LABORATORY INFORMATION SYSTEMS

What Is A Laboratory Information System?

Laboratory information systems (LIS) provide a database serving the information needs of the laboratory by linking patient test results to the ordering clinician/client, and to the patient's medical record.

Overview

Multiple LIS are available, including:

- Systems with a local host database (computer hardware and software on site) where the laboratory is the only user.
- Systems with a host physically removed from the laboratory, where multiple user laboratories may share the same database.

The Laboratory Accreditation Program does not consider the following types of devices as LIS:

- Small programmable technical computers or dedicated microprocessors that are an integral part of an analytic instrument.
- Purchased software services used for quality assurance and data analysis.
- Microcomputers used for word processing, spreadsheets, or other similar single-user functions.

Key Components

The laboratory must provide the following:

- Computer facility and equipment with appropriate environmental controls and safety elements.
- Written LIS policies and procedures with instructions for daily operations appropriate to the level of use.
- Software validation for new installation and software updates, including staff training.
- System security policies and practices for user authorization confidentiality of patient data and protection against unauthorized alterations.
- Error detection and timely communication of patient data to the ordering clinician/client.
- Auto-verification is a process where the laboratory information system has defined parameters that allow results to flow from an interfaced instrument to the medical record without technical intervention or review. Defined system logic prevents the release of test results not meeting the defined parameters or criteria.
- Accurate transmission of data across instrument interfaces and interfaces with other computer systems (e.g., middleware, hospital information systems, and other output devices).
- Data retrieval and preservation for the required regulatory retention period available, within a time frame consistent with patient care needs.

Who Is Responsible?

The laboratory director is responsible for ensuring communication of laboratory data.

The director may delegate some LIS-related functions to others and is

responsible for determining the qualifications of these individuals. It is the director's overall responsibility to ensure these functions are properly carried out.

Outcome of an Effective System

The laboratory benefits include:

- Accurate and timely transmission of patient data.
- Effective presentation of patient data.
- Retention and retrieval of patient data consistent with regulatory requirements.
- Improved efficiency and productivity in the laboratory.
- Ongoing compliance with CAP requirements.