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# Bidding Document

**DESIGN, SUPPLY, DELIVERY, INSTALLATION,  
IMPLEMENTATION, TESTING, COMMISSIONING AND  
PROVISION OF TRAINING AND MAINTENANCE OF THE  
HIS SYSTEM INCLUDING DEVELOPMENT OF  
OPERATIONAL ACCEPTANCE TESTING AND SYSTEM  
INTEGRATION WITH THIRD PARTY SOLUTIONS AND  
CONNECTIVITY TO EXISTING RESOURCES.**

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## Request for Bids

The Lanka Hospitals Corporation PLC  
of  
Sri Lanka

**IFB/Tender Number:** LH/ICB/26/1133/ID/P90 closing on 24<sup>th</sup> June 2026 at 3.30pm, Colombo  
**Pre Bid Meeting** : 02<sup>nd</sup> June 2026 at 1530hour, Colombo as prescribed in section I

The Lanka Hospitals Corporation PLC  
No 578, Elivitigala Mawatha,  
Colombo 05  
Sri Lanka

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## Invitation for Bid (IFB)

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# Invitation for Bid (IFB)

## Name of Project:

Hospital Information System (HIS) for The Lanka Hospitals Corporation PLC

## Brief Description of the Hospital Information System:

Design, Supply, Delivery, Testing, Commissioning and Provision of Training and Maintenance of the HIS system including development of operational acceptance testing and system integration with third party solutions and connectivity to existing resources.

The Hospital Information System (HIS) to be procured shall include a Laboratory Information System (LIS) as an integrated module. However, interested bidders may also quote for the LIS as a separate module.

## IFB/Tender Number:

LH/ICB/26/1133/ID/P90 closing on 24<sup>th</sup> June 2026 at 3.30pm, Colombo

The Chairman Procurement Committee (hereinafter referred to as CPC) invites bids from the qualified bidders for Design, Supply, Delivery, Installation, Implementation, Testing, Commissioning and Provision of Training and Maintenance of the HIS & LIS system including development of operational acceptance testing and system integration with third party solutions and connectivity to existing resources for The Lanka Hospitals Corporation PLC. (hereinafter referred to as LHC or Lanka Hospital)

LHC wishes to utilize its own funds towards the cost of HIS project including LIS, and it intends to apply the proceeds of this fund to payments under the agreement resulting from this IFB: for the Design, Supply, Delivery, Installation, Implementation, Testing, Commissioning and Provision of Training and Maintenance of the HIS & LIS including development of operational acceptance testing and system integration with third party solutions and connectivity to existing resources for LHC.

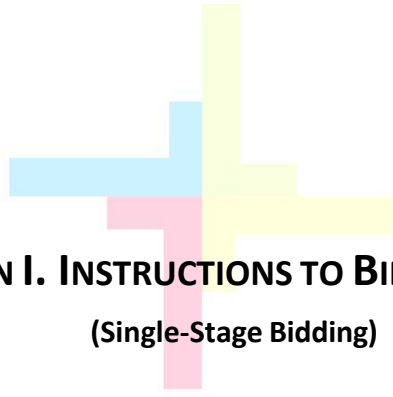
1. Bidding will be conducted using International Competitive Bidding (ICB) procedure specified in the LHC procurement manual for goods, work & services.
2. Bidding Documents are available at the procurement department of LHC, 2<sup>nd</sup> floor of the service building, No 578, Elvitigala Mawatha, Narahenpita, Colombo 05, Sri Lanka and soft copy has already been uploaded to the The Lanka Hospitals PLC official website. During working days from 26/05/2026 to 23/06/2026 between 09.30 hour and 15.00 hour on payment of a non - refundable tender fee of LKR 50,000/- (Equivalent to US\$ 150/-) to the cashier at 2<sup>nd</sup> floor of the same building by submitting a letter of request made on a company letter head. The interested foreign bidder also allows to down load the Bidding Document through the Sri Lankan embassies published in the Ministry of foreign affairs in Sri Lanka. The respective Nonrefundable fee of US\$ 150/- (Equivalent to LKR 50,000/-) should be swift to the bank details given below and the copy of money transfer slip/TT advice should be submitted with the Bid Document

<b>Account Holders Name</b>	<b>The Lanka Hospitals Corporation PLC</b>
<b>US\$ Account Number</b>	<b>002910148658</b>
<b>Bank Name</b>	<b>Hatton National Bank</b>
<b>Bank Address</b>	<b>City Office, Colombo 01</b>
<b>Bank Code</b>	<b>7083</b>
<b>Branch</b>	<b>City Office</b>
<b>Branch Code</b>	<b>002</b>
<b>Swift Code</b>	<b>HBLILKLX</b>

3. Interested potential bidders may obtain further information/clarification via E Mail [histender@lankahospitals.com](mailto:histender@lankahospitals.com)
4. Bids must be delivered to the address given below on or before **15.30 hour of 24/06/ 2026**. **Physical submission of the Bid (both technical and financial bids) is mandatory.**
  - i. The physical Bid shall be delivered to the Procurement Department, second floor, service building, No 578, Elvitiagala Mawatha Narahenpita, Colombo 5, Sri Lanka on or before 15.30 hour of 24/06/ 2026 via post or courier or by hand and a tender box located in the lobby area of the same address to drop those physical bids.
  - ii. In addition, Bidders are requested to submit a digital copy/soft copy of the technical bid via email to ([histender@lankahospitals.com](mailto:histender@lankahospitals.com)) and a full set of technical should be uploaded to a secure cloud platform like OneDrive and the relevant access link to be shared via the same email mentioned above.
  - iii. Where submitted, the deadline for emailing the technical bid (digital/soft copy) to the email address given above (including sending the cloud platform uploading link) shall be considered as the Bid submission date and time for the purposes herein.
  - iv. A copy of the Bid guarantee should be attached to the digital/softcopy AND original Bid Guarantee is mandatory to be attached to the physical copy of technical bid.
  - v. Grace Period: **A grace period of 48 hours will be given from the date of closing of bidding (15.30 hour of 24/06/ 2026) to submit the physical technical and financial bid** in order to ensure successful completeness of submission and facilitate orderly receipt of bid documents. **Late bids will be rejected after the grace period.**
  - vi. In the event that the digital/soft copy of the Technical Bid is not received by the closing date and time, Lanka Hospitals shall proceed based on the physical Bid received.
  - vii. Technical Bids will be open immediately after the grace period, **26/06/ 2026 at 15.30 hours** at the office of the Procurement Department of Lanka Hospitals, Second floor service building, No 598, Elvitigala Mawatha, Narahenpita. Bids will be opened in the presence of the bidder's representatives.
5. **Kindly note that the Bidder should be the owner/principal of the system, which will intend to offer and will not entertain any agent of the principal to quote on behalf of.**
6. All bids must be accompanied by a bid security of **LKR 3,000,000/=** (or Equivalent to USD 10,000/=)
7. Receipt of Bid guarantee will be allowed till 24<sup>th</sup> June 2026 at 15.30 hours (48 hour grace period is applicable). Please note that under no circumstances, this date/deadline be constructed as an extension to the submission of Bids.
  - 7.1. The fact that they will be required to certify in their bids that all software provided hereunder is covered by a valid license or licenses and
  - 7.2. That violations are considered fraud, which is, among other remedies, punishable by potential blacklisting from participation in future LHC – procurement.

Chairman Procurement Committee  
The Lanka Hospitals Corporation PLC,  
No 578, Elvitigala Mawatha, Narahenpita,  
Colombo 5, Sri Lanka.

Date: 26.05.2026



**SECTION I. INSTRUCTIONS TO BIDDERS (ITB)**  
**(Single-Stage Bidding)**

**Two Envelopes System – Separate Proposals for Technical & Financial**

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# Instructions to Bidders

## A. GENERAL

### 1. Scope of Bid

**Name of Purchaser:** The Lanka Hospitals Corporation PLC (LHC) of Sri Lanka

**Description of the System for which bids are invited:**

Design, Supply, Delivery, Installation, Implementation, Testing, Commissioning and Provision of Training, and Maintenance of the HIS system with LIS module including development of operational acceptance testing and system integration with third party solutions and connectivity to existing resources. Interested bidders are allowed to submit separate HIS & LIS modules as well.

Name of Invitation for Bids (IFB) : **Hospital Information System (HIS) System**

Number of IFB : **LH/ICB/26/1133/ID/P90**

### 2. Fraud and Corruption

2.1. LHC expects all bidders, suppliers, contractors, and consultants to observe the highest standard of ethics during the procurement and execution of contracts. In pursuit of this policy, LHC:

2.1.1. "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

2.1.2. "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

2.1.3. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

2.1.4. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

2.1.5. "obstructive practice" is

(aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(bb) acts intended to materially impede the exercise of the Hospital's inspection and audit rights

2.1.6. will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt, coercive or fraudulent practices in competing for the contract;

2.2. Furthermore, bidders shall be aware of the provision stated in the Conditions of Contract given in Section III

2.3. Any communications between the bidder and LHC related to matters of alleged fraud or corruption or coercive must be made in writing.

2.4. By signing the bid form, the bidder represents that it either is the owner of the Intellectual Property Rights in the hardware, software or other materials offered or that it has proper and valid authorization and/or license to offer them from the owner of such rights. The willful misrepresentation of these facts shall be considered a fraudulent act falling with the provisions of clauses 2.1.2 to 2.1.4 above, without prejudice of other remedies available to LHC.

### 3. Eligible Bidders

3.1. Bidder shall meet the eligibility criteria as per the Section II – eligibility criteria

3.2. This bidding process is open only to eligible bidders. Eligible Bidder is the entity/firm that complied with the eligibility criteria in Section II.

3.3. Bidders shall provide such evidence of their continued eligibility satisfactory to LHC, as LHC shall reasonably request.

#### **4. Eligible Goods and Services**

4.1. For the purposes of these bidding documents, the HIS System means all:

- 4.1.1. Hardware, software, supplies and consumable items that the Bidder is required to design, supply, deliver and install under contract plus all associated documentation and materials (Collectively called the "Goods" in some clauses of the ITB).
- 4.1.2. the related software development, transportation, insurance, installation, customization, integration, implementation, commissioning, testing and training, technical support, maintenance, repair, and other services necessary for proper operation of the HIS including LIS module to be provided by the selected Bidder and as specified in the Contract.
- 4.1.3. Bidder should determine and enclose any hardware required to run the proposed software, in its bid. (Requirement specification is attached in Technical Requirements Section IV)

4.2. Funds from The Lanka Hospitals Corporation PLC are disbursed only for expenditures for an HIS made up of goods and services provided by the successful Bidder (no third parties).

#### **5. Qualifications of the Bidder**

5.1. In the submission of documentary evidence in its bid, the Bidder must establish to LHC's satisfaction:

- 5.1.1. That, it has the financial, technical, and production capability necessary to perform the Contract and has a successful performance history as stated in herein and Evaluation Criteria;
- 5.1.2. That, in the case of a bidder offering to supply key goods and components related to HIS under the contract that the bidder did not itself manufacture or otherwise produce, the bidder shall have to be duly authorized by the manufacturer or producer to supply those components in the purchaser's country. (This will be accomplished by submission of manufacturer's authorization forms, as indicated in the section entitled sample forms); However, Bidder shall confirm that the HIS does not have any barrier (legal or otherwise) to be supplied in the country of LHC;

5.2. If a Bidder intends to subcontract major items of supply or services, it shall include in the bid details of the name and nationality of the proposed Subcontractor, including vendors, for each of those items and shall be responsible for ensuring that any Subcontractor proposed complies with the requirements of ITB Clause 3, and that any Goods or Services components of the HIS to be provided by the Subcontractor comply with the requirements of ITB Clause 4.

5.3. For the purposes of these Bidding Documents, a Subcontractor is any vendor or service provider with whom the Bidder contracts for the supply or execution of any part of the HIS to be provided by the Bidder under the Contract (such as the supply of major hardware, software, or other components of the required Information Technologies specified, or the performance of related Services, e.g., software development, transportation, installation, customization, integration, commissioning, training, technical support, maintenance, repair, etc.).

## **6. Cost of Bidding**

6.1. The Bidder shall bear all costs associated with the preparation and submission of bids, and LHC will in no case be responsible or liable for those costs, regardless of the conduct or the outcome of the bidding process.

## **7. Resolution for Bidding**

The document must be duly completed, signed by the required signatories, and submitted with the bidding document in accordance with the specimen attached in Section V

## B. THE BIDDING DOCUMENTS

### 8. Content of Bidding Documents

#### 8.1. Addenda issued in accordance with ITB Clauses 10:

Section I	Instructions to Bidders (ITB)
Section II	Eligibility and Evaluation Criteria
Section III	Conditions of Contract (General & Special)
Section IV	Technical Requirements
Section V	Sample Forms

8.2. Bidders are expected to examine all instructions, forms, terms, specifications, and other information in the Bidding Documents. Failure to furnish all information required by the Bidding Documents or to submit a bid not substantially responsive to the Bidding Documents in every respect will be at the Bidder's risk and may result in the rejection of its bid.

8.3. The Invitation for Bids is not formally part of the Bidding Documents and is included for reference only. In case of inconsistencies, the actual Bidding Documents shall prevail.

### 9. Clarification of Bidding Documents and Pre-bid Meeting

9.1. A prospective Bidder requiring any clarification of the Bidding Documents may notify the Purchaser in writing at the Purchaser's address/e-mail ID mentioned therein and by one of the means indicated, **7 days prior to the deadline for submission of digital/softcopy of Bids**. Similarly, if a Bidder feels that any important provision in the documents will be unacceptable; such an issue should be raised as soon as possible. LHC will respond in writing to any request for clarification or modification of the Bidding Documents prior to the deadline for submission of bids prescribed by LHC. Copies of LHC's response (including an explanation of the query but not identifying its source) will be sent to all prospective bidders that have received.

9.2. LHC will organize and Bidders are welcome to attend a pre-bid meeting at the time and place indicated below. The purpose of the meeting will be to clarify issues and answer questions on any matter that may be raised at this stage, with particular attention to issues related to the Technical Requirements. Bidders are requested to submit any further questions in writing to reach LHC not later than three working days after the meeting. Any modification to the Bidding Documents listed in ITB Clause 8.1, which may become necessary as a result of the pre-bid meeting, shall be made by LHC exclusively by issuing an Addendum pursuant to ITB Clause 10

Date : 2<sup>nd</sup> June 2026 Time: 15.00 hours Venue: Board Room, Lanka Hospitals, 9<sup>th</sup> Floor, No 578, Elvitigala Mawatha, Narahenpita, Colombo 05, Sri Lanka.

Any foreign Bidder could join via Zoom link Join Zoom Meeting

<https://us02web.zoom.us/j/83453770699?pwd=yxkayvoaYdMXqxbWEeHbaHQQJqFkly.1>

Meeting ID: 834 5377 0699

Passcode: 651936

(Please Contact Mr. Chamath via +94773726441 for any technical issue in joining with zoom)

### 10. Amendment of Bidding Documents

10.1. At any time prior to the deadline for submission of Bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, may amend the Bidding Documents. Later amendments on the same subject will modify or replace earlier ones.

10.2. Amendments will be provided in the form of Addenda to the Bidding Documents which will be sent in writing to all prospective Bidders that have received the Bidding Documents from the Purchaser. The Addenda will be binding on Bidders. Bidders are required to immediately acknowledge receipt of any such Addenda. It will be assumed that the amendments contained in the Addenda will have been taken in to account by the Bidder in its bid.

10.3. In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids, in which case, the Purchaser will notify all Bidders in writing of the extended deadline

## C. PREPARATION OF BIDS

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### 11. Language of Bid

- 11.1. The Bid prepared by the bidder and all correspondence and documents related to the bidding exchanged by the Bidder and the Purchaser shall be written in English.

### 12. Documents Comprising the Bid

- 12.1. The Bid submitted by the Bidder shall comprise:

- 12.1.1. a Bid Form duly completed and signed by a person or persons duly authorized to bind the Bidder to the Contract;
- 12.1.2. all price schedules duly completed in accordance with ITB clause 13, 14, and 17 and signed by a person or persons duly authorized to bind the bidder to the contract (Price schedule as per the annexure I)
- 12.1.3. (Bid security furnished in accordance with ITB clause 16)
- 12.1.4. Written confirmation authorizing the signatory of the bid to commit the bidder, in accordance with ITB clause 18.2
- 12.1.5. Attachments:

Attachment 1: Bidder's Qualifications

Pursuant to ITB Clause 5, the Bidder must provide details of bidder's qualification;

Any Manufacturer's Authorizations specified as required in ITB Clause 5.1.2;

Attachment 2: Conformity of the System to the Bidding Documents

Documentary evidence establishing to the Purchaser's satisfaction, and in accordance with ITB Clause 15, that the Goods and Services components of the Information System to be supplied, installed, and/or performed by the Bidder conform to the Bidding Documents;

### 13. Bid Prices

- 13.1. The price of Services shall be quoted in total for each service (where appropriate, broken down into unit prices). Prices must include all taxes and duties, levies and fees whatsoever. The prices must include all costs incidental to the performance of the Services, as incurred by the Bidder, such as travel, subsistence, office support, communications, translation, printing of materials etc.
- 13.2. Maintenance and Service prices (all-inclusive costs) in detail shall be quoted for a period of 10 years (in which annual maintenance charge (AMC) for the first two years should be provided free of charge (FOC)) for software and hardware, defined in the condition of contract. Eg software license renewals, labor, etc.
- 13.3. Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to increases on any account. Bids submitted that are subject to price adjustment will be rejected
- 13.4. Price should be quoted according to the attached price schedule and terms & conditions therein .
- 13.5. However, if a bidder quotes for a comprehensive HIS system with an integrated LIS module, a detailed price breakup for both the HIS and LIS must be provided. Please follow the instruction given in the price schedule under section V

### 14. Bid Currency

- 14.1. The Bidder shall express its prices in US Dollars (USD). In the event the bidder is unable to submit the price in USD, price schedule shall be submitted any other reputed currency (Euro/GBP). the LHC will use the exchange rates(selling rate) published by the Central Bank of Sri Lanka for conversion purposes, in conducting the price evaluation.

## 15. Documents Establishing the Conformity of the Information System to the Bidding Documents

- 15.1. The documentary evidence of conformity of the HIS to the Bidding Documents shall be in the form of written descriptions, literature, diagrams, certifications, and client references, including:
- 15.1.1. the Bidder's technical bid, i.e. a detailed description of the Bidder's proposed technical solution conforming in all material aspects with the Technical Requirements (Section IV) and other parts of these Bidding Documents.
  - 15.1.2. a Preliminary Project Plan describing, among other things, the methods by which the Bidder will carry out its overall management and coordination responsibilities if awarded the Contract, and the human and other resources the Bidder proposes to use. The Plan should include a detailed Contract Implementation Schedule in bar chart form, showing the estimated duration, sequence, and interrelationship of all key activities needed to complete the Contract.
  - 15.1.3. a written confirmation that the Bidder accepts responsibility for the successful integration and inter-operability of all components of the System as required by the Bidding Documents.
  - 15.1.4. Bidder shall note that references to brand names or model numbers or national or proprietary standards designated in its Technical Requirements are intended to be descriptive and not restrictive.

## 16. Bid Security – This will be a Mandatory requirement at the evaluation and the required value and the validity has to be complied 100%

- 16.1. The Bidder shall furnish, as part of its bid, a bid security in the amount of SLR 3,000,000/= or USD 10,000/- with the physical / hard copy of the technical bid.
- 16.2. The bid security shall be denominated in Sri Lankan Rupees or USD.
- 16.2.1. Be in the form of an unconditional bank guarantee from
    - A bank operating in Sri Lanka approved by a Central Bank of Sri Lanka;
    - A bank based in another country, backed by a bank operating in Sri Lanka and approved by the Central Bank of Sri Lanka;
    - Bank Draft issued by any approved commercial bank
    - Bid Security issued by an Insurance company
    - Cash deposit to the LHC finance department (Original receipt should be submitted along with technical proposal)
  - 16.2.2. Be submitted in its original form; copies will not be accepted with the hard copy of the technical bid;
  - 16.2.3. The Bid Guarantee should be valid till 31<sup>st</sup> January 2027, or at **least 30 days** beyond any extended period of bid validity subsequently requested pursuant to ITB Clause 17.2.
- 16.3. The bid security of a Joint Venture shall be issued in the name of the Joint Venture submitting the bid and shall list all partners of the Joint Venture.
- 16.4. Any bid not accompanied by a substantially acceptable bid security in accordance with ITB Clauses 16.2 and 16.3, shall be rejected by LHC as non-responsive.
- 16.5. The bid securities of unsuccessful bidders will be returned as promptly as possible
- 16.6. The bid security of the successful Bidder will be returned when the bidder has signed an agreement and furnished the required performance security
- 16.7. The bid security may be forfeited:
- 16.7.1. if a bidder:
    - i. withdraws its bid during the period of bid validity specified by the bidder on the Bid Form; or

- ii. fails to accept LHC's 's corrections of arithmetic errors in the bidder's bid (if any).
- iii. in the case of the successful bidder, if the bidder fails to:
  - a. sign the contract in accordance with ITB clause 31; or
  - b. furnish performance security in accordance with ITB Clause 32.

16.8. Bid security should be submitted along with the technical proposal or submit separately on or before 24<sup>th</sup> June 2026 at 15.30 hour, Colombo. In the event the bid security attached to the financial bid, LHC will not be take any responsibility and consider the bidder has not submitted the bid security. If the bid security will be submitted by a Commercial Bank in Sri Lanka under advice of the foreign bidders bank according to the provisions available in Bid Security clause mentioned above, a copy of Bid Guarantee issued by the Sri Lankan Bank, or copy of advice issued to the Sri Lankan Bank by the bidders bank should be submitted with the Bid. But, the original Bid Guarantee should be submitted to the LH on or before 24<sup>th</sup> June 2026 at 15.30Hour. (But, 48Hour grace period is applicable for the above deadline)

## 17. Period of Validity of Bids

- 17.1. Bids shall remain valid till 31<sup>st</sup> December 2026. A bid valid for a shorter period shall be rejected by LHC as non-responsive.
- 17.2. In exceptional circumstances, prior to expiry of the bid validity period, LHC may request that the Bidders extend the period of validity for a specified additional period. The request and the responses to the request shall be made in writing. Simultaneously, the Bid Guarantee should be extended for 01 month from the date of revised bid validity.

## 18. Format and Signing of Bid

- 18.1. The Bidder shall prepare an original and a copy clearly marking each one as "ORIGINAL BID," "COPY", as appropriate. In the event of any discrepancy between them, the original shall govern.
- 18.2. The original and the copy of the bid, each consisting of the documents listed in ITB Clause 12.1, shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder. The authorization must be in writing and included in the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid, except for unamended printed literature, shall be initialed by the person or persons signing the bid.

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## D. SUBMISSION OF BIDS

### 19. Sealing and Marking of Bids (Single- Stage: Two- Envelope Bidding Procedure)

The Bidder shall prepare and submit its Proposals in the following form;

19.1. Bidders shall submit two sealed envelopes simultaneously, one containing the technical proposal and the other the price proposal, duly marking the envelopes as "Technical Proposal" and "Financial Proposal" and enclosed together in an outer single envelope.

There should be two sets of such envelopes, duly marking the envelopes as "ORIGINAL" and "COPY". The envelopes shall then be sealed in an outer envelope.

In addition, one (01) electronic copy (in PDF) of the Technical Proposal (**Excluding Financials**) including all related document and copy of Bid Guarantee shall be sent to the mail address given below on or before the Proposal submission deadline To ensure a smooth and efficient evaluation;

**Email:** [histender@lankahospitals.com](mailto:histender@lankahospitals.com)

- **File Sharing:** Upload bid documents with all related documents to a secure cloud storage platform such as OneDrive

#### Important Note:

- The bidder should indicate clearly in the Email subject Line name of the company/Bidder and the HIS Bid reference number.
- For OneDrive uploads, share the folder containing your technical proposal along with other documents as stated above with [histender@lankahospitals.com](mailto:histender@lankahospitals.com) and grant them "edit" permissions.
- For Technical Support Contact: Chamath: +94 773726441, Supeshala: +94 74 231 5401

#### Deadline:

Please note that for all purposes, the deadline for submitting proposal shall be as per clause 20.1 here to. In the event of any discrepancy between the original Proposal and any copy, the original will prevail. Bidders may only submit one proposal. If a bidder submits or participates in more than one proposal, such proposals shall be disqualified.

The Technical Proposal shall not include any financial information. A Technical Proposal containing financial information may be declared nonresponsive.

19.2. The envelopes shall

19.2.1. be addressed to the Purchaser at the address given below and the Tender Number should be clearly mentioned on the top left-hand corner.

The Manager Procurement  
The Lanka Hospitals Corporation PLC  
No 578, Elvitigala Mawatha,  
Colombo 05,  
Sri Lanka.

### 20. Deadline for Submission

20.1. The physical Bids must be received by LHC at the address specified in the ITB Clause 19.2 and date stated below. Submission of the Soft copy of Technical Bid via E Mail is sufficient to confirm the bid submission on or before the time of closing of bidding.

Date: 24/06/2026 Time: 1530 Hours, Colombo (48Hour of Grace period from the date of closing is applicable)

LHC may at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with ITB Clause 10, in which case all rights and obligations of LHC and Bidders previously subject to the deadline shall therefore be subject to the deadline as extended.

**21. Late Bids**

Any bid received by LHC after the bid submission after the grace period prescribed in the ITB Clause 20, will be rejected.

In the event of uploading digital/soft copy of bid documents, the bid receipt date and time is considered as the document's submission date to the Lanka Hospitals & time and not the posting date and time.

**22. Withdrawal of Bids**

No bid may be withdrawn in the interval between the bid submission deadline and the expiration of the bid validity period specified in ITB Clause 17. Withdrawal of a bid during this interval may result in the forfeiture of the bidder's bid security, pursuant to ITB Clause 16.7.

## E. BID OPENING AND EVALUATION

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### 23. Opening of Bids by Purchaser

- 23.1. Purchaser will open all Bids, in public, in the presence of Bidders' representatives who choose to attend, at the time, on the date and place indicated below. Bidder's representatives shall sign a register as proof of their attendance.

Initially, only the technical proposals are opened at the date and time indicated below. The Financial proposals remain sealed and are held in custody by the purchaser.

**Venue** : Procurement Department

**Tender Closing Date** : 24/06/2026

**Tender Closing Time** : 1530 hours, at Colombo

**Technical Bid opening Date / time:** 26<sup>th</sup> June 2026 / 1530hour at Colombo

- 23.2. Financial Proposals which are qualified in the technical evaluation shall be opened publicly in the presence of the bidders' representatives who choose to attend. The name of the bidder, and the technical scores of the bidders shall be read aloud on request. The Financial Proposal of the bidders who met the minimum qualifying mark will then be inspected to confirm that they have remained sealed and unopened. These Financial Proposals shall be then opened, and the total prices read aloud and recorded. Each shortlisted bidder shall be informed of the date and time of the financial bid opening via email.

### 24. Clarification of Bids

- 24.1. During the bid evaluation, LHC may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing, and no change in the price or substance of the bid shall be sought, offered, or permitted.

### 25. Preliminary Examination of Bids

- 25.1. LHC will examine the Bids to determine whether they are complete, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.
- 25.2. Prior to the detailed evaluation, LHC will determine whether each bid is of acceptable quality, is complete, and is substantially responsive to the Bidding Documents. If a bid is not substantially responsive, it will be rejected by LHC and may not subsequently be made responsive by the Bidder by correction of the nonconformity. LHC's determination of bid responsiveness will be based on the contents of the bid itself.

### 26. Evaluation and Comparison of Bids

- 26.1. The Bid Evaluation Committee (BEC) will evaluate and compare the bids that have been determined to be substantially responsive. Other than the prices offered for the bids, each criteria will be assessed as mentioned in section II prior to opening financial bid. All bidders are instructed to submit all related documents to evaluate each eligibility criteria and evaluation criteria therein. No document will be recalled after the deadline for the closing of bidding. Any missing submission of documents will be impact on the evaluation results.

### 27. Contacting the Purchaser

- 27.1. From the time of bid opening to the time of Contract award, if any Bidder wishes to contact LHC on any matter related to the bid, it should do so in writing.
- 27.2. If a Bidder tries to directly influence LHC or otherwise interfere in the bid evaluation process and the Contract award decision, its bid may be rejected.

## F. POST-QUALIFICATION AND AWARD OF CONTRACT

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### 28. Purchaser's Right to Vary Quantities at Time of Award

N/A

### 29. Purchaser's Right to Accept/ Reject Any/All Bids

29.1. LHC reserves the right to accept or reject any bid or to annul the bidding process and reject all bids at any time prior to Contract award, without thereby incurring any liability to the Bidders.

### 30. Notification of Award

- 30.1. LHC will notify the successful Bidder in writing by registered letter, or by electronic means to be subsequently confirmed in writing by registered letter, that its bid has been accepted.
- 30.2. Upon the successful Bidder's furnishing of the signed Form of Contract Agreement and the performance security pursuant to ITB Clause 32, LHC will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to ITB Clause 16.

### 31. Signing of Contract

- 31.1. At the same time as LHC notifies the successful Bidder that its bid has been accepted, LHC will send the Bidder the Form of Contract Agreement provided in the Bidding Documents section III, incorporating all agreements between the parties.
- 31.2. A Non-Disclosure Agreement (NDA) shall be executed (this is mandatory). If required, a Personal Data Processing Agreement will also be entered into, or appropriate data protection clauses will be incorporated into the Contract Agreement.
- 31.3. As soon as practically possible, but no more than thirty (30) days following receipt of the Form of Contract Agreement, the successful Bidder shall sign and date the Form of Contract Agreement and return it to LHC.

### 32. Performance Security

- 32.1. Within **30 days**, following receipt of notification of award from LHC, the successful Bidder shall furnish the performance security for the value of the total contract (inclusive of taxes) in accordance with the Conditions, using the Performance Security Bank Guarantee form provided in the Bidding Documents or another form acceptable to the Purchaser which align with the requirement of the format given.
- 32.2. Failure of the successful Bidder to comply with the requirements of ITB Clause 31 or ITB Clause 32.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event LHC may make the award to the next evaluated bid submitted by a qualified Bidder or call for new bids.



**SECTION II. ELIGIBILITY AND EVALUATION CRITERIA**

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## Eligibility Criteria

(All documentary evidence should be annexed for each and every criteria mention below)  
**All following ten criteria must be complied, if not bid will be rejected.**

S/No	Eligibility Criteria	Compliance Yes/No	Details of Proof
	<p>An Eligible Bidder shall be</p> <ol style="list-style-type: none"> <li>1. a company that is a private entity, a state-owned enterprise or institution or firm or any combination of such entities in the form of a joint venture (“JV”) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent.</li> </ol> <p>Note:</p> <p style="padding-left: 40px;">In the event if the Bidder is an entity or party to a JV, such entity or JV may be excluded from the bidding if the Bidder or partner of Bidder in case of a JV is declared ineligible by the Democratic Socialist Republic of Sri Lanka who is included in the database of defaulting contractors/suppliers by the National Procurement Commission (NPC) Sri Lanka;</p> <ol style="list-style-type: none"> <li>2. In the event if a Bid is submitted by a Joint Venture partners               <ol style="list-style-type: none"> <li>i. The total number of members in a JV shall not be more than Two (02); and</li> <li>ii. the bid shall be signed so as to be legally binding on all partners.</li> </ol> </li> <li>3. the product/HIS owner and should possess legal and absolute ownership rights to the HIS (product/software), including all intellectual property rights to the product/software. As such the Bidder should agree to support and maintain the product/software /(HIS) for a minimum of ten (10) years from the Operational Acceptance Test (OAT).</li> </ol>		
2.	The Product must be an existing solution implemented worldwide. The Bidder should be owner of the software (HIS system) The particular product of principal who possesses absolute ownership rights to the product/software, including all intellectual property rights to the product/software.		
3.	Bidder should have preferably at least 10 years’ experience in implementing software solutions in World wide		
4	Bidder which possesses absolute ownership rights to the products/software, including all intellectual property rights to the product/software should have at least 10 years’ experience in HIS solutions implemented around the world.		

4.	The Bidder should have an average turnover per year of not less than equivalent to LKR 200 Million computed over the preceding five financial years based on audited financial statements. <b>(The bidder should produce Audited financial statements for the preceding five financial years)</b>		
5.	The Bidder should not have been placed in the List of Defaulting Contractors of the Government of Sri Lanka		
6.	The Bidder must provide at least three customers recommendation letters from hospitals (over200 beds multispecialty) for satisfactory HIS implementation projects worldwide.		
7.	<b>Experience</b> Experience of at least 10 years for the Principal in the activity of design, supply, implementation and managing similar Hospital Information System Contracts that have been satisfactorily and substantially completed as a prime contractor or joint venture member around the world		
8.	All products (HIS system) proposed by the Bidder should have a product lifetime of at least 10 years ahead from the date of operational acceptance. (Minimum 10 year warranty on the total solution)		
9.	The proposed solution should be an enterprise comprehensive solution which should not be based on any10-yearre		
10.	Offered product should pass the due diligence evaluation by an independent audit firm.		

## Evaluation Criteria

The Quality cost base selection (QCBS) method shall apply and the evaluation committee shall evaluate the Technical Proposals on the basis of following criteria and given marking scheme.

	Criteria	Maximum Marks
1	<b>Single party(Yes/No)</b>	
	Name of Joint Venture	
	Name of each party in the JV	
	<b>Partner 1</b>	
	<b>Partner 2</b>	
2	<b>Financial and administrative strength of bidder; (10 marks)</b>	
2.1	Financial strength (value equivalent to LKR) 5 marks Average Annual Turnover 200-249 million ;1 Marks, Average Annual Turnover 250 - 299 million ;2 marks, Average Annual Turnover 250 above million ;3 marks <b>Ex Rate (Selling) as at 5<sup>th</sup> July 2024 – 303.74</b>	06
	2.2	
2.3	<b>Submission of Principal's Audited Financial statements for last three years</b>	01
3	<b>Compliance with the technical scope</b>	
3.1	Comply with the Module and feature requirement of the Technical scope and other requirement mentioned under section IV and scoring is also brought for final scoring from the section IV proportionately	90
		<b>100</b>

### Short listing and selection methodology

The top three highest-scoring bidders for each system (HIS and LIS) will be selected from the evaluation to provide a comprehensive demonstration **and parties who score highest score in the comprehensive demonstration will be selected for financial evaluation.**

**Comprehensive Demo with all features of your existing modules in HIS solution (Demonstration should be covered Technical Aspect/Functional Requirement/Cost Break Down/Support & Maintenance/Warranty) Demonstration should be held within 30 Minutes and for Q/A for 5minutes**

**(Note: - Final decision will be taken based on the demonstrated product and the version and no any future pending development will not be taken in to consideration)**

### Awarding of contact

Financial proposals will only be opened and evaluated for bidders that are shortlisted following the comprehensive demonstration. The management of Lanka Hospitals reserves the right to call for a Best and Final Offer (BAFO). The contract will be awarded to the lowest evaluated, substantially responsive bidders. A formal agreement will then be carried out in accordance with Section III, Conditions of Contract. A Non-Disclosure Agreement (NDA) shall be executed (this is mandatory). If required, a Personal Data Processing Agreement will also be entered into, or appropriate data protection clauses will be incorporated into the Contract Agreement.



**SECTION III. CONDITIONS OF CONTRACT**

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## A. CONTRACT AGREEMENT

This Contract (hereinafter called the “Contract”) is made and entered into at Colombo in the Democratic Socialist Republic of Sri Lanka on the [day] day of the month of [month], [year], between, **THE LANKA HOSPITALS CORPORATION PLC**, a Company duly incorporated under the laws of Sri Lanka, bearing Registration No: PQ 180 and having its Registered Office at No. 578, Elvitigala Mawatha, Colombo 05, in the said Republic of Sri Lanka (hereinafter referred to as the “Hospital” which term or expression as herein used shall where the context so requires or admits mean and include the said **THE LANKA HOSPITALS CORPORATION PLC.**, its successors and permitted assigns) of the One Part, and [name of Contractor], a Company duly incorporated under the laws of [Country of incorporation], bearing Registration No: [Registration No] and having its Registered Office at [Registered Address] (hereinafter referred to as the “Contractor or Service Provider” which term or expression as herein used shall where the context so requires or admits mean and include the said [name of Service Provider]., its successors and permitted assigns) of the Other Part.

[Note: All notes should be deleted in the final text.]

[Note: If the Contractor consist of more than one entity, the above should be partially amended to accommodate the same. If two Contractor are supplying HIS and LIS separately, two Contracts to be signed based on this format]

Hospital and the Contractor are also hereinafter referred to individually as a “Party” and collectively as the “Parties.”

### WHEREAS

- A. The Hospital has requested the Contractor to provide certain Services as defined in the General Conditions of Contract attached to this Contract (hereinafter called the “Services”);
- B. The Contractor, having represented to the Hospital that they have the required professional skills, expertise and personnel and technical resources, have agreed to provide the Services on the terms and conditions set forth in this Contract at a Contract Price of [Contract price];

**NOW THEREFORE** the parties hereto hereby agree as follows:

1. In this Contract words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract referred to.

### 2. Integral Documents

The following documents forming part of the Contract Documents as defined in General Conditions of Contract shall be deemed to form and be read and construed as part of this Contract Agreement, and the priority of the documents shall be as follows:

- a) the Letter of Acceptance;
- b) the Service Provider’s Bid
- c) the Special Conditions of Contract;
- d) the General Conditions of Contract;
- e) the Technical Requirements/Specifications;
- f) [Add here any other document(s)]
- g) The following Appendices

Appendix A: Description of the Services

Appendix B: Schedule of Payments  
Appendix C: Key Personnel and Subcontractors  
Appendix E: Activity Schedule  
Appendix F: Services and Facilities Provided by the Hospital  
Appendix G: Annual Maintenance Charges  
*[Add here any other document(s)]*

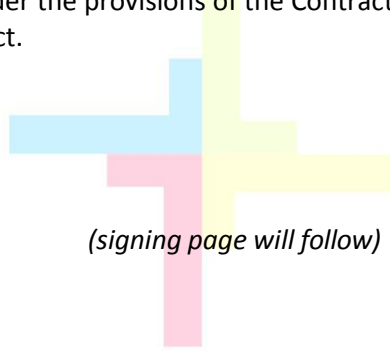
h) *The following Annexures*

*Manufacturer Authorization/s  
Joint Venture Agreement*

i) Project implementation plan (detail Time line of the project) should be submitted with a Gantt Chart

The mutual rights and obligations of the Hospital and the Contractor shall be as set forth in the Contract, in particular:

- (a) The Contractor shall carry out the Services in accordance with the provisions of the Contract; and
- (b) In consideration of the provision of the Services and related goods/products and the remedying of defects therein, the Hospital shall make payments of the Contract Price as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.



*(signing page will follow)*

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IN WITNESS WHEREOF THE PARTIES HERETO HAVE SET THEIR RESPECTIVE HANDS HEREUNTO AND TO ONE OTHER ON THE DAY AND YEAR HEREINBEFORE WRITTEN.

Signed at Colombo on this ..... day of ..... 202... for and on behalf of **THE LANKA HOSPITALS CORPORATION PLC** by its ..... and ..... duly authorized in that behalf

**Witnesses:**

Signature:..... Signature:.....  
Name:..... Name:.....  
Address: :..... Address: .....

Signed on this ..... day of .....202... at Colombo for and on behalf of .....by its two Directors namely ..... who are duly authorized in that behalf by Board Resolution dated..... in the presences of the witnesses.

**Witnesses:**

Signature:..... Signature:.....  
Name:..... Name:.....  
Address: :..... Address: .....

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## General Conditions of Contract

### 1. Definitions

1.1 The following words and expressions shall have the meanings hereby assigned to them:

- a) "Bidding Document" means Invitation for Bids No. **LH/ICB/26/1133/ID/P90**
- b) "Contract" means the Contract Agreement signed by the Parties in relation to the procurement contemplated in the Bidding Document, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
- c) "Contract Documents" means the documents listed in the Contract Agreement, including any amendments thereto.
- d) "Contract Price" means the price payable to the Service Provider as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.
- e) "Day" means calendar day.
- f) "Completion Date" means the date of completion of the Services by the Service Provider as certified by the Hospital or its Consultant/nominee by way of issuing a Certificate of Completion.
- g) "GCC" means the General Conditions of Contract.
- h) "Goods" means all hardware, software, equipment, peripherals, licenses, supplies, consumables, documentation, manuals, and related materials required to be designed, supplied, delivered, installed, configured, integrated, and commissioned by the Bidder under the Contract and Bidding Document.
- i) "Hospital" means the entity that employs the Service Provider.
- j) "Services" means the work and obligations to be performed by the Service Provider pursuant to this Contract, as described in **Appendix A, Technical Requirements/Specifications, Activity Schedule and Bidding Document.**
- k) "Subcontractor" means any natural person, private or government entity, or a combination of the above, to whom any part of the Services is subcontracted by the Service Provider with the prior approval of the Hospital.
- l) "Service Provider" means the private or government entity, institution or firm or a combination of the above, whose bid to provide the Services has been accepted by the Hospital and is named as such in the Contract Agreement and **SSC.**
- m) "Service Provider's Bid" means the completed bidding document submitted by the Service Provider to the Hospital.
- n) "SCC" means the Special Conditions of Contract by which the GCC may be amended or supplemented;
- o) "Specifications" means the specifications of the service included in the Bidding Document submitted by the Service Provider to the Hospital.
- p) "Activity Schedule" is the priced and completed list of items of Services to be performed by the Service Provider forming part of his Bid;
- q) "Member," in case of the Service Provider consist of a joint venture of more than one entity, means any of these entities; "Members" means all these entities, and "Member in Charge" means the entity **specified in the SSC** to act on their behalf in exercising all the Service Provider's rights and obligations towards the Hospital under this Contract;
- r) "Party" means the Hospital or the Service Provider, as the case may be, and "Parties" means both of them;
- s) "Personnel" means persons hired by the Service Provider or by any authorized Subcontractor as employees and assigned to the performance of the Services or any part thereof;

### 2. Contract Documents

Subject to the order of precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The Contract Agreement shall be read as a whole.

### 3. General

3.1 **Interpretation:** If the context so requires it, singular means plural and vice versa.

3.2 **Headings:** The headings in this GCC shall not have any special meaning and shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of the Agreement.

3.3 **Location:** The Services shall be performed at **The Lanka Hospitals Corporation PLC at No 578, Elvitigala Mawatha, Colombo 05.**

- 3.4 Entire Agreement:** The Contract constitutes the entire agreement between the Hospital and the Service Provider and supersedes all communications, negotiations and agreements (whether written or oral) of the parties with respect thereto made prior to the date of the Contract.
- 3.5 Amendment:** No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.
- 3.6 Severability:** If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.
- 3.7 Applicable Law:** The Contract shall be governed by and interpreted in accordance with the laws of the Democratic Socialist Republic of Sri Lanka.
- 3.8 Settlement of Disputes:** The Hospital and the Service Provider shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract. If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, such dispute or difference shall be referred to the jurisdiction of the Courts of Sri Lanka.
- 3.9 Language:** This Contract has been executed in the English language, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.
- 3.10 Notice:** Any notice, request, or consent made pursuant to this Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, or facsimile or email to such Party at the address **specified in the SCC**. Notice shall be effective when delivered or on the notice's effective date, whichever is later.
- 3.11 Eligibility:** All Services and related goods supplied under this Contract shall have complied with applicable standards stipulated by the Sri Lanka Standards Institute. In the absence of such standards, the Services supplied shall comply with the other internationally accepted standards or commonly accepted industry standards.
- 3.12 Relationship:** Nothing in this Contract shall be construed to create a joint venture, partnership, employer/employee relationship, agency or any other relationship other than that of parties contracting at arm's length or to authorize either party to assume or undertake any obligation of any kind, express or implied, on behalf of the other party other than those specified herein.
- 3.13 Assignments:** No Party shall have any right to assign and or transfer any right or liability arising from this Agreement unless there is prior written consent from the other party.
- 3.14 Severability:** In case any provision in this Contract shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby and such provision shall be ineffective only to the extent of such invalidity, illegality or unenforceability.
- 3.15 Waiver:** Failure by either Party to insist in any one or more instances on strict performance of any of the provisions of this Agreement shall not constitute a waiver or relinquishment of the right to enforce the provisions of this Agreement in future instances, but this right shall continue and remain in full force and effect.
- 3.16 Non-Exclusivity:** Nothing contained in this Contract is intended to restrict or limit the right of the Hospital, at any time, including during the term of this Agreement, to enter into any agreement or arrangement with any other person regarding the same or similar services to those contemplated herein.
- 3.17 Warranty of Authority:** The Parties hereto represent and warrant to each other that their authorized signatories are entitled to sign the Contract on their behalf and the rights and obligations of each of the parties hereto shall be legally valid and binding and enforceable on them.
- 4. Joint Venture, Consortium or Association**  
If the Service Provider is a joint venture, consortium, or association, all of the parties shall be jointly and severally liable to the Hospital for the fulfillment of the provisions of the Contract and shall designate one party to act as a leader with authority to bind the joint venture, consortium, or association. The composition or the constitution of the joint venture, consortium, or association shall not be altered without the prior consent of the Hospital.

## 5. Scope

### 5.1 Scope of Contract

5.1.1 The scope of this Contract shall be for the Service Provider to design, supply, deliver, install, implement, test, commission, train and maintain a Hospital Information System including the development of user acceptance testing, system integration with third party solutions, connectivity to existing resources and provision of any other related or connected or ancillary services therein as per the terms and conditions of this Contract and **Contract Documents**.

*[Note: In the event that the Laboratory Information System ("LIS") is included as part of the Hospital Information System ("HIS"), the same shall be deemed included within the scope of this Agreement. However, in the event that the LIS is provided as a standalone system, a separate agreement between the relevant parties]*

5.1.2 The scope shall also include all related services necessary for the proper implementation, operation, and maintenance of the Hospital Information System, including the Laboratory Information System module where applicable, including but not limited to software development, customization, configuration, integration, data migration, transportation, insurance, installation, implementation, commissioning, testing, validation, training, technical support, maintenance, repair, upgrades, updates, and other ancillary or professional services to be provided by the selected Bidder in accordance with the **Contract Documents** and **Technical Requirements/Specifications**.

5.2 The Services and related Goods/products to be supplied shall be as specified in the **Technical Requirements/Specifications**.

## 6. Commencement, Completion, Modification, Delivery and Termination of Contract

6.1 **Effectiveness of Contract:** This Contract shall come into effect on the date the Contract is signed by the Parties or such other later date as may be **stated in the SCC**.

### 6.2 Commencement of Services

6.2.1 **Activity Schedule:** Unless otherwise agreed in writing by the Hospital, before the commencement of the Services, the Service Provider shall submit to the Hospital for approval an Activity Schedule showing the general methods, arrangements, order, all activities and timing for all activities. The Services shall be carried out in accordance with the approved Activity Schedule as updated.

6.2.2 **Commencement Date:** The Service Provider shall commence carrying out the Services within thirty (30) days from the date the Contract becomes effective, or at such other date as may be **specified in the SCC**.

6.3 **Intended Completion Date:** Unless terminated earlier pursuant to **Sub-Clause 6.6**, the Service Provider shall complete the activities by the Intended Completion Date, as is **specified in the SCC**. If the Service Provider does not complete the activities by the Intended Completion Date, it shall be liable to pay liquidated damage as per **GCC Clause 10.10**. In this case, the Completion Date will be the date of completion of all activities and issuance of Certificate of Completion (s).

*For the purpose of this Sub-Clause and GCC;*

*The Certificate of Completion shall mean the written confirmation issued by the Hospital or its Consultant or nominee that the works/Services or an integral part thereof have been substantially completed/performed or for such interim/final tests have been performed by the Service Provider to the satisfaction of the Hospital.*

6.4 **Modification:** Modification of the terms and conditions of this Contract, including any modification of the scope of the Services or of the Contract Price, may only be made by written agreement between the Parties.

### 6.5 Delivery

The completion of the Services and delivery of related goods shall be in accordance with the Delivery and Completion Schedule specified in the **Technical Requirements/Specifications** or **Activity Schedule** or as **specified in the SCC**.

### 6.6 Termination

#### 6.6.1 Termination for Default

a) The Hospital, without prejudice to any other remedy for breach of Contract, by thirty (30) days' written notice of default/termination sent to the Service Provider, may terminate the Contract in whole or in part:

- i. if the Service Provider fails to deliver any or all of the Services within the period specified in the Contract, or within any extension thereof granted by the Hospital pursuant to **GCC Clause 6.8**;
- ii. if the Service Provider does not remedy a failure in the performance of its obligations under the

Contract, within thirty (30) days after being notified or within any further period as the Hospital may have subsequently approved in writing;

- iii. if, as the result of Force Majeure, the Service Provider is unable to perform a material portion of the Services for a period of not less than sixty (60) days; or
- iv. if the Service Provider, in the judgment of the Hospital, has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

*For the purposes of this Sub-Clause:*

- a) *“corrupt practice” is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;*
- b) *“fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;*
- c) *“collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;*
- d) *“coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;*
- e) *“obstructive practice” is*
  - (aa) *deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or*
  - (bb) *acts intended to materially impede the exercise of the Hospital’s inspection and audit rights*

- b) In the event the Hospital terminates the Contract in whole or in part, pursuant to **GCC Clause 6.6.1(a)**, the Hospital may procure, upon such terms and in such manner as it deems appropriate, Services or related goods similar to those undelivered or not performed, and the Service Provider shall be liable to the Hospital for any additional costs for such similar Services or related goods. However, the Service Provider shall continue the performance of the Contract to the extent not terminated.

6.6.2 Termination for Insolvency  
One Party may at any time terminate the Contract by giving notice to the other Party if one Party becomes bankrupt or otherwise insolvent. In such event, the termination will be without compensation to either party, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter.

6.6.3 Termination for Convenience  
The Hospital, by notice sent to the Service Provider, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Hospital’s convenience, the extent to which performance of the Service Provider under the Contract is terminated, and the date upon which such termination becomes effective.

## 6.7 Force Majeure

6.7.1 For the purposes of this Contract, “Force Majeure” means an event which is beyond the reasonable control of a Party and which makes a Party’s performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

6.7.2 The failure of a Party to fulfill any of its obligations under the Contract shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.

## 6.8 Extension of Time

6.8.1 Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

6.8.2 If at any time during performance of the Contract, the Service Provider should encounter conditions impeding timely completion of the Services and delivery of related goods/products, the Service Provider shall promptly notify the Hospital in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Service Provider's notice, the Hospital shall evaluate the situation and may, at its discretion, extend the Service Provider's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.

6.8.3 Except in case of Force Majeure, a delay by the Service Provider in the performance of its Delivery and Completion obligations shall render the Service Provider liable to the imposition of liquidated damages pursuant to **GCC Clause 10.10**, unless an extension of time is agreed upon, pursuant to **GCC Sub-Clause 6.8**.

## **7 Contract Price and Payment Terms**

7.1 The Contract Price shall be as per the **Schedule of Payments (Appendix B)**, including retentions.

7.2 The Contract Price shall be paid against the payment milestones specified in the **Schedule of Payments (Appendix B)**.

7.3 The Service Provider's remuneration/fee shall not exceed the Contract Price, including all Subcontractors' costs, and all other costs incurred by the Service Provider in carrying out the Services described in **Appendix A**.

7.4 The Contract Price shall include all taxes and duties, levies and fees whatsoever, all costs incidental to the performance of the Services, as incurred by the Contractor, such as travel, subsistence, office support, communications, translation, printing of materials or any other cost and expenses related to the provision of Services and Goods herein.

7.5 The Service Provider shall provide a security in the prescribed form in the Bidding Document, in equal amount and currency to the advance payment, which is to be valid until the Hospital Information System is Operationally Accepted.

7.6 The Service Provider's requests for payment shall be made to the Hospital in writing, accompanied by invoices describing, as appropriate, Services performed and payment milestones achieved and by Certificate of Completion for each milestone and upon fulfillment of all other obligations stipulated in the Contract or attached to each payment milestone as specified in **Schedule of Payments (Appendix B)**.

7.4 Payments shall be made within thirty (30) days after submission of an invoice and after the Hospital has accepted it with due confirmation of the achievement of each payment milestone and conditions by issuing a Certificate of Completion for each milestone.

7.5 Payment will be made in Sri Lankan Rupees and the exchange rate (selling rate) published by the Central Bank of Sri Lanka prevailing on the actual date of payment shall be applicable.

7.6 Any sum owed by the Service Provider to the Hospital hereunder for any reason whatsoever may be deducted by the Hospital from payments due to the Service Provider hereunder.

## **7.7 Maintenance and Service Fees**

The Annual Maintenance Charges shall be as specified in clause 10.4 and **Appendix G**.

## **8 Taxes and Duties**

The Service Provider, Subcontractors, and their Personnel shall pay such taxes, duties, fees, and other impositions as may be levied under the Applicable Law, the amount of which is deemed to have been included in the Contract Price.

## **9 Performance Security**

9.1 The Supplier shall, within Thirty (30) days of the notification of contract award, provide performance security of Ten percent (10%) of the Contract Price for the performance of the Contract, by a bank acceptable to the Hospital.

9.2 The proceeds of the Performance Security shall be payable to the Hospital as compensation for any loss resulting from the Service Provider's failure/neglect to complete its obligations under the Contract Agreement.

9.3 The Performance Security shall be in Sri Lanka Rupees and shall be in the format stipulated by the Purchaser in the Bidding Document.

9.4 The security shall automatically become null and void once all the obligations of the Service Provider

under the Contract have been fulfilled, including, but not limited to, any obligations during the Warranty Period and any extensions to the period.

## **10 Obligations of the Service Provider**

The Service Provider shall perform the Services and the scope of this Contract in accordance with the **Technical Requirements/Specifications**, and carry out its obligations with all due diligence, efficiency, and economy, in accordance with generally accepted professional techniques and practices, and shall observe sound management practices, and employ appropriate advanced technology and safe methods. The Service Provider shall always act, in respect of any matter relating to this Contract or to the Services, as faithful adviser/ service provider to the Hospital, and shall at all times support and safeguard the Hospital's legitimate interests in any dealings with Subcontractors or third parties.

### **10.1.1 Conflict of Interests**

#### **10.1.2 Service Provider Not to Benefit from Commissions and Discounts.**

The remuneration/fee of the Service Provider pursuant to **GCC Clause 7** shall constitute the Service Provider's sole remuneration/fee in connection with this Contract or the Services, and the Service Provider shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Service Provider shall use their best efforts to ensure that the Personnel, any authorized Subcontractors, and agents of either of them similarly shall not receive any such additional remuneration/free.

### **10.1.3 Prohibition of Conflicting Activities**

Neither the Service Provider nor its authorized Subcontractors nor the Personnel shall engage, either directly or indirectly, in any of the following activities:

- (a) during the term of this Contract, any business or professional activities which would conflict with the activities assigned to them under this Contract;
- (b) after the termination of this Contract, such other activities as may be **specified in the SCC**.

## **10.2 Confidentiality**

10.2.1 The Service Provider, its authorized Subcontractors, and the Personnel of either of them, either during the term or within ten (10) years after the expiration of this Contract, shall keep confidential and shall not, without prior written consent of the Hospital, divulge or disclose to any third party any documents, data, any proprietary or confidential or other information relating to the Services, this Contract, or the Hospital's business or operations or any information furnished directly or indirectly by the Hospital or connection with the Contract or acquired by the Service Provider as a result of its obligations hereunder, whether such information has been furnished or acquired prior to, during or following completion or termination of the Contract.

10.2.2 The Service Provider shall not use such documents, data, and other information received from the Hospital for any purpose other than the performance of the Contract.

10.2.3 The provisions of **GCC Clause 10.2** shall survive completion or termination, for whatever reason, of the Contract.

## **10.3 Insurance to be furnished by the Service Provider**

The Service Provider (a) shall take out and maintain, and shall cause any authorized Subcontractors to take out and maintain, at its (or the Subcontractors', as the case may be) own cost but on terms and conditions approved by the Hospital, insurance against the risks, and for the coverage, as shall be **specified in the SCC**; and (b) at the Hospital's request, shall provide evidence to the Hospital showing that such insurance has been taken out and maintained and that the current premiums have been paid.

## **10.4 Service Provider's Actions Requiring Hospital's Prior Approval**

The Service Provider shall obtain the Hospital's prior approval in writing before taking any of the following actions:

- (a) entering into a subcontract for the performance of any part of the Services,
- (b) appointing such members of the Personnel not listed by name in **Appendix C** ("Key Personnel and

- Subcontractors”),
- (c) changing the Activity Schedule; and
- (d) any other action that may be **specified in the SCC and GCC.**

## **10.5 Inspections and Tests**

- 10.5.1 The Service Provider shall, at its own expense and at no cost to the Hospital, carry out all such tests and/or inspections of the Services as are specified in the **Technical Requirements/Specifications.**
- 10.5.2 The inspections and tests shall be conducted at the point of delivery, and/or in another place as specified in the **Technical Requirements/Specifications** and in the presence of authorized personnel of the Hospital. The Service Provider shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Hospital or its designated representative to attend the test and/or inspection, as applicable.
- 10.5.3 The Service Provider shall provide the Hospital with reports of the results of any such test and/or inspections.
- 10.5.4 The Hospital may reject any component/system or any part thereof that fails to pass any test (user acceptance or otherwise) and/or inspection or does not conform to the **Technical Requirements/Specifications.**
- 10.5.5 The Service Provider shall either rectify or replace such rejected component/system or parts thereof or make alterations necessary to meet the specifications at no cost to the Hospital, and shall repeat the test and/or inspection, at no cost to the Hospital, not later than fourteen (14) days from the rejection.
- 10.5.6 The Service Provider hereby agrees that neither the execution of a test and/or inspection of the components/system or any part thereof, nor the attendance by the Hospital or its representative, nor the issue of any report, shall release the Service Provider from any warranties or other obligations under the Contract.

## **10.6 Quality Control**

- 10.6.1 All defects/non-functionalities identified by the Hospital shall be reported to the Service Provider, however, such checking or identification shall not affect the Service Provider’s responsibilities. The Hospital may instruct the Service Provider to search for defects/non-functionalities /mal-functionalities and to uncover and test any service that the Hospital considers may have a defect/issue. Defect Liability Period is as **defined in the SCC.**

### **10.6.2 Correction of Defects, and Penalty**

- a) The Service Provider shall rectify all defects, non-functionalities or malfunctions etc. during the Defect Liability Period /Warranty Period without any additional costs to the Hospital. The Defects Liability Period/Warranty Period shall be extended for as long as defects remain to be corrected.
- b) The Service Provider shall correct the defects or mal/non-functionalities within the length of time specified by the Hospital’s notice or specified in the Service Level Agreement (SLA).
- c) If the Service Provider has not corrected a defect within the time specified in the **GCC Clause 10.6.2.(b)**, the Hospital will assess the cost of having the defect corrected, the Service Provider will pay this amount without any dispute within seven (07) days of notification of the same.

## **10.7 Reporting Obligations**

The Service Provider shall submit to the Hospital the reports and documents specified in **Appendix B** in the form, in the numbers, and within the periods set forth in the said Appendix.

## **10.8 Documents Prepared by the Service Provider to Be the Property of the Hospital**

All plans, drawings, specifications, designs, reports, and other documents and software submitted and supplied by the Service Provider in accordance with this clause shall become and remain the property of the Hospital, and the Service Provider shall, not later than upon termination or expiration of this Contract, deliver all such documents to the Hospital, together with a detailed inventory thereof. The Services and related goods/products supplied/performed under this Contract shall conform to the technical specifications, drawings and standards mentioned in **Technical Requirements/Specifications.** In the absence of such standards, the Services supplied shall be complied with the other internationally accepted standards or commonly accepted industry standards. Wherever references are made in the Contract and/or **Technical Requirements/Specifications** to codes and standards in accordance with which it shall be executed,

the edition or the revised version of such codes and standards shall be those specified in the **Technical Requirements/Specifications**. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Hospital.

## **10.9 Training**

The Service Provider shall provide required training to all users (including a train-the-trainer program) **as specified in SCC.**

## **10.10 Liquidated Damages**

10.10.1 The Service Provider shall pay liquidated damages to the Hospital at the rate per day **stated in the SCC.**

10.10.2 Except as provided under **GCC Clauses 6.7 and 6.8**, if the Service Provider fails to deliver and/or perform any or all of the Services by the agreed date(s) of delivery/performance as against payment milestones as specified in **Appendix B**, the Hospital may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage **specified in the SCC** for the delayed or unperformed Services for each day or part thereof of delay until actual delivery or performance up to a maximum deduction of the percentage **specified in the SCC.**

## **10.2 Service Provider's Personnel – Detail profile should be submitted**

### **Description of Personnel – Details Profile should be submitted**

Details of the Local Agent (If applicable) - **Details Profile should be submitted**

The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Service Provider's Key Personnel are described in **Appendix C**. The Key Personnel and authorized Subcontractors listed by title as well as by name in **Appendix C** are hereby approved by the Hospital. Irrespective of the approval of the Subcontractors in **Appendix C** by the Hospital as above, The Service Provider shall be held responsible for all and any matters related to, or concerning to the Subcontractors and their work and obligations.

## **10.2.1 Removal and/or Replacement of Personnel**

- a) Except as the Hospital may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Service Provider, it becomes necessary to replace any of the Key Personnel, the Service Provider shall provide as a replacement a person of equivalent or better qualifications.
- b) If the Hospital finds that any of the Personnel have (i) committed serious misconduct or have been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Service Provider shall, at the Hospital's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Hospital.
- c) The Service Provider shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

## **10.3 Warranties and Representations**

10.3.1 The Service Provider warrants and represents that all the hardware components are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, and comply with the **Technical Requirements/Specifications**.

10.3.2 The Contractor hereby represents and warrants that it is the lawful owner, developer, principal provider of the Hospital Information System supplied under this Contract and possesses all requisite rights, powers and legal authority necessary to supply, license, customize, implement, integrate, maintain, support, and otherwise perform its obligations in relation to the HIS and all related Goods and Services contemplated under this Contract.

10.3.3 In the event any hardware, software, equipment, modules, licenses, documents, components, or other Goods relating to the Hospital Information System that are being supplied under the Contract which are not manufactured, developed, or produced by the Contractor itself, the Contractor hereby further warrants and represents that, the Contractor has been duly authorized by the respective manufacturer, developer, owner, or producer to supply, implement, support, and maintain such Goods in Sri Lanka on behalf of the Hospital. Further, the Contractor hereby warrants and confirms

that the Goods/HIS, including all related software, modules, licenses, and components, may be lawfully supplied, licensed, implemented, operated, maintained, and supported within Sri Lanka and that there exist no legal, regulatory, licensing, intellectual property, export control, sanctions-related, territorial, technical, or other restrictions, limitations, or barriers that would prevent, restrict, delay, suspend, or adversely affect the use, operation, maintenance, support, upgrade, or continued availability of the Hospital information System by the Hospital. The Contractor shall remain fully liable for any breach of the foregoing warranty and shall indemnify and hold harmless the Hospital against any losses, claims, damages, penalties, costs, or liabilities arising therefrom.

10.3.4 The Service Provider further warrants and represents that the hardware components shall be free from defects arising from any act or omission of the Service Provider or arising from design, materials, and workmanship, and be fit for the purposes for which it was obtained by the Hospital.

10.3.5 The Service Provider further represents and warrants that:

(a) It has full title to the Goods/products/software/hardware, and is fully qualified to sell the Goods/products/software/hardware to the Hospital, and is a company financially sound and duly licensed, with adequate human resources, equipment, competence, expertise and skills necessary to carry out fully and satisfactorily, within the stipulated completion period, the delivery of the goods/products/software/hardware and performance of the Services in accordance with this Contract;

(b) It shall comply with all applicable laws, ordinances, rules and regulations when performing its obligations under this Contract;

(c) In all circumstances, it shall act in the best interests of the Hospital;

(d) No official, employee or agent of the Service Provider has received from, will be offered by, or will receive from the Hospital any direct or indirect benefit arising from this Contract or award thereof;

(e) It has not misrepresented or concealed any material facts in the procuring of this Contract;

(f) It shall abide by the highest ethical standards in the performance of this Contract;

(g) The Contract Price under this Contract do not exceed those offered for similar Goods/Services to Service Provider's other customers;

(h) The Contract Price specified in **GCC Clause 7** shall constitute the sole remuneration/fee of the Service Provider in connection with this Contract. The Service Provider shall not accept for its own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Contract or the discharge of its obligations hereunder. The Service Provider shall ensure that any Subcontractors, as well as the officers, employees, and agents of either of them, similarly, shall not receive any additional remuneration/fee.

10.3.6 The above warranties survive the expiration or termination of this Agreement

10.3.7 The product warranty (ies) shall be as **specified in SCC**.

## **10.4 Maintenance**

10.4.1 The Service Provider shall support and maintain the Goods/product/software/hardware/ Hospital Information System for a minimum of ten (10) years from the Operational Acceptance Test (OAT).

10.4.2 A separate Service Level Agreement will be entered into by and between the Hospital and the Service Provider within thirty (30) days from the Operational Acceptance Test (OAT) for the purpose of maintenance of the Goods/product/software/ hardware/ Hospital Information System.

10.4.3 The Annual Maintenance Charges shall be as specified in **Appendix G**.

## **10.5 Software License and Business Continuity**

10.5.1 The Contractor shall, at its own cost and expense maintain the complete and up-to-date source code, object code, technical documentation, system architecture documents, database schemas, interfaces, APIs, build instructions, passwords, encryption keys (where legally permissible), deployment materials, user manuals, and all other materials, information, and documentation necessary for the continued operation, maintenance, support, modification, enhancement, and development of the Hospital Information System/software supplied under the Contract. The above arrangement shall remain valid and continuously maintained for so long as the Hospital continues to use, operate, maintain, or rely upon the Hospital Information System or any part thereof, notwithstanding the expiry or termination of the Contract or the lapse of any initial support or warranty period.

10.5.2 In the event of the occurrence of any one or more of the following events, the Contractor shall, upon written request by the Hospital and without delay or additional cost, hand over and deliver to the Hospital the complete and latest version of the source code, object code, technical documentation,

database structures, interfaces, APIs, system architecture documents, deployment materials, administrative credentials, operating manuals, and all other materials, records, information, and documentation necessary for the continued operation, maintenance, support, modification, enhancement, and development of the Hospital Information System by the Hospital or by any third party nominated by the Hospital:

- (a) the Contractor ceases business operations, becomes insolvent, bankrupt, wound up, dissolved, or enters into liquidation, administration, receivership, or any analogous proceeding;
- (b) the Contractor ceases, suspends, materially reduces, refuses, or fails to provide maintenance, support services, updates, upgrades, patches, bug fixes, cybersecurity support, or other critical services required for the continued, secure, and uninterrupted operation of the HIS for a minimum period of 10 years from OAT;
- (c) the Contractor discontinues, retires, withdraws, abandons, or declares end-of-life or end-of-support status for the HIS or any material component thereof without providing an acceptable replacement solution or transition support reasonably satisfactory to the Hospital;
- (d) the Contractor loses the legal right, authorization, license, approval, or ability to provide, support, maintain, license, or sublicense the HIS within Sri Lanka;
- (e) the Contractor commits a material breach of the Contract which remains uncured beyond the applicable notice and cure period and which materially affects the operation or usability of the HIS; or
- (f) any act, omission, dispute, legal restriction, regulatory action, intellectual property claim, third-party claim, technical restriction, or other circumstance arises which, in the reasonable opinion of the Hospital, materially threatens, restricts, delays, suspends, or adversely affects the uninterrupted operation, availability, maintenance, support, enhancement, security, or future usability of the HIS.

10.5.3 Upon such handover, the Hospital shall be entitled to use, reproduce, modify, maintain, support, enhance, and further develop the HIS, either independently or through any third party appointed by the Hospital, solely for the Hospital's internal operational and business purposes, on a perpetual, irrevocable, royalty-free, transferable, and fully paid-up basis.

10.5.4 In the event the Contractor sells, transfers, assigns, merges, restructures, or otherwise disposes of all or any substantial part of its business, assets, operations, ownership, rights, or interests relating to the HIS, the Contractor shall ensure that the successor, purchaser, assignee, transferee, or acquiring entity fully assumes and continues to perform all obligations, responsibilities, warranties, maintenance services, support services, upgrades, updates, and other commitments contemplated under this Contract on terms no less favourable to the Hospital than those contained herein. The Contractor shall further ensure that all necessary agreements, novations, assignments, consents, and related documents required to give effect to the foregoing are duly executed prior to such transfer or disposition, and no such transfer or disposition shall relieve the Contractor of its obligations or liabilities under this Contract unless expressly agreed in writing by the Hospital.

10.5.5 The Service Provider shall provide a perpetual license for the Hospital Information System and other systems/software mentioned in **Technical Requirements** to be used without any limitation to the number of uses of the Hospitals.

10.5.6 The Service Provider shall not claim any license fee for upgrade and/or modular replacement for the next ten (10) years from OAT. Any such modules/features shall be available for the Hospital at no cost.

10.5.7 The Service Provider shall ensure that the Hospital Information System/software incorporates the reliance and use of any third party licenses, further, the Service Provider shall disclose the identity of such licenses and end of life, terms and conditions of their use and all other information pertaining to third party licenses.

10.5.8 The Service Provider hereby warrants and represents that, the Service Provider does not or has not infringed the intellectual property rights of any third party in providing Services of the Contract specifically in licensing and provisioning the Hospital Information System. Subject to clause 10.14.1, the Service Provider has all intellectual property rights necessary to produce customizations, updates and/or corrections to the software/ Hospital Information System. The Service Provider further warrants that the use of the Software/Hospital Information System provided under the Contract will not infringe any patent, copyright, or trademark in Sri Lanka or elsewhere, and the service Provider shall indemnify and hold Licensee harmless against any and all losses, damages and expenses, (including attorney's fees and other costs of defending an infringement action) which the Hospital may sustain or incur as a result of a breach of this warranty.

10.5.9 The Service Provider agrees to indemnify and hold the Hospital harmless and defend at its expense, any action brought against, its officers, directors, employees, shareholders, legal representatives, agents, successors and assigns to the extent that it is based on a claim of infringement or alleged infringement of any intellectual property rights of any third parties or for any damage sustained by the Hospital as a result of Hospital's use of the software/ Hospital Information System.

**Obligations of the Hospital**

10.1 The Hospital shall make available to the Service Provider the Services and Facilities listed under **Appendix F**.

10.2 The Hospital shall appoint a Project steering committee that comprises representatives of the senior management, medical officers, and other staff categories of the Hospital to support the planning and implementation

11.2 The Hospital shall be responsible for providing general infrastructure and other facilities to cater for the provision of Services by the Service Providers. This shall not include hardware and network;

**11 Indemnity**

11.1 The Service Provider shall indemnify and hold harmless the Hospital and its directors, employees, consultants and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Hospital may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, patent, or other intellectual property right registered or otherwise (including infringement or alleged infringement of third party intellectual property rights) existing at the date of the Contract by reason of: (a) the supply and installation of the goods/products/software/hardware and all related components therein by the Service Provider and/or (b) the use of same or any part thereof by the Hospital for the purpose indicated by or to be reasonably inferred from the Contract. This indemnity shall include but not be limited to any infringement, loss or damage resulting from the use of the goods/products/software/hardware or any part thereof, or any products produced thereby in association or combination with any other equipment, plant, or materials or third party software/solutions of the Hospital, pursuant to the Contract.

11.2 If any proceedings are brought or any claim is made against the Hospital arising out of the matters referred to in the clause above, the Hospital shall promptly give the Service Provider a notice thereof, and the Service Provider shall at its own expense and in the Hospital's name or as applicable conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim. The Hospital shall, at the Service Provider's request, afford all available assistance to the Service Provider in conducting such proceedings or claim, and shall be reimbursed by the Service Provider for all expenses incurred in so doing.

11.3 Except in cases of criminal negligence or willful misconduct, (a) neither party shall be liable to the other, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Service Provider to pay liquidated damages to the Hospital and (b) the aggregate liability of the Service Provider to the Hospital, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the Service Provider to indemnify the purchaser with respect to intellectual property infringement or as stated in **GCC Clause 12.4**.

11.4 The Service Provider shall fully defend, indemnify and hold the other party and its respective Officers, Directors, Employees, Executors, Administrators and Permitted Assigns, harmless from and against all losses arising from, in connection with or relating to losses, damages including Attorney fees or claims, demand, proceeding of third party claims based upon any:

- i. Breach of any obligations and/or resulting from acts or omissions of the Supplier or its employees, officers, agents or subcontractors, in the performance of the Contract.
- ii. Non-compliance with laws, registration, licenses.

11.5 Unless otherwise specifically stated in this Contract, the Hospital shall have no liability whatsoever towards the Service Provider except for the payments to be made as per the **GCC Clause 7**.

11.6 Nothing in the Contract will limit a person's liability for (i) death or personal injury caused by that person's negligence, (ii) that person's fraud or (iii) anything else that cannot by law be limited.

**12 Intellectual Property Rights**

- 12.1 The Contractor represents and warrants that it owns, or has obtained all necessary rights, licences, and authorisations to use, supply, customise, implement, integrate, maintain, and support all software, components, modules, documentation, and other materials forming part of the Hospital Information System and deliverables under this Contract.
- 12.2 Subject to the terms of this Contract, the Contractor hereby grants the Hospital a perpetual, irrevocable, non-exclusive, transferable (within the Hospital group), royalty-free, fully paid-up licence to use, operate, access, maintain, support, modify, configure, integrate, and otherwise utilise the HIS and all related deliverables solely for its internal operational, clinical, administrative, and business purposes.
- 12.3 All customisations, configurations, developments, interfaces, reports, workflows, and other deliverables specifically created for the Hospital under this Contract shall vest in and remain the property of the Hospital upon creation, and the Contractor hereby assigns all rights, title, and interest therein to the Hospital.
- 12.4 The Contractor warrants that the HIS and all deliverables do not infringe any third-party intellectual property rights and shall indemnify and hold harmless the Hospital against any claims, losses, damages, costs, or expenses arising from any actual or alleged infringement.
- 12.5 The provisions of this Clause shall survive expiry or termination of the Contract.

**Special Conditions of Contract**

<b>Number of GC Clause</b>	<b>Amendments of, and Supplements to, Clauses in the General Conditions of Contract</b>
1.1(h)	The Hospital is The Lanka Hospitals Corporation PLC (PQ 180) having its registered address at No. 578, Elvitigala Mawatha, Colombo 05
1.1(J)	The Subcontractors are.....  Name Registered Address: Registered No: Tel:  Name Registered Address: Registered No: Tel:  <i>(or to be amended if Subcontractors are sole proprietorships or partnerships)</i>
1.1(k)	The Service Provider is.....(PV.....), having its registered address at.....  <i>(or to be amended by including Joint Venture parties)</i>
1.1(p)	The Member In Charge is.....
3.10	For the Hospital: Group Chief Information Officer The Lanka Hospitals Corporation PLC No 578, Elvitigala Mawatha, Colombo 05 Tel: 011- 5439099 E-mail:kanishka@lankahospitals.com Fax: The authorized representative for the Hospital:  For the Service Provider: Address: Tel: E-mail: Fax: The authorized representative for the Service Provider:
4	Details of Joint Venture parties are as follows; ..... <i>(or to be amended)</i>
6.1	Effective date is [date]
6.2.2	The Commencement Date is [date]
6.3	The Intended Completion Date is [date]
6.5	Delivery Schedule shall be as follows; [Insert]
10.1.3(b)	Prohibition of conflicting activities are: .....
10.3	
10.4	The Hospital's prior approval is required for.....

10.6.1	Defect Liability Period is two (02) years from the OAT
10.9	The Service Provider shall provide the required training <b>as per the Technical Requirements/Specifications.</b>
10.10.1	The liquidated damage shall be: 1% of the Contract Price per week
10.10.2	The maximum amount of liquidated damages shall be: 75 % of the Contract Price
10.12.5	Product warranty (ies) shall be as follows; Minimum of two(02) years for Hospitals Information System /Laboratory Information System

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## **SUBJECT MATTER OF CONTRACT**

### **1. Scope of the System**

- 1.1. Refer Technical Requirements for the scope of the System. The Supplier's obligations cover the provision of all Information Technologies, Materials and other Goods as well as the performance of all Services required for the design, development, and implementation (including procurement, quality assurance, assembly, associated site preparation, delivery, pre-commissioning, installation, testing, and commissioning) of the System, in accordance with the plans, procedures, specifications, drawings, codes, and any other documents specified in the Contract and the Agreed and Finalized Project Plan.
- 1.2. The Supplier shall, unless specifically excluded in the Contract, perform all such work and / or supply all such items and Materials not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining Operational Acceptance of the System as if such work and / or items and Materials were expressly mentioned in the Contract.

### **2. Time for Commencement and Operational Acceptance**

- 2.1. The Supplier shall commence work on the System within 30 days from the Effective Date, the Supplier shall thereafter proceed with the System in accordance with the time schedule specified in the Implementation Schedule and any refinements made in the Agreed and Finalized Project Plan.
- 2.2. The Supplier shall achieve Operational Acceptance will occur within 30 days from the completion date and full system commissioning and data migration and in accordance with the time schedule specified in the Implementation Schedule as selected and any refinements made in the Agreed and Finalized Project Plan, or within such extended time to which the Supplier shall be entitled under Extension of Time for Achieving Operational Acceptance.

### **3. Supplier's Responsibilities**

- 3.1. The Supplier shall conduct all activities with due care and diligence, in accordance with the Contract and with the skill and care expected of a competent provider of information technologies, information systems, support, maintenance, training, and other related services, or in accordance with best industry practices. In particular, the Supplier shall provide and employ only technical personnel who are skilled and experienced in their respective callings and supervisory staff who are competent to adequately supervise the work at hand.
- 3.2. The Supplier confirms that it has entered into this Contract on the basis of a proper examination of the data relating to the System provided by LHC and on the basis of information that the Supplier could have obtained from a visual inspection of the site and of other data readily available to the Supplier relating to the System. The Supplier acknowledges that any failure to acquaint itself with all such data and information shall not relieve its responsibility for properly estimating the difficulty or cost of successfully performing the Contract.
- 3.3. The Supplier shall be responsible for timely provision of all resources, information, and decision making under its control that are necessary to reach a mutually Agreed and Finalized Project Plan within the time schedule specified in the Implementation Schedule in the Project Plan. Failure to provide such resources, information, and decision-making may constitute grounds for termination of contract and claim.
- 3.4. The Supplier shall acquire in its name all permits, approvals, and/or licenses from all local, state, or national government authorities or public service undertaking in Sri Lanka that are necessary for the performance of the Contract.
- 3.5. The Supplier shall acquire in its name all permits, approvals, and/or licenses from all local, state, or national government authorities or public service undertaking in Sri Lanka that are necessary for the performance of the Contract

- 3.6. The Supplier shall, in all dealings with its labor and the labor of its Subcontractors currently employed on or connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs, and all local laws and regulations pertaining to the employment of labor.
- 3.7. Any Information Technologies or other Goods and Services that will be incorporated in or be required for the System and other supplies shall have their Origin.

#### **4. Purchaser's Responsibilities**

- 4.1. LHC shall ensure the accuracy of all information and/or data to be supplied by LHC to the Supplier, except when otherwise expressly stated in the Contract.
- 4.2. LHC shall be responsible for timely provision of all resources, information, and decision making under its control that are necessary to reach an Agreed and Finalized Project Plan
- 4.3. LHC shall be responsible for acquiring and providing legal and physical possession of the site and access to it, and for providing possession of and access to all other areas reasonably required for the proper execution of the Contract.
- 4.4. In such cases where the responsibilities of specifying and acquiring or upgrading telecommunications and/or electric power services falls to the Supplier, as specified in the Technical Requirements, Agreed and Finalized Project Plan, or other parts of the Contract, LHC shall use its best endeavors to assist the Supplier in obtaining such services in a timely and expeditious manner.
- 4.5. LHC will designate appropriate staff for the training courses to be given by the Supplier and shall make all appropriate logistical arrangements for such training as specified in the Technical Requirements, the Agreed and Finalized Project Plan, or other parts of the Contract.
- 4.6. Purchaser's Responsibilities s responsible for performing and safely storing timely and regular backups of its data and Software in accordance with accepted data management principles, except where such responsibility is clearly assigned to the Supplier elsewhere in the Contract.

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## B. PAYMENT

### 1. Contract Price

- 1.1 The Contract Price shall be as specified in Price schedule
- 1.2 The Bidder shall be deemed to have satisfied itself as to the correctness and sufficiency of the Contract Price, which shall, except as otherwise provided for in the Contract, cover all its obligations under the Contract.

### 2. Terms of Payment

#### Payment Schedule

No	Payment term	Payment % of the Contract Sum	Deliverable	Timeline/ From the date of commencement (T)
a	Advance Payment	Five percent (5%)	Upon Receipt of valid invoice + Advance Payment Bank Guarantee	
b.	Acceptance of Project Plan, System Requirement Specification, generic user manual and a document on the detail architecture of the total system	Five percent (5%)	Upon Receipt of valid invoice + acceptance of documents mentioned under payment term "b" by Lanka Hospital	
c.	On delivery and installation of Initial version of the HIS and PACS (for testing).	Five percent (5%)	Upon Receipt of valid invoice + Acceptance of successful installation of Initial version of the HIS and PACS by the Lanka Hospitals	
d.	On completion and installation of final version of HIS for LH and completion of OAT	Twenty percent (20%)	Upon Receipt of valid invoice + Acceptance of OAT report by the Lanka Hospital	
e.	Completion of all 3 <sup>rd</sup> party system integrations including Lab instruments and radiology modalities, etc.	Ten percent (10%)	Upon Receipt of valid invoice + Acceptance of integration completion report by the Lanka Hospital	
f.	On completion of all data migration from the existing systems to the proposed HIS	Fifteen (15%)	Upon Receipt of valid invoice + Acceptance of Data Migration Completion Report by the Lanka Hospital	

g.	On successful commencement of Live Run of the total system and printing of patient record, patient bill etc.	Ten (10%) Price	Upon Receipt of valid invoice + Acceptance of Live Run of the total system by Lanka Hospital	
h.	On completion of the training programs as per the training plan approved by the Lanka Hospital	Five (5%) of the total contract Price	Upon Receipt of valid invoice + Acceptance of scheduled training completion report	
i.	On completion of OAT (180 days starting from the date of Live Run)	Fifteen (15%) of the total contract Price	Upon Receipt of valid invoice + Acceptance of OAT report by the Lanka Hospital	
j.	Payment of the retention money	Total retained amount (10% of the total contract price)	Upon Receipt of valid invoice + completion and acceptance of OAT	

**Note:- Above payment terms may be negotiated by the LHC management if required at the time of negotiation**

### 3. Securities

#### 3.1 Issuance of Securities

The Bidder shall provide the securities specified below in favor of LHC at the times and in the amount, manner, and form specified below.

#### 3.2 Advance Payment Security

3.3 the Bidder shall provide a security equal in amount and currency to the advance payment, and valid until the System is Operationally Accepted. The security shall be in the form provided in the Bidding Documents.

#### 3.4 Performance Security

3.4.1 The Bidder shall, within thirty (30) days of the notification of Contract award, provide a security of Ten percent (10%) of the Contract Price for the Performance of the Contract.

3.4.2 The security shall be in a bank guarantee, in the form provided in the Sample Forms Section of the Bidding Documents

### 4. Taxes and Duties

4.1 The Bidder shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods or Services to LHC.

## INTELLECTUAL PROPERTY

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1. It is desirable for the bidder to place the source code of the product in Escrow with a custodian bank as security to ensure the uninterrupted continuity of service for a contemplated project duration of a minimum of ten (10) years from the OAT.
2. Any parties who have submitted a joint bid should provide an undertaking with necessary guarantees to assume joint and several liabilities for the terms and conditions of licensing and usage during the minimum 10 years support period.
3. If the solution incorporates the reliance and use of any third party licenses, the identity of such licenses and end of life, terms and conditions of their use and all other information pertaining to third party licenses should be disclosed. Appropriate warranties and safeguards will be included in the agreement to ensure the vendor's commitment to pursue and accomplish the obligations of such third party license holders.
4. All bidders should propose a product/software in available versions/features/modules etc. and should be demonstrated for evaluation. Any bidder who has proposed a product/software with upcoming version/features/modules, etc or which are not available at the time of demonstration shall be disqualified and the evaluation will be based on the demonstrated product/software (modules, features, versions etc.) only.



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**SECTION IV. TECHNICAL REQUIREMENTS**

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## **PURPOSE**

The purpose of this RFP is to obtain proposals from software vendors who can demonstrate that they possess the organizational, functional and technical capabilities to provide a Hospital Information System (HIS) and Laboratory Information System (LIS) solution that meets The Lanka Hospital's needs. The Lanka Hospital is seeking an integrated "off the shelf" product solution that will meet its core requirements out of the box with minimal modifications to improve internal workflow and processes, maximize software efficacy, and reduce or eliminate "workarounds. The ideal vendor(s) shall have experience in successfully implementing the proposed solution at multi-specialty hospitals with multi located clinics , pharmacies and laboratories.

Vendor shall be responsible for the final Lanka Hospital approved design, installation, implementation and commissioning of the HIS system including development of user acceptance testing and system integration with third party solutions and connectivity to existing resources.

This RFP process seeks to provide the best overall HIS solution for The Lanka Hospital. Price and other factors considered in making the determination. Other factors that may contribute to the selection process include but are not limited to:

- Project approach and understanding of the Lanka Hospital's objectives and requirements.
- Ability to meet the Lanka Hospital's requirements (software functionality, usability, performance, flexibility, integration, and latest technology)
- HIS should support flexible with multi payer and multi tariff billing mechanisms.
- A system that is stable and secure.
- Comprehensive library of standard reports and tools for end user ad-hoc reporting and queries.
- Additional Modules and features.
- A complete commercial off-the-shelf solution that has been successfully implemented in at least five (05) successfully implemented HIS/LIS for any multispecialty hospitals of comparable size and that follows best practices offered by the software.
- Easy integration with other systems.
- Cost and support quality for ongoing maintenance and support.

The Lanka Hospital also reserves the right to require that a subset/short list of finalist vendors make a presentation and/or do a product demo to the Lanka Hospital Steering Committee at Lanka Hospital.

## **BACKGROUND**

The Lanka Hospitals is one of the top leading 300 beds multispecialty hospitals in Sri Lanka. The Lanka Hospital also has outside clinics and pharmacies within the country. Average daily occupancy is 100% and 1500 Op patients per day.

## **SCOPE OF WORK**

The Lanka Hospital is seeking an integrated "off-the-shelf" solution that will meet its core requirements out of the box with minimal modifications. The goal of this strategy is to optimize system utilization for all users with reliability, versatility and comprehensive. The HIS should cover all the aspects of clinical, operational and management of the Lanka Hospital and enables the Lanka Hospitals to improve operational effectiveness, reduce cost, reduce medical errors and enhance delivery of quality care.

## KEY FUNCTIONAL AND TECHNICAL REQUIREMENT

This section includes the Requirements to be evaluated in this RFP. This is not a comprehensive list of all of the Lanka Hospital requirements but includes the key requirements that will be used to evaluate the RFPs.

<b>Vendor Background</b>	<b>Comments</b>
Company	
Company Name	
Contact Person Name and Title	
Contact Address, Phone, Email	
<b>Company Information</b>	
Year Founded	
Office Locations: Headquarters, Implementation, Support, Development	
Website	
Employee Count	
<b>Number of Customers</b>	
Total Customers	
Total Customers on Proposed	
<b>Version Schedule</b>	
Current version and Release	
Proposed Version and Release	
Indicate if specific modules are not yet released and their release dates	
(Note: The system is evaluated by the current version)	

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## **FUNCTIONAL REQUIREMENT SPECIFICATION**

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### **Overview of the Proposed Hospital Information System (HIS)**

The Hospital Information System (HIS) should be a state-of-the-art, fully integrated system connecting all clinical and non-clinical services, finance and billing departments, laboratories and imaging services, supply chain management, equipment management, CSD and infection control, and human resource management. It should provide healthcare organizations with a full suite of tools for improving hospital management, clinical and non-clinical services, patient safety, confidentiality and patient administration.

The system should have capability to integrate with clinic, ward, laboratory, and pharmacy and radiology information systems and should include a comprehensive report generating tool that helps deliver accurate occupancy statistics and quality information regarding admissions, transfers, and discharges.

**Proposed modules : Patient Registration**

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**Modular overview :**

This module manages all patient registration related activities (Online registration, Call center registration, walking registration etc.). Generating Patient Identification Number -PIN (temporary or permanent) as per the Hospital requirement, capturing demographic data, financial and insurance data will be managed by this module.

- The system should generate a sequential Medical Record Number (MRN/ PIN) for each new patient registered according to the format of SL Government.
  - At registration, basic demographic data should be captured. Minimum data set as per HL7 FHIR V4 patient resource.
  - The PIN should be unique for each patient and attached to the patient throughout the life of his or her relationship with the hospital.
  - Should have capability to issue a patient registration card with a barcode or chip with patient EHR information. Reissue the ID card in the case of lost / damaged or with appropriate reason.
  - Ability to do registration by 3<sup>rd</sup> party authorized agent. In such a case, the system should issue a permanent MRN as per the LH format.
  - The system should allow online patient registration
- Patient's self-registration: Online form should be available for self-registration of patients. After self-registration, the system should generate a receipt (barcode, QR code or SMS with ref. number) for the patient which can be presented at the hospital counter. The self-registration should not allocate a proper MRN. The proper MRN for the patient should be created only at the hospital.
- Ability to charge registration fee if necessary.
  - Ability to have different registration fee structures for different authorization 3rd party persons. The hospital should have capability to change the registration fee at master's level according to the hospital requirement. Ability to define different discount schemes for different agents.
  - All initial registrations should be performed through a common registration function, regardless of the type of visit (Inpatient, Outpatient, Daycare Surgical, Daycare Medical and Staff Health).

- Ability to carry out a quick registration or temporary registration with minimal patient information at the A & E Department. If the registration is temporary, later it should be converted to a permanent registration.

- Ability to carry out quick registration by authorized persons in any given place at the hospital. This facility allows patients to register quickly. Later this record will be completed. (When patient profile is opened it should show the progress of the registration in a progress bar).
- Ability to capture all necessary information (Insurance, Cooperates, Special discounts etc.) required for “billing rule engine” in order to finalize itemized costing at the time of registration.
- The system should capture the ID number and/or Passport number and use it as a search key.
- Ability to upload documents at the time of registration as per the LH requirement.
- Ability to cancel an erroneous registration. The system, however, prevents users from canceling any registration that has already billed out. The system automatically tracks the following information about Cancelled Admissions. (Date time, User, location).
- Ability to edit the existing registration to modify a patient for change in the demographics, status.
- Ability to tag category of patient (normal, VIP, VVIP etc.) at the time of registration.
- Ability to attach a nickname if patient requested (especially the patient is VIP or VVIP).
- Ability to issue bills to the patient as quick checkout patient with minimum set of data by authorizing persons at selected locations. In these cases, a permanent MRN number will not be issued.
- Search already registered patient,
  - Ability to search for patient by name, MPI, Inpatient number, Passport Number, DOB, contact number, Email, or by the patient's ID card issued by the hospital at the patient's 1st visit, using a barcode scanner.
  - The system alerts the user if the patient is a VIP (i.e. if the patient had been flagged as a VIP during a previous registration) and displays the patient's title clearly.
  - Ability to search for the existing patient using the ID card printed with barcode scanner.
  - The system should allow merging of duplicate patient records from time to time. However, all episode information from the record is merged and inactivated and transferred into the record to be retained.
  - The system also allows undoing the merge record and transfer of episode information in the event of an erroneous transaction.
- Patient registration by authorized person (agents): This facility should have capability to register patients online by authorized persons (outside the hospital). Authorized person will be defined by the Hospital. This category of patients will be issued an MRN number at the registration. The system should have capability to accept registration fee payments via integrated electronic transactions (credit card, debit card, EZ cash transfer, PayPal etc.).
- Ability to attach an image of the patient with patient consent and any other required documents.
- Ability to get patient consent/ agreement at the time registration if LH required.
- **Newborn registration**
  - Ability to register newborn from at the place where the birth occurred.
  - All newborn baby admissions should be automatically linked to its mother, and the admission details should follow the mother's admission record.
  - The baby's bill should be a separate one though it is linked to the mother's bill, to enable printing of both bills simultaneously when both mother and baby, or either the mother or the baby is discharged first.
  - If mother is discharged or released from the room/bed, automatically the baby should be assigned to the bed. If multiple births, one of them should be assigned. When applying the bill should be generated as per the business rules assigned to the room/ bed.
  - There should be a mandatory field to indicate the pediatrician responsible for the newborn.

- Registration form should automatically prompt out the mandatory examinations (User defined) to be done for the newborn.
- Ability to print barcodes in duplicates for each newborn.
- Ability to update number of births in the mother's EMR at the time of birth of baby/ babies.
- The bay should be issued a temporary MRN. The temporary MRN will be made permanent later.

- **On admission death**

- The system should have the ability to record admission deaths in a separate section using a different MPI.
- Ability to record the cause of death according to the user defined format.
- The system should prompt the actions to be taken, defined by the hospital, at the time of on admission death registration.
- The system should have capability to adopt LH workflow for recording and reporting the deaths.

- **Master Patient Index (MPI)** The Master Patient Index (MPI) or Personal Identification Number (PIN) is a number issued by the Hospital according to the PIN number format of SL Government for every Sri Lankan. All medical/ healthcare records will be recorded under PIN as EMR in the Hospital. When national EHR program is implemented, this number will be used to track patient information (demographic, vitals, clinical and investigations and financial details) to a central repository.

- The system should generate a sequential Medical Record Number (MPI/ PIN) for each new patient registered according to the format of SL Government.
- The MPI/ PIN should be unique for each patient and attached to the patient throughout the life of his or her relationship with the hospital.
- The system facilitates querying of patients on different search criteria such as Name of the patient, ID number, Phone Number, PIN, Address, Email etc.

- The system should be allowed to capture and record family members

**Proposed modules : Patient administration (Encounter handling/ Admission, transfer, discharge)**

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**Modular overview :**

The Module should manage all patient centric (related) administrative activities from patient check-in, complete in hospital patient journey to discharge. It should also handle encounter creation, tracking patient related clinical and administrative transactions, various Turn Over Times (TOT) etc. including bed allocation/tracking, admission-transfer-discharge, revenue capturing etc.). The system should be capable of managing Out-Patient (OP), In-Patient (IP), A&E, Home care, Virtual care, Field care etc. In addition, it should have capability to create different encounter types as per classification if necessary. It should have capability to manage all patient appointments, follow-ups, future booked appointments etc. The module should have capability to integrate with the existing patient appointment booking systems. Patient management module should include comprehensive patient medical record tracking and medical coding functionalities. The system should provide efficient search options to locate patient records. Ability to search using multiple attributes including identifier (MPI, NHI), patient name, clinician, unit and facility, part of the patient's name, telephone number, ID card number etc. Notifications features should be available to allow a user to subscribe to specified events and to be notified when one of these events triggered. Such events include the doctor's arrival, availability of laboratory, scheduled appointment, results or the re-admission of a patient etc.

- **Encounter/ Visit creation**

- The system should generate a sequential Visit Number (Encounter number) for each new visit, under which all patient centric activities of the visit will be recorded and stored. The Visit Number is unique for each visit, and the visit number format is with a prefix indicating the visit type such as Inpatient, Outpatient, Daycare or Emergency etc. (The encounter types as per HL7 / FHIR)
- Ability to close the visit/ encounter after capturing all transactions happen for that visit to issue a consolidated bill if required. The system should have capability to close the encounter as user configurable functionality. The closer may be automatically according to the user defined rules; manually, defined time from the time of creation, Mid-night (reset at 00.00h) automatically.
- Ability to cancel an erroneous encounter. The system, however, prevents users from canceling any registration/ admission that has already been billed out. The system automatically tracks the following information about Cancelled Admissions. (Date time, User, location)
- The system alerts the user if the patient is a VIP (i.e. if the patient had been flagged as a VIP during a previous registration) and displays the patient's title clearly at the time of encounter creation.
- Billing Group information is defaulted from the billing and discount structure set-up for each corporate company at time of encounter creation. While the billing group field is displayed during registration time, unauthorized users should not allow them to change this.
- The system should allow capturing of the appropriate deposit amount for each type of encounter at the time of encounter creation.
- Ability to handle walk-in Patients with a valid referral letter directly at Lab / Radiology department/ OTC pharmacy etc. (Decentralized encounter creation). – Ref. to “quick checkout.
- If the encounter is an admission, all admission should capture the person responsible/ contact/ authoritative with TP number and ID number.
- Ability to capture all physician related details (Most Responsible physician, secondary physician, Nurse responsible if any, etc. at the time of encounter creation.
- Ability to link encounters with each other seamlessly.
- Ability to have consolidated encounter bill when necessary.
- Ability to list all clinical encounters by doctors in SOAP (Subjective, Objective, Assessment, Plan) format and ability to create a clinical summary at the time of encounter close. (Ref. to EMR module for further details)
- Ability to convert an outpatient admission to an inpatient admission, and to automatically transfer clinical information to the IP department.
- All activities should be subjected to audit trails as per LH defined touch points.
- This module should be fully integrated with all the other modules enabling free data transfer between modules.

- **Patient transfer within and outside of the hospital**

- Ability to transfer patients within the hospital departments and units seamlessly continuing the revenue capturing and EMR. The system should allow to attach discounts and/or special packages available while transferring patients and track all details regarding the transfer into a log file for future references. Ability to capture outside transfers.
- When a transfer happened notifications to all relevant department (To the “transfer to station”, Billing department, pharmacy, Lab, Radiology, kitchen, housekeeping etc. as per LH requirement) should be sent automatically through the system.
- When a patient transfers between beds in the hospital, the bed/ room billing profile should be automatically applied to the patient from the time of transfer confirmation by an authorized person.

- The system should have capability to capture all information about the patient transfer (minimum data set as per HL7 patient ADT or as defined by LH).
- Ability to have option to transfer patients to keep the original bed reserved.
- Ability to transfer patients freely between all the in-patient units in the hospital under a one patient encounter ID continuing the same bill.
- When unit transfer occurs, it should be informed automatically to the guarding via a SMS.
- When unit transfer occurs, it should be informed of the consultants responsible via SMS.
- Bed management module should be updated automatically if a transfer has happened between beds.
- Ability to create LH specific “special encounter” which can even last for several months or years till it is closed manually by an authorized person. All activities/ transactions related to this particular special encounter should be recorded under the particular encounter enabling the finance module to group all transactions related to the said encounter. The patient record should show all active episodes, and a patient may have several active episodes in a given time. If the patient visits and has a separate encounter for some other reason, the system should have the capability to record that active episode related transactions under the same episode, out of all visit encounters. The episode bill should be calculated separately. The system should allow to have deposits under episode, and it should have the capability to calculate the “running episode bill” dynamically.

- **Patient discharge**

- Ability to create a Discharge advice indicating expected discharge date and time, to enable all discharge formalities such as take-home
  - medications, alerts to housekeeping etc. to be carried out just after executing the clinical discharge by the physician. The person responsible (Doctor/ Consultant who do the discharge) should be recorded by the system automatically. But system should allow it to override manually. Clinical discharge should not restrict new order entry through the system “Order Entry Module”.
  - The system should send the discharge record (Alerts/ popups) to all relevant department (Pharmacy, laboratory, radiology, finance etc.) just after making the decision, to enable these departments to finalize the bill without delay. The system should have capability to finalize discharge including the bill within one hour if all relevant data is available to the system.
  - The system can calculate length of stay (LOS) and generate reports of the same.
  - Ability to cancel erroneous discharges.
  - System automatically records discharge date/time and the system should prevent users from changing discharge date/time after the transaction has been saved.
  - At the time of the discharge the diagnosis of the patient should be indicated according to the ICD-10 or user define coding system.
  - There should be an option to mention the category who Left Against Medical Advice (LAMA).
  - The system automatically sets an indicator on the patient's record in the Master Patient Index if a discharge type is indicated as a death. The system prevents any further transactions such as ADTs, orders etc. for such patients, except for late- activity postings for that encounter by an authorized person.
  - After the clinical discharge, the updated EMR should be closed and stop new entries happening. But EPOE and ENOE system should be capable of capturing missed revenue.
  - Patient beds are blocked automatically by the system immediately after discharge to enable housekeeping activities to be carried out. The housekeeping department should be notified of the status of the bed/ Room (Clinical

discharge >> Bill finalization >> Bill payment etc.; as defined by LH.) enabling the housekeeping department to prepare the bed/ room for the next patient.

- The system should generate a SMS or email to the “person responsible” for the patient automatically if the TP number or email is available.
- The system should have the ability to send SMS directly to doctors responsible and referred after the clinical discharge.
- The system should have the capability to calculate the total bill within 30 min. providing all necessary data has been fed.
- Ability to set the system touch point to close the “order entry” function of the system, after clinical discharge, as per LH requirement.
- Ability to define the status of patient discharge as per LH requirement and ability visualize the status of the discharge process to the authorized users.
- System should not allow to complete the payment unless all transection heads cleared/ authorized their transactions.
- Ability to dispense medications and items even after completing the payment if the payments of such medications and items have been completed.
- Ability to finalize the payment with pending results (Lab, Radiology and Procedure etc.) if the relevant authorized user approved the discharge.
- Ability to finalize the payment with pending requests (Lab, Radiology and Procedure etc.) if the relevant authorized user approves, she discharges.
- The bill finalization for credit bills should be completed at the finance department (Authorized person)
- Ability to create “Discharge clinical summary”, referral requests, discharge drugs and orders, follow up visits etc. thorough the system.
- Discharge summary should be created automatically in SOAP format.

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**Proposed modules : Inpatient management module**

**Modular overview :**

(This module may be a subsystem of the patient administration module). All inpatient related activities pre-admission, admission, transfer, discharge activities should be managed by this module. It should seamlessly integrate with patient administration, bed management, EHR, OES, LIS, PMS, RIS, revenue cycle management system, billing system to achieve the maximum efficiency.

(Ref. to ADT module, EMR, Revenue cycle management, bed management, billing and payment modules.)

- Ability to capture all patient related transection under the inpatient encounter. However, the system should have capability to tag transactions with the episode if the user requires.
- Ability to make any type of order entry (clinical, non-clinical) by any authorized person.
- Ability to create “Discharge clinical summary”, referral requests, discharge drugs and orders, follow up visits etc. thorough the system.
- Ability to trigger the billing as per LH bill trigger points for all the transactions.
- Ability to have log record for all activities related to the patient if necessary.
- Ability to capture inpatient selling price at the location of ordering the services as per the hospital billing rules.
- Ability to crate “running bill” at any time by a authorize person.
- Ability to transfer patients seamlessly within the hospital and out of the hospital.

## Proposed modules : Bed management module

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### Modular overview :

The bed management module should manage all available beds (rooms, dialysis chairs or beds, day surgery beds or chairs, HDU beds, ICU beds etc.) centrally. It should display the bed status for the authorized users in a very user-friendly manner with all relevant details to manage beds (allocation and scheduling) in the most efficient way.

- The system should show online, real-time bed availability by
  - Using all LH defined criteria (Department (E.g., Cardiology, pediatrics etc.), bed category (E.g., Normal, luxury, suit etc.) care type (E.g., ICU/ HDU/ Ward), / ICU/ VIP/ etc.)
  - Status of the bed/ room as per LH defined criteria (E.g., available, Occupied, Vacant, under housekeeping, Vacant Blocked, Repair etc.)
- The ability to search beds using following criteria
  - By word, unit, department (e.g., Day surgery, ICU, A&E, etc.)
  - By bed number within the ward.
  - By the status of the bed (Available, occupied, vacant and under housekeeping, and any other status)
  - Location wise (building >> wing >> level etc.)
- All bed statuses should be updated then and there dynamically.
- Patient Double Occupancy.
- The bed information should be available in a graphical user-friendly multi- color system for quick and easy referrals.
- The summary of the bed (name of the patient, number of days occupied, running bill associated with the bed, consultant in charge etc.) should be displayed by the system in a graphical easy to use interface.
- Ability to book beds/ rooms for future admissions on the physician's request with or without an advanced payment. If such a booking is done, it should provide a record showing the patient's name, the person who booked, the person requesting the booking, date and time of booking etc.
- Ability to create virtual beds in physical rooms
  - Ability to create any number of virtual beds for a room.
  - If a virtual bed is created, ability to define bed charges manually or automatically divide the original room charges across the crated number of beds. However, system should create separate encounters for each bed and track all transactions under the created encounter.
  - Ability to discharge patients attached to the crated beds individually. If patient is discharged from a virtual bed, the bed charges should be adjusted automatically for the rest of the instances. If LH decided to assign bed charges manually the system should facilitate it also.
  - The system should have ability to discharge patients attached to the physical room disregarding the virtual instances. If the patient attached to the physical room is discharged 1st, a patient attached to a virtual instance should be automatically assigned to the physical bed.
  - The virtual beds should be automatically disappeared from the bed dashboard panel just after the patient attached is discharged. However, all transaction histories (clinical, non-clinical and financial) should be available in the system for future references if necessary.
  - Ability to create consolidated bill for the room if necessary.
- Ability to select the room according to the patient's wish in special cases if available.
- Ability to restrict showing the patient information at bed management panel according to patient request.
- Ability to see running bill attached to the bed as per user privileges.

## Proposed modules : Comprehensive Electronic Health Record (EHR)

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### Modular overview :

All required medical/ clinical related information, such as presenting complain, Systemic review, past medical and surgical history, medical examinations, diagnoses, treatment and management, nursing notes, test results, and medication histories etc., necessary for clinical staff (consultants, doctors, nurses, and other health care providers) to carry out their clinical operations should be available in easily accessible manner. EHR should be a central repository which handles all clinical related documentation. The module should provide a flexible and configurable platform to support nursing related activities within the hospital setting including patient pre-assessment observations, notifications and subscriptions, work lists, medication administration, documentation, ordering, and bed management. EHR should have capability to handle referrals (in hospital or outside), Care teams too. EHR should support SOAP format, and it should comply with HL7, SNOMED, ICD-10 or 11, ICD procedure coding, CPT coding etc. Laboratory results and diagnostic images are electronically reported and linked to the EHR online. The module should have capability to produce comprehensive visit summary including all necessary data field as per HL7 CDA format. The expected EHR should have capability to handle Different templates for different specialties such as cardiology, neurology, pediatrics, general medicine, Gyn & Obs etc.

- The EMR module should capture all patient demographics, clinical data and payment information and record them in a secure manner maintaining the data privacy, ad and confidentiality as per the recommended international standards.
- Important clinical data to be captured are past and present clinical history, investigations done, current and past treatment, drug or food allergy, genetic predisposition etc.
- The system should have capability to set custom favorite data sets for each consultant/ specialty/ department/ unit specific (as per the Hospital requirement) EMR with highly customizable interactive data entry interface.
- Ability pass EMR data in HL-7 Format to outside and receive same information in HL-7 to the system.
- Ability to use ICD or SNOMED standards when to capture the diagnosis.
- Ability to share authorized data with outside.
- Ability to maintained interactive EHR as per LH requirement (LH gives minimum essential dataset) and ability to maintain a patient portal which can be accessed by individual patients using their login credentials. (E.g.,75Health EHR patient portal).
- Ability to have specialty specific doctor dashboard seamlessly as per requirement. The dashboard should be designed by the trained user easily as per the requirement of the consultant doctor.
- All clinical notes/ notes should be captured through the EMR.
- Ability to attached scanned copies of past medical reports/ records) each visit wise.
- Ability to enter medication and other orders (Lab/ Radiology and other procedures) using a single interface easily.
- Ability to sign off medication and other orders separately without signing off the existing SOAP clinical encounter.
- Ability to generate clinical reports automatically in pre-defined templates in various formats (word, PDF etc.). The system should have capability to generate/ configure the template by the individual doctor, consultant using a simple interface.
- The system should have ability to record doctor's records (EMR), i.e. Examination details such as Present Complaint, Clinical History, Physical Examination, Progress Note, and Diagnosis. These details should be recorded once the doctor completes the examination of the patient and is used as a reference during the treatment process.

- Graphical and chart view of the vitals and lab results giving the clinician a UI to have overall progress of the patient's condition.
- Ability to see patient 365 views by the authorized people to get the full picture of the current clinical encounter of the patient.
- Ability to visualize the complete patient journey from the date of registration to to-date in a graphical manner. All-important clinical scenarios should be displayed in the patient journey.
- Ability to see complete medication prescription history, Lab result history, Radiology report history by the physician.
- Ability to have user specific favorite item list for diagnosis, Lab orders, Radiology orders etc.
- Ability to repeat the previous medication prescription without prescribing the whole drug list as a new order.
- Patient banners with all required information to make the decision by the clinician easily minimize the prescription errors.
- All standard practices to minimize prescription errors such as drug and food allergy, drug contraindications, age wise contraindications, dose corrections, LASA drugs etc.
- Ability to capture all nursing notes, such as input output charts, temperature charts, medication dispense, daily patient progress monitoring charts, IV and all injectable, order collection and acknowledge etc. through the system in a user-friendly UI.
- System should notify all users regarding the schedules (including medication dispensing, orders to be collected, procedures to be done etc.)
- Ability to get a summary of all patients belongs to the user.
- Nurse's handing over taking over process. The system should be capable of displaying all requests in a particular wards/ floor or unit to be completed on a single screen when a nurse accepts duties.
- Ability to capture times of duty change (accept and leave duties) of nurses and other clinical staff and ability to capture duty handing over and taking over.
- Ability to digitize controlled medication dispensing process as per LH workflow.
- Ability to implement care-team concept. If care team is created the Most Responsible Physician should be captured.
- Ability view radiology images through EMR.
- Subjective (subjective section facilitates to capture details related to complaints, clinical and medical histories, immunization and allergies) Ability to integrate the EMR with CDSS in future.
- Ability log all wad related activities by the clinical staff. (i.e., time of attending the request, TOT of the activity etc.).
- Ability to record all nurse clinical activities such as, Triaging, Initial Assessment, I/O Chart, Temperature charts, Nurse Progress Notes, Clinical Scores, Crash Cart Issues, Crash Cart Returns, Bed Side Procedures, Special Instructions, Trauma Chart, Trauma Exit Details, Drug Plan, Drug Administration etc.

**Proposed modules : Physician and nurse's Order and work bench Entry System**

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**Modular overview :**

The Order Entry System (OES) should be an integral part of the EHR, which is fully integrated with all stores, pharmacies, kitchen, cafeteria etc. Order Entry system that allows clinicians to carry out routing day orders electronically. Order details and status updates should be available in the patient record for all other authorized users to view. Laboratory results and diagnostic images are electronically reported and linked to the original patient order. They should be viewed and sorted in several ways depending on the clinician's preference, improving clinical outcomes and increasing efficiency.

- Ability to communicate with all the other HIS modules (Pharmacy, Lab, Kitchen, Inventory and procurement, finance, Blood bank etc.) enabling on time revenue cycle capturing.
- Ability enters all patient-related orders using a single interface.
- Ability to maintain/ manage sub store at ward level and request items either from the ward stock or directly from the main stores. This wards sub store should have ability to manage individual stores unit having their own stock management criteria such as ROL, MOQ etc.
- Ability to manage doctor's Work list and nurses work list (A work list is a list of all hospital health care activities associated with a given workflow of the Patients.)
- Ability alerts all urgent requests to the relevant people automatically by the system.
- The system should be integrated with other modules such as pharmacy, Lab, radiology etc. providing quick and easy data transfer.
- The system should provide data entry aid, such as dropdown lists, predictive text, word suggestion depending on the most frequently used word etc. The system should be capable of future technological advancements such as voice to text recognition and handwriting recognition. This system should also have capabilities to integrate with hardware such as writing pads, portable text scanners, digital pens etc.
- The system should allow nurses to enter all daily patient management routines such as temperature, input/output chart, drug administration, invasive procedure, IV administration, patient cleaning, bed cleaning and preparation, wound dressings etc.
- All activities should be tracked and integrated with revenue cycle updating the patient running bill dynamically.
- The system should have ability to track the status of various services opted by the patients including drug indents, investigation tracking, all radiological requests and all other clinical care related services.

**Proposed modules : Medication Management**

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**Modular overview :**

Medication management system should automate the routine workflow of hospital medication prescription and dispense. It should provide tools for enterprise-wide medication administration and error checking. The medication management system should help to increase patient safety by decreasing the risk of patients receiving the wrong medication and wrong drug interactions. Drug interaction checking, drug monographs, explicit dosage instructions should be available to provide effective decision support and reduce risk. A patient medication profile provides a current snapshot of the patient prescriptions and historical information. The system should have capability to adopt different workflows for different types of medications, such as prescribed medication, OTC medication and controlled medication. The system should be capable of handling LASA (Looks alike; Sound alike) medications. The module should integrate with the pharmacy inventory and store management system to get real time medication stock details. The system should have capability to integrate with 3<sup>rd</sup> party medication management systems (eg. MIMS/ Rxnorm) if necessary. It should have capability to handle and integrate hospital formulary, country specific formulary, medication

- Ability to display all medication prescription at relevant medication dispensing location. (LH has OPD pharmacy to handle OPD and specialty clinics, IPD pharmacy to dispense all IPD requests and OTC pharmacy to handle all OTC related medications.)
  - When medications are prescribing the system should indicate drug allergy, Gender and age, current drug interaction, pregnancy and lactation, special chronic condition where some drugs are contraindication etc. to the prescriber to minimize the prescription errors
  - Ability to handle LASA drugs,
- The system should have capability to maintain its own LA & SA drug lists.

→ The system should indicate LASA drugs at the time of prescription and dispensing (The system will use different color code to indicate the LASA drugs)

- The default description, instructions should be loaded automatically in a very user-friendly manner. However, if the prescriber needs to alter the instructions, the system should allow to change default values.
- Ability to refer major side effect of drugs if necessary.
- Ability to recall previous prescriptions and ability to indicate all drug interactions between current and previous drug combinations.
- Ability to keep prescriber's most favorite list of drugs for easy access.
- Ability to refer selected information of the EMR at the time of prescription if necessary by the pharmacist. (Ability to see EHR/ EMR according to the assigned privilege type of the user if necessary.)
- Ability to maintain a hospital drug formulary in the system. However, the prescriber should have Ability to prescribe drugs outside the hospital formulary.
- Ability to manage "Drug schedule" according to the Hospital, regional or national levels.

→ The system should have capability to control prescription authority User wise scheduling. If necessary, the system should have capability to validate user permission for prescription against the operational drug schedule.

→ The system should have capability to control dispensing authority – User wise scheduling. If necessary, the system should have capability to validate user permission for dispensing against the operational drug schedule.

- Ability to access BNF (or any recommended drug formulary by the Hospital) when and where necessary.
- Ability to avoid duplicate entry for same patient encounter.
- Ability to print prescription instructions for each drug separately in different formats. (To past on bottles and envelop separately)
- Ability to accept electronic prescriptions directly through EMR/ EHR.
- Ability to configure the control medication dispensing workflow according to the LH workflow.
- Ability to manage patient wise stock which can be dynamically updated according to the prescription.
- The bill trigger point for IPD patients is drug dispensing at the indoor pharmacy.
- The bill trigger point for OPD patient is pre-billing before dispensing at the OPD.
- The bill trigger point for OTC drugs is pre-billing before dispensing at the OPD.
- Ability to integrate with 3rd party medication prescription management software (MIMMS, RxNorm) if necessary.

## **Proposed modules : Pharmacy Management**

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### **Modular overview :**

The pharmacy management system should have capability to manage the hospital pharmacy workflow from prescription reception, medication preparation, error checking to dispensing. It should have capability to adopt separate workflow for OPD, IPD, OTC and controlled drugs. It should have capability to handle OTC drug sales without registering the patient (like POS functionality/ Quick checkout). The system should directly integrate with EHR-POES, drug/ medical stores, finance, and medication management system to improve the pharmacy activities. The system should have the capability to connect all hospital-owned satellite pharmacies to the centrally manageable platform.

- Dispensing terminal,
- Role based accessibility with user authentication (All activities should be logged for future references).
- Roles should have different permissions which can be attached according to the user privilege.
- User friendly, customizable data entry front end interface with dashboard concept.
- The user should have capability to design his/ her dashboard according to the user specific functionality requirements.

- Ability to show available drug stock in first expired first format If a brand is not available in the stock, the system should display the available same brand names of the drug (Substitution).
- Wing all available brands in the prescribing generic.
- The selling price of the drug should also be shown with the drug.(The profit margin should be shown only for authorized users).
- Ability to mention special notes/ comments in records.
- The system should display the description and the form in which the drug is packed, the method of administration, frequency and duration.
- Ability to see the running bill of the prescription while prescribing.
- Ability to cancel the bill at the dispensing terminal after getting the approval from authorized person.
- Ability to accept return at the terminal and refund the money or issue drugs to cover the refund.
- Ability to attach scanned prescription to the record if necessary.
- Pharmacy store handling,
  - The system should provide the ability to set up multiple pharmacy stores throughout the hospital, with varying stock levels at each store and ability to transfer items between these sub stores seamlessly according to the SOPs defined by the Hospital.
  - The stock levels – Each pharmacy should have capability maintain MOQ, ROL and buffer stock levels with several status Eg. Can dispense at any outlet, can be seen but dispensing restricted, even can't be seen etc.)
  - Drug procurement, inventory and stock keeping should be interlinked with all the other relevant modules of the HIS to manage the revenue cycle and finance activities automatically. The following special features should be included in the procurement and inventory management system.
    - Ability to maintain a database of suppliers which can be updated dynamically by the suppliers. (The system should have capability to update by the supplier and hospital procurement department)
    - Ability select/ define rate suppliers and manage supply via rate suppliers for a hospital defined period. Ability change purchase price even for rate contractors.
    - Any authority is to make an item request from any terminal. But the request should be electronically approved by the authorized person before being updated at the procurement department. (As per the Hospital SOP and process).
    - Ability to post (Bid request) electronically via emails to registered suppliers and ability to get printed copies of the same.
    - Ability to summarize and make bid comparison report automatically to be submitted to the procurement evaluation committee.
    - Ability to post purchase orders electronically via emails to registered suppliers and ability to get printed copies of the same.
    - Ability to see the movement of drugs during last 3 months consumption (duration to be defined by LH) at the time ordering and issuing the PO.
    - Ability to handle GRN by comparing it with PO automatically at the good receiving point.
    - Ability to handle GRN cancellation, alterations and returns at the good receiving point.
    - Ability to define profit margin and/ or profit for each item at the good receiving point.
    - System also allows us to accept donated, free or discounted goods and mark them at cost determined by the management or at standard MRP.
    - Ability to track and manage Batch wise stock and batch wise price maintaining.
    - Ability to return items as per the request by supplier or as per the request per the Hospital and ability to accept new items according to the price of the return items instead of refund. (Ability to return to the same supplier or a different supplier).

- Ability to indicate the stock inventory of the items (drugs) to be expired according to the time tag determined by the hospital.
- Bulk transfer to other hospitals (Under the same management or not)
- Ability to create reports on discounted medicine, free medicines and donations in defined period.
- Ability creates supplier wise medication movements in defined period.
- System must be capable of retrospective calculation of all dispenses from the time the stock was frozen to the time a user conducted the physical stock count and adjust the system stock levels accordingly.
- System has a provision to raise the auto purchase request for those items for then stock is zero in central store (item purchased at least once). Option available to select the item from the auto purchase request list to create the purchase request. Option available to enter the quantity. Once Purchase request approved, request will appear into the purchase department to create the PO against the Purchase request. Consolidated PR. Pending requisition report is available.
- System should provide facilities to conduct interim physical stock verification and to note the difference between system stock and actual.
- Ability to generate short expiry drug list as per the LH criteria.
- Short expiry items should be indicated with alert at the time of GRN.
- Ability to accept medication to the main medical store without GRN.

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**Proposed modules : Emergency Department Management (Accidents and emergency (A&E) Module and ICU)**

**Modular overview :**

The system should provide quick registration for accident and emergency patients and triage features for prioritization patients based on their need for medical care. The system should have capability to track patients (real-time status) in the A&E. When and where necessary the system should have capability to integrate with various instruments automating the A&E workflow.

- The ICU management system should be capable of managing special ICU related workflows through the EMR. The system should have capability to provide ICU patient management related SOAP template as per the hospital clinical requirements. When and where necessary the system should have capability to integrate with various instruments automating the ICU workflow.
- Ability to register patients quickly steps giving only the basic information as defined by LH. (Refer to the Patient registration and EMR) at A&E.
- Severity of the patient's condition (Triage) should be recorded and tracked according to the SL A&E guidelines automatically. However, ability to triage patients by manually override automatic triage score should be provided by the system.
- The system should have capability to generate patient wise alerts/ alarms according to the values of the vitals. The maximum and minimum of the values should be configurable easily by the user.
- A specific color code should be set by the system for each severity stage through which caregiver/ clinical staff can easily recognize the current status of the patient. This color code should be tagged to the patient throughout the period when the patient is categorized as critical.
- The system should allow any user to see the status/ criticality of the patient at any given terminal.
- All requests (EPOE or ENOE) to all departments, including blood bank and pharmacy, should be tagged with the color code to indicate the urgency.
- Ability to view the list of patients who were admitted in A&E on a single screen. Their important vitals and pending requests should be indicated periodically to the staff with an alert if the time/ event has been missed.
- Ability to record the details such as patient arrival time, status of the patient, length of stay in trauma care, and the physician who referred the patient in trauma care.

- The system should allow nurses to enter all daily patient management routines such as temperature, input/output chart, drug administration, invasive procedure, IV administration, patient cleaning, bed cleaning and preparation, wound dressings etc.
- Ability to continue the registration without payment.
- The A&E and ICU EMR UI should be 100% comply with tablet/ touch screen devices.
- Ability to integrate with patient monitor devices and IOTs used in ICU and A&E seamlessly with the system. System should have integration framework to integrate any device with HL7 messaging protocol by the trained person of LH. The supplier should give necessary training to LH regarding the HL7-based training at the time of implementation.
- The system should automatically indicate all orders (Lab, Radiology, Procedure rooms, OT, Pharmacy etc.) indication that these orders arise from A&E or ICU for priority identification.
- Ability to integrate central ICU monitoring systems or remote patient monitoring systems easily.
- Ability display running bill of the patient dynamically.

### **Proposed modules : House Keeping**

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#### **Modular overview :**

The housekeeping module should have capability to manage all housekeeping related activities such as cleaning, preparation of bed, daily room/ ward management etc. digitally. When a requirement comes, the system should have mechanism to inform the relevant user electronically as a notification. After completing the activity, the system should update the job status. This system should be integrated with bed management and inventory sub system.

- The department should be notified automatically when a requirement is created (Patient admission, Bed transfer, patient discharge etc. as defined by LH).
- Ability to maintain a Job order ticketing system.
- Bed/ room preparation,
  - The department should be notified when a patient is discharged. The trigger point will be nurse knowledge the patient physical discharge.
  - Ability to record lost and found check list by an authorized person.
  - The initial check list is provided by LH.
  - Ability to assign a person/ team to attend the requested work.
  - Ability to do the final check-up through the system by the authorized person. Final check-up list (supervisor check list to be provided by the LH.
  - The final check-up UI should have capability to record and report Plumbing, electrical, AC and other issues (in 4 categories). If such an issue is recorded, automatically the particular department should be notified. The relevant department should have capability to update the system after completing the job and the completion acknowledge should automatically go to the relevant departments.
  - The system should be configured as per the workflow defined by LH for room/ bed cleaning or preparation. The turnover time of the overall process should be tracked, and bed status should be changed according to the workflow touch point. The bed/ room status should be updated automatically in the bed management module. The system should have ability to provide TOT reports when and where necessary to audit the work efficiency.
  - The system should provide separate check list (template) to record daily check-up. The daily check-up report should record the person responsible for cleaning, supervisor, time the work completed etc.
  - The system should automatically generate daily cleaning request notifications to the department.

- The system should have capability to inform the facility management team when and where necessary through nurse's dashboard.
- Ability to assign teams to work outside the hospital. The area outside the hospital will be divided into zones.
- The system should have capability to manage wheelchair and patient transfer trolley status in the system. (The wheelchair and trolley will be equipped with RFID system with RFID readers. The system should have capability to track the location of the wheelchair and trolley location using the RFID system).

## **Proposed modules : Operating Theater Management**

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### **Modular overview :**

The system should deliver maximum efficiency of operating room resources, staff, space, equipment and materials through scheduling, utilization, and pre-operative management tools. The system should allow clinicians to focus on their patients with less time spent on administration tasks. This module should work with the EHR integrating pre-operative, operative and post-operative workflows. The system should allow us to tag all resources required for the schedule when the schedule is created.

- This module manages the OT process workflow (patient receiving to OT to patient send back to the ward) and OT time scheduling. This module should be integrated with revenue cycle management, finance, EPOE, ENOE and other relevant sub modules to capture all necessary data to manage revenue cycle.
- The system should have capability to schedule OT time for future activities without any time restrictions.
- All schedules should capture minimum of following information and make available in a graphical user-friendly interface for the users.
  - Patient's name, age, gender, drug allergies, blood group etc.
  - The surgery was expected to be performed.
  - The doctor is responsible for the patient.
  - Name of the surgical team if any.
  - Name of the anesthetist if assigned.
  - Name of the nursing team if assigned.
  - The duration and the start and completion time.
- Ability to do tentative bookings by the surgeons and list them as tentative bookings. These time slots should not close till the appointment is permanent. They can be reallocated after contacting some other surgeon only after contacting the surgeon who allocated the booking.
- Ability to design and store instruments and consumables for a particular type of surgery and attached them automatically to the OT schedule.
- However, the system should allow to manually assign instruments or consumables if required in addition to the profile.
- The system should maintain a list of material (instruments and consumables) to be audited after the surgery per particular schedule and ability to verify the audit after surgery before closing the patient.
- OT schedule should be listed at nurse in-charge OT and CSSD at any time. It should be prompted automatically as alert to the surgeon, anesthetist, and nurse in-charge OT and CSSD day before the surgery till they acknowledge.
- The system should allow cancellation, rescheduling and extend the allocated time slot at any time prior to start the surgery.

- Ability to change the time slot (Duration) of particular surgery even during the surgery. If such a change is made automatically other scheduled OT slots of the particular day should be adjusted and rescheduled. These changes should be automatically informed the surgeons, OT In-charge and CSSD.
- The system should have capability to track the patient process from the time when release the patient from the ward to release from the OT (Release from the ward >> Checked in to OT >> Taken to pre OP area >> Anesthesia given >> Surgery started >> Instrument audit completed >> Surgery completed >> taken to recover area >> In the post OP area >> time release from the OT)
- Should have pre-defined template for anesthesia, operative and post-operative notes.
- The time surgery started and completed should be calculated automatically and passed to the revenue cycle management module.
- Ability to capture every consumable/ activities/ service (chargeable transactions/ activates) that is used up for a procedure easily without any mistake and transfer them to revenue cycle module.
- Ability to maintain pre-operative, post-operative, pre-anesthesia and post- anesthesia check list and tagged them to the EMR.
- Ability to access OT schedule via doctor's portal. View and edit (Add, delete and modify) facility only for free OT slots.
- Every consumable that is used up for a procedure can be easily recorded without any mistake.

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**Proposed modules : Hospital schedule/ appointment management module**

**Modular overview :**

This module should manage all hospital related schedules/ appointments including doctor's appointment scheduling, consultants' appointment scheduling, OT appointment scheduling, radiology modality scheduling, patient procedure scheduling etc.

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**Proposed modules : The Medical Records management System**

**Modular overview :**

The Medical Records Management System assists the Medical Records department (MR) in maintaining and tracking the paper medical record for each patient. The data stored in the paper record includes referral letters, guarantee letters, medical reports, and any other document that the patient may bring with him when referred to the hospital, as well as in-hospital generated documents such as Consent notes and bed head tickets etc. The system should have capability to locate the exact portion of the record in the record room according to the PID.

- The system should have capability to scan all previous medical records and current paper records to keep them in a organized folder structure enabling the user to retrieve them easily using the PID/ EHR.
- The Medical Records System assists the Medical Records department (MR) in maintaining and tracking the hard copies, scanning copies of the same and soft copies of medical record for each patient. The paper records are stored in a rack system in a organize manner. The scanned copies of the same hard copies are kept in a dedicated storage (NAS) attached to the HIMS system. Data stored in the paper record includes referral letters, guarantee letters, medical reports and any other document that the patient may bring with him when referred to the hospital, as well as in- hospital generated documents such as Consent notes and bed head tickets etc.

- Every patient record should have a tag associated with the MRN number indicating the position of the paper record and exact location of the scanned copies to retrieve them quickly and easily. (Hard copy store - Room number, rack number, position as defined by LH).
- The tag should indicate the diagnosis according to the ICD 10 with LH requirement.
- If a hard copy is issued to a person or department the person or department, time and date issued, reason of the issue, time and date returned, the person responsible for the request, the person issued the record should be captured by the system. The system should have capability to report complete movement track of the paper medical record.
- The system should have ability to segregate medical records into 3 different statuses (active, dormant, inactive, and legal). The scanned copy storage should have capability to treat 4 different kinds of scanned copies differently providing different levels of access, retrieval time, file protection etc. The active file should be quickly available for retrieval.
- The system should have capability to display the medical record room in a graphical manner.
- Ability to track the paper record by using patient's MRD, First and last name, Address, ID number, Passport number, email number etc.
- System should allow medical record managers to re-examine (observe) past EMR (soft copies) and enter the diagnosis in ICD codes if the diagnosis is not captured in ICD format. All records without diagnosis should be displayed and allow medical record manager to complete the record.
- The system should have capability integrate with national e-Indoor Morbidity and Mortality Return system if necessary.
- The system should have capability to provide user specific reports as per user requested format which will be provided at the time of implementation.

**Proposed modules : Blood bank management module**

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**Modular overview :**

This module should manage all blood bank related activities including blood collection from donors, managing blood stocks, dispensing blood to the patient etc. It should have capability to keep real-time records of the blood stock making blood bank activities easy. The system should have capability to adopt hospital specific blood bank workflow.

- The system should have options to register and tract donors. (The donor registration data will be provided by LH at the time of the implementation.)
- Register and capture all necessary donor details such as demographic data, clinical history, screening for HIV, Hep. B etc., blood group and Rh etc.
- Maintain a comprehensive donor database and send SMS requests to selected donors by the system when and where necessary.
- Ability to search for specific donors using LH provided filters (e.g. Blood group and Rh)
- Ability to issue a donor ID card with Hospital defined fields.
- The system should be able to receive blood requests from any unit of the hospital.
- The system should have ability to track issued samples till it reached the patient. (Time of received the request, time of issued, the person issued, the person take over the sample, the person cross matched the sample, the person done the confirmation of grouping and cross matching, etc.)
- The system should have capability to store all clinically relevant details of the blood sample and display when and where necessary.
- The system should have capability to maintain inventory of all blood related products, Components prepared, and volume etc.

- Ability to record inventory all blood products derived from blood pack and keep them. The pedigree of the products (from which blood pack these components are derived should be clearly recorded.)
- Ability to perform blood bank related tests at the blood bank and update them directly to patient's EMR.
- Orders should be displayed at the blood bank laboratory.
- The result capturing template should be provided to the blood bank as per LH hospital format.
- TOT for the process (order entry, sample receive time to the blood bank, time completed the test, person and time approved the test result etc.
- Ability to implement basic LIS for blood bank.
- Ability to monitor storage conditions and keep logs of the events.
- Ability to keep records of blood products transferred/ requested from other institute/ hospitals.
- The system should be integrated with all other relevant modules to manage the revenue cycle and inventory and procurement activities.
- Ability to record grouping and cross match results directly to patient EMR after performing it.
- Ability to print the barcoded bag-label after performing the grouping and crossmatch. The label should have unique number for the blood-bag.
- The system should provide pre-defined templates for the type of grouping and cross match to be done.
- After performing the Ability to track expired sample and discarded sample with their track records.
- Ability to edit reservation of a blood bag seamlessly.
- Cancel reservation and make a new reservation.
- Reserve one blood bag for two patients.

**Proposed modules : Linen management including laundry and CCSD**

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**Modular overview :**

This module manages/track all linen items of the hospital from purchasing (inventorying) to discarding. The system should handle receiving items, leaning, send for sterilization if necessary, transferring lines between various departments etc. The system should have capability to adopt CSSD related workflow and have capability track (keeping logs) of all clinically auditable events including TOT. It should be integrated with the revenue cycle management module, finance module and procurement and inventory management system, EHR, EPOE, OT management system etc. This module receives requests from ward management module (EPOE and ENOE) and dispenses the requirement as per the orders. The module should integrate with OT management module seamlessly to allocate resources automatically.

- This module manages all linen items of the hospital from purchasing, cleaning, send for sterilization if necessary, transferring linen between various departments etc. It should be integrated with the revenue cycle management module, finance module and procurement and inventory management system. This module receives requests from ward management module (EPOE and ENOE).
- Ability to maintain a database (registry) of all linen items of the hospital.
- Linen identification (cord number) and the type of linen. The system should maintain details regarding classify various linen types that are used at wards, OTs and clinics and other various places in the
- Number of linens of specific category available at the time of viewing with the current locations. The status of the linen also be indicated, usable, damaged, and unusable.
- Ability to categorize damaged linen as a separate list. All linen identified as damaged should be listed in this list. Time to time the linen in this list will be discarded by a authorize person. The damaged linen should not be viewed to end users who request the linen.

- Ability to re-enter damaged linen after repairing, if possible, back to the linen stock registry.
- Ability to maintain linen sub stocks in all relevant places (OT, ETU, A&E, Ward) in the hospital. These sub stores should have ability to maintain their own linen buffers stock according to their requirements. These sub stores should have capability to maintain their own ROL, MOQ etc. and ability to request linen directly from laundry, non-sterile linen, CSSD, sterile linen, accordingly. (The system should have ability to handle various jobs assigned by relevant departments such as wards, OTs, dressing rooms, Bleeding rooms and any other care point which need linen for their activities).
  - Ability in making requests directly to laundry or CSSD by the sub stores. (The request process is request intended approved by the head department/ unit to laundry or CSSD)
  - It should be integrated with procurement, inventory management and stock management module.
  - The system should have ability to track and record items held by each department.
  - It should record daily linen transactions: linen being brought and linen leaving laundry and/ or CSSD.
  - Facility to receive soiled, dirty and infected linen from Wards and all the other areas.
  - Ability to issue washed linen against the received soiled linen from wards and other areas.
  - Issue and receive linen on special requests from Wards, OT and other areas specially to cater for emergencies.
  - Facility to condemn linen, this should deplete from the stock of stores.
  - Facility to convert condemn linen to new items (only if they can be repaired) this should be added the new converted items in stock.
  - The system should be able to differentiate between the requests for new linen and the requests for cleaned linen.
  - System should maintain details of linen sent from the wards / clinic for cleaning purposes.
  - Details regarding the receipt of cleaned linen by various departments should be maintained (Date time and person who received them).
  - System should maintain the delivery of cleaned or new linen to the wards and clinics.
  - Details regarding torn linen which must be sent to external agencies for repair should be maintained by the system.
  - System should maintain details regarding linen returned by the external agencies after repair
  - Stock should be maintained for various linen items and should be updated instantaneously to enable up-to-date status.
  - System should provide comprehensive set of queries, reports and summaries to the relevant departments (admin, finance etc.) For easy and quick referrals.
  - The system should be capable of communicating/interfacing with the software of the CSSD.

**Proposed modules : Kitchen and cafeteria management module.**

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**Modular overview :**

The expected system should manage kitchen and cafeteria order receiving and delivering. Cafeteria should have the capability of issuing, billing and accepting the payment without registration process (Just like a POS system). The kitchen management system should have capability to manage stocks, ordering required goods for daily activities. This module should have capability to manage snacks and diet ordered by the hospital staff as per their privilege (free of charge to nominal fee). The system should be integrated with all relevant subsystems/ modules, such as EHR, Finance, RCM, inventory, etc.

- The dietary and kitchen management system should be capable of managing all dietary and kitchen related activities from receiving orders from the patients or bystanders, tracking the order status till it delivered to the client, communicating with dietician when and where necessary and stock management through inventory and procurement module of the HIMs. The Dietary and kitchen management system

should be integrated with the revenue cycle management module enabling online update of patient bill and finance module. This module should be linked with the patient port enabling patients to make requests directly.

- The catering department system should be interfaced with Admissions, Wards and EPOE/ ENOE modules to enable planning of menus at the catering department.
  - When a patient is admitted (trigger point is admitting desk of the front office) the kitchen should be notified with relevant (hospital defined) details.
  - Ability to access the menu by ward staff to enter patient orders. The diet ordering will be done by an authorized person. (Doctor, Diet Clerk, order taker etc.). The system should allow to Order the diet outside the menu.
  - Ability to create definable user menu types. (e.g., ordinary, high protein diet, semi-solid high protein, low fat, salt free) and keep them in the database as diet profiles. These diet profiles are added to the patient at the time of admission, at the ward or at the time of the diet assessment. The same profile should be tagged to the patient until the patient is discharged, unless changed by the dietician or the consulting doctor.
  - If the patient is tagged with a diet profile it should be automatically posted to kitchen department at the time of admission or at the time of assigning. (Auto generation of Kitchen Order and Patient Meal Tickets.)
  - Ability to order additional meals from the patient or companions.
  - Able to support patient level changes and special instructions. However, the patient request for diet alteration should be authorized by the authorized person (dietician, Doctor etc.)
  - “Diet profile” and diet menu,
    - Ability to keep pre-defined “diet profiles” for different categories (i.e. DM, HT, Hyperlipidemia, high protein etc.).
- The system should allow authorize users to design diet profiles by them self.
- The system should allow to define several “diets” under a profile. When a profile is attached to a patient, any diet mentioned under the diet profile can be issued without approval of the dietitian or doctor. However, to change the diet profile of a patient need dietician or doctor approval.
  - Ability to make available a-la-carte menu digitally on in hospital patient portal allowing patients and companions to select them directly.
  - Ability to request items outside the menu.
  - Should integrate with billing system to generate entries for dietician, doctor, order Patient & Companion food orders. The food taken from the bystander; companion should be billed separately in the main bill. However, the system should have capability to bill it separately or as add on bill.
  - The system should have the capability to place the order from the wards or the dietician’s office.
  - The system should provide the ability to order meals by the patient when
    - required using patient’s portal. Though the patient makes the order it should update the kitchen only after the validation by the dietician/ Doctor or nurse.
  - The system should have ability to display food allergies, if any; captured by EMR, of the patient on the ordering screen to the person making and approved the order.
  - The system should have ability to create dietary profile for every patient. The dietary profile should include followings,
    - Type of menu that the patient is on.
    - The condition of the patient.
    - BMI of the patient if available.
    - Daily caloric requirement if available.
    - Patient's preference (Optional)
    - Relevant past history and food allergy.
    - Ordering and visibility of the order

- Ability to place the order through order entry screen by any authorized person from anywhere in the hospital.
  - Ability to place order through in-hospital patient portal for patients' relations and associates. However, if patient makes an order or diet change request it should be approved by a authorize person before sending it to the kitchen.
  - Ability to select the billing method (add-on to bill or out of pocket) at the time or ordering if the order is for additional meals which are not included in the room package. If the billing method is out of pocket, the system should be able to select the payment method also.
  - System should allow to order any diet/ meal even if it is not mentioned in the menu list.
  - At the time of ordering, the tentative delivery time (should be defined in the master data) should be displayed to the patient. (However, the system master data should be capable of defining the preparation time and delivery time separately of meals.)
  - All the orders should be visible to the relevant "kitchen unit head". The kitchen unit head should have capability to change the menu item if necessary, replacing an existing component by another. However, a authorize person should have capability to visualize all the orders from one place.
- Food/ kitchen item stock management (This section should link with procurement and inventory management system)
  - Ability to review food stock (availability of raw materials) by the authorized kitchen staff
  - Ability to make requests directly through the kitchen. The request should be authorized by the in-charge person of kitchen before proceeding. (The ordering workflow will be prepared by the Hospital)
  - Prepare request orders on the kitchen terminal
  - Send the order electronically (through the system) to the procurement department for necessary actions.
  - Ability to keep records of all received items by the kitchen staff.
  - Online update of all receivables and consumption of materials giving real time stock availability. (Trigger point – order out).
  - Ability to track available items according to the expiry dates.
  - Ability to track "material" and "discarded without using" with the reasons for discarding.
  - Ability to track the person requested, person approved and suppliers of the discarded items.
- Ability to calculate total weight of the components of a diet using master data profile. (E.g. Components of the diet "a" are x,y,z. the system should have capability to defined weight of x,y,z after cook). The system should have capability to calculate the total sum of components to be used for a particular session of diets after multiply the components by total number of diets of the session.
  - The system should have capability to calculate the volume of raw materials to be used to produce cooked diets by the master data mapping.
  - Diet change of patient should be notified to the kitchen department online.
  - Ability to calculate turn-over time of the complete workflow of the F & B ordering process (from diet request to diet delivery) as per LH requirement.
  - The system should have capability to issue diet to the hospital staff (from consultant, administrator to laborer) and record the complete diet movement history against the employee. The system should have capability to issue free meals or meals to the discounted rate to the employee. However, if the meals are issued for free or discounted price, the total discount given and total loss for issuing free meals should be displayed.

## **Proposed modules : The dietary and nutrition**

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### **Modular overview :**

The dietary and nutrition management system should be capable of managing all dietary and nutrition related activities from diet prescription (by a doctor, consultant, dietitian or authorize person) diet ordering, diet order management and dispense the diet from the kitchen or cafeteria and delivery of the diet to the ward and receipt it by the ward. The patient the bystanders can request. The system should have capability to track the diet order status online. The system should have capability to communicate with dieticians when and where necessary. The system should be integrated with all relevant subsystems/modules, such as EHR, Finance, RCM, inventory, etc. This module should be linked with the patient port enabling patients to make requests directly by his or her mobile terminal.

## **Proposed modules : Ambulance Management Module**

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### **Modular overview :**

This module manages ambulances and transport related activities such as booking, Allocating, monitoring the trip, fuel management, ambulance service management etc. Allocating ambulances and all other vehicles, keeping records of the vehicles (including maintenance records) and connect to the revenue cycle management and finance module facilitating direct, real-time update are expected from this module. The module should have capability to allocate medical crew, including equipment and instruments also.

- Ability to categorize all vehicles in the hospital into different categories defined by the hospital administration (i.e. staff vehicles, ambulances, transportation etc.).
- Ability to maintain electronic vehicle request mechanism to vehicles. All the vehicles in the transport pool should have schedule timetable in which the authorized person can get allocated time slots after getting the approval from the authorized officer. The schedule should have the following functions.
  - Ability to restrict viewing and access of vehicle schedules according to user roles. (Users can access only particular category of vehicles assigned to them).
  - Ability to make vehicle requests online if the required time slot is available.
  - Ability to authorize the request by the transport office electronically.
  - Ability to book vehicles even for the current time slot of the vehicle is available.
  - Ability to mark the request as normal, urgent, very urgent and mandatory and indicate the reason for the request.
  - Ability to cancel, reschedule and edit the vehicle schedule by the authorized person at any time. Even though the event has started the system should be capable of cancelling the current event if possible and schedule new event if the requirement is urgent and mandatory.
- Ability to maintain ambulance request electronically and track all events of the ambulances. The following functionalities are expected.
  - Ability to maintain ambulance schedule (time slot allocation for each and every ambulance separately).
  - Ability makes ambulance requests electronically by any terminal of the hospital.
  - Ability to make ambulance requests via call center of the Hospital, Patient portal, Hospital web site etc. All these terminals should be provided to see the real-time ambulance schedule timetable.

- Ability to mark the request as normal, urgent, very urgent and mandatory and indicate the reason for the request.
- Ability to cancel, reschedule and edit the vehicle schedule by the authorized person at any time. Even though the event has started the system should be capable of cancelling the current event if possible and schedule new events if the requirement is urgent and mandatory.
- Ability to capture trip distance and send it to revenue cycle/ financial management module to calculate the trip cost according to the rate assigned in price matrix.
- Ability to capture the time taken for the event and record it.
- Ability to assign ambulance staff (Driver, para medical staff and helper) to the ambulance and record the profile and tag it to the ambulance event for future references.
- Ability to maintain a check of the equipment to be in the ambulance if necessary.
- The system should have capability to maintain a vehicle management database including minimum of below mention functionalities
  - Basic vehicle details including number, type (Car, Van, Trishaw , Ambulance etc.), data of purchase, condition of the vehicle when purchased (brand new, recondition, used) and any other comments.
  - Vehicle maintenance details including history of service, repairs and accidents, schedule of services, insurance installment to be paid, loan installment or to be paid etc. It should capture all details about repairs, services and upgrades. The expenses involved with all these activities should be sent to the revenue cycle/ finance management modules real-time updating the revenue cycle.
  - The trip data of all trips by each vehicle includes, date, time, name of the driver, distance (odometer readings), start and end locations etc. (expected to calculate distance automatically using odometer readings, but ability to enter the distance manually also be there).
  - Ability to track fuel consumption details of vehicles including ambulances. The system should record date, amount of fuel filled, cost of fuel, and driver of the vehicle when filling fuel.
  - The relevant details important for revenue cycle and finance management should be transferred to revenue cycle management and finance module in real-time ensuring the smooth function of these modules.
  - Ability to maintain the job card and service card of all vehicles.
  - Service date should be automatically informing the relevant department.

**Proposed modules : Revenue cycle management system**

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**Modular overview :**

Revenue cycle management system should have ability to handle/ manage all hospital service price/ costing offered to the patient/ client. It should have capability to have different pricing structure for different service delivery endpoints as per the defined costing rules by the hospital administration. It should have capability to manage different pricing structures for different types of patients (eg. Cooperate packages) as per the hospital's defined rules. This should manage special discount schemes to various players (insurance companies) too. Managing hospital packages, providing different pricing structure for package items also done by this module. The system should have capability to activate or deactivate or impose different pricing structure, package structure or pricing according, discounts etc. according to the particular time period. This module should handle various loyalty schemes and so on too. This system should capture all income and expenses of the Hospital at the time of occurrence directly. It should be capable of updating the finance module (Finance module of HIMS or 3rd party) online or as per the Hospital administrator's requirement. The system should have capability to manage "long active packages" (eg. IVF package throughout the IVF cycle)

capturing advance payment, installment payment etc. in a continuous cycle. The mapping between the finance module and HIMS should follow standard finance protocols and it should allow Hospital chart of accounts to be updated correctly. The Revenue Cycle Management System should have capability to capture all transactions that have happened and passing them to the finance system. The system should be capable of capturing and passing income or expenses happen from any unit/ department as defined by the hospital administration.

- General Requirements – hospital service/ Item price determination
  - Ability to activate and deactivate special discounts or service prices for a specific time period and ability to assign it as a repetitive task (every Sunday).
  - Ability to give discounts only for the items/services which are not covered under the insurance, while item/ services covered under insurance cover are treated as normal.
  - Ability defines nationality wise tariff for all hospital services or defined group of services.
  - Ability to calculate service charges based on,
    - Time/ duration.
    - Amount/ units utilized (volume, flow or units).
    - Number of items/ goods utilized.
    - Men hours utilized.
    - Utilization of the floor area.
  - Ability to assign different profit margins according to the selling price of the item. (E.g. if the value of a drug is 100 LKR a 50% margin will be applied and the selling price is 150 LKR. However, another drug is 5000 LKR the profit margin will be 20%.
  - Ability to group services as per LH requirements and ability to use the defined groups for sorting out items, providing group-wise discounts etc.
  - Ability to capture income and expenses at the time and place of occurrence.
  - Ability to configure bill trigger point as per the requirement of LH.
  - Ability to assign different profit margins for items/ goods as service margin for different unit/ department of the hospital. The service margins will be decided by the hospital administration and changing them from time to time. (Maintain a price matrix to address different profit margins for different services in different locations (departments and units) of the hospital which will be defined as special service charges over the MRP.
  - Ability to tag the predefine billing information (as per LH) to each category of ward/ unit or room facilitating quick calculation of the bill at discharge. (Different billing profile matrix for different types of beds)
  - All prices should be applied to the same currency and decimal number policy. A user changes the format of decimal number; all transactions should be applied the same policy. The number should be shown with defined number of decimal numbers, thousand separators etc. as per the LH requirement.
  - Ability to convert cash bill to credit bill. When such a change is made the total bill should be altered according to the hospital's defined rules and business requirements.
  - Ability to clearly defined encounter transactions and finalize the complete bill for the particular transaction.
  - Ability to define episodes clearly and ability to capture all transactions related to the particular episode and finalize the complete bill for the particular episode. An episode may have single encounter to several encounters. The active duration of an episode is varying from 1 day to several years.
  - Ability to capture transactions for a particular episode, even if the patient's original encounter is different from the time of admission. In such a case the system should allow user to select and attach the particular transaction to the intended episode at the time of originating the order.
- Determination of the final selling price

- Ability to calculate the actual cost of item, service, procedure or any billable item with the breakdown of “consumable, Labor and Overhead”. (Hospital is expected to give the breakdown)
- Ability to capture the MRP but the MRP should not be the final selling price unless approved by the authority. The system should allow us to sell the items disregarding the MRP when and where necessary.
- The Hospital adopts location-based pricing which can be modified as per the hospital defined business rule (E.g. Same service/ Item will have different selling price at different location of the hospital. The location-based selling price can be further modified according to other rules such as cash payment, credit card payment, cooperate etc.)
- The LH expectation is a separate billing rule/ business rule engine which can determine the final selling price after considering all the rules which are captured during various patient-hospital interaction interfaces.
- Hospital “Packages” Management
  - Ability to create hospital specific packages, cooperate packages, special discount schemes, loyalty packages etc. by the Hospital train staff.
  - Ability to include several hospital services in a one package (BOM) and when the particular package is selected all the items included in the package should be billed and applied in the transaction for the package defined price scheme.
  - Ability to defined different prices for Hospital services when attaching to the package. The package service price will be determined by giving a discount, reducing a defined amount etc.
  - Ability to issue defined number of items/ services from a defined item groups when issuing the items. (E.g. when package creation 5 tabs of paracetamol as Rapisol. Panadol or Parasitole will be included. However, when delivering the item only 5 tablets will be issued from any brand mentioned or as a combination.)
  - The system should have an UI to capture the actual number of items used for the patient under the package. (Predicted Vs. Actual)
  - When delivering the package, only the issuing items should be updated in the inventory.
  - Ability to change the assigned package at any time toward a different package or normal billing.
  - Ability to activate package for a defined time period as per LH requirement automatically. The time period may be continuous or selected set of date in a week or a month.
  - Ability to assign special discounts in a particular time period for selected number of services. (It is expected to apply the discount during the said time period automatically).
  - Ability to combine several packages for a single patient or encounter
  - Ability to attach special packages or discounts after starting the hospital patient encounter and billing process.
  - System should be capable of billing items used outside the package separately if necessary and attached to the final bill.
  - Ability set the trigger point of the package manually by the LH requirement. (E.g. at the time of admission, at the time of the commencement of the procedure etc.)
  - Ability to mentioned doctor’s payment as a separate item in the package. (However, if doctor charges his charge within the package and outside the package it should be clearly visible in the bill.
  - Ability to give discounts over the package if the Hospital administrators need.
  - Ability to activate packages at any given time as per the LH requirement.
  - Ability to attach multiple packages to a single patient in single encounter and bill accordingly.
  - Ability to bill all items and services not included in the packages separately and make a separate invoice if necessary. Ability to consolidate all out of bill transactions and provide any amount (0% to 100%) of discount. Ability to provide item-wise discount.
  - Ability to assign packages at any time at admission, during the stay, at the time of discharge.

## Proposed modules : Billing, Payment and Insurance

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### Modular overview :

This module should manage all invoices, billing, payment, cancelation, refund, deposits etc. The module should have capability to implement a workflow for billing, refund, cancelation authorization too. The intended module should seamlessly integrate with all the other modules exposing all billable transactions on to one interface where the billing manager can have 365 view to finalize the billing and payments. The module should have capability to integrate with payment gateways (As per the hospital requirement) to manage online payments. The system should have capability to handle insurance payments, authorization, claim submissions and claim approval too. The billing system should manage the OPD simple billing, OPD complex billing and IPD billing scenarios. The system should be capable of handling encounter (Ref HL7 encounter resource) based billing process. The system should provide “multi payer” for a single payment (encounter) concept.

- IPD - Billing and payment
  - Ability to select all final bill determining factors at the time of encounter creation (E.g., Cooperate packages, special discount schemes, Insurance discounted packages, Membership discounts etc. as per LH requirement). The system should allow them to capture these details at the time of patient registration too. However, the details should be validated and updated with every encounter creation. The final billing point should have edit, update all payers, patient related details as per the authorization assigned.
  - Ability to assign multiple payers (more than one insurance provider, out of pocket by the patient, president fund etc.) per one patient at the time of encounter creation.
  - Ability to have different pricing and discounting structure for different types of payments.
  - Ability to give items, service wise discounts at the bill finalization if necessary.
  - Ability to give discounts to the total bill at the billing point if necessary.
  - Ability to provide discount or lump sum reduction even after completing the payment. In such an instance the system should have capability to follow LH defined approval workflow. The discount given should be linked to the LH defined account. Chart of accounts will be provided by LH at the time of implementation.
  - Ability to finalize total patient bill within 30 minutes of physical discharge if all required transactions have been updated in the system.
  - If patient account is having a deposit, the available amount should be displayed at the billing and bill finalization points. Ability to deduct total bill or part of the bill using the deposit.
  - If patient have a deposit, patient should have capability to deposit money at any time. (Eg. remaining after paying the bill).
  - Ability provides any % discount (0 to 100) at bill payment as per the LH workflow. If such a discount is given the hospital accounts should be updated as per the LH chart of account structure.
  - Decentralize billing and cashiering.
  - Ability to handle charity and government funds according to criteria defined by the Hospital.
  - Ability handles local purchase and petti cash
    - Ability to utilize collected money for LP and Petti cash by the counter and settle it later in emergencies. HL workflow and authorization flow is applicable.
    - Ability to assign sealing for each department/ authorized person for LP and petti cash and update the LP/ petti cash account dynamically and transfer them to the finance module.
    - Ability to track all expenses of these accounts.
    - Ability to visualize running balance of the LP/ Petti cash accounts.

- Ability assigns profit margin for items purchased through LP and issue directly to the patient in emergency with prior authorization.
  - Customizable frontend according to the customer's requirement.
  - Customizable dashboard.
  - Ability to calculate country specific taxes and other charges to be returned to the government tax department. (The cashier front end should display all taxes and returns clearly) If there is payment to be made, it should be done after deducting all government payables.
  - Ability provides discount (item wise or to total bill amount) as per the LH workflow and authorization flow.
  - Ability to manage handing over taking of the duty list including work list (bills to be finalized, billing to be completed, payment to be completed etc.) and cash in hand.
  - Ability to accept partial payment and complete the discharge with prior approval.
  - Ability to accept deposits, refunds against the patient.
  - Ability to customize the bill finalization process as per the LH workflow. Clinical discharge >> Notification to all relevant department >> Approval >> Final Approval by billing dept. >> Finalization >> Payment
  - Ability to finalize bill with pending tests, procedures medications etc.
  - Ability to keep encounters open if necessary.
  - Ability to separate episode base transaction for an encounter and
  - keep them outside the encounter billing, attaching it to the relevant episode if required.
  - Ability to see episode transactions and finance status at any given time. Running bill of the episode.
  - Ability to finalize total patient bill within 30 minutes of physical discharge.
  - Ability to give discounts for samples collected by defined collecting centers and other centers.
  - Cashier should not be allowed to see "system total cash". It should be displayed only at the time of cash return to the financial module.
  - Ability to handle payment using foreign currency. The system has ability to pay bills using USD. The total bill should be transferred to USA (from LKR). ready to do the payment.
  - Ability to convert cash bills to credit or vice versa. When such a conversation is applied it should be done according to the LH defined rules and policies.
  - For credit bills, bill finalizing (freezing point) should be configurable as per LH requirement.
  - Ability to receive payment in multi-currencies or several types of currencies. If the payment is made by a foreign currency, the relevant conversions should be made automatically according to the currency conversion rates published.
  - Ability to accept any payment method (Cash, credit cards, PayPal, EZ cash etc.)
- **Insurance/ cooperate bill clearance**
  - The system should have capability to segregate bills according to the payer wise. The total number of bills per payer should be list together under a single payer invoice. This invoice is sent to the payer with a cover letter. The covering letter should also be generated automatically by the system as per predefined templates. The covering letter format and content may differ from payer to payer.
  - The system should have capability to track all players' receivables (Payment) against the total payment. If there is a mismatch the system should have capability to indicate it to the user.
  - If the payer pays the due in stages, the system should have capability to track and display all partial payments against the patient invoice number. The system should track the transactions, till the payment is completed by the payer. All incomplete payments should be notified to the assigned group of authorized persons as per the LH requirement.
  - The system should have capability to transfer all unmet debts as per the LH workflow to the finance department from time to time for reconciliation.

- Ability to issue a bill to the patient without payment.
- **Professional payment (Consultant's channeling payments) handling**
- Ability to handle consultant's channeling fee separately on a day today basis.
- Ability to assign different channeling fee for different doctors.
- All government taxes and returns should be calculated from the HIMS and payables to the doctors should be finalized.
- Hospital charges should be added separately.
- Ability to apply taxes separately to Hospital portion and doctors' portion.
- Ability to refund doctor's fee even after completing the consultation upon the request of doctors.
- Ability to refund Hospital fee even after completing the consultation if requested.
- Ability to refund total fee even after completing the consultation if requested.
- Ability to capture channeling fee without doctors' charges if necessary.

**Proposed modules : Billing, Payment and Insurance**

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**Modular overview :**

This module should manage the payment of the professionals who are not in the hospital employee list. It should have capability to collect professional charges from all hospital defined staff categories and pay them easily without a delay. This module should have capability to manage different price scales for different time slots as defined by the Hospital. The doctor channeling system should be capable of integrating 3rd party channeling systems available in Sri Lanka.

- This module manages the consultant doctor channeling and payment activities of the hospital. Detail description of the required functionalists is as follows.
- The system should have capability to maintain a hospital consultant list. This list will be managed by the local staff, and the system should allow the hospital administrators to add, update and delete new entries.
- When a new consultant is enlisted, the system should have capability to inform all the others in the list via SMS or Email.
- The module should be capable of maintaining a consultant's work schedule which includes all consultants including pathologist/ radiologists etc.
- The consultant work schedule should be managed (add, update, delete) by a local trained responsible person.
- If consultant request, ability to create new appointments even if the current session is completed with same consultation fee or different fee.
- The system should be design in such allow to allocate any number of appointments to a consultant per day. If consultant does multiple sessions per day each and every session should be treated as different sessions and appointment scheduling should be done separately for each session.
- The system should be capable of allocating patients without considering the specialty of the consultant. But in the consultant's work list, the name of the consultant should be listed under the relevant specialty enabling the user to search for the consultant easily.
- Consultant channeling fee management
  - The system should have ability to assign different pricing structures for different consultants.
  - Ability to assign different pricing structures for different sessions even for a same consultant.
  - Ability to have different pricing structure for special appointments within the normal appointment session. (Patient will pay additional amount and get a priority visit number.

- Channeling bill should have capability to handle consultant payment and hospital payment separately. Two portions should have capability to treat differently, assigning two different tax profiles, refund and cancellation policies. Final bill should clearly indicate the total bill with two portions.
- System should be capable of refund consultant payment (full or partially) separately with or without tax portion even after completing the patient encounter/ consultation. The system should have capability to adopt LH refund policy and workflow.
- This module should integrate with revenue cycle management and finance modules online passing all relevant data to manage revenue cycle and finance modules.
- The system should be capable of integrating with e-channeling systems operated in Sri Lanka.
- Ability to define the doctor portion as a defined amount, as a percentage of the total price or as portion of revenue sharing.
- Ability to define additional allowances for consultants over the regular consultant fee as an individual incentive for selected consultants.
- Ability to define patient referral fees to the doctor/ consultant.
- The system should have capability to calculate tax portion of doctors as per the policy or rules of LH.
- Ability to define different tax profiles for different services.
- Ability to maintain accounts for every doctor/ consultant etc. The account should have ability record all doctor/ consultant related transactions (payment, advance, refund etc.) and ability to generate reports as per LH requirement)

**Proposed modules : Hospital order and stock management (procurement and inventory)**

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**Modular overview :**

The Order and stock Management module should address the order inquiry, order requests, quotation request and handling, purchase order, GRN, invoice and payment of all clinical and non-clinical goods. Orders can be placed from any ancillary department by any user in the hospital, depending on the authority level assigned to the employer. The module should have capability to automate the order process integrating all the other relevant sub systems. The system should have the capability to track the order status throughout the process. The system should maintain a supplier list. The system should have capability to maintain expiry dates, MOQ, ROL, MOQ etc. for any hospital items as per the hospital requirement. This should maintain the store, sub stores, ward stores and floor stores etc. The authorized users should have capability to visualize transfer items seamlessly between the stores. The system should have capability to handle non- GRN items and petty-cash also. The system should be capable of handling rate contractors and consignments also.

• **The Order and stock Management module should address the order inquiry, order requests, quotation request and handling, quotation assessment, purchase order, GRN, invoice and payment of all clinical and non-clinical goods. Orders can be placed for any ancillary department by any user in the hospital, depending on the authority level assigned to the employer. Expected features are as follows.**

- Ability to manage stocks of all clinical and non-clinical items tagging suppliers, item cost, date of receive, expiry date if any, discount given if any, date of purchase order, person who checks and received the goods, and in hospital distribution.
- Available stocks should be displayed with all relevant details to facilitate order/ request requirement from any staff terminal. The order entry process should be decentralized, i.e., an order can be placed from any PC within the hospital after logging in to the application and based on user rights.
- The system should have the capability to handle the following order types
  - Single order for single quantity

- Single order for multiple quantities
- Single/ Multi departmental order
- Repeat order
- Cancellation of order at any time before publishing the quotation
- Ability to consolidate all requests done in a given period of time in a given category and put them as single request if necessary.
- Ability to refer the past requests, recall them, edit them and prepare new requests easily. Complete order request with items, amount requested and the prices at the time of good receiving should be loaded.
- Ability to define Minimum Order Quantity (MOQ), Reorder Level (ROL), Lead time etc. for different items at different stores separately.
- There should be an option to identify the urgency of an order.
- There should be an option to cancel/ return or modify (depending on the status of the process) any order at any time of the procurement process. Only authorized users can cancel, modify or return orders.
- The status of any order should be updated automatically, real-time, by the system to enable users to have an online review of the status of any order for any patient. The order inquiry should have following capabilities.
  - Users should have the ability to review the status of any order online from anywhere within the hospital based on Login ID.
  - There should be flexibility to review the status by department, location, ordering person, status, order item, date etc.
  - The system should have ability to create Report on Cancelled/ returned and modified orders separately, sorted by department, order type and user id.
  - Inquiry and report on outstanding orders for more than a specified period.
- Ability to generate all documents/ reports related to the process of ordering, inquiry, quotation, purchase order, GRN, invoice and payment.
- Ability to review utilization of goods recorded in department wise, time frame wise, person wise etc.
- Ability to display stocks available at any given time for any item. When a request in made available stock of the particular item should be shown in the display.
- Ability to track inter department/ unit transfer of goods with history.
- Ability to perform all GRN related activities and assign MRP or profit margin at the time of GRN.
- Inter departmental transfer
  - The system should allow inter departmental transfer of items seamlessly and all such transactions should be recorded in the system for future referrals. The history of interdepartmental transfers should be logged into the system
  - Interdepartmental transfer should have following steps. 1. Intent of transfer, 2. Authorization (online), 3. Transfer request, 4. Transfer request acceptance, 5. Good released by the stores etc. Item requests from the main stores should follow the same steps. (User configurable approval levels)
- Ability to maintain a supplier's database in the Hospital. This database should have ability to get updated automatically.
- Prepare tender documents for the items if required.
- Ability to send prepared tender documents automatically to the suppliers via email or manually
- Ability to capture bids from the suppliers and analysis them automatically comparing the price tag and generate reports.
- Ability to send purchase orders to the suppliers electronically or manually
- Ability to compare PO and GRN electronically to check the errors and defects.

- Ability to handle payments after GRN. The system should have capability to handle all type of payments such as chase, Credit, cheque etc.
- Ability to cancel, modify, partial acceptance and return items at any time.
- A mechanism to handle free items and discounted items assigning them the MRP as per the hospital rules and policies.
  - Mentioning purchase value as “00.00”
  - Mentioning purchase value is less than the actual GRN price (dividing the total price by the total number of received goods)
- Ability to handle “rate suppliers” as per the workflow, rules and policies of LH.
- Ability accepts items without GRN and GRN without PO
- Ability to maintain separate stock for consignment items without attaching to the main inventory if necessary.
- Ability to capture exact payment method for non GRN or GRN without PO receivables
- Ability to define price for consignment items as per LH rules/ policy and bill it for the patient.
- The system should be capable of configuring to LH specific order entry workflow with required authorization touch points. LH is having different workflows with different authorization touch points for different item categories, different price slabs of the procurement etc.
- The system should be capable of configuring LH specific GRN acceptance to payment workflow with required authorization touch points. LH has different workflows with different authorization touch points for different item categories, different price slabs of procurement etc.
- Ability to change the order by the authorized person at procurement. If such a change is made it should be notified to the person who placed the order.
- The system should have capability to attached/ upload relevant documents at all relevant touch points. From order indent to payment.
- The system should be capable of handling returns against GRN, without GRN, Expiry etc.
- Ability to select the fund category (vote) at the time of order intend, order placed, finalizing the tender document etc.
- When issuing goods, the system should display 1st out shortest expiry.
- However, there should be capability to override it manually.
- The system should have capability to accept returns from different suppliers.
- The system should have capability to accept returns from different items within the price quotation with authorization.
- The system should have capability to handle service orders (e.g., constructions). The system should have capability to track payment against the work done.
- The system should have capability to accept goods in (GRN) stages. In such cases, it should be defined at the time of order or procurement authorized person. The GRN point should show the aggregate receive goods.
- Ability to handle foreign procurement processes. Ability to select different currencies at the time of preparing the tender document.
- The system should have capability to calculate and show the item wise lead time.
- The system should have capability to generate intend order automatically if the item reorder level is reached. However, it should be authorized to be an order request.
- Ability to show past purchase history of items when and where necessary. (Amount purchased, price of the goods etc.)
- Ability to accept partial orders.
- The Back End (DB) should be capable of providing necessary data to get the

- Turnover Time (TOT) of the complete procurement process through BIT.
- The system should have mobile interface for selected group of users, enabling them to handle selected sets of activities online as per LH requirement.
- System notification for the short expiry items at the time of GRN
- Ability to modify GRN in special case with prior approval as per the LH defined workflow
- Ability to see all payment method/ accounts of the supplier at the time of GRN and payment if necessary. The system should show all active and inactive accounts of the supplier.
- Ability to do single payment in several methods or accounts. In such a case the system should show the amount paid against the accounts and should show the total amount.
- Ability to set notification trigger level (customizable automatic notification generation) by the system as per user requirement, such as when reach ROL, when supplier not responded after one week, not delivered items after one month.
- Ability to issue items from several batches as single issue/ transfer.
- **Expiry handling (The system should have capability to handle short expiry items efficiently)**
  - Ability to see LH defined items (Short expiry items) separately by the authorized user on a single screen.
  - The system should show short expiry items in different colors in all the places.
  - Ability to change the expiry date by the system with prior approval.
  - Ability to maintain the expired items in a separate list and keep it till discarded by the hospital.
  - Ability to indicate short expiry items at the time of order and GRN.
  - Ability to notify the relevant departments when the expiry date of an item reaches a certain time limit. Master data should be capable of capturing the notification trigger point at the time of creating the item.)
- **Report and dashboard**
  - The system should have capability to provide reports and statistics as per the request by the end user at the time of implementation by HIMS itself. The list of reports will be provided by LH.
  - Ability to customize dashboard as per user, department.
  - The DB access should be provided to integrate with 3rd party BIT to generate reports and statistics.

**Proposed modules : Patient queue management module**

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**Modular overview :**

The queue management system will manage patient queues in the OPD and any patient gathering areas automatically. At the registration (when a patient encounter is created) the patient will be issued a number which is generated automatically by the system indicating the consultation room to go, doctor and the queue number. The display at the consultation room indicates the queue number which is being catered by the system when the patient encounter is created. The LED or LCD screen in the patient's waiting areas will display the consultation rooms and queue numbers which are catering currently as a summary. At the pharmacy, Laboratory, radiology etc., a patient token number is generated at the time of the encounter creation, and it will be displayed at the relevant counter.

- Allocating any consultation room to any consultant at any time.
- Ability to change the queue number displayed on the display at the consultation room by the doctor or the nurse in the room by a compatible device provided.
- Ability to manage all queue numbers issued by the master control room.

- The LED or LCD panels in the patient's waiting areas will automatically update according to the current catering queue numbers.
- Ability to self-registration and obtain a queue number by the patient using computer terminals provided.
- To control the queue at pharmacy, all laboratories, health screening unit, Radiology units and all patients gathering areas etc.
- Ability to connect all devices of the PQMS using the existing Local Area Network (LAN)
- Ability to control the PQMS using central data management system of the HIS

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**Proposed modules : Alerts and Notification / Dashboards**

**Modular overview :**

This module should seamlessly integrate with all the other modules and should have capability to generate notifications, alerts, and messages as per the pre- determined trigger points which will be decided by the hospital. The system should have capability to create customizable templates (notification, alert, and message) by trained in-house staff. The system should have capability to generate rule-based notifications also when and where necessary. The system should have capability to integrate with SMS gateway, e-mail gateway etc. to send messages in the system and outside.

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**Proposed modules : Asset management Module**

**Modular overview :**

Asset management in general should have capability to manage Asset lifecycle, inventory, Preventive and Predictive Maintenance. It should register all items defined as assets by the Hospital under assets registry. It should have capability to locate the exact physical location of the asset with the past moment tracking. This module should integrate with the finance and accounting system to depreciate the assets according to the accounting standards.

- Ability to maintain a hospital asset registry including followings (minimum of)
  - Name of the asset with all its component.
  - The cord number which should be descriptive indicating the type (defined by the Hospital) and department/ unit which it belongs to.
  - Request details (who, why and when the request to purchase the asset made).
  - The date of purchase.
  - Machine serial number, Manufacture number and name, model number and year, vendor information.
  - Original cost.
  - License Number, warranty number (if applicable)
  - Employee Assigned Asset (if applicable)
  - Information of the Maintenance Company (Contact details)
  - Warranty/Maintenance Information
  - Estimated useful life & Age of the asset.
  - Information about the condition of the asset (e.g., good, idle, obsolete, broken, etc.)
  - Replacement Cost – This field can be updated as needed by users
  - Ability to track deleted, disposed or theft.
  - Disposal Information, If any.
- The asset registry should have following capabilities
  - Addition, deletion and changed.

→ Capture asset transfer.

→ Depreciation.

- The system should provide fully integrated bar-code technology for physical inventory tagging upon acquisition/purchase and annual inventory certification(s).
- The system should have ability to differentiate between leased assets and purchased assets. The payment of the leased assets should be transferred to finance module to manage the lease payments schedule.
- The system shall provide the ability to support a physical location hierarchy (i.e., parent/child relationship) of at least three levels. The system should show the current location of the asset with the history of the locations.
- The system should have capability to link component units (parent/child relationship) whereby each component maintains a financial life of its own. The system shall provide the ability to link accounting activity (e.g., asset movement, depreciation, etc.) relating the department/ unit/ room in a Hospital and its contents to a cost center.
- The system should be capable to integrate with the finance, inventory (General Ledger) modules automatically capturing all data required to manage revenue cycle.
- The system should allow user to specify the depreciation amounts if required.
- The system should prevent the depreciation of an asset's value below zero.
- The system should be capable of calculation asset depreciation using any of the chart of account elements (straight line, decline balance, sum of the year digits, hours used, mileage) or specified by the user and transfer them to relevant chart of account and automatically charge depreciation to multiple charts of accounts for split-ownership assets.
- The system should have capability to track replacement needs for assets (e.g., tracks estimated useful life and provides electronic notification to users when useful life threshold is nearing).
- The system supports user-defined time periods for recording depreciation.
- The system shall provide the ability to store an acquisition date and a depreciation-start date, without the dates having to be the same.
- Ability to categorize capitalized and non-capitalized assets according to the Hospital defined criteria.
- The system should provide the ability to produce a depreciation report by asset category, such as buildings and equipment.
- The system shall provide the ability to maintain warranty/service agreement information for assets, by type of asset.
- The system should be capable of assigning a responsible person for assets if required.
- System provides an audit trail of all changes made to asset records.
- The system should have ability to transfer fixed assets within or between organizations at the individual asset level and to generate the appropriate accounting entries. (The system should provide the ability to store accumulated depreciation in a static field for purposes of transferring the assets).
- The system should provide the ability to record and track regular/preventive maintenance performed on selected assets.
- The system shall provide the ability to notify of warranty or service agreement expiration on selected assets.
- The system should provide the ability to maintain an audit record of any and all changes to assets by user ID and date-time stamp.
- The system should have the ability to track the detailed cost for each item that makes up a whole asset.
- The system should have the ability to track the detailed cost for each item including repair cost, maintenance cost etc.

## Proposed modules : Medical device management

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### Modular overview :

The medical device management system should manage all medical devices of the hospital. It should track all details of the device/ equipment/ instrument from purchase date covering the whole life cycle of the item. It should keep track on all maintenance work including preventive maintenance, repairing activities etc. The system should track the person who requests the equipment when and where necessary. The system should have capability to track the generated revenue per given time period, amount expended for repairing and maintenance per given period, number of tests done by the equipment by the system etc.

- The system stores required, as per the Hospital requirement, information about all the medical/ clinical related equipment in the hospital.
- The system should have capability to show the exact location of the equipment, floor wise, department wise, room wise etc.
- The system should maintain a pedigree record of the equipment (person ordered, reason for ordering, purchase date, number of test procedures done by the equipment to date, age of the equipment, earnings by the equipment etc.)
- Maintenance record should be maintained.
- The system should alert about the servicing date to the biomedical department according to the schedule.
- The system should be capable of posting user requests for support or any other assistant to the biomedical department electronically (messaging) and the solution given should also be recorded with the time and the person attended from the Bio-Medical department. The TOT for process should be indicated when necessary.
- The module should enable the capture of costs per equipment serviced at any time.
- The application should remind the engineers when the scheduled maintenance for equipment is due during a specific period of time. Assist in preventive maintenance.
- The applicant should maintain all the job costs associated to particular serviceable equipment and enable the tracking and monitoring of all costs per equipment.
- Spares stocks should be integrated into the other stocks items and transferred to GL.
- A listing of non-resolved/resolved user request per day/month/week
- The system should give reports on downtime hours and repair hours per equipment.
- A summary of all maintenance costs per particular period of time.
- The system should have capability to send SMS notifications as per the LH workflow touch points if needed.
- The system should be compatible with reading and captured devices using bar code.
- The system should have capability to create devices with components. The components may have different warranties and condemned duration.
- The system should have capability to track the complete device or/ and its components.
- The system should provide facilities to “condemn” medical devices if they are unusable. LH has its own workflow and SOP to condemn items.
  - The system should be customizable or configurable to comply with LH item condemnation workflow.
  - System should have provided capability to record the reusable components of the condemn item into the department sub store for future usage.
- The system should provide facilities to upload necessary documents to the system for future references (E.g. user manual at the time of item creation in the system, service invoice at the time of servicing, invoice at the time of completion of repair etc.)
- After completing the installation, repair or maintenance, the relevant parties should be notified automatically by the system.
- The system should have capability to create profiles for technicians attaching a specific group of equipment/ instruments / device for easy referencing.

- Ability to create “On loan” instruments as temporary. However, these instruments should be treated in the same way as a permanent instrument till it is operational in the Hospital.

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**Proposed modules : User Management Module**

**Modular overview :**

The User Management module should have functionalities to manage “user role” and authentication processes management required for the smooth uninterrupted function of HIMIS. It should be fully compatible with the existing HR system, and the proposed HIMIS should be integrated with the proper HR system of the hospital.

- User Management – User Creation/Termination/Permissions Grouping/Specialization mapping
- Ability to define password policy with configurations
- User Role management – Create module roles/Alter/Block and Unblock
- Employee master – Create/Block and unblock/Alter
- User Licensing model should be proposed.
- Licensing should be mentioned clearly for 1000 Concurrent Users (500 Beds) +LIS and the cost to be provided for each additional license
- If only LIS, Bidder should be providing the number of concurrent users count by separately

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**Proposed modules : Complaint management, incident management and customer feedback**

**Modular overview :**

Complaint management and incident management play very important role in patient safety and quality assurance in the modern healthcare system. Customer feedback is very important in business improvement and marketing programs of the Hospital. The expected system should have capability to provide minimum of following functionalities.

- Customer/ Staff complaint management system,
  - Patient complaint management system should have capability to capture all patient and staff complaints with identity or anonymously as per the hospital defined format and send to the relevant authority as per the hospital defined workflow. The system should have capability to track the solutions given for issues and time taken to resolve the problems.
  - The system should capture Date and time automatically.
  - The system should provide complaint capturing capability through web portal, hospital app, HIMIS system itself etc.
  - Any user should have capability to make complaints through his/ her user logging page. If the complaint is made through user logging, the system should have capability to record the user identity automatically.
  - Name of the complainer and identification (TP, email, address etc.) (However, they should not be mandatory fields). System should allow to place complaints anonymously.
  - Field to capture the person, department/ unit, ward, section against which the complaint lodges. (The list will be provided by the Hospital)
  - Field to capture the main category and subcategory of the complaint. (The list of categories will be provided by the Hospital)
  - Field to capture the person, department to be informed, if the complainer needs. (The list will be provided by the Hospital)
  - A comment box to capture the complaint without text limitation.

- All complaints should be listed on the authorized person's terminal.
  - The complaint management workflow and SOP will be provided by LH.
  - Field to indicate the status of the complaint (not resolved, informed to relevant authority, resolved) by the relevant person.
  - Ability to categorize the complaints critical, Major, minor, negligible by the quality assurance department.
  - Field to indicate the solution given.
  - Ability to show basic statistics such as, categories which have
  - received most complaints, the department, person who have
  - received most complaints etc. On an easily readable dashboard. The list of reports expected from the system will be provided at the time of the implementation.
- Incident management system,
    - Ability to report incidents by any authorized person through the system using their li account.
    - The system should capture Date and time automatically.
    - Field to capture the department/ unit, ward, section against which the incident happened. (The list will be provided by the Hospital)
    - Field to capture the main category and subcategory of the incident. (The list of categories will be provided by the Hospital)
    - Field to capture the common solutions given after the incident and reasons for the incident. (The list will be provided by the Hospital)
    - A comment box to capture other remarks without text limitation.
    - All incidents should be listed on the authorized person's terminal.
    - The incident management workflow and SOP will be provided by LH.
    - Field to indicate the actions taken by the quality assurance relevant person.
    - Ability to categorize the incidents critically, Major, minor, negligible by the quality assurance department.
    - o Ability to show basic statistics such as, categories which most incidents happened, the department, person who has had most incidents etc. on an easily readable dashboard. The list of reports expected from the system will be provided at the time of the implementation.
- Customer feedback system,
    - The system should capture Date and time automatically.
    - The system should provide complaint capturing capability through web portal, hospital app etc.
    - Identification of the person (TP, email, address etc.) (However, they should not be mandatory fields). System should allow to place complaints anonymously.
    - Field to capture the person, department/ unit, ward, section against which the feedback is given. (The list will be provided by the Hospital)
    - Field to capture the main category and subcategory of feedback to be given. (The list of categories will be provided by the Hospital)
    - Field to capture the person, the feedback is targeted if necessary.
    - The template for customer feedback will be given by LH initially. However, the system should allow the feedback questioner to template time to time by LH staff by themselves.
    - A comment box to capture the feedback without text limitation.
    - All feedback should be listed on the authorized person's terminal.

→ Ability to show basic statistics such as, categories which have received most complaints, the department, person who have received most complaints etc. On an easily readable dashboard. The list of reports expected from the system will be provided at the time of implementation.

**Proposed modules : RIS/PACS**

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**Modular overview :**

The Radiology Information System (RIS) and Picture Archiving and Communication System (PACS) should have capability to manage hospital specific radiology workflow and report authorization process. It should integrate with all relevant modules (EHR, POES, Billing and payment, Finance, inventory, and stock management) to automate the RIS workflow. The RIS should come with radiology modality request, scheduling capability. The radiographer should have scheduled the modality and reschedule, cancel modality booking if necessary. The system should allow radiologists to use a single software application to manipulate images and access the entire patient's medical record. The workstation interfaces should be optimized for radiologist workflow, including support for predefined templates, an intuitive report editor, and voice-recognition and dictation capabilities. Multi- resource appointment scheduling, image distribution, and patient billing should also be included. The RIS/ PACS should have capability to integrate with all available radiology modalities of the Hospital.

**Proposed modules : Financial Management Module**

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**Modular overview :**

The system should provide general ledger, accounts payable, accounts receivable, fixed assets, and cash management solutions enabling a current, consolidated, and fast view of the financial status of the Hospital at any point in time. Payments received from customers in Patient Finance and Accounts Receivable, and payments paid to vendors in the Accounts Payable system, should be reconciled with bank statements and credit card statements in Cash Management system. The system should be integrated with the revenue Management system coordinating of charges, cashier, claims management, and a centralized policy set- up tool. By integrating all real-time inpatient and outpatient charges generated during a patient visit, the system should provide quick access to current patient demographic and billing information 24 hours a day, 7 days a week, across systems. The system should have ability to generate bills to an unlimited number of payers according to the policies assigned to the patient's visit.

**Proposed modules : Business Intelligence Tools (BIT), Hospital statistic Analytics and administration dashboard**

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**Modular overview :**

The system should have capability to analyze all available data to provide real time statistics to the authorized administrators allowing them to have real time vision of the hospital operations, financial status, inventory, and stock status etc. at any given time. The BIT should have capability predict future requirements essential for operation of the hospital, stock management and financial requirements analyzing the available data providing all necessary BI statistics relevant to hospital business administration. The System should have capability to integrate with any 3rd party standard BI tool, enabling the administration to analyze the data as per their requirement. The system should have the capability to expose the DB to in- hospital data analysis team to run their own SQL queries to analyze data.

**Proposed modules : Generating reports and statistics**

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**Modular overview :**

The supplier should agree to provide set of reports and statistics in an easily accessible manner using the report/ statistics dashboard. The list of reports/ statistics to be generated and the format of the reports will be given to the supplier at the time of implementation prior to the UAT.

**Proposed modules : Telemedicine**

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**Modular overview :**

The system should have provided capabilities to establish remote patient consultation system. The patient can book appointment and establish a connection over suitable end device (mobile, Tab, Laptop etc.). The system should have capability to prescribe medication by the physician. The system should have capability to send the lab and pharmacy requests to the authorized lab or pharmacist. The system should have capability to integrate with IOT based remote patient monitoring systems in future if necessary.

- Ability to provide unique Patient numbers and create an encounter for telemedicine.
- Ability to make appointments over telemedicine network from clients (remote patient location).
- Ability to have voice and video connectivity.
- Ability to attach the medical data transmitted to be part of the patient EMR.
- Ability for the remote doctor (client) to access patients EMR.
- Ability to update pharmacy, lab, radiology and procedure modules directly by telemedicine module.
- Ability to prepare medication and dispatch them from the relevant pharmacy store.
- Ability to transfer the EMR data of the patient upon request from the telemedicine client.
- Ability to use the telemedicine network to possibly support tele-education.

**Proposed modules : Patient safety and clinical auditing module**

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**Modular overview :**

This module will help to keep track on all clinical activities from patient arrival to discharge (encounter creation to close) using healthcare standards and/or Hospital defined trigger points against the time. The system should have capability to record Turn Over Time (TOT) using the pre-defined trigger points. The system should have capability to keep tracks on all activity logs against the users.

**Proposed modules : Mobile app/ responsive web application**

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**Modular overview :**

- The system should have a mobile platform (Responsive web or App) which is capable of providing hospital defined functionalities (such as patient registration, appointment booking, accessing patient clinical summary, accessing radiology images, accessing lab reports etc.) to selected group of users.
- The mobile app should have capability to offer PHR (Personal Health Record Profile) functionality to the user.
- The mobile app should have capability to facilitate the doctors and consultants as per LH requirements.

## **Proposed modules : ART Management module**

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### **Modular overview :**

The Advanced Reproductive Technology Management (ART) module will manage the Lanka Hospital ART laboratory workflow and activities. It should have capability to manage patient registration and administration workflow specific to the ART services such as managing complete ART cycle. The system should have capability to manage sperm bank and embryo bank too. The system should have capabilities to maintain specific patient consent templates specific to the specialty.

- The tentative integration touch points are as follows. However, the exact work scope of integration to be decided at the time of implementation.
- The tentative touch points are as follows.
  - Patient registration, encounter creation, episode creation from HIMS to existing system.
  - Price master data and order entry from HIMS.
  - Inventory requests UI for ART lab.
  - Interface to capture store item utilization.

## **Proposed modules : Home care management module**

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### **Modular overview :**

Lanka Hospital expect basic home care module initially. It should be capable of offering basic home care functionality such as registering the patient for home care, assigning a home care “Care team” including hospital outside care team members. The system should have capability to assign care plan for the home care patient with activities and goals etc. The system should have capability to integrate with a fully fledged, IPT based homecare system in future if necessary.

- Ability to create an encounter for “home care” and record all clinical and non-clinical transaction under this encounter.
- Ability to Mobile based customized EMR to capture all patient related clinical activities, medications and orders.
- Ability to have a different price structure for homecare services.
- Ability to design home-care care-plan by a authorize person nominated by the LH and attached to the patient.
- The care plan should have minimum of following features,
  - Notification by the system automatically all the care team in advance to plan the care team activities.
  - Ability to have goals, set of activities to achieve the goal and the person responsible for managing the goal.
  - Ability to see the progress of the goal by the care team members and the patient.
  - Ability to edit the care team at any point.
  - Ability to assign members to the care team who are not in the hospital (outsiders).
  - Ability to do referrals
- Ability to send notification to the patient automatically reminding care team activities, schedules and medications. This should be LH, patient configurable.
- Ability to make requests directly by patient homecare app or wed portal.
- Ability to connect/ integrate IOT based patient monitoring devices when and where necessary and automatically monitor the patient condition.
- Ability to integrate 3rd party remote patient monitoring systems in future.
- Ability to connect to the LH by the patient (SOS request).
- Ability to do remote/tele-consultation through the system.
- Ability to connect 3rd party consultants to get 2nd opinion if necessary.

- Ability to check the running bill by the patient or authorize person.
- Ability to make payment through the APP or web portal.
- The doctor and care-team manager should have facilities to access the system, patients at any time anywhere using the system.
- System should allow patient-doctor-care manager directly. However, all the payment for these transactions should be captured automatically by the system as per the billing structure.
- Configurable dashboard for all users and report as per the LH requirement.
- The dashboard format and list of reports will be provided by LH at the time of implementation.

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**Proposed modules : Integration and interoperability**

**Modular overview :**

1. Lab equipment integration (HL7, ASTM or equipment specific)
2. Integration with Radiology modalities (DICOM or VNA)
3. Integration with other software applications (Finance, LIS, HR, BI Tool, External channeling managers, Insurance etc.)
4. Integration with IPPBX if necessary (The system should have capability, finalization to be done at the time of implementation)
5. Payment and SMS gateway.
6. Application Capable to align BCP/DR.
7. Medical database ICD-10 AM/CM, MIMMS, SNOMED, LOINC, CPT –Procedure coding etc.)
8. Integration with the existing car parking system.
9. The system should comply with HL7
10. Data encryption – 128 bit or better.

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**Proposed modules : Laboratory Information System**

**Modular overview :**

Lanka Hospital Diagnostics (LHD), a premier entity within The Lanka Hospitals Group, stands as one of Sri Lanka's leading diagnostic service providers. Our comprehensive laboratory network comprises a state-of-the-art central reference laboratory, supported by eight (8) strategically positioned regional laboratories across the island. Through our extensive infrastructure of 90 company-owned collection centers and approximately 1,200 third-party collection centers nationwide, we ensure accessible, quality diagnostic services to communities throughout Sri Lanka.

Operating in accordance with internationally recognized quality standards, LHD maintains accreditation from the College of American Pathologists (CAP) and ISO 15189, demonstrating our unwavering commitment to excellence in laboratory medicine.

**Current Infrastructure**

Our operations are currently supported by a robust Laboratory Information System (LIS) that effectively manages all clinical and billing operations while interfacing seamlessly with more than 80 laboratory analyzers. This technological foundation has enabled us to deliver consistent, reliable diagnostic services across our extensive network.

LIS function should be caved as follows,

**Phlebotomy & Sample Collection Management**

- **Patient Identification & Collection Workflow**
- Patient Registration & Verification:

- Multi-modal patient identification: Barcode, QR code, RFID, biometric, and unique patient identifiers
- Demographic data capture with validation against national ID systems
- Duplicate patient detection and merging capabilities.
- Support for multiple patient types: Walk-in, scheduled appointments, inpatient, outpatient, emergency, VIP, corporate clients.
  - Insurance and corporate billing verification.
  - Consent management with electronic signature capture
- Billing & Order Integration:
  - Real-time bidirectional integration with billing systems.
  - Customizable billing formats and invoice templates.
  - Multi-currency and multi-payment mode support.
  - Discount and promotional code management.
  - Credit facility and corporate account management.
  - Order modification and cancellation workflow with proper authorization.
  - Advance payment and partial payment tracking.
- Queue Management System:
  - Intelligent queue management across hospital and collection center locations.
  - Token generation with estimated wait time display.
  - Priority-based queue sequencing (emergency, elderly, pediatric, VIP)
  - Digital signage integration for queue status display.
  - SMS and mobile app notifications for queue status.
  - Queue analytics and reporting for operational optimization.
- Sample Collection Preparation:
  - Automatic generation of collection worklists based on orders.
  - Pre-printed barcode labels at registration or collection point.
  - Label verification against patient and order details.
  - Rules-based validation engine:
    - Correct sample type for ordered tests.
    - Appropriate collection container and tube type.
    - Required sample volume calculations.
    - Fasting requirements and patient preparation instructions.
    - Timing restrictions (e.g., therapeutic drug monitoring, hormone panels)
  - Multi-sample collection requirements with proper labeling.
  - Pediatric and geriatric collection protocols.

### **Phlebotomy Worklist Management**

- **Intelligent Worklist Generation:**
  - Dynamic worklist creation based on multiple parameters:
    - Location and department.
    - Collection time windows and appointment schedules.
    - Test priority (STAT, urgent, routine).
    - Sample stability and processing requirements.
    - Phlebotomist skill level and workload balancing.
  - Configurable worklists for different operational models:
    - Inpatient (IP) worklists by ward, floor, or room.
    - Outpatient (OP) worklists by clinic or service area.
    - Collection center specific worklists.

- Mobile phlebotomy route optimization.
- Real-time worklist updates as new orders arrive or priorities change.
- Worklist filtering and sorting by multiple criteria.
- Print and mobile device compatible worklist views.
- **Collection Time Management:**
  - Scheduled collection time slot management.
  - Time-sensitive test reminders and alerts.
  - Timed collection protocols (e.g., glucose tolerance, cortisol rhythm)
  - Collection sequence optimization for multi-test patients.

### Sample Collection & Tracking

- **End-to-End Sample Lifecycle Management:**
  - Complete sample status tracking with timestamps:
    - Pending collection.
      - Collection in progress.
      - Collected.
      - Rejected (with mandatory reason codes).
      - Recollection requested.
      - Sample in transit.
      - Received at laboratory.
      - Under testing.
      - Completed.
    - Real-time status updates are visible across all collection points and laboratories.
    - Sample aging alerts and expiry notifications.

### Quality Control at Collection:

- **Rules-based sample rejection criteria:**
  - Hemolysis, lipemia, icterus detection.
  - Insufficient quantity.
  - Incorrect collection container.
  - Mislabeling or unlabeled samples.
  - Clotted samples.
  - Temperature abuse.
- Mandatory rejection reason capture with photographic evidence capability.
- Automatic recollection order generation.
- Rejection rate analytics by location, phlebotomist, and test type.

### Chain of Custody:

- Complete audit trail from collection to disposal.
- Phlebotomist identification and electronic signature.
- Collection timestamp with location verification.
- Sample handover tracking between phlebotomist and transport.
- Transport person identification and acceptance timestamp.
- Laboratory receipt acknowledgment.
- Custody breach alerts and investigations.

### **Sample Transport Management:**

- Transport batch creation and manifest generation.
- Sample temperature monitoring during transport.
- GPS-based transport tracking for mobile collections.
- Transport time monitoring and alerts.
- Sample receipt verification at destination laboratory.
- Transport condition documentation (temperature, handling).

### **Home & Mobile Phlebotomy Operations**

#### → Mobile Workforce Management:

- Mobile Phlebotomist assignment and scheduling.
- Route optimization algorithms for efficient collections.
- Mobile application for phlebotomists with offline capability:
- Patient appointment details.
- Collection instructions and protocols.
- Sample barcode scanning.
- Sample collection timestamp and GPS location.
- Digital patient signature capture.
- Offline data storage with automatic synchronization.
- Real-time location tracking of mobile phlebotomists.
- Customer communication: Appointment confirmation, arrival notification.

#### → Home Collection Workflow:

- Online and phone-based home collection booking.
- Address verification and geocoding.
- Service area coverage validation.
- Patient special instructions and accessibility requirements.
- Payment collection at home with receipt generation.
- Sample pickup scheduling from homes to laboratory.
- Customer feedback and satisfaction rating.

### **Phlebotomy Inventory & Indent Management**

#### → Consumables Inventory Control:

- Location-wise inventory management for collection centers.
- Indent creation and approval workflow.
- Stock issuance tracking by phlebotomist and date.
- Usage monitoring: Tubes, needles, syringes, cotton, bandages, antiseptics.
- Par level maintenance and automatic reorder alerts.
- Expiry date tracking with FEFO (First Expire First Out) principles.
- Stock takes and cycle counting functionality.
- Usage analytics and wastage reporting.

#### → Consumable-to-Test Mapping:

- Automatic calculation of required consumables based on test orders.
- Bulk indent generation for anticipated collections.
- Cost allocation and consumption reporting.

### **Biomedical Equipment Management**

#### → Equipment Request & Tracking:

- Integrated work request system for biomedical and IT support.
- Request categories: Breakdown, preventive maintenance, calibration, new equipment setup.
- Work order assignment to biomedical engineers.
- Status tracking: Open, assigned, in progress, completed, verified.
- Parts inventory for repairs.
- Service history and maintenance logs by equipment.
- Equipment with downtime tracking and impact analysis.

→ Calibration & Preventive Maintenance:

- Scheduled maintenance calendar with automatic reminders.
- Calibration due date tracking.
- Equipment performance monitoring.
- Compliance reporting for regulatory audits.

**Accessioning & Sample Receipt**

→ Accession Number Management:

- Automatic generation of unique accession numbers with configurable formats:
- Sequential numbering.
- Date-based prefixes.
- Location or department identifiers.
- Check digit validation.
- Support for single accession per patient visit or multiple accessions per patient.
- Linking multiple samples to single accession.
- Accession number barcode generation.

→ Sample Registration at Laboratory:

- Bulk and individual sample registration workflows.
- Barcode scanning for rapid accessioning.
- Sample verification against collection manifest.
- Visual sample quality assessment and documentation.
- Sample aliquoting and derivative sample tracking.
- Test order verification and sample-to-test mapping.
- Sample storage location assignment (rack, position).

→ Sample Integrity Verification:

- Pre-analytical quality checks:
- Sample volume adequacy.
- Sample type correctness.
- Sample condition assessment.
- Container integrity.
- Proper labeling verification.
- Transport temperature compliance.
- Rejection at accessioning with documentation and notification to collection center.

→ Problem Sample Management:

- Tracking of rejected samples with root cause analysis.
- Repeat sample request workflow with priority flagging.
- Discrepancy resolution process.
- Communication to ordering physicians and collection center.
- Metrics on sample rejection rates and reasons.

## Laboratory Operations

### Test Definition & Management

- Comprehensive Test Catalog:
  - Hierarchical test organization: Departments, sections, test groups.
  - Individual test and panel/profile definitions.
  - Test attributes:
    - Test name, code, aliases, synonyms.
    - Clinical indication and test purpose.
    - Required specimen type(s) and volume.
    - Collection container and additives.
    - Patient preparation instructions.
    - Test methodology and principle.
    - Performing laboratory/section.
    - Turnaround time (TAT) expectations.
    - Test cost and billing codes.
    - CPT/LOINC code mapping.
    - Component test definitions for multi-analyte tests.
    - Reflex testing rules and algorithms.
    - Add-on test capabilities with stability windows.
- Specimen Requirements:
  - Specimen type library: Blood, serum, plasma, urine, CSF, tissue, etc.
  - Container types: Tubes (color-coded), bottles, swabs, slides.
  - Minimum and optimal volume specifications.
  - Sample stability criteria: Temperature, time limits.
  - Specimen handling and processing instructions.
- Analytical Methods:
  - Method documentation: Principle, reagents, instruments.
  - Reference method information.
  - Method validation documentation.
  - Interfering with substances and limitations.
  - Quality control requirements per method.
- Reagent & Consumable Mapping:
  - Test-to-reagent linkage for automatic consumption tracking.
  - Reagent lot tracking and expiry management.
  - Calibrator and control material assignments.
  - Cost allocation by test.
- Equipment Assignment:
  - Test-to-analyzer mapping for automated result interface
  - Backup analyzer configuration
  - Maintenance schedule by equipment

### Reference Ranges & Clinical Decision Support

- Dynamic Reference Ranges:
  - Age-specific ranges (neonate, pediatric, adult, geriatric)
  - Gender-specific ranges
  - Pregnancy trimester-specific ranges
  - Ethnic population variations (if applicable)

- Conditional reference ranges based on patient characteristics
- Critical value and panic value thresholds
- Automatic flagging: Low, high, critical low, critical high
- Drug-Test & Drug-Drug Interactions:
  - Medication interference database
  - Drug-test interaction alerts at ordering
  - Therapeutic drug monitoring protocols
  - Toxic level alerts
- Clinical Interpretive Comments:
  - Auto-generated interpretive comments based on result patterns
  - Evidence-based clinical guidelines integration
  - Diagnostic algorithms and decision trees

### **Profile & Custom Panels**

→ Standard Profiles:

The system should provide configurable, pre-defined panels commonly used in clinical diagnostics, including but not limited to:

- Basic metabolic panel
- Comprehensive metabolic panel
- Lipid profile
- Liver function tests
- Renal function panel
- Thyroid function tests
- Anemia workup
- Diabetes panel
- Profile modification and version control

→ Custom Panel Creation :

- Support the creation, configuration, and management of Physician or client-specific custom panels
- Corporate health checkup packages
- Wellness and screening profiles
- Allow configuration of package-based pricing, including:
  - package-level pricing
  - bundled pricing rules
  - discounts and promotional pricing

→ Formula-Based Calculations:

- Support the automatic calculation of derived and computed laboratory results, including but not limited to:
  - LDL cholesterol (Friedewald or equivalent formula)
  - Creatinine clearance
  - Corrected calcium
  - Serum osmolality
  - Clinical ratios (e.g., albumin / globulin, LDH isoenzyme percentage)
- Support configuration of additional user-defined formulas without software customization.
- Provide a custom formula builder that supports:
  - mathematical functions
  - conditional logic
  - rounding rules
  - unit conversions

- Support multi-test result dependencies, where calculated values are derived from:
  - multiple analytes within the same order
  - results across multiple profiles or panels
  - Automatically recalculate dependent values when source results are updated or corrected.
- Maintain version control for all formulas, including:
  - formula name and description
  - version number and effective date
  - change history and reason for change
  - user ID and timestamp
- Ensure calculated results are clearly identified as derived values in reports and the audit trail.

### **Specimen Handling & Processing**

- Specimen Indexing:
  - Centralized and distributed specimen indexing models
  - Inpatient specimen collection and transport tracking
  - Outpatient specimen walk-in registration
  - Reference laboratory incoming specimen registration
  - External client sample registration
- Bulk & Individual Acknowledgment:
  - Batch acknowledgment for multiple samples
  - Individual sample-by-sample verification
  - Barcode scanning for rapid acknowledgment
  - Sample sorting and distribution to departments/sections
  - Sample storage and retrieval management
- Sample Routing & Workflow:
  - Intelligent test routing to appropriate laboratories/sections:
    - Chemistry
    - Hematology
    - Immunology
    - Microbiology
    - Molecular diagnostics
    - Histopathology
    - Cytology
  - Automatic sample splitting for multiple departments
  - Send-out test identification and specimen preparation
  - Refer-out test tracking and result retrieval
- Pending Sample Monitoring:
  - Dashboard for collected but unacknowledged specimens
  - Aging report for samples awaiting acknowledgment
  - Missing sample investigation workflow
  - Sample receipt escalation alerts
- Re-collection Management:
  - Insufficient quantity recollection requests
  - Sample quality issue recollection
  - Lost sample recollection
  - Communication to collection centers and patients
  - Recollection priority handling

## Results Management

### Results Entry & Verification

- Multi-Modal Result Entry:
  - Automated result interface from analyzers.
  - Manual result entry with data validation.
  - Result entry by test, patient, worklist, or batch.
  - Result entry templates for complex tests.
  - Free-text result entry for descriptive tests.
  - Structured data entry for microbiology and molecular tests.
  - Image and document attachment capabilities.
- Inpatient & Outpatient Result Handling:
  - Separate workflows optimized for IP and OP settings.
  - STAT result prioritization and expedited reporting.
  - Critical value notification workflow.
  - Point-of-care test result integration.
- Result Validation & Flagging:
  - Automatic abnormal value flagging based on reference ranges.
  - Panic/critical value identification with mandatory alerts.
  - Delta check: Comparison with previous results Configurable delta check rules by test.
  - Absolute and percentage change thresholds.
  - Delta check failure investigation workflow.
  - Auto-verification rules for normal results within acceptable ranges.
  - Result plausibility checks and outlier detection.
  - Quality control result review before patient result release.
- Reflex Testing:
  - Automated reflex test ordering based on result criteria:
  - Positive screening results trigger confirmatory tests.
  - Abnormal values trigger additional investigations.
  - Configurable reflex rules by test and result pattern.
  - Reflex test approval workflow.
- Verification Workflows:
  - Flexible verification options:
    - By individual test.
    - By batch or worklist.
    - By accession number.
    - By instrument.
    - By result value range (e.g., verify all normal results in batch).
  - Multi-level authorization: Technical verification, pathologist review.
  - Partial authorization: Release some tests while holding others.
  - Verification override with supervisor approval.
  - Electronic signature with user credentials.
- Result Correction & Amendment:
  - Post-verification results in correction with mandatory justification.
  - Amendment workflow requiring supervisor authorization.
  - Complete audit trail of all changes with before/after values.
  - Amended report generation with clear identification of changes.
  - Automatic notification to recipients of original report.
  - De-authorization capability to recall results.
- Critical Value Management:

- Automatic identification based on panic value thresholds
- Critical value notification workflow:
  - Alert to laboratory supervisor.
  - Notification to ordering physician.
  - Nurse notification for inpatients.
  - Read-back verification and documentation.
  - Acknowledgment tracking.
  - Escalation process for unacknowledged critical values.
  - Critical value log and audit reports.
- Result Review & Clinical Correlation:
  - Clinical pathologist review for complex cases.
  - Side-by-side comparison with previous results.
  - Access to clinical history and diagnosis.
  - Integrated comment and interpretation entry.
  - Consultation request to other specialists.
  - Offsite remote result review capability via secure web portal.
- Nursing & Clinical Staff Alerts:
  - Automatic alerts to nursing stations for positive results.
  - Ward-specific result notifications.
  - Integration with hospital EMR for real-time updates.
  - Mobile app notifications for critical results.
- Sub-Department Access Control:
  - Granular permissions by laboratory section.
  - Result visibility restrictions for sensitive tests (e.g., HIV, genetic tests).
  - Confidential test result access logging.
- Automatic Result Release:
  - Auto-release of analyzer results meeting quality criteria.
  - Normal result auto-verification and immediate reporting.
  - Configurable auto-release rules by test, analyzer, and QC status.
  - Exception handling for results requiring manual review.
- Report Types & Formats:
  - Cumulative reports: All results for patients over period.
  - Interim reports: Latest results with cumulative view.
  - Discharge summary reports.
  - Single test reports.
  - Department-wise reports.
  - Graphical trend reports for serial results.
  - Formatted reports with reference ranges and flags.
- Report Customization:
  - User-defined report templates.
  - Customizable report layouts and branding.
  - Laboratory logo and accreditation logos.
  - Header and footer customization.
  - Font styles, sizes, and emphasis (bold, italic).
  - Color-coded result flags.
  - Graphical elements: Charts, graphs, reference range bars.
  - Image embedding (e.g., electrophoresis patterns, histograms).
- Report Distribution:

- Multi-channel distribution:
- Printed reports at collection centers.
- Email delivery to patients and physicians.
- SMS notification with secure web link.
- Patient portal access.
- Integration with hospital EMR.
- Secure fax transmission.
- Priority-based printing: STAT, urgent, routine.
- Location-based report routing.
- Scheduled batch printing for routine reports.
- On-demand report reprinting with access controls.
- Turnaround Time (TAT) Management:
- TAT target definition by test and priority.
- Real-time TAT monitoring and alerts.
- TAT breach notifications and escalations.
- TAT reporting and analytics:
- Pre-analytical TAT (order to collection).
- Collection to laboratory receipt TAT.
- Analytical TAT (receipt to result).
- Post-analytical TAT (result to report).
- Total TAT (order to report).
- Confidential Test Handling:
- Sensitive test result protection (HIV, genetic, substance abuse).
- Password-protected reports.
- Restricted access and viewing permissions.
- Separate reporting workflows.
- Patient consent verification.
- Confidential test result audit trail.
- Comments & Interpretations:
- Free-text comments at test or report level.
- Coded comment library for standardized statements.
- System-generated default comments based on result values.
- Clinical interpretation by pathologist.
- Methodology notes and disclaimers.
- Quality issue disclaimers (e.g., hemolyzed sample)
- Calculated Results in Reports:
- User-defined calculations displayed on reports.
- Formula-based interpretations.
- Ratios and derived indices.
- Clinical scoring systems.
- Report on Delivery Tracking:
- Acknowledgment of report receipt.
- Read receipt for email reports.
- Report on access logging.
- Undelivered report follow-up.
- System Interfaces.
- Billing & Scheduling Integration:
- Real-time bidirectional order and result interface.
- Automated charge capture for performed tests.

- Credit and refund processing.
- Insurance claim data export.
- Appointment scheduling synchronization.
- Instrument Interfaces:
  - Uni-directional (analyzer to LIMS) result interfaces
  - Bi-directional (host-query) interfaces:
    - Test order download to analyzer.
    - Automated result upload.
    - Calibration and QC data transfer.
  - Support for multiple interface protocols:
    - ASTM E1394.
    - HL7.
    - Vendor-specific protocols.
  - Offline instrument operation with result buffering.
  - Automatic synchronization upon connection restoration.
  - Instrument maintenance mode support.
- Middleware & Data Management:
  - Middleware compatibility for complex analyzer networks.
  - Centralized instrument connectivity management.
  - Result validation and verification rules.
  - Automatic repeat and dilution handling.
  - Data transformation and mapping.
- Microbiology Workflow Management:
  - Specimen-centric workflow for culture-based tests.
  - Sample sharing across multiple test groups (e.g., aerobic culture, fungal culture, AFB).
  - Online worksheets for culture observation and organism identification.
  - Preliminary result reporting with automated updates.
- Culture & Identification:
  - Sample source and description documentation.
  - Culture growth monitoring and colony counts.
  - Gram stain and other preliminary test results.
  - Organism identification and nomenclature.
  - Multiple organism isolation from single specimens.
  - Fungal and TB culture protocols with extended incubation tracking.
  - Negative culture reporting after defined incubation period.
- Antimicrobial Susceptibility Testing (AST):
  - Antibiotic panel definition by organism type.
  - Minimum Inhibitory Concentration (MIC) results.
  - Interpretation: Susceptible, Intermediate, Resistant (SIR).
  - Inducible resistance detection.
  - ESBL, MRSA, VRE, CRE identification.
  - Selective reporting based on antibiogram guidelines.
  - Comment integration for resistance patterns.
- Antibiogram Generation:
  - User-defined antibiogram formats.
  - Cumulative antimicrobial susceptibility reports.
  - Location-specific antibiograms (ward, ICU, OPD).
  - Organism-specific resistance patterns.
  - Trend analysis over time periods.

- Infection control reporting.
- Significant Culture Flagging:
  - Pathogen significance rules
  - Critical organism alerts (e.g., Clostridium difficile, Legionella)
  - Multi-drug-resistant organism notifications.
  - Automatic infection control notifications.
- Statistical & Epidemiological Reporting:
  - Organism prevalence by location and time.
  - Resistance trend tracking.
  - Outbreak detection analytics.
  - Infection control surveillance reports.
  - Antimicrobial stewardship data.
- Validation & Quality Control:
  - Culture validation rules by specimen type.
  - Organism-antibiotic combination validation.
  - Editable comments for clinical context.
  - Previous culture result display for comparison.
  - Laboratory Equipment Interface & Inventory.
- Offline Instrument Support:
  - Local data storage during network or system downtime.
  - Automatic data synchronization upon reconnection.
  - Offline quality control result entry.
  - Manual result entry backup process.
- Investigation-to-Consumable Mapping:
  - Test-specific reagent consumption tracking.
  - Automatic deduction from inventory upon test completion.
  - Calibrator and control material usage logging.
  - Equipment utilization tracking.
  - Cost-per-test calculation.

**Laboratory Sub-Store Management:**

- Inventory Control:
  - Multi-location inventory management:
    - Central laboratory main store.
    - Department/section sub-stores.
    - Collection center inventories.
- Item master data:
  - Reagents, consumables, controls, calibrators.
  - Lot and batch tracking.
  - Expiry date management with FEFO principles.
  - Storage condition requirements and monitoring.
- Ident & Requisition:
  - Indent creation by department with approval workflow.
  - Automatic indent generation based on par levels.
  - Indent approval hierarchy.
  - Emergency requisition handling.
- Stock Transfers:
  - Inter-laboratory transfers.
  - Department-to-department transfers.

- Transfer documentation and reconciliation.
- Stock in transit tracking.
- Consumable Issuance:
  - User-based issuance tracking.
  - Test-based automatic consumption calculation.
  - Manual issuance for non-test consumables.
  - Issuance return handling.
- Reorder Management:
  - Minimum and maximum stock levels.
  - Re-order point alerts.
  - Suggested reorder quantity calculation based on:
    - Historical consumption patterns.
    - Lead time.
    - Safety stock.
    - Forecasted test volumes.
- Expiry Monitoring:
  - Near-expiry alerts (configurable thresholds).
  - Expired item identification and quarantine.
  - Expiry-based usage prioritization.
  - Write-off and disposal documentation.
- Reagent Consumption Tracking:
  - Analyzer-reported reagent usage.
  - Test-based theoretical consumption calculation.
  - Variance analysis:
    - Actual vs. expected consumption.
    - Reagent wastage tracking and investigation.
    - Cost allocation by test, department, and patient.
- TAT Definition & Display:
  - Test-wise TAT targets.
  - TAT display at order entry.
  - Real-time TAT status for pending tests.
  - TAT alerts and escalation.

## **Reporting, Analytics & Audit**

### **Operational Reports**

- Summary Statistics:
  - Test volume reports:
    - Test-wise volumes by time.
    - Department-wise test distribution.
    - Location-wise testing activity.
    - Physician ordering patterns and volumes.
    - Operator productivity and test completion metrics.
    - Sample rejection analysis.
    - Re-collection rates and reasons.
- Financial & Productivity Reports:
  - Revenue by test, department, physician, client.
  - Test costing and profitability analysis.
  - Reagent consumption cost analysis.

- Productivity metrics: Tests per staff, per instrument.

### **Quality Control & Quality Assurance**

- QC Result Management:
  - Quality control test entry and tracking.
  - Levey-Jennings charts and Westgard rules.
  - Automatic QC rule violation detection.
  - QC failure investigation and corrective action tracking.
  - Multi-rule QC algorithm support.
- QC Reports:
  - Daily QC review reports.
  - Monthly QC summary.
  - QC reagents lot performance.
  - QC trending and stability analysis.
  - Proficiency testing management and reporting.
- Equipment & Calibration:
  - Instrument calibration tracking and status.
  - Calibration curve review and validation.
  - Preventive maintenance schedules and completion tracking.
  - Equipment downtime analysis.
  - Performance monitoring (precision, accuracy).
- Quality Metrics:
  - Critical value notification compliance.
  - TAT compliance rates.
  - Sample rejection rates by reason and location.
  - Repeat testing frequency.
  - Customer complaints are trending.
  - Error and incident tracking.
  - Quality indicator monitoring per ISO 15189.

### **Audit & Compliance**

- Comprehensive Audit Trails:
  - Complete system activity logging:
    - User login/logout and session tracking.
    - All data entry, modification, and deletion.
    - Result corrections and amendments with before/after values.
    - User identity, timestamp, and workstation identification.
    - Access to sensitive or confidential results.
    - System configuration changes.
    - Report generation and distribution.
    - Tamper-proof audit logs with data integrity verification.
    - Regulatory-compliant audit trail retention (minimum 7 years).
    - Audit trail search and filtering capabilities.
    - Exportable audit reports for regulatory inspections.
- Result Modification Tracking:
  - Detailed tracking of all result changes post-verification.
  - Original value, modified value, reason, and approver.
  - Notification to report recipients of amendments.
  - Result correction analytics and trending.

# Non –functional Requirement Specification of Proposed Hospital Information System

## Non-functional Requirements : Performance Requirement

### Performance Requirements

From the end-user experience perspective, the system's performance at peak load must be sufficient to allow all activities within acceptable time periods for each task. Acceptable period means that the response rate for user activities is within acceptable levels and that the maximum workload per day can be processed within office hours.

Expected performance level for Data Entry Screen (load initial) is maximum 2 seconds.

Expected performance level for Inquiry Screen is maximum 5 seconds.

Expected performance level for Patient Profile Search is maximum 3 seconds.

Expected performance level for Regular Reports is maximum 30 seconds.

The network latency time at the slowest links used for remote office connectivity must be taking into consideration when calculating the response times.

Ability to login to the systems at LH branches, and at LH head office where at each location there will be separate user authentication function enabled.

The system should be able to login through the internet, or the system should be web enabled.

Ability to use the system over wide area connectivity.

Ability to share bandwidth with more than 500 simultaneous users.

Ability to perform major period end process updates from remote locations.

Indicate the database platforms compatible

Indicate the operating the system platforms compatibility

### System design requirements

The Graphical User Interface (GUI) must be consistent through all screens with regard to formatting, color schemes, use of control items, etc. The design of the screens must be intuitive, allowing easy learning of the system functionality. Controls with different uses must be different in appearance and behavior (e.g. non - editable fields being greyed).

The GUI should be predictable for the user and should respond in the same manner in similar conditions.

The fields which maybe having same value in subsequent screens should be retained in the system to ease the data entry and minimize inconsistencies at time of data entry.

The control and menu items must be clearly named with concise and clearly labeled indicating the exact functionality. Labels and text should be consistent with the terms used by the Employer whenever applicable.

The controls (buttons, text input fields, etc.) must provide visual feedback on use. The controls should indicate the status whenever applicable (e.g. disabled state, idle state, pending state, activated state, etc.). The feedback must be spontaneous to disallow any ambiguity in the mind of the user whether the task is completed or not (e.g. whether the data was saved or not)

The GUI should allow the user to navigate to any other allowed state (screen) from the current state. However, it should not allow the user to navigate to any other state which is not valid for the current state (e.g. system should not allow the user to save the details of an input form if all the required fields have not been captured. However, the system should allow the user to go to a previous screen to modify the data input previously)

The GUI should provide adequate safety mechanisms to obtain confirmation from the user before performing actions with severe consequences. In such an event, the system must provide informative warnings and request confirmation before committing / abandoning the action. The objective is to make the user feel safe to use the system and not fear trying an option until the system warns of consequence

The system design must ensure that users are always aware of their actions and the consequences of those actions within the system. (E.g. a preview should be preview only and not commit data, data would be saved only when user confirms to save, data saved by a user should be saved against that user's credentials and not by another user's identity, etc.)

The GUI should allow the user to go back to previous screen whenever requested, unless the data has been committed to the system and used for processing. The objective is to provide the users the option to correct any mistakes without having to redo the work from the beginning

The GUI should indicate all options available for the user. Options not available to the user should be properly indicated (e.g. greyed / disabled). GUI should clearly distinguish between options not available due to security restrictions and options not available due to current state of the process

Ability to set up multiple entities

Ability to have software version release control provided so that multiple versions could be maintained

Ability to set up entities assigned to different versions and run any given time

Ability to obtain total system backup from the solution

There should be provision to obtain data only backups/ full backups/ incremental backups/ table level backups

Ability to obtain software only backups

Ability to specify data archiving parameters in all modules, indicate the modules for which archiving not available

The system provides a data interchange tool

The system provided functionality to import data from other legacy systems

The system provided functionality to export data to other legacy systems

The system provides data capture on to screens from data capture devices

The system should be capable of identifying invalid data entry and error handling

## Security Requirements

All users of the system should have a unique username and a password defined by the user.

The system should be able to define password expiry dates.

Passwords should not be readable to all parties including system administrators.

The system should maintain user profiles for all the users. In the case of loss of password ability to assign the same user profiles to login to the system.

Ability should be there to define roles for different user groups and based on the roles, available menu options for users should be defined.

Should support module wise access control as well as menu option wise access control.

Ability to define access privileges (e.g., add, modify, view, etc.) for each menu option for different user groups.

Ability to define Employer / user authorizations.

Ability to define table level user specific data authorizations.

Ability to define field level user specific data authorizations.

Ability to define table and/or field level user specific data authorizations based on user defined conditions.

Ability to define the maximum number of unsuccessful login attempts per user at a given time.

On completion of the maximum number of unsuccessful log-in attempts, the system should lock-out access to the user.

Authority to unlock a user profile should be provided only to System Administrator.

The system should restrict concurrent logins for a single user profile.

On successful login attempt, the system should display the last login time and date for the benefit of the user.

Ability should be there to disable user ID for a given period.

Ability should be there to parameterize password features (maximum length, expiry time, case sensitivity, password repeat sequence, etc.) according to the Employer password policy.

Current & historical passwords must always be encrypted one-way when held in storage for any significant period of time or when transmitted over networks.

Ability to activate, deactivate system users at designation level for location. Whenever system user needs to use the system in another location, authorized user should be able to deactivate the user ID from previous location and should activate same in new location.

Ability to set up audit management to trace transactions, system activities, master data changes, printing, reporting etc.

Audit trail by user

Audit trail by program or task

Audit trail by date/ time ranges

Support of the solution on employer's data retention period of 10 years and security obligations under the Laws of the Democratic Socialist Republic of Sri Lanka.

The bidder should enable data encryption mechanisms in the application, database and tools.

The bidder should describe the security architecture of the solution.

The technology solution should comply with ISO/IEC 20000, Globally accepted IT service management system standard and ISO 27000 Globally recognized framework for best practice Information Security Management

## Architecture of the Proposed System

The bidder's solution should facilitate high-availability (99.97%) architecture to fully functioning of the system

The bidder should facilitate a Disaster Recovery solution for the proposed system

The bidder's system should facilitate operating in multiple platform

The bidder's system should facilitate multiple login options

The bidder should facilitate backup such as operating system disk, non-operating system disks, database data files, etc.

The bidder's system should support development tools

Ability to integrate with BI tools, data warehousing and other 3rd party software and hardware requirements.

The bidder should describe the architecture of the proposed solution with necessary documents including the details of the operating system and database platforms for the system.

## Platform Requirements

Availability of Data Connectors allows other systems to integrate with external integration platforms

The solution architecture shall support hybrid deployment capability, where selected patient interaction and external access modules may be hosted securely in a cloud environment while core clinical and operational systems remain on-premises

The application and database shall support deployment on **VMware ESXi 8.x or newer** virtualization platform. The application and database shall support **Microsoft Windows Server 2022 or higher** operating systems in a virtualized VMware environment.

Modules that may be deployed partially or fully in the cloud shall include, but not be limited to:

Patient portal

Channeling/appointment management

Mobile applications

Telemedicine services

## Training

The bidder shall provide adequate training to employed staff to ensure successful utilization of functions and features of the system. All such training should be provided in the manner that each trainee gets a dedicated client terminal and with enough "hands on" experience. The bidder shall propose training components which are required.

The bidder should provide adequate training to employer staff to ensure successful implementation, operation and maintenance of the system in employer. The bidder shall propose training components which are required.

Employer's IT Department is required to provide 1st level support to employer users. The training should be provided to the satisfaction of employer, such that employer staff can perform the operation and maintenance of the systems and databases independently. The bidder shall propose training components which are required.

The bidder shall develop all the training manuals (both document & videos)

The bidder shall provide original training manuals and other relevant materials before UAT to the Trainees.

The bidder shall provide training by eLearning content.

The Trainer(s) who conducts the training shall have the following qualifications.

Shall be a certified professional who has good subject knowledge of the theories.

Shall be a product specialist for all equipment and systems proposed for the tender.

Shall have training skills and be fluent in English and Sinhala or Tamil to conduct the training successfully subject to audience

Functional consultants could conduct the training with the necessary qualifications.

Bidder shall provide required training on Configuration Testing, Trouble Shooting and Maintenance Training, report customization, back up, recovery & restore, Installation & configurations, etc., to employer on request

In addition to the above-mentioned training requirements, the bidder shall propose any other specified training requirements which are needed for employer.

Training to be provided to all users (Including train the trainer program)

Detail Documentation manual to be made available

## Management of User Accounts, Privileges and System Tools

The bidder shall configure the solution to generate reports related to user accounts and their privileges module wise, across multiple modules in a user-friendly manner.

The solution shall capture history of user accounts: dates of activation, changes made, enable and disable history, termination details, etc.

The solution shall support an employee, who needs to access multiple modules with a single user account.

The user authentication shall be done by the Active Directory; the bidder shall do the necessary integrations.

The solution should support Database Authorization Management.

The solution should support Application Development by employer IT User (application development User).

The solution should support menu management.

The solution should provide application-level workflow control to the user.

The solution should contain audit trails to identify users, dates and times of performing transactions.

The solution should support Data Import/ Export Management.

The solution should support Query Management.

The solution should support Report Development for end users.

User management helps in managing user login details and other related activities performed by them after login.

## Disaster Recovery (DR) Requirements

Disaster recovery strategy and proposed solution with: Recovery Point Objective (RPO) = 0.5 Hours Recovery Time Objective (RTO) = 3 Hours

The proposed solution provides data replication.

As per the data replication method, the proposed solution covers the minimum required configurations of the server(s) at the DR site.

The proposed solution provides proof of scalability for the equipment suggested.

Licenses requirement is covered for the DR site.

The proposed solution enables auto data backup. Explain the data backup procedures, tools used and methods of taking backups.

## Security Requirement for Portal

System Should facilitate below mentioned security requirements to be provided in the Web portal

Effective password management controls: The portal solution would have the ability to perform password management functions including:

Controlled password expirations

Forced password changes

Minimum password lengths (eight characters)

Alphanumeric password standards

Minimum number of numeric characters

Non-dictionary words

Password history logging and user lockout from failed login attempts.

Access control to information: The security solution would be facilitating access controls for specific users to only certain resources/services in the portal and at the same time system must provide single sign-on to all functional areas.

Scalable and portable solution: The security solution would provide scalable access services for the Portal, including scalability in terms of number of users, user groups, resources, and access control policies.

Secure Communication over the network: The portal should support the exchange of data through secure channels of communication protected by standards such as the SSL protocol. Such facility should provide the following functionality, at a minimum:

Confidentiality of communication: Encryption of all messages between client and server

Authenticity: Digital certificates to authenticate all messages between client and server, confirming the identities of messages/transactions

Integrity: Message Authentication Codes (MACs) provide integrity protection that allows recognizing any manipulation of exchanged messages.

Secure communication between the user and the portal with SSL and encrypted logon information using algorithms with strong key lengths.

Uninterrupted security services /automated load balancing to backup services: The security solution should provide for load balancing/high availability to enable a fully scalable and available solution. It should enable continued service on failure of one or more of its component parts.

Secure storage of critical items: The security solution would provide for the ability to securely store critical data within the LDAP or other user directory structure or any user related databases so that database administrators or any unauthorized users do not have access to items such as transaction information, passwords, user profiles and other critical items.

Detailed session management abilities: The security solution would provide for session settings such as idle or max session time-outs, concurrent sessions and other session control settings.

Below Mentioned specifications should be considered for users who access the web portal

Public/Individual would access the Web Portal. First time users would have to register themselves on the portal.

First time Individual users would be required to create passwords.

System would prompt users to change transaction password at regular intervals e.g. every 45 days.

Users would also be allowed to change the password as and when required.

Web portal would automatically terminate the login session and log out the user in following scenarios

No activity is performed by user after logging in for a specified time e.g. 10 minutes.

Users accidentally close the portal window during login session system should facilitate reloading the previous session as per a predefined criterion.

## Web Access Filtering

System should be intercepted by the security solution and examined for authentication and authorization requirements defined.

System should perform examine of all web traffic and performing the authentication and authorization requests should not become the bottleneck in the service delivery process and should not impact on the performance of the portal solution.

The security implemented for portal must be capable of comprehensive logging of the transactions and access attempts to the resources/applications through the portal. It should be capable of logging transaction history, unauthorized access attempts, and attempts to login that fail.

It should also be capable of notifying appropriate Lanka Hospital officials of any suspicious activity.

System should facilitate manually creating a work-item (by an authorized official) and assign to an individual.

## Security - User profiles

System should facilitate users creating a profile by registering at the web portal by specifying the details as asked in the Registration form. User also needs to create profile and transaction password at the time of registration.

System should facilitate displaying the date & time of last login when user access the log-in screen

The System must restrict user access based on the privileges assigned to the user

The system should maintain a log of all the activities carried out by a user along with a date and time stamp.

The System must maintain a log of all activities carried out by an administrator.

Information and communications systems handling sensitive information must log all security relevant events.

Examples of security relevant events include, but are not limited to:

Attempts to guess passwords.

Attempts to use privileges that have not been authorized.

Modifications to production application software.

Modifications to operating systems.

Changes to user privileges.

Changes to logging subsystems.

## Other Security Services

The sensitive and confidential information and documents of the users must be stored in an encrypted format in the database.

System should have the facility to support 128-bit encryption for transmission of the data over the internet.

All the systems in solution network should run most up-to-date anti-virus software to avoid malicious programs to cause damage to the systems

Any access to the end users to database should only be via application/portal authorization

Physical security for the solution should address securing all information assets from physical access by unauthorized personnel. For example, the data center server infrastructure should not be physically accessible by anyone other than the persons responsible for on-site maintenance of the systems.

The technology solution should comply with ISO27001 standards. Security certification process should include audit of network, server and application security mechanisms.

Auditing features and requirements: The security solution for portal must provide the capability to track and monitor successful and unsuccessful transactions with the portal. Accountability for transactions must be tied to specific users.

The auditing capabilities facilitated by the system needs to be built into various layers of the portal infrastructure including Application Software, Operating System, Database, Network, Firewall etc.

Detailed audit trail of transactions performed in the system (approvals, rejections, renewals etc.) which should capture the details of individuals performing the transactions, date & time stamp etc.

System should facilitate adequate security measures surrounding the audit data to ensure that audit records are not modified, deleted, etc.

Implementation would have to facilitate Intrusion Prevention Systems (IPS) at all the critical network points, both internal and external, for monitoring and addressing the unauthorized access attempts and the malicious activities in the network

System Should facilitate to activate, deactivate system users at designation level for location. Whenever system user needs to use the system in another location, authorized user should be able to deactivate the user ID from previous location and should activate same in new location.

Security Requirements for Portal Databases: Following outlines the security requirements of the database, which at a minimum (included but not limited to) should be implemented.

Below mentioned are the generic security requirements for the Hospital Information System at LH

All users of the system should have a unique username and a password defined by the user (need not to be unique).

Passwords should not be read even by system administrators.

System should maintain user profiles for all the users. In the case of loss of password System Should facilitate to assign the same user profiles to login to the system.

System Should facilitate should be there to define roles for different user groups and based on the roles, available menu options for users should be defined.

Should support module wise access control as well as menu option wise access control.

System Should facilitate to define access privileges (e.g. add, modify, view, etc.) for each menu option for different user groups.

System Should facilitate to define Employer / user authorizations.

System Should facilitate to define table level user specific data authorizations.

System Should facilitate to define field level user specific data authorizations.

System Should facilitate to define table and/or field level user specific data authorizations based on user defined conditions.

System Should facilitate to define the maximum number of unsuccessful logins attempts per user at a given time.

On completion of the maximum number of unsuccessful log-in attempts, the system should lock out access to the user.

Authority to unlock a user profile should be provided only to System Administrator.

On successful login attempt, the system should display the last login time and date for the benefit of the user.

System Should facilitate should be there to parameterize password features (maximum length, expiry time period, case sensitivity, password repeat sequence, etc.) according to the Employer password policy.

Current & historical passwords must always be encrypted one-way when held in storage for any significant period of time or when transmitted over networks.

Comprehensive audit trail should be available with the system

## Other General Requirements

System Should facilitate to provide integrated reporting tool.

System Should facilitate to generate user defined reports/letters.

System Should facilitate to export data into popular Microsoft packages (MS Word, MS Excel, MS presentation, etc.).

System Should facilitate to export this information into Acrobat PDF file.

System Should facilitate to direct the report output as an e-mail attachment.

System Should facilitate to provide integrated simple query tool.

All processes defined in the document should be supported by workflow management.

System Should facilitate workflow engine to Customize workflows and a document management function connected to it.

System Should facilitate to configure user specific e-mail or system alerts to obtain mail notifications into user inbox.

System Should facilitate to define user IT policy at the time of first login, which the user must read and accept.

System Should facilitate to configure user specific / definable "information screen" that could be shown when a user logs in.

System Should facilitate to provide an inbox of requests, calendar of scheduled tasks for the day on the

"Information screen" for the user based on the workflow assigned to the user.

System should support document tracking facility to trace the physical documents required for each process and to track the physical document (file) movement.

Any update, change, or edit of information in the system should be logged by the system.

All approvals, authorizations and validations should be logged by the system.

The system should be capable of generating predefined exception reports at predefined frequencies (e.g. daily, weekly, monthly etc.).

The system should be able to generate self-explanatory error messages.

System should facilitate maintaining a knowledge base of important Legal documentation.

System Should facilitate providing capability store and retrieve through a predefined structure.

System Should facilitate to define user categories and access privileges for creating and accessing knowledge base i.e. authors , users , reviewers.

System Should Facilitate Maintaining Versions.

Structure is user definable, i.e. when user enters additional data on additional data fields the structure should be such that re-configuration is not required.

The system should provide multi-level online help facilities.

Hardware software and database configurations to be provided by the vender for the proposed application.

Application and vendor to support other application integrations and technologies as per the RFP and with future requirements.

Support the data migration from the existing HIS and other applications.

Application to follow agile software development and develop new technologies.

The vendor to specify the current application development details (development tools and versions and DB)

Also refer below,

The products should be customizable to suit the hospital's requirements

Escrow agreements to be in place

24 x 7 Support (Technical and Call Center)

A technical person to be stationed for a 6-month period after system implementation

The vendor to provide the Operating system, Database and other software's with the versions required for the system implementation

The vendor submits all implementation related architectures in the submitted proposal with clear diagrams

The vendor has the freedom to propose any other additional module of feature with the proposal other than what is already mentioned

**Note:** Since we are using SAP there might be changes to the requirement for the Financial Management Module (Product will be integrated into SAP). Also, the customer feedback system requirements could vary but it should have the capability to integrate with the existing customer feedback system

other requirements.

The required hardware and software architecture needs to be proposed and the system should support the latest technologies Disaster recovery (DR) / High availability / redundancy concept should be supported by the application (BCP Concepts to be address through the application) as well as the proposed HW architecture Business continuity aspect should be addressed (a manual operation on all areas in case of a system down) Comprehensive audit trails / Continues training (Training of all users and Train the trained included) Technical training for the IT staff Data migration Clear and detailed total project implementation timelines.

## Service/Support Provided

1. After the provisional acceptance of the system, the bidder shall provide necessary technical assistance and support to ensure the smooth running of the supplied solutions and their associated operating systems and databases.
2. The technical support shall include but not be limited to the following: System maintenance, On-site technical support, Infrastructure Support, Integration Support, Change request management.
3. The bidder shall provide Ten (10) Year annual maintenance charge (AMC) from the date of OAT and first two years after OAT free of charge for all supporting software components used for the solution.
4. The warranty shall cover application support without any additional charges to employer.
5. The bidder shall maintain the proposed system after the expiry of the warranty period. A separate agreement (Annual Maintenance Contract) to maintain the solution shall be signed at the expiry date of the warranty period.
6. The bidder shall update the employer with both product & addons patches details.
7. The bidder shall provide any released patches to the solution (both product & addons) provided to the employer, free of charge during the warranty period.
8. The bidder shall maintain their product addons throughout it's lifetime.
9. The problems arising during the warranty period shall be logged in the Issue Log and bidder shall have to clear up all issues related to the software.
10. The bidder shall install any software/ firmware upgrades which shall be released by the bidder, in order to keep the systems with the latest patch/ version during the warranty period as well as Annual Maintenance Contract.
11. The purpose of the Annual Maintenance Contract shall be to ensure smooth operations of the solution supplied after the expiry of the warranty period.
12. The bidder shall undertake Annual Maintenance Contract (AMC) with employer by complying with all terms and conditions agreed at the time of signing the contract without any deviation.
13. Under the terms of AMC, the bidder shall be solely responsible for the smooth operation of the application provided by him.
14. The bidder shall prepare a preventive maintenance schedule as appropriate but at least on a quarterly basis and shall obtain prior approval from employer.
15. The terms of AMC shall remain in force for one (01) year from the date of completion of the warranty period.
16. The extension of AMC after one (01) year shall be at the sole discretion of employer and negotiable based on the performance of the bidder during the initial period of one (01) year.

17. The bidder shall agree for the second term without any additional charges, if there is no change made to the AMC.
18. The employer shall have sole authority to terminate the AMC at any point of time according to the terms and conditions in the AMC.
19. The bidder shall agree to Service Levels stipulated by employers, to ensure on-time technical support and to minimize the down time of the System.
20. The Service Level Agreement shall formalize the agreement between bidder and employer to deliver specific support service and levels of support.
21. The SLA shall have different levels of support based on the nature of the problems that arise in the solution provided to employer.
22. The bidder shall provide a tool to monitor the fulfillment of the Service Level Agreement.
23. The SLA shall be applicable during the warranty period as well as during the Annual Maintenance Contract.
24. The failure to meet any SLA obligations shall be subjected to penalties.
25. The bidder shall not request any additional payments for resolving any issues during the warranty and Annual Maintenance Contract.
26. The bidder shall offer Helpdesk function with a single point of contact for application-related calls.
27. The Helpdesk shall take full responsibility and ownership of incidents reported until resolution.
28. The bidder shall provide a central helpdesk number, fax number, email address and helpdesk support access through the web for carrying out maintenance and support services.
29. The bidder shall provide 24 x 7 system support to the Lanka Hospital on incident reporting and resolving through the IT department of the Lanka Hospital.
30. The bidder shall provide the complete process of incident management and problem management.
31. The operation support of Application shall consist of day-to-day management of Operating System(s), Database(s) and Application(s).
32. The development support shall consist of minor developments and customizations (e.g., reports) without touching the core application software, which should enable employer to add new features and facilities as per its requirements.
33. In case of upgrade of the application, the bidder shall ensure the features and capabilities available on the previous version are not compromised in the upgraded version if not enhanced.
34. The bidder shall support to integrate any new software system with the solution based on the employer requirements.
35. The bidder shall support all change requests arising due to business requirements during warranty and Annual Maintenance Contact period.
36. The bidder shall provide the basis of cost calculations for a Change Request.
37. The bidder shall provide impact analysis for all change requests raised.
38. The bidder shall perform a comprehensive hardware and software audit along with a system performance audit at least twice a year.

## Licensing Mechanism

The bidder shall provide a perpetual license for the Hospital Information System and other systems mentioned under the FRS to be used for any number of users of the Lanka Hospitals.

1. The bidder shall provide a detailed document on the license types and access rights respectively.

2. The licensing shall have flexibility and reusability to cater for the staff movement requirements of the organization.
3. The licensing shall have flexibility to activate/deactivate based on the usage
4. The bidder shall provide licensing without any extra charges for Disaster Recovery, Training, Development and Test environments.
5. The price structure for the renewal of licenses shall be clearly mentioned for a period of 10 years after OAT (AMC Pricing shall be locked)
6. The solution should support an employee who needs to access multiple modules with a single user license.
7. The bidder shall not claim any licensing charges for upgrade or modular replacement for the next 10 years from the day of commercial roll-out. Any such modules shall be available for employer at no cost.
8. The bidder shall clearly indicate the number of additional concurrent users that can be supported beyond the initially proposed capacity under the proposed HIS/LIS architecture.

The bidder shall explicitly state:

- Which licenses are included in the base proposal
  - Which licenses are optional
  - Which licenses require separate procurement by the Lanka hospital
9. The proposed solution shall not impose hidden licensing restrictions that limit:
    - Number of hospitals/sites
    - Number of departments/laboratories
    - Number of patient records
    - Number of transactions
    - Number of interfaces/integrations
    - Report generation or data storage
  10. The bidder shall clearly identify all third-party licensing requirements, including but not limited to:
    - Database licenses
    - Mobile application platform licenses
    - Drug Database

## Customer Preference

Preference shall be given to implementations with followings:

- Similar concurrent user capacity
- Comparable hospital bed strength and patient volumes
- Similar module scope and integrations
- Multi-site or enterprise healthcare deployments
- Hybrid/cloud deployment environments, where applicable

The bidder shall provide the following summary details for each reference implementation:

- Hospital/institution name
- Country and location
- Number of hospital beds
- Number of concurrent users
- Implemented modules and scope
- Year of implementation and current operational status

- Contact details of the client reference person, where permissible

The bidder shall confirm whether the Lanka Hospitals team, may visit review reference sites where the proposed solution is currently operational, subject to approval from the respective client institution.

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## Evaluation Process

The evaluation shall be carried out based on the existing features demonstrated in a fully workable version of the proposed HIS/LIS solution.

The bidder shall ensure that the demo version is:

- Fully functional and stable
- Representative of the proposed production system
- Capable of demonstrating all key workflows and modules
- Configured with realistic sample data relevant to hospital operations
- Accessible for evaluation under controlled demonstration conditions

The evaluation shall consider only those features that are:

- Currently available in the proposed solution
- Successfully demonstrated during the technical evaluation/demo session
- Not dependent on future development, customization, or roadmap commitments

Functional evaluation points as follows:

#	Module	Sub-Modules / Key Capabilities	Priority
1	<b>Patient Registration &amp; MPI</b>	Online/offline registration, MRN generation, SL PIN format, barcode/RFID card	T.1
2	<b>Patient Administration (ADT)</b>	Admission, transfer, discharge, LAMA, encounter management	T.1
3	<b>Bed Management</b>	Real-time bed board, virtual beds, booking, housekeeping integration	T.1
4	<b>Electronic Health Record (EHR/EMR)</b>	SOAP notes, specialty templates, patient 365 view, nursing charts	T.1
5	<b>Physician &amp; Nurse Order Entry (CPOE)</b>	Drug orders, lab/radiology orders, nursing tasks, diet orders	T.1
6	<b>Medication Management</b>	Prescribing safety, LASA, eMAR, controlled drugs, reconciliation	T.1
7	<b>Pharmacy Management (IPD/OPD/OTC)</b>	Dispensing, stock, procurement, satellite pharmacies	T.1
8	<b>Billing, RCM &amp; Insurance</b>	Rule engine, packages, multi-payer, insurance claims, SAP integration	T.1
9	<b>Emergency (A&amp;E) &amp; ICU Management</b>	Triage, NEWS2, real-time dashboard, IoT/monitor integration	T.1

10	<b>Operating Theatre Management</b>	OT scheduling, WHO checklist, anaesthetic record, CSSD link	T.1
11	<b>Laboratory Information System (LIS)</b>	Pre/analytical/post workflow, CAP/ISO 15189, HL7/ASTM interfaces	T.1
12	<b>Blood Bank Management</b>	Donor registry, crossmatch, inventory, transfusion tracking	T.1
13	<b>Radiology (RIS/PACS)</b>	Modality scheduling, DICOM 3.0, voice dictation, report distribution	T.1
14	<b>Procurement &amp; Inventory</b>	End-to-end procurement, GRN, FEFO, tender management	T.1
15	<b>Kitchen &amp; Dietary Management</b>	Diet profiles, ordering, kitchen stock, patient portal integration	T.1
16	<b>Housekeeping &amp; Linen/CSSD</b>	Job ticketing, bed turnover tracking, RFID linen tracking	T.1
17	<b>Ambulance &amp; Transport</b>	Booking, tracking, fuel/maintenance, crew assignment	T.2
18	<b>Asset &amp; Medical Device Management</b>	Asset registry, preventive maintenance, depreciation, biomedical	T.1
19	<b>HR &amp; User Management</b>	RBAC/ABAC, AD integration, user lifecycle, audit trails	T.1
20	<b>Patient Portal &amp; Mobile App</b>	Self-service, results, appointments, consent, 2FA	T.2
21	<b>Telemedicine</b>	Video consultation, remote prescribing, IoT integration	T.2
22	<b>Home Care Module</b>	Care plans, remote monitoring, patient app, care team management	T.2
23	<b>ART Module</b>	IVF cycle management, sperm/embryo banking (integration with existing system)	T.2
24	<b>BI, Analytics &amp; Reporting</b>	Executive dashboards, operational KPIs, self-service reporting, SAP BI link	T.2
25	<b>Complaint, Incident &amp; Feedback</b>	Complaint workflow, incident reporting, CSAT, quality dashboard	T.2

26	<b>Queue Management</b>	Token generation, digital display, multi-department coverage	T.1
27	<b>Integration Framework</b>	HL7 FHIR R4, HL7 v2, DICOM, ASTM, SAP, payment gateway, SMS	T.3-T.4

## IT Department Technical Evaluation – Application Technology & Architecture

The ICT/IT Department shall independently evaluate and score the proposed solution focusing on application technology, system architecture, infrastructure compatibility, integration capability, cybersecurity, scalability, performance, and long-term maintainability. This evaluation shall be conducted separately from the functional/user evaluation to ensure the proposed system meets the Lanka hospital’s technical, operational, security, and future expansion requirements.

The evaluation shall include, but not be limited to, the following areas:

#	Evaluation Area	Description
1	System Architecture	Overall architecture design including web-based/multi-tier architecture, modularity, centralized/distributed deployment model, and system design standards
2	Application Technology Stack	Technologies, frameworks, database platform, operating environment, product maturity, and support lifecycle
3	Integration & Interoperability	Capability to integrate with HIS/LIS/PACS/ERP/eClaims and third-party systems using APIs, HL7, FHIR, DICOM, web services, or other standard protocols
4	Security Architecture	Authentication mechanisms, role-based access control, password policies, encryption, audit trails, logging, cybersecurity controls, and compliance with security standards
5	Scalability & Performance	Capability to support future expansion, multi-site operation, increasing transaction volumes, load balancing and high availability
6	Infrastructure Compatibility	Compatibility with existing ICT infrastructure including servers, virtualization platforms, operating systems, browsers, storage, and network environment

7	Backup & Disaster Recovery	Backup mechanisms, database replication, disaster recovery capability, recovery procedures, business continuity support, RPO/RTO capability
8	Maintainability & System Administration	Ease of upgrades, patch management, monitoring tools, configuration management, administrative controls, and system maintenance requirements
9	Database & Data Management	Database standards, reporting capability, data extraction, data ownership, auditability, and portability of data
10	Vendor Technical Capability	Technical expertise, implementation methodology, project resources, technical certifications, and post-implementation support capability

Proposals will be evaluated in a structured four-stage process as follows:

Stage	Stage Name	Description	Gate
1	Compliance & Eligibility Screening	All proposals checked against. Non-compliant proposals eliminated. No scoring. (Refer section II of this bidding documents)	Pass/Fail
2	Technical Evaluation	Technical proposals scored per criteria below. Minimum qualifying score: 70/100. Shortlisted bidders invited for demonstration.	Scored (70% minimum)
3	Product Demonstration	Live demonstration of agreed scenarios. Scored by evaluation panel. Adds to technical score.	Scored
4	Commercial Evaluation	Commercial proposals of technically qualified bidders opened and evaluated.	Scored

## Evaluation Criteria & Weightings

Ref	Evaluation Criterion	Weight (%)	Assessment Method
<b>TECHNICAL EVALUATION (Total 100%)</b>		<b>100%</b>	
T.1	Functional Compliance – Core Modules	50%	Compliance Matrix + Demo
T.2	Functional Compliance – Extended Modules	15%	Compliance Matrix
T.3	System Architecture & Integration Capability (FHIR R4, SAP, DICOM, ASTM)	12%	Architecture Docs + Demo
T.4	Security, Compliance & Standards (ISO 27001, HL7, LOINC etc.)	8%	Certificates + Architecture
T.5	Implementation of Methodology, Plan Quality & Risk Management	8%	Written Proposal
T.6	Vendor Experience, References	7%	References + Financials

Final score of the above function evaluation will be brought to the final evaluation result calculation mentioned in the evaluation criteria under section II ELIGIBILITY AND EVALUATION CRITERIA

**SECTION V. SAMPLE FORMS AND SPECIMENS**

DRAFT

## Bid Submission Form (Single-Stage Bidding)

[The Vendor shall fill in this Form in accordance with the instructions indicated No alterations to its format shall be permitted and no substitutions will accepted.]

Date: To:

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the document issued;
- (b) We offer to supply in conformity with the documents issued and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods ;
- (c) The total price of our quotation including any discounts offered is:
- (d) Our quotation shall be valid for the period of time specified in ITV Sub-Clause 8.1, from the date fixed for the quotation submission deadline in accordance with ITV Sub-Clause 11.1, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (e) We understand that this quotation, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us.
- (f) We understand that you are not bound to accept the lowest evaluated quotation or any other quotation that you may receive.

Signed:

Name:

Date:

LANKA  
HOSPITALS

සුවිනි සැලසේ • CARING CURING • பராமரித்தல் குணமாக்கல்

## Specimen of Manufacturer's authorization

### Manufacturer's Authorization

[If requested under ITV clause 7.3, the Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated.]

Date: WHEREAS

We [insert complete name of Manufacturer], who are official manufacturers of [insert type of goods manufactured], having factories at [insert full address of Manufacturer's factories], do hereby authorize [insert complete name of Bidder] to submit a quotation the purpose of which is to provide the following Goods, manufactured by us [insert name and or brief description of the Goods], and to subsequently negotiate and supply the goods.

We hereby extend our full guarantee and warranty, with respect to the Goods offered by the above firm.

Signed:

Name:

Duly authorized to sign this Authorization on behalf of:

Dated on \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

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HOSPITALS

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## Specimen of Resolution for bidding

(Duly filed Resolution should be submitted in company letter head.)

We hereby certify that the following resolution of the Board of Directors of ..... (bearing Registration No ..... ) ("the Company") was passed at a meeting of the Board of Directors held on the ..... and has been duly recorded in the minute book of the said Company: -

**IT IS HEREBY RESOLVED** that the following personnel be and are hereby authorised to submit the Company's proposal in response to Tender No. .... dated ..... issued by The Lanka Hospitals Corporation PLC, No. 578, Elvitigala Mawatha, Colombo 05, for the provision of .....

Full Name: .....

Designation: .....

NIC No: .....

**IT IS FURTHER RESOLVED** that the following persons be and are hereby jointly authorized, for and on behalf of the Company, to negotiate, finalize, execute and deliver the any Agreement and any ancillary documents in connection with the above Tender, and to do all such acts, matters and things as may be necessary or expedient to give effect thereto, dispensing the requirement to affix the Common Seal of the Company.

<b>Signatory 01</b>	<b>Details</b>	<b>Signatory 02</b>	<b>Details</b>
Full Name		Full Name	
NIC No		NIC No	
Designation		Designation	

**FURTHER** the Company hereby confirms that the above authorised persons have full authority to bind the Company legally in respect of all matters relating to the Tender and subsequent Agreement and the authority granted herein shall remain valid until completion of all contractual obligations arising from the Tender, including execution of the Agreement, unless revoked in writing within fourteen (14) business days prior written notice to The Lanka Hospitals Corporation PLC signed by Two Directors or any one of the Company.

Chairman / Director

Secretary / Director

## Specimen of Performance Guarantee

PROCUREMENT GUIDELINE REFERENCE: **5.4.8 (cont)**

### ACCEPTABLE FORMAT FOR PERFORMANCE GUARANTEE

----- *[Issuing Agency's Name, and Address of Issuing Branch or Office]* -----  
-----

**Beneficiary:** ----- *[Name and Address of Employer]* -----

**Date:** -----

**PERFORMANCE GUARANTEE No.:** -----

We have been informed that ----- *[name of Contractor/Supplier]* (hereinafter called "the Contractor") has entered into Contract No. ----- *[reference number of the contract]* dated ----- with you, for the ----- *[insert "construction"/ "Supply"]* of ----- *[name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we ----- *[name of Agency]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ----- *[amount in figures]* (-----) *[amount in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the .... day of ....., 20.. *[insert date, 28 days beyond the scheduled contract completion date]* and any demand for payment under it must be received by us at this office on or before that date.

\_\_\_\_\_  
*[signature(s)]*

## Specimen of Bid Guarantee

PROCUREMENT GUIDELINE REFERENCE: **5.3.13**

### Format for Bid Security Guarantee

*[this Bank Guarantee form shall be filled in accordance with the instructions indicated in brackets]*

----- *[insert issuing agency's name, and address of issuing branch or office]* -----

**Beneficiary:** ----- *[insert (by PE) name and address of Employer/Purchaser]*

**Date:** ----- *[insert (by issuing agency) date]*

**BID GUARANTEE No.:** ----- *[insert (by issuing agency) number]*

We have been informed that ----- *[insert (by issuing agency) name of the Bidder; if a joint venture, list complete legal names of partners]* (hereinafter called "the Bidder") has submitted to you its bid dated ----- *[insert (by issuing agency) date]* (hereinafter called "the Bid") for the execution/supply *[select appropriately]* of *[insert name of Contract]* under Invitation for Bids No. ----- *[insert IFB number]* ("the IFB").

Furthermore, we understand that, according to your conditions, Bids must be supported by a Bid Guarantee.

At the request of the Bidder, we ----- *[insert name of issuing agency]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ----- *[insert amount in figures]* ----- *[insert amount in words]*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB") of the IFB; or
- (c) having been notified of the acceptance of its Bid by the Employer/Purchaser during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

This Guarantee shall expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the Contract signed by the Bidder and of the Performance Security issued to you by the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder that the Bidder was unsuccessful, otherwise it will remain in force up to ----- *(insert date)*

Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date. \_\_\_\_\_

*[signature(s) of authorized representative(s)]*

## Specimen of Advance Payment Guarantee

Acceptable Format for Advance Payment Guarantee

----- [ Name and address of Agency, and Address of Issuing Branch or Office] -----

Beneficiary -----[Name and Address of Employer]

Date: -----

ADVANCE PAYMENT GUARANTEE No.: -----

We have been informed that ----- [name of Contractor/supplier] (hereinafter called "the Contractor") has entered into Contract No-----[reference number of the contract] dated ----- with you, for the----- (insert "construction" or "supply") of - ----- [name of contract and brief description] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum ----- [amount in figures] (----- ) [amount in words] is to be made against an advance payment guarantee.

At the request of the Contractor, we----- [name of issuing agency] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of----- [amount in figures] (----- ) [amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract. The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor.

This guarantee shall expire, Insert the date, 28 days beyond the expected expiration date of the Contract Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

\_\_\_\_\_  
[signature(s)]

**PRICE SCHEDULE**

THE LANKA HOSPITALS CORPORATION PLC (PQ180)  
Colombo 05  
TENDERLH/ICB/26/1133/ID/P90

Closing on

24/06/2026

NAME & ADDRESS OF MANUFACTURER .....

NAME & ADDRESS OF BIDDER : ..... Quoted Currency .....

#	Item	Quoted Item **	Quoted value of the system without VAT	Total price (with VAT) .	Implementation period	Warranty	Country of origin
1	DESIGN, SUPPLY, DELIVERY, INSTALLATION, IMPLEMENTATION, TESTING, COMMISSIONING AND PROVISION OF TRAINING AND MAINTENANCE OF THE HIS SYSTEM INCLUDING DEVELOPMENT OF OPERATIONAL ACCEPTANCE TESTING AND SYSTEM INTEGRATION WITH THIRD PARTY SOLUTIONS AND CONNECTIVITY TO EXISTING RESOURCES	HIS Including LIS Module Only for HIS Only for LIS				02 Years	

\*\* If a bidder quotes for a comprehensive HIS with an integrated LIS module, a detailed price breakdown for both the HIS and LIS must be provided for evaluation purposes. If a bidder quotes for only one system (either HIS or LIS), the line item for the unoffered system must be marked as 'N/A' (Not Applicable)

We confirm that we have read and understood the terms, conditions and specifications covering this tender and submitted our offer accordingly. In the event of goods being rejected due to un-acceptable quality, free of charge replacement of the rejected quantity or its value and additional 1% of the total value will be charge as a penalty per week but, maximum up to 5% of the total project value for any delay in implementation

Indicate Bid Bond No, value and Validity :-.....

Quotation Valid up to :-180 Days

Name of Bidder : .....

Signature of Bidder : .....

(With Name and Designation of Signatory)

Postal Address of Bidder.....

Telephone No. : .....

E-mail : .....

Fax No. ....

**AMC After Warranty Period**

Year	AMC Cost without Vat Currency.....	applicability of VAT %
1st year		
2nd year		
3rd year		
4th year		
5th year		
6th year		
7th year		
8th year		