medical systems

SAVING LIVES THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

°B CONNECTED – Remote Monitoring Systems from B Medical Systems and Compliance to 21 CFR Part 11

21 CFR Part 11 is a part of the Code of Federal Regulations that establishes the United States Food and Drug Administration (FDA) regulations on electronic records and electronic signatures (ERES). Part 11, as it is commonly called, defines the criteria under which electronic records and electronic signatures are considered trustworthy, reliable, and equivalent to paper records[1]. Due to the narrow scope, there is a lot of confusion related to the scope of usage and applicability of 21 CFR Part 11 in day-to-day operational scenarios. This paper explains the scope of CFR Part 11 and how °B Connected, a remote monitoring solution developed by B Medical Systems is in conformity with the standards set by 21 CFR Part 11 excluding electronic signature (Subpart C) as no electronic signature is used or managed by °B Connected.

Introduction

In March of 1997, FDA issued part 11 regulations of 21 CFR that established the criteria for the use of electronic records and electronic signatures to comply with the Food, Drug, and Cosmetic Act and the Public Health Service Act[2]. In general, 21 CFR Part 11 enforces integrity, reliability, and trustworthiness of electronic forms and applies whenever information is electronically generated, amended, stored, transferred or accessed. It can involve different types of information including text, images, audio/video files, etc. and can be summarised as only applicable if electronic records are replacing paper records.

Scope of 21 CFR Part 11 Regulation

Part 11 describes the technical and procedural requirements that must be met if an organization chooses to maintain records electronically and uses electronic signatures. The importance of Part 11 is also connected to the compliance with predicate rules such as Good Clinical Practice (GCP), Current Good Manufacturing Practice (GMP), etc. and calls for enforcement of all predicate rule requirements, including predicate rule record and recordkeeping requirements. It applies to Pharmaceutical companies, medical device manufacturers and all the other FDA regulated industries. The 21 CFR Part 11 regulation consists of three sections: Subpart A, B and C and covers the following[3]:

Subpart A General Provisions	Subpart B Electronic Records	Subpart C Electronic Signatures
Includes scope of the regulations, implementations, and definitions of some of the key terms used in the regulations.	Covers the controls for the administration of closed and open electronic record-keeping systems, signature manifestations and requirements for establishing a link between signatures and records.	Sets forth the general requirements for electronic signatures, electronic signature components and controls, and controls for identification codes/passwords (Not under the scope of this white paper).

However, in order to meet the requirements set by these three subparts- every organization should have in place an integrated approach involving technical controls and organisational controls. While the technical controls can be achieved by using 21 CFR Part 11 compliant software/solutions, the overall 21 CFR Part 11 system compliance can only be achieved by enforcing standard operating procedures and policies at an organizational level.

°B Connected and Compliance to 21 CFR Part 11

°B Connected is a remote monitoring solution, developed by B Medical Systems for displaying, archiving and exporting measurement data, statuses and alarms generated by B Medical Systems devices that are used for the storage of blood components, human cells, tissues or other laboratory or pharmaceutical materials (Fig 1).

Fig 1

It is a multilingual software application and can be accessed via web browsers installed on computers, notebooks, smartphones, tablets and on any other smart devices. In the event of alarm situations such as high-temperature alarms in a monitored unit, °B Connected notifies the users by displaying alarm messages in the interface and by sending SMS or email notifications to dedicated users. Users can use its reporting tools to generate detailed reports (Fig 2) including temperature plots, temperature tables with hourly min., max., and average temperatures as well as an event, alarm and warning overview of each monitored device. °B Connected is classified as a Medical Device Class I according to Rule 11 (MDR 2017/745) and Rule 12 (MDD 93/42/EEC).

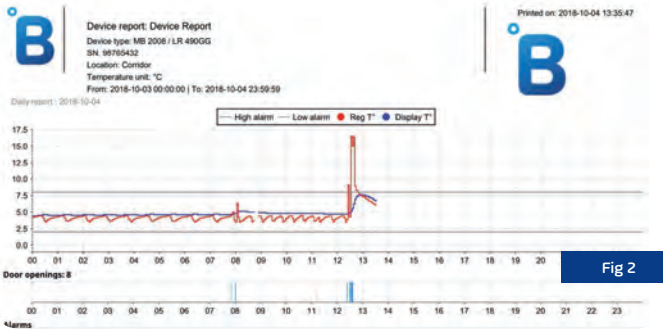

Fig 2

As °B Connected generates information in the form of electronic records, the requirements enforced by 21CFR Part 11, subpart A & subpart B, becomes applicable in operating scenarios under the scope of the regulation. The following table (Table 1) summarizes, at a high level, the functional requirements for electronic records (subpart B) as per 21 CFR Part 11 and describes their applicability to °B Connected Solution. The table does not represent a complete list and may vary from each operating environment.

Table 1: Functional Requirements of 21 CFR Subpart B and its applicability to °B Connected Solution

CFR Part 21 Subpart B Controls[3]	Applicability to °B Connected Solution
1 Validation of systems to ensure accuracy, reliability, consistent intended performance, and the ability to discern invalid or altered records.	Yes. °B Connected Solution has its own FAT validation file. °B Connected Monitoring Solution has also been validated as per GAMP 5 guidelines.
2 The ability to generate accurate and complete copies of records in both human readable and electronic form suitable for inspection, review, and copying by the agency.	Yes. °B Connected Solution can provide outputs in human readable and electronic formats (Fig 3), but does not include any ready-made reports that are intended for FDA use. It's up to the end customer to design such reports and include them in their submissions.
3 Limiting system access to authorized individuals. Protection of records to enable their accurate and ready retrieval throughout the records retention period.	Yes. Access to °B Connected Solution, associated database and user authentication is via secured individual logins (Fig 4).

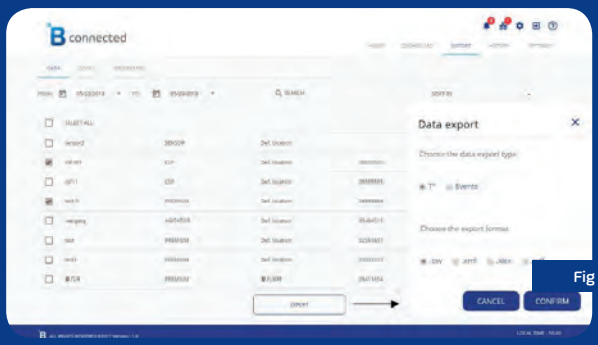

Fig 3

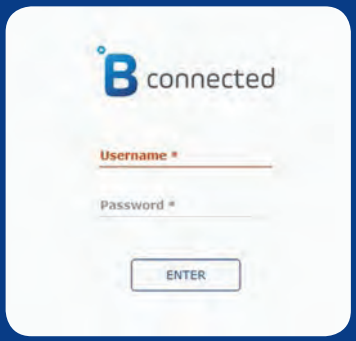

Fig 4

4	Use of secure, computer-generated, time-stamped audit trails to independently record the date and time of operator entries and actions that create, modify, or delete electronic records. Record changes shall not obscure previously recorded information.	Yes. In °B Connected Solution, each function that generates or modifies electronic record is using an audit trail. And as audit trail is available, it shows the new and previous values (Fig 5).

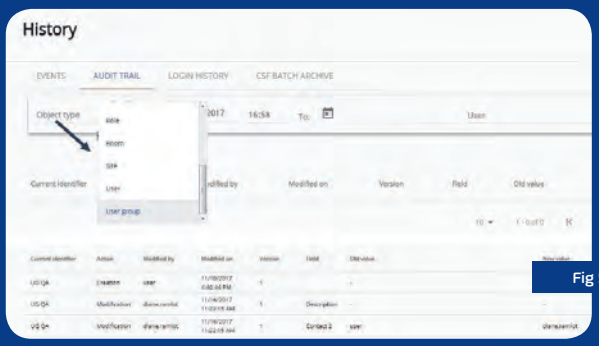

Fig 5

5	Use of authority checks to ensure that only authorized individuals can use the system, electronically sign a record, access the operation or computer system input or output device, alter a record, or perform the operation at hand.	Yes. °B Connected Solution ensures that data packages cannot be modified and any tampered records/ unauthorized access are not taken into consideration by the database. Also, level access is managed through certificates and operations.

6	Ensures data encryption	Yes. °B Connected Solution communication frames use a specific communication protocol and contains a checksum to ensure that data integrity between device (refrigerators/freezers) and °B Connected application. For data transmitted between final application and DB server, the protocol used is https protocol.

The assessment carried out by independent bodies has proved that °B Connected is in compliance with the requirements set forth by 21 CFR Part 11, subpart A and B.

Conclusion

With more and more companies switching to electronic records along with digitization of the data, the criticality of understanding the requirements associated with 21 CFR Part 11 is very high. Through this regulation, FDA has made it clear that compliance with the underlying predicate rule remains critical and that the FDA will enforce predicate requirements for records subject to Part 11. Hence, organizations need to demonstrate that they are fulfilling the Part 11 obligations and are producing reliable, authentic and valid electronic records for FDA submission and inspections. °B Connected solution not only helps organizations to efficiently and effectively monitor the refrigerators and freezers but also helps in meeting the technical controls of 21 CFR Part 11 regulation. °B Connected provides time-stamped audit trail and document control that fully satisfies the subpart A and B of Part 11 regulation, thereby providing an extra layer of assurance for FDA submissions.

Sources:

[1] https://en.wikipedia.org/wiki/Title_21_CFR_Part_11

[2] Guidance for Industry Part 11, Electronic Records; Electronic Signatures — Scope and Application, Aug 2003

[3] https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?CFRPart=11

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