Medical device vigilance in Europe

Author

Axel Wenzel, EU Vigilance Ltd, München, Germany
email: enquiries@euvigilance.eu

Key words

Medical device, Definition, Vigilance, Europe, Germany

Abstract

The EU definition of a medical device (MD) is compared with the definitions of both the US FDA and Health Canada. Unlike medicines, MDs do not need marketing authorisations. They can enter the market when the manufacturer has – either with or without the support of an accredited notified body – signed a declaration of conformity with existing law, and can present a complete technical dossier when requested during an inspection. Manufacturers and distributors placing medical devices on the market are required to report all serious incidents and recalls carried out for safety reasons to competent authorities. Therefore, a vigilance system has to be established in the manufacturer's/distributor's company. This article describes how such vigilance systems should be established in the EU, with particular reference to Germany, and details what must be reported by whom and to which authority, and gives examples of potential corrective measures.

What are medical devices?

EU definition: Medical devices are instruments, apparatus, appliances, substances or preparations made from substances or other articles, used alone or in combination, including the software necessary for the medical device's proper application intended by the manufacturer to be used for human beings, by virtue of their functions, mainly for the purpose of:

- Diagnosis, prevention, monitoring, treatment or alleviation of disease
- Diagnosis, monitoring, treatment, alleviation or compensation of injuries or handicaps
- Investigation, replacement or modification of the anatomy or of a physiological process
- Control of conception

and which – contrary to medicinal products – do not achieve their principal intended action in or on the human body by pharmacological, immunological or metabolic means, but which might be assisted in their function by such means.

In the EU, medical devices are also products as defined below:

- Which contain a substance or preparation made from substances or are coated by the same which, when used separately, can be considered a medicinal product according EU Drug Law and which, in complementing the functions of the device, can have an action on the human body
- Which contain as one of their ingredients a substance which, when used separately, is regarded as an ingredient of a medicinal product or a medicinal product made from human blood or blood plasma within the meaning of Article 1 of Council Directive 89/381/EEC of 14th June 1989 extending the scope of Directives 65/65/EEC and 75/319/EEC on the approximation of provisions laid down by Law, Regulation or Administrative Action relating to proprietary medicinal products and laying down special provisions for medicinal products derived from human blood or human plasma (OJ EC No L181, p44) and complementing the device, can have an action on the human body.

Examples of medical devices are medical-technical devices, implants, products used for injection, infusion, transfusion and dialysis, dental products, instruments, dressings, contraceptives and *in vitro* diagnostics.

In vitro diagnostic medical devices are medical devices intended to be used alone or in combination with others, as a reagent, reagent product, calibrator material, control material, kit, instrument, apparatus, equipment or system, according to the intended purpose specified by the manufacturer, for the *in vitro* examination of specimens derived from the human body, including blood and tissue donations, purely or mainly with a view to providing information on:

- Physiological or pathological conditions
- Congenital abnormalities
- Investigating the safety of or tolerance by potential recipients
- Monitoring therapeutic measures.

Specimen containers are regarded as *in vitro* diagnostic medical devices. Products for general laboratory use are not considered to be *in vitro* diagnostics unless, due to their features, they are to be used specifically for *in vitro* diagnosis in accordance with the manufacturer's intended purpose.

Accessories for medical devices are articles, substances, or preparations made from substances, as well as software, which do not in themselves constitute medical devices but are intended by the manufacturer to be used in combination with a medical device so as to enable the latter to be used for its intended purpose as

specified by the manufacturer. Invasive medical devices intended for use in taking samples from human bodies for *in vitro* testing as well as medical devices intended for sample removal, which come into direct contact with the human body, are not deemed to be accessories for *in vitro* diagnostic devices.

It should be noted that the definition of a device as established by other agencies may be different.

Thus, a medical device, according to the US Food and Drug Administration (FDA), is an instrument, apparatus, implement, machine, contrivance, implant, *in vitro* reagent, or other similar or related article, including a component part, or accessory which is, as defined by the Federal Food, Drug, and Cosmetic Act, 21 United States Code [321] (h):

- Recognised in the official National Formulary, or the United States Pharmacopoeia, or any supplement to them
- Intended for use in the diagnosis of disease or other conditions, or in the cure mitigation, treatment, or prevention of disease, in man or other animals
- Intended to affect the structure or any function of the body of man or other animals, and which does not achieve any of its primary intended purposes through chemical action within or on the body of man or other animals and which is not dependent upon being metabolised for the achievement of any of its primary intended purposes.

The term 'medical device', as defined in the Canadian Food and Drugs Act, covers a wide range of health or medical instruments used in the treatment, mitigation, diagnosis or prevention of a disease or abnormal physical condition. Health Canada reviews medical devices to assess their safety, effectiveness and quality before being authorised for sale in Canada.

The remainder of this article describes medical device vigilance in Europe, and more specifically in Germany.

Market entry

Medical devices do not need a marketing authorisation, but they have to conform to the so-called basic requirements, including a set of internationally harmonised norms and technical specifications. Manufacturers are required to conform to these by signing a 'declaration of conformity'.

In the event that a competent authority conducts an inspection, the product manufacturer must be able to supply a complete and detailed technical dossier on the medical device, containing information on the manufacture and risk assessment of the product.

Classification of medical devices in the EU

The classification of medical devices in the EU is outlined in Annex IX of the Council Directive 93/42/EEC. There are basically four classes, ranging from low risk to high risk: Class I; Class IIa; Class IIb; and Class III.

As mentioned above, the authorisation of medical devices is guaranteed by a declaration of conformity. This declaration is issued by the manufacturer for Class I products, ie, those with the lowest risk potential. For products in Class Is, Im, IIa, IIb or III, the declaration should be backed up with a 'certificate of conformity' from the appropriate Notified Body. Medical devices that pertain to class I (those that do not need to be sterilised or are not used to measure a function) only need to be self-certified to be placed on the market.

The European classification depends on rules that involve the medical device's duration of body contact, its invasive character, its use of an energy source, its effect on the central circulation or nervous system, its diagnostic impact or its incorporation of a medicinal product.

Certified medical devices should have the CE mark on the packaging, insert leaflets, etc. The packaging should also show harmonised pictograms and EN-standardised logos to indicate essential features such as instructions for use, expiry date, manufacturer, etc.

CE mark for Class I products (no notified body identification number)	CE mark for all other classes of products (notified body identification number is shown as a four-digit number)
CE	CE 0123

The CE mark must appear in a clearly visible, legible and indelible form on the medical device and, where applicable, on the sales packaging and instructions for use. It is not necessary for the CE mark to appear on the medical device if the latter is too small, its nature does not allow for it or if it is not appropriate. The CE mark must be accompanied by the identification number of the relevant notified body involved in the conformity assessment procedure pursuant to Annexes 2, 4 and 5 to Directive 90/385/EEC, Annexes II, IV, V and VI to Directive 93/42/EEC, as well as Annexes III, IV, VI and VII to Directive 98/79/EC, which resulted in the requirement to affix the CE mark. In the case of medical devices that must carry a CE mark and that are placed on the market in a sterile condition, the CE mark must appear both on the sterile packaging and on the sales packaging, where appropriate. Where a conformity assessment procedure not conducted by a notified body is stipulated for a medical device, the CE mark does not need to be accompanied by the identification number of a notified body.

Market surveillance

The objectives of market surveillance are many, but include:

- Ensuring that a product conformed with regulations at the time of market entry
- Requiring corrective measures (request for further actions by the manufacturer, inspections, legal action, etc)
- Informing the public to protect consumers
- Guaranteeing fair competition.

Market surveillance is a national requirement, and in Germany even a state (Länder) responsibility – the so-called 'Regierungspraesidium' council or Board. It can be initiated by any authority in the country, as a response to vigilance reports but also through communications from competitors or even private individuals.

Medical device vigilance

Medical devices are regulated by three main Directives (see http://ec.europa.eu/enterprise/medical_devices/legislation_en.htm), which are as follows:

- Council Directive 90/385/EEC on Active Implantable Medical Devices (AIMDD) (1990).
- Council Directive 93/42/EEC on Medical Devices (MDD) (1993).
- Council Directive 98/79/EC on *In Vitro* Diagnostic Medical Devices (IVDMD) (1998).

The guidelines aim at promoting a common approach by manufacturers and notified bodies involved in the conformity assessment procedures according to the relevant annexes of the Directives, and by the competent authorities charged with safeguarding public health. As with pharmaceuticals, the guidelines are not legally binding. It is recognised that under certain circumstances, for example, as a result of scientific developments, an alternative approach may be possible or appropriate to comply with the legal requirements (see http://ec.europa.eu/enterprise/medical_devices/meddev/).

Manufacturers and distributors placing medical devices on the market are required to report all serious incidents and recalls that are carried out for safety reasons. A detailed description of the reporting procedure can be found in the European guidelines on vigilance, MEDDEV 2.12/1. These guidelines are also applicable in Switzerland. The most important guidance on medical devices is MEDDEV 2.12-1 rev 5 of April 2007, 'Guidelines on a medical devices vigilance system'. These guidelines describe the European system for notification and evaluation of incidents and field safety corrective actions (FSCA) involving medical devices, known as the Medical Device Vigilance System.

The principal purpose of the Medical Device Vigilance System is to improve the protection of health and safety of patients, users and others by reducing the likelihood of reoccurrence of incidents elsewhere. This is achieved by the evaluation of reported incidents and, where appropriate, dissemination of information, to prevent such repetitions, or to alleviate the consequences of such incidents.

The guidelines describe the requirements of the Medical Device Vigilance System as it applies to or involves:

- Manufacturers
- National Competent Authorities (NCAs)
- The European Commission
- Notified Bodies.

Professional users or operators of medical devices must also report serious incidents. Thus, for example within each hospital, a designated contact person for vigilance coordinates the reporting of serious incidents and the information exchange with the competent authority. Within a manufacturer's organisation, a person responsible for medical device vigilance must also be nominated. The decision on whether an incident is reportable or not is not always an easy one. To help you in this task, Swissmedic has produced a decision-tree in German, French and Italian (see: http://www.swissmedic.ch/md/files/vi-decis-f.html.)

Such guidelines cover the actions to be taken once the manufacturer or national competent authority receives information concerning an incident involving a medical device. Information on incidents that should be reported under the Medical Device Vigilance System may come to the attention of manufacturers via the systematic procedure to review experience gained from devices in the post-production phase, or by other means.

In Germany, the first notification about the first placing of a device on the market must go to a central database (DIMDI, see: www.dimdi.de), maintained under the supervision of the state ('Länder') authorities. The national superior authority, the Federal Institute for Drugs and Medical Devices, BfArM and/or Paul-Ehrlich-Institut (PEI) provides the information on risks arising from the use or application of medical devices, and the measures appropriate for protection against risks.

According to the Act on Medical Devices (MPG) and the Ordinance on Medical Devices Vigilance (MPSV), BfArM ensures the central collection, analysis and evaluation of risks arising from the use or application of medical devices, in particular, adverse effects, interactions with other substances or products, contraindications, falsifications, operational defects, malfunctions and technical defects, and the agency coordinates the necessary measures to be taken.

Inspections are the responsibility of the Länder authorities. These authorities also carry out surveillance and ensure that measures imposed by BfArM or the regional inspectors are implemented within a given timeframe.

In fulfilling these tasks, the Federal Institute for Drugs and Medical Devices collaborates on many levels with other governmental bodies, for example with the authorities of the other EU member states that are party to the Agreement of the European Economic Area, and the Commission of the European Communities; the World Health Organization; the authorities of other countries responsible for public health as well as occupational safety and health; the authorities of the Länder responsible for public health, occupational safety and health, radiation protection, and metrology, and other higher federal authorities which are concerned from a technical viewpoint; notified bodies in Germany; the competent occupational accident insurance funds; the medical advisory service of social health insurance; the pertinent professional societies; the manufacturers and distributors; as well as other bodies that compile data on risks associated with medical devices in the fulfilment of their tasks. If any incident is suspected to have been caused by an electromagnetic interaction with any device other than a medical device, then the Federal Office for Posts and Telecommunications may also be involved.

What types of incidents or recalls must be notified?

- **Incidents that have occurred during use of the MD.** An incident is any malfunction, any failure or deterioration in the characteristics or performance of a medical device as well as any inaccuracy in the labelling or instructions for use which has led, or could have led, directly or indirectly, to the death or serious deterioration in the state of health of a patient or user or another person.
- **Recalls of medical devices.** A recall is a corrective measure leading to return, exchange, conversion or improvement, isolation or destruction of medical devices.

- **Incidents that occurred outside the European Economic Area if they have led to corrective measures that are also relevant to medical devices which are marketed within the European Economic Area.** In such cases the competent EU authority shall be notified if the person responsible for the first placing on the market of the device is based in the EU, or if the notified body that backed the products is based in EU.

Who is responsible for reporting incidents or recalls?

- **The person responsible for the first placing on the market** of the device (ie, the manufacturer or its authorised representative). If the manufacturer does not have its registered place of business in the European Economic Area and if an authorised representative has not been designated, or if medical devices are not being imported into the European Economic Area under the responsibility of the authorised representative, the importer is the person responsible.
- **Operators or users of medical devices** if the device is operated or used within a professional or commercial framework.
- **Distributors,** traders and persons authorised to practice medicine or dentistry who sell medical devices to patients or other laypersons for personal use.

What are the time limits for reporting?

- Incidents should be reported **without delay** in accordance with the required urgency of attention **but in any case within a maximum of 30 day**s of incidents becoming known.
- If a delay is likely to cause danger, the notification shall be made immediately.
- Recalls and incidents that occurred outside the European Economic Area (see 'What types of incidents or recalls have to be notified?' above) shall be reported at the latest by the time of implementation of any measures.
- Notifications and reports referred to above in the section, 'Who is responsible for reporting incidents or recalls?', shall be made immediately.

Notification forms

Notification forms can generally be downloaded from agency website home pages, eg, at the German BfArM page: http://www.bfarm.de/cln_029/nn_425052/EN/medDev/form/functios/formmeddev-node.html__nnn=true

To which competent authority should incidents or recalls be reported?

In Germany, it is the Federal Institute for Drugs and Medical Devices, Medical Devices Division. For other countries, please see the respective home pages or: http://www.mdc-ce.de/downloads/2_12_1-rev_5-2007(1).pdf, or http://www.ghtf.org/sg2/sg2-final.html.

In Germany, there are two (or three, if animal health is included) national competent superior authorities. In addition, the Paul-Ehrlich-Institut has a certain responsibility for the following reagents and reagent products including materials for calibration and control according to Annex II of Directive 98/79/EC: HIV 1 and 2, HTLV I and II, hepatitis B, C und D, rubella, toxoplasmosis, cytomegaly virus, chlamydia, AB0 system, rhesus (C, c, D, E, e), Kell system, Duffy system, Kidd system, irregular anti-erythrocyte-anti body, HLA tissue types DR, A and B. Incidents regarding the above-mentioned products should be addressed to the Paul-Ehrlich-Institut, email: s-ivd@pei.de

Information on risks

Germany's Federal Institute for Drugs and Medical Devices (BfArM) provides information about risks arising from the use or application of medical devices, and the measures appropriate for protection against risks. The information is given to the public, healthcare professionals, manufacturers and authorities, and complements the advisory notice from the manufacturer. According to the provisions of the Act on Medical Devices (MPG) and the German Safety Plan for Medical Devices (MPSV), BfArM is responsible for collecting, analysing and evaluating the risks of medical devices, and typically coordinates the necessary measures to be taken. Any regulatory measures are decided by the authorities of the German Länder responsible for medical devices.

Field Corrective Actions

Field Corrective Actions include the removal of medical devices from the market or any other corrective action on devices in use. In general, the manufacturer implements field corrective actions by sending an advisory notice to inform operators and users of the specific risk of a particular medical device, and advising on the action that should be taken to protect the health or the safety of patients, users or other persons. As an example, an advisory notice may contain notification from the manufacturer that it is voluntarily recalling a medical device.

Other competent authorities that provide information on risks

- Schweizerisches Heilmittelinstitut (Swissmedic), Switzerland: http://www.swissmedic.ch/md/files/vigilance-e.html http://www.swissmedic.ch/md/files/recalls.html
- Agence Francaise de Sécurité Sanitaire des Produits de Santé (Afssaps), France http://agmed.sante.gouv.fr/
- Medicines and Healthcare Products Regulatory Agency (MHRA), UK http://www.mhra.gov.uk/Safetyinformation/Safetywarningsalertsandrecalls/index.htm
- Food and Drug Administration (FDA), US, http://www.fda.gov/cdrh/patientsafety/

References

The following websites were accessed for this article:

http://ec.europa.eu/enterprise/medical_devices/index_en.htm

http://bfarm.de

http://pei.de

http://www.fda.gov/cdrh/

http://www.hc-sc.gc.ca/dhp-mps/md-im/index-eng.php