The clinical evaluation report: document writing and compilation

Trilogy offers high-end medical writing that goes beyond just making sure a document is structured properly: it involves content-driven sanity checks, a sense of ownership of the documents and offering strategic support on all areas of document production – from advising on best options for data presentation and helping teams focus on messages, to suggestions on best practice for review scenarios, coordinating team timelines and proactively managing cross-functional input.

In Europe, the clinical evaluation report (CER) is now a key element in assessing the fitness of a medical device for clinical use and for it to remain on the market. It documents evidence supporting a medical device licensing application and, after a successful application, is regularly updated, using evidence actively acquired by the manufacturer during the post-marketing clinical follow-up.

Prior to 1993, documentation of a medical device’s clinical performance and safety was given much less attention than documentation of its manufacture and quality. Since 1993 and the release of EU Directive 93/42/EEC (MDD), the importance of clinical evidence in medical-device licensing has increased, with subsequent amendments of the directive and release of the MEDDEV series of EU guidelines. The 2017 EU Medical Device Regulations (MDR) increased the requirements for clinical evidence acquisition and documentation.

There are a large number of aspects and strategies to consider when writing and compiling a CER.

Structure and content of the CER

The CER describes the clinical evaluation of the medical device and, according to Annex II, Part A of the Medical Device Regulations 2017 (MDR), “shall be thorough and objective, and take into account both favourable and unfavourable data. Its depth and extent shall be proportionate and appropriate to the nature, classification, intended purpose and risks of the device in question, as well as to the manufacturer’s claims in respect of the device.”

Thus, the CER evaluates the clinical data concerning safety and performance of the medical device, and of an equivalent or similar device, if equivalence is claimed to another marketed device. All relevant published and proprietary clinical data, and technical features of relevance to safety and performance of the device, are reviewed and evaluated. A review of the state-of-the-art (SOTA) of the target clinical field, including a general assessment of the expected or proven clinical utility of the device, is another essential component of the CER.

The EU MEDDEV Guideline 2.7/1 rev 4 (2016) remains the currently accepted guidance on the requirements that are to be met in the clinical evaluation of medical devices. However, it predates the MDR and refers to the essential requirements, as set out in the MDD and that were extended in MDR, to be replaced by the General Safety and Performance Requirements (GSPRs). Section 11 of the guideline provides guidance on the structure and content of the CER. A proposed CER table of contents in Appendix IX has become the CER structure expected by the notified bodies (NBs).

A description of required procedures for proper clinical evaluation of a medical device is in sections 7–11 of the guideline:

- **Section 7**: Definition of the scope of the clinical evaluation (Stage 0).
- **Section 8**: Identification of pertinent data (Stage 1).
- **Section 9**: Appraisal of pertinent data (Stage 2).
- **Section 10**: Analysis of the clinical data (Stage 3).
- **Section 11**: The clinical evaluation report (CER, Stage 4).

Although the CER is listed as the final stage of the clinical evaluation, the author needs to be familiar with all of the above-listed sections of the guideline, because the CER should report on stages 0–3. The CER...
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The CER is a living document, requiring regular updating, and should ideally be brought to life at the beginning of the clinical evaluation process and compiled during development of the device but, very often, the CER is written only when the device is considered to be ready for the market.

For medical devices, the CER is often written and compiled by the writer working with the manufacturer's team of specialists, with experience in identifying, evaluating and collating clinical data. However, because manufacturers of devices already on the market frequently lack such expertise, the CER author is often solely responsible for writing and compiling the CER.

The MDR Annex IX states that the manufacturer's documentation includes a clinical evaluation plan (CEP). The CEP outlines aims and procedures used in the clinical evaluation of the device and is a valuable source for writing the CER, which needs to be fully aligned with the CEP. For some devices, particularly those already on the market, a CEP will not be available. Writing a post hoc CEP prior to compiling the CER can be a useful strategy for focusing the manufacturer on what issues and arguments need to be presented and substantiated in the CER.

The content of the CER is heterogeneous, containing pre-clinical, clinical, and technical data. Because the current format of the CER lacks a modular format, it is usual for it to be reviewed as a single document. However, a granulated approach to reviewing critical sections of the CER is advisable. The relevant specialists at the manufacturer should review key sections prior to completion of the first draft.

The section of the CER that presents the manufacturer's claims concerning the performance and safety of the device will be a special focus of the NB's review. Claims need to be carefully worded and to be assessed early on, concerning whether they are supported by the non-clinical and clinical data that are to be reported in the CER. Detailed prior discussion with the manufacturer concerning the claims for the safety and performance of the device is important. Writing the claims section of the CER first and sending this section for an initial review by the manufacturer, with an outline of the supporting evidence, allows agreement early on in the process.

Another area for early review is the SOTA section. Early review allows the author and manufacturer to agree on the content of this section, which includes positioning the device, with regard to current knowledge and treatment of the target medical condition, and describing what current clinical need is being met or would be met by the device. Also it needs to be decided early whether solicited clinical expert statements are needed to support any statements on SOTA.

The general approach to writing and compiling a CER will be familiar to medical writers experienced in writing and compiling marketing authorisation applications for medicinal drugs. Therefore, manufacturers lacking experience in identifying, evaluating and collating clinical data and requiring a CER should look to experienced medical writers for expert help.

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