AMERICA'S SBDC VIRGINIA

ICAP
Innovation Commercialization Assistance Program

Navigating the FDA Regulatory Process – Part 1

POWERED BY SBA
U.S. Small Business Administration

GEORGE MASON UNIVERSITY

The Virginia SBDC Network is funded in part through a cooperative agreement with the U.S. Small Business Administration, George Mason University, and local host institutions. The Virginia SBDC is credentialed in technology by America's SBDC.

Virginia SBDC-ICAP Funders

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Learning Objectives

- FDA History
- FDA's Role in Regulating Medical Devices
- What is a medical device?
- Device Classification Basics
- Regulatory Pathways
- Note About Quality Systems
- Next Steps

FDA History

- Oldest comprehensive consumer protection government agency
  - Since 1848 the federal government has monitored the safety of agricultural products. The department of Agriculture took over the responsibility in 1862 and was later taken over by FDA.
- FDA's real function began in 1906 with the passage of the Pure Food and Drugs Act prohibiting the interstate commerce of adulterated and misbranded food and drugs.
- 1976: Medical Device Amendments to Federal Food,

  Drug, and Cosmetic Act (FD&C Act)

FDA History – contin.

- FDA has changed as a result of social, economic, political, and legal changes in the US.
- The focus of the FDA has been to promote public health and safety.

https://www.fda.gov/about-fda/fda-history

FDA's Role

- Regulations covered food, drugs, biologics, cosmetics, animal and veterinary medicine, and tobacco.
- Without regulatory clearance by the FDA even the most innovative and important breakthroughs in medical technology will never reach patients.
- The steps involved in determining the safety and effectiveness are often complex and based on data that is often imperfect.
- The process can seem vague, arbitrary, and long at times.

FDA's Role Cont'd

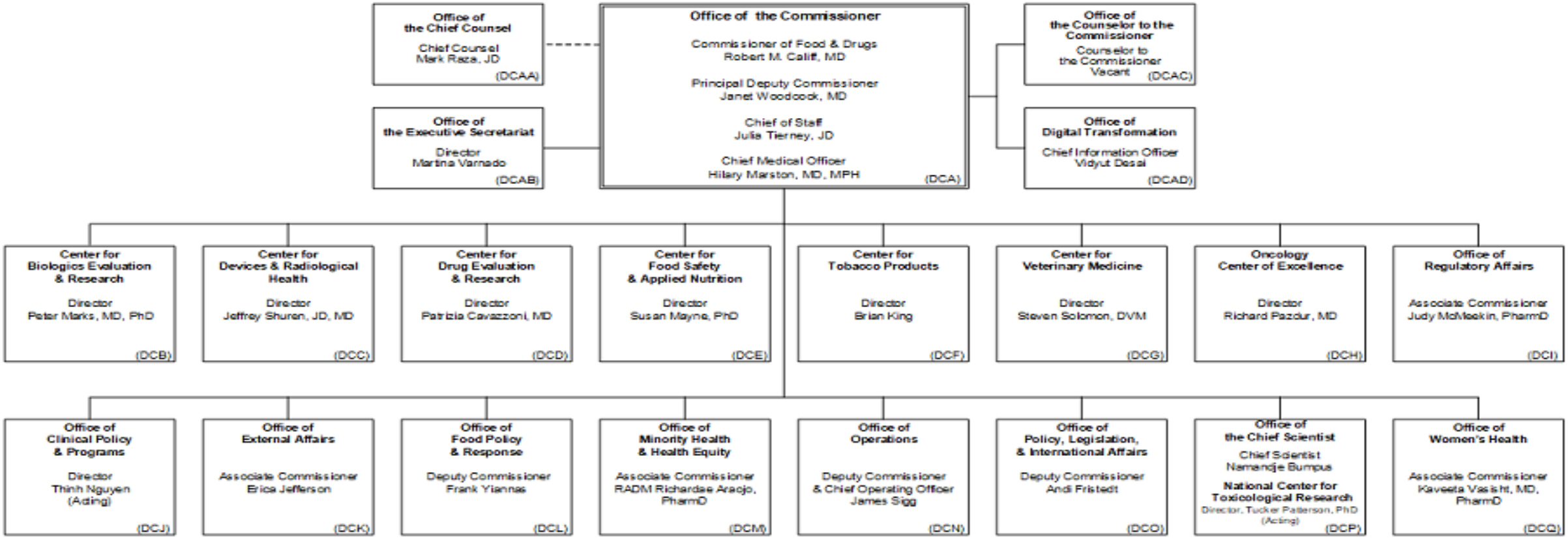
- Regulatory issues impact product design and development.
- It is very important for the innovator to understand the regulatory process and terms in order to provide effective leadership in the biodesign design process.
- Choosing the right regulatory pathway is critical.
- The FDA is a regulatory, scientific, and public health agency that overseas products that account for roughly 25% of all consumer products.

Office of Device Evaluation (ODE): Five Major Divisions

- Division of General, Restorative and Neurological Devices
- Division of Cardiovascular Devices
- Division of Ophthalmic and ENT Devices
- Division of Reproductive, Abdominal, and Radiological Devices
- Division of Anesthesiology, General Hospital, infection control and Dental Devices.

Department of Health and Human Services
Food and Drug Administration

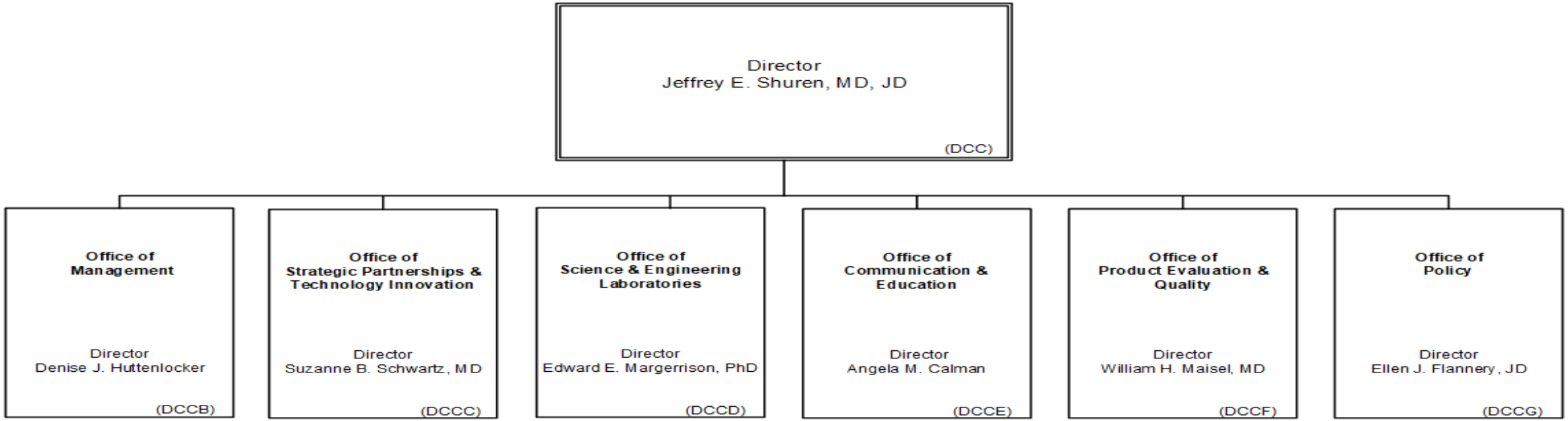
October 2022



Legend:
- - - Direct report to DHHS General Counsel

June 2021

Department of Health and Human Services
Food and Drug Administration
Center for Devices and Radiological Health



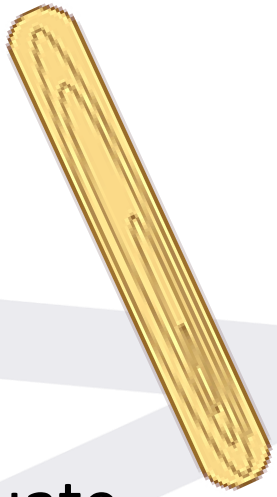
Medical Devices - Defined

An instrument, apparatus, machine, implant, in vitro reagent, including a component part or accessory which is

- Recognized in the official National Formulary
- Diagnosis, cures, mitigates, treats or prevention of disease in a patient or animals
- Affects the structure or function of any part of a patient or an animal
- Does not include software functions – data storage, administrative support, electronic patient records (there may be exceptions)
- In order to market or sell a medical device, it **must be** registered, cleared, or approved by the FDA.

Section 201(h) FD&C Act

Device Classifications – Class I



- Present minimal potential for harm
- Typically have a simple design
- Most are exempt from premarket clearance
- No clinical trials, proof of safety and or efficacy since a adequate predicate device exists
- Not subject to all of the requirements of 21 CFR Part 820

Note: 21 CFR Part 820: covers the design, manufacture, packaging, labeling, storage, installation, and servicing of all finished devices intended for human use," including the facilities and designs used for those processes. (cGMP)

Device Classification – Class I cont'd.

FDA Requirements:

- Establishment registration with FDA
- Medical device listing
- General FDA labeling requirements
- Compliance with quality system regulation (QSR)

Examples: bandages, exam gloves, tongue depressors, surgical masks, stethoscopes, etc.

Device Classification – Class II

Description:

- Tend to be non-invasive
- More complex design than Class I devices
- Must provide data the the device will perform as expected
- Must show that the device will not harm or cause injury to users,

  for FDA clearance to legally market the device

Device Classification – Class II contin.

FDA Requirements:

- Must be cleared though the **510(K)** process, unless exempt
- Follow special labelling requirements
- Must provide performance standards.
- Set up and follow post-market surveillance

dreamstimefree_4559056.jpg

Examples: x-ray machines, powered wheel chairs, infusion pumps, syringes, contact lenses, etc.

Device Classification – Class III

Description:

- Typically implantable, therapeutic or life-sustaining devices
- A predicate device may or may not exist in this class

FDA Requirements:

- Most require approval through the Pre Market Approval.
- Must meet all the requirements of Class I and Class II

Examples: replacement heart valves, implantable pace maker, cerebrellar stimulators, etc.

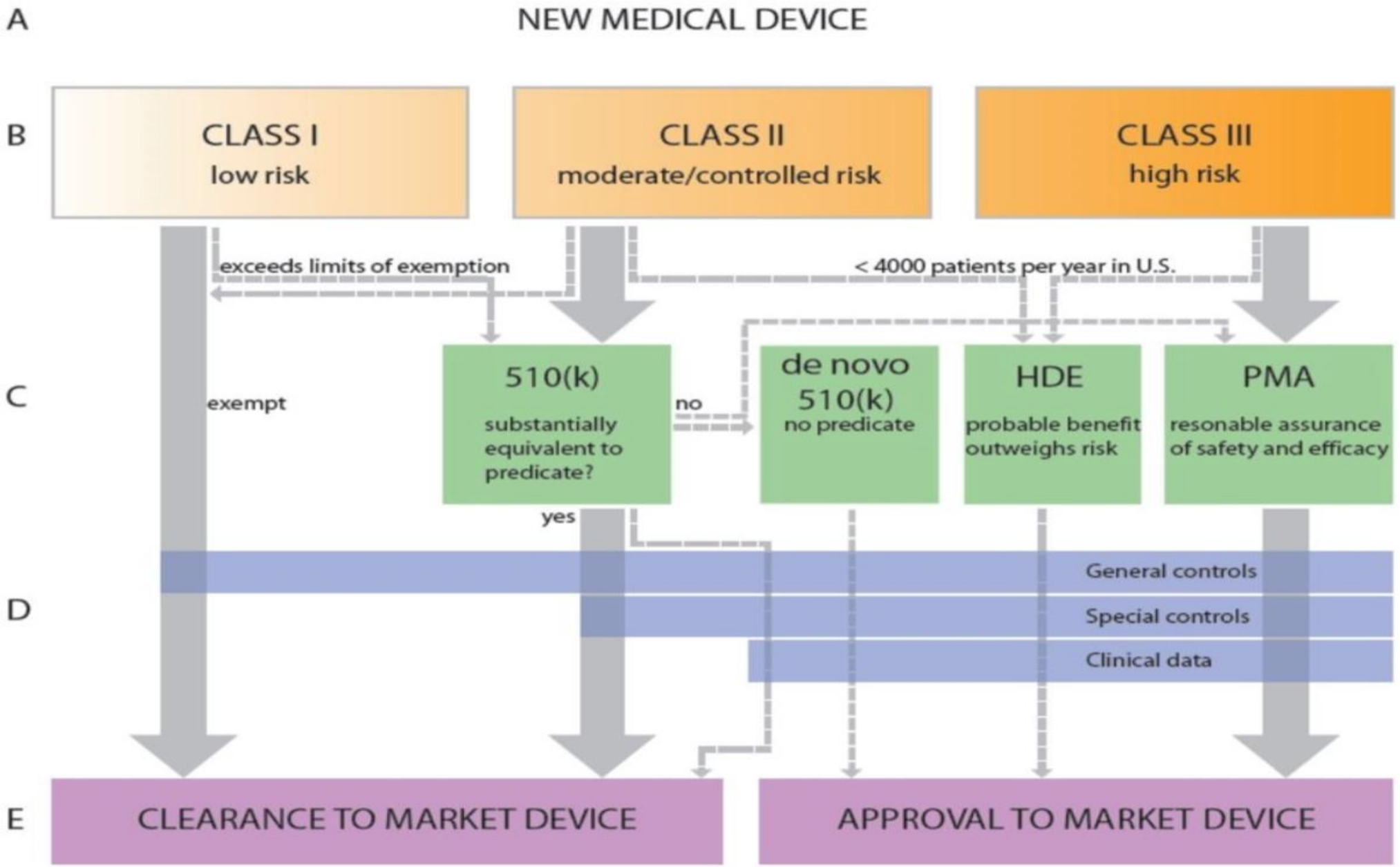
Classes of Medical Devices - Summary

CLASS	RISK LEVEL	CONTROLS	SUBMISSION
I	Lowest	General	• Exempt, most common • 510(k)
II	Moderate	General & Special, if required	• 510 (k), most common • Exempt
II	Highest	General & PMA	• PMA

General Controls - examples

CONTROL	REGULATION (21 CFR Part)	Description
Labeling	801	Provides product information for users
Medical Device Reporting	803	Report device related injuries & deaths
Establishment Registration	807	Register business with FDA
Device Listing	807	Identify medical device
Quality Management System	820	Ensure safe, effective finished medical devices
Adulteration	FD&C Act 501	Medical device not proper for intended use
Misbranding	FD&C Act 502	Addresses false or misleading labeling

FD&C Act – Federal Food, Drug & Cosmetic Act


A
NEW MEDICAL DEVICE
B
CLASS I
low risk
CLASS II
moderate/controlled risk
CLASS III
high risk
exceeds limits of exemption
< 4000 patients per year in U.S.
C
exempt
510(k)
substantially equivalent to predicate?
no
de novo 510(k)
no predicate
HDE
probable benefit outweighs risk
PMA
resonable assurance of safety and efficacy
yes
D
General controls
Special controls
Clinical data
E
CLEARANCE TO MARKET DEVICE
APPROVAL TO MARKET DEVICE

Basic Steps to a New Medical Device to Market

1. Establish the medical device
   - Identify device description
   - Describe purpose, including, intended use, indications for use, duration of use, and target patient population
2. Verify that the product is a medical device
3. Identify classification & regulatory pathway – classification will indicate premarket submission required
4. Develop valid data that the device is safe and effective (reference CFR 860.7 (c)(1) and (2)
5. Prepare and submit premarket submission

Premarket Submission Pathways

- Investigational Device Exemption - IDE
- Premarket Notification – 510(k)
- Premarket Approval Application – PMA
- De Novo
- Humanitarian Device Exemption - HDE

Pathway: Investigational Device Exemption -IDE

- Enables an investigational device to be used in a clinical study
- Purpose is to collect safety and effectiveness data
- Requires approval by an institutional review board (IRB)
- Must have informed consent from all patients
- Device must be labeled “For Investigational Use Only”
- Requires detail records & reports

Pathway: Premarket Notification – 510(k)

- Notification of intent to market a new or modified medical device – at least 90 days in advance of launch
- Enables FDA to determine if the device is equivalent to an existing device and the extent that safety or effectiveness are affected
- Medical device must show substantial equivalence to predicate device currently on the market
- Comparison based on intended use, device features, & performance testing

Pathway: Premarket Approval Application (PMA)

- Market application for highest rick medical devices
- Required of Class III medical devices
- Approval must be received prior to marketing
- Requires reasonable assurance of safety and effectiveness
- Evidence does not rely on predicate device – it stands on it own
- FDA provides an administrative check list to facilitate the application

Pathway: De Novo

- Classification process for a novel medical device
- No existing classification regulation
- Created a new classification
- Application is complex
- Tip: if considering this pathway, submitting a Pre-Submission to the appropriate premarket review division for feedback and recommendation for next steps

Pathway: Humanitarian Device Exemption (HDE)

- Humanitarian Use Device (HUD) is a medical device intended to benefit patients in the treatment or diagnosis of a disease or condition that affect no more than 8,000 people per year in the U.S.
- Humanitarian Device Exemption (HDE)is a marketing application for a HUD device.
- Exempt from proof of effectiveness
- Only reasonable assurance of safety & probable benefit required

Key Resources

1. **Device Advice**: www.fda.gov/DeviceAdvice
   - Pages of product life cycle information
   - "How to " guides and webinars

2. **Center for Devices and Radiological Health (CDRH):**
   - https://www.fda.gov/training-and-continuing-education/cdrh-learn
   - Multi-media training modules
   - Sign on to the CDRH mailing list

Key Resources – cont'd

3. **Division of Industry and Consumer Education (DICE)**
    - http://www.DICE@fda.hhs.gov
    - Office Hours: M-F 9:00 am – 12:30 pm and 1:00 pm – 4:30 pm
    - Email: dice@fda.hhs.gov
        - Usual response time – 2 days
4. **Overview of Device Regulation** - https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/overview-device-regulation

Key Resources – cont'd

5. **Device Approvals, Denials, and Clearances** - https://www.fda.gov/medical-devices/products-and-medical-procedures/device-approvals-denials-and-clearances
6. **"FDA History."** https://www.fda.gov/about-fda/fda-history.
7. Zenios, Stefanos, ed., Makower, Josh, ed., and Yock, Paul, ed. Biodesign The Process of Innovating Medical Technologies. Cambridge: Cambridge University Press, 2010.
8. Requests for Feedback and Meetings for Medical Device Submissions: The Q-Submission Program - https://www.fda.gov/regulatory-information/search-fda-guidance-documents/requests-feedback-and-meetings-medical-device-submissions-q-submission-program

NOTES and LINKS:

1. “FDA History.” https://www.fda.gov/about-fda/fda-history.
2. Zenios, Stefanos, ed., Makower, Josh, ed., and Yock, Paul, ed. Biodesign The Process of Innovating Medical Technologies. Cambridge: Cambridge University Press, 2010.
3. “FDA Drug Approval Process Infographic”. https://www.fda.gov/drugs/information-consumers-and-patients-drugs/fda-drug-approval-process-infographic-horizontal

The FDA Regulatory process is complex:

- FDA evaluates safety and effectiveness
- Classification are based on class type, regulatory control and submission requirements.
- Has different types of premarket submissions
- FDA approval does not insure that a market exists or economically large enough

Next Steps:

1. Understand your regulatory responsibilities - Start planning early
2. Use FDA resources – visit FDA's website often
3. Ask questions – don't assume
4. Stay informed – FDA requirements can and do change
5. Contact the appropriate person at FDA

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For more information:
https://www.virginiasbdc.org/icap-programs/

ICAP Program Application:

https://www.virginiasbdc.org/programs/icap/icap-application/

ICAP Overview

- Program – collaboration of GMU and Virginia SBDC
- Assist early-stage technology and innovation-driven startups
- One-on-one advising from a highly successful team of ICAP Mentors
- Lean Startup-based instruction/mentoring
- Business model development and go-to-market (GTM) strategy
- Work with startups from ideation through investment and early scaling