Bedside Computer Terminals

Request for Proposal

University of Michigan Hospitals
Ann Arbor, MI 48109
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INTRODUCTION

Bedside terminals have captured more attention than any other development in hospital information systems in the last five years; yet their diffusion has been much slower than anticipated. Bedside data access has several obvious advantages. Nurses no longer have to write notes on the patient's condition or on treatments and later transcribe them into a patient's medical record. Similarly, test results do not have to be noted by a ward clerk and transported and transcribed into the record. When both orders and administration data are available at the bedside, discrepancies can be noted before errors have occurred. Eliminating transcription not only saves time, it eliminates errors which occur in the transcription process.

When tied to a hospital information system, information on test results can be available at the bedside as soon as it is available in the laboratory. This can lead to more timely initiation or adjustment of therapy. In sum, bedside terminals have the capability to free nurses from clerical tasks and enable them to provide more hands-on-care at the bedside. At the same time, the quality, completeness, and timeliness of medical record information is improved.

University of Michigan Hospitals' Nursing Services are interested in installing a computerized system to support nursing practice. The Nursing Information Systems Coordinating Committee requested that we assist with a Request For Proposal. Attached is that Request For Proposal. At this time it does not include all sections required. The information provided at this time will be revised and improved and combined with the remaining information necessary to complete the Request For Proposal.
This Request for Proposal (RFP) invites firm specifications and price proposals for consideration by the University of Michigan Hospitals (UM Hospitals) for securing an automated bedside patient care system to satisfy the needs of the University of Michigan.

If it becomes necessary to revise any part of the RFP or otherwise provide additional information, and an addendum will be issued through Purchasing and copies furnished to all prospective bidders who have received copies of this original RFP.

The University of Michigan reserves the right to accept or reject all or any part of the responses received. The University of Michigan intends to accept the proposal it finds most appropriate based on cost and other factors. Particular attention will be given to:

- Vendor's ability to meet stated requirements in a manner compatible with UM Hospitals, Hospital Administration, and the Nursing Information Systems Coordinating Committee.
- Vendor support.
- Vendor history of performance and stability.

The bid received shall be binding for 90 days following submission. All queries for further information should be directed in to:

William K. Penpraze, Senior Buyer  
University of Michigan  
Medical Research Purchasing  
300 N. Ingalls, Room N13B04  
Ann Arbor, MI 48109-2007  
(313) 764-2262

Bids must be submitted in triplicate to:

William K. Penpraze, Senior Buyer  
University of Michigan  
Medical Research Purchasing  
300 N. Ingalls, Room N13B04  
Ann Arbor, MI 48109-2007  
Attn: Bedside Terminals
OVERVIEW

The University of Michigan Hospitals (UM Hospitals) is an acute general care teaching hospital. UM Hospitals is a system of seven hospitals: University Hospital (534 beds), Adult Psychiatric (52 beds), C.S. Mott Children's Hospital (164 beds), Children's Psychiatric Hospital (34 beds), Women's Hospital (32 beds), Holden Perinatal Hospital (24 beds), and W.K. Kellogg Eye Center (32 beds).

The UM Hospitals (all seven hospitals) currently have an 87% occupancy rate fiscal year to date. University Hospital's medical/surgical units have a 93% occupancy rate fiscal year to date. UM Hospitals projects approximately 32,000 admissions for the current fiscal year.

The University of Michigan's Hospital Information Systems (HIS) is the central computing center for the University of Michigan (UH) Hospitals. HIS historically has developed, implemented, and maintained hospital-wide information systems to meet the objectives of patient and financial management. HIS currently operates IBM 3081K and 3081G mainframe computers using MVS-XA and CICS operating systems, 3380 disk drives and a 3278 terminal network (remote and local). DLI databases and VSAM files are used for storage of tables and active data. For recovery of DLI databases HIS uses CICS/DLI journaling. For recovery of VSAM files, the Integrity Solutions package is used.

HIS operates under the following levels of software:
- MVS/XA 2.0
- CICS/VS 1.7.0
- IMS/VS-DB 1.3.0
- VTAM 2.1 with NCP

The development tools utilized by the HIS Applications staff are:
- PCS/ADS 1.2
- PL1 4.0
- COBOL 2.4
- ASSEMBLER H (limited) 2.1
- SAS 5.16
- TSO/ISPF 2.1.2
The objective of the Nursing Information Systems Coordinating Committee is to recommend an automated system for purchase that provides the capability of documenting nursing assessment, nursing care planning, and nursing interventions on-line. The ideal system would integrate these functions and would interface with all other related current and planned patient care, financial, and patient classification systems. In addition, the system should have the capability of both central and bedside access.

Specific requirements for the system include, but are not limited to, the following:
HARDWARE REQUIREMENTS

The hardware must:

1. Be able to withstand a certain amount of bumping or falling.
2. Be insensitive to temperature changes.
3. Be shielded from interference from other electronic equipment that may be present nearby.
4. Have a minimal "footprint".
5. Have cables easily concealable and the computer itself needs to blend into its bedside environment.
6. Have a controlled access identification system available (i.e. password, ID card, etc.).
7. Be quiet when in operation.
8. Generate very little heat.
9. Have a screen large enough and with an adequate degree of resolution to permit easy reading by the healthcare professionals and the patients using the system.
10. Have a variable mounting of the system.
11. Have a keyboard consistent in design with our existing systems.
12. Be easily grounded.
14. Be readily and thoroughly cleanable.
GENERAL SOFTWARE SPECIFICATIONS

The software for this system must provide for the following:

1. All patient related information must be easily accessible and retrievable both centrally and at the patient’s bedside.

2. The system must interface with all other installed and planned patient care information systems.

3. Nursing support software must be integrated.

4. All assessment and planning functions must be available in standard as well as formats that can be individualized.

5. The system needs to have available both standard report formats as well as formats that can be customized.

6. In general, the system should be menu driven with limited free text entry.

7. There must be an audit trail on all transactions.

8. All terminology must be easily customized.

9. The system must allow for controlled access by patients and/or family members for educational purposes.
NURSING ASSESSMENT AND CARE PLANNING

The purpose of the assessment and planning feature of this system is to allow for a permanent, continuous electronic patient record available to the healthcare professionals involved. The system should provide for the following at the bedside:

1. Admitting notes, including the patient's nursing history.
2. Objective and subjective assessment of patient's condition.
3. Computer-assisted nursing care and treatment planning.
5. Problem list.
7. Nursing discharge planning.
CARE AND TREATMENT DOCUMENTATION

The system must be able to provide for the following at the bedside:

1. Access to all patient orders in the system.
2. Verification of patient and order (prior to treatment/services).
3. Charting of nursing care given.
4. Charting of intakes and outputs.
5. Charting of activities of daily living.
6. Charting of vitals signs and weight.
7. On-going objective and subjective assessment of patient's condition.
8. Hard copy reports in a customized format.
9. Documentation must be allowed per occurrence and per order.
IMPLEMENTATION REQUIREMENTS

Vendor must provide a plan for implementation of the described system. Include the following:

1. The process for implementation system testing and user acceptance, and a schedule associated with each item.

2. List of names, phone numbers, and experience of staff members who will be assisting in the implementation.

3. Estimate of time and resources required by UMMC personnel to install and implement the system.

4. Adequate software documentation including an explanation of input procedures, debugging techniques, error message descriptions, rerun instructions, back-up procedures, etc.

5. Policy and procedures regarding post implementation support.

6. Additional costs associated with these and the criteria for identifying the validity of these additional charges.
TRAINING REQUIREMENTS

The vendor must describe the following:

1. All training requirements for the installation of the proposed system. Specifications should be based on experience at institutions similar in size and nature to that of UM Hospitals.

2. Provide examples of orientation programs, user manuals, system documentation, and all other written materials applicable to the proposed system.

3. An estimate of the time and cost required for training hospital staff.

4. Training package, i.e., on-line, classroom, size of groups, length of training sessions, etc.

5. Cost for on-going training programs.

6. Training to support new software, and enhancements to existing software.

7. Describe the role specific training provided.

8. Availability of free terminals for training purposes.
VENDOR STABILITY AND COMMITMENT

Each vendor must provide the following:

1. A brief corporate and financial history.

2. A statement of commitment to the data processing marketplace.

3. A statement regarding support of this specific product line and routine upgrades of this product.

4. A statement describing the organization's experience in and commitment to the Health Care industry.

5. A general description of the range of related products and services offered.

6. A general description of planned products or enhancements which may be of interest.

7. A statement of the ability to support the needs of our institution regarding available personnel and computer power.
1. Each vendor shall specify a detailed installation plan which describes the physical facilities required. The elapsed time required, fall back considerations and procedures, and any information or services which are to be supplied by the customer. The vendor must describe who is responsible for installing the system (vendor or customer). The vendor must specify the delivery and installation schedule using the earliest date that the installation could be made within the specified time period. The customer reserves the right to alter the installation plan as required.

2. Each vendor must describe what services are available to the customer for such times as conversion and/or interface support.

3. Each vendor must specify all extraordinary costs associated with installation of the system and the criteria for identifying the validity of these additional charges.
SYSTEM MALFUNCTION

Particular attention must be devoted to what is expected of the UM Hospitals' personnel resources related to system malfunction and how problem identification is documented for resolution by the vendor.

The vendor must describe the following:

1. Their obligation with respect to any system malfunction. This must include mechanisms for support, escalation procedures, and turnaround time frames.

2. Their method for notifying clients of a system problem, inclusive of the method of applying system fixes and updating documentation.

3. Their policy for replacement or compensation for chronic, non-correctable system malfunction.
CONFLICT OF INTERESTS

Vendor must affirm that:

1. To the best of his/her knowledge, there exists no actual or potential conflict of interest between vendor's family, business, or financial interests, and his/her services under this agreement. In the event of change in either his/her private interests or service under this agreement, he/she will inform the University regarding possible conflict of interest which may arise as a result of such change.

2. There exists no actual or potential conflict between a University of Michigan employee and the vendor.
REFERENCES

The vendor must provide the following for sites that are actually running in a production environment:

1. Three or more reference sites which match, as closely as possible, the hardware and software configuration and the application which has been described above. It is preferred that those sites be major teaching hospitals.

2. The description of each reference site's similarities and the names of the appropriate persons to contact.
FINANCIAL TERMS

To provide comparability between vendor responses and in recognition of UM Hospitals' existing financial climate, financial alternatives for the proposed system must be addressed. The vendor must include specific reference to credits, discounts, or other conditions which will affect the final acquisition price of the specified system.

1. Initial Costs-Installation/License

   A. The vendor must specify the acquisition price for the system described. If the system requires modules, each of these must be separately identified and priced. The vendor must define any separate licensing arrangements that must be secured.

   B. The vendor should note that payment will be made upon completion of the installation and upon written acceptance by the University of Michigan. Any price reductions between the acceptance of the proposal and the actual installation date shall apply.

   C. The vendor should state what actions will be taken by the vendor should it fail to meet specifications and what credits it would offer to the University of Michigan.

1. Ongoing Maintenance

   A. The vendor must specify alternative maintenance arrangements with the objective that future upgrades available to all clients will be made in an efficient manner.

   B. If provided by the vendor, specify terms for maintenance and monthly costs for a period of 36 months following first date of maintenance charge.

   C. The vendor must specify the first date of maintenance charge (if applicable).

   D. The vendor should provide a statement of expected costs for user requested modifications to the software system.

   E. The vendor must advise what warranty conditions apply. Warranty service shall include whatever modifications are necessary to maintain software in full operational conditional based on agreed upon specifications defined in the contract. Any unresolved problems at the end of the warranty period shall be covered under warranty until resolution.
3. Implementation Costs/Support Costs

Vendor should provide costs for all additional expenses for education, software support services, etc. associated with the implementation and installation of the specified system.

4. Contract Component/Requirements

To identify required components of the contract between vendor and the University of Michigan.

A. Licensing Arrangements

The vendor warrants software against defects for a period of one year beginning with the date of software installation, to include initial and future upgrades.

The vendor must specify the term of the license and the provisions for upgrade (cost, responsibilities, and acceptance testing).

If the software is provided under a lease arrangement and in the event the vendor discontinues providing the service under any condition voluntary or involuntary, the software shall become licensed to the Regents of the University of Michigan. A licensing agreement and waivers shall be part of the contract, to become effective upon cessation of service and at no additional fee.

The vendor shall be prepared to provide complete documentation and source code and maintain same in escrow. The vendor must specify the name to the escrow agent, where it is maintained, and must allow access to the escrow by University representatives.

B. Performance Criteria

The vendor shall be subject to specified performance criteria which will include the mutually agreed upon timetable for installation and correction of operating problems during the installation period within 5 days of written notification.

C. The vendor is to submit with this proposal those contract components considered essential to contract.