Advanced Patient Training Workshop
June 3-4, 2016

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What Patients Need to Know About the FDA: Advanced Workshop

Diana Zuckerman, PhD, President
National Center for Health Research

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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.
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?
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

Dow silicone sheet
“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
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.