

Global Harmonization Working Party

Towards Medical Device Harmonization

PROPOSED DOCUMENT

Title: Categorisation of Changes to a Registered

Medical Device

Authoring Group: Work Group 1, Pre-market: General MD

Work Group 2, Pre-market: IVDD

Work Group 3, Pre-market: Software as a MD

Date: 13 June 2022

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1 Acknowledgements 2 This Guidance document was led by Work Group 2 and drafted by Dr. Adelheid 3 4 Schneider and Ms. Judy Cheung and with subsequent contributions from Work Group 1: Ms. Minghua Chen, Ms. Yon Ju Kang, Ms. Kate Hyeong Joo Kim, Ms. 5 Victoria Qu, Mr. Edward Woo; Work Group 2: Dr. Christopher Chan, Mr. Daniel 6 7 Chang, Ms. Karinis Chu, Ms. Sandra Chu, Mr. Duc Duong, Mr. Augusto Bencke Geyer, Mr. Henry Hou, Ms. Sheryl Hsiao, Mrs. Nutchnat Kitiwouranon, Ms. 8 9 Pauline Law, Mr. Albert Poon, Ms. Shelley Tang, Ms. Tzu Ling Tseng, Dr. Veronica Wong, and Work Group 3: Mr. Duc Duong, Mr. Kelvin Koh and Mr. 10 Tony Yip and Helena Ardura-Garcia of WHO, which we would like to greatly 11 acknowledge. 12

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Preface

This document is produced by the Asian Harmonization Working Party, based on change management guidances worldwide. The document is intended to provide non-binding guidance for use in the regulatory system of medical devices, including in vitro diagnostic (IVD) medical devices and software as medical device, and has been subject to consultation throughout its development.

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1.0 Introduction

The objective of the Asian Harmonization Working Party (AHWP) is to encourage convergence at the worldwide level in the evolution of regulatory systems of medical devices, including in vitro diagnostic (IVD) medical devices and software as a medical device in order to protect the public health by those regulatory means considered the most suitable.

This document has been developed to encourage and support global convergence of regulatory systems. It is intended for use by Regulatory Authorities (RAs), Conformity Assessment Bodies (CABs) and industry, and will provide benefits in establishing, in a consistent way, an economic and effective approach to the control of medical devices in the interest of public health. It seeks to strike a balance between the responsibilities of RAs to safeguard the health of their citizens and their obligations to avoid placing unnecessary burdens upon the industry.

During the life-cycle of a medical device, changes may take place from time to time. Changes made to a registered medical device must be linked to the principles of safety and/or performance (Essential Principles) and the ability of a risk based regulatory system to control the risk of the medical device placed in the market.

To ensure continued safety and/or performance of the medical device, a manufacturer must assess the effect of the change on the patient, practitioner and/or user of the medical device, and decide whether the change is expected to affect the safety and/or performance of the medical device.

According to the nature of the change, the RA will determine whether evidence of safety and/or performance has been appropriately collected and reviewed by the manufacturer based on the report made by the manufacturer.

Working Group 1, 2 and 3 of the AHWP have prepared this guidance document. Comments or questions should be directed to the Chair of AHWP Work Group 2 whose contact details may be found on the AHWP web page (http://www.ahwp.info/).

Note: The term "Registered medical device" refers to a medical device that can be legally marketed in the relevant jurisdiction.

2.0 Rationale, Purpose and Scope

2.1 Rationale

Consistent worldwide requirements for on categorisation of changes to medical devices would offer significant benefits to the manufacturer, user, patients and RAs. Eliminating or reducing differences between jurisdictions decreases the cost of gaining regulatory compliance and allows patients earlier access to new technologies and treatments.

101	2.2 Purpose
102 103 104 105 106 107	This document provides assistance to RAs and manufacturers in categorising and managing changes during the life cycle of medical devices. The document provides guidance on types of changes, principles of change categorisation, and what should be done by the manufacturer in relation to each type of change to its registered medical device. For minor changes, reference should be made into AHWP/WG1/F002:2016 Guidance for Minor Change Reporting, whereby the reportability depends on the jurisdiction.
108	
109	2.3 Scope
110 111 112 113	This document applies to all products that fall within the definitions of Medical Device, In Vitro Diagnostic (IVD) Medical Device and software as Medical Device that appear within the AHWP document <i>Definition of the Terms 'Medical Device' and 'In Vitro Diagnostic (IVD) Medical Device'</i> .
114	
115	3.0 References
116 117	AHWP/WG2-WG1/F001:2016 Definition of the Terms 'Medical Device' and 'In Vitro Diagnostic (IVD) Medical Device'.
118 119	AHWP/WG1a/F002:2013 (now restructured to WG2) Essential Principles of Safety and Performance of IVD Medical Devices.
120 121	AHWP/WG3/F001:2015 Guidance Document on Medical Device Software - Qualification and Classification
122 123	Australia: Substantial changes affecting a TGA conformity assessment certificate and Transfers of certificate: Guidelines for notifying the TGA, v1.0, Jun-2017
124	Canada: Guidance for the Interpretation of Significant Change of a Medical Device
125	Korea: Case examples of Medical Electrical Equipment with significant changes, 2018
126	Korea: Guideline for Change Management of IVD Medical Device (2019 Mar 5th version)
127	Malaysia: MDA/GD/0020 - Change Notification for Registered Medical Device
128	Singapore: GN-21 - Guidance on Change Notification on Registered Medical Devices
129	US: Deciding When to Submit a 510(k) for a Change to an Existing Device
130	US: Deciding When to Submit a 510(k) for a Software Change to an Existing Device
131 132	US: Guidance for Industry and FDA Staff – Modifications to Devices Subject to Premarket Approval (PMA) – The PMA Supplement Decision-Making Process – December 11, 2008
133	WHO: Reportable Changes to a WHO Prequalified in vitro diagnostic Medical Device, 2016

134	WHO: Reportable Changes to a WHO Prequalified Male Circumcision Device, 2019
135 136 137	Japan: PMDA document (PSEHB/MDED Notification No. 1020-1) - Handling of procedures for minor changes made in association with partial changes of medical device programs — October 20, 2017
138 139	US: Guidance for Industry and FDA Staff – Deciding When to Submit a 510(k) for a Software Change to an Existing Device – October 25, 2017
140 141	Korea: Guidance for Review and Approval of Artificial Intelligence-Enabled Medical Devices, May-2022
142	4.0 Definitions
143	Medical Device
144 145	The term is as defined in AHWP/WG2-WG1/F001:2016 "Definition of the Terms 'Medical Device' and 'In Vitro Diagnostic (IVD) Medical Device'
146	
147	IVD Medical Device
148 149	The term is as defined in AHWP/WG2-WG1/F001:2016 "Definition of the Terms 'Medical Device' and 'In Vitro Diagnostic (IVD) Medical Device"
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151	Manufacturer
152 153 154	Manufacturer: For the purpose of this document, the term "manufacturer" must be understood to include the manufacturer, its authorized representative or any other person who is responsible for placing the device on the market.
155 156 157 158	Non-significant change ¹ A change that will not affect safety and/or performance of the medical device.
159 160 161	Quality Control (QC) It is part of quality management focused on fulfilling quality requirements. (ISO 9000)
162	Quality Management System (QMS)
163 164	For the purpose of this guidance document, the term means the regulatory compliance and certification to ISO 13485 or its equivalent.
165	
166	Regulatory Authority

¹ The terms non-significant change and minor change are used in different jurisdictions but generally they can be used interchangeably.

- It is a government agency or other entity that exercises a legal right to control the use or sale of medical devices within its jurisdiction, and may take enforcement action to ensure that
- medical products marketed within its jurisdiction comply with legal requirements.
- 170 (AHWP/WG1a-WG7/PD007)

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- 172 Risk Management is a systematic application of management policies, procedures and
- 173 practices to the tasks of analysing, evaluating, controlling and monitoring risk (ISO
- 174 14971:2007 Medical devices -- Application of risk management to medical devices)

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Significant change² means a change that could reasonably be expected to affect the safety and/or performance of a medical device.

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5.0 General Principles

To ensure continued safety and/or performance of the medical device, the manufacturer has to assess the impact of the change on the patient, practitioner and/or user of the medical device, and decide whether the change is expected to affect the safety and/or performance of the medical device. The following sections give guidelines on change categorisation and provide examples.

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5.1 Assessment of Changes: General Principles

- 187 Changes to a registered medical device are categorised as significant (or major in some jurisdictions) and non-significant (or minor) change according to the effect on the safety and/or
- 189 performance of the medical device.

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191 A **significant change** (refer to definition of "significant change") means a change that could affect the safety and/or performance of a medical device.

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- 194 A significant change typically may:
- Result in risks to the patient not previously identified
- Increase the probability of existing hazards occurring
- Alter the presentation of existing or new risks to the user (this can involve labelling changes or new indications for use)

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A **non-significant change** is any modification that does not affect safety and/or performance of a medical device, which obtained a marketing authorization.

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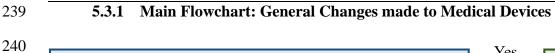
5.2 Reporting of Changes

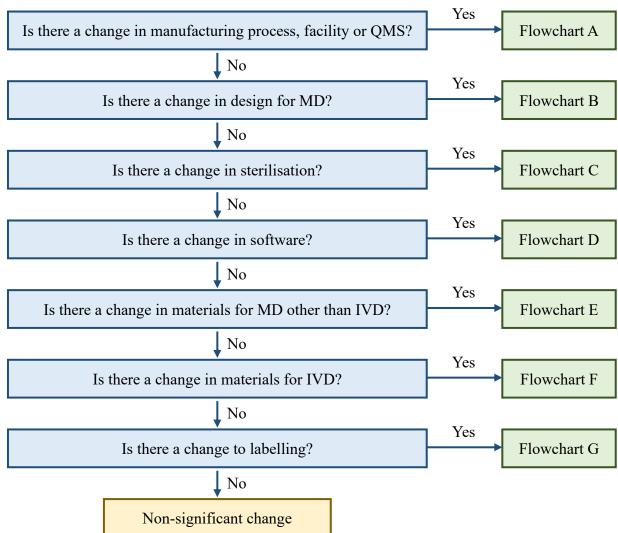
- According to the nature of the change, it is the RA that determines whether evidence of safety and/or performance has been appropriately collected and reviewed based on the reporting
- 206 procedure made by the manufacturer³.

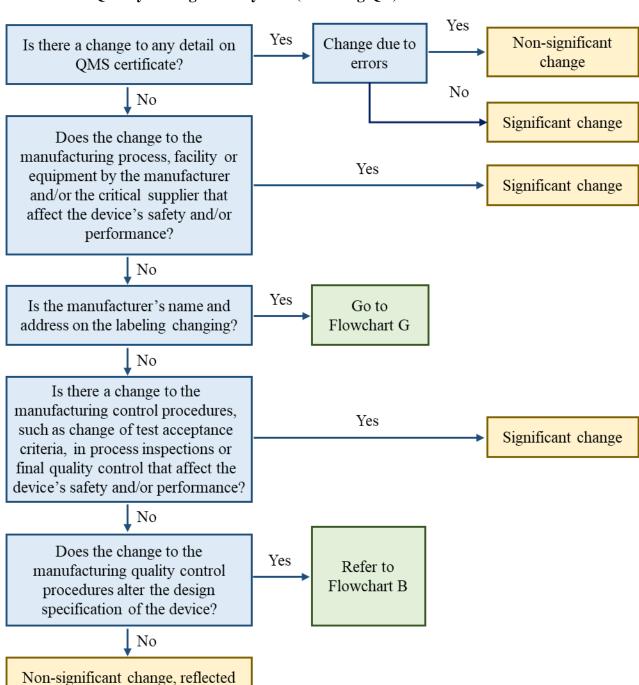
² The terms significant change and major change are used in different jurisdictions but generally they can be used interchangeably

³ In some jurisdictions, all changes whether significant or non-significant may need to be reported. In this case refer to the Guidance for Minor Change Reporting AHWP/WG1/F002:2016

		GHWP/WG2-WG1-WG3/P001:2023	
207			
208	Changes could be categorised either as significant or non-significant.		
209			
210	"Significant changes" are normally reported to the RA with supporting documentation to show		
211	the device is still safe and performing as intended.		
212 213	"Non Ciquificant alongo"?	one not normally noncorted to the DA horsesson the accessment and	
213	"Non-Significant changes" are not normally reported to the RA, however the assessment and		
214	supporting documentation to show the device is still safe and performing as intended has to be reflected in the QMS system.		
215	reflected in the QIVIS system		
210			
217	5.3 Tools to assess cha	nges and the way of reporting	
218	The following section prese	ents flowcharts to assist manufacturers when assessing whether a	
219		"significant change" which may need to be reported to the RA.	
220	5		
221		generalized discussion of the broad principles that can be used to	
222	determine if a change would affect the safety and/or performance of a medical device.		
223			
224	Flowchart A to G details specific questions and answers to assist in determining if a change		
225	is considered to be significant or non-significant. The accompanying discussions and		
226	flowcharts are intended to define the processes used to categorise the change.		
227			
228	The following flowcharts ar	_	
229	• Main Flowchart:	General Changes made to Medical Devices	
230	• Flowchart A:	Changes in Manufacturing Processes, Facility and/or Quality	
231	Management System (including QC)		
232	• Flowchart B: Changes in Design for Medical Device		
233	• Flowchart C:	Changes to Sterilisation Facility and its Process and/or Quality	
234	Elamahant Da	Management System	
235	• Flowchart D:	Changes to Software	
236	• Flowchart E:	Changes in Materials for Medical Devices other than IVD	
237	• Flowchart F:	Changes in materials for IVD Medical Devices	
238	• Flowchart G:	Changes to Labelling	





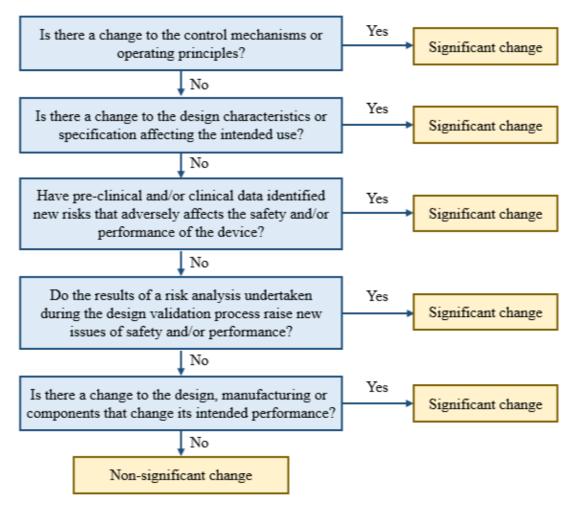


in QMS documentation

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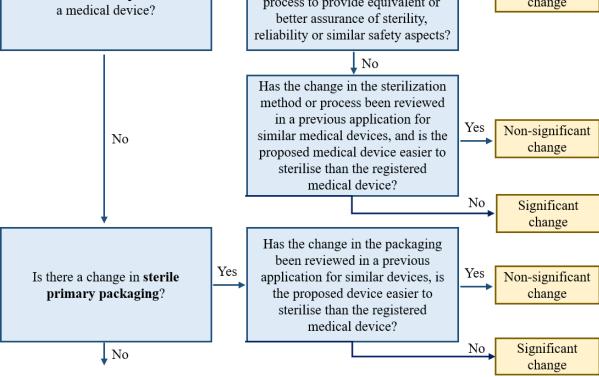
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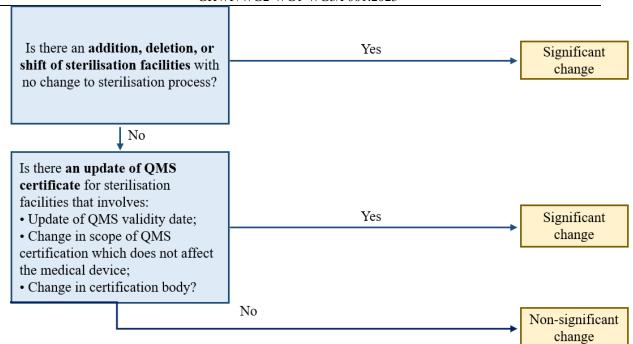
5.3.3 Flowchart B: Changes in Design for Medical Devices



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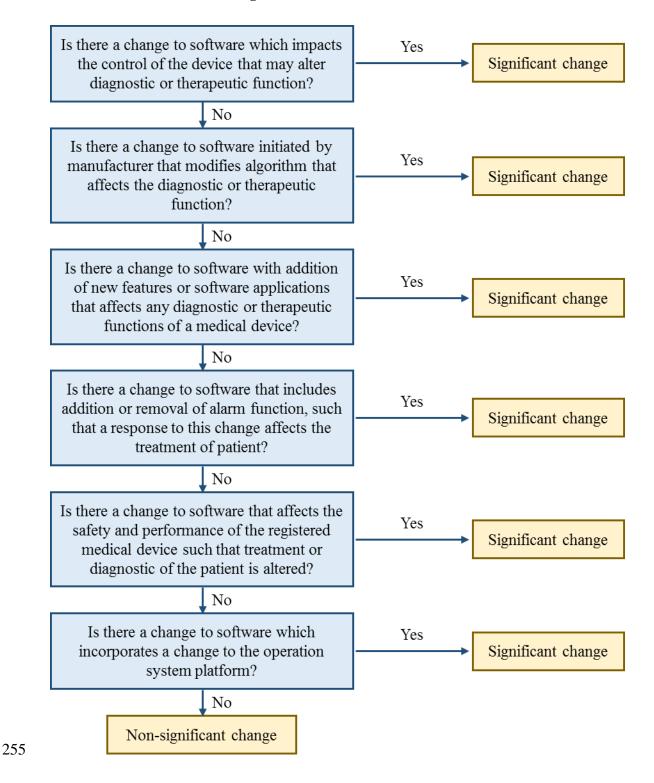
Categorisation of Changes to a Registered Medical Device GHWP/WG2-WG1-WG3/P001:2023 249 5.3.4 Flowchart C: Change to Sterilisation Facility and its Process and/or Quality 250 **Management System** Is there a change that increases the Yes bioburden alert or action levels or Significant that introduces a more difficult to change kill organism? No Is there a device design or Yes Significant material change that introduces a change more difficult to sterilise feature? No Has a new acceptance criteria, or monitoring method, been added Is there a change in sterilisation Yes Yes over and above the existing Non-significant method and related processes for process to provide equivalent or change





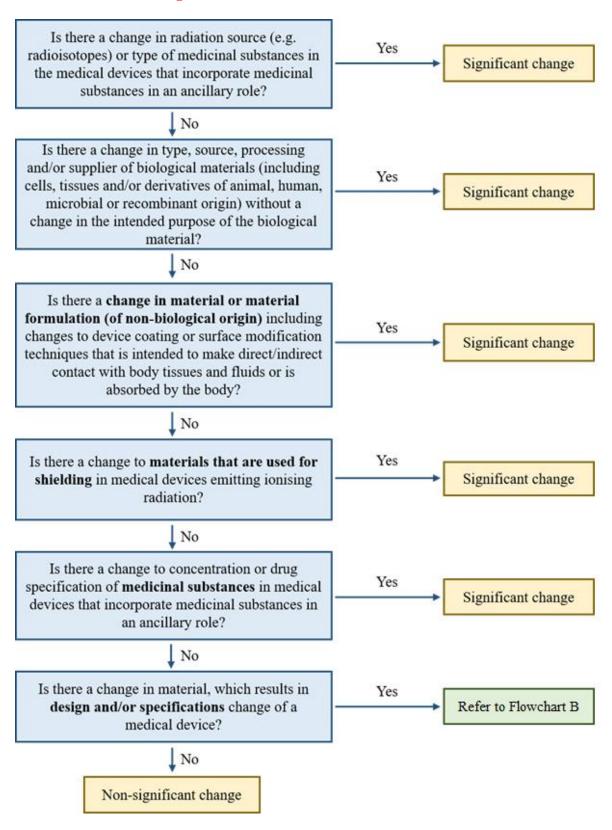
5.3.5 Flowchart D: Changes to Software

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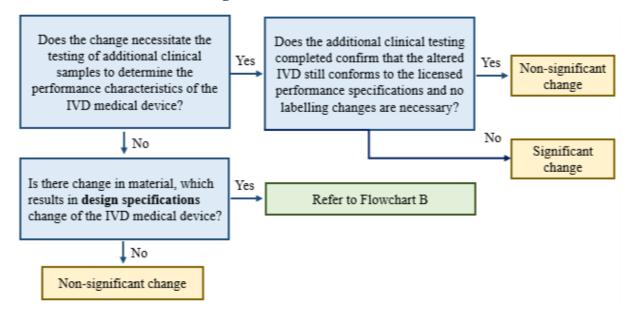


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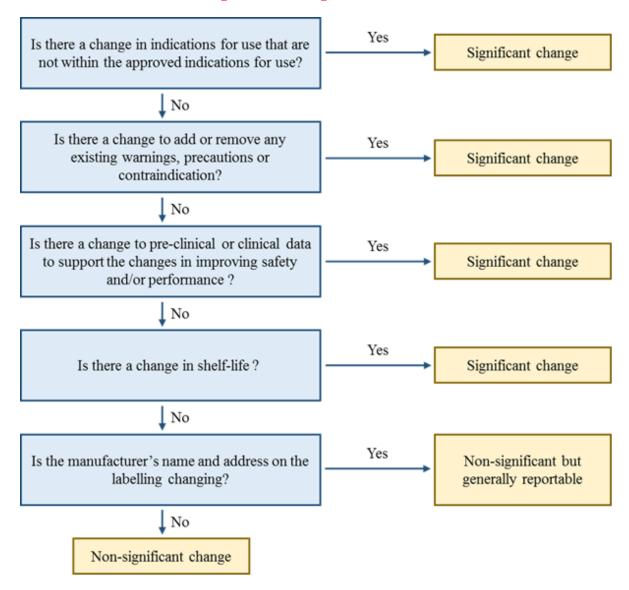
5.3.6 Flowchart E: Changes in Materials for Medical Devices other than IVDs



260 **5.3.7Flowchart F: Changes in materials for IVD medical devices**



5.3.8 Flowchart G: Changes to Labelling



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5.4 Examples of changes and reporting requirements

5.4.1 Changes in manufacturing processes, facility and/or Quality Management System

Example	Category (Significant, non-significant)
Changes to QMS Certificate, such as:	Significant
Change/addition/removal of manufacturing site, Change of scope	
Change to manufacturing processes (including changes made to outsourced processes) that may affect the safety and/or performance of the medical device, such as:	Significant
Change in the equipment used for cutting, resulting in the change in length of sutures. Moulding or cutting manufacturing process	
Change of centrifugation to filtration process which results in better molecule separation.	
Change of implant manufacturing process from casting to 3D printing Change from manual operation to automatic operation, without changing the product specification	
Change in specification of registered medical device due to change in critical supplier, such as:	Significant
Change of the supplier of the Antibody with different manufacturing process.	
Change of supplier of plastic raw material of catheter.	
Changes to Manufacturing QC process issues, such as: Removal of two test parameter and extend acceptance criteria	Significant
Change of zip code on the certificate, typo errors and correction	Non-Significant
Changes to Manufacturing QC process, such as: New QC specification with additional testing Change of measuring and/or monitoring equipment without changing test parameter	Non-Significant
Change in non-critical supplier that extrudes the polymer tubing with no change in finished product performance specifications.	Non-significant

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5.4.2 Changes in design for medical devices other than IVDs

Example	Category (Significant, non-significant)
All changes to the control mechanisms, operating principles and/or design characteristics of a medical device, such as:	Significant
Change from a quantitative assay to a qualitative assay Addition of a footswitch to an X-ray system that previously do not operate via a footswitch mechanism. Change of an RIA test to an ELISA test.	
Change in the design characteristics that allows for additional or broader intended use, such as:	Significant
A smaller sized hip prosthesis or fracture fixation screw that are significantly different from their predicate designs. Addition of urine as specimen in the intended use for creatinine test	
Change that have Pre-clinical and/or clinical data identified new risks that adversely affects the safety and/or performance of the device, such as:	Significant
The original heat-sealing package barrier found risk of leakage and change to sterile packaging barrier	
Change results of a risk analysis undertaken during the design validation process raise new issues of safety and/or performance, such as:	Significant
Change from an internal direct current (DC) power source to an external alternating current (AC) source or vice versa During the clinical validation process, ceramic dental cap has found durability issues, other materials has to be considered Change to the cable design and grip of a steerable ablation catheter, which results in improved deliverability and improved procedural times.	
Change to the design, manufacturing or components that change its intended performance, such as:	Significant
All changes in specifications (including shelf life and stability) of an IVD medical device	
Change of the secondary packaging	Non-significant
Change of colour of the cap of a reagent	Non-significant
Changes of smartphones and computers (including tablet PC) running medical software that does not accompany changes in the software	Non-significant
Changes of storage media (CD, USB, Web, etc.) of the standalone software that does not accompany changes in the software	Non-significant

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5.4.3 Changes to sterilisation Facility and its Process and/or Quality Management System

Example Category (Significant, nonsignificant) Change of the sterilisation process, such as: Significant Change from ethylene oxide to gamma radiation sterilization Change that increases the bioburden alert or action levels or that Significant introduces a more difficult to kill organism, such as a change that introduces additional pre-sterilisation transport steps. Device design or material change that introduces a more difficult to Significant sterilize feature, such as: Change to the packaging where a single pouched sterile device is put into a double pouch.

Change from biological indicator to parametric release or change Significant from batch release to parametric release

Change in moist heat sterilisation parameters Significant

Change from a pre-blended sterilant (EtO and CHCs) to EtO post-blended with nitrogen. The ultimate concentration of EtO in the sterilant is the same in both cycles.

Change from using Air (mixture of 80% Nitrogen and 20% Oxygen) to pure Nitrogen in the aeration process to avoid explosive gas mixtures.

5.4.4 Changes to Software

Example	Category (Significant / Non-Significant)
Change to software which impacts the control of the device that may be alter diagnostic or therapeutic function, such as: Software change causing the change of critical steps for laser delivery on eye treatment	Significant
Change to software initiated by manufacturer that modifies the algorithm that affects the diagnostic or therapeutic function, such as: An X-ray Lung Nodule Assessment Software is used along with a Digital Radiography System to support physicians in the visualization, identification, evaluation and reporting of pulmonary lesions/nodules in chest images. An algorithm change improves the detection rate for small nodules.	Significant
Change to software with addition of new features or software applications that affect any diagnostic or therapeutic functions of a medical device, such as: Insulin Pump - Software changes that allow for wireless communication with compatible (continuous) blood glucose monitors.	Significant
Change to software that includes addition or removal of alarm function, such that a response to this change affect the treatment of patient, such as: Electrocardiogram Addition to software of an early warning alarm to signal a potential cardiac event such as atrial fibrillation.	Significant
Change to software that affect the safety and performance of the registered medical device such that treatment or diagnostic of the patient is altered, such as:	Significant
1. Blood Oxygen Monitor - A software change that allows the monitor to report blood CO2 concentrations with higher accuracy up to 0.5% deviation.	
2. Upgrade of software version changes the performance characteristics like specificity or sensitivity of the In-vitro diagnostic medical device.	
A simple bug fix to correct the display error on the data table from the software analysis result.	Non-significant
Change in software which only introduces non-therapeutic and non-diagnostic features such as printing, faxing, improved image clarity or reporting format	Non-significant
Change in software to disable certain functions that does not interact with other functions	Non-significant

G: :C
Significant
Non-significant

G11W17WG2 WG1 WG3/1001.2023	
Change in IVD analyzer software to rewrite an incorrectly worded software requirement and to modify code in the control unit of the analyzer without modifying the core algorithm (such as detection or measurement module algorithm).	Non-significant
Changes in software including the addition of product indication for use or its operating principles including diagnostic algorithm such as machine learning that may alter diagnostic or therapeutic function.	Significant
Change in accuracy of Machine Learning Medical Device software via modification and expansion of the training dataset without any changes to labeled product design specification.	Non-Significant

5.4.5 Changes in materials for medical devices, other than IVD medical devices

Example	Category (Significant,
	non-significant)
Change in radiation source (e.g. radioisotopes) or type of medicinal substances in the medical devices that incorporate medicinal substances in an ancillary role, such as: Change in the drug of a drug eluting stent	Significant
Change in type, source, processing and/or supplier of biological materials (including cells, tissues and/or derivatives of animal, human, microbial or recombinant origin) without a change in the intended purpose of the biological material, such as: Change in source of hyaluronic acid from Streptococcus zooepidemicus to Streptococcus equi	Significant
change in material or material formulation (of non-biological origin) including changes to device coating or surface modification technique in a medical device that is intended to make direct/indirect contact with body tissues and fluids or is absorbed by the body, such as: Peripherally Inserted Central Catheter (PICC) Introduction of a colorant change into the insertion hub of a PICC that is part of the fluid path for fluid administration or withdrawal from a patient. Cardiovascular Catheter A change of material to a cardiovascular catheter that comes in contact with body tissue (e.g. change to/from polyether block amide (PEBA), Polyamide or polyether ether ketone (PEEK).	Significant
Change to concentration or drug specification of medicinal substances in medical devices that incorporate medicinal substances in an ancillary role, such as: Change in the concentration of the drug in a drug eluting stent Change in the concentration of antibiotics or a change to a different antibiotic in a catheter coated with antibiotic Catheters that coated with antibiotics	Significant
Change in supplier or vendor of the material, but the material meets the manufacturer's previously reviewed specification.	Non-significant
Peripherally Inserted Central Catheter (PICC) Introduction of a colorant change into the flush port of a PICC. The flush port is an access port for flush syringes for IV line clearance or volume block and is not intended to be used for fluid administration or withdrawal from a patient.	Non-significant

280 **5.4.6** Changes in materials for IVD medical devices

Example	Category (Significant, non- significant)
Changes which need testing of additional samples, such as:	Significant
Change of sources or types of materials (conjugate, antibodies, antigens, primers or substrate)	
Change to the sample preparation, such as the inclusion of a stabilizer for an IVD that is intended to simplify preparation requirements or increase sample stability.	
Change in material, which results in design specifications change, such as:	Significant
Formulation change of reagents of test kits (buffer concentration, addition of preservatives)	
Change from a liquid to solid reagent and vice versa	
A change in supplier or vendor of the material, but the material meets the manufacturer's previously reviewed specification.	Non-significant
Change of sources of non-critical materials, such as magnesium stearate from an animal to vegetable source in a reagent of an IVD kit with no change in performance specification.	Non-significant

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5.4.7 Changes to Labelling

Example	Category (Significant, no-significant)
All changes to the labelling of medical devices that involve addition, removal and/or revision of warnings, precautions and/or contraindications not arising due to safety and/or performance concerns	Significant
Labelling changes that modify the approved method of use; or involve a change from 'professional use only' to 'home use'	Significant
Change involves a reduction of intended use/indication of use not arising due to medical device safety and/or performance concerns	Non-significant, but generally reportable
Changes to the label due to typo error	Non-significant

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286	6.0	Multiple Changes for one product
287 288 289 290		If multiple changes are made on a device at the same time, the assessment of each change should be made according to the flowcharts outlined in this guideline. If the changes are significant, the manufacturer may summarize all changes in one report and describe how the modified medical device differs from the previously registered device.
291		
292	7.0	Reference to change approvals by other jurisdiction
293 294 295		If the manufacturer can provide proof that the proposed change has been assessed and accepted by another jurisdiction, the RA may make an informed decision of acceptance or rejection of the change based on abbreviated review or waive the review.
296		