Data Integrity – Old Wine in New Skins? GMP Talk Between the GMP Inspector Dr. Petra Rempe and Thomas Peither – Part 2

7 Min. reading time

by Dr. Sabine Paris

At the LOUNGES 2017 conferences in Stuttgart, executive editor Thomas Peither spoke with the GMP inspector Dr. Petra Rempe from the regional government in Münster (Germany) during a GMP Talk about the highly topical subject of data integrity.

Last week, in LOGFILE 33, you read the first part of the summary of the GMP Talk. Today, in part two, you will learn about the correlation between data integrity and quality culture, about the ALCOA principles, as well as about the definition of an audit trail.

Doesn't the topic of data integrity correlate strongly with the topic of quality culture within a company?

Data integrity is a part of this quality culture. The procedures are basically the same. The company needs to develop a strategy. The top management has to support it, serve as a role model and to convey the concept to their employees.

The employees need to know that data integrity is important for the quality and safety of the medicines and thus for the safety of patients. This can be achieved by training and by inspecting the system (are my processes still appropriate?) throughout the lifecycle of the medicine.

What is so difficult about quality culture? What makes it difficult to motivate people to maintain quality standards in their daily work?

The strategic orientation of the company plays a major role in this. If the company is more business-oriented and less quality-oriented, some aspects take on a greater priority than others. A signal needs to be sent by the senior leadership that quality is the company's highest goal. To achieve this certain instruments need to be utilized actively by the employees.

Today industrial automation systems are being used more and more. It must be getting difficult to determine what is impacted by data integrity.

It depends how the data are connected to the higher-level systems. If the data are extracted into these systems and used for trending or continued process verification, for example, then it is necessary to ensure that the data integrity of the automation systems is maintained. During GMP inspections we only address this level in individual cases.

There is an abbreviation which is often used in connection with data integrity: ALCOA. What does this mean?

The WHO guideline defines the essential characteristics of paper-based and electronic data according to the ALCOA principle. The abbreviation ALCOA comes from:

ALCOA	
Term	**Definition**
Attributable	Attributable means information is captured in the record so that it is uniquely identified as executed by the originator of the data (e.g. a person or a computer system).
Legible, traceable and permanent	The terms legible and traceable and permanent refer to the requirements that data are readable, understandable, and allow a clear picture of the sequencing of steps or events in the record so that all GXP activities conducted can be fully reconstructed by the people reviewing these records at any point during the records retention period set by the applicable GXP.
Contemporaneous	Contemporaneous data are data recorded at the time they are generated or observed.
Original	Original data include the first or source capture of data or information and all subsequent data required to fully reconstruct the conduct of the GXP activity. The GXP requirements for original data include the following: • original data should be reviewed; • original data and/or true and verified copies that preserve the content and meaning of the original data should be retained; • as such, original records should be complete, enduring and readily retrievable and readable throughout the records retention period.
Accurate	The term "accurate" means data are correct, truthful, complete, valid and reliable.

On the topic of **contemporaneous data** it is important that the data are recorded in a manner which preserves the proper chronological order. At the latest when a process step is completed it must be protocolled. During an inspection the inspector may review the current batch record closely, for example. If the equipment has been running for a while already and the line clearance hasn't been documented yet, this can give reason to start asking questions.

A company reported about the discovery by an inspector of a data integrity violation: A cleaning step had been protocolled at 5:30 pm. The responsible employee had left the factory grounds at 5:10 pm, however.

Another example is a batch record that had been signed, but there was no entry for the time point. In this kind case suspicions arise, whether the chronology of the events is to be entered later.

And now we've got ALCOA Plus! What's behind this term?

The "Plus" covers the additional principles of CCEA. CCEA stands for complete, consistent, enduring and available. These "Plus Principles" are related to the ALCOA principles. So ALCOA Plus can be understood as an extension of the interpretation.

ALCOA Plus (ALCOA+)	
Term	**Definition**
Complete	All data are available, nothing has been deleted (evidence: audit trail).
Consistent	Data are recorded chronologically with data and time (evidence: audit trail).
Enduring	Data are accessible for an extended period of time – after 20 years.
Available	Data are accessible over the lifetime of the product.

In the "Plus Principles" the audit trail plays a central role. What exactly is an audit trail?

Audit trails serve to enable the tracing of users and projects and the documentation that users have not made unauthorised changes. It is important that the audit trail remains complete and has been validated.

Definition of audit trail according to the WHO Guidance on good data and record management practices

The audit trail is a form of metadata that contains information associated with actions that relate to the creation, modification or deletion of GXP records. An audit trail provides for secure recording of life-cycle details such as creation, additions, deletions or alterations of information in a record, either paper or electronic, without obscuring or overwriting the original record. An audit trail facilitates the reconstruction of the history of such events relating to the record regardless of its medium, including the "who, what, when and why" of the action.

For example, in a paper record, an audit trail of a change would be documented via a single-line cross-out.

Should we understand the audit trail to be like an Excel spreadsheet list?

I would compare it more with an online diary for the data. It describes points such as: Who is logged in to the system? Who has done what? Using which access level? What was the initial status? What was the raw data? How did I process them? What was the result? What did I do with it then?

If this is all being recorded electronically in the background, is every employee becoming completely transparent?

Yes, you are right, that is a very sensitive topic. The audit trail has to be reviewed periodically by authorised persons. And also, GMP inspectors are allowed to review them as well.

When can legal consequences be expected, and who bears responsibility then?

The authorities would take legal steps in cases where massive data leaks have occurred, for example if the Qualified Person had released a batch in spite of the gaps in the data. In this case the QP would be personally responsible and would have to bear the consequences.

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