialized assays will be performed at the HPTN LC, or at a laboratory designated by the HPTN LC. Each of the HPTN LC cores will oversee their own specific testing and associated compliance with GCLP and Quality Management Plan.

13.8 QA Testing

The HPTN LC will develop a plan for each protocol to verify the HIV infection status of clinical trial participants. This may include QA testing at the HPTN LC and may include specialized testing. The plan may change during the conduct of a protocol and may vary among study sites (e.g., if testing problems at one or more sites are identified, if sites are using different testing algorithms). These assessments are typically performed at the end of enrollment (e.g., for each study site), but may occur earlier or be ongoing in larger studies or studies in which problems in site testing or sample/data management are suspected or identified. QA testing continues during the course of the study, in batched assessments and/or evaluation of specific participants, sites, or sample subsets. In certain trials, primary endpoint QA testing will occur at the end of the trial.

In most HPTN protocols, baseline plasma/serum samples from 50 participants, or ten percent (whichever is greater) of randomly-selected enrolled adult subjects at each site are evaluated at the HPTN LC to determine/confirm HIV status. Samples from all subjects enrolled at a site will be evaluated if there are fewer than 50 trial subjects at that site. If testing problems are identified (e.g., in the event of a false positive or false negative result that changes the infection status of the subject), samples from additional participants will be evaluated at the HPTN LC. In some HPTN studies, 100% of study samples will be retested at the LC (e.g., if significant testing problems are suspected or identified, if different testing assays or algorithms are used at different sites that may differ in sensitivity or specificity). Additional QA testing will be performed to confirm HIV reactive events. This may include testing samples prior to seroconversion for evidence of acute HIV infection. In some cases, QA testing may include assays such as ABO blood group back- typing (to detect sample mix-ups) or antiretroviral drug testing (to explain viral loads that are low or undetectable). Results of testing performed for QA purposes will not be returned to the sites but will be submitted to the SDMC in an agreed upon format utilizing a Data Transfer Plan (DTP). The LC will determine which QA data will be transferred to the SDMC; this will be determined for each study protocol.

The HPTN LC QA Core is responsible for:

- Preparing Specimen Data requests that are submitted to the SDMC in regards to the QA testing plan for the particular protocol
- Working with sites to ship samples to LC for testing
- Conducting the QA testing and testing for primary/secondary endpoints
- Preparing DTP with the SDMC
- Notifying the SDMC that laboratory generated data will be submitted for a protocol
- Providing the SDMC with QA test results via the Lab Upload tool
- Working with CTU/CRS laboratories to determine causes of any discrepancies
- Working with the SDMC to collate necessary material for an EAC, if necessary

The SDMC is responsible for:

- Reviewing the Specimen Data Request form submitted by the HPTN LC
- Providing specimen testing/data/shipping lists for QA analysis by the LC, which will include PTIDs, specimen IDs, global specimen IDs, specimen collection dates, visit types, and visit numbers
- Receiving the QA test results from the HPTN LC
- Comparing the retest results with the results collected on CRFs
- Notifying the HPTN LC of any discrepancies, omissions or other issues in timely manner
- Creating and distributing a report of discrepancies for an Endpoint Adjudication Committee (EAC) review, if necessary
- Generating a draft DTP and work with the LC for completion and sign off.

13.9 HIV Endpoint Determination

The HPTN LC is responsible for specifying HIV testing algorithms in HPTN protocols that are scientifically appropriate for the study population and study objectives. The site HIV testing algorithm will be described in the SSP Manual. HPTN Investigators of Record (IoRs) will make every effort to ensure that protocol-specified HIV testing algorithms are followed throughout the period of study implementation.

Supplemental protocol-specific testing algorithms may be required for certain studies, these may not have been specified by the HPTN LC. Sites will be informed by protocol leadership whenever the use of such algorithms is required.

The HPTN LC performs QA and confirmatory HIV testing for HPTN studies as specified in HPTN protocol documents and/or the SSP Manual. In some cases, some of this testing may be performed at a regional laboratory designated by the HPTN LC. The QA testing plan and the extent of QA testing (e.g., the proportion of study samples evaluated at the HPTN LC) are determined by the HPTN LC PI and HPTN LC QA/QC Core Director. QA test results are reviewed by the HPTN LC QA/QC Core Director and the HPTN LC QA/QC Coordinator for the protocol.

Complex cases or cases where there are incomplete and/or discrepant results are also reviewed by the HPTN LC PI.

Protocol teams will refer all issues and questions related to HIV endpoint determination to the HPTN LC. The SDMC statistician for each study (or designee) will provide data reports to the HPTN LC as needed to support review and decision-making by the HPTN LC. For blinded studies, data provided to the HPTN LC will not include participants' treatment assignments or information regarding treatment failures, with limited exceptions (e.g., to identify samples for pharmacology testing). In some cases, an Endpoint Advisory Committee will be convened by the HPTN LC at the start of a protocol or during a protocol to evaluate primary endpoint events (see Section 13.12).

13.10 HIV Endpoint Adjudication

The HPTN LC may choose to convene a protocol-specific Endpoint Adjudication Committee (EAC) in cases where there are incomplete HIV test data (e.g., due to missed testing or loss-to-follow up at study sites); or in cases where results from the site and/or HPTN LC testing do not clearly define the infection status of one or more study participants. An EAC may also be convened to address issues such as:

- Failure of one or more study sites to follow a protocol-specified HIV testing algorithm
- Indeterminate test results persist at study exit
- An unusual pattern of test results is observed

Depending on the number of endpoints and the complexity of the endpoint data, one of three types of EACs will be convened: an Internal EAC (IEAC), an external Virology EAC, or a Specialty EAC (Tier 1, Tier 2, and Tier 3 review, as described below). The type and membership of EAC convened for each study will be determined by the HPTN LC, in consultation with the Protocol Chair(s) and Study Statistician. In addition to those named below, DAIDS Prevention Sciences Program (PSP) representatives may take part in EAC meetings as non-voting discussants or observers.

13.11 HPTN LC Assessments for Primary/Secondary/Exploratory Objectives

This section describes procedures for the design and conduct of specialized testing that contributes to the HPTN collaborative science and is performed at the HPTN LC or at laboratories designated by the HPTN LC. This is distinct from QA testing which is described in Section 13.8.

The HPTN LC will collaborate with the protocol chairs, statisticians, and others as appropriate to design the laboratory assessments that are needed to address the assay-based objectives and endpoints for each protocol. Data from these assessments will not be returned to study sites or participants unless this is indicated in the protocol document or SSP Manual. The LC will maintain a living document that describes on-going and planned laboratory assessments (LC Testing Plan). The LC Testing Plan will be drafted by the LC and will be reviewed periodically in collaboration with relevant members of the protocol team. The LC Testing Plan will be reviewed periodically with the SDMC to coordinate LC and SDMC activities needed for these assessments. Data from these assessments will be submitted to the SDMC in an agreed upon format utilizing a Data Transfer Plan (DTP). The LC Testing Plan will be updated periodically to indicate which data will be transferred to the SDMC for each protocol.

The HPTN LC is responsible for:

- Preparing and updating the LC Testing Plan, in consultation with the SDMC and key study team members.
- Obtaining approval from relevant members of the protocol team and HPTN Leadership for addition of assessments that extend beyond those needed to address study objectives and endpoints.
- Initiating Specimen Data requests. These requests will be developed with the SDMC for each protocol as assessments proceed. These requests may be submitted using individual Specimen Data request forms or a single, protocol-specific excel file with a sheet for each specimen or data request.
- Working with the sites to ship samples to LC for testing.
- Oversight of testing conducted by the HPTN LC laboratories or laboratories designated by the HPTN LC
- Preparing DTPs with the SDMC
- Notifying the SDMC that data from the LC will be submitted to the SDMC.
- Submitting LC data to the SDMC using secure electronic data transmission.
- Arranging for electronic data transmission to the SDMC from subcontract laboratories, if needed.

The SDMC is responsible for:

- Working with the LC and the protocol chair(s) to design and/or review the planned lab studies, assess study power, and propose statistical analyses.
- Reviewing the Specimen Data Request form submitted by the HPTN LC
- Providing specimen testing/data/shipping lists, which will include PTIDs, specimen IDs, global specimen IDs, specimen collection dates, visit types, and visit numbers; other study data may be included
- Initiating DTPs for each request and working with the LC for completion and sign-off of DTP documents
- Receiving data from the HPTN LC and subcontract laboratories and working with the LC to resolve any data issues
- Notifying the HPTN LC of any data omissions or other issues in timely manner

13.12 HPTN Sample Destruction

CTU/CRS laboratories are required to store samples for HPTN studies. Some of these samples may be sent to other laboratories for other testing as mandated by the respective protocols. Each protocol should address short- and long-term storage of specimens before study initiation, including the accompanying sample informed consent form.

It is the responsibility of the CRS to estimate the total number of samples for storage, the storage requirements and to provide appropriate facilities and equipment for storage that will meet GCLP guidelines. The HPTN LC does not have a repository.

During the course of a study, a participant who consented to long-term storage may change their mind and withdraw that specific consent. If this happens, sites are responsible for updating the appropriate e-CRF accordingly.

In general, at the completion of a primary manuscript for a study, when there are specimens still being stored on site, a determination will be made by the sponsor(s) of the study or the Protocol Chair(s), in consultation with the HPTN LC, when to destroy specimens from participants who did not consent to long term storage and/or to continue to store the specimens deemed for long-term storage. The laboratory will be notified by the study team(s) via the HPTN LC if specimens must be destroyed. This process will also specify exactly which samples are to be destroyed.

Each site will draft a Sample Destruction SOP that will be reviewed by the HPTN LC. This SOP should include a form that will be used to maintain the chain of custody of the samples throughout the destruction process. All hospital and/or university policies, as well as local regulations, must be followed when handling or discarding specimens. For older studies, the Leadership Group of the Network may make a determination to destroy or continue to store the specimens in question.

Copies of the storage reports will be kept along with the Destruction of Samples documentation logs. Storage will be as per DAIDS policies.

13.13 Referenced or Useful Web Links

Websites for general information related to topics covered in this section, as well as those specifically cited, are listed below:

Resources:

HIV/AIDS Network Coordination	https://www.hanc.info/resources/sops-guidelines-resources/laboratory.html
DAIDS	https://www.niaid.nih.gov/research/daids-clinical-research-policies-standard-procedures
CLIA	https://www.cms.gov/Regulations-and-Guidance/Legislation/CLIA/index.html?redirect=/clia/

Specimen Shipping, Shipping Materials and Information:

CDC Shipping Regulations	https://www.cdc.gov/cpr/ipp/shipping/index.htm https://www.cdc.gov/labtraining/training-courses/packing-shipping-division-6.2-materials.html
Code of Federal Regulations	https://www.ecfr.gov/cgi-bin/ECFR?page=browse
US Postal Service	http://www.usps.com
CDC Office of Health and Safety - Biosafety	https://www.cdc.gov/niosh/topics/healthcare/default.html and https://www.cdc.gov/niosh/topics/bbp/
International Air Transport Association	http://iata.org/index.htm
FedEx Dangerous Goods Shipping Seminars	http://fedex.com/us/services/options/express/dangerousgoods/seminars.html?link=4
Dangerous Goods	http://www.danrgerousgoods.com
DHL	http://www.dhl-usa.com/solutions/express.asp?nav=dhlExp

US Department of Transportation	http://www.dot.gov/
US DOT/Transporting Infectious Substances Safely	https://www.phmsa.dot.gov/transporting-infectious-substances/transporting-infectious-substances-overview

Risk Group Assessments:

Risk Group Classification for Infectious Agents	https://my.absa.org/Riskgroups
American Biological Safety Association	http://www.absa.org/
CDC Regulation	http://www.cdc.gov/biosafety/
CDC Select Agent Listings and Regulations	http://www.selectagents.gov/
USDA Plant and Animal Pathogen Select Agents	https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-and-animal-product-import-information/organisms-vectors/ct_organisms_and_vectors