

**Office of Environment, Safety, and Health  
Oversight  
Review of the Lawrence Livermore National  
Laboratory  
Health Services Department**



**March 2001**

**Office of Environment, Safety and Health**

# TABLE OF CONTENTS

---

	Page
ACRONYMS.....	iii
1.0 INTRODUCTION.....	1
2.0 RESULTS .....	2
3.0 CONCLUSIONS.....	4
APPENDIX A.....	6
APPENDIX B.....	9



## ACRONYMS

---

AAAHC	Accreditation Association for Ambulatory Health Care
ADA	Americans with Disabilities Act
DOE	Department of Energy
EH-2	Office of ES&H Oversight
ES&H	Environment, Safety, and Health
ISM	Integrated Safety Management
JCWS	Johnson Controls World Services Incorporated
LLNL	Lawrence Livermore National Laboratory
NNSA	National Nuclear Security Administration
OAK	Oakland Operations Office
OSHA	Occupational Safety and Health Administration
SQUIRM	Super Quality Improvement and Risk Management

---

**OFFICE OF OVERSIGHT REVIEW  
OF THE LAWRENCE LIVERMORE NATIONAL LABORATORIES  
HEALTH SERVICES DEPARTMENT**

---

## **1. INTRODUCTION**

The Office of Environment, Safety, and Health (ES&H) Oversight (EH-2) in conjunction with the Accreditation Association of Ambulatory Health Care (AAAHC) reviewed the Lawrence Livermore National Laboratory (LLNL) Health Services Department on March 19-21, 2001. The purpose of the review was twofold. First, EH-2 performed a review of selected activities to identify positive attributes, issues, and opportunities for improvement. Second, the AAAHC surveyed the medical program for accreditation. This report documents the results of the EH-2 review and the AAAHC survey.

EH-2 concentrated its efforts in reviewing the effectiveness and quality of the LLNL Health Services Department. The review focused on select activities concerning health services including administration and organization, LLNL Work Smart Standards, hazard communication, medical surveillance of subcontractor employees, Occupational Safety and Health Administration (OSHA) recordkeeping, and program integration with site ES&H activities.

AAAHC surveyors, experienced in occupational health, evaluated the Health Services Department by using nationally recognized core standards for ambulatory health care and adjunct standards concerning occupational medicine. The AAAHC is a non-profit organization committed to ensuring excellence in the delivery of ambulatory health care by performing voluntary, peer-based surveys. The term of accreditation awarded is dependent on the degree of compliance to the core and adjunct standards. Three-year accreditation, the highest attainable term, is awarded when the medical program is in substantial compliance with all standards. To date, LLNL is the eleventh Department of Energy (DOE) medical program to engage in the accreditation process.

The review resulted in EH-2 identifying only positive attributes and opportunities for improvement. Since no issues were identified during the review, no corrective action plan is required from LLNL or National Nuclear Security Administration/Oakland Operations Office (NNSA/OAK). AAAHC awarded the LLNL Health Services Department a three-year term of accreditation.

### **Background**

The University of California manages LLNL for NNSA/OAK. The mission of the laboratory is to ensure national security and apply science and technology to contemporary problems. LLNL employs approximately 7,250 employees and 750 subcontractor employees. Physicists, chemists, engineers, and specialized scientists comprise the majority of the employee population.

The mission of the Health Services Department is to protect, maintain, and improve the health of each employee and the LLNL workforce as a whole. Organizationally, the medical director reports to the Deputy Associate Director for ES&H, who reports to the LLNL associate director. Forty-six employees staff the Health Services Department on a part/full-time basis. Internal coordination and communication among Health Services personnel is accomplished through active participation on various groups, councils, and committees. The Health Services Department conducts monthly “All Hands” meetings to communicate key information, which also provide a forum to raise issues and concerns.

The Health Services Department provides clinical services encompassing:

- Drop-in, urgent care for acute health needs
- Return-to-work, fitness-for-duty, and certification medical evaluations
- Medical surveillance
- Physical therapy for work-related illnesses/injuries
- Time-saving onsite activities, such as allergy injections and phlebotomy
- Health promotion
- Disability management for non-occupational illnesses/injuries.

The Health Services staff participates with personnel from the Hazard Control and Environmental Protection Departments on five sitewide ES&H teams. The teams exist to support the specific safety and health needs of laboratory organizations. In addition, Health Services meets weekly with senior staff of the Safety and Security Directorate and routinely participates as a member of the ES&H working group concerning such activities as integrated safety management (ISM), emergency response, quality management, and self-assessment.

### **Report Organization**

Section 2 of this report presents the results of the EH-2 review of the LLNL Health Services Department. The report includes two appendices. Appendix A provides additional information about the conduct of the review, team composition, and the role of the AAAHC. Appendix B is a summary of the LLNL AAAHC survey.

## **2. RESULTS**

The following results from the LLNL Health Services Department review are a compilation of the AAAHC survey that determined conformance to national ambulatory health care standards, and the EH-2 review that assessed program performance to established DOE policy. Both review processes reflect the principles of ISM, such as the identification of roles, responsibilities, and accountabilities; identification of requirements; quality management and improvement activities; and performance assessment and feedback mechanisms to promote continuous program improvement.

The results of the AAAHC survey revealed that the LLNL Health Services Department was in substantial compliance with all core and adjunct standards. The results of the EH-2 evaluation are detailed under the following two categories: positive attributes and opportunities for improvement.

### **Positive Attributes**

1. **The corporate organizational structure of the LLNL Health Services Department effectively supports program integrity and its integration into site activities.** The Medical Director and his deputy report to the Associate Director for Safety and Security, which enables Health Services to be an integral participant in the LLNL worker protection team. In addition, senior Health Services managers and clinicians also actively participate on a variety of laboratory-wide ES&H committees that provide technical support to a specific program activity or organization. Health Services routinely coordinates and communicates with NNSA/OAK personnel, laboratory senior management, and line management to facilitate its mission.

The administrative organization within the Health Services Department is equally effective. Primary managers are dedicated to various clinical services, such as health promotion, medical records, employee assistance programs, and administrative operations. The internal organizational structure facilitates integration of activities and an energetic exchange of ideas and teamwork among the Health Services staff. One active Health Services committee, the Super Quality Improvement and Risk Management Committee (SQUIRM), employs quality management and improvement principles to promote program growth or enhancement.

2. **NNSA/OAK and LLNL management have accurately identified a set of regulations and requirements that clearly and appropriately define the Health Services Department's roles, responsibilities, and authorities.** The Work Smart Standards governing the Health Services program are effective, comprehensive, and well communicated in corporate ES&H documents.
3. **The medical management of programs for subcontractor employees has been facilitated by a continuous cooperative effort between Health Services and Johnson Controls World Services, Incorporated (JCWS), the prime employer of LLNL supplemental labor.** This joint effort enabled JCWS to submit a set of medical care standards to proposed health providers that were comparable to those applied by the LLNL Health Services Department. LLNL clinicians continue to support JCWS in routinely reviewing the contracted health provider's response to new medical/health requirements. To the credit of LLNL Health Services management, they are retaining the medical records generated by JCWS employees for future DOE use.
4. **Work-related illness/injury management and the associated OSHA recordkeeping responsibilities are well integrated among line management,**

**Hazard Control, and Health Services.** A robust system is in place to capture, record, and investigate illness/injury cases when they occur. Recordkeeping personnel routinely interact with Health Services staff, DOE, and the state Workers Compensation Board in order to ensure that illness/injury reporting is accurate and in compliance. Case management, employee awareness campaigns concerning the reporting of alleged illness/injuries, and the trending and analysis of lost workday rates and other workers compensation data are primary activities in an effort to reduce the lost-time injury rate and compensation costs.

Health Services clinicians provide treatment, appropriate work restrictions, rehabilitation, and case management to facilitate the safe return of ill/injured employees. The LLNL Return to Work program and its processes are very comprehensive and actively include Health Services and Hazard Control personnel, site managers, and employees.

### **Opportunities for Improvement**

The EH-2 review identified several opportunities for improvement. These potential program enhancements are not intended to be prescriptive. Rather, they are suggested courses of action to be evaluated and modified as necessary by the responsible DOE and contractor line managers in accordance with site-specific ES&H objectives.

- 1. Expand and improve the accessibility of employee exposure information to the Health Services Department.** Improvements would include the expansion of the existing ES&H database so that Health Services personnel can more easily query employee information, analyze it for trends, and formulate actions that would minimize potential health effects. Although there is consensus with LLNL management concerning this need, resources must be dedicated to fund and implement the project appropriately.
- 2. Although the Health Services Department is an active participant in LLNL self-assessment activities, the current process does not focus on its primary functions or output.** Medical surveillance and the collection and interpretation of hazard exposure information are two primary products of the Health Services Department. These products should be evaluated periodically for their accuracy and for possible areas of improvement.
- 3. Health promotion and wellness activities have been adversely impacted by budget reductions.** Although these activities may not be considered critical to program performance, they are important to maintaining a healthy workforce. Since medical costs continue to escalate and private insurance companies have reduced the number of medical services provided, the benefits of a health promotion and wellness program may easily offset any associated costs by fostering improved worker health and well-being, reducing absenteeism, and improving employee retention rates.



## 2. CONCLUSIONS

The LLNL Health Services Department complies with all appropriate DOE requirements concerning occupational medicine, worker protection, and other ISM principles. The AAAHC determined that Health Services was substantially compliant with all of the Association's core and adjunct standards and awarded LLNL a three-year accreditation. The comprehensiveness and quality of the Health Services program is a direct result of the analytical and methodical approach of its personnel in developing, implementing, and continuing to improve the medical services provided to LLNL employees. Their unflagging interaction with contractor management and NNSA/OAK is also apparent and demonstrates the willingness of the Health Services Department to be fully integrated in site activities.

EH-2 observed several positive attributes of the Health Services program during the review. These included corporate support, internal organization, integration with site ES&H activities, inclusion and refinement of medical standards in the LLNL Work Smart Standards, and a joint effort with JCWS in establishing an appropriate medical standards base for subcontractor employees in order to help mitigate future legal risk to DOE. Although not included within the Health Services Department, the OSHA recordkeeping program was well organized, integrated, and devoted to reducing illness/injury rates.

There were no issues identified during the EH-2 review; however, several opportunities for improvement were discovered. These included the improved automation of employee exposure information to Health Services, expansion of self-assessment activities, and increased resources for health promotion and wellness activities.

Throughout the EH-2 review and the AAAHC survey, the LLNL Health Services Department was found to have an exceptionally well planned and implemented occupational medicine program. The quality of the services provided to contract management and to LLNL employees at large is commendable and worthy of DOE and AAAHC recognition.

# APPENDIX A

## REVIEW PROCESS AND TEAM COMPOSITION

### Approach and Methodology

The review of the LLNL Health Services Department was conducted according to EH-2 protocols and procedures, including data validation throughout all stages of the process. In reviewing and accrediting the occupational medicine program, EH-2 supplemented its internal capabilities by teaming with licensed medical AAAHC surveyors who specialize in occupational medicine.

The AAAHC participation in this review served two purposes:

- The AAAHC performed a voluntary, peer-based survey of the LLNL Health Services Department using nationally recognized standards. As part of this effort, LLNL medical personnel completed a self-assessment (pre-review survey) that measured program performance against AAAHC standards.
- Comments concerning the program's compliance with AAAHC standards were factored into the information gathered by EH-2.

The EH-2 and AAAHC approach was effective and efficient in obtaining the independent perspectives of qualified medical, safety, and health professionals in determining program performance. Elements of quality management and continuous improvement were also incorporated in the approach due to parallel AAAHC and DOE requirements.

The review employed standard EH-2 methods for collecting data, including:

- Reviews of policies, procedures, protocols, quality plans, organizational charts, quality records, medical records, equipment calibration records, meeting minutes, budget documents, educational materials, and professional staff credentials
- Interviews with NNSA/OAK, LLNL ES&H personnel, and contractor managers
- Observation of medical department work areas and activities
- Validation of the AAAHC pre-review survey.

### Standards for the Review

The EH-2 review focused on LLNL's ability to establish and implement an effective occupational medicine program, as defined by DOE orders and policies. The DOE orders that specifically define requirements for a DOE contractor occupational medicine program include:

- DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, which establishes a framework for the safety and health management necessary to support a comprehensive medical services program.

- DOE Order 414.1A, *Quality Assurance*, which requires the establishment of an effective management system (i.e., quality assurance programs) using the performance requirements of this Order, coupled with technical standards where appropriate.
- DOE Policy 450.4, *Safety Management System*, which defines a comprehensive and coordinated program of ES&H expectations and activities that are commonly referred to as ISM. All site ES&H programs, including occupational medicine programs, are to be implemented within this framework.
- DOE Policy 450.1, *Environment, Safety and Health Policy for the DOE Complex*, which provides the principles and framework for each member of the DOE community to ensure excellence in the protection of workers, the public, and environment.
- DOE Policy 450.3, *Authorizing Use of the Necessary and Sufficient Process for Standards-Based Environment, Safety and Health Management*, which establishes the “necessary and sufficient” process as one means of addressing ES&H standards.
- Section 3162 of the FY 1003 Defense Authorization Act {42 US Sec.7274I}, “Program to Monitor Department of Energy Workers Exposed to Hazardous and Radioactive Substances,” which directs the Secretary of Energy to develop medical evaluation programs for current and former DOE workers who are at significant risk of work-related illness as a result of exposures while working at DOE facilities.

In the review of DOE medical programs, EH-2 tasked the AAAHC to identify essential elements that define a quality occupational medicine program and to measure program effectiveness against nationally recognized ambulatory health care standards. Although not specific DOE requirements, these elements and AAAHC standards reflect the philosophy detailed in DOE safety management policies. AAAHC standards emphasize the quality improvement process, which is also echoed in DOE orders and policies. The DOE Office of Health Studies supports the accreditation process and is in the process of modifying DOE Order 440.1A to be more consistent with accreditation provisions and guidelines.

## **Team Composition**

The team membership, composition, and responsibilities are as follows:

### **Office of ES&H Oversight Management Team**

#### **Deputy Assistant Secretary for ES&H Oversight**

S. David Stadler, Ph.D.

#### **Associate Deputy Assistant Secretary for ES&H Oversight – Operations**

Raymond Hardwick

#### **Director, Office of ES&H Evaluations**

Patricia Worthington, Director

Tom Staker, Deputy Director

#### **Review Team**

Marvin Mielke, R.N., M.S.N, Team Leader

Connie Eimer, R.N., B.S.N.

Robert Fike, M.D., AAAHC Surveyor, Chairperson

Cheryl Barbanel, M.D., AAAHC Surveyor

#### **Quality Review Board**

Raymond Hardwick

Patricia Worthington

Tom Staker

George Gebus

## **APPENDIX B**

### **ACCREDITATION ASSOCIATION FOR AMBULATORY HEALTH CARE, INC. SURVEY COMMENTS FOR THE LLNL HEALTH SERVICES DEPARTMENT**

#### **Introduction**

As part of the survey process, the AAAHC provides a detailed report of the evaluation results. The report includes the rating (i.e., substantially compliant, partially compliant, or non-compliant) awarded to each of the recognized standards that the association considers essential in the delivery of high quality patient care. The report also includes surveyor comments on program strengths and weaknesses, especially where a standard is rated below substantially compliant.

The AAAHC report for the LLNL Health Services Department consists of approximately 140 pages. The AAAHC recommended several areas of improvement to correct minor program weaknesses. Appendix B is a summary of the AAAHC report. The complete survey report will be forwarded to the LLNL Medical Director.

#### **AAAHC Assessment**

The AAAHC found the LLNL Health Services Department to be substantially compliant in all 16 standards considered applicable by the surveyor to the health care facility. Substantial compliance was attained in:

- Rights of patients
- Governance
- Administration
- Quality of care provided
- Quality management and improvement
- Clinical records
- Professional improvement
- Facilities and environment
- Emergency services
- Immediate/urgent care services
- Pharmaceutical services
- Pathology and medical laboratory services
- Diagnostic imaging services
- Occupational health services
- Other professional and technical services
- Teaching and publication activities
- Research activities
- Health education and wellness.

A summary of comments on specific standards is provided below.

### **Rights of Patients**

LLNL considers health care services to be a benefit of employment. The organization is exceptionally responsive to patient needs.

The facility provides a quiet and private atmosphere for employees to recover from injuries or illnesses before returning to work.

### **Governance**

LLNL, including the Health Services Department, conducts sitewide, formally structured, quality self-assessment programs for all workers. The assessment program is thorough and well designed.

The Medical Director meets weekly with senior management concerning policies, operational issues, and site quality programs. He then meets with clinic managers weekly to communicate information garnered from the senior management meetings.

Communications between the Health Services and Industrial Hygiene Departments are effective and result in the successful completion of mutual goals.

Long-range planning is evident and includes plans for medical record automation.

Information concerning health care issues is provided to employees. Prior to its distribution, all patient information is reviewed and approved by medical professionals.

OSHA regulations are addressed with a keen understanding, and compliance with the Americans with Disabilities Act (ADA) is evident within the clinic.

Both clinic management and staff keep detailed reports of meetings.

Job responsibilities are highly specific. All practitioners have a credential file, which is reviewed by senior clinic management.

A few training files did not have verification of specialty training for several practitioners.

### **Administration**

Extraordinary communication exists among Health Services, Safety, Industrial Hygiene staff, and other organizational managers. Minutes and reports are posted for all to see and read.

LLNL clinic personnel regularly meet with other DOE facilities' personnel to share experiences and solve common problems.

Personnel policies are well done and include rewards and incentives. Patient satisfaction is monitored continuously via the Internet, and the results are available for all staff to review.

### **Quality of Care Provided**

The supervisory physician did not always initial entries made by nurse practitioners and physician assistants concerning medical diagnoses, laboratory findings, or other test results.

The significance of abnormal laboratory values was not always explained. Although some abnormal laboratory values have no clinical significance, medical comments about the values were not documented nor was there any indication that the patient had been informed.

Hospitals, clinics, and health care providers in the surrounding community provide a variety of medical services. Referral sheets and other information exchanged by community and site physicians are maintained in the patients' medical records.

A special program for the detection of melanoma is well received and widely utilized by the employee population.

### **Quality Management and Improvement**

All health care providers participate in the peer review of medical records using criteria closely resembling that of the AAAHC. They have identified and corrected several process deficiencies. Peer review practices appear extensive, substantial, and well documented.

Health Services conducts two quality assurance and improvement programs. The first is implemented according to DOE policy, which requires a documented, structured, and periodic approach that focuses on worker and facility protection. The second program, SQUIRM, promotes "loop" studies of problems within the medical program itself.

Collaboration between the clinic and contractor management has improved significantly in the Return to Work programs, hazard identification, and corporate policy and procedure development. For example, contractor management actively included clinic personnel in policy and procedure development concerning the management of hazardous operations in the Biohazard Technology Department.

Risk management does not address a poorly performing health care provider beyond the scope of contractor human resource policies.

## **Clinical Records**

Each employee has an individual medical record. Separate confidential records are generated for psychology services and case management purposes. All medical records are readily available to the appropriate clinic staff. Summary sheets in the medical record are accurate, well used, and informative. When applicable, telephone conversations and e-mail notes are incorporated into the patient medical record. Workplace injury/illness records have a specific section within the medical record.

A certified case manager assures the continuity of care by obtaining or transferring appropriate summaries or records of patients who are either treated by or referred to outside health care providers.

The in-house database is being expanded and improved to allow for more extensive queries, reports, and overall data management.

## **Professional Improvement**

An onsite medical library with Internet access and a copy machine is available to all Health Services staff. An orientation process is mandatory for all new Health Services employees.

All licensed health care providers are provided with educational opportunities.

## **Facilities and Environment**

The Engineering Department performs periodic inspections of the medical facility. Facility changes have occurred to conform to ADA and seismic safety standards. Safety systems are regularly checked. The facility is spacious, clean, organized, and well maintained. Signage is clear and visible. Disposal of hazardous waste conforms to the appropriate national standards. A well-documented review program exists for all test equipment. A large external generator provides for emergency power.

A well-equipped decontamination facility provides isolated emergency decontamination for chemical and radiological emergencies.

## **Immediate/Urgent Care Services**

The range of clinical services and hours of operation are well communicated.

All physicians are certified in Advanced Cardiac Life Support.

LLNL Health Services Department staff serve as a community resource because of their training and experience in the medical management of radiological accidents. LLNL has



coordinated mock exercises with local hospitals and has given several educational presentations to the community.

### **Pharmaceutical Services**

Controlled medications are secured and logged in and out appropriately. Physicians are responsible for the security of their individual prescription pads. Nurses routinely track medications for expiration dates and supply. Formal checklists for inventory control demonstrate a strict compliance to pharmacy regulations and state laws.

### **Pathology and Medical Laboratory Services**

The medical laboratory services manager has not documented the results of evaluating diagnostic laboratory personnel's work performance.

Employee drug screening specimens are collected with proper legal controls. A medical review officer is engaged to interpret specimen results and communicate them.

### **Diagnostic Imaging Services**

All diagnostic x-rays taken in Health Services are first interpreted by site physicians and then sent off site to a certified radiologist for verification and written impression. X-rays are performed only when ordered by the health examiner.

The collection and disposal of all diagnostic x-ray processing waste is managed by an outside vendor. The Department of Health Human Services certifies the integrity of the x-ray equipment every two years and a site health physicist checks equipment every year. Diagnostic imaging quality review studies include the analysis of repeat film exposures. Patients potentially exposed to asbestos have chest x-rays interpreted by a "B" reader.

### **Occupational Health Services**

The Hazard Control Department identifies categories of exposure for each employee and for each job task, which may initiate health monitoring activities and enrollment into the medical surveillance program. Hazard Control also investigates workplace exposures and reports their results to the medical staff. Medical examinations include return-to-work and fitness-for-duty evaluations, as well as evaluations for work-related and non-work-related illnesses/injuries. The examiner provides counseling to the examinee. Medical records are maintained according to OSHA regulations.

Four different committees routinely meet to resolve case management issues and have effectively reduced the number of lost workdays.

A major intralaboratory project to computerize the management and communication of employee exposure data to Health Services is under way but moving slowly.

Realistic emergency training takes place on a regular basis and incorporates the LLNL Health Services Department. LLNL also participates in county-wide response activities.

### **Other Professional and Technical Services**

The LLNL Health Services Department has personnel trained to conduct OSHA medical surveillance examinations.

The Physical Therapy Department conducts an active quality improvement program, and patient outcomes are documented.

### **Teaching and Publication Activities**

Occupational medicine residents, nurse practitioners, and student nurses rotate through the clinic. Patients are asked for permission to have students present during examinations.

An Internal Review Board approves the publishing of work authored by clinic staff.

### **Research Activities**

The site institutional review board complies with all applicable regulations. *Posture Effects on Symptoms* is a research project that was conducted by Health Services in 1998.

### **Health Education and Wellness**

Health risk and behavior risk appraisals are offered to all employees. Information concerning health and wellness is easily accessible to employees through print and electronic media, and through formal classes.