Leveraging Partnerships with the FDA: Advice for Startups

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Agenda

AbiliLife’s Story
Engaging with the FDA
AbiliLife FDA Engagement and Product Roadmap
Conclusions
The Journey

1989

2005

Spelman College
A Choice to Change the World

2009

Carnegie Mellon University

2013

Biomedical Engineering

2014

alpha lab
gear

2015

FDA

2016

NSF

2016

CMS

2017-2019

FDA

Carnegie Mellon

Blue Cross Blue Shield

Humana
The Product

**Intended Use/Indication for Use:**
Back brace designed specifically for geriatric and neuromuscular patients (i.e. Parkinson’s disease, spinal stenosis, osteoporosis, etc.).

Rolls shoulders up and back for more natural and healthy posture.

Rigid back panel supports from tailbone to the top of the shoulder blades.

**Classification:** I, Exempt  
**Regulation:** 21 CFR 890.3490  
**Description:** Truncal Orthosis  
**Code:** IQE
Post-Marketing: 2016 - Today

Then:

Originally designed for PD patients

Now:

600 Pre-existing codes didn’t include PD

Sole-providership helped with payment

+20
The Web:
FDAN Strategy
Interlinked with
Innovation
And Business Needs

Meet Patient, Caregiver, Business Needs
Advance Science
Engaging with the FDA
| Design validation to conform to user needs |
| Design validation under actual/simulated use conditions |
| Design input requirements |
| Design risk analysis |
| Document review and approval |

... not an exhaustive listing of objectionable conditions!
FDA Warning Letter, 2015

- Devices listing
- Receiving, reviewing, evaluating complaints
- Failure to meet product specifications
- Corrective and Preventive Actions (CAPAs)
- Software, data processing systems validation
- Evaluation of potential suppliers
- Records of acceptable suppliers
- Device history records not established
- Quality audits

…. not an exhaustive listing of objectionable conditions!

.....another warning letter in 2016!
June 15, 2018: Theranos Founder and Former Chief Operating Officer Charged in Alleged Wire Fraud Schemes

Food and Drug Administration
Office of Criminal Investigations

U.S. Department of Justice Press Release

Elizabeth Holmes and Ramesh “Sunny” Balwani Are Alleged to Have Perpetrated Multi-million Dollar Schemes to Defraud Investors, Doctors, and Patients
What is FDA?

FDA Regulates: $1 trillion worth of products a year

FDA Mission: Protect & Promote US Health

FDA Modernization: Streamline, Expedite, Incentivize, Least Burdensome Approach*

Leverage by early engagement and partnership with FDA

* : Minimum amount of necessary information, most efficient manner, right time
What is a Medical Product?

For Disease

DIAGNOSE  CURE  MITIGATE  TREAT  PREVENT

AFFECT STRUCTURE or any FUNCTION of body
CHEMICAL ACTION within or on body (Drug only)

Software as a Medical Device (SaMD)

DIAGNOSE  TREAT  DRIVE clinical management  INFORM clinical management

General Fitness / Wellness Trackers (count steps, sleep comfort....)
SaaS for consumer use/convenience/entertainment (hail ride, order food, ....)
How to Market a Medical Product?

Establish RASE: Reasonable Assurance of Safety and Effectiveness

**Benefit > Risk**

**EFFICACY**
- Evidentiary & Manufacturing Standards

**SAFETY**
- Risk Management

**QUALITY**

**SURVEILLANCE**
- Manufacture
- Safety
- Real World Use
- New Research

**Product Label**

**Market Authorization**

**Product Label Update**

**Product Optimization**
MEDICAL PRODUCT STARTUP IS PARTICULARLY TOUGH

Understanding the regs

Constantly evolving landscape

Information Overload

Unclear Pathway

Novel Products
Competition
Pivots
Budget
Resources
Funding
Investors
Timelines
Value Proposition
ROI

…

Understanding the regs

Constantly evolving landscape

Information Overload

Unclear Pathway
The Starting Point (devices)

Concept - Prototype  The technology

Use and Claims  What is its use, in which populations, which conditions, what outcomes...

Competitive Strategy
- Substantially equivalent (limited differentiation from ‘predicate’)
- Not be substantially equivalent (differentiation)
- No relevant predicate (trailblazer)

your business concept

your FDA strategy

1 LABELING
2 REGULATORY PATHWAY
3 DEVELOPMENT & QUALITY OPTIMIZATION
4 MARKETING STRATEGY
I. Labeling

Primary source of legal information for patient, caregivers, physicians, payers

- Intended Use* (overall purpose of device)
- Indications for Use* (population, condition, endpoints .. substantiated by VALID SCIENTIFIC EVIDENCE)
- Contraindications, Warnings, Precautions
- Instructions for Use: Physician, Patient
- Device Description
- Specifications
- Safety
- Effectiveness

* START
  - REVIEW
  - REVISE
  - UPDATE
II. Regulatory Pathway

Determined by proposed labeling, associated risk, legal existence of ‘predicate’

- Registration, Listing
  - Class I (Exempt)
  - 510(k) Class II (Predicate)
  - De Novo Class I/II (No predicate)
  - PMA Class III
  - Humanitarian Device Exemption (rare disease)

- Medical Device Development Tool (MDDT)
- Case for Quality
- Accreditation Scheme for Conformity Assessment (ASCA)
- Software Pre-Certification (Pre-Cert)

*: Recent initiatives, pilot programs
# Labeling - Risk - Regulatory Pathway

## Low Risk
- **Class I:** ~ 47% Pathways
  - ~ 95% Exempt
  - Few De Novo

## Moderate Risk
- **Class II:** ~ 43% Pathways
  - 510(k)
  - 510(k) exempt
  - De Novo

## High Risk
- **Class III:** ~ 10% Pathway
  - PMA

## Impact of Proposed Label
- **Surgical Apparel:** Exempt
- **Wrap for Restless Leg Syndrome:** *De Novo*
- **Hearing Aids:**
  - Air Conduction: *510(k) exempt*
  - Bone Conduction: *510(k)*
  - Self-Fitting: *De Novo*
- **App for addiction therapy:** *De Novo*
- **Pacemaker**
- **Artificial lung**
De Novo Pathway

Trailblazing..novel device showcasing advanced technology
Unique, patient focused labeling
First to Market
Strategies to delay competition

DATA SOURCE: FDA
III. Development & Quality Optimization

EVIDENCE
- establishing RASE
- desired Labeling

Apply ‘Least Burdensome Principles’

NEED FDA alignment

Bench Testing | Nonclinical Testing | Clinical Testing
---|---|---
Controls: General, Special

Quality: Lab, Clinical, Manufacturing

Company Culture of Excellence (CoE)

Opportunities to Expedite Breakthrough designation, Humanitarian Use

Novel Approaches:
Early Feasibility Studies, Adaptive Clinical Design, Real-World Evidence, Patient Preference, Early CMS feedback
FDA Quote: "Most, if not all advertising, is labeling"
FDA conducted a query of the MDR database for all reports entered between January 1, 2008 and October 31, 2018 referring to a saline- or silicone-filled breast implant with the following search terms taken from the website Healing Breast Implant Illness.

FDA Quote: "FDA monitors reports of adverse events and other problems with medical devices, alerts health professionals and public .."
IV. Marketing Strategy

Beginning of Product Lifecycle

Demonstration of Company Responsibility

Gateway for Product Enhancement

FDA Warning for Noncompliance

Advertising and Promotion

Safety Surveillance: Adverse Events

Safety Surveillance: Malfunction

Manufacturing changes

Product Alerts, Recalls

New Business

New Indication

New Population

New Product
Why Early and Continued FDA engagement?

Align of desired Labeling and Streamlined Development Pathway - particularly for De Novos

Obtain strategic FDA feedback to refine Differentiation Options and Decision Making

Critical for successful Funding - particularly SBIR/STTR, DoD

Important for VCs as well - particularly after Theranos debacle

Adds to Exit Strategy and Valuation

No fees

FDA White Oak Campus in MD
FDA is NOT a consultant- prepare accordingly

Up-to-date Regulatory Intelligence vital - best positioning of company proposals

Poor briefing document - unanticipated FDA queries, suboptimal feedback

All captured in meeting minutes - permanent in FDA database

Poor performance - FDA’s assessment of company merit and capabilities

FDA strategy and engagement NOT a DIY activity - wise to invest in right expertise
Effective FDA Meetings

Build partnership
Be Well Prepared

1. **RIGHT TIMING**
   - Draft Labeling + device description + study proposals substantiate
   - Strategic questions NOT covered by FDA public info
   - PRIOR to initiating critical studies

2. **RIGHT CONTENT**
   - Well written briefing document with “Specific Questions” - not information dump
   - Utilize guidance documents to the fullest

3. **RIGHT CONDUCT**
   - Be in the lead w/ collaborative attitude
   - Make sure all questions covered
   - Give counterpoints - grounded in science, data, regs

4. **RIGHT PEOPLE**
   - FDA Liaison expertise
   - Technical and Therapeutic expertise
   - Special FDA experts (eg Payor strategy)
AbiliLife
FDA Engagement
and
Product Roadmap
Label Development: Differences in wording impacting Evidentiary Requirements and Submission Strategy

Alert for High Fall Risk $$$

Versus

Reduce Fear of Fall $$$$$

Versus

Prevention of Fall $$$$$$$$$$$
Continuous FDA Engagement

2016
- FDA Pre-Submission Meeting: Full portfolio
- CMS Contact
- Comment on draft
- FDA Guidance
- Member, Coalition for Software guidances

2017
- Pre-Submission Supplement: Software Platform
- Followup FDA T/Cs
- Battelle/CMS contact on Quality Payment Strategies
- FDA MDDT designation Submission

2018
- Pre-Submission Supplement: Portfolio, Life Cycle Optimization, Rare disease development
- Parallel FDA-CMS feedback
- Private Payer, VA engagement
2017-2018: Calibrace+ Post-Marketing Experience

CORE COMPETENCIES

- Certified durable medical equipment company (Board of Certification/Accreditation)
- HCPCS codes L1310; L0650; L0651; L0648; L04574

PORTFOLIO OPTIMIZATION

Calibrace+:
- Extension of population: Neuromuscular diseases
- Extension of indication: Lower back pain

Smart Calibrace
- Extension of population and subgroups
- Patient Reported Outcome endpoints meaningful to both FDA and CMS

ICD-10 code, L0457; eligible for use for over 600 diagnosis codes

Real-World Evidence

PORTFOLIO OPTIMIZATION

Additional Device Description
Claim:

Only back brace that improves posture and balance by lifting the shoulders up and back and giving entire back support
2018: AbiliLife Optimized Portfolio based on Post-Marketing Experience - FDA Pre-Submission Supplement Meeting
Conclusions
Impact of FDA Engagement on External Communications

Portfolio Value Enhancement

E.g. Manufacturer, Distributor, Investor, Grant Applications

Value Assessment of Portfolio
Summary of Learnings as an Entrepreneur

• Interact with the FDA early and often
• Make sure that your investors understand the FDA process
• View the FDA as a partner and not as a foe
• Understand the value of having an FDA approved product for when you value your company