The MDR: The Clock is Ticking

The European Union (EU) Medical Device Regulation (MDR) is the biggest challenge to the medical device industry in over 20 years. It affects every medical device manufacturer that supplies the EU market. With the new regulations come more stringent requirements, which must be met for the product to obtain a CE mark and be commercially available in the EU. Here Dr. Sergio Perez, MDR expert and freelancer at online platform for research scientists Kolabtree, shares insight into the MDR and what it means for medical device manufacturers.

Among the reasons for the new regulation were some high-profile incidents. This included a hip replacement recall in 2010, in which wear of metal-on-metal devices led to particles entering patients' blood and soft tissue. Another incident, in 2012, involved a French firm, which had been using industrial grade – rather than medical grade – silicone. This resulted in a high number of women suffering from ruptured breast implants, although poor record-keeping meant it was not clear exactly who received such an implant, worsening the situation.

In addition, there is a growing number of medical devices available on the market – current estimates are around 500,000 different devices available in Europe. Advances in technology also mean that we now have devices performing more invasive and critical functions. These factors, combined with the incidents, showcased that the Medical Devices Directive (MDD) was no longer fit for purpose and that new regulation was required to keep patients safe.

Officially titled Regulation (EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on medical devices, the MDR was announced in May 2017. It came with a three-year transition period and will come into force on May 26, 2020. The MDR applies to all medical devices on the market and even established products that were CE marked under the previous regulation require recertification.

The MDR comes with numerous differences from its predecessor, the MDD, such as changes to; device classification rules, traceability, clinical evaluation and post-market surveillance.

Time is now running out, as we are drawing closer to when the new regulation is introduced. If a company does not comply with the MDR, the stakes are high – it could lose its right to market the product. As a result, businesses are now familiarising themselves with the regulations, so that they can implement the necessary processes and procedures for compliance. The extent of the MDR means that a structured, well-managed and well-communicated approach is ideal. But, before manufacturers can implement the changes, they must understand exactly what is needed.

Changing Classifications

One of the first steps for medical device manufacturers is to review their product range to establish what will be needed for each device or product family. Medical devices are classified into four groups: Class I, Class IIa, Class IIb and Class III, according to risk. While the MDR doesn't change the nomenclature of the categories, it does bring changes on which devices fall into each group.

The fact that certain products have been moved into a higher class is likely to cause difficulties, particularly if a product is moved to a higher class. The change of class affects other areas of the regulation and, if the device is moved into a higher class, will come with more stringent requirements.

For example, the manufacturer may need to provide additional data on an existing medical device if a device moves from Class IIa to III, where a clinical investigation is needed to justify certain clinical claims.

In addition, products that were previously not classified as medical devices under the MDD, are under the MDR. Eye contact lens solution and liposuction equipment, for example, are included and manufacturers of these will therefore need to comply with the regulation.

Clinical Evaluation Reports

Under both the MDD and the MDR, medical device manufacturers are required to provide a technical file that includes all documentation and information on the product's function, intended use, history, complaints, clinical evaluation, biological evaluation and traceability, etc.

Part of the technical file, the CER, includes all clinical data, so it can be analysed to see if safety and performance requirements are complied with. It should include the clinical evidence to support that the product conforms to the essential requirements in MEDDEV 2.7/1 Rev. 4 Annex 1. Alongside this, it should describe other aspects of the device and instructions on how to use it. However, the contents of the CER will vary, depending on the nature of the device under evaluation and its history.

CERs begin during research and development (R&D) and are a mandatory part of CE marking. However, it is an ongoing process that does not stop there, with post-market data forming an essential part. Compiling these reports is a time-consuming process, often taking several months, or more, if additional data needs to be obtained. Besides, CER is not an isolated process, it is closely linked with other areas such as risk management and marketing.

Clinical evaluations have four stages. The first is to define the scope, at which point the manufacturer has to specify which products are covered by the CER and how it is intended to be used, and document any claims. The next stage is to identify pertinent data, before appraising each individual data set for validity, relevance and weighting.

The penultimate stage is to analyse the data, drawing conclusions on whether essential requirements are met, including those on performance and safety. They should also identify any uncertainties, risks and unanswered questions and whether these

will be assessed during post-market surveillance (PMS). Once this is complete, the manufacturer will then finalise the CER.

Changes to Equivalence

The general safety and performance requirements in the MDR require the manufacturer to evaluate clinical data either from the medical device under evaluation or an equivalent device.

Previously, it was far easier to claim equivalence. But under the MDR, the medical device manufacturer must consider three factors to prove a product is equivalent: biological, technical and clinical. Technical equivalence means it must be used in the same conditions, with the same deployment method and operational principles. It must have similar design, specifications and properties, such as porosity, surface texture and tensile strength.

Clinical equivalence means it is used to treat the same condition, for the same purpose, at the same location in the body and for the same group of the population. It will achieve similar performance, too. Biological equivalence covers the use of materials and substances that will be in direct contact with the patient. Biological safety, under ISO 10993, is also important here.

If a business is now unable to claim equivalence to another product on the market, depending on the type of claim, they may have to perform further research, such as clinical investigation for clinical claims, an extremely expensive and time-consuming process, or remove the claim from their product.

Post-market Surveillance (PMS)

The CER is not complete once the product has achieved its CE mark. It is an ongoing, continuous process throughout the duration of the product's lifecycle, including post-market. The MDR also brings changes to post-market surveillance, in that businesses must now take proactive steps, rather than a passive approach, to gathering information from their post-market devices. Medical device manufacturers therefore cannot sit and wait for a complaint to be reported but must find ways to seek relevant information themselves.

The PMS must be central to the manufacturer's quality management system (QMS). For many businesses, the changes to PMS will mean setting up new processes and procedures to collect the data needed on things like vigilance, side-effects and incidents, feedback and complaints, literature and more. They will then have to document their findings and implement necessary changes.

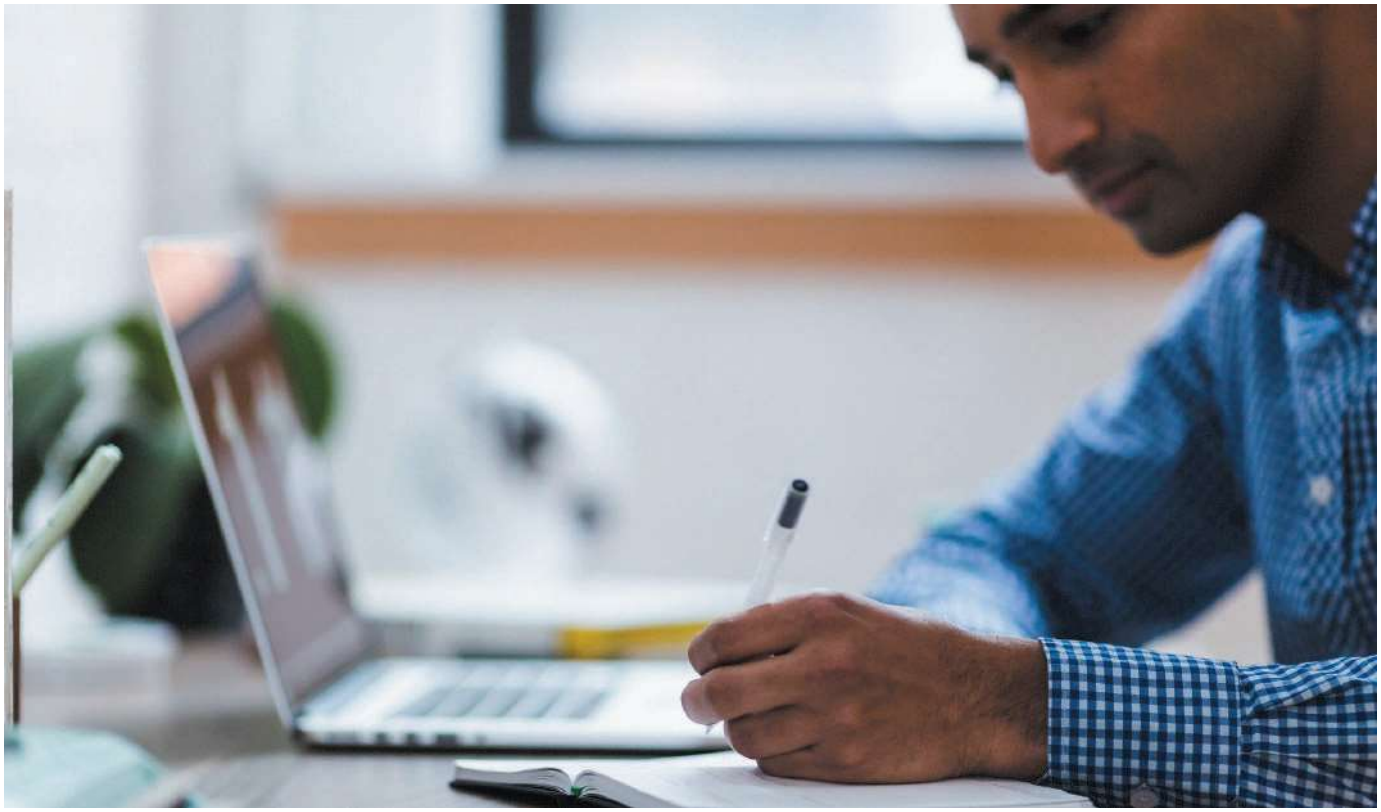
In some cases, post-market clinical follow-up (PMCF) will be required. This involves ongoing, proactive collection and evaluation of clinical data, to evaluate safety and performance and manage risk.

The MDR lays out that every medical device manufacturer must have a person responsible for regulatory compliance (PRRC). The PRRC will take responsibility for meeting PMS and vigilance requirements. Smaller manufacturers are not required to have a full-time, in-house PRRC, but they must be able to access them whenever needed.

Traceability

While the MDD did not have a specific focus on traceability, the MDR describes a completely new set of requirements. Every device requires a unique device identification (UDI) displayed clearly on the label and/or packaging. The UDI consists of a unique series of characters that can be used to identify a specific device, including who made it, what device it is and a production identifier for the device itself. The data will be stored in the EUDAMED database, the central European database on medical devices, which aims to improve transparency.

The UDI must be available in formats that can be both machine- and human-read. Many medical device manufacturers will need to purchase scanning technology for their production lines to manage traceability, another investment of time and money.



The traceability change does not just affect manufacturers, but everyone in their supply chains. Distribution partners must also ensure that they comply with the traceability requirements.

Skills and Communication

Communication across the entire enterprise will be essential, for example with the marketing team, who will need to be aware of exactly what they can claim about a product. Communication with production, risk management experts and many other areas of the business are also important.

As the clock ticks and we approach the May 2020 deadline, businesses are seeking more help with MDR compliance. While some larger businesses are fully equipped to deal with the extensive changes described above, many are not. Small and medium enterprises in particular are less likely to have the knowledge in house and require help from external experts.

Companies that require additional help with developing their strategies or processes can turn to freelance experts, who can share insight based on their experience in other roles. For example, to share an overall idea of the meaning of the regulations and what steps a business will need to take, help you with a CE strategy or with your technical documentation. In addition, experience working with a notified body can be extremely valuable. Accessing freelance skills is straightforward, with the rise of online platforms like Kolabtree.

Preparing for the MDR is no small feat. The extensive changes are challenging for all medical device manufacturers operating within the EU market. However, to avoid future incidents like the hip replacement and breast implant scandals, they are an essential step to ensuring patient safety. To be sure they are ready for the changes when they come into full force, companies should assess where they are at currently and what steps they need to take, to plan and implement an overarching strategy.

Dr. Sergio Perez

Dr. Sergio Perez is a professional with more than 8 years of experience providing scientific and regulatory support to different key areas within the pharmaceutical and medical device industry. He has been extensively involved in the elaboration of scientific material to be provided to HCP and more recently in the implementation of the MDR requirements and the elaboration of the technical file for class I and class II medical devices.