Advanced Patient Training Workshop

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What Patients Need to Know About the FDA: Advanced Workshop

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FDA Approval of Drugs and Devices

- **Safe and Effective means the benefits outweigh the risks for most patients**
- OK if most patients don't benefit as long as most aren't harmed
- Cost is NOT considered

FDA Approval of Drugs and Devices

Does NOT mean

- **Nobody will die** from this product
- **Few will be harmed** by this product
- This product is **safe for long-term** use
- This product is **more effective than other OR cheaper products** on the market

Clinical Trials

- Studies of humans that are used to prove whether product is safe and effective

- What matters to most patients?
  - Survival
  - fewer days in hospital
  - Fewer serious or unpleasant side effects
  - quality of life
  - Fewer symptoms such as pain, nausea, _____.

Randomized Double Blind Clinical Trial

- Gold Standard
- Patients randomly assigned to get drug 1 or drug 2 (or placebo)
- Patient doesn't know which drug
- Doctor/researcher doesn't know which

Standard Drug Approval Criteria

- **Safe** (2 short-term Clinical Trials)
- **Effective** (compared to placebo)

Faster Clinical Trials

- Fast Track or “expedited” reviews often rely on just one study.
  - Science is based on replication
  - Often, results from one study aren’t typical

Faster Clinical Trials

- Fast Track or “expedited” review often rely on surrogate endpoints or biomarkers:
  - cholesterol levels
  - glucose levels
  - bone mineral density
  - Progression free survival

What's the Difference?

- A drug can lower glucose but not help diabetics live longer or healthier lives
- A drug can lower blood pressure but not save lives
- A screening test can prevent death from cancer but patient won't necessarily live longer

What's the Difference?

- Chemo can kill cancer cells and also make a patient's life miserable
- KEY QUESTION: How sure are you that the biomarker = health?

Fast Tracked Cancer Drugs

- **67% of all cancer drugs are now approved on the basis of surrogate endpoints such as tumor shrinkage**
- Post-market studies are required

- **Most are not proven to prolong life or improve quality of life** in post-market studies.

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Farxiga for Diabetes

In studies, FARXIGA:

Removed some blood sugar†

Significantly lowered A1C

Additionally, FARXIGA may help you:

Lose weight—on average 3%‡

,

Farxiga for Diabetes

- No evidence of living longer or better

RISKS:

- Causes kidney damage
- Causes urinary/genital track infections
- Patients more 5x more likely to be diagnosed with bladder cancer
- Increases risk of breast cancer?

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Post-market Studies

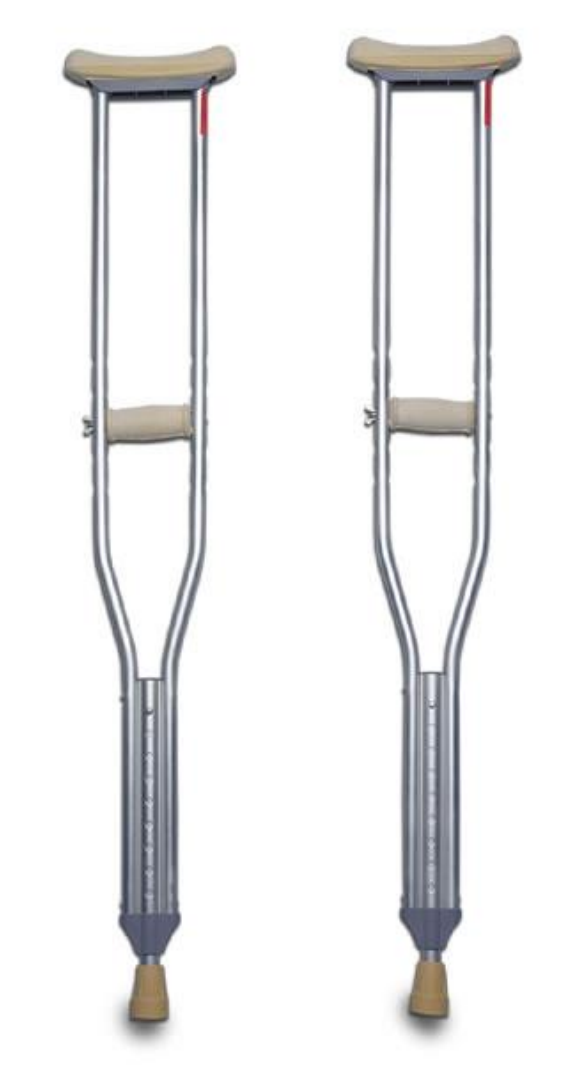
- When pre-market studies do not provide evidence of living longer or better, FDA usually requires a longer-term post-market study for more info

- Patients pay to be guinea pigs
- Little incentive to do study quickly, include diversity, or complete it
- Ineffective products are sold to you

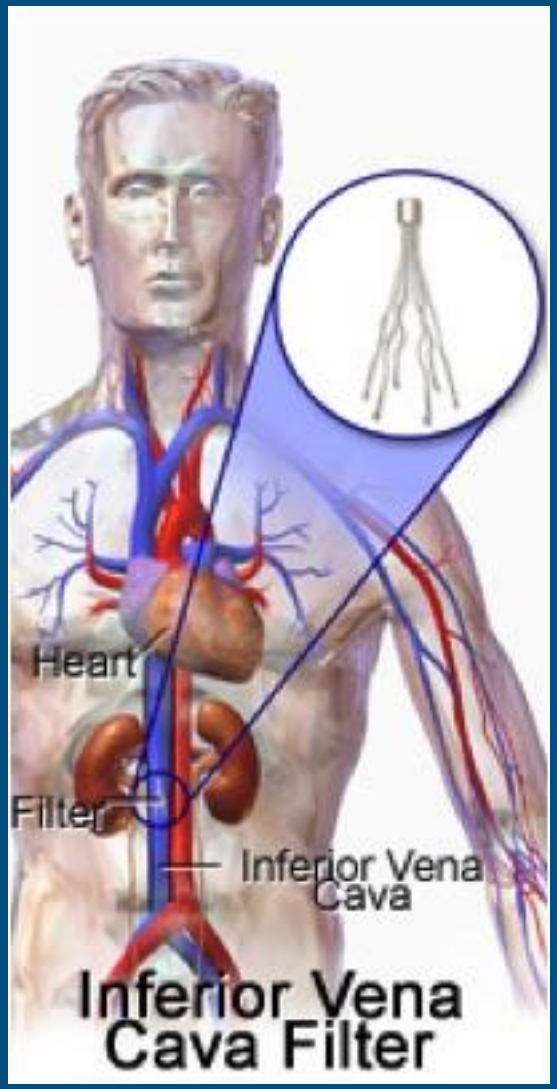
Device Approval Criteria

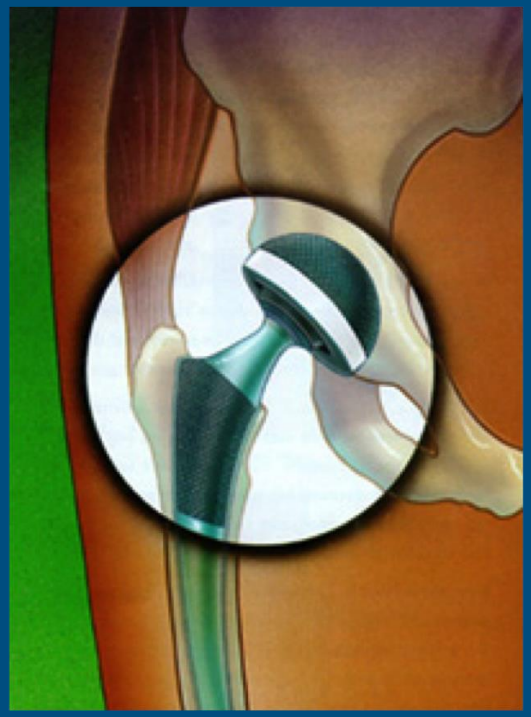
- Reasonably Safe
- Reasonably Effective
- 95+% are not studied in clinical trials

Low Risk: Not Tested



Moderate Risk (510k)





98% are “Moderate Risk”

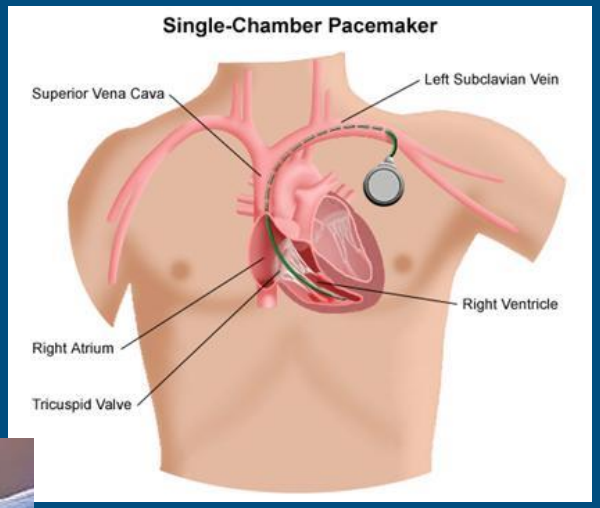
Reviewed through the 510(k) process

Not tested for safety or efficacy

Must be Substantially Equivalent to other devices legally on the market

- **No clinical trials**
- **No inspections**
- **No studies required post-market**

High Risk Medical Devices (pacemaker, heart, infusion pump)

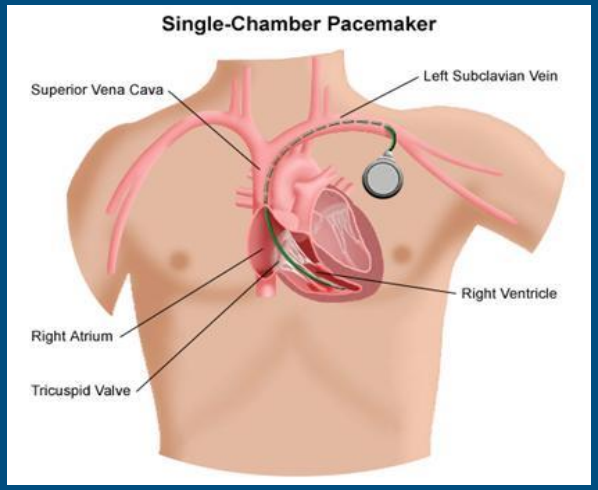


Highest Risk Devices: PMA

IMPLANTS, LIFE-SAVING or LIFE-SUSTAINING

Premarket Approval

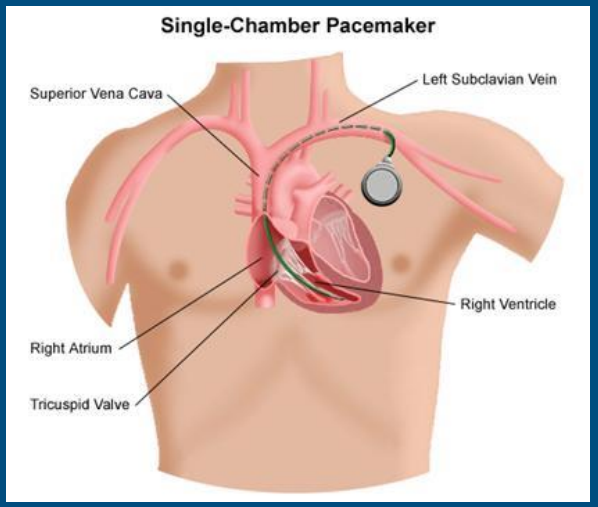
- **Reasonably Safe**
- **Reasonably Effective**



One clinical trial (not double blind) with smaller sample than required for prescription drug data

Controlled (Not Random) Clinical Trial

- Patients or doctors choose who gets which device
- Compare patients receiving new device with patients who don't
- 2 patient groups are similar or matched on age, sex, diagnosis



Clinical Trial with no Control Group

- Patients or doctors choose who gets new device
- All we know is how they feel and whether they get better, don't get pregnant, etc. We don't know how that compares with other patients

Is a uncontrolled Clinical Trial better than none at all?

- If researchers are looking for truth, any clinical trial can be helpful

- If goal is to prove a product is safe and effective, uncontrolled trials make that easier

No Clinical Trials:
Are these substantially equivalent?

Vitek TMJ implants

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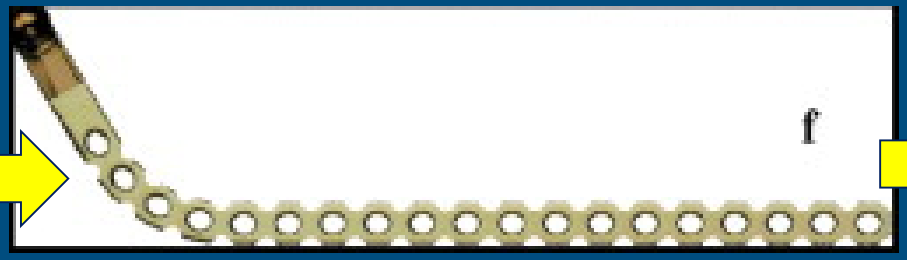
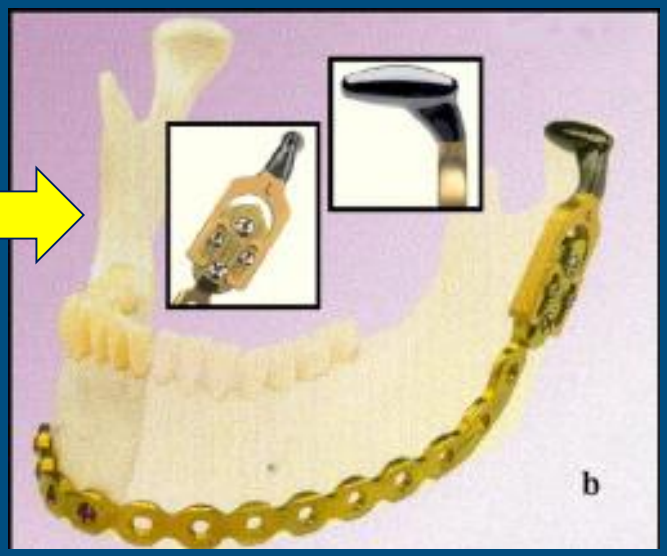
Dow silicone sheet

OsteoMed Temporary Condylar Attachment System



Images from Driemel, O. et al. Int. J. Oral Maxillofac. Surg. 2009



- **"Substantially equivalent? "New design includes moveable parts**

DePuy VIPER Spinal System

- **Changed dramatically since 1996**
- **Added or modified parts, new complex systems have not been tested**

DePuy Spinal System, 2011

?

Anterior Plate Fixation System

Nonthermal Shortwave Diathermy Devices for Pain

- Not enough safety & effectiveness data for old ones or new ones

- Example: Ivivi Zeobi
- Substantially equivalent ?
- Differences: Length & frequency of treatment time

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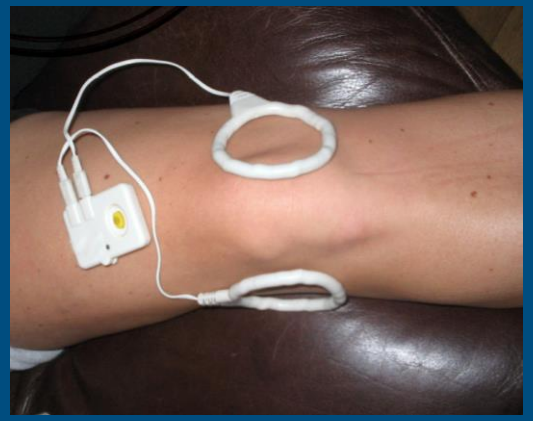

Device Recalls

- Almost half a billion 510(k) devices were recalled as high risk in one year, including contaminated alcohol swabs that killed this boy.

Conclusions

- **Gold standard:** 2 double blind randomized clinical trials studying patients' health
- Today's FDA rarely requires that for fast track **drugs** and almost **never** requires that for **devices**
- **95+%** of medical devices have **no clinical trials or proof of safety or efficacy**
- **Ads sell hope** not facts!

Implications

- Whether you care more about speed of approving new treatments or good safety data depends on your options.
- Desperate patients may choose riskier treatments and pay for unproven ones.
- Unproven treatments can mean shorter life, worse quality of life.

Implications

- Good quality research takes years to do and to replicate.
- Meanwhile, some patients die waiting for a new approved treatment or are harmed by an unproven approved one.
- New medical products may be better or worse: that's why pre-market controlled trials on all groups are needed

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Cancer Prevention and Treatment Fund

www.center4research.org

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