



TOR for Expanded Electronic Integrated Disease Surveillance and Response (eIDSR)

Background:

Following the Ebola outbreak of 2014, with its resultant toll on health and the economy amongst, the Liberian Health Sector developed the “Investment plan for building a Resilient Health System for Liberia” as a means of addressing gaps within the health sector as well as strengthening epidemic preparedness, surveillance and response. A component of the plan emphasized the expansion of the established surveillance, early warning, and response system to ensure prompt case detection and response to future public health events.

The Ministry of Health, National Public Health Institute, and partners having reviewed numerous literature and examples, settled for the Electronic Integrated Disease Surveillance and Response (eIDSR) as the electronic platform for instant notification of priority health conditions. With support primarily from the Center for Disease Control (CDC), the system was developed and piloted in two counties in Liberia. An evaluation of the pilot funded by WHO was very positive and rated the system highly with respect to sustainability, cost, ease of use, adaptability, average time (2 minutes) it took to send out a notification, maintenance, etc.

This eIDSR utilized the existing mHero (two-way messaging system) processes combined with a custom offline application that synchronized with DHIS2 Tracker to provide alerts from the facility to the district, county, and central levels, and also provided a mechanism for creating a line list at the district level that is available in near real-time at the county and central levels. It leveraged the existing DHIS2 software that is currently being used for health management information system (HMIS). In addition, the SMS component leverages the existing mHero platform that uses RapidPro, drawing health worker contact information through the Health Worker Registry from iHRIS, the Human Resource Information System (HRIS), and facility information from DHIS2, which plays the role of a health facility registry.

With funding from partners, the ministry of Health, National Public Health Institute and Ministry of Agriculture, are opting to expand on the above-mentioned system, to integrate other sub-systems, including the Community Event-based Surveillance System and Animal Health Surveillance based on the “One Health” Concept.

The technological innovation for CEBS specifically involves data collection, reporting, and overall data management between the community (by Community Health Assistants (CHAs) and Community Health Volunteers (CHVs)) and the health facility (by Community Health System

Supervisor (CHSS) and/or Health Facility Surveillance Focal Person (HFSFP) that capitalizes on mobile device technology such as phones as the medium, improving the timeliness and effectiveness of the reports when triggers are identified by the CHAs and CHVs in the community.

Similarly, the Animal Health Surveillance involves data collection from the community level with the Community Animal Health Workers (CAHWs) through the County Animal Health Workers (Surveillance officers Quarantine, Livestock etc.) to the national level (Central Veterinary Epidemiology unit and Central Veterinary Diagnostic Laboratory). For verification of alerts, county animal health officers move on the site to complete the investigation.

The expanded eIDSR is expected to improve epidemiological surveillance, including alert triggers and case/event reporting and data management at all levels of the health system, through the use of appropriate technology for data collection and analysis.

Specific Objective:

- Employ enhanced technology to receive, analyze and display real time data through visualizations;
- Facilitate monitoring of disease trend over time and determining potential outbreaks in real time, to provide guidance at national and sub-national levels;
- Promote and facilitate accuracy and reliability of surveillance data to enhance timely response to outbreaks at sub-national levels
- Ensure the stability, integrity, and efficiency of the operations of disease and event surveillance information systems, linking cases (humans and animals) to laboratory results
- Non-proprietary integration into existing HMIS/DHIS-2 based platforms to maximize future sustainability, maintenance, and ease of user accessibility
- Training of Trainers from the One Health Sector
- Support the One Health Sector lead training of all user points
- Commit to the maintenance of the system for a two-year period.

The expanded eIDSR system is expected to benefit from the below listed tasks:

Specific Task

- Automate alert trigger, case and event reporting and case investigation processes;
- Facilitate interoperability with sub-systems (CEBS, Animal Health Surveillance, etc.), including synchronizing data capture from communities and health facilities and investigators with a centralized database;
- Align and integrate data from various management levels via a simplified workflow
- Link critical related epidemiologic and response information (contacts, case investigation, specimen collection, lab results, Treatment, etc.) in a timely fashion using online/offline data capture and transfers;

- Reestablish an internet-accessible consolidated eIDSR dashboard for real-time public health decision-making; dashboard should reflect current public health events, outbreaks, and emergency operations centers activations
- Durable “turn-key” knowledge transfer to permanent NPHIL and Ministry of Health staff

Description of the Consultant/Firm

- **Review the eIDSR design, its software tools, processes and deploy a suitable software program**
- **Maintain and upgrade existing eIDSR system, fixes bugs, and train technical and end-users for sustainability**
- **Test and evaluate eIDSR system for superb performance**
- **Identify areas for modifications in the existing program and provide a subsequent modification**
- **Write and implement efficient codes**
- **Support the determination and operational practices as well as develop quality assurance procedures**
- **Experience using UX designers and business tools for web development**

Deliverables:

1. Application & Database Analysis/ UI/UX Designing
2. Cloud-based Application Development
3. Security & Quality Assurance/Logistics and Installation
4. Logistics and Installation/
5. Bug fixes, version release, upgrades, training and technical support
6. Turn-key knowledge transfer to NPHIL and MOH surveillance, analytic, and informatics staff
7. Hardware installation

Firm Qualification

- National or international acceptable qualification
- Locally available comparable expertise is a plus
- Expertise in Technological Development with more than five years of proving understanding of West Africa Health Data Management System
- The bidder must prove of having a physical presence or an Affiliate Office in West Africa

Experience

- At least 5 years of relevant experience in the field required in system design/application, which must include demonstrated success in coding and adapting HMIS/DHIS-related platforms
- Track record in UI/UX design

- Previous experience with other national/international organization is helpful but not mandatory;
- Experience in the usage of computers and office software packages, good knowledge, and experience in handling of web-based management systems;
- Demonstrated experience in designing and implementing communication and/or media outreach.
- Track record in field-based or site-level user training and transfer of programming, trouble-shooting, analytic, and data visualization skillsets

Competencies

- Demonstrated understanding of strategic system design;
- Excellent organizational skills;
- Excellent English writing and design skills;
- Demonstrated ability to meet deadlines and work under pressure;
- Ability to coach or mentor technical staff
- Participate effectively in team-based, information-sharing environment, collaborating and cooperating with others;
- Strong interpersonal skills, able to communicate and work with diverse people
- Focuses on impact and results for the client;
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability

Language requirement

Proficient spoken and written English is mandatory.

Reporting:

The Firm will report to the eIDSR Technical Working Group (TWG)