CONNECTS Seminar

Leveraging Partnerships with the FDA : Advice for Startups

Courtney Williamson, PhD,
CEO, AbiliLife

Elora Gupta, PhD,
Project Olympus Advisor

Swartz Center for Entrepreneurship
Carnegie Mellon University

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Agenda

AbiliLife's Story

Engaging with the FDA

AbiliLife FDA Engagement and Product Roadmap

Conclusions

Story

The Journey

1989

Spelman College
A Choice to Change the World

2005

Carnegie Mellon University

2009

BIOMEDICAL ENGINEERING
Carnegie Mellon

2013

alphalab gear

2014

FDA

2015

NSF

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

2016

FDA

2016

aetna™

BlueCross BlueShield

Humana.

2017-2019

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

FDA Reg.& Listed # 3011170501

CMS DME-HCPCS Code L047

Post-Marketing : 2016 - Today

Then:

Originally designed for PD patients

Only CMS reimbursed for the Calibrace+

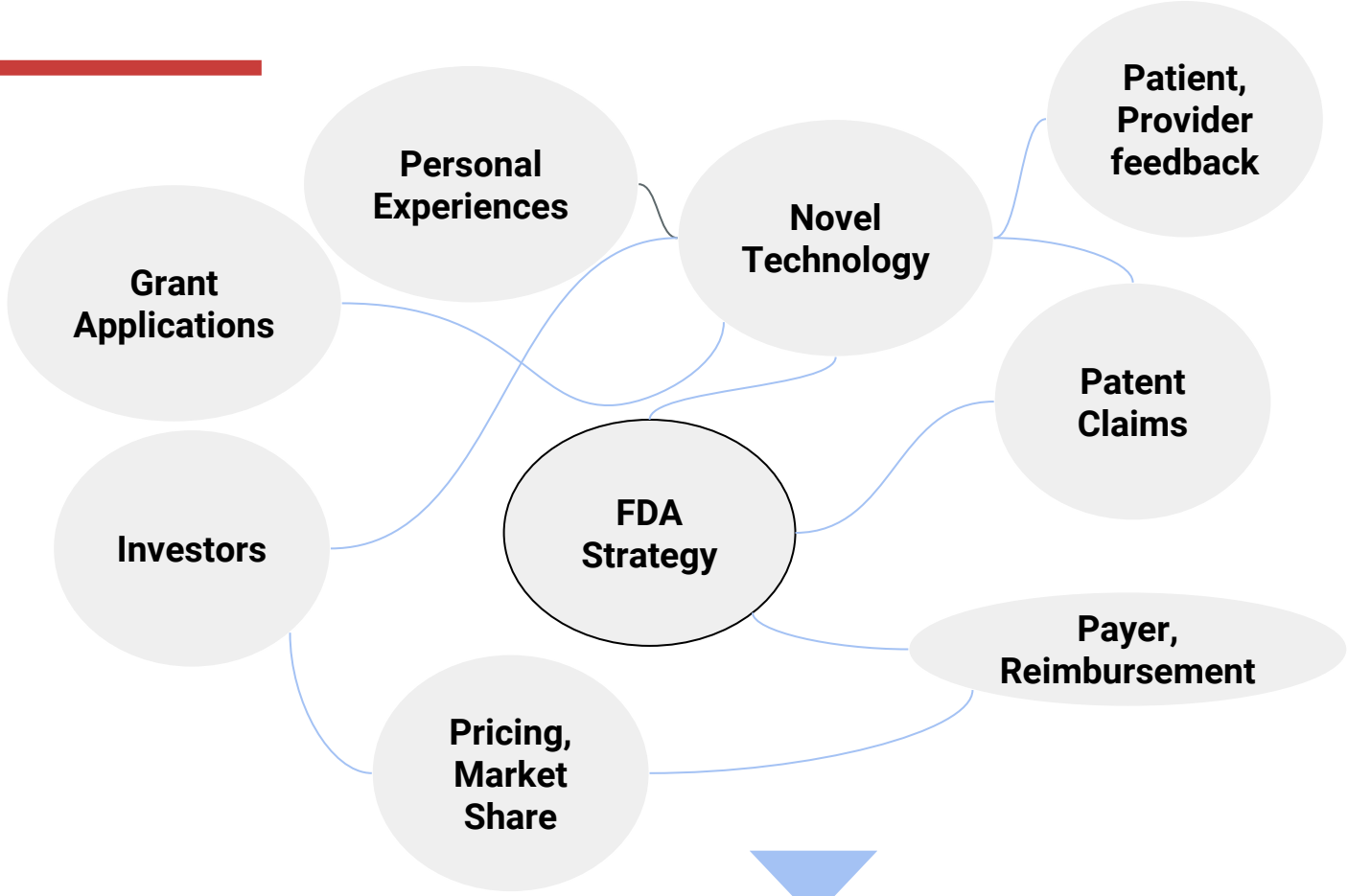
Now:

600 Pre-existing codes didn't include PD

+20

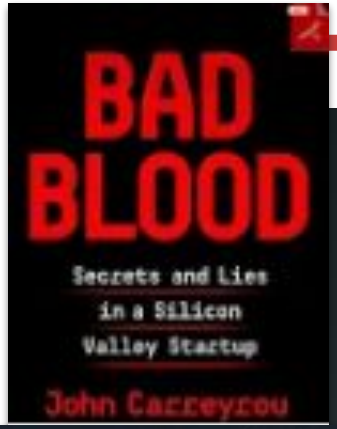
Sole-providership helped with payment

The Web:
FDA Strategy Interlinked with Innovation And Business Needs

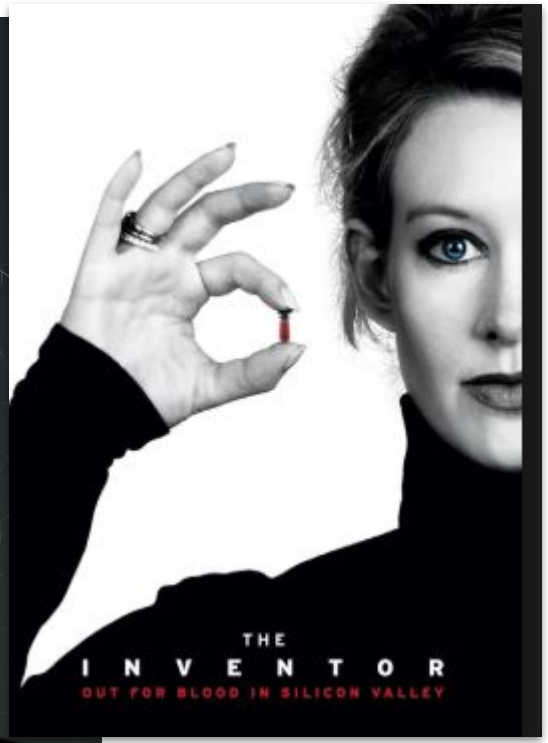


Meet Patient, Caregiver, Business Needs
Advance Science

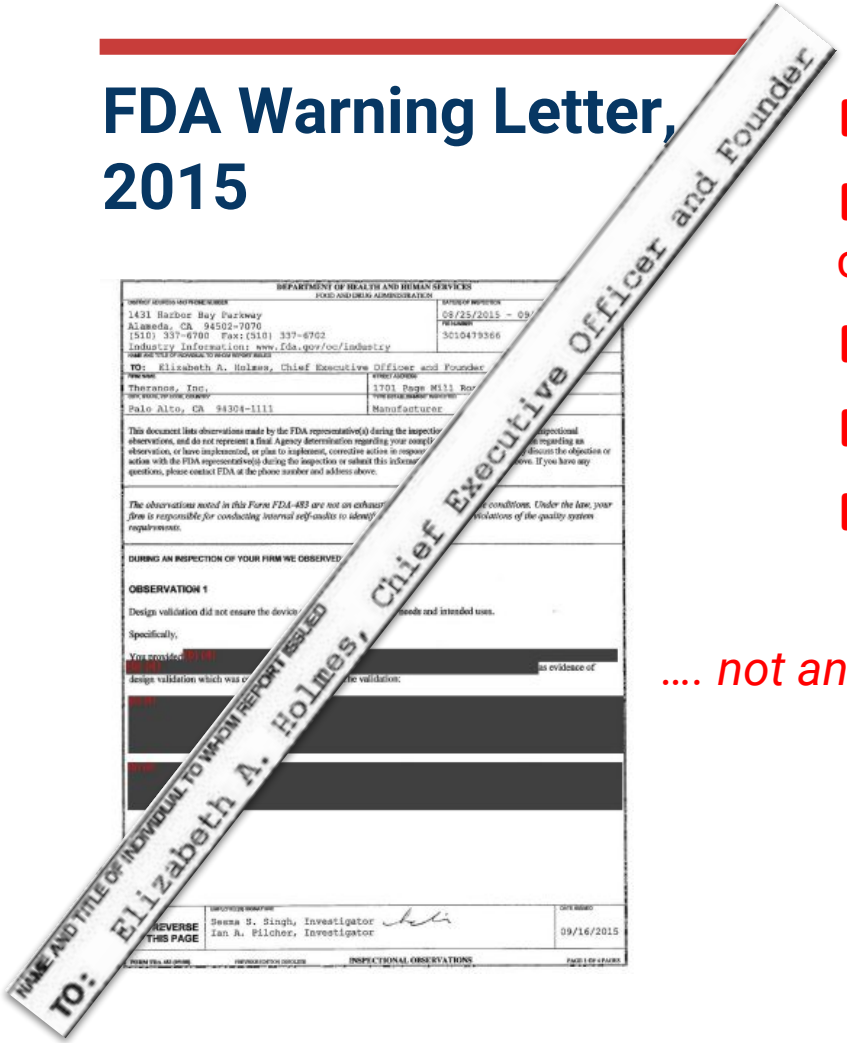
Engaging with the FDA


BAD
BLOOD
Secrets and Lies
in a Silicon
Valley Startup
John Carreyrou


nightline
THE
DROP
OUT


THE
INVENTOR
OUT FOR BLOOD IN SILICON VALLEY

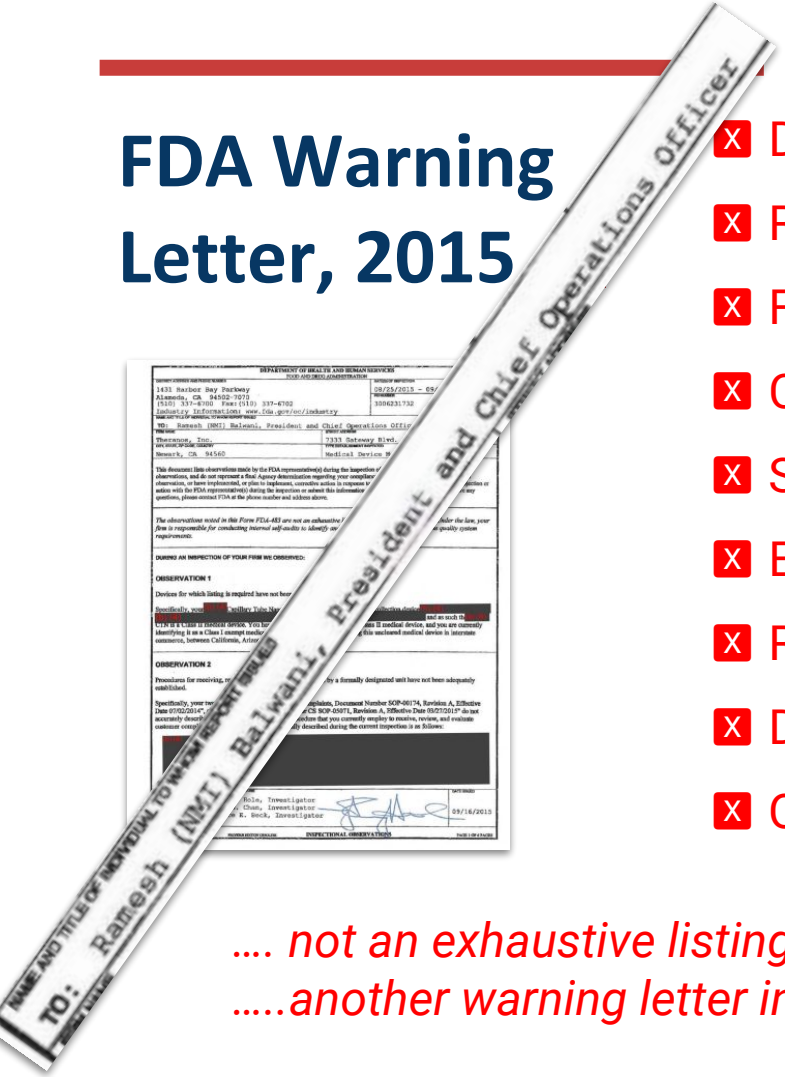
FDA Warning Letter, 2015



- X Design validation to conform to user needs
- X Design validation under actual/simulated use conditions
- X Design input requirements
- X Design risk analysis
- X Document review and approval

…. not an exhaustive listing of objectionable conditions !

FDA Warning Letter, 2015



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

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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

SAFETY

QUALITY

Evidentiary & Manufacturing Standards

Risk Management

Product Label

Market Authorization

SURVEILLANCE

Manufacture

Safety

Real World Use

New Research

Product Label Update

Product Optimization

MEDICAL PRODUCT STARTUP IS PARTICULARLY TOUGH

Novel Products

Competition

Pivots

Budget

Resources

Funding

Investors

Timelines

Value Proposition

ROI

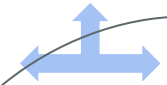
Understanding the regs

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

.

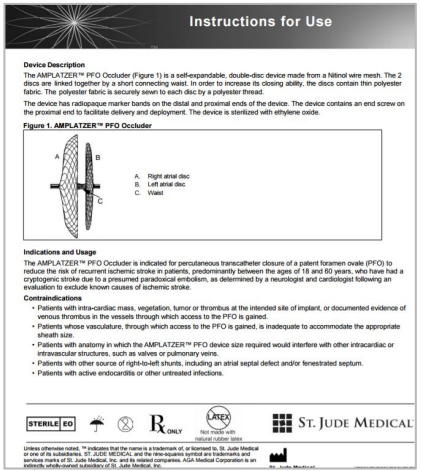
.

.

REVIEW

REVISE

UPDATE



Instructions for Use

Device Description

The AMPLATZER™ PFO Occluder (Figure 1) is a self-expandable, double-disc device made from a Nitinol wire mesh. The 2 discs are linked together by a short connecting waist. In order to increase its closing ability, the discs contain thin polyester fabric. The polyester fabric is securely sewn to each disc by a polyester thread.

The device has radiopaque marker bands on the distal and proximal ends of the device. The device contains an end screw on the proximal end to facilitate delivery and deployment. The device is sterilized with ethylene oxide.

Figure 1. AMPLATZER™ PFO Occluder

A. Right atrial disc
B. Left atrial disc
C. Waist

Indications and Usage

The AMPLATZER™ PFO Occluder is indicated for percutaneous transcatheter closure of a patent foramen ovale (PFO) to reduce the risk of recurrent ischemic stroke in patients, predominantly between the ages of 18 and 60 years, who have had a cryptogenic stroke due to a presumed paradoxical embolism, as determined by a neurologist and cardiologist following an evaluation to exclude known causes of ischemic stroke.

Contraindications

- Patients with intra-cardiac mass, vegetation, tumor or thrombus at the intended site of implant, or documented evidence of venous thrombus in the vessels through which access to the PFO is gained.
- Patients whose vasculature, through which access to the PFO is gained, is inadequate to accommodate the appropriate sheath size.
- Patients with anatomy in which the AMPLATZER™ PFO device size required would interfere with other intracardiac or intravascular structures, such as valves or pulmonary veins.
- Patients with other source of right-to-left shunts, including an atrial septal defect and/or fenestrated septum.
- Patients with active endocarditis or other untreated infections.

STERILE EO Rx ONLY LATEX Not made with natural rubber latex ST. JUDE MEDICAL

Unless otherwise noted, ™ indicates that the name is a trademark of, or licensed to, St. Jude Medical or one of its subsidiaries. ST. JUDE MEDICAL and the nine-squares symbol are trademarks and services marks of St. Jude Medical, Inc. and its related companies. AGA Medical Corporation is an indirectly wholly-owned subsidiary of St. Jude Medical, Inc.

II. Regulatory Pathway

Determined by proposed labeling, associated risk, legal existence of 'predicate'

Medical Product & Accessory

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)

Tool for Medical Product dev. *

Medical Device Development Tool (MDDT)

Case for Quality

Accreditation Scheme for Conformity Assessment (ASCA)

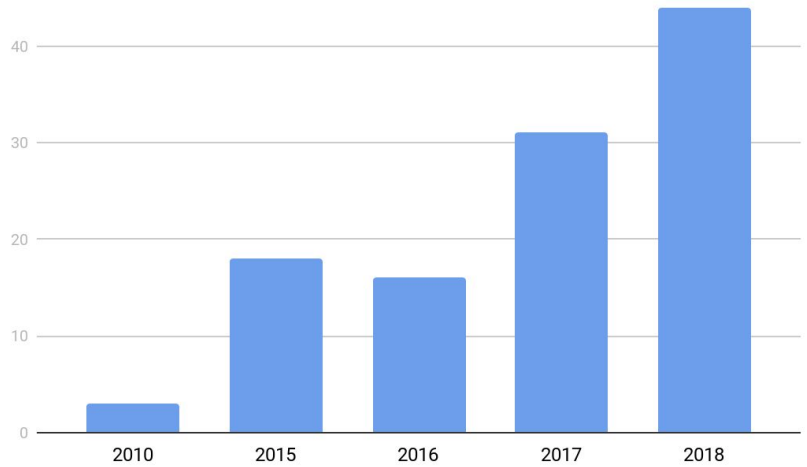
Software Pre-Certification (Pre-Cert)

*: Recent initiatives, pilot programs

Labeling - Risk - Regulatory Pathway

Low Risk	Moderate Risk	High Risk
Class I: ~ 47% Pathways - ~ 95% Exempt - Few De Novo	Class II: ~ 43% Pathways - 510(k) - 510(k) exempt - De Novo	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



DATA SOURCE: FDA

Trending for CMU Startups

Trailblazing..novel device showcasing advanced technology

Unique, patient focused labeling

First to Market

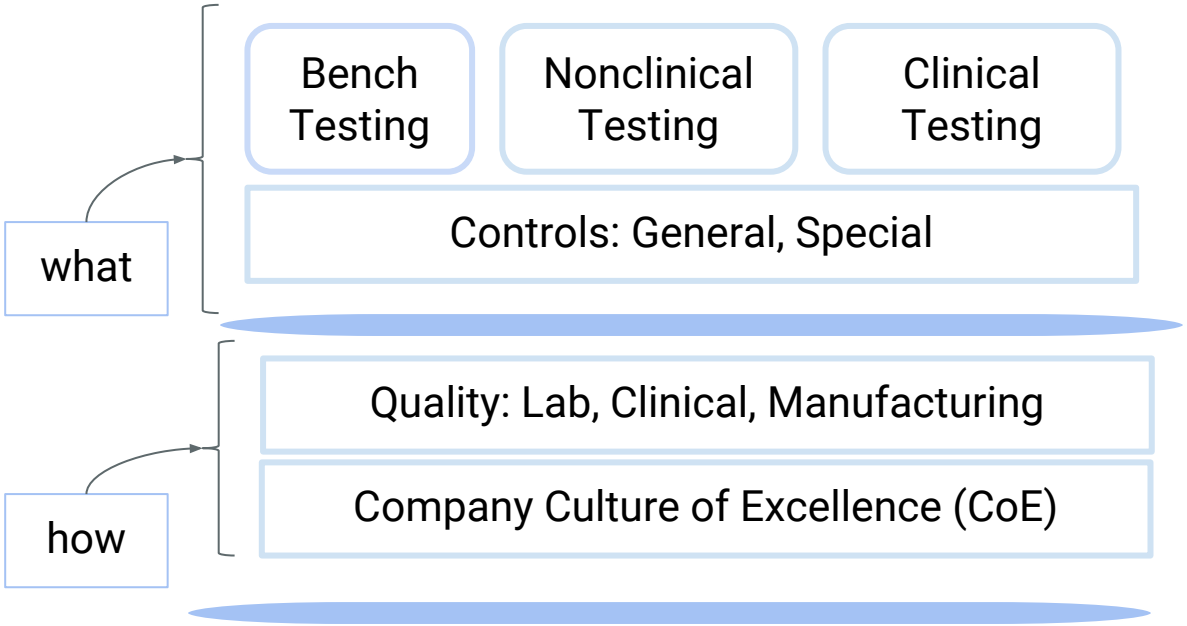
Strategies to delay competition

III. Development & Quality Optimization

EVIDENCE
-establishing RASE
- desired Labeling

Apply ‘Least Burdensome Principles’

NEED FDA alignment



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"*

Medical Device Advertising

17 Pins • 368 Followers

by HCB Health

Medical Device AD

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*

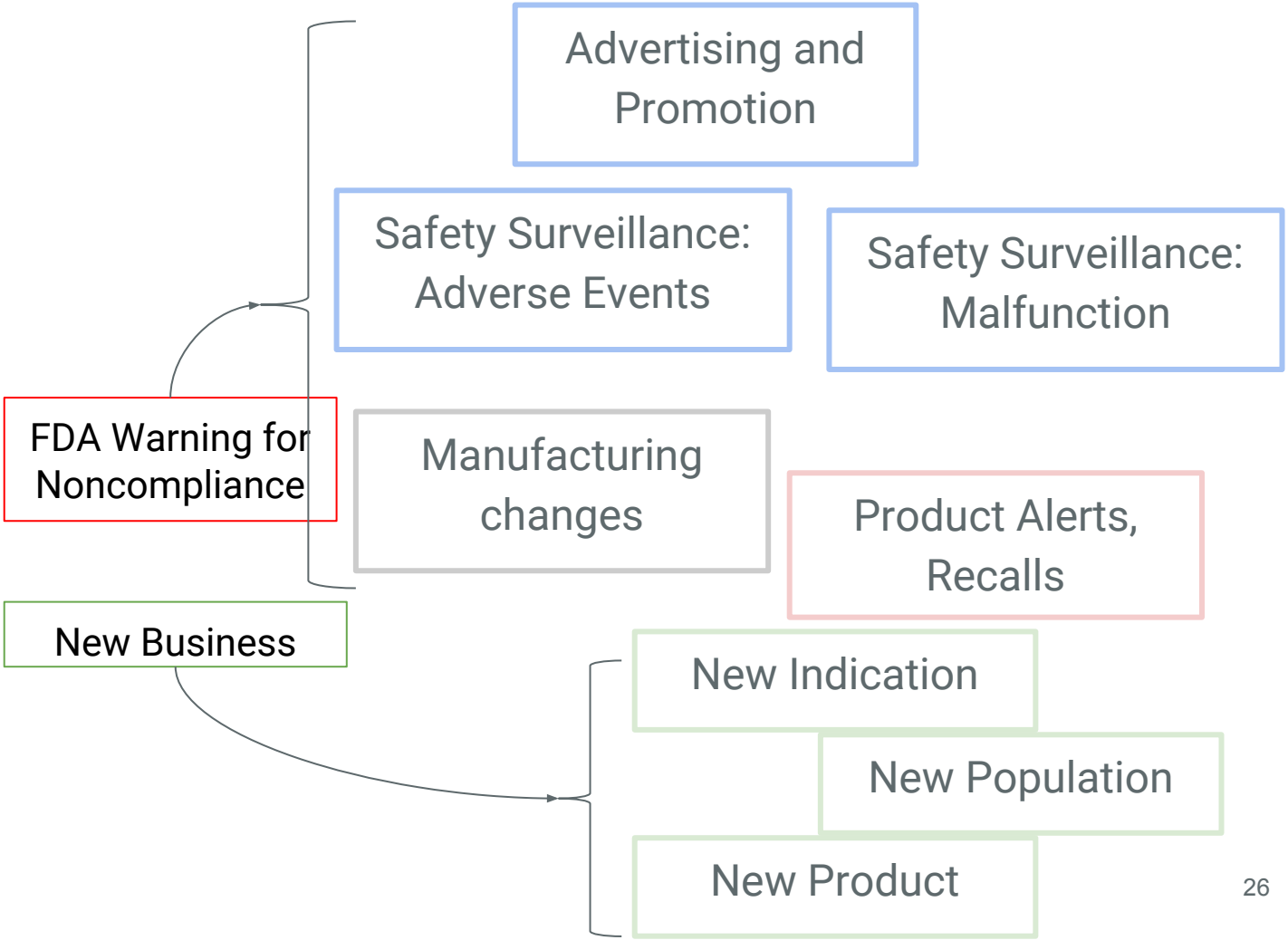
FDA Quote : *"FDA monitors reports of adverse events and other problems with medical devices, alerts health professionals and public ..*

IV. Marketing Strategy

Beginning of Product Lifecycle

Demonstration of Company Responsibility

Gateway for Product Enhancement



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

CAUTION

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

RIGHT TIMING

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

RIGHT CONTENT

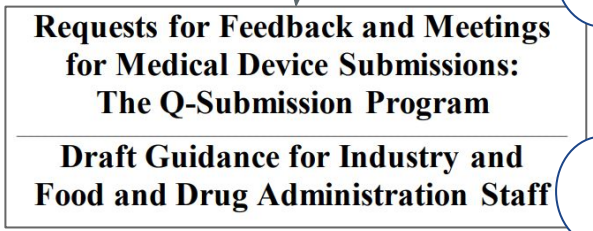
- Well written briefing document with "Specific Questions' - not information dump
- Utilize guidance documents to the fullest

RIGHT CONDUCT

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

RIGHT PEOPLE

- FDA Liaison expertise
- Technical and Therapeutic expertise
- Special FDA experts (eg Payor strategy)


Requests for Feedback and Meetings for Medical Device Submissions: The Q-Submission Program

Draft Guidance for Industry and Food and Drug Administration Staff

AbiliLife
FDA Engagement and Product Roadmap

Label Development : Differences in wording impacting Evidentiary Requirements and Submission Strategy

Alert for High Fall Risk $$$

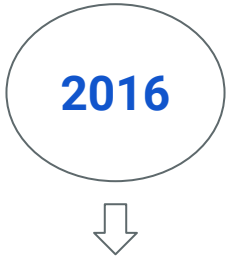
Versus

Reduce Fear of Fall $$$$

Versus

Prevention of Fall $$$$$$$$$$

Continuous FDA Engagement

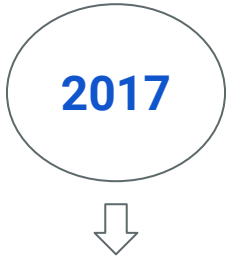


FDA Pre-Submission Meeting: Full portfolio

CMS Contact

Comment on draft FDA Guidance

Member, Coalition for Software guidances



Pre-Submission Supplement: Software Platform

Followup FDA T/Cs

Battelle/CMS contact on Quality Payment Strategies

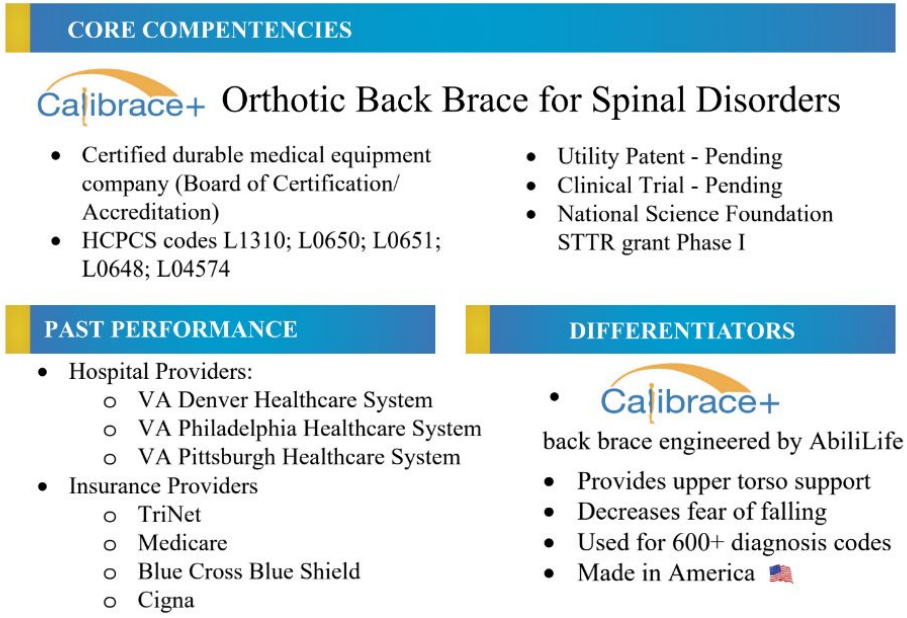
FDA MDDT designation Submission

Pre-Submission Supplement: Portfolio, Life Cycle Optimization, Rare disease development

Parallel FDA-CMS feedback

Private Payer, VA engagement

2017-2018: Calibrace+ Post-Marketing Experience



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

Real-World Evidence

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

2018: Patent Allowed Claims

Attorney Docket No. 0085022-000003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	**PATENT APPLICATION**
Williamson, et al.	)	PHYSIOTHERAPEUTIC, AMBULATORY, AND MOBILITY VEST
Application No.: 14/728,138	)	
Filed: June 02, 2015	)	Group Art Unit: 3772
Confirmation No. 7702	)	Examiner: Lewis, Kim M.

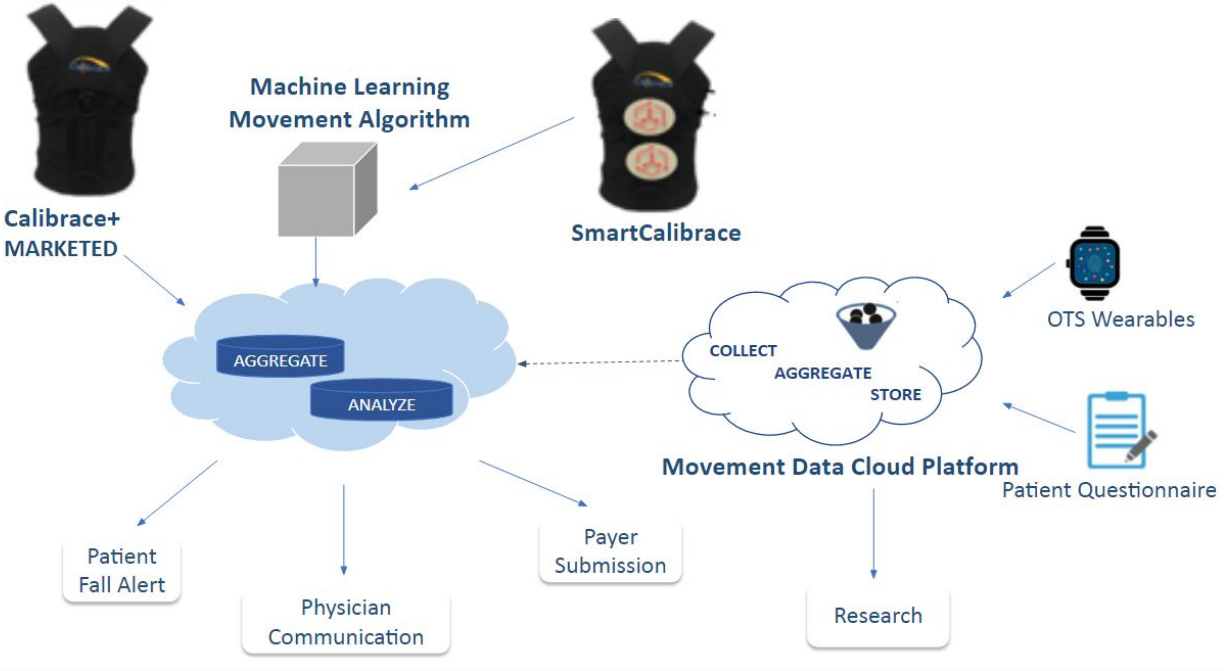
ALLOWED CLAIMS

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

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

External Communications

Value Assessment of Portfolio

Portfolio Value Enhancement

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