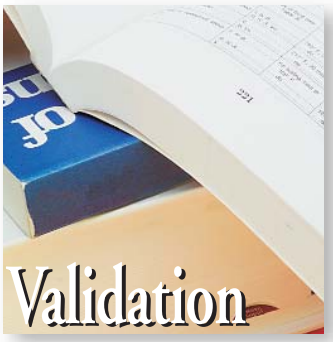

Viewpoint

Training and Compliance — Easing the Burden Through Cooperation with Instrument Vendors

Michael Swartz, Ira Krull, and Jim McCabe

In a regulated laboratory, both instruments and methods must be validated to be suitable for their intended purposes. It is equally important, however, that personnel are properly trained and qualified for the task at hand. But in spite of this requirement, FDA still frequently cites firms for a lack of trained personnel. This month's "Validation Viewpoint" examines how instrument vendors can ease the burden of training for GMP compliance.

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Training is an important component of good manufacturing practice (GMP) or current good manufacturing practice (cGMP) (1,2). To satisfy GMP requirements, training must be focused (a plan in place). The two areas that are most relevant from a job function standpoint are the requirements themselves and the training that relates directly to the job function.

The GMP requirements themselves: The training objective should be to enable people to make decisions and interpretations of the guidelines or to ask appropriate questions when there is a lack of clarity to any situation within the work environment.

Training that relates directly to job function or tasks: The objective here is to teach the things personnel need to know to perform their job in an effective manner.

But how can these training objectives be accomplished and be meaningful in today's work environment, where we all feel the pressures to accomplish more, faster? The addition of training as a requirement seems to be an added burden that could further stress an organization or lab. However, when training is done correctly and given serious thought, it can help meet the requirements of GMP as well as benefit the lab by increasing productivity. Therefore, an investment in training is a positive business decision that enables a company to meet the requirements to function in a compliant environment.

Compliance Training

From a compliance standpoint this column will focus on laboratory training. Compliance is achieved by ensuring that personnel are trained to understand the regulations to the point that they impact the lab and to accomplish various functions in the lab, such as operating instrumentation.

To help an employee understand the GMP regulations that impact the lab, the training should be specific to an individual's function and focus within the lab. It is of little value to train or educate an employee on all of the regulations if there is no impact on the job that person fulfills every day. This thought is obviously mitigated by the idea that there should be a basic level of training that introduces the employee to the company's philosophy and standards for compliance. A new employee might think they are aware of the standards that are acceptable from previous experience. However, this experience might not be relevant in their new environment. It is also true that if only a general focus is given to training, there is more likelihood of causing confusion or clouding of issues. The focus of regulatory training should enable a person to ably and effectively meet the requirements and to understand what those requirements mean from their employer's point of view. The focus should be on their daily needs.

At the same time, there should be someone who has a high-level total-picture view to ensure there is continuity for the overall regulatory or compliance program and that it is aligned with the rest of the organization. This person needs more complete training on the GMP requirements to meet business objective, and could be a manager within the lab or a quality representative for the company focusing on the lab. This person could also be someone who the technicians turn to for assistance with questions that are beyond their scope or current training level.

The next level of training is related to accomplishing the given functions in the lab, such as operating instrumentation and

Figure 1: Training is an important component of GMP regulatory compliance. Compliance is achieved only when training is specific to an individual's function and focus.

signing off that analyses were performed as required. It is important to note that it is not enough just to be able to push buttons to make instrumentation function and follow the standard operating procedures. The requirements put pressure on lab management and personnel to understand the background or basics of any analytical technique that is used in the lab. These analytical techniques are used to assess a product's quality and availability for shipment.

Working with suppliers of lab equipment or services, it becomes possible to share the workload. Utilizing the expertise that supplier's personnel develop over years of working with instrumentation, along with being able to focus on specific analytical techniques, enables them to deliver training and minimize the "learning curve." This expertise provides a way for knowledge to be transferred more rapidly to a company acquiring instrumentation so that its personnel are able to fulfill the multiple functions required of the acquired analytical instrumentation, accelerating purchase payback. This expertise also can help to ensure that regulations are more closely adhered to and can enable the company putting the instrumentation into its labs to use product features that work in conjunction with their own standards and ways of meeting requirements.

Any training program established should be flexible in assisting the acquiring company to meet business needs while functioning within standard operating procedures that maximize the benefit while not increasing confusion in the lab. Regulations can be met more easily by working with a company that has a focused program on compliance and regulations and, therefore, an understanding of the needs that exist in the regulated environment and the impact that instrumentation can have on being compliant. This sharing of the workload can focus the benefits of a partnership, aligning goals for both organizations in the longer term. This alignment can make it easier to work together as much or as little as required to ensure that compliance is attained and maintained.

Examples of Training Deficiencies from Actual FDA 483 Warning Letters

(See: www.fda.gov/foi/warning.htm and search for "Training" for more examples)

- Failure to assure that the Quality Assurance Unit (QAU) director has adequate education, training, or experience to perform his assigned functions 21 CFR 58.29(a)]: "Any individual responsible for the supervision of a non-clinical laboratory study must have education, training, and experience to enable that person to perform his assigned functions. [21CFR 58.29(a)]. You appointed a member of your management team to conduct the responsibilities of the QAU, but your documentation indicates that this person did not have the training and experience to assume these duties.
- Procedures for identifying training needs have not been followed [21 CFR 820.25 (b)]. Specifically, employee training needs were not addressed and training was not documented.
- Persons engaged in manufacturing, processing or packing of drug and device products do not have adequate training to enable those persons to perform the assigned functions. [21 CFR 211.25 (a)] and [21 CFR 820.25 (b)]."
- Failure to have adequate laboratory controls. Examples are as follows: Lack of adequate training for laboratory analysts and manufacturing employees.
- Failure to establish adequate procedures for identifying training needs and ensuring that all personnel are trained adequately, as required by 21 CFR 820.25(b). For example, training procedures did not include: a) training with regard to defects that might occur from the improper performance of their jobs; b) training with regard to defects and errors that might be encountered as part of specific job functions; and c) there was no documentation that QC employees who perform verification and validation activities received training to make them aware of defects and errors that might be encountered within their job functions.
- "Our investigator documented deficiencies in your firm's training program, including associated employee training records [21 CFR 606.20(b) and 21 CFR 211.25(a)]: You did not retain employee competency test documentation as required by your standard operating procedures."

Training to Meet Regulatory Needs: Examples

Training to ensure compliance requires that there be set goals and agreement with the parties involved. Unfortunately, when outside parties become involved, it is all too easy to have training sessions that are not focused on the needs of lab personnel.

In one instance, a pharmaceutical company was introducing a new data system into numerous labs and the lab personnel were being trained on the new software. The deployment was being overseen by a corporate department to ensure that it was handled consistently throughout the company. Discussions between the corporate department and the software supplier led to a program that was agreed upon. The material was developed by the software supplier's customer education organization and was reviewed by people from the corporate department overseeing the implementation.

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Following delivery of the second class, a trainer from the instrument company became concerned that there was a consistent message coming from the participants. They felt that what they were being taught was of limited value because they were unable to perform many of the functions that the training focused on. The corporate department that had participated in the development had policies in place that did not allow the trainees to use a number of the software features. More importantly, they had not spent time with the lab personnel to see what they needed to know and how they worked to accomplish their daily tasks.

Further meetings that included lab representation uncovered these issues and some others that needed to be dealt with. It also was discovered that there was a subset of personnel in the lab that needed specialized training for approving ongoing sample analysis in the lab. The required changes in the program were made quickly, and the schedule for training was maintained, an important aspect overall because the software was due to be implemented at a set time. This was fully documented and further training utilized the refocused training materials. The examples and hands-on computer exercises were modified to reflect the needs of the corporate department and lab. This adaptation contributed to the program being more relevant to the company's business goals and better enabled the program to meet the compliance goals the company had — a major reason for the implementation of the data software.

Personnel are hired due to their background: education, experience, or in many cases both. It is required that there be proof that personnel have the understanding to fulfill their work obligations. It is important that this be documented so it can be viewed and proven to exist during audits. It is also a requirement that this documentation be reviewed at specified time intervals as part of a plan. The partnership of an instrument supplier and a company also can focus on programs that assist the company in enabling its employees to gain even the basic knowledge in analytical techniques if it is not part of their education or experience.

This type of partnership also can be simply a means to ensure that reviews of basic principles are performed. For example, people in labs using high performance liquid chromatography or liquid chromatography–mass spectrometry might need to review separation chemistry and have this review documented as part of their file as they start work or as they are employed over the long term with the company.

In another instance, a supplier of columns used in separations was invited to give a seminar to the personnel of a large pharmaceutical company. This seminar was meant to introduce new technology to the labs and enable the technicians to look at new ways to work. In preparing for the seminar, the speaker went back to some basic principles in separations to better inform the company personnel of the differences in the new technology. The managers sitting in the session realized from the questions being asked that there was a need to review principles of separations.

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A modified program was designed by the column supplier and delivered in a manner that enabled the company to continue the work needed for product shipment and development. The program was developed following discussions with the pharmaceutical company lab management and from what the supplier knew to be good flow in the training process to meet the requirements. The material was signed off by the company representatives and agreed upon with the column suppliers training department. The training department then delivered the training at the required intervals when a significant number of employees were hired or when a review was required under their standard operating procedures.

As an extension to this program, the supplier currently works with the internal training departments within companies to help them develop training materials and deliver such programs on an ongoing basis. The internal training department then teaches the course to ensure the proper induction of new employees as they are hired to fill roles within the laboratory.

Suppliers also can assist smaller organizations that do not have the required personnel to develop and deliver training required at a given point in time.

For example, a small start-up company found themselves in difficulty with a regulatory agency. There were issues with documentation and with the knowledge level of personnel using equipment and their understanding of the data software. Time was a major factor because the company was told that they would need to have all of the issues addressed during the next scheduled visit or face stiff penalties. The personnel to develop and deliver the required training did not exist within the company. Hiring personnel to meet the need was not possible on the short timeframe that existed. They were not sure what to do. They contacted their local salesperson to request some assistance with training. The salesperson realized the enormity of the task and though willing to aid the customer with the issue, realized that aid could only come with a combined effort, working with the training department from her company. Discussions with the supplier's training department lead to a multipronged approach.

First, a course in chromatography that would address the concerns of the regulator was initiated. This course was followed by a focused program on data-handling and the use of the specific data system and its capabilities to meet the requirements when used with standard operating procedures. Working with the company's newly appointed regulatory manager and the supplier's manager of qualification services, the program was augmented with a close look at the regulations that were putting the company in some jeopardy. These services and training were all pulled together and training was provided for the personnel in the lab in a short and intensive timeframe. The news following the next visit from the regulator was positive, and the company moved forward.

Certification–Attendance

It is interesting to note that in today's environment, there is pressure to use competency-based testing and training to prove understanding or certification, as opposed to having a record of attendance alone accepted as training. Though this is a step in the right direction, its implications should be considered from the standpoint of cost in both money and time. It should be considered in light of the goals that are to be attained. It also should be understood from the standpoint of any given company, and its philosophy is that competency-based training should be required at all points in the training process.

For example, a new employee with a company could be trained and tested using competency-based methodology (that is,doing the actual task being taught). This will ensure lab management that this person can be put into the lab and, along with the appropriate plan to train on the GMP, standard operating procedures can operate successfully. This same person 18 months later has proven their value: Should we require competency-based training? From the GMP standpoint, could they attend update training alone? If competency-based training is required, unless a company is willing to remove instrumentation from production purposes, the instrument supplier can assist in performing competency-based training. The supplier will have equipment available and personnel who should be able to work on the programs and the testing. By working with the training department of the company requiring the training, the supplier should be able to focus on the requirements that the company is trying to ensure and show that they exist within training and testing.

Conclusions

Training is an important aspect of the regulatory landscape that companies work in today. The time to ensure that training is developed and to ensure that it can occur can be costly. Internal training departments can accomplish this task, but there are more efficient and cost-effective alternatives to doing it alone. One very beneficial group to look to are suppliers who understand the instrumentation, chemistry, and data needs that exist. Working with a supplier that has a recognized compliance program also can ensure that more than one side of the need will be reviewed. Finally, working with a supplier that has an active training program can ensure that along with compliance, business goals can be met by saving time during implementation.

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References

(1) Part 211 Current Good Manufacturing Practice for Finished Pharmaceuticals, 21 Code of Federal Register (CFR) Part 211; Subpart A: General Provisions 211.1-Scope.
(2) Current Good Manufacturing Practice for the Manufacture, Processing, Packing, or Holding of a drug Product , 21 Code of Federal Register (CFR) Part 211; Subpart B: Organization and Personnel 211.25-Personnel Qualifications.
(3) G. Bunn and A.P. Hart, cGMP Compliance 2(2), 63, 1998.

Additional Reading

E. Henson, *J. cGMP Compliance* **1**(3), 1997.
B.M. Wenzel, *J. GXP Compliance* **6**(2), 2002.
J. Stromp, Training and Education Records: Standard Operating Procedure, *J. GXP Compliance* **6**(2), 2002.
D.E. Jones, Conducting Effective cGMP Training Sessions For Operators or Technicians, *J. cGMP Compliance* **2**(2), 1998.
Eldon Henson, *J. cGMP Compliance* **2**(2), 1998.

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