HSC 335 -- Pharmaceutical Policy (Fall 2020)

Week 1 Questions

Deadline: August 27, 2020 at 2:45pm (submit via Slack DM)

Name:

Up to 1906

We begin the course with a look at the earliest days of drug regulation, when small companies or entrepreneurs selling tonics or nostrums made of secret ingredients -- so-called patent medicines -- dominated the landscape. In this video, we'll look at the history of patent medicines, and early attempts to regulate them in the US. As you watch, ask yourself:

- What made patent medicines so successful?
- How did the 1906 Pure Food and Drug Act attempt to rein in the patent medicines industry?

Question 1

Which **two** of the following contributed to the success of patent medicines in the pre-FDA era?

- [ ] Most were highly effective for the conditions they claimed to treat.
- [ ] They were aggressively advertised.
- [ ] The Bureau of Chemistry tested their safety.
- [ ] Their ingredients were not disclosed.

Question 2

Which of the following statements about the 1906 Pure Food and Drug Act is FALSE?

- [ ] It authorized the Bureau of Chemistry to engage in premarket safety assessments of new drugs.
- [ ] It required labels to indicate how much alcohol, opium, cannabis, or heroin a drug contained.
- [ ] It prohibited the inclusion of false or misleading information on the drug label.

1938 Act

While the 1906 Pure Food and Drug Act sought to prevent the use of misleading drug labels, it did not require any assessment of drugs for safety or efficacy, both of which are key components of the drug development process today. As you'll see, the expansion of drug regulatory authority over the past century has generally occurred in response to public health tragedies. In this video, we'll revisit one such example from the 1930s, and see how it triggered an expansion in the FDA's role in the pharmaceutical market. Consider the following questions:

- What made the elixir sulfanilamide episode so powerful?
- What fundamental changes did the 1938 Food, Drug, and Cosmetic Act make to the FDA's regulatory authority?

Question 3

Why did elixir sulfanilamide cause fatalities?

☐ The active ingredient, sulfanilamide, was toxic.

☐ Its solvent, diethylene glycol, was toxic.

☐ It aggravated the underlying disease for which it was prescribed.

☐ Children took more than FDA recommended, resulting in overdose.

Question 4

Which one of the following did the federal Food, Drug, and Cosmetic Act of 1938 require?

☐ Premarket evaluation of new drugs for cost effectiveness

☐ Premarket testing of new drugs for safety

☐ Phase 1, 2, and 3 testing for drug efficacy

☐ Premarket testing of patient acceptability (such as taste)

Question 5

What is a "premarket notification" system?

☐ A drug approval system in which the FDA individually approves each manufacturer's marketing materials.

☐ A drug approval system in which the FDA informally notifies manufacturers whether it believes a drug will gain approval before officially announcing the drug's approval status.

☐ A drug approval system in which drugs are automatically approved unless the FDA affirmatively acts within a specified duration of time to prevent marketing.

☐ A drug approval system in which FDA notifies the market about its evaluation of drug at some point after the manufacturer starts selling it.

Question 6

In the Food, Drug, and Cosmetic Act of 1938, was the term 'safe' defined in the Act, and if so, how was it defined?

- [ ] Yes, it was defined to mean that fewer than 10% of test subjects experienced adverse events attributed to the drug.
- [ ] Yes, it was defined to mean that no test subjects experienced life-threatening adverse events attributed to the drug.
- [ ] Yes, it was defined to mean that there was reasonable certainty in the minds of competent scientists that the investigational substance is not harmful under the intended conditions of use.
- [ ] No, the term 'safe' was not defined in the act.

1962 Act

The requirement that new drugs demonstrate efficacy prior to approval emerged in the 1960's in response to government investigations into the pharmaceutical industry and the occurrence of yet another tragedy caused by an insufficiently vetted drug (though mostly not in the US). As you watch the video, think about how the 1962 Kefauver-Harris Drug Amendments Act changed the structure of the FDA into a more modern agency.

- What was the state of the US pharmaceutical industry in the 1950's and early 1960's?
- What was the thalidomide tragedy?
- How did the Kefauver-Harris Drug Amendments Act change the drug approval process in the US?

Question 7

Which three of the following prompted the legislative process that eventually led to the 1962 Kefauver-Harris Drug Amendments Act?

- [ ] High prescription drug prices
- [ ] Europe's more efficient prescription drug approval process
- [ ] The thalidomide public health tragedy
- [ ] Examples of manufacturers making exaggerated claims of drug efficacy

Question 8

Why didn't thalidomide cause the same widespread harm (including stillbirths and fetal deformities) in the US as it did in Europe and Australia?

- [ ] There were other drugs available in the US that were more effective at treating nausea and insomnia.
- [ ] The drug had a different formulation in the US that did not cause these same problems.
- [ ] An FDA reviewer prevented thalidomide from being formally approved for the US market.
- [ ] US physicians knew that the drug should not be prescribed to pregnant women.

Question 9

Which of the following two changes did the 1962 Kefauver-Harris Drug Amendments make to the regulation of drugs in the US?

- [ ] It required the FDA to affirmatively approve a new drug application before the drug could be marketed.
- [ ] It added demonstration of a drug's efficacy as an explicit requirement for approval.
- [ ] It added demonstration of a drug's safety as an explicit requirement for approval.
- [ ] It introduced truthful and non-misleading drug labeling requirements for the first time.

FDA's Current Mission

Since passage of the Kefauver-Harris Amendments, the FDA has come to oversee about 25% of the US retail economy. What sorts of things does the FDA do in the current day? After watching this video, you should be able to explain the FDA's current mission, and identify the actions that the agency takes to uphold it.

Question 10

Which three of the following does the FDA currently do?

- [ ] Issues regulations and guidance documents to implement the Food Drug and Cosmetic Act
- [ ] Works with Medicare and Medicaid to set drug prices
- [ ] Reviews applications to market specific drugs
- [ ] Inspects drug manufacturing facilities
- [ ] Fast-tracks approval of drugs that have been approved for use in other countries with comparable regulatory standards

History Overview

Watch the animation below to review some of the key events in the history of US drug regulation. If you have any questions or would like to discuss the history of the FDA with your peers, you can post them to the Slack channel.

(No questions for this video)

FDA's Political Position

The FDA is one of many administrative agencies that are part of the federal government. In understanding the FDA's role in the US, it is important to understand where it sits in relation to the branches and agencies within the federal government.

- To which branch of government does the FDA belong? Within which department?
- What are the roles of the different FDA offices?
- What are the different centers within the office of medical products and tobacco, and what is each responsible for?

Question 11

In which of the following branches of government is the FDA situated?

☐ Legislative

☐ Executive

☐ Judicial

Question 12

The FDA is situated within which department or agency?

☐ Department of Commerce

☐ Department of Health and Human Services

☐ Department of the Interior

☐ Department of Agriculture

☐ Centers for Medicare and Medicaid Services

☐ National Institutes of Health

Question 13

Which of the following centers of the FDA's Office of Medical Products and Tobacco takes primary responsibility for prescription, over-the-counter, and generic drugs?

- [ ] Center for Tobacco Products (CTP)
- [ ] Center for Drug Evaluation and Research (CDER)
- [ ] Center for Biologics Evaluation and Research (CBER)
- [ ] Center for Devices and Radiological Health (CDRH)

Legal Framework: Constitutional Clauses

Though the FDA is a part of the executive branch, Congress plays the key role in expanding or contracting its authority. Much of this legislative work relies in particular on two constitutional clauses: the Interstate Commerce Clause and the Patent Clause. As you watch this video, pay attention to how each of these clauses relates to the FDA's powers; for example, how the process of drug development and approval affects the duration of market exclusivity provided by patents for new drugs.

Question 14

On average, how many of the 20 years of protection provided by the initial patent on a drug's active ingredient are used for clinical trials and FDA review?

- [ ] 1 year
- [ ] 5 years
- [ ] 7 years
- [ ] 10 years
- [ ] 13 years

Question 15

The US Constitution granted Congress the authority to "regulate Commerce… among the several States." What may Congress do based on this grant of power?

- [ ] Congress can require FDA approval of new drugs prior to marketing because they will be sold in interstate commerce.
- [ ] Congress can regulate the practice of medicine if a doctor practices in only one state.
- [ ] Congress can enact patent laws that apply throughout the world because most pharmaceuticals are exported from the United States.

Legal Framework: Regulations and Guidances

Agencies like the FDA have been delegated the authority to enact regulations (or rules) that have the force of law. These regulations are applicable to the domain in which the agency has authority, though, as you'll see in this video, there are limitations to what they can do. An agency can also publish guidance documents to help a regulated industry better understand how its regulations are to be followed.

- What can agency regulations do, and what are their limitations?
- What are examples of topics addressed by FDA regulations?
- What are FDA guidance documents? What are their limitations?
- What are some examples of FDA guidance documents?

Question 16

Which of the following is true about FDA regulations?

☐ Regulations are generally carried out by Congress.

☐ Regulations may be inconsistent with the FDA's governing statute, if the FDA provides a reasonable justification.

☐ Regulations can provide additional details about implementing a law when the governing statute has been silent.

☐ Regulations provide guidance to industry, but are generally not enforceable.

Question 17

Because the FDA is composed of expert scientists and physicians, it has the power to create regulations that override statutes enacted by Congress.

☐ True

☐ False

Question 18

FDA guidance documents have the force of law.

☐ True

☐ False

Legal Framework: International Sources of Law

In this video, we highlight two major international organizations that directly influence the pharmaceutical market and the FDA: the World Trade Organization (or WTO) and the International Council for Harmonization (or ICH). These organizations seek to facilitate international trade, and countries that belong to these organizations generally agree to abide by the regulations that they establish. As you watch this video, consider:

- What agreements govern the US's accountability to the WTO and ICH?
- What are the benefits of international harmonization of approaches to prescription drug regulation?
- How does the FDA use ICH guidelines?

Question 19

The TRIPS Agreement requires that WTO member countries make patents available in _____ fields of technology and that _____ WTO member countries eventually implement patent protection for drug products.

- ☐ all; all
- ☐ some; all
- ☐ all; some
- ☐ some; some

Question 20

Clinical testing required for drug approval in one country may not be sufficient for approval of the same drug in another.

- ☐ True
- ☐ False

Question 21

What does the International Council for Harmonization (ICH) do? Indicate all that apply.

- ☐ Resolves disputes when a drug has been approved in one country but not another
- ☐ Issues guidelines in a variety of topic areas, including drug quality, safety, and efficacy
- ☐ Works to harmonize drug regulatory rules to reduce inconsistent requirements in different countries
- ☐ Discusses safety events and the process of withdrawing drugs from the marketplace in multiple countries

Question 22

Harmonization facilitates:

Indicate all that apply.

- [ ] protection of manufacturers' intellectual property rights worldwide.
- [ ] minimization of differences in drug approval requirements between countries.
- [ ] reduction of costs for businesses operating in multiple countries.
- [ ] the ability of manufacturers to market drugs in the US based on approval in other countries.

Stakeholders

There are a number of tradeoffs inherent in drug regulation: broader testing can provide useful information about a drug, but is time-consuming and expensive. Similarly, regulatory oversight of the pharmaceutical market protects the public, but requires significant resources. The FDA does its best to balance input from a number of different stakeholder groups. This video introduces some stakeholder groups to which the FDA is accountable, and their competing priorities. As you watch, focus on the following questions:

- What are examples of key stakeholder groups to which the FDA is accountable?
- What are each group's priorities?
- How does the FDA balance these competing priorities when it makes regulatory decisions?
- To what extent do the courts support the FDA's decisions when it comes to patient access to drugs for which the benefits have not been adequately demonstrated?

Question 23

The pharmaceutical industry seeks a _____ new drug review process. Patients rely on the FDA to ensure that _____ products are kept off the market. Insurance companies seek _____ when determining how much they would be willing pay for new drugs.

- [ ] more flexible; expensive; FDA recommendations
- [ ] more flexible; harmful; good data
- [ ] more rigorous; expensive; FDA recommendations
- [ ] more rigorous; harmful; good data

Question 24

What are the considerations that the FDA balances when reviewing and approving a drug? (Select all that apply.)

- [ ] The need to approve new drugs for treating serious conditions.
- [ ] The need to ensure that the benefits of new drugs outweigh their risks.
- [ ] The need to reduce costs for insurers.
- [ ] The need to commercialize discoveries made by university scientists with public funds.

Question 25

Which statement is most consistent with the 1979 US Supreme Court case of US v. Rutherford?

- [ ] Each US citizen's inalienable right to life guarantees that terminally ill cancer patients can use untested amygdalin if they believe it will improve their quality of life.
- [ ] The 14th Amendment protects the rights of terminally ill cancer patients to use untested amygdalin, but each patient's doctor can overrule this right if doing so is in the patient's best interest.
- [ ] Congress intended federal regulators to protect patients, including terminally-ill cancer patients, from fraudulent products sold as cures.