Public Health Laboratory Readiness Checklist for Major Events

Major domestic and international events such as the Super Bowl, Olympics and FIFA World Cup present unique public health challenges requiring coordinated laboratory preparedness and response across multiple jurisdictions. Large gatherings of international travelers increase the risk of infectious disease introduction and rapid spread, as well as the potential for chemical and radiological incidents—all which demand timely detection, surveillance and communication. Public health laboratories play a critical role in early detection, risk assessment and response to biological, chemical and radiological threats by ensuring surge testing capacity, maintaining quality and biosafety standards, and providing actionable data to inform public health decisions. This checklist is designed to guide laboratories in strengthening readiness, sustaining quality operations under surge conditions and enhancing coordination with local, state and federal partners before, during and after major events.

Preparedness & Risk Assessment

☐ **Conduct an event-specific all-hazards risk assessment**

- Identify pathogens or threats of concern:
  - Biological: influenza viruses, SARS-CoV-2, enteric bacterial pathogens, arboviruses, viral hemorrhagic fever viruses, *Bacillus anthracis*
  - Chemical: mustard agents, nerve agents, cyanide, toxic metals, toxic industrial chemicals
  - Radiological: radionuclides
- Include risks from international travelers and non-endemic pathogens.
- Maintain active surveillance for BioWatch notifications and hits, ensuring timely review, verification and follow-up with appropriate partners.
- Assess lab surge capacity, workforce and supply chain vulnerabilities.

☐ **Establish a laboratory preparedness and response plan**

- Define testing priorities, chain-of-command and contact lists.
- Align with the jurisdiction's Incident Command System (ICS) structure.
- Integrate with the state health department's emergency operations center (EOC) and Laboratory Response Network (LRN) coordination.
- Determine funding sources, required approvals and authorization needed to support laboratory readiness and surge operations.
- Coordinate with sample submitters (e.g., clinical laboratories) to confirm submission requirements, logistics and anticipated sample volumes.

☐ **Conduct tabletop continuity of operations planning (COOP) and surge capacity exercises prior to the event**

- Simulate specimen influx and power, transport or supply chain disruptions.
- Test communication and reporting workflows between laboratories and public health partners.

Sample Collection, Transport & Chain of Custody

☐ **Develop clear specimen collection guidance for frontline health providers**

- Priority specimens (e.g., blood, urine, respiratory, swabs, food/water samples, tissue, powders).
- Define collection, packaging, labeling and personal protective equipment (PPE) standards.

☐ **Establish transportation logistics and redundancy**

- Partner with couriers capable of same-day or overnight delivery.
- Validate cold-chain maintenance and courier surge capacity.
- Track transport time and specimen receipt to monitor delays.
- Prepare for new or unusual sample submitters and ensure processes are in place to manage atypical submissions.

☐ **Reinforce chain-of-custody protocols**

- Ensure compliance with Clinical Laboratory Improvement Amendments (CLIA), LRN, and select agent requirements.
- Ensure appropriate field screening is completed prior to sample submission.
- Prepare for potential law enforcement or biosecurity coordination (e.g., National Guard Bureau Civil Support Teams, Federal Bureau of Investigation, HAZMAT and other first responders).

Laboratory Testing and Staffing Strategy

☐ **Define tiered testing priorities**

- Tier 1: Rapid diagnostic/point-of-care (e.g., onsite or near-site).
- Tier 2: Reference testing at state/local public health laboratory (e.g., PCR, serology, mass spectrometry).
- Tier 3: Sequencing or threat-agnostic characterization.

☐ **Ensure sufficient testing capacity and redundancy**

- Pre-stage reagents, extraction kits and consumables.
- Verify service contracts for critical instruments.
- Identify partner labs for overflow or mutual aid (i.e., LRN-B, LRN-C, regional networks).

☐ **Implement quality assurance/quality control (QA/QC) and biosafety monitoring**

- Review standard operating procedures (SOPs) for Biosafety Level (BSL)-2/3 workflows.
- Maintain quality control (QC) logs even during surge periods.
- Conduct daily staff safety briefings and exposure management reviews.

☐ **Establish and maintain surge staffing capacity**

- Crosstrain personnel to perform essential biological, chemical and radiological testing functions.
- Maintain up-to-date competency records to ensure staff can be rapidly activated.
- Provide just-in-time training for temporary, reassigned or partner staff supporting surge operations.
- Identify backup and on-call staff who can support extended hours, weekend operations or high-volume testing.
- Ensure staff are familiar with emergency procedures, including safety protocols, chain of custody and sample triage workflows.
- Regularly exercise surge staffing plans to validate readiness and identify gaps before major events.

Data Management & Reporting

☐ **Confirm laboratory information management systems (LIMS) readiness and surge data flow**

- Validate real-time electronic data transfer to surveillance systems.

- Create dashboards for testing volumes, turnaround time and positives.
- Determine data recipients, reporting frequency and any escalation pathways needed during surge operations.

☐ **Establish data sharing agreements across jurisdictions**

- Align with CDC, local health departments and APHL guidance.
- Predefine what data can be shared (i.e., aggregate, pathogen, sequencing, metadata).

☐ **Enable real-time alerting and communication channels**

- Implement notification triggers for unusual or novel pathogen detections.
- Link results to epidemiology and outbreak response teams immediately.

Quality Management & Performance Metrics

☐ **Maintain your quality management system (QMS) under surge**

- Document deviations, track corrective actions and review post-event.

☐ **Monitor and report key performance indicators (KPIs) (**see **Table 1)**

- Conduct mid-event reviews.
- Conduct weekly surge performance review with EOC and leadership teams.
- Adjust staffing and workflows as needed.

Communication, Coordination & Public Messaging

☐ **Assign liaisons for event coordination**

- Ensure engagement and participation of a public health laboratory representative within the Health Department EOC and the ICS laboratory branch.
- Establish communication links with CDC, BioWatch, HAZMAT teams, FBI and Weapons of Mass Destruction Directorate (WMDD), public health partners, and other network stakeholders.
- Designate a Public Information Officer (PIO) or communication liaison to coordinate messaging with risk communication teams.
- Develop and maintain an up-to-date contact list for key partners, ensure it is regularly updated throughout the response, and confirm all relevant staff have access.

☐ **Establish reporting and escalation protocols**

- Unusual findings → Epidemiology lead → EOC activation if warranted.
- Maintain after-hours contact availability and redundancy for critical updates and incident notifications.

☐ **Coordinate public communication with risk messaging teams**

- Ensure laboratory data supports clear, timely and accurate public health messaging.
- Avoid release of unverified or preliminary data without PIO and leadership clearance.

Post-Event Review & Legacy Planning

☐ **Conduct after-action reviews (AARs) and develop stories**

- Document successes, challenges and recommendations.
- Include feedback from laboratory staff, EOC and surveillance teams.
- Use storytelling to clearly communicate laboratory readiness and response activities—highlighting real-world examples, challenges and successes to illustrate impact and engage partners.

☐ **Capture event-based data for future preparedness**

- Analyze testing trends, pathogen diversity and sequencing results.
- Publish or share lessons learned through APHL networks.

☐ **Strengthen long-term laboratory infrastructure**

- Enhance sequencing pipelines, specimen tracking and data visualization tools.
- Maintain partnerships developed during the event for future response. (see **Table 2**)

Table 1. Key Performance Indicator (KPI) Examples

Metrics	Target	Notes
Sample transport times	<12 hours	Courier performance
Lab accessioning	<2 hours	From receipt to accession
Testing turnaround time	<24 hours	From accession to result
Sequencing turnaround time	<72 hours	From accession to data submission
Sample rejection rate	<2%	Quality assurance metric

Table 2. Key Partners for Laboratory Coordination

Partner	Role	Coordination Focus
Local and state health departments	Primary public health response	Specimen routing, epidemiologic coordination, data sharing
CDC (e.g., LRN, DSLR, ORR)	Federal coordination and technical support	Priority pathogen testing, surge resources, technical guidance
APHL	Laboratory network coordination	Best practices; mutual aid; data harmonization
Clinical laboratories	Front line testing	Surge capacity and specimen referral to public health laboratories
World Health Organization (WHO)	International coordination	Cross-border surveillance, guidance and reporting alignment
Emergency management / ICS	Operational command	Logistics; communications; safety; incident coordiation
Event organizers / Venue health units	Field-level health coordination	Onsite testing; reporting; situational awareness
Department of Defense (DoD)	Military medical and technical support	Specialized laboratory assets; sample handling; field response
Federal Bureau of Investigation (FBI) / WMDD	Threat assessment and investigative support	Chain-of custody; biological / chemical threat investigation,;coordinated response
Department of Homeland Security (DHS)	National security and threat detection	BioWatch coordination; risk assessments; information sharing
First responders (e.g., EMS, fire, law enforcement)	Immediate incident response	Scene safety; triage; initial sample collection considerations
HAZMAT teams	Hazardous materials assessment and mitigation	Chemical / radiological field screening; sample safety; site characterization
National Guard Bureau Civil Support Teams (CSTs)	CBRN field detection and analysis	Rapid chamical, biological, radiological detection; field analytics; joint incident response
Poison control centers	Clinical toxicology expertise	Chemical exposure interpretation; triage guidance; coordination on toxicology trends and referrals

Association of Public Health Laboratories

The Association of Public Health Laboratories (APHL) works to strengthen laboratory systems serving the public's health in the US and globally. APHL's member laboratories protect the public's health by monitoring and detecting infectious and foodborne diseases, environmental contaminants, biological and chemical agents, genetic disorders in newborns and other diverse health threats.

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