REQUEST FOR PROPOSAL
Clinical Laboratory Operating System

1 REQUEST FOR PROPOSAL SPECIFICATIONS

1.1.1 Purpose

The purpose of this RFP is to engage an organization that will assist the hospital in ensuring that our hospital-based Laboratory is operating at a high level of efficiency for operational and organizational content. Primary to this end is providing established and proven systems necessary to accomplish these goals.

"Recognizing and respecting the confidentiality of patient and/or hospital information is an expectation. Information received from hospital shall be held in this regard, and disclosure to any unauthorized person, colleague, or business entity shall be deemed as a violation of this agreement and cause for termination. Company shall comply with all Federal and State regulations regarding patient confidentiality".

1.1.2 Key Dates

Week 1	Request for Proposal sent to potential vendors –December 9
Week 2	Deadline for questions from vendors – December 16
Week 3	Responses to vendor questions – December 23
Week 4	Deadline for vendor proposals – January 6
Week 11	Final selection of vendor – February 3

1.1.3 Questions and Answers

Any questions or requests for clarification in connection with this Request for Proposal should be directed to:

Susan Frost
Adm. Director, Laboratory
CGH Medical Center
100 E. LeFevre Road
Sterling, Illinois 61081
(815) 625-0400 (4449)
sfrost@cghmc.com

Questions should be received by the question deadline date. Answers to certain vendor inquiries may be distributed by e-mail.

1.1.4 Copies of Proposal

Submit three copies of the proposal to the following address no later than the deadline date:

Susan Frost
Adm. Dir., Laboratory
CGH Medical Center
100 E. LeFevre Road
Sterling, Illinois 61081

1.1.5 Negotiation of Contract

A contract will be executed between the parties upon the terms and conditions stated in this RFP and as such others terms and conditions as required or necessary by CGH. The Laboratory needs assessment will become a intrical part of the final negotiated contract.

2 REQUEST FOR PROPOSAL INFORMATION

2.1 Statement of Need

CGH needs to create a detailed strategy and set of work plans to implement a state of the art Laboratory operating/management system to ensure that we can continue to provide high level of Laboratory services to the Sterling/Rock Falls Community.

2.2 Objectives and Goals of the Assessment

CGH wants to partner with a vendor experienced in Laboratory organizational processes and Laboratory operations. The vendor must be able to assist CGH in the successful implementation of the following Laboratory systems/ tools:

General Laboratory System
Microbiology System
Anatomic Pathology System
Blood Bank/Transfusion
Blood Bank Donor
Outreach Services
CAP SNOMED INTERNATIONAL (III)
Handlheld Specimen Collections
Handheld Specimen Collections Device
Image Management for Pathology
Specimen Management
Laboratory Management
Service Management
Utilization Management
Registration and Order Entry
Results Viewing
Synoptic Reporting for Pathology
Laboratory Clinical Record
Charge Preprocessor

To accomplish those goals and objectives, the vendor will need to bring the following expertise to the engagement:

- Healthcare knowledge and experience, including:
    - Awareness of trends related to Medicare regulations and the proper billing and documentation requirements as they relate to Laboratory billing
    - Knowledge and understanding of the flow of patient information on an inpatient and outpatient basis and how Laboratory services crucial role impacts the care delivery system.
    - Knowledge and understanding of the relationships between various business partners, e.g., physicians, and the needs of those partners
    - Knowledge of the technology trends within healthcare that may effect the delivery of efficient and effective Laboratory services
    - A methodology and structure that allows for an efficient and expetitious conversion process
- A detailed understanding of CAP/CLIA regulations.
- Legal expertise in interpreting Laboratory regulations.
- Expertise in information technology in the areas of multiple healthcare applications

CGH wishes to partner with a vendor that is willing to share tools and methodologies and allow CGH to work with and receive training from the vendor.

2.3 Vendor Responsibilities

The vendor must work with CGH to complete all of the tasks listed in the Scope of the Work section. The vendor must provide tools and methodologies, and the training to use those tools, to guide CGH department leaders to participate in the process.

2.3.1 Scope of Work

See Attached

2.4 Hospital Environment All Sub-Sections (appendix)

3 RESPONSE GUIDELINES

3.1 Response Guidelines

3.1.1 Preparation Costs Borne by Vendor

CGH, nor their representatives, nor employees shall be liable for any costs incurred by a vendor in preparing or submitting a response to this solicitation. That would include any initial travel costs incurred in the event a vendor comes to CGH for any sales calls.

3.1.2 Rights of Non-Response

CGH reserves the right to not take action on any vendor's proposal.

3.2 Contents of the Response

3.1.1 Section I – Introduction

The introduction should include:

- The Title Page identifying your organization's name and address, name of the contact person, telephone and fax numbers, e-mail address, and proposal date
- Table of contents including a clear identification of the material by section and page number

3.2.2 Section II – Vendor Qualifications

3.2.2.1 Qualifications and Experience of the Company

Demonstrate your company's experience and qualifications in the following areas.

- Expertise and experience, including
    - Knowledge and understanding of the flow of patient information and the impact on reimbursement.
    - Knowledge and understanding of the relationships between various healthcare partners, e.g. hospitals, physicians, and payers
    - Knowledge of the information technology trends within healthcare

3.2.2.2 Management Capability

Demonstrate your company's management qualifications and capabilities to staff and supervise the engagement. Describe the management approach that will be used to ensure successful

completion of the effort required by the Scope of the Work. Describe your process for monitoring and controlling both progress and financial resources.

3.2.2.3 References

Provide a list of up to three references for which similar engagements have been completed. The list should provide the name, title, telephone number and address of an appropriate person to be contacted. These references should be of acute care hospital faciltities, between 100-250 bed size, and of similar market/demographic make-up as CGH Medical Center.

3.2.3 Laboratory Needs Assessment

This section should include your understanding of the work to be performed and the results to be achieved. Discuss the detailed approach that will be used to ensure successful completion of the effort required by the scope of the work. Itemize and describe the work to be done and the deliverables to be produced. Discuss the methods and tools that will be used to accomplish the work. Complete the Laboratory needs assessment as to the current functionality of your systems. Keep in mind that this document will become an intrical part of the contract and that payment for the products will be based upon successful implementation of all the needs identified by you as available functionality.

3.2.4 Section IV – Provide Work Plan and Schedule

Provide a work plan and schedule for completing the scope of work and deliverables. Discuss the approach that will be used to ensure successful completion of the work required by the scope of the work. Summary work plan should be provided in the form of a Gantt chart with identified resources and timetables.

Define the requirement for resources from CGH to work on the assessment and implementation process. What type of resource (skills) will be needed, for what amount of time and for what duration?

3.2.5 Section V – Proposed Costs

The proposal should clearly identify all related costs including travel and other reimbursable expense, interface costs, hardware/software, implementation fees, engineering fees, ongoing fees such as monthly support fees, upgrades/updates (if not included in monthly support amounts), etc. Provide a detailed cost breakdown by type of resource/expense indicating the rate per hour if applicable and estimated hours for completion of the engagement. Prices should include all costs to be charged to the engagement.

4 EVALUATION OF PROPOSAL

Proposals will be evaluated in the following categories with a possible 100 points in the rating process.

1. Qualifications and Experience of the Company (10)

2. Management Capabilities (10)

Demonstration of:

- Management qualifications and capabilities to staff and supervise the engagement
- A management approach that will ensure successful completion of the work required by the scope of the work
- A process for monitoring and controlling both progress and financial resources
- Qualified engagement managers and personnel being assigned to the engagement

3. References (10)

Demonstration of satisfied customers at other sites for which similar engagements have been completed

4. Work Plan and Schedule (10)

Demonstration of:

- Tasks and time frames detailing the approach that will be used to ensure successful completion of the work required by the scope of the work

5. Proposed Costs (20)

Demonstration of:

- A clear and cost-effective budget for accomplishing the scope of work
- Costs itemized for each item listed under the scope of the work

6. Functionality (40)

APPENDIX
2.4.1 Overview of CGH

ORGANIZATIONAL PROFILE

Located in the Rock River Valley region of northern Illinois, CGH Medical Center (CGHMC) is a progressive acute care facility with a hometown feel. Over its 92 years of operation, CGHMC has built a distinguished reputation for care of and commitment to the community. CGHMC benefits from a long history of well-managed growth and with its current staff of over 880 caring people it is the principle employer in the community. The Medical Staff consists of 145 physicians specializing in over 35 areas of medicine.

CGHMC is dedicated to caring for our patients throughout the continuum of care from our paramedic services and 24-hour trauma ready emergency department to our superior home nursing, home infusion, and home medical supply services.

In order to respond to the needs of our rural communities, CGHMC owns and operates five family practice clinics in the surrounding towns. Local customers are served by two additional clinics operating in Sterling.

CGHMC inpatient services include medical, surgical, critical care, telemetry, and maternal/child services.

Outpatient services include Digestive Disease and Sleep Centers, Laboratory, Diagnostic Imaging, Ambulatory Surgical Care, and Pain Clinic. Added to these is a state-of-the-art Cardiac Catheterization Lab, opened the summer of 2004. Support services include Cancer Care, Diabetic and Nutritional Education programs, Physical and Occupational therapy, and Pulmonary and Cardiac Rehabilitation.

CGHMC operates a day care center as a benefit both to employees and to the community. Northern Illinois Home Medical Supply and the Northern Illinois Cancer Treatment Center are also community partners. CGH also works closely with two area Hospice groups to aid families and patients at end of life.

CGHMC is committed to providing the most up-to-date medical technologies while maintaining both high levels of quality and patient satisfaction. Our customers are more than patients; patients are our friends, neighbors, and loved ones.

CGHMC's culture embodies our Mission and Vision. It is prominently displayed throughout the organization at both strategic planning and operational levels. Our Values encompass those behaviors displayed by our staff allowing CGHMC to earn and maintain consistent patient satisfaction scores of 96% or greater.

MISSION: Provide our community with quality healthcare in a caring, efficient and cost effective manner.

VISION: Continually strive to be the benchmark for quality service and work life.

VALUES are represented by the acronym PRIDE
P = Personal commitment to serve others
R = Responsibility for our actions
I = Integrity: the foundation of our service
D = Dedication to continuous improvement
E = Education of the public and ourselves

Since its inception in mid-1990, the Mission, Vision, and Values (MVV) of CGHMC have evolved into a fully integrated philosophy for the organization. Four recurrent themes within that mission and vision

include: 1) Community, 2) Quality, 3) Caring, 4) Efficiency. These themes exemplify the culture at CGHMC.

Our dedication to community is confirmed through our Community Services Department and the CGH Health Foundation. The CGH Health Foundation is dedicated to enriching the quality of life of our area citizens and future generations. Nearly $1 million has been spent providing health related programs and services to the underserved population in the area. Included are eye and dental clinics, mammography, and other cancer screening programs.

As a city owned hospital, CGHMC also recognizes the significance of community input. Members of the community serve on both our Finance and Planning Committees of the Board and actively participate in the strategic decision-making of the organization.

CGHMC is dedicated to continuous quality improvement and patient safety. The Performance Improvement Dashboard is generated and driven by the organization's MVV and strategic initiatives. This culture of quality and safety is one in which staff members are encouraged to learn, create, and implement systematic processes to enhance patient care and staff performance through team usage.

CGHMC realizes the value of learning and sharing best practice with other healthcare organizations. Past involvement in the Institute for Healthcare Improvement's *Quantum Leaps in Patient Safety* and the Illinois Foundation for Quality Healthcare Collaborative on *Surgical Infection Prevention* resulted in drastic improvements in the areas of medication safety and surgical care. Participation in the Illinois Hospital Association Collaborative on *Reconciliation of Medications* and the Stanford University's study on *Culture of Safety* are currently motivating transformational change.

The slogan for CGHMC is *Caring People, Caring Tradition*. This link to the MVV is a fully integrated philosophy that is realized in many ways. In the Employee of the Month program, nominees are selected based upon how well the employee exemplifies the MVV. Annual staff performance reviews utilize similar criteria.

CGH is dedicated to guest relations through the A.I.M. program. The A.I.M. program stands for: A=Acknowledge the customer, I = Identify needs/expectations and M= Meet/exceed the needs/expectations. All CGHMC employees are required to renew their commitment to guest relations through annual training. Senior Leadership demonstrates their dedication to this process by personally presenting the annual A.I.M. seminars.

CGHMC celebrates its recognition of staff's contribution and commitment to guest relations, fiscal responsibility, and service through annual *Quality Share Bonuses.* Each year, employees receive a bonus based upon the most current patient satisfaction rates, operating margin, and his/her years of service.

The efficiency of CGHMC can be viewed in multiple modes. The culture of CGHMC strives for a balance between hierarchical and shared governance. This balance is reflected in the degree of autonomy given to middle management and to our organizational committees and teams. Senior Leadership realizes the importance of consistency in practice. They also recognize and trust the decision-making ability of those experienced leaders within the institution. This leadership flexibility contributes to an efficient and effective response to the challenges facing CGHMC.

Economically, CGHMC continually strives for lean processes and appropriate utilization of both staff and material related costs. CGHMC is the only rural hospital in the area to maintain an A- Bond Rating. The 2005 fiscal year-end operating margin was 3.1%. Care path use, active case management and physician education, has decreased the average length of stay at CGH to 3.2 days.

The staff of CGHMC is made up of highly professional and compassionate caregivers and support staff. The skill mix ranges from positions that require no specific degree to that at the Ph.D. and M.D. level. Of the registered nurse staff, approximately 80% are ADN, 15% BSN and 5% are Masters prepared. All diagnostic staff is appropriately licensed and many have achieved certifications in specialties above the minimum requirements. All physicians who practice at CGH are screened and credentialed through a process that meets and exceeds those requirements set by regulatory agencies.

The cultural diversity of CGHMC is not unique to a rural Midwestern community with the majority of staff being Caucasian females. There is a strong Hispanic presence in the community that accounts for approximately 5% of the workforce. CGHMC has realized the importance of recruiting men into the healthcare workforce and is actively teaming with the Sauk Valley Community College to achieve that goal.

CGHMC has a long tenured, satisfied staff. The turnover rate for 2005 was 8.5%. While staff shortages are affecting hospitals throughout the nation, CGHMC has been able to avoid contract nursing agencies for direct patient care services. This level of satisfaction has also allowed the organization to avoid collective bargaining units.

CGHMC promotes continual education of staff through a generous tuition reimbursement program to assist any employee in earning an advanced degree.

Employee safety requirements, set by regulatory agencies, are met through annual competencies monitored by departmentally appointed safety representatives. The Central Safety Committee is responsible for the monitoring and analysis of safety data as well as for the implementation of procedures to eliminate patient safety hazards. The Ergonomics Committee is instrumental in developing new processes to increase both patient and employee safety.

CGHMC physical resources include the acute care facility as well as physician offices in surrounding communities, a home nursing office, durable medical equipment business and cancer treatment center. In addition, CGHMC has invested space in our acute care facility to house the new cardiac catheterization department. Plans are in place to construct an addition to the hospital within the next two years that will permit CGHMC to expand and continue to provide the latest technology in the areas of cardiology, diagnostic imaging, emergency, obstetrical, and surgical services.

While maintaining the ambiance of a community hospital, CGHMC offers technology currently provided by large, regional healthcare facilities. This state-of-the-art technology includes 1.5 Tesla MRI, 16-Ring Spiral CT scanner, ultrasound, dexascan, nuclear medical imaging, computer-aided detection mammography, and angiography. The diagnostic imaging department is digital with the Picture Archiving and Communication System (PACS). CGH Home Nursing is equipped with the Viterion Telehealthcare system to provide monitoring of cardiac patients between home visits. This allows patients to be active participants in their care and provides superior management of the disease process while delivering efficient and effective nursing care.

Major technologies are reflected in business and clinical computer software applications. The major financial accounting system is Lawson, which provides the following functions for the institution: financial accounting, accounts payable, payroll, benefits, inventory control, and purchasing.
CGHMC has also embarked on a five-year plan to evolve to an electronic health record utilizing Cerner applications. CGHMC physician office practices also initiated implementation of a standardized, electronic health record to interface with the hospital record. CGHMC is collaborating with the Sterling-Rock Falls Clinic (SRFC) in this effort to achieve a higher goal of producing a fully integrated health record that could potentially include any physician in the community.

CGHMC is owned by the City of Sterling and complies with those ordinances applicable to the city. CGHMC operates under all state and federal regulations for both clinical and financial environments. Some of those agencies include OSHA, IDPH, and IDPR.

While CGHMC is not legally required to maintain JCAHO accreditation for the hospital, home nursing and physician offices, the organization chose to do so because of the commitment to providing quality care. CGHMC strives to exceed those minimum requirements set by JCAHO and other regulatory agencies by seeking further accreditation from specialty organizations. Currently, the laboratory is fully accredited by the College of American Pathologists (CAP) and American Association of Blood Banks (AABB), the Cancer Registry is accredited by the American College of Surgeons and the Sleep Center is accredited by the American Academy of Sleep Medicine. CGH is one of only 34 hospitals in the state to be accredited by the American Association of Cardiovascular and Pulmonary Rehabilitation for its Cardiac Rehabilitation

Program. The National Diabetic Association certifies the Diabetic Education Program. Skilled and clinical labor staff is also credentialed by their professional societies.

As a municipal organization, the city council and mayor of Sterling sit at the head of the organizational chart. A Board of Directors selected by the mayor governs CGHMC. Senior leaders consist of a seven-person administrative team lead by the Chief Executive Officer/President who reports directly to the Board of Directors. CGHMC integrates the board, senior leadership team and physicians through board level committees including Finance, Quality Council and Planning Committee. An annual Strategic Planning Retreat that includes these disciplines assists in the development of the strategic plan for the organization. Senior leadership interfaces and receives feedback from front line staff on a regular basis during walk-arounds. Monthly open "CEO Chats" held by the President/CEO offer employees the opportunity to make suggestions and ask questions. CGHMC supports a non-punitive culture of safety as evidenced by responses to regular staff surveys.

CGHMC considers patients and families as the primary customer group. For the purposes of assessing and monitoring types of needs, expectations and satisfaction, these groups are separated for polling into inpatient, outpatient and physician office. An external patient satisfaction vendor telephonically surveys all service groups eight months out of the year. Key requirements are identified in Figure 1.

CGHMC recognizes the direct relationship between external and internal customer satisfaction. Because of this, physician and employee expectations and satisfaction are also appraised on a scheduled basis. Those surveys have confirmed that CGHMC is in the 90^{th} percentile of comparative hospitals in employee satisfaction.

The feedback from both internal and external surveys is integrated into the Guest Relations A.I.M. program throughout the year. Focus groups and staff morale teams have also been utilized to elicit response and opinions from employees related to staff satisfaction. The information received from these sessions is utilized to develop improvement plans for both institution wide and department specific areas.

Inpatient Expectations	- Involvement in care - Safe staffing levels - Friendly and caring staff
Outpatient Expectations	- Safe staffing levels - Seamless discharge process - Involvement in care
Staff Expectations	- Communication - Strong compensation - Consistent application of policy
Physician Expectations	- Staff awareness of patient status - Knowledgeable communication of pertinent information.

Fig. 1 Customer Expectations

The SRFC and CGHMC Physician Practice Group are the primary sources of patient referrals and are essential in the development, maintenance and improvement of clinical treatment at CGHMC. Collaborating relationships with tertiary facilities, nursing homes, and private home health agencies provide reciprocating relationships, critical for realizing successful patient outcomes.

CGHMC is a member of the group-purchasing network Amerinet, which provides access to a database of contract managers and local representatives of medical, office and janitorial suppliers. This allows CGHMC to seek and utilize those suppliers considered in network for best pricing and quality issues. Most orders and bids are communicated by fax or phone.

CGHMC has also identified the Sauk Valley Community College as a key partner and supplier of qualified healthcare staff. CGHMC has worked in conjunction with the local college and vocational school to increase the number of students selecting healthcare as a profession.

CGHMC has a service area which serves 105,000 people. Eastern Whiteside County, with a population of 55,000 is the primary service area and produces 80% of yearly patient volume. In 2004, CGHMC held 74% of the market share in the area. See Figure 2 for market share by diagnostic category.

Kathryn Shaw Bethea (KSB) Hospital is CGHMC's chief competitor as well as a key partner. KSB Hospital is approximately fifteen minutes from Sterling. CGHMC and KSB Hospital have shared ownership of the Northern Illinois Cancer Treatment Center and Northern Illinois Home Medical Supply. Over the years, the market share between the hospitals has remained relatively constant as KSB Hospital supports a different physician group.

Diagnostic Category	Market Share
Digestive	85.1%
Respiratory – Pneumonia	84%
Childbirth/Pregnancy	81.4%
Endocrine/Metabolic	80%
Hepatobilliary	78.8%
Kidney/Urinary	68.5%
Circulatory-Heart	66%
Musculoskeletal	62.7%
Nervous System	62.7%
Ears, Nose and Throat	61.5%

Figure 2. Market Share 2004

The SRFC is also a key partner and competitor. CGHMC is fortunate to have a successful relationship with that group of specialty physicians. While SRFC does provide some independent diagnostic testing services, MRI and CT services are exclusive to CGHMC.

Several tertiary centers are located within a one-hour drive. CGHMC still utilizes tertiary care centers for advanced care unable to be provided locally. With our skill mix, dedication to technology and specialty services, CGHMC also enjoys the ability to compete with these tertiary centers. Recent image surveys demonstrate customers believe they can obtain quality care, tailored to their needs at CGHMC.

These same tertiary centers have been identified as key competitors in recruitment and retention of qualified staff. CGHMC strives to remain competitive through generous salary and benefit packages.

Several factors drive the long-term success of CGHMC. First and foremost is a dedicated, loyal and customer friendly staff. Second is the culture of continuous quality improvement in both clinical and non-clinical areas. CGHMC culture thrives on learning, creativity and innovation, utilizing our knowledge of benchmarking, evidence-based practice, and long standing tradition. The third pivotal success factor is the interactive, professional relationship between leadership of the medical staff and CGHMC. A governance structure that promotes autonomy and timely, informed decision-making is a strong fourth.

The key sources for CGHMC comparative data are shown in Figure 3. These sources provide comparisons at a state and national levels. National results have the capability to be aggregated to compare CGHMC with organizations of similar size. Benchmarking and comparative data are generally reported as ndustry averages or quartile levels. Involvement in the National Voluntary Reporting Initiative and collaborative work with other institutions has provided additional comparative data.

Data	Source
Patient Safety	Maryland Quality Indicator Project (MQIP)
Patient Treatment	MQIP
Patient Outcomes	MQIP
Patient Satisfaction	Arbor and Associates
Physician Satisfaction	Arbor and Associates
Employee Satisfaction	HR Solutions
Consumer Image	E.W. McDaniels

Financial	CompData, CostFlex
Culture of Safety	Stanford Project

Fig 3. Comparative Resources

CGHMC has identified the following key strategic challenges during annual Management and Board level Strategic Planning retreats.

- Recruitment and retention of qualified staff
- Recruitment of physician specialties replacement of aging physician groups
- Caring for an increasing Medicare population
- Continuing growth and innovation with less reimbursement
- Servicing an economically strained community

CGHMC utilizes a multi-tiered approach to performance improvement by designating key committees as accountable for the outcomes of the data presented. The rationale for this approach is to integrate quality universally throughout the organization at every level. The Quality Council (QC) serves as the board level committee providing strategic oversight. Their responsibility is to ensure that all measures are aligned and integrated with the Strategic Plan and MVV. The Clinical Excellence Committee (CEC) is the medical staff committee responsible for improving clinical aspects of patient care. The Performance Improvement Committee (PIC) is the manager level committee that evaluates clinical and operational improvements. These functional committees review and offer recommendations for the Performance Improvement and the Sectional Committee Dashboards. Section committees that report to CEC and PIC are shown on Figure 4.

Each department is required to identify a minimum of two critical indicators to continuously monitor and evaluate. These indicators must directly influence the Performance Improvement Dashboard and the MVV. This practice provides an opportunity for employees to become knowledgeable about performance improvement and actively participate in the process.

Committee	Membership
Pharmacy and Therapeutics	Medical Staff (MS), Management (MGT)
Infection Control	MS, MGT, Front line Staff (FLS)
ED Section	MS, MGT, FLS
Cardiology Section	MS, MGT, FLS
OB Section	MS, MGT, FLS
Medication Safety	MGT, FLS
Patient Safety	MGT, FLS
Medical Records	MGT, FLS
Improvement Teams	MS, MGT, FLS

Fig. 4 Sectional Committees

CGHMC utilizes a variety of methods to promote and share knowledge assets within the organization. When an educational need is identified by the outcome of a team, employee input, or the review of annual competencies, an educational plan is developed to address that need. Education options include the following:

- Hands-on skills labs
- Formal seminar training
- Video
- Self-study
- Preceptor education

Orientation of new staff is held on a monthly basis. Specific training in performance improvement, guest relations, and patient safety is provided quarterly.

Annually CGHMC offers a Quality Fest to celebrate the accomplishments of completed teams and initiatives. Whenever possible, the employees directly involved share improvements with the entire Board of Directors. This allows the members to thank the staff and personally recognize them for their commitment to the organization's efforts.

2.3.1 Laboratory Needs Assessment
LIS Evaluation Matrix

		Available in current software version (Y/N)
1	**Interfaces**	
2	Can we interface with Quest, our reference laboratory and is the Quest interface currently available?	
4	How are manifest sheets printed from the reference laboratory interface?	
5	Is there a mechanism to ascertain if the instrument interface and LIS are "listening" to each other?	
6	At what level can the instrument interfaces be restarted?	
7	At what level can the auto downloading mechanism of the instrument interface be checked? Only in CIS or within the Laboratory?	
8	How long does it take for the auto-download/auto-upload features to work?	
9	Is there a difference between posting and verifying results and how are these actions accomplished?	
10	How does the interface work with the Microbiology analyzer for downloading data and uploading results?	
11	How are tests not defined in the system handled?	
12	**Auto verification**	
13	Can the reference laboratory interface be programmed so the results will auto-verify?	
14	Can the system be programmed for auto verification at the level of the test?	
15	Is there a process for a Microbiology automated system with autoverification capabililities?	
17	**Auto faxing**	
18	Does the system have the ability to auto-fax or auto-print to printers outside the hospital?	
19	Is there a customer call/fax task list for ensuring results are called/faxed.	
22	**"Rule-based" system**	
23	Can the system be programmed to assign AMR/CRR values to individual tests that will automatically assign a ">/<" value based on the rule?	
24	Does the system have the ability to generate a pop-up screen, or reflex testing, when a result requires additional testing? e.g. positive bilirubin requires an ictotest	
25	Does the system have the ability to change CBC to CBCD and *UA to *UA1, *UACI to *UAC2 and add culture automatically? Can you show me?	
27	**ABN's**	
28	Does the system have the capability of automatically printing ABN (If needed) when appropriate diagnostic codes have been entered?	
32	**Simple query**	
33	What are the query options? Simple results, doctor query, blood bank query, micro query? Others?	
34	Can we move to query screens directly from general lab to view previous patient results? And then move directly back to general lab?	
35	Is there an option to create an electronic specimen collection manual that would list all testing performed by the laboratory, as well as specimen requirements, TAT, etc?	
38	**Panic Values**	
39	Can the system be programmed by the user to define whether or not results can be verified if proper panic documentation is absent?	
40	How is panic call documentation time-stamped? Does it include the log-in initials, time and date and have a comment area for free-text information?	

41	Does call documentation appear on the patient's chart report?	
43	**Quality Control**	
44	How many months of data are displayed on the L-J plots?	
45	Does the cumulative data include LTD, MTD of mean, SD and CV?	
46	How is result entry of non-interfaced tests accomplished?	
47	Can entry of non-interfaced data be accomplished in more than one way? e.g. several lots by test, or several tests by lot?	
48	Can action log resolutions be user programmed so that actions may be chosen from a list as well as free-texting actions?	
49	Is there a mechanism for definition of alpha numeric tests?	
50	Is there a mechanism for documentation of electronic QC/"within run" QC that can be traced back to individual patient results?	
51	Must action logs be resolved at the time of failure, or can they be resolved after appropriate action has been taken?	
52	Can action logs be programmed to print automatically when appropriate action has been taken?	
53	Can tests and instruments be deleted or inactivated?	
54	Can the mean and SD be revised once they have been assigned and will the "old" mean and SD remain in the system for easy reference?	
55	Can the system glean and transmit data from the program to the vendor via the internet without manually entering the data?	
56	Is it necessary to exit the general lab area and re-login to move to the QC program area?	
57	Can old lots of material be deleted or inactivated?	
58	Is there an area for free-text comments within the action log system?	
59	Is there an area to report internal as well as external controls as in serology testing?	
60	**Inventory Control**	
61	Can a complete inventory list be created for each section that could be easily updated and data retrieved for reporting purposes?	
65	**Result Review**	
66	Is there a daily result review feature that will automatically print all results from a department at a specified time for supervisory review for all modules (Gen Lab, Blood Bank, Micro, Anatomic Pathology)?	
67	Can the system be programmed at the level of the test to require a second review before results can be verified?	
70	**Reflex Testing**	
71	Is there an option to establish reflex testing within the system?	
75	**Customer Support/Response**	
76	Does the Cerner TAC support all versions and formulations of software?	
77	Is the TAC 24/7/365?	
78	What is the typical response time for the TAC to return calls?	
79	Can anyone in the laboratory request assistance or is there a specified request protocol that must be initiated?	
80	What will the relationship be among our IT department, the Laboratory and Cerner when dealing with hardware/software issues?	
81	**Downtime**	
82	What are the required/**scheduled** downtimes? Daily, weekly, monthly? How long are these downtimes?	
83	How frequent are **un-scheduled** downtimes? How long is the system down? What process do you have in place to continue operations?	
84	Are there times of the day that "maintenance" procedures are occurring that may slow our	

	work functions?	
85	What is the typical response time when there are hardware issues that need attention or replacement? Is there proof of this?	
86	If part of the Cerner system (HIS) is down, are all computer functions down or could the lab LIS still be functioning?	
88	Do you have hard data to share with us regarding response times (from notification to "back up and running") for non-functioning features, modules, etc.?	
89	**Phlebotomy**	
90	What is the mechanism for establishing collection routes?	
91	Can specimens within orders be designated for recollection? Does this designation remove the original collection time and allow for the new collection time to be entered? Is there an area to designate the reason for the recollection?	
92	How is collection/receipt of specimens verified and are there options for lists, stat specimens, inpatients, etc?	
93	Can phlebotomy be examined retrospectively to look at total collection by individual phlebotomists, time of day, days of week, etc.?	
94	What information prints on phlebotomy labels? Type of tube, volume needed, demographics, test name?	
95	Does the system have the capability of using hand-held bar coders to identify patient demographics?	
96	Can messages be formulated by the user that will print on the phlebotomy labels?	
97	Does the label include specimen source or type of culture?	
98	**Ad hoc/Management Reports**	
99	Supervisor Worksheet Report: does the system have the ability to select tests by workstation, department, location, all, tests, template with the ability to designate status (resulted, collected, uncollected, posted, all, pending) within an order range? then sort by ward, name, order ID **and** then sort again by order ID, physician, ward, name: with options (not yet flagged, already flagged, all) then designate priorities (R, S, T, U).	
100	Pending Orders Report: does the system have the ability to sort by order range, department/location/area, ordered/collected/received, patient type and priorities?	
101	Are there already SQL reports defined in the system? Can we formulate our own and how cumbersome is this task?	
102	Can we generate "exceptions" reports based on a variety of criteria? e.g. panic value documentation, results modified after verification	
103	Can we generate a "tests per month" report and designate a tech/department/doctor/ward, etc?	
104	Can data be pulled from Cerner into a Microsoft Excel file for data manipulation?	
105	Can workload (billable tests ordered) be assessed in real time for staffing purposes?	
106	Is there a report function (log/audit trial) that will provide data for + blood cultures, all blood cultures, CSF cultures, GC cultures, gram stains, O&Ps, stool cultures and urine cultures?	
107	Is there an epidemiology portion that will provide data for Infection control, organism occurrence, trending report, sensitivities, trending organism sensitivities, drug susceptibility, positive culture statistics and TAT report capabilities?	
108	Can the number of tests performed weekly, monthly, annually be easily retrieved?	
109	**E-mail application**	
110	Is there an inter-departmental e-mail application within the system?	
111	Can E-mail be easily selected for and sent to specific groups by a category ("C" for Core staff)?	
112	Can E-mail be sent Certified?	
114	**Reports**	

115	Can we "hide" information in the system that will not print on the report? e.g. reasons for delay, difficult venipuncture, permission given by . . .	
116	Can the system be programmed to have all results compared as deltas? Will it flag results that are outside the %D?	
117	Can delta results be programmed at the level of the test?	
118	Are there pre-programmed canned messages already in the system? Can we formulate our own? Can they be inactivated?	
119	Can the system be programmed to print cumulative reports to the nursing units at designated times?	
120	Does the system use Microsoft Word?	
121	Can we design and change our report forms ourselves without Cerner staff involvement and without affecting the interface to Cerner HIS?	
122	Are there batch report printings (from date1 to date2)? Are reports flagged so that they will not print again unless the status of the tests changes?	
123	Are there different report sorting criteria (by Dr, by ward,etc) available? Multiple copies (Dr, HID,etc.)?	
124	Are there fax logs which describe successful/unsucessful transmissions?	
125	**Order Entry**	
126	Does the system have a "Chem Plus" feature; add a COMP to an existing BASIC and only the additional tests will be added to the order?	
127	What is the audit trail for cancelled tests and is there a comment area to document the reason for the cancellation?	
128	Is there a "Patient Maintenance" area to access patient information for physicians?	
129	Can tests be added to an existing order or does a whole new order need to be entered?	
131	**Results reporting**	
132	Will results post without verification of collection/receipt? This is a billing issue in Soft.	
133	What is the mechanism of moving from lab to BB to Micro?	
134	Are age-based normal ranges available?	
135	Are H/L/PH/PL, etc. displayed on the result screens of the systems and are they user programmable?	
136	What is the mechanism of correcting reports with an audit trail to satisfy all CAP checklist items?	
137	Does the system automatically put in a date, time and tech initials for reporting?	
138	Is there preliminary and interim reporting, leaving the test open until the final is issued?	
139	How does billing occur? Is a file created? How is it verified?	
140	How many physicians can be added to a report? Will each of their names appear on the report? Will a report print for each physician on a report?	
141	**Blood Bank**	
142	Is the patient history reviewed and documented?	
143	Does the "History Check" block the user from any patient testing and/or editing until it has been checked?	
144	Is computer crossmatch possible?	
145	Does the system have the capability to print the previous day's/months/years work (patient data backup) as a method of record keeping in case the system is down?	
146	Will the program alert the user that the crossmatch timeframe has expired if we attempt to add units before the order has been "finished"? Can anyone override it?	
147	Is it necessary to re-login to move from general lab to BB?	
148	What and/or how many worksheets are available? Are all tests able to be on one worksheet or is each test on its own page?	
149	Is there a reagent log that includes received date, condition of reagent, opened date, end date? If so, can reagents be barcoded in or do they have to be entered manually?	

150	How are units entered into inventory when received, manually or by barcode reader?	
151	Is there a limit to the number of different types of product categories that can be entered and can a main category (Packed Cells) be created with related units associated attached to it (Leukodepleted, CMV neg, irradiated, etc.)?	
152	Can the charge for products be selected to apply at different times (selected, issued, confirmed)?	
153	When units are added to a type and screen, is the date and time units were added recorded or is just the initial ordered time and date available?	
154	Is a daily result review log available in spreadsheet form and does it include all tests done on a patient order along with the performing tech's initials?	
155	Is reflex testing available (i.e.. If the DAT is positive - then an elution must be performed) either automatically or by a message flag?	
156	Are you able to print full rosters that are entered into the LIS or just the part that is seen on the screen?	
157	Is all information currently stored in our LIS able to be transferred/downloaded to Cerner? **It is a necessity that our History Check be able to continue from 1992 to current date!**	
158	If tests or products are ordered on a patient with existing orders, will Cerner combine the new order with the old order or allow 2 orders to exist on the same patient?	
161	**Microbiology**	
162	Can cultures be called up by specimen type?	
163	Can multiple specimens for culture be ordered on the same order number or do we need one specimen type per order as we currently have?	
164	Is there batch reporting capability?	
165	How are anaerobic/aerobic i.e. wound/fluid ordered and reported?	
166	Is there a built in time factor when ordering multiple tests on a specimen?	
167	Can we make identifying specimen types more user friendly than the current process?	
168	Is there ease of movement from Micro to Lab side and vice versa?	
169	How easy is it to build and update data and organism tables and files?	
170	Are there shortcut keys?	
171	Is there a canned comments capacity that is unique to Microbiology?	
172	Can we document plating times?	
173	Is there a function that would easily capture antibiogram data?	
174	Is serology a function of the general lab or Microbiology?	
175	Are cultures read by barcode or can they be read from a "pending orders" screen?	
176	Can a range of orders be called up when reading plates?	
177	Is there a worksheet for recording organism workup test results?	
178	**Implementation**	
179	What is the length of time it takes for implementation?	
180	What is the total manhour investment on the part of the hospital Laboratory?	
181	What is the total manhour investment on the part of the hospital IT department?	
182	What could we expect in terms of actual committed, on-site assistance from Cerner staff?	
183	How much support is received and how quickly?	
184	What kind of support can we expect while we are building the files?	
185	Is there an audit trail to track system file changes?	
186	Did you do a data conversion? How many years of data? How did Cerner handle this (was it transparent to you?)?	
187	**Anatomic Pathology**	
188	Do we have the ability to print extra specimen labels?	
189	Can we print a log based on specific diagnosis?	

190	Do we have the ability to print logs based on physician, type of specimen, date?	
191	Can the date reported be changed if a signed case is opened to change demographics, then re-signed on a different date without changing the final date of the report?	
192	Can we print a log with case number, specimen, number of pieces, number of blocks and comments (special stains, levels, decal, etc.) to be used at embedding?	
193	What info is included on specimen labels? (case#)?	
194	Is the screen and the report the same?	
195	Is there a specimen adequacy field?	
196	Can worksheets be printed at any given time?	
197	Can all patient history be transferred to Cerner (data conversion)?	
198	Can the date and time a specimen is delivered to the lab be entered manually into the record for accurate TAT?	
199	How is the billing for pathology generated? Can the Pathologist preview the charges for each case to determine if they are appropriate? How does the performing physician get attaced to each professional charge?	
200	Can the format of worksheets and final reports be altered without re-programming by Cerner?	
201	Can autofaxing of all pathology reports occur automatically at the end of each day?	
202	Is electronic signature available? Does is appear on autofaxed reports?	
203	**Transcription**	
204	Does the system use Microsoft Word for pathology transcription?	
205	Is there an on-line medical dictionary?	
206	Is there an automatic "fast processing" of a case available for transcription?	
207	Des the entire document appear on the scrren?	
208	Can the time out be selected on a transcriptionist-by-transcriptionist basis?	
209	Is there automatic SNOMED coding?	

2.4.2 Overview of Current Technical Environment
2.4.3 Overview of Current Applications Environment
2.4.4 Overview of Current Laboratory Environment

The Computer Information Systems (CIS) Department at CGH Medical Center strives to improve the efficiency and enhance the quality of both the business and patient care needs of the CGH Medical Center. CIS staff supports 875+ CGH employees.

Cerner is CGH Medical Center's Hospital Information System (HIS). CGH Medical Center uses the following Cerner products: Scheduling, Registration (PM), Power Chart, Order Entry, Pharmacy, Charge Services and Clinical Data Repository. The system operates on a HP Alpha ES45 running VMS version 7.3.2. We are expecting to be operating the CGH HIS on a HP Alpha ES47 by December 13, 2005. We are running Oracle 8.1.7.4. and data is stored on a HP EVA SAN 5000. The clients access Cerner only through Citrix Metaframe XP farm-published applications across several Windows 2000 Servers, and are undergoing replacement with a Citrix MetaFrame Presentation Server 4.0 farm with load -balanced published desktops and applications with estimated completion Spring of 2006.

Allegra owned by IntraNexus, is our patient billing system. The system operates on an Alpha ES 40 running VMS version 7.2.2. RMS is database system used to store the information and the information resides on a HP EVA SANs 5000. Allegra is accessed by Reflections terminal emulation

Lawson is our financial software. The system operates on a HP 5405 server running HP UX 11i. Oracle version 9 is the relational database system used to store information and the information resides on a HP EVA SANs 5000.

Cloverleaf, owned by Quovadx, is the interface engine residing on a clustered MS Windows 2003 server. Cloverleaf processes ADT, Order, Charge, Lab and Transcribed Result transactions from and/or to Cerner for many ancillary systems.

CIS standard operating systems consist of: Microsoft, VMS, and HP UNIX. Little NT stand alone servers still exist, but are being phased out. CIS standard databases consist of, SQL and Oracle. CIS standard hardware consists of, HP/Compaq servers, Dell workstations, Neoware thin clients and Cisco network equipment. CIS is moving away from individual servers to Virtual Machine (VM) Ware technology when ever possible. Citrix is used when ever possible for accessing applications. We are beginning to move to a Web environment. CIS uses Microsoft Systems Management Server 2003 SP1 (75% of Microsoft clients) primarily for remote support, inventory, and several software package deployments. We use visual basic scripting for network drives and printer mappings on fat client PCs, but use Cerner's WTS Locator Tool for assigning networked printers to users based on structured client device naming conventions.

CIS manages approximately 375 desktop devices consisting of, 250 personal computers, half of which are XP Professional and the remaining are Windows 2000 professional, 75 laptops and 50 Neoware thin client stations. These devices connect to the network through 10/100/1000 MB switches residing on a 1 GB Ethernet backbone. CGH Medical Center has a T1 line to Illinois Century Network for e-mail and internet access, T1 lines to physician offices and other offsite facilities, wireless communication to Materials Management and 56K lines to home transcriptionists and Patient Account telecommuters.

CGH Medical Center runs e-mail services on a clustered Microsoft 2003 servers running on VMware ESX servers. CGH Medical Center outsources the hosting of its public web site. A clustered Side Winder firewall serves as protection from privacy through the Internet and protects confidential information housed within the CGH network with a Cisco VPN Concentrator primarily for vendor support. The Corporate Edition of Norton Antivirus also serves as a form of protection from the outside sources by detecting and cleaning files that may be infected with viruses. Norton Antivirus is installed on every personal computer throughout the hospital.