



PANGKALAHATANG PAGAMUTAN NG LUNGSOD QUEZON
 (Quezon City General Hospital)
PHILHEALTH Accredited Healthcare Provider



TERMS OF REFERENCE (TOR)

SUPPLY, DELIVERY, INSTALLATION, CONFIGURATION, TESTING AND COMMISSIONING OF THE HOSPITAL LABORATORY INFORMATION SYSTEM CONNECTIVITY WITH EQUIPMENT FOR THE USE OF MEDICAL PATHOLOGY, NURSES, AND ANCILLARIES OF THE QUEZON CITY GENERAL HOSPITAL.

I. RATIONALE AND BRIEF BACKGROUND

The procurement of the Hospital Laboratory Information System (LIS) for Quezon City General Hospital (QCGH) is a significant initiative aimed at enhancing the hospital's laboratory management capabilities and streamlining the handling of medical data particularly in laboratories. QCGH, as a public healthcare institution, serves a large population within Quezon City and neighboring areas. The hospital relies heavily on information technology to manage laboratory results, patient data, and communications across various departments. With the increasing frequency of cyber threats and the imperative to comply with data protection laws, it is important that QCGH invests in a modern, secure, and compliant hospital laboratory system solution.

The key component of the project includes:

1. General Laboratory
2. Bloodbank Module (BB)
3. Microbiology Module (MB)
4. Anatomical Pathology Module (AP)
5. Result Management Module (ROM)
6. Hospital Information System Integration
7. Implementation
8. Customization
9. Analyzer Connectivity

II. PROJECT SCOPE OF WORK

The project shall cover the delivery of services for the supply, delivery, installation, configuration, and testing of the Hospital Laboratory Information System (LIS) for use by Medical Pathology, Nurses, and Ancillary Services at Quezon City General Hospital. This will include both hardware and software components, ensuring full integration with existing systems and medical equipment. The project will also encompass user training, system testing, and post-implementation support.





There are four (4) stages of the QCGH-LIS project to ensure manageability as separate teams and team leaders will be assigned for simultaneous development and deliveries of milestones of the project.

1. Delivery and Configuration of IT Infrastructure
2. Installation, Configuration and Deployment of QCGH Laboratory Information System (LIS)
3. Technical Support
4. Training and Handover

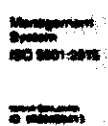
The project entails a series of activities that is aligned with the deliveries of the project.

1. Delivery and Configuration of IT Infrastructure
 - a. Deliver Server and Storages
 - b. Deliver Workstations
 - c. Deliver Analyzer Interface Gateway
 - d. Deliver Laptop, Barcode Printer, Digital Webcam and Finger Print Scanner for Blood bank module.
 - e. Delivery barcode printers, barcode scanners, GSM modem, finger print scanner and web camera
 - f. Install operating system, database management system to server and storages
 - g. Connect and configure server, storages.
 - h. Configure internal security to ensure access control
 - i. Provide network cabling and switches in support with the connectivity of the equipment of the project
 - j. Deliver furnishings for IT equipment

HARDWARE / SOFTWARE SPECIFICATIONS

- a. Hardware

Minimum Technical Specifications	
LIS Server (1 Lot)	
	<ul style="list-style-type: none">• CPU: Intel Xeon E-2300• Storage: (2x) 2TB SAS/SATA (Raid 1 configuration)• Memory: 32GB DDR4 DIMM, 3200 MT/s• Monitor: 22-inch LED monitor• Operatng System: Microsoft Windows Server 2022• KVA UPS w/ Pheripherals: Keyboard and Mouse





	<ul style="list-style-type: none">• Windows Server OS License (latest version)• Windows SQL Server License (latest version)
Analyzer Interface Gateway (4 units)	<p>All-in-One</p> <ul style="list-style-type: none">• CPU: Intel Core i5• Storage: 500GB SSD• Memory: 16GB DDR4• Monitor: 22-inc LED• Operating System: MS windows 11 Pro• 650VA UPA• Serial Hub and Serial Ports (RS232)
LIS Workstations (20 units)	<p>All-in-One</p> <ul style="list-style-type: none">• CPU: Intel Core i5• Storage: 500GB SSD• Memory: 16GB DDR4• Monitor: 22-inc LED• Operating System: MS windows 11 Pro• 650VA UPA• Serial Hub and Serial Ports (RS232)
Blood Bank (MBD – mass blood donation) (1 Unit)	<p>Laptop</p> <ul style="list-style-type: none">• CPU: Intel Core i5• Storage: 500GB SSD• Memory: 16GB DDR4• Operating System: MS windows 11 Pro <ul style="list-style-type: none">• Barcode Printer• Barcode Scanner• Digital Webcam• Fingerprint Scanner• GSM Modem
Ticket Kiosk (1 Unit)	<ul style="list-style-type: none">• 32" Touch Screen Monitor• Enclosure• All-in-One Unit (Intel i5,8GBRAM, Windows 10) Thermal
Printer	<ul style="list-style-type: none">• Queue Dispenser• Mini-PC
Others: A. Barcode Printer (6 units) B. Barcode Scanner (10 units) C. GSM Modem (1 unit) D. Fingerprint Scanner (1 unit)	





2. Installation, Configuration and Deployment of QCGH Laboratory Information System (LIS)

SOFTWARE SPECIFICATIONS

a. General Laboratory:

1. Unlimited number of users
2. Transaction Entry
3. Capturing, Storing and Retrieving of patient's photo
4. Sample Management
 - Specimen collection & barcoding, specimen check-in
5. Result Management
 - Result Entry (e.g. Edit, Review, Validate, Trend analysis)
 - Hematology, Chemistry, Microscopy, Serology & Immunology
6. Workload and Management Reports
 - Census, Report Summary, Order Summary, TAT Report
 - Scheduled Report – automatic generation and sending of report via email
7. Administration
 - User access and management, audit trail, dictionary
8. Dashboards
9. Analytical Report
10. Quality Control

b. Bloodbank Module (BB):

1. Donor Management
2. Mobile Blood Donation
3. Inventory Management
4. Blood Reservation
5. Cross-Matching

c. Microbiology Module (MB)

1. Result Management
 - Culture and Non-Culture
 - Supports MIC, Disk, and S.I.R. Reporting
2. Management Report
 - Census report
 - TAT report
 - Antibigram report
 - Export to Whonet





d. Anatomical Pathology Module (AP):

1. Sample Management
 - Sample barcoding
 - Capable of integrating to cassette and slide printer
2. Result Management
 - Surgical Report
 - Pap Smear Report using Bethesda reporting system
3. Management Report
 - TAT Report
 - Census report
4. Case Finder – search cases using keywords and phrases

e. Result Output Management (ROM)

1. SMS result notification
 - Sends results status notification to the patient and/or clinician
2. Result Auto-Emailer
 - Sends email result in pdf format to the patient and/or clinician
3. Laboratory Result Online
 - Web application for downloading of patient result

f. Hospital Information System Integration

1. Connectivity with existing HIS using HL7 protocol

g. Implementation

1. Data Collection
2. Software Installation
3. Report Customization
4. User Training & Administrative Training
5. Go-Live Assistance

h. Customization

1. 10 customizations, report and minor program changes
2. Minor customization that requires less than one (10) man-day

i. Analyzer Connectivity

1. Roche 9180 Electrolyte Analyzer (Unidirectional)
2. Cobas c311 (Bi-directional)
3. Maccura F810 (Bi-directional)
4. CoaLAB 1000 (Bi-directional)



3. Technical Support

A technical support group will be set up for email and calls handling. This will serve as a guide for applicants and processors. This project is an innovative project that needs constant support technical and functional.

4. Data Ownership and Data Security

a. Data Ownership

- All data collected, entered, processed, stored, or generated by the Laboratory Information System shall be owned solely and exclusively by the Quezon City Government, as represented by the Quezon City General Hospital.

b. User Authentication and Role-Based Access Control

- Each user shall be assigned unique credentials.
- Access to data and functionalities is limited and will be based on assigned user roles and department affiliation.

c. Password Encryption

- User account passwords shall be securely encrypted in the database.
- Relevant patient data fields are stored in a structured format, and access is limited by user role.

d. Audit Trail and Activity Logs

- All system activities are logged, including access, modifications, and deletions of data.
- Logs are securely stored and regularly reviewed for anomalies.

e. Regular Backups

- Automated and regular backups are performed to secure data integrity and ensure recovery in case of system failure.

f. Firewall and Network Protection

- Firewall configuration and network security shall be handled by the Quezon City General Hospital (QCGH) IT department.
- The service provide shall closely coordinate with the QCGH IT team to ensure the safe and secure deployment and operation of the system.

g. Secure Hosting Environment

- Proper guidance shall be provided on server setup and access control for installation of system.





h. Data Retention and Deletion Policies

- Patient data shall be retained in accordance with applicable regulations and QCGH policies.
- Upon instruction from QCGH or expiration of the defined retention period, data shall be securely deleted or anonymized.

i. Compliance with Data Privacy Laws (Data Privacy Act of 2012)

- The system shall be compliance with the Republic Act No. 10173 (Data Privacy Act of 2012), its Implementing Rules and Regulations (IRR), and other applicable healthcare data protection regulations in the Philippines.

j. Regular Updates and Patching

- The system shall be regularly updated and patched to address vulnerabilities and improve security.

k. Security Awareness and Internal Policy

- The service provider shall follow best practices in handling and protecting patient data and shall maintain internal policies on confidentiality and data handling.

m. Business Continuity and Disaster Recovery (BCDR)

- The service provider shall maintain appropriate business continuity and disaster recovery plans and capabilities to ensure system availability and data recoverability. These plans will align with agreed-upon service levels and recovery objectives.

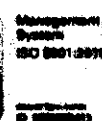
5. The project aims to safeguard the hospital's digital assets and data by implementing quick laboratory results. The deployment and configuration of these software and hardware solutions will be executed to the highest standards to ensure the hospital's digital environment remains secure and resilient.

6. Training and Handover

There will be a set of training for QCGH staff/users for Laboratory Information System (LIS), and technical training on the system that covers system maintenance, administration, and service delivery management.

a. Training and Manuals

- Knowledge transfer training on application, technical configuration, system administration and database support
- Classroom Training Two (2) days Training for involved QCGH Users including IT personnel.
- User Manuals and Technical Manuals





- Technical documentation of the system
- Database Dictionary and Schema
- Infrastructure Diagram and Configuration
- Installation Guide

7. Managed Services

- a. Back-up and Recovery Support
 - Daily and Weekly database backup
- b. Warranty, Maintenance and Support
 - One (1) hour response time for critical issues for resolution within twenty-four (24) hours.
 - 1-year coverage after full acceptance of project including:
 - Technical Support Assistance
 - Troubleshooting Support
 - Software and Hardware Maintenance

III. AREA OF COVERAGE

The deployment of the Supply, Delivery, Installation, Configuration and Testing of Laboratory Information System for the use of Medical Pathology, Nurses and Ancillaries of the Quezon City General Hospital will encompass all computers within Quezon City General Hospital.

IV. PROJECT STANDARD REQUIREMENTS

The requirements are expressed in indicative and functional terms to guide the Service Provider in the provision of services that will ensure the overall health of the system to include its performance, interoperability, integration, and information exchange.

1. SERVICE PROVIDER REQUIRED STANDARDS/QUALIFICATIONS

The following are the minimum qualifications and requirements for the Service Provider:

- I. Track Record
 - a. The service provider must be in the same industry as per SEC or DTI filing for at least five (5) years.
 - b. The service provider should have been in operation for at least five (5) years.





- c. The service provider must have implemented and completed an information system within the last three (3) years.
- d. The service provider should have implemented a public or private project with a single completed contract amounting to at least fifty percent (50%) of the ABC.

II. Organization

- a. The service provider must have a Platinum status in PhilGEPS.
- b. The service provider must be a duly registered company with SEC or DTI filing.
- c. The service provider must be duly registered under National Privacy Commission.
- d. The service provider shall guarantee that the system shall abide with the DATA PRIVACY ACT OF 2012 to ensure that the personal information is protected.

III. Manpower

The Service Provider shall have the critical technical knowledge that includes knowledge of database systems; ability to manage database system integration, implementation, and testing; ability to manage relational databases and create complex reports; knowledge and ability to implement data and information policies, security requirements; and knowledge of client tools used by business users. The project should provide the following Professional Services:

- a. Project Manager (1) - college graduate (preferably IT-related courses) and with at least four (4) years experience on this field.
- b. Systems Administrator (1) – college graduate (preferably IT-related courses) and with at least three (3) years experience on this field.
- c. Technical Support (2) - college graduate (preferably IT-related courses) and with at least two (2) years experience on this field.
- d. Security Specialist (1) - college graduate (preferably IT-related courses) and with at least three (3) years experience on this field.



V. ✓ TRAININGS

The service provider will provide necessary trainings to eight (8) IT personnel of QCGH. A separate training for Ten (30) Pathology Department and other offices and management to be conducted by service provider consultant expert.

VI. ✓ AFTER SALES SUPPORT

The service provider will submit a sworn Statement of Undertaking stating the following:

- Software Component will have one (1) year warranty upon implementation.
- User manual and installer will be provided for software components.
- All hardware components will have one (1) year warranty upon delivery and configuration.
- SMS Result Notification within one (1) year.
- Technical Support:
 - 24/7 technical support.
 - Ticketing system; and
 - Via SMS & Calls

VII. ✓ DELIVERY SCHEDULE

Sixty (60) calendar days delivery period.

VIII. ✓ BASIS FOR PAYMENT

The terms of payment shall be based on the following completed deliverables:

- a. Upon submission of the delivery of the Project Management Plan, the procuring entity will release fifteen percent (15%) of the total winning bid amount to the service provider.
- b. Upon completion of delivery of Hardware equipment (ICTE), completion of configuration and setup. The procuring entity will release twenty three percent (23%) of the total winning bid amount to the service provider.
- c. Upon deployment of the QCGH Laboratory Information System (LIS), the procuring entity will release sixty one percent (61%) of the total winning bid amount to the service provider, including the following:
 - Installation and Configuration of Laboratory Information Systems
 - Knowledge Transfer/ Training
- d. One percent (1%) of the total winning bid amount will be released one (1) year after the final acceptance of the system as performance security.





IX. APPROVED BUDGET FOR THE CONTRACT

The Approved Budget for the Contract (ABC) amounts to Twenty-Five Million Pesos 00/100 only (P25,000,000.00) VAT Inclusive.

X. PENALTIES FOR BREACH OF CONTRACT

Failure to deliver the services according to the standards and requirements set by the City shall constitute an offense and shall subject the Contractor to penalties and/or liquidated damages pursuant to **RA 12009** and its revised Implementing Rules and Regulations.

XI. CANCELLATION OR TERMINATION OF CONTRACT

The guidelines contained in **RA 12009** and its revised IRR shall be followed in the termination of any service contract. In the event the City terminated the Contract due to default insolvency, or for cause, it may enter negotiated procurement pursuant to **RA 12009** and its IRR.



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Prepared by:

James L. Bacarisas, MMPA
Information Systems Analyst III
QCGH-IT Section Head

Noted by:

Mary Ann G. Cruz
Officer-In-Charge, ITDD

Approved by:

Josephine B. Sabando, MD, RD, FPBA, MHA, FPSA
Hospital Director



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