How To Approach Clinical Regulation For **Digital Health Technologies**

Expert Insights from:

Hardian Health

Clinical | Digital | Consulting

It is always better to **do things right** the **first time**.

Clinical regulatory pathways exists to safeguard patients.

Just as pharmaceuticals require tight controls to ensure that they are safe and effective, so does **Digital Health Technologies** require the same safeguards.

This carousel aims to provide an overview of the necessary steps required to obtain regulatory approval for **Software/AI as a Medical Device** in the UK.

But let us start by first **defining** what exactly is **Software as a Medical Device (SaMD)** as per the IMDRF.

IMDRF International Medical Device Regulators Forum

Final Document

Title:	Software as a Medical Device (SaMD): Key Definitions
Authoring Group:	IMDRF SaMD Working Group
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Software as a Medical Device

"is defined as software intended to be used for one or more **medical purposes** that perform these purposes **without being** part of a hardware medical device."

NOTES:

- SaMD is a medical device and includes in-vitro diagnostic (IVD) medical device.
- SaMD is capable of running on general purpose (non-medical purpose) computing platforms[3]
- "without being part of" means software not necessary for a hardware medical device to achieve its intended medical purpose;
- Software does not meet the definition of SaMD if its intended purpose is to drive a hardware medical device.
- SaMD may be used in combination (e.g., as a module) with other products including medical devices;
- SaMD may be interfaced with other medical devices, including hardware medical devices and other SaMD software, as well as general purpose software
- Mobile apps that meet the definition above are considered SaMD.

Definition of Medical Device

means any instrument, apparatus, implement, machine, appliance, implant, reagent for in vitro use, **software**, material or other similar or related article, intended by the manufacturer to be used, alone or in combination, for human beings, for one or more of the specific medical purpose(s) of:

- *diagnosis, prevention, monitoring, treatment or alleviation of disease,*
- *diagnosis, monitoring, treatment, alleviation of or compensation for an injury,*
- *investigation, replacement, modification, or support of the anatomy or of a physiological process,*
- *supporting or sustaining life,*
- *control of conception,*
- *disinfection of medical devices,*
- *providing information by means of in vitro examination of specimens derived from the human body;*

and does not achieve its primary intended action by pharmacological, immunological or metabolic means, in or on the human body, but which may be assisted in its intended function by such means.

I recommend reading the **well written document** by the IMDRF to gain a deeper understanding of SaMD.

Now, lets get back to the Carousel.

The following carousel is created using information found on the **Hardian Health** website.

Hardian Health is an **industry leading consultancy** that adopts a multi-disciplinary approach towards SaMD/AIaMD regulation.

Available at: https://www.hardianhealth.com/regulatory

Step 1: Intended Use

The **critical first step** in the development of HealthTech products. A clear intended use prioritises safety and effectiveness and gives **clarity on the function of your SaMD** and the specific context of its use.

The Intended Use Statement is a **short document** that clearly outlines the device's intended purpose under the following headings:

- **Intended medical indication**
- **Intended patient population**
- **Intended user groups**
- **Intended part of the body**
- **Use environment**
- **Operating principle**

Step 2:
Risk Classification

The process of determining **the risk level** of your Software as a Medical Device. It determines the level of clinical evidence and regulatory oversight your product requires.

Briefly, software is categorised as **Class I**,

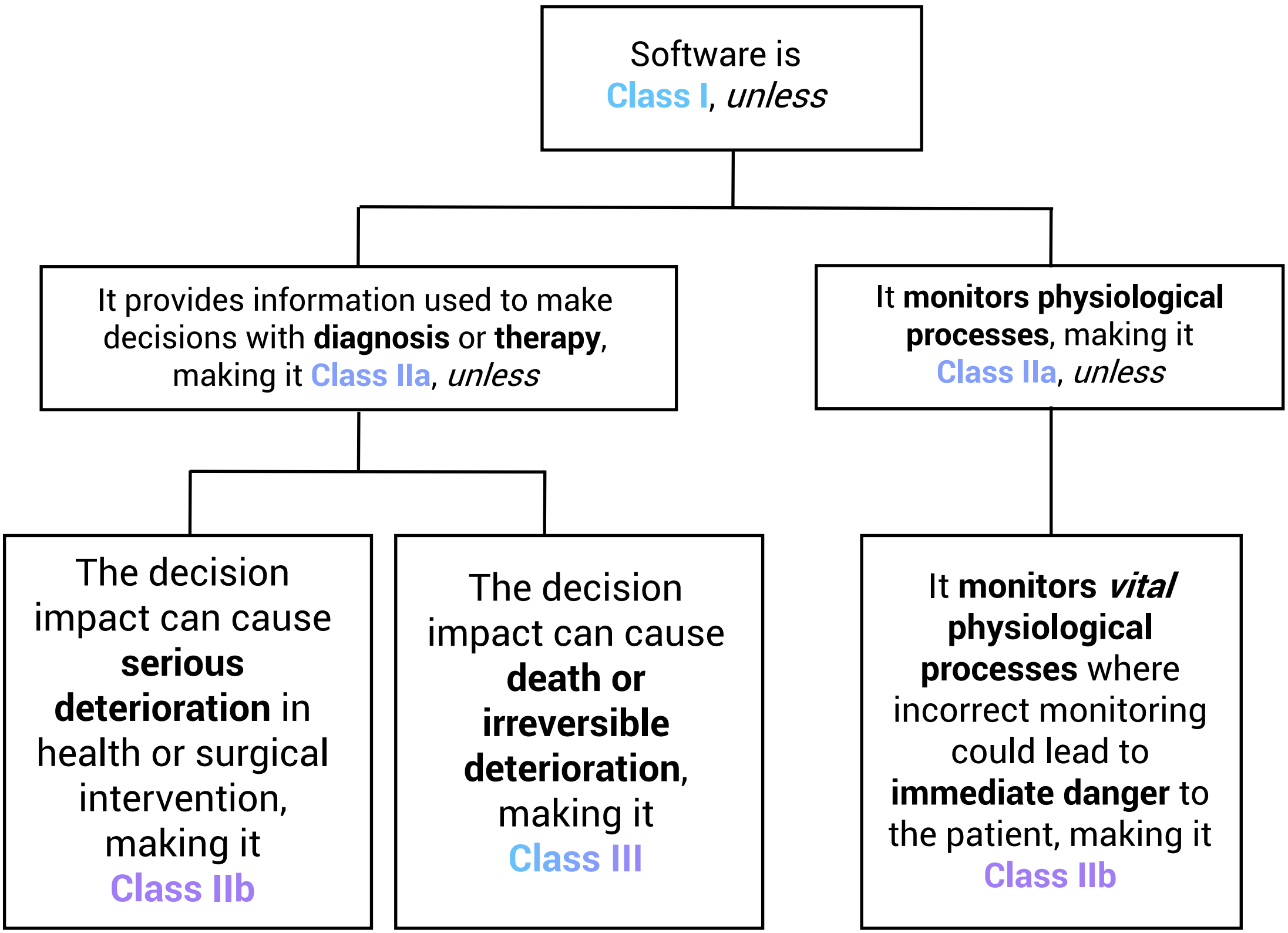
. Unless it is used to **inform diagnostic** or **therapeutic** purposes (which makes most software **Class IIa**).

. Treating or **diagnosing critical conditions** or monitoring vital physiological parameters puts your software in **Class IIb**.

. If the situation is **life-threatening**, it's **Class III**.

In essence, most SaMD is **Class IIa or above** under the EU MDR.

A Simple Flowchart



Step 3: Notified / Approved Body Engagement

If you are planning to launch your product in the UK or EU, you will need to engage an independent **Notified Body (EU)** or **Approved Body (UK)** who will be responsible for reviewing and certifying your product.

With the **exception of Class I devices** a Notified Body/Approved Body must be involved in the approval and certification of all medical devices that fall within the scope of the **EU MDR/UK MDR**.

In the UK, Approved Bodies, responsible for **evaluating regulatory submissions for granting UKCA marks**.

Step 4:
Quality Management Systems (ISO 13485)

A structured system of **procedures and processes** that is built into you company to make sure your end product is optimal and serves end users well. **Safety and quality** are a priority.

A QMS is **legally required for all medical device software** and IVD manufacturers in the EU (see MDR Article (10)9 and IVDR Article 10(8)) and the US (CFR 820 regulations for medical device manufacturers).

The international standard for a QMS is mapped out in **ISO 13485:2016** which largely aligns with CFR 820 and covers most of the requirements for EU MDR Article (10)9/IVDR Article 10(8).

Step 5:
Medical Device File Design

Your MDF provides evidence to **demonstrate compliance** of the device to all the **applicable regulations**. Its structure and design is key.

MDF (also known as **Technical Documentation**) is a **MANDATORY** collation of all the necessary regulatory, clinical and technical documents - starting from your **Intended Use**, all the way to **Post Market Surveillance Reporting** for the entire product lifetime.

The need for an MDF is mentioned in section 4.2.3 of **ISO 13485:2016**, **21 CFR 820.181** and in all the applicable regulations such as the EU Medical Device Regulations (**EU MDR**), the EU in vitro Diagnostic Medical Device Regulations (**EU IVDR**) and the UK Medical Devices Regulations 2002 (**UK MDR 2002**).

Step 6: MDSAP

The **Medical Device Single Audit Program (MDSAP)** is designed to allow for a more streamlined **Quality Management System** by allowing medical device companies to prove compliance through a single audit for participating markets (**Australia, Brazil, Canada, Japan** and the **USA**.).

MDSAP **mostly aligns with ISO 13485**, audits are conducted by MDSAP-recognized Auditing Organisations.

Similarly to ISO 13485, audits are conducted on a **three-year cycle** which includes an initial certification audit followed by annual surveillance audits with a recertification audit after three years.

Step 7:
Clinical Evaluation Plan

The **blueprint** for what you are going to do to **clinically evaluate your device** throughout its development cycle, where you explain how you will assemble evidence to prove that your tech performs as it should.

The **level of clinical evidence** required for medical device software is set out in the Medical Devices Regulation **(MDR)**, Vitro Diagnostic Medical Devices Regulation **(IVDR)** and the soon-to-be-deprecated Medical Devices Directive **(MDD**).

The **MDCG 2020-1**, provides a useful framework to help you determine the level of clinical evidence you require for your device to fulfil these regulatory requirements.

Step 8: QMS Deployment & Training

A quality management system **cannot be bought**, **only built**. No matter how good a QMS is, without the appropriate deployment and training it will not work effectively.

Unlike a UKCA/CE Mark, a Quality Management System (QMS) is **applied to a company as a whole** rather than individual product(s). Therefore, nearly all members of staff will have some form of involvement in the different processes.

Prior to a procedure being made effective, training needs to be conducted to ensure that **all relevant staff members understand them**.

Step 9: Software Verification & Validation

The **most important activities of the software development lifecycle process**. This process makes sure all requirements are met before testing the product in the real world.

Verification & validation (V&V) activities should be planned early in the design stage while developing requirement specifications for a product. This will ensure there is a clear alignment between V&V stages and the defined specifications.

Regulatory references and standards to keep in mind include **EU MDR Annex II Section 6.1(b)** which directly cites the requirement for a verification and validation process.

Step 10: Clinical Evaluation Report

This is the **final stage of the clinical evaluation process**, where you document the results of all your clinical development activities, and all post-market and safety data to come in the future.

The Clinical Evaluation Report (CER) is how you demonstrate to regulators your conformity with the regulations and will also become part of your **technical documentation**.

The CER is a **requirement for every medical device** (even software and AI-based tools) intending to be sold in the European Union. **Article 61 of the EU MDR** states the need for the documentation of the entire clinical evaluation process to be included in the Clinical Evaluation Report (CER).

Step 11: Responsible Person (PRRC and UKRP)

A nominated PRRC is a **mandatory requirement** for all manufacturers and an Authorised Representative under **EU MDR** and **IVDR**.

The UK does not require a PRRC to be appointed; however, it requires a "**Responsible Person**" based in the UK whose responsibilities are similar as of an Authorised Representative in the EU.

The point of a PRRC is to provide confirmation to European Authorities that a professionally qualified Quality and Regulatory expert is available as a **key contact** within the organisation if needed.

Step 12:
Product Registration

Now the hard work is done, registering your product on the **relevant regulatory databases** is the final step to legally place your product on the market.

For the European Union (EU) market authorisation of medical devices and in vitro diagnostic devices, you must register your manufacturer and product information centrally in the **European database on medical devices (EUDAMED) database**.

For the Great Britain market authorisation of medical devices and in vitro diagnostic devices, all devices must be registered on **MHRA Device Online Registration System (DORS).**

Step 13: Post-Market Surveillance (PMS)

Now your product is on the market, it's time to make sure that all the work done to ensure **safety and effectiveness** during development is maintained in the real world.

Post-Market Surveillance (PMS) focuses on monitoring and assessing the safety, effectiveness, cybersecurity and **overall clinical benefit** of a medical device following its release onto the market.

PMS is a regulated activity in almost all jurisdictions including the **UK, EU and USA** with increasing emphasis on PMS monitoring to verify the safety and efficacy of devices in the real world.

Step 13:
Post Market Clinical Follow-up

Clinical Evaluation should be a **lifelong product process**. PMCF activities help you build your evidence base whilst you are on market, to show that your product remains safe and effective in the real world.

Remember that PMCF activities are a **clinical subset** of general **Post Market Surveillance .**
In this context, it's important to follow the regulation guidance on what is required for post market surveillance as well as PMCF.

Post Market Clinical Follow-up (PMCF) is the **continuous element** of your Clinical Evaluation Report and also relates to your Risk Management File.

Hope you all found this helpful!

This is part of a series to help HealthTech founders access better resources for their projects.

Just our small way of trying to help!