HFE regulation implementation: Industry perspective

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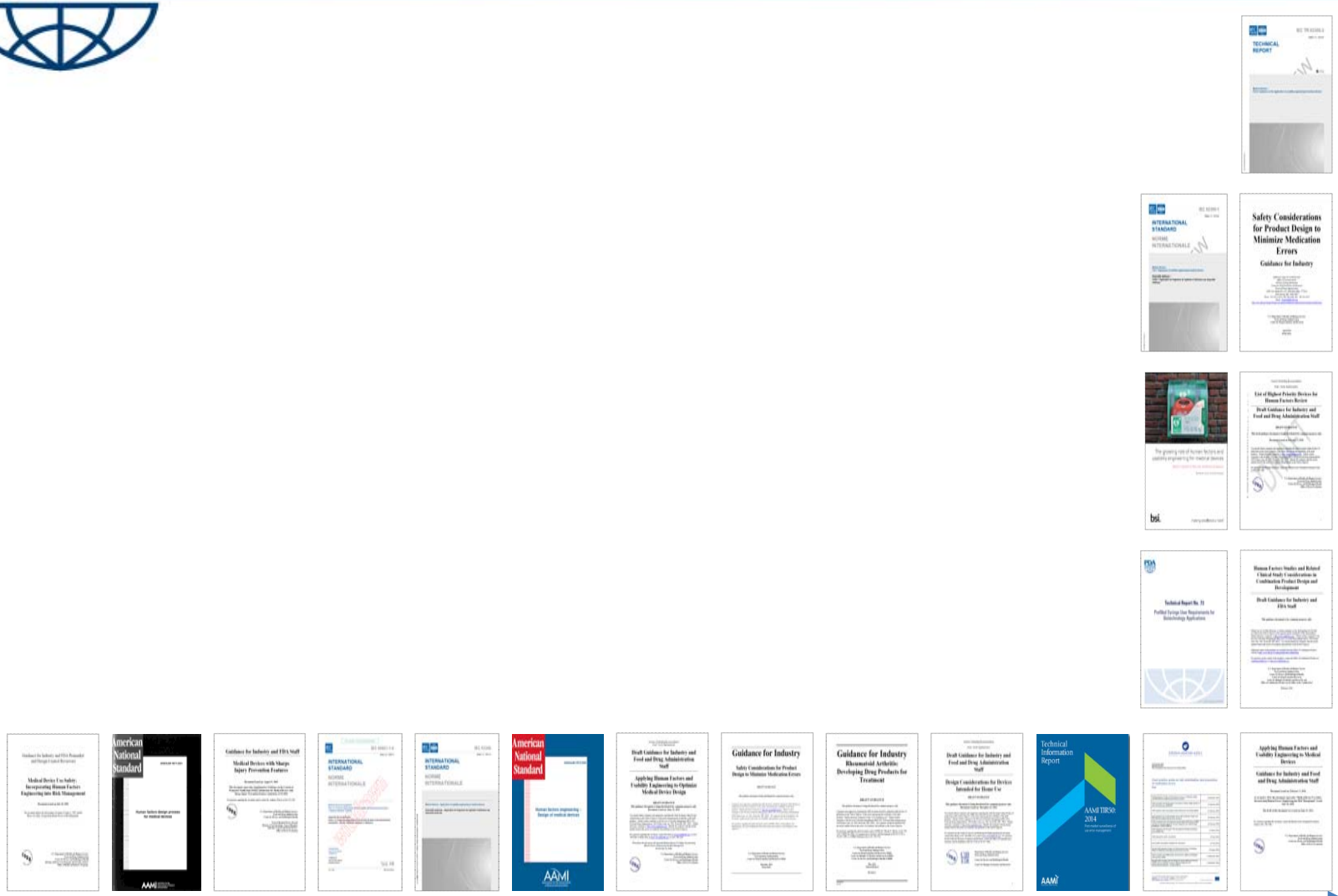
SN1

HFE & HFE related “guidelines”



2000

2017

?

Folie 3

SN1 You could add the 2017 guidelines too (2 FDA draft + final MHRA). Not urgent but I can help with this
Stones, Nicholas; 11.10.2017

Dealing with the number of guidance documents

What is the consequence of publishing multiple guidance each year?

Implementation strategy		Risk to user	Business risk
Continuous update	→	more time spent on processes than on device improvement	Mix up in the applicability of guidance
Wait end of process validity to update	→	Latest knowledge not implemented	Submission rejection
Keep processes at high level	→	Partial implementation	Discussion with Health Authority
Other.....	→		

Dealing with the diversity across regions -
Use Error Approach

ER 1 '….reducing, as far as possible, the risk of use error due to the ergonomic features of the device and the environment in which the device is intended to be used (design for patient safety)'

Annex I of the Medical Devices Directive 93/42/EEC (MDD) Essential requirements

i.159. … "FDA emphasizes that any death, even if the manufacturer attributes it to user error, will be considered relevant by FDA and will have a high risk potentially associated with it. User error is still considered to be a nonconformity because human factors and other similar tools should have been considered during the design phase of the device."

Medical Devices; Current Good Manufacturing Practice (cGMP); Quality System Regulation Preamble to Final Rule 21 CFR Parts 808, 812, and 820 (61 FR 52502)

Dealing with the diversity across regions – Validation

ER 13.1 ‘Each device must be accompanied by the information needed to use it safely and properly, taking account of the training and knowledge of the potential users, and to identify the manufacturer.’

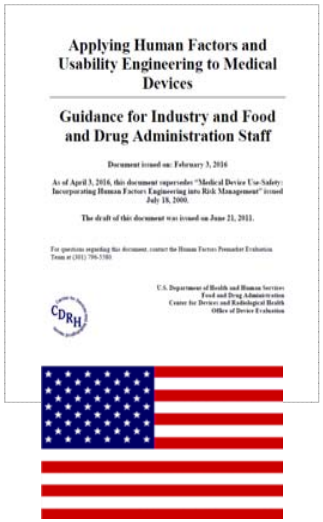
(g) Design Validation…’ensure that devices conform to defined user needs and intended uses and shall include testing of production units under actual or simulated use conditions. Design validation shall include software validation and risk analysis, where appropriate.’

Annex I of the Medical Devices Directive 93/42/EEC (MDD) Essential requirements

Medical Devices; Current Good Manufacturing Practice (cGMP); Quality System Regulation Preamble to Final Rule 21 CFR Parts 808, 812, and 820 (61 FR 52502)

Dealing with the diversity across regions - Critical Tasks 1/2

A user task which, ‘if performed incorrectly or not performed at all, would or could cause serious harm to the patient or user, where harm is defined to include compromised medical care’


Applying Human Factors and Usability Engineering to Medical Devices

Guidance for Industry and Food and Drug Administration Staff

Document issued on: February 3, 2016

As of April 3, 2016, this document supersedes "Medical Device Use-Safety: Incorporating Human Factors Engineering into Risk Management" issued July 18, 2000.

The draft of this document was issued on June 21, 2011.

For questions regarding this document, contact the Human Factors Premarket Evaluation Team at (301) 796-5580.

U.S. Department of Health and Human Services
Food and Drug Administration
Center for Devices and Radiological Health
Office of Device Evaluation

A list of critical tasks associated with the use of a device should be defined based on use-related risk, and refined during development as more knowledge is gained. The critical tasks are then evaluated during summative evaluation as part of HFE Validation


Human Factors Studies and Related Clinical Study Considerations in Combination Product Design and Development

Draft Guidance for Industry and FDA Staff

This guidance document is for comment purposes only.

U.S. Department of Health and Human Services
Food and Drug Administration
Center for Devices and Radiological Health,
Center for Drug Evaluation Research,
Center for Biologics Evaluation and Research, and
Office of Combination Products in the Office of the Commissioner

February 2016

Examples:

- Open packaging
- Depress syringe plunger
- Verify dose delivery

Dealing with the diversity across regions–
Critical Tasks 2/2

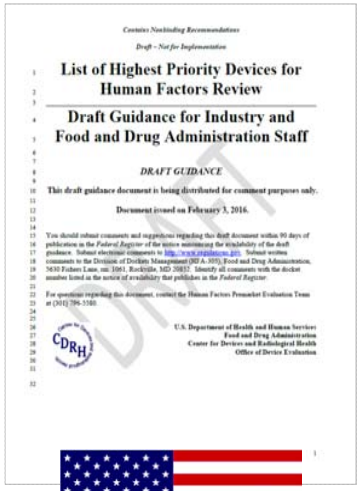
'Identify and describe the reasonably foreseeable hazard-related use scenarios'... including.... 'all tasks and their sequences as well as the severity of the associated harm.'

Summative evaluation shall include 'all hazard-related use scenarios; or the subset of the hazard-related use scenarios based on the severity of the potential harm'

- Critical tasks are the 'subset of the hazard-related use scenarios based on severity of harm'
- Essential tasks are those tasks 'that are required to use the device.'

Dealing with the diversity across regions -
List of Highest Priority Devices

Prefilled Syringes NOT listed!



List of Highest Priority Devices for Human Factors Review

Draft Guidance for Industry and Food and Drug Administration Staff

DRAFT GUIDANCE

This draft guidance document is being distributed for comment purposes only.

Document issued on February 3, 2016.

U.S. Department of Health and Human Services
Food and Drug Administration
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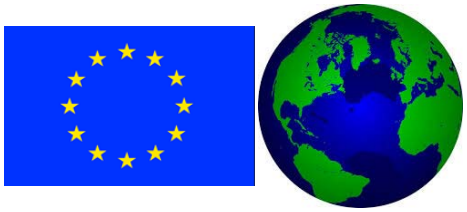
Office of Device Evaluation

If not providing HFE data in submission, a detailed rationale should be provided based on analysis of use-related risk

PFS submissions do not require '*HFE data*' unless;

- Use error could result in serious harm
- New user interface implemented to satisfy a special control
- Change of intended users, (eg lay users rather than HCPs)
- Linked to recalls, adverse events, problem reports or complaints
- Modifications have potential for serious harm from use error

Is the list of highest priority devices applicable to EU or international standards ?



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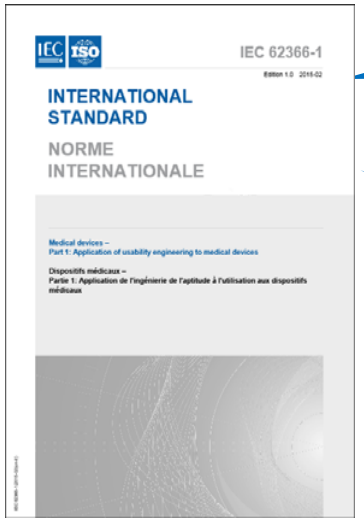
Dealing with the diversity across regions -
Legacy Product



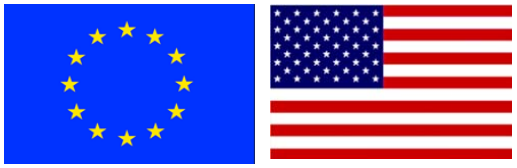
Legacy product is mentioned! Product that were developed without following the HFE process of IEC62366

If no HFE file, develop one!

The standard defines a 'scaled down' process:

- Use specification
- Review of post-production Information
- Hazards and hazardous situations related to usability
- Risk control
- Residual risk evaluation

Is the list the international legacy product approach applicable to EU and US standards?



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Dealing with the diversity within 1 region - Instruction For Use (IFU)

Instruction For Use (IFU) is part of the device.....

A) ...however in many cases the IFU is reviewed with the labelling in a late stage review...

Challenge: Although developed along with the device and in final state for the validation comments are coming often just before submission

→ risk: last minute changes not fully validated

B) ... is reviewed at different stages by different persons and results in some cases in different/divergent comments

Challenge: Find a balance to ensure user safety and satisfy all Health Authority comments

→ risk: giving more weight to the HA than to the user.

Dealing with the diversity within 1 region -
New Drug/Biosimilar vs. Generic 1/2

New drug/biosimilar

FDA draft Guidance 2016-
Human Factors studies and related clinical study considerations in combination product design and development


Human Factors Studies and Related Clinical Study Considerations in Combination Product Design and Development

Draft Guidance for Industry and FDA Staff

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Office of Combination Products in the Office of the Commissioner

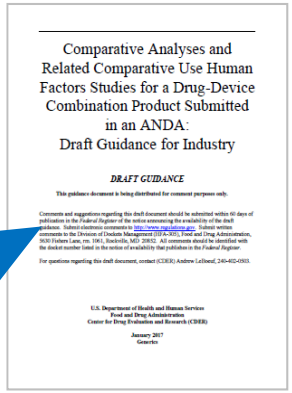
February 2016

- Use specification inc. training
- (Review of known use problems and complaints)
- (Task Analysis)
- Use related risk analysis
- Formative studies
- Summative studies
- (HFE summary report)

Generic

FDA draft Guidance 2017-
Comparative Analyses and Related Comparative Use Human Factors Studies for a Drug-Device Combination Product Submitted in an ANDA

- Threshold analysis
- Comparability study


Comparative Analyses and Related Comparative Use Human Factors Studies for a Drug-Device Combination Product Submitted in an ANDA:
Draft Guidance for Industry

DRAFT GUIDANCE

This guidance document is being distributed for comment purposes only.

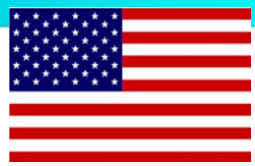
Comments and suggestions regarding this draft document should be submitted within 60 days of publication in the *Federal Register* of the notice announcing the availability of the draft guidance. Submit electronic comments to http://www.regulations.gov. Submit written comments to the Division of Dockets Management (HFA-305), Food and Drug Administration, 5630 Fishers Lane, rm. 1061, Rockville, MD 20852. All comments should be identified with the docket number listed in the notice of availability that publishes in the *Federal Register*.

For questions regarding this draft document, contact (CDER) Andrew LeBoeuf, 240-402-0503.

U.S. Department of Health and Human Services
Food and Drug Administration
Center for Drug Evaluation and Research (CDER)

January 2017
Generics

Dealing with the diversity within 1 region -
New Drug/Biosimilar vs. Generic 2/2



The threshold analysis to be delivered for an ANDA compares side by side and identifies/categorises differences :

-The physical characteristics of the device (or user interface)

-The task analysis

-The labelling

What about using the threshold analysis for a biosimilar using the same device?

What about using the threshold analysis when scaling down the HFE effort, for example when referencing data from a similar marketed product ?

Recent HFE Guidelines

IEC 62366-1:2015 Medical devices, Part 1: Application of usability engineering to medical devices

- Normative standard international, focusing on medical devices
- FDA is part of the committee

FDA Guidance 2016- Applying Human Factors and Usability Engineering to Medical Devices

- Focus on medical devices
- Published after the international guidance
- Includes a template for HFE/UE Summary Report to facilitate FDA review

Recent HFE Guidelines

MHRA 2017- Human Factors and Usability Engineering – Guidance for medical Devices including Drug-device combination product

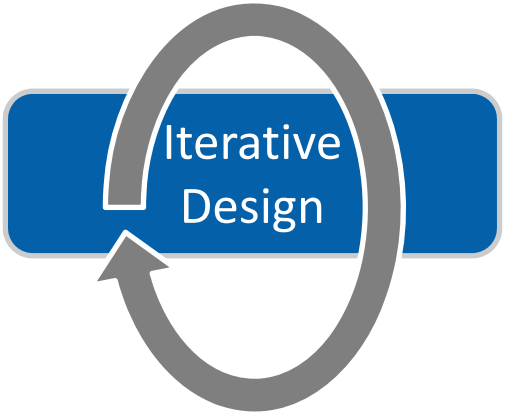
September 2017!

- All classes of medical devices AND combination product
- In line with the international and US guidance

Summary of common HFE process – Elements for new development

Preliminary Analysis

- Define intended use, patients, users, use environments, operational context of use, training, operating principle
- Known use problems, task analysis, use-related risk analysis, critical tasks
- User interface design and risk control requirements



- Iterative device development with formative user studies informing the design and evaluating effectiveness of risk controls.
- (including device, labeling, packaging and training)

Validation

- Summative evaluation to confirm safe and effective use

HFE / UE report

- Summary of all HFE activities
- Conclusion that user interface is optimized and that overall residual risk is outweighed by clinical benefit

Summary of common HFE process – Elements for comparison of products (generic)

Identify/caracterise the comparator and...

Users, uses, use environment	Compare intended use, patients, users, use environments, operational context of use, training, operating principle
Task analysis comparison	Side by side task analysis comparison and evaluation of differences
User Interface physical comparison	Side by side physical comparison of the user interface and evaluation of differences
Labelling comparison	Side by side comparison of the label and evaluation of differences
Optional: Comparability study	If major differences impacting risk are observed a comparative study is performed.

Dealing with the diversity of HFE guidance

The examples shows some of the challenges the industry has to deal with when implementing Human Factors guidance during the development of a medical device including drug:

- A large number of guidance across regions and specific topics
- Some diversity between the region in terms of definitions, process
- Some diversity within a region

Consequence:

- May increase the development time which delay the access of the patient to the drug
- Resource to comply to the regulation may be higher than the one focusing on the user interface design

The patient is the loser...

Can we do something? YES!

- Continue harmonizing and clarifying
- This effort has already started... The latest HFE guidance on medical devices provide a strong regulatory basis and are substantially harmonized.

Can we do better? YES!

- Get global agreement! Not easy and takes time...
- Further develop communication platforms where all stakeholders can meet/discuss and actively participate!
- Provide a clear picture of the guidance which are «out of date» or the one that can be applied for other products/region
- Be quicker... It is our duty to bring safe product to the patient as soon as possible!

Thank you!

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