

TERMS OF REFERENCE FOR A MODERNISED PHARMACEUTICAL LOGISTICS INVENTORY MANAGEMENT SYSTEM.

A. Introduction:

Samoa has received Grants from the Australian Department of Foreign Affairs and Trade (DFAT) to support the implementation of an effective Procurement and Supply Chain Management System for Pharmaceuticals.

This initiative is a strategic approach that capitalises and maximises use of resources invested by the Government of Samoa and its Development Partners, towards achieving the Health Sector Plan objectives and vision of improving overall health status of the people of Samoa

These Terms of Reference (TORs) is for a contractor/consulting firm to install an effective, reliable, and efficient Pharmaceutical Logistics Inventory Management System for the Ministry of Health in order to effectively manage its Central Pharmaceutical Warehouse and Distribution, as well as Pharmaceutical Dispensing operations.

B. Background:

The Ministry of Health is responsible for delivery of publicly funded health services in Samoa. Pharmaceutical Services provided through National Health Services (NHS) cater to the vast majority of the medications and consumables market in Samoa. The aim of this assignment and other concurrent investments in this area is to improve efficiency of procurement and supply chain management, prevent out of stock situations, reduce wastage, and get better value for money with improved quality of service and medications offered.

A proper Central Pharmaceutical Warehouse has been constructed and the Pharmaceutical Logistics Inventory Management System will be operated in the New Warehouse which is now operational.

Currently NHS has a computerized dispensing and point of sale system (POS) which under its current capabilities no longer meets the organisation's requirements, for a Pharmaceutical Logistics Inventory Management System that addresses **integrated management of pharmaceutical dispensing and inventory stock control (including warehousing and distribution).**

It exists on an unstable/outdated network and infrastructure, and information databases of the two main hospitals' dispensaries (TTM Hospital, Upolu Island and MTII Hospital, Savaii Island) are standalone. Most of the current staff members have not been trained in efficient and competent use of the existing software. Old hardware, various windows operating system editions, networking and internet problems, shortage of IT personnel within the NHS and Samoa also contribute to the overall unsatisfactory situation in the area of pharmaceutical stock control.

The Central Pharmaceutical Warehouse is currently located at the Motootua Compound, behind the Ministry of Health (MOH) Offices in Upolu. All orders from publicly funded health facilities (12

inclusive of the two main hospitals, TTM and MTII) to the warehouse, for purposes of dispensing/sale to the public or for health facility use, are paper based. The computerised dispensing and point of sale systems exist only at the dispensaries for the TTM Hospital in Upolu and MTII Island in Savaii – the rest of the 10 health facilities have paper based records. The NHS wishes to computerise inventory control system, dispensing and ordering systems for all of its 12 health facilities.

C. Objectives of the Assignment:

The objective of this assignment is to integrate the management of pharmaceutical inventory stock control (including warehousing and distribution), demand management to facilitate forecasting & ordering as well as dispensing operations.

Expected outcomes and deliverables are:

Installation of a reliable and efficient Pharmaceutical Logistics Inventory Management System that enables the NHS Pharmacy division to efficiently and effectively:

Manage the inventory and improve the efficiency of procurement - prevent stock outs, reduce expiry wastage, and get better value for money which will help to improve the quality of service and medications offered.

Manage dispensing operations at all health facilities via a user friendly dispensing module interlinked with the inventory and warehouse management functionalities.

Manage the movement, storage and distribution of products and materials within the Central Warehouse environment. (Use of zones, bins, barcoding and labelling).

Demand management: The system needs to have the ability to create and store forecast data. The system needs to have capability to create a forecast based on historical consumption information and/or based on collection of quantity needed information from different levels of the supply chain.

The system should be able to provide revenue collection modalities at the Point of Sale and distribution operations.

Hardware: Install hardware and infrastructure to support all operations of the Pharmaceutical Logistics Inventory Management System, inclusive of servers, workstations and data entry devices, printers, scanners and barcodes.

Training: Well trained staff on use of Pharmaceutical Logistics Inventory Management System as well as local first-level administration and maintenance including backup of the system.

SLA: A Service Level Agreement that ensures sustainability and responsiveness to needs of the Pharmaceutical Division.

The technical proposal should provide detailed time lines and schedules for the four areas under C and the financial proposal should provide costings for each area (Application, Hardware, Training and SLA).

D. Duration of the Assignment:

The assignment is expected to be implemented over a period of six (6) months which will require in country presence to fulfill the assignment. The contractor will work with the Manager of Pharmaceutical Services supported by the Warehouse Principal Pharmacist and Senior Pharmaceutical Procurement Specialist. The Information Technology Manager and staff will provide the technical IT support throughout the implementation.

The overall Pharmaceutical Logistics Inventory Management System is expected to be developed in two phases.

Phase 1 will focus on the Central Pharmaceutical Warehouse and the National Pharmacy located at TTM Hospital in Upolu, as well as the MTII Hospital Pharmacy in Savaii. (Deployment to the other 10 district health facilities both in Upolu and Savaii to be in Phase II)

Phase I includes developing a Client/Server system comprising of a fully portable and scalable database back-end with appropriate server software components and client side application. The main server shall be located at TTM Hospital server room in Upolu. There will be need to link the Pharmaceutical Logistics Inventory Management System server to the Main Server at TTM which is currently connected to all health facilities via the Samoa National Broadband Highway network. A secondary server should be set up at MTII hospital in Savaii, with appropriate links to the main server but capable of supporting the operations in Savaii as standalone when there are situations of SNBH disruption.

Phase 2 consists of the deployment of the Pharmaceutical Logistics Inventory Management System to the 10 remaining district health facilities on both islands. Also the introduction of additional functional modules such as introduction of bar coding systems. Alternative to the barcoding system would be a labelling system. The benefit of the labelling system is that it would provide barcodes to medications packaged by the manufacturers in boxes lacking an original barcode.

Both Phase 1 and 2 is expected to include training of staff on the various implementation activities of the system.

Proposals being submitted should take into account the direction and future milestones of the management system that the Central Pharmaceutical Warehouse has envisioned. As a result of acknowledging these goals the system should be designed such that the subsequent addition of

features and modules should be adaptable by the proposed system without significant alterations to the architecture of the system.

E. Pharmaceutical Logistics Inventory Management System Specifications:

Further details about the current setup as well as detailed specifications for the various components of the system can be found in Appendix A to this TOR.

F. Essential Experience and Qualifications:

The following qualifications and experiences are essential for this assignment:

- The Consulting firm should have specialized experience and application products targeting Pharmaceutical Logistics Inventory Management System and other related health products;
- At least 5 years of experience in managing Pharmaceutical Logistics Inventory Management System in the Pacific Region, Africa or Asia;
- Demonstrated experience in installing and implementing similar assignments in environments similar to Samoa, inclusive of developing countries in Africa, Asia and the Pacific;
- Proven track record of supporting Pharmaceutical Logistics Inventory Management System in developing countries over 5 years or more;
- Ability to provide a system that can integrate into an accounting software; particularly the Ministry of Finance accounting system that is currently being used by category (e.g. medicines, consumables, laboratory items, and equipment);
- Ability to provide a system that can be integrated into the main e-health system for Ministry of Health expected to be installed in the near future. The anticipated e-health will address all key sub domains such as Electronic medical record system & health records, telemedicine and telehealth systems, clinical health IT systems such as radiology, nursing health IT systems, computer-assisted diagnostics, medical imaging, and surgery training and planning systems that help physicians provide more accurate diagnoses and treatments and many other related aspects; and
- Proven knowledge and experience on Oracle and SQL database management or equivalent.

KEY TECHNICAL STAFF

Project Manager/ System Configuration

Qualification and Experience:

- Minimum Master's Degree in Computer Science, Software engineering or related discipline;
- Minimum of ten (10) years' experience in managing and implementing software projects in the health sector or related environments;
- Experience in managing at least three (3) projects involved in installation and implementation of a Pharmaceutical Inventory Control System;
- Experience of working in the South Pacific Islands or Asia or Africa on similar assignments; and
- Experience of working in South Pacific Island shall be considered as an added advantage.

Responsibilities:

- Overall project management and coordination of activities;
- Contact person of the consulting firm ;
- Oversee customization and implementation of the assignment;
- Custom development, system installation and training; and

Information Technology Expert (Management, Training and Hardware Infrastructure)

Qualification and Experience:

- Minimum Master's Degree in Computer Science, Software engineering, Bio-medical instrumentation or related discipline;
- Minimum of five (5) years' experience in managing and implementing software projects in the health sector or related environments;
- Experience in providing similar services in at least three (3) projects involved in installation and implementation of a Pharmaceutical Inventory Control System;
- Experience in installation and upgrading proposed software;
- Experience in development and customization of proposed software;
- Experience in providing training in proposed software;
- Experience in providing remote software support to resolve challenges faced by clients during implementation;
- Experience in bug fixing and qualitative analysis;
- Training in report design and generation;
- Experience in installation of hardware to support the proposed software;
- Experience in training client in maintenance management of software hardware including Standard Operating Procedures;
- Experience of working in the South Pacific Islands or Asia or Africa on similar assignments; and

- Experience of working in South Pacific Island shall be considered as an added advantage.

Responsibilities:

- Installation and upgrading proposed software
- Development and customization of proposed software;
- Software demonstrations;
- Software training;
- Hardware installation

Information Technology Expert (Solution Architect and Training)

Qualification and Experience:

- Minimum Master's Degree in Computer Science, Bio-medical instrumentation, Software engineering or related discipline;
- Minimum of five (5) years' experience in managing and implementing software projects in the health sector or related environments;
- Experience in providing services in at least three (3) projects involved in installation and implementation of a Pharmaceutical Inventory Control System;
- Experience in providing technical solutions configuration;
- Experience in requirements analysis, design and implementation of proposed software;
- Training in proposed software;
- Experience of working in the South Pacific Islands or Asia or Africa on similar assignments; and
- Experience of working in South Pacific Island shall be considered as an added advantage.

Responsibilities:

- Technical solutions configuration;
- Requirements analysis and design;
- Training in proposed software;

Support Specialist Trainer

Qualification and Experience:

- Degree in Pharmacy or Professional qualification in procurement and supply chain management (CIPS or equivalent) or related discipline;
- Minimum of five (5) years' experience in managing and implementing software projects in the health sector or related environments;
- Experience in procurement and supply chain management of pharmaceuticals;
- Experience in implementation of inventory control and dispensing software;
- Experience in training inventory control management techniques;

- Experience of working in the South Pacific Islands or Asia or Africa on similar assignments;
- Experience of working in South Pacific Island shall be considered as an added advantage.

Responsibilities:

- Review of stock management practices of pharmaceuticals in the Central Pharmaceutical Warehouse and the two dispensaries at TTM and MTII Hospitals; and
- Provide training in inventory control management using the proposed software.

G. Institutional Arrangements:

The following are the institutional arrangements

- The Counterpart for the contractor shall principally be the Pharmacy Manager, supported by Finance Manager and Information Services Manager.
- The awarded contractor will report to the General Manager, NHS.

The MOH will provide the following:

- Office space and furniture within the Central Pharmaceutical Warehouse;
- Access to data and facilities in relation to the pharmaceutical inventory control system operations;
- Attach one (1) Information Technology Officer to work with the contractor on a day to day basis;
- Provide training premises and projectors for demonstrations and training;
- Provide staff to train on the system; and
- Provide transport to health facilities in Apia and Savaii.

The Contractor will provide the following:

- Required technical staff as per TOR;
- Provide a suitable software for Pharmaceutical Logistics Inventory Management System; and
- Provide their own laptops for their operations.

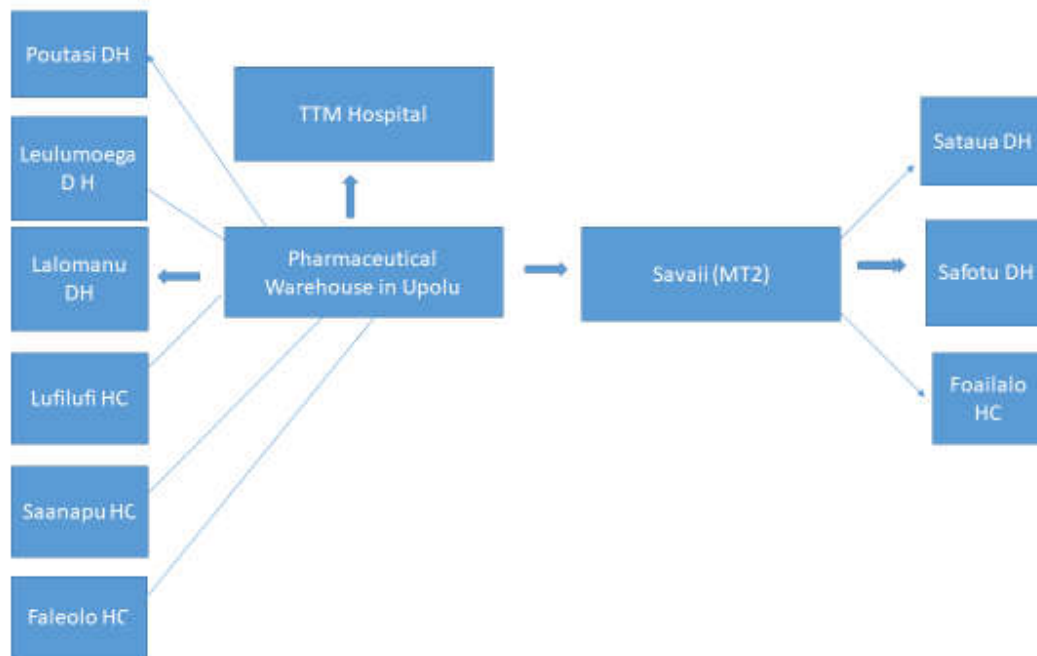
H. Proposed Work Plan

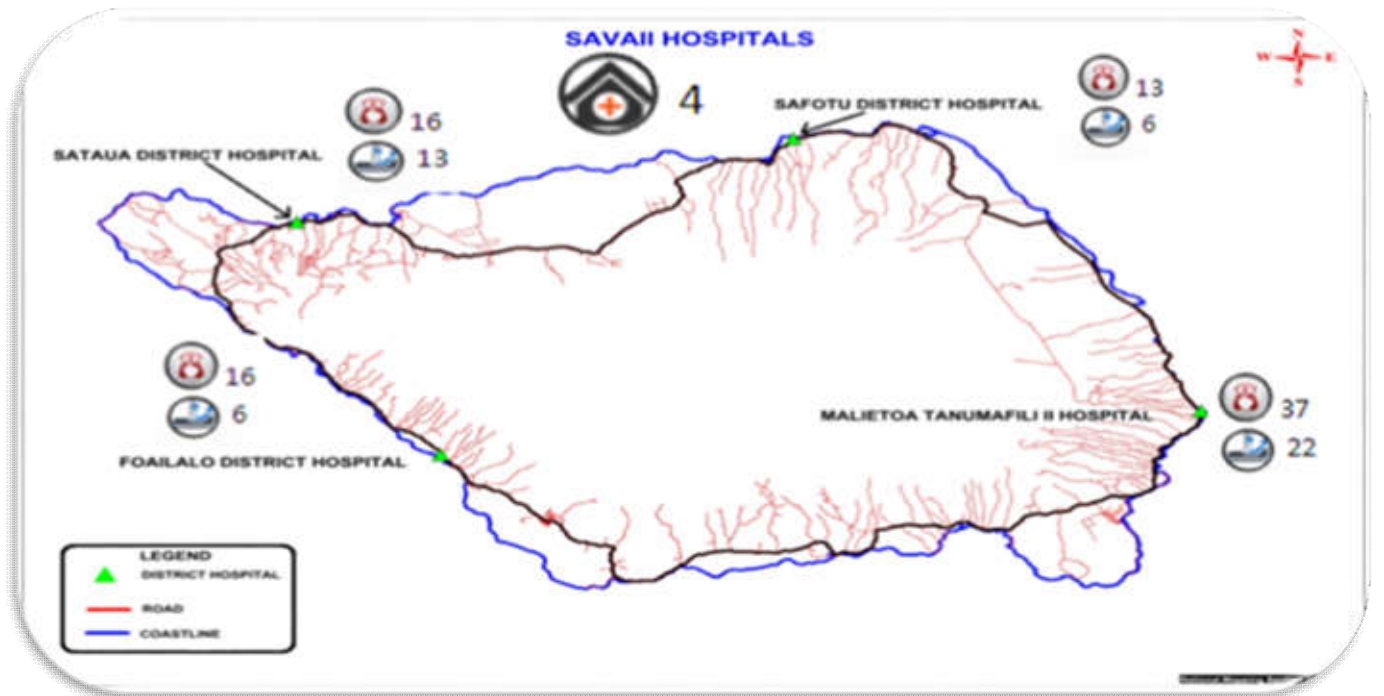
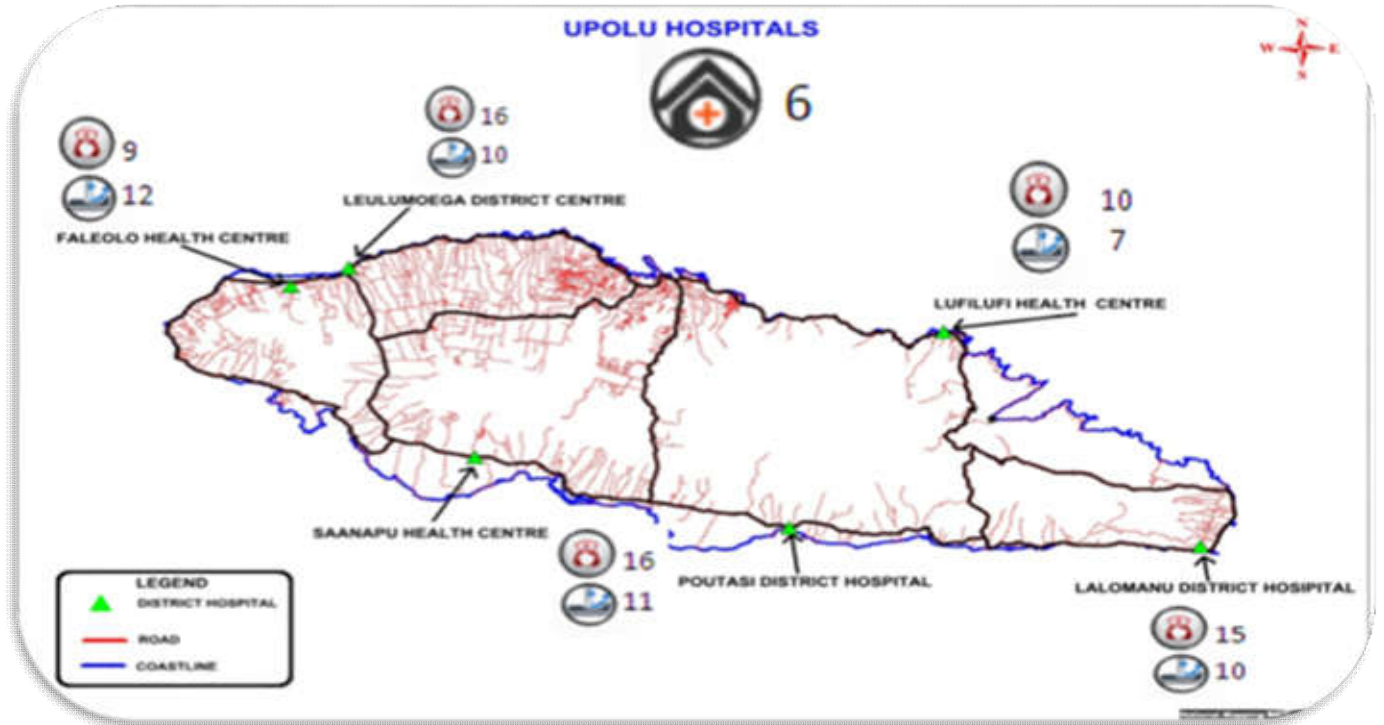
Appendix A:

Additional Information on the current and proposed setup. Detailed specifications for the various components of the system

There is only one main warehouse for the Ministry of Health, called The Central Warehouse situated behind the MOH offices which supplies all other sites.

Stock Control and Inventory Process.





- All requests are centralized from the Central Pharmaceutical Warehouse.
- MT2, TTM and other district hospitals in Upolu and Savaii send requests to Central Pharmaceutical Warehouse.

- In Savaii, MT2 behaves akin to the Central Pharmaceutical Warehouse, catering to the Requests of the District hospitals in Savaii.
- Currently NHS maintains an imprest system (WRITTEN DOCUMENTATION) of the requests.
- Central Pharmaceutical Warehouse disperses the medicines to the required locations.
- Currently the Central Pharmaceutical Warehouse has an inventory control system which assists in dispensing function of the NHS Pharmacy.
- The inventory recognition has a perpetual system though not reliable. The system cannot manage the inventory control of the entire Essential Medicine List effectively.
- Stock take happens at the end of the year and the Stock values are updated on the Sage Financial Accounting System based upon the Stock value obtained from LOTS.
- All the Purchase orders (PO) for the medicines have to go through the Finance department and should be duly authorized by the Manager Pharmacy.
- The costing is currently done by the Pharmacy Division but needs sufficient controls.
- The Open Tender procurement process has been initiated and frame work contracts have been established. The orders are demand based. However, the LOTS system cannot manage the demand management system of the frame work contracts.

List of all NHS Health Facilities

Island	Names	Type	Volume of transactions (transcripts per month)
Upolu			
1	Tupua Tamasese Meaole (TTM) Hospital (Motootua)	National Hospital	40,000
2	Lufilufi Health Centre	Health Centre	3,000
3	Lalomanu District Hospital	District Hospital	5,000
4	Poutasi District Hospital	District Hospital	5,000
5	Saanapu Health Centre	Health Centre	3,000
6	Faleolo Medical Centre	Health Centre	5,000
7	Leulumoega District Hospital	District Hospital	7,000
Savaii			
1	MalietaoTanumafiliIII Hospital (MTII) Tuasivi	Referral Hospital	20,000
2	Foailalo District Hospital	District Hospital	5,000
3	Safotu District Hospital	District Hospital	5,000
4	Sataua District Hospital	District Hospital	5,000
5	Satupaitea Health Centre	Health Centre	3,000

Hospitals are open 24/7 and can admit people for overnight care.

Health and medical centers open Mon – Fri only from 8am -4:30pm and only for outpatients.

The Samoa National Broadband Highway Network (SNBH)

The SNBH is the Government of Samoa's broadband network built to provide network infrastructure for all government agencies, with priority given to the Health and Education Sectors. The NHS are the first to now have full connectivity via SNBH to all its sites listed above.

Bandwidth on SNBH is guaranteed minimum 2 Mbps up to 4Mbps. Using the SNBH for NHS's internal WAN provides NHS control and reduces cost of traffic going in/out of each health facility.

Connectivity of the Pharmaceutical Logistics Inventory Management System between all NHS sites shall use the SNBH.

Component 1: The Pharmaceutical Logistics Inventory Management System Application (For each row below detailing the different aspects of the Pharmaceutical Logistics Inventory Management System required – the bidder must provide response as to their ability to meet the minimum requirements outlined. Additional features at no extra cost can also be outlined)		
S.#	Broad aspects	Specifications
1	User friendly	<ul style="list-style-type: none"> Minimal key strokes Auto predictions options for all the parameters with options of turning predictions off when needed Graphical user interface (GUI) with all the modules
2	Full prescription management (Dispensing Module)	<ul style="list-style-type: none"> It should cater for both original prescriptions and repeat prescriptions and cover all compliance around drug dispensing. Original and repeat prescriptions are logged against the patient record. Repeats are dispensed for a specified number of times, each time producing a form with all the details of the original prescription and one less repeat left. Details contained on the Repeat prescription shall include Patient's Name, Address which in Samoa means the name of patient's Village, Age, Weight, Space for pension number and the type of prescription (NSS, Z1, Z3, A1), field for medical condition (A1-free drug supply is for specific Non Communicable Disease (NCD's), Date of Prescribing, Name and Registration number of the prescriber, Name dose and the quantity of medication, number of repeats, date when the next repeat is due. The system should generate a repeat number and subsequent dispensing should be made easier by typing in the repeat number into the dispensing module. Repeats should print in A5 format.
3	Failsafe features for safety and accuracy	<ul style="list-style-type: none"> Software should cross check the patient record regarding drug to drug interactions, cautions and product warnings, contra-indications,

	of dispensing	<p>and issue a warning prior to dispensing by displaying an on screen alert if it detects a threat. The on screen alert should also include a standard recommended dosage of the medication.</p> <ul style="list-style-type: none"> This failsafe feature can be linked to a medical database such as MIMs (Australian database) or similar
4	Drug-file updates	The program should be capable of being updated both electronically and manually. If a particular drug is not on the list there should be a feature to create a file manually from the linked stock management module.
5	On-line reconciliations	Reconciliations on the Stock usage, transfers, pending orders, pending supplies etc should be available as feature in the software with minimal Printout requirements.
6	Electronic wholesale/ retail/ tendering	Data comparison should be available at any given time to electronically order or tender the drugs on Just in Time (JIT) basis.
7	Purchase order tracking system	All the Purchase requests, their movements from Place of origin to the transfer to the Central Pharmaceutical Warehouse should have the tracking capability.
8	Expiry management	First expiry first out (FEFO) should be an inherent feature of the software
9	Shelf spacing management tools	In order to optimise the shelf space and allocation of the inventory, the software should be able to assist with shelf spacing management tools.
10	Interfaces and interactions of software modules	Point of Sale (POS), Automatic Dispensing Systems, reconciliation systems and other important third party products and services
11	Linkage to District hospitals	Software should be able to link and capture the stock movement in the various Locations (wards, district hospitals, dispensary, etc.)
12	System Compatibility	Compatibility with Windows 7/10 or later versions of PC Operating Systems and can operate in a Windows Server 2016 or later version
13	Costing analysis	Software should analyse the costing for every line item (drugs and consumables).
14	Concurrent users	Software should allow at least 20-25 concurrent users with varied level of access.
16	User Operation and Access Control	<ul style="list-style-type: none"> In a networking environment, the system should have secure record-locking features for all The system must provide features for user names and passwords, access control for system functions, and log of critical data changes in all modules. The application should be able to provide user account control through an Active Directory as well as user account control inherent and localized to the Warehouse Management System.

17	STANDARD REQUIREMENTS	<ul style="list-style-type: none"> • The system should have comprehensive documentation in printed manuals and indexed PDF files in English. • The system must be able to export data and reports to Excel or another commonly used format. • The system should include a flexible report generator and the supplier should include training and documentation on how users can construct their own reports. It must be possible to design and customize all forms (e.g. invoices, delivery notes, issue vouchers, etc.) used in the system, with fixed and variable information including letterheads and messages to customers.
18	Stores Control Module Requirements	<p>The Stores Control module will be the core of the system. This module must accept direct input from the Receiving and Issuing modules, and provide various types of output on request. The main functions of this module will be to:</p> <p>Maintain a complete overview of the warehouse, down to bin level. This will include at least three levels: 1) Bay (storage area), 2) Shelf, and 3) Bin.</p> <p>There might be more than one bay in a store. It should be possible to define <i>special areas</i> (e.g. picking area, cold rooms, and rooms for drugs & consumables) as separate bays. A bin might be either fixed (i.e. designated for one stock item only) or fluid (i.e. accepting any stock item). Issuing of goods should be possible from either type of bin. Where there are different types of bins in a store (e.g. pallet racks, shelves, floor space), it should be possible to define type (fixed/fluid and issuing/non-issuing) and capacity (sq. meters, kg, pall) for each bin.</p> <ul style="list-style-type: none"> • Maintain an overview of stock item types, and provide for categorization of stock items in an alphabetical order – Medicines (tablets, narcotics, Injections, Liquids, ear/eye/nasal/inhalers applications & topical applications), Intravenous Fluids, Family Planning Contraceptives & medical devices, Medical Consumables, Sutures and Packaging Materials. • Maintain stock levels, expiry dates, batch numbers, packaging information, sizes, serial numbers, etc. for all items where applicable. • Maintain stock alerts and generation of reports every week for the lifesaving pharmaceuticals list. • Make provision for the Vital, Essential and Non-Essential lists and monitoring mechanism. • Provide automatic generation of reports when stock reaches minimum or re-order levels, emergency level, stock less than minimal level, maximum level, stock less than maximum level, and more than minimum level, or when stock is about to expire within a pre-defined period. • Maintain stock history for all items, including receiving, issuing, stock movements, adjustments, write-offs, losses, damages and expired goods. • Facilitate detailed reconciliation between stock control ledger

		<p>(stock levels maintained by the system) and manual bin cards.</p> <ul style="list-style-type: none"> • Provide for automatic and semi-automatic placement of received goods, based on consumption figures and available (free) locations. • Provide for inter-store transfers between locations. This should preferably be a semi-automatic procedure, where the system proposes movement of fast-moving / low quantity items to locations where issuing is simple (typically floor level, shelf locations or designated picking areas). • Provide for issuing of goods on a FEFO (First Expiry First Out) basis – preferably with the option of manual overruling by the supervisor (e.g. for large orders to remote areas). Apply FIFO (First In First Out) issuing as default for non-expiring items. • Provide a facility for reservation of goods, and for blocking of any location for other reasons (approaching expiry dates, in quarantine, due for quality control, etc.). • Provide for detailed, random, and full stock takes. • Provide information on procurement indicators and assist in prequalification of suppliers meeting target indicators (e.g. lead times, price (deviation from international median prices), and compliance to quality assurance aspects. • Provide for customer classification according to a list of participating institutions or other criteria such as an Essential Medicine List, and corresponding categorization of stock items in order to automatically control issuance of drugs to qualified customers. • At all times, provide overviews in report form (on screen and in print) of any location or group of locations (with details on stock held) and on any stock item (with details on present locations, batch numbers, expiry dates, etc.). • Demand management: The system needs to have the ability to create and store forecast data. The system needs to have capability to create a forecast based on historical consumption information and/or based on collection of quantity needed information from different levels of the supply chain <p>In addition, this module will be expected to provide information needed for analysis, summary reports (on receipts, issues, and adjustments), logistic forecasting (based on demand for any time period) and production of catalogues and price lists (with Alternative of Drugs). It should maintain precise definitions of all stock items and stock item categories, and preferably allow multiple references to stock items by user-definable identifiers (catalogue numbers, barcodes, supplier’s reference numbers, etc.)</p>
19	<p>Requirements for Other Modules (Issuing/Receiving)</p>	<p>These modules will provide most of the input for the stores control module, but do not need to maintain data on customers and suppliers, if monitored in the main module. Thus, Issuing and Receiving needs to be closely integrated with the stores control module – to the extent that some of the functions described below are categorized within multiple modules.</p>

		<p>The main functions to be handled by these modules are:</p> <ul style="list-style-type: none"> • Order Processing and Invoicing for accepting approved requisitions/orders, raising picking lists, entering actual issues, producing packing lists and dispatch notes, raising invoices at the time of dispatch, and recording orders that cannot be delivered. • Back Order and Reservation system. • Supplier Performance Monitoring including recording of delays, deficiencies, quality of goods and packaging etc. This involved entering contract details, dates for award notification, quarantining of received goods and details on quality control and inspections. • Recording and maintaining all issue order and delivery note details. This also involved maintaining records of batch numbers, expiry dates and serial numbers (indent numbers, indent date) in order to facilitate tracing and recalling of batches. Facility summaries with facility and drug consumption data. • Issue Analysis for monitoring and reporting on all issuing (by all districts, per district, per sub-district, per all facilities, and per each facility) • Comprehensive Audit Trail so that transactions and stock movements can be traced to the individuals authorizing or initiating the transactions. In addition to this, the system should contain a number of other standard reports – the exact format to be agreed upon with the Central Pharmaceutical Warehouse.
20	Tender & Procurement Contract Management	<ul style="list-style-type: none"> • Tendering & Procurement: The system should support the quantification process of the required volumes of medical drugs and supplies that need to be procured for the coming year. The system should also support the process of sending of tender documents and purchase orders to suppliers • System should support contract management of pharmaceuticals to facilitate supplier performance activities. • Demand management: The system needs to have the ability to create and store forecast data. The system needs to have capability to create a forecast based on historical consumption information and/or based on collection of quantity needed information from different levels of the supply chain •
21	Basic reports must include	<ul style="list-style-type: none"> • Daily dispensing reports • Free drug report • Stock reaching minimum stock level reports • High value item report • Stock reaching expiry dates • Restock alerts • Distribution reports • Pending orders' reports • Location based reports • Costing analysis • Patient to medicine Linked report • Stock movement reports • New stock arrival reports

		<ul style="list-style-type: none"> • Stock take reports • Slow moving stock report • Fast moving stock report • Drug reports such as drug dispensing history, drug usage, drug cost and analysis • Script reports and statistics • Patient reports and statistics, such as patient list by drug. • Proposal for management Dashboard reports which should include : Total Stock Value, % of Vital, Essential and Non-Essential Items (VEN), percentage of VEN in stock, percentage of stock outs in relation to EML, Expiring Stock Liability, Top facilities supplied in the last 90 days, Transactions per store.
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Component 2: Hardware and Networking

(For each row below detailing the different aspects of the hardware etc required – the bidder must provide response as to their ability to meet the minimum requirements outlined. Additional features at no extra cost can also be outlined) Costs of inherent extras such as software needed to meet the requirements given (eg: mirroring software) must be factored in.

S.#	Broad aspects	Specifications																																				
22	Servers	<p>3 servers for the system (one located at TTM Hospital main server room and one at MTII Hospital. The third one will be for back up)</p> <ul style="list-style-type: none"> • Microsoft Windows Server 2016 or later Operating System • Powerful servers to support Oracle and MY SQL Database or equivalent • HP Proliant Generation 9 upward, Dell Power Edge or equivalent better model to be suggested by the bidder • Backup system to be suggested by the bidder • Suggested SCSI Hard disk drives and raids to be proposed by the bidder for better performance and data recovery • The bidder has to propose and an Anti-virus for servers and workstations • Linked to the NHS WAN/LAN and domain controller • CPU and RAM and storage capacity to be proposed by the bidder based on expected utilization currently and into the next 5 years at least. • Appropriate capacity UPS for each server 																																				
23	Workstation PCs and Laptops	<ul style="list-style-type: none"> • Total Number of Workstation PCs needed: <table border="1"> <thead> <tr> <th>Site/Area</th> <th>Desk Top</th> <th>UPS</th> <th>laptop</th> </tr> </thead> <tbody> <tr> <td>Central Pharmaceutical Warehouse (Warehouse)</td> <td>6</td> <td>6</td> <td></td> </tr> <tr> <td>TTM (Upolu) Pharmacy Dispensary</td> <td>3</td> <td>3</td> <td></td> </tr> <tr> <td>MTII (Savaii) Pharmacy Dispensary</td> <td>3</td> <td>3</td> <td></td> </tr> <tr> <td>District Health facilities (Upolu)</td> <td>6</td> <td>6</td> <td></td> </tr> <tr> <td>District Health Facilities (Savaii)</td> <td>4</td> <td>4</td> <td></td> </tr> <tr> <td>Back up</td> <td>1</td> <td>1</td> <td></td> </tr> <tr> <td>Outreach Laptops</td> <td>0</td> <td>0</td> <td>3</td> </tr> <tr> <td>TOTAL</td> <td>23</td> <td>23</td> <td>3</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • All workstations PC sets must have preloaded with at least 	Site/Area	Desk Top	UPS	laptop	Central Pharmaceutical Warehouse (Warehouse)	6	6		TTM (Upolu) Pharmacy Dispensary	3	3		MTII (Savaii) Pharmacy Dispensary	3	3		District Health facilities (Upolu)	6	6		District Health Facilities (Savaii)	4	4		Back up	1	1		Outreach Laptops	0	0	3	TOTAL	23	23	3
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TOTAL	23	23	3																																			

		<p>Windows 10 OS, MS Office Professional 2010 or most recent version, and antivirus software</p> <ul style="list-style-type: none"> • All workstations PC sets inclusive of CPU, at least 21” monitor, keyboard, mouse and UPS. • 3 Laptops for capturing outreach programme (one each for Upolu and Savaii and one for Central Pharmaceutical Warehouse) plus rugged cases for mobile clinic use
	Printers	<p>Thermal Label Printers: 17 Zebra GC420d or equivalent models and newer versions</p> <ul style="list-style-type: none"> • 3x for Central Pharmaceutical Warehouse • 2x for NHS Pharmacy Dispensary, • 2x for MT2 Pharmacy Dispensary, • 4x for Savaii DH and Health Clinic (Satupaitea, Foailalo, Sataua, Safotu); • 6x for for Upolu DH and Health Clinic (Lufilufi, Lalomanu, Poutasi, Saanapu, Faleolo, Leulomoega). <p>Report Printers/Copiers: 4 high volume laser printer/copier/scanner multi-function equipment (1-for MT2 pharmacy, 2-TTM National Pharmacy, 1- Central Warehouse/Stores) These will be used in the dispensing process to print repeats and to copy the original prescription to attach with the repeat until such time that the NHS prescription will come in a duplicate.</p>
	Scanners and other accessories	3 Scanners for high volume, 7 scanners for low volume, Rugged cases for mobile clinic, External Batteries for server (3x12), Network attached storage devise and Networking (cables,switches,wireless access points).
24	Business Continuity, Disaster Recovery and Backup	MTII and TTM servers to be setup as mirror servers to provide perpetual backup Each to be able to function separately and provide support to its immediate LAN in the event of an SNBH network failure
25	Licensing	At least 3 years pre-paid licensing for concurrent users as identifiable in the workstations outlined. Additional concurrent user (existing equipment/workstations that will be connected to the system) include the Manager, Pharmacy and General access workstation in the Staff Room of the TTM National Hospital Pharmacy.
26	Deployment Service Requirements	Manufacturer/vendor is to provide the following services during deployment of Phase 1: <ul style="list-style-type: none"> • On-site installation of all server modules • Configuration of server (i.e. database application),

		which includes at minimum: <ul style="list-style-type: none"> • Configuration of proper maintenance plans • Creation of user accounts
27	Disaster Recovery Plan	The system should provide a Disaster Recovery Plan
28	E-Health System for MOH	The system should have provision to be linked to the e-health data warehouse which is underway.

DETAILED SPECIFICATIONS

Bidders are encouraged to recommend other aspects of hardware to match with the solution being proposed. Visit to Samoa health facilities to understand the situation on the ground is highly recommended before finalizing the RFP. Bidders are also encouraged to provide brochures for the hardware (equipment).

Item No.	Description of items	Technical Specification of items required including applicable standards	Compliance of specification offered
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1	<u>Servers (3No.)</u>		
	Processor	Intel Xeon 2.7GHz or more speed or simila depending on the proposed system	
	Chassi	Blades or Rack	
	Power supply	240V hot swappable	
	Physic Memory	64 GB or above	
	Video memory	64Mb Minimum	
	Expansion slots	2 or more x PCIe 3.0 plus Dedicated PERC slot	
	Hard disk drive Capacity	8 or more x 4TB SAS or similar / hot plug swappable HDD	
	Raid Controller	Raid 5/10 or recommended one for mirror or redundant purposes	
	Auxiliary Drive	DVD-R/WR drive or latest	
	Network Adapter	Ethernet 4 ports per controller and /flexibleLOM, depending on model	
	USB ports	4 minimum	
	Parallel port	1	

Item No.	Description of items	Technical Specification of items required including applicable standards	Compliance of specification offered
	Speakers	In built or 2 external	
	Mouse	USB	
	Keyboard	USA /English	
	Monitor	19” flat screen min 1024 x 768	
	Operating System	Windows Server 2016 & Microsoft Office 2010 Pro 64 bit, should be installed on each computer.	
	Warranty	One year repair and or replacement	
2	<u>Laptops (3 No.)</u>		
	Processor	Intel core processor i5 or above	
	Memory	4 GB or above	
	Storage Capacity	Minimum 500GB, 7200 rpm or above	
	Auxiliary drive	DVD-R/WR or latest	
	Video& Cache memory	64MB each	
	Network card	On board Giga byte Network adapters (cable and wireless)	
	Mobile broadband	Built in support for 3G	
	Bluetooth	Yes	
	Web Camera	Yes	
	Replaceable battery	Yes	
	Ports	At least two (4) USB and one (1) parallel	
	SD-MS/PRO-MMC-SM-XD CARDS SLOT	Yes	
	Keyboard	USA English	
	Monitor	13.3-14.1” LED screen, min 1366x768 resolution	
	Operating System	Windows 10 Pro & Microsoft Office 2010 Pro or latest should be installed on each computer.	

Item No.	Description of items	Technical Specification of items required including applicable standards	Compliance of specification offered
	Software	Acrobat Reader and virus protection.	
	Accessories	Carrying bag, licensed copy of Operating System and recovery CDs	
	Warranty	1 year repair and or replacement	
	Power	220-240V	
3	<u>Desk tops Computers (23 No.)</u>		
	Processor	Intel core processor i5 3.0GHz or above	
	Power supply	220-240V	
	Physic Memory	4 GB or above	
	Video memory	64Mb Minimum	
	Expansion slots	PCI/ AGP	
	Hard disk drive	500GB 7200RPM or above	
	Auxiliary Drive	CD/DVD-R/WR drive	
	Network Adapter	Giga byte on board	
	USB ports	4 minimum	
	Parallel port	1	
	Speakers	In built or 2 external	
	Mouse	USB	
	Keyboard	USA / English	
	Monitor	21" flat screen minimum resolution of 1024 x 768	
	Operating System	Windows 10 Pro & Microsoft Office 2010 or latest should be installed on each computer.	
	CDs	Recovery and licensed Windows CDs.	
	Warranty	One year repair and or replacement	
3	<u>UPS For Desk Tops (23 No.)</u>		

Item No.	Description of items	Technical Specification of items required including applicable standards	Compliance of specification offered
	Output Power capacity	1000VA	
	Nominal Input Voltage	220-240V	
	Power supply	External, 24V input	
	Battery	6 x 12V with 150Ah car batteries per UPS, series connected to 3x24 as input to UPS	
	Feature	UPS should have either a serial or USB connection to server (and supported software)	
	Warranty	3 Years repair	
4	<u>UPS For Servers (3 No.)</u>		
	Output Power capacity	1000 -3000 VA	
	Nominal Input Voltage	220-240V	
	Power supply	External, 24V input	
	Battery	6 x 12V with 150Ah car batteries per UPS, series connected to 3x24 as input to UPS	
	Feature	UPS should have either a serial or USB connection to server (and supported software)	
	Frequency	50/60 Hz	
	Configuration	Rack/Tower	
	Warranty	3 Years repair	
5	<u>Thermal Label Printers (Zebra Advanced Printers or equivalent) (17 No.)</u>		
	Standard Features	Print method: Thermal transfer or direct thermal	
		Programming language: EPL™ and ZPL are standard construction: Dual-wall frame	

Item No.	Description of items	Technical Specification of items required including applicable standards	Compliance of specification offered
		Tool-less print head and platen replacement	
		Open ACCESS™ for easy access	
		Quick and easy ribbon loading	
		Auto-calibration of media	
		Triple connectivity: USB, Parallel, Serial	
		Certified Microsoft Windows drivers	
		ENERGY STAR qualified	
	Resolution	203 dpi/ 8 dots per mm	
	Memory	Standard 4 MB Flash, 8 MB SDRAM	
	Print Width	4.09"/104 mm	
	Maximum Print Length	39 "/991 mm	
	Maximum Print Speed	5 "/ 127 mm	
	Media Sensors	Standard: Fixed reflective and transmissive sensors	
	Media Types	Roll-fed or fan fed, die cut or continuous direct thermal labels with or without black line, tag stock, continuous receipt paper, wristbands	
	Environmental	Operating temperatures: 40 F/4.4° C to 105° F/41° C	
	Fonts and Character Sets	16 resident expandable ZPL II bitmap fonts	
		One resident scaleable ZPL font	
		Five resident expandable EPL2 fonts	
		Native open type font support	
		Unicode™compliant for multi-language, on demand thermal printing.	
	Graphic Features	Supports user –defined fonts and graphics-including custom logos	
		ZPL II drawing commands	

Item No.	Description of items	Technical Specification of items required including applicable standards	Compliance of specification offered
6	Barcode reader Scanners- High Volume (3 No.)		
	Form factor	Handheld	
	Scanner Capability	Minimum 1D	
	Barcode symbology	Minimum support for Code 128 with subsets A/B/C and UCC case codes	
	Connection	USB, Bluetooth	
	Accessories	USB cable, Range between 1.5m and 2m	
	Power	220-240V	
7	Barcode reader Scanners- low Volume (9 No)		
	Form factor	Handheld	
	Scanner Capability	Minimum 1D	
	Barcode symbology	Minimum support for Code 128 with subsets A/B/C and UCC case codes	
	Connection	USB, Bluetooth	
	Accessories	USB cable, Range between 1.5m and 2m	
	Power	220-240V	
8	Printer/Copier/Scanner (4 No.)		
	Printer type	Laser printer	
	Colour	Black/White/Colour	
	Media size	A4/A3	
	Printer resolution	Minimum 600dpi	
	Input paper capacity	Minimum 300 sheets	
	Interface	USB, WiFi, Ethernet	
	Power	220-240V	

Component 3: Training

The Bidders should indicate their ability to meet the minimum requirements outlined below. Additional features at no extra cost can also be outlined.

S.#	Broad aspects	Specifications
29	User Training	Vendors/manufacturers are to propose and implement a solid training framework for all identified end users in all modules and ad hoc customizations.
30	System Administration and Maintenance Training	IT personnel and selected Pharmacy staff shall be provided training on server module installation, backup, restoration, client installation, and configuration.
31	Associated Training Manuals	Documentation is to be provided outlining these processes.

Component 4: Warranties and Service Level Agreement

The Bidders should indicate their ability to meet the minimum requirements outlined below. Additional features at no extra cost can also be outlined.

S.#	Broad aspects	Specifications
32	Warranty / Service Requirements	<ul style="list-style-type: none">• Support is available on the system, preferably directly from the supplier or the supplier's representative.• Manufacturer/vendor is to provide 13x6x64 support (i.e. 13 hours/day, 6 days/week, with maximum 4-hour response time) at a minimum for a period of one year. All service calls will be made based on business hours in Samoa.• A service level agreement is to be formulated at time of contracting, which outlines the above as well as penalty clauses for failure to respond to issues.• Manufacturer/vendor is to provide remote data access services for fault resolution purposes, etc. (e.g. FTP server access at manufacturer's site for transfer of program modules, data backups, etc.)• Periodic off-site backups/archival of database