

Introduction to Legal Epidemiology

Full Script

Slide 1

Welcome to the Public Health Law Academy's training on Introduction to Legal Epidemiology. The content for this training was originally developed by ChangeLab Solutions and the Centers for Disease Control and Prevention's Public Health Law Program with input from the Policy Surveillance Program of the Center for Public Health Law Research at Temple University Beasley School of Law.

Slide 2

The content developers of this training would like to remind us that the information provided in this training is for informational purposes only and does not constitute legal advice. ChangeLab Solutions does not enter into attorney-client relationships.

ChangeLab Solutions is a non-partisan, nonprofit organization that educates and informs the public through objective, non-partisan analysis, study, and/or research. The primary purpose of this discussion is to address legal and/or policy options to improve public health. There is no intent to reflect a view on specific legislation.

Slide 3

Further, while every effort has been made to verify the accuracy of these materials, legal authorities and requirements may vary from jurisdiction to jurisdiction. The contents of this presentation have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy. Always seek the advice of an attorney or other qualified professional with any questions you may have regarding a legal matter.

Slide 4

According to the Legal Epidemiology Competency Model created at the CDC in 2018, individuals who work as public health practitioners, lawyers, and policy experts in the field of legal epidemiology need measurable skills to move their careers forward. This module will cover the four tasks listed on this slide to build skills for tier 1 professionals in the field of legal epidemiology. We want to note that these are not the objectives for this course, but General Legal Epidemiology Competencies. The four tasks include:

- Articulating the importance of legal epidemiology concepts to inform health, fiscal, administrative, legal, social, and political research and discourse.
- Applying its principles to research studies, funding opportunities, and policy agendas.
- Communicating legal epidemiology findings, methodologies, and recommendations to law and professional audiences.
- Analyzing the use of legal epidemiology findings to inform health, fiscal, administrative, legal, social, and political activities.

This training is intended for individuals who are not in management or supervisory positions, but people who directly implement legal epidemiology research tasks such as collecting, analyzing, and coding data.

Slide 5

This training introduces the discipline of legal epidemiology (or legal epi for short) and was developed with public health lawyers, policy analysts, epidemiologists, and public health practitioners in mind.

In this training, we'll be answering four questions:

- How does law affect health?
- What is legal epidemiology?
- Why use legal epidemiology? And
- How is legal epidemiology used in practice?

Slide 6

Let's dive into the first question: How does law affect health?

Well, in the tradition of social epidemiology, health is considered a product of the interaction of our genes, our behavior, and where we spend our time. By comparison, health is not simply a consequence of using healthcare services. Most of the things we do, and most characteristics of our environments, have some impact on how healthy we are, even as a population. In our society, the process of enacting and enforcing laws is a common approach to shaping environments, behavior, and ultimately, health.

Slide 7

When it comes to shaping health outcomes and societal behavior, law has two important roles. First, law helps build and maintain the social, economic, and physical worlds where we live, learn, work, and play. Second, law acts as a mechanism for changing social and economic structures, and these changes can affect the distribution of health in a population. For example, the health outcomes for a person considered to be poor is shaped by specific experiences with legal rules, institutions, and agents. These experiences may be quite different from the experiences of people who are considered wealthy.

As director of the CDC, Tom Frieden developed the five-tiered pyramid on this slide, which provides a framework for how to address a whole host of public health issues. We'll spend a few minutes explaining the individual tiers, but it's important to remember that implementing interventions at *each* of the levels in the pyramid helps achieve the greatest possible public health benefit.

Slide 8

Let's start with the bottom tier: socioeconomic factors. Large-scale interventions to address the socioeconomic determinants of health can include reducing poverty, improving education and housing, and eliminating inequality. The law can play a very powerful role in addressing these socioeconomic issues.

These changes tend to be the most effective because they reach broad segments of society and require less individual effort.

Slide 9

Now, let's discuss the second tier: changing the context to make the individual's default decisions easier.

This tier includes interventions that change environmental contexts to make healthy options the default choice. Examples include water fluoridation requirements, smoke-free laws, tobacco taxes, and compulsory removal of trans-fats from foods. Again, the law can play a central role in changing our everyday environments and contexts.

Virtually everyone, regardless of their education, income, or life circumstances, would benefit from such interventions.

Slide 10

Let's talk about the top three tiers. These tiers rely less on changes in the law than the bottom two tiers do. The top tiers typically have less of an impact because they operate by reaching people as *individuals* rather than as a group or population.

Slide 11

For example, the third tier, which focuses on long-lasting protective interventions, represents one-time or infrequent protective interventions that do not require ongoing clinical care. Immunizations, colonoscopies, and even smoking cessation programs are examples of this type of intervention.

Slide 12

The fourth tier represents ongoing clinical interventions or direct clinical care, such as medications for high blood pressure, high cholesterol, or diabetes. Evidence-based clinical care can reduce disability and increase life expectancy.

However, the effectiveness of such interventions is often limited by lack of access to services or nonadherence (which occurs when patients do not take their medications as advised).

Slide 13

And finally, the top tier represents health education. This type of intervention includes medical advice given to patients during clinical visits. A doctor telling her patient to eat healthy or be physically active is an example of this.

Health education is often the least effective type of intervention. This is primarily because education is often fruitless if the surrounding contexts and environments don't make the healthy choices the default options.

However, when applied consistently and repeatedly, such interventions may have considerable population impact. An example of this is behavioral counseling for reducing HIV risk.

Again, keep in mind that combining interventions from all five tiers is the most effective way to address any given public health problem. These interventions are by no means mutually exclusive.

Slide 14

Now, let's talk about law as a factor that *affects* health, using an example. The picture shows life expectancy along a highway in California.

Slide 15

There is a twelve-year difference in life expectancy (eighty-seven years at exit 189 versus seventy-five years at exit 132) between two counties within miles of each other. Why?

This is a perfect question for legal epidemiology to help answer. Legal epidemiology investigates how differences in the existence or enforcement of certain laws affect health. Merced County law may include regulations about smoking, road safety, or clean water, while Fresno County law may not. Or maybe Merced County and Fresno County have the same laws, but they differ in how they enforce those laws.

Of course, there are also environmental and socioeconomic variables to consider. For instance, we might consider whether a county is located in a city, the mountains, or the desert, or whether a county has higher rates of poverty or educational disparities.

Slide 16

Studying how the law affects health presents opportunities and challenges. This is because law can be a natural experiment. We'll talk more about these opportunities and challenges, shortly, but first we should explain what we mean by natural experiment.

A natural experiment is one that occurs in everyday life. In a natural experiment, we are not randomly assigned to control or treatment groups. Instead we are affected by laws that expose or subject us to different outcomes.

For instance, if you work a minimum wage job in Connecticut, you are entitled to the state minimum wage of nine dollars and sixty cents. But suppose you move to Oklahoma, where the state minimum wage is two dollars. Although the federal minimum wage of seven dollars and twenty-five cents may ultimately cover your Oklahoma employment, you can learn how a change in state context, and therefore state laws, can be a natural experiment.

Slide 17

So, from a research perspective, the law as a natural experiment presents many opportunities. When multiple states pass the same law, studies that assess laws across jurisdictions over time can produce results with strong causal connections. These studies are called quasi-experimental studies. They let us observe the effects of a law before and after it was implemented. Once the law goes into effect, we can also track the law's effects over time. Jurisdictions without the same law may not have these effects.

For example, in 2001 only one state had a Naloxone law, which increased access to naloxone to block or reverse the effects of a deadly drug overdose. The state was New Mexico. Today, however, every state has a similar law. So a researcher could study the effects of these laws pre- and post-enactment among populations across states.

Slide 18

But there are also challenges when relying on laws to tell the "whole story." Laws are rarely amenable to true experimental designs, which are those that establish cause-and-effect relationships. Without an experimental design, it's harder to account for other factors that may contribute to our natural environment.

For example, a law might be effective in a state if it were enforced, but perhaps that state has no funding for enforcement. Additionally, implementation and outcome data can be hard to find, which makes the problem even worse.

Slide 19

Let's take a moment to clarify what we mean by "law." We've been discussing the role that law plays in shaping health, but it's important to understand that the law can take many forms.

Slide 20

Law starts with law on the books. What does this mean, exactly? Law on the books include constitutions, statutes, regulations, judicial opinions, and other legal texts that represent the rules of law in written, official form.

But from a social science standpoint, law also includes actions and beliefs that can be observed in the natural environment. This is the standpoint of legal epidemiology, which we will define in a moment.

Slide 21

A written law has an impact only if it is implemented, enforced, and considered a legal practice. In addition, people must be aware of and understand the law on the books. Another term for this is legal perception.

Slide 22

So, when we refer to law, we're also talking about legal practices. In other words, how laws on the books are implemented and enforced ...

Slide 23

... as well as people's legal perceptions, which is what people believe the law to be.

Slide 24

Before moving to the next section, let's pause for a quick multiple-choice question. Based on what we just discussed, which of the following is true when it comes to studying the law?

- A. The effects of law can be observed over time
- B. Law establishes cause-and-effect relationships
- C. Implementation and outcome data can be hard to find
- D. A and B, OR
- E. A and C

Slide 25

If you picked E, you're correct! The effects of law can be assessed through observations before and after implementation, and implementation and outcome data can be hard to find. Choice B is wrong because laws are natural experiments. Unlike true experimental designs, a natural experiment like law makes it difficult to account for other variables that affect the natural environment.

Slide 26

Now that we understand that law is a factor that affects health, let's talk about how we determine the *type* of effect a law has on health, whether it's good, bad, or none at all. This can, of course, be determined through the practice of legal epidemiology. But what exactly *is* legal epidemiology?

Slide 27

Legal epidemiology, also referred to as public health law research, is the scientific study and deployment of law as a factor in the cause, distribution, and prevention of disease and injury in a population.

So what distinguishes legal epidemiology from other legal research methods? Legal epidemiology provides a scientific approach to studying the impact and effectiveness of laws on health.

Consider, for example, laws that ban texting while driving. The general hypothesis might be that once a state passes a law implementing this ban, the number of car crashes will decrease. This hypothesis can be proved or disproved through legal epidemiology.

Slide 28

Studying the law through a scientific lens is very different from the way lawyers analyse law in traditional legal research. Legal research typically focuses on assessing how a rule may be applied to a particular situation, and it typically focuses on current law.

Compare that approach with the foundational principles shown on this slide. Legal epidemiology is

- Scientific in its approach
- Systematic
- Transparent
- Replicable
- Precise – that is, it demonstrates rigorous quality control
- And, finally, it's measurable – in other words, it was created to be evaluated.

Now let's discuss the different elements of legal epidemiology.

Slide 29

The first element we'll discuss is **legal etiology**. Legal etiology is the study of how law helps build and maintain the social, economic, and physical worlds where people live, learn, work, and play.

Take this example from criminal law. Do stand-your-ground laws lead to more homicides? These laws are used in cases where defendants have no duty to retreat. They can stand their ground and use force to protect and defend themselves or others against threats or perceived threats.

Slide 30

A second element of legal epidemiology is **legal prevention and control**. Legal prevention and control explore how law shapes health systems and institutions and how it can be used as a tool of intervention.

Let's think about evaluations of legal health interventions like seat belt laws. What effect do those laws have on safety in car crashes? This element also includes what we call infrastructural law, which governs a health department's powers, duties, jurisdiction, and organization. Consider the example of comparing health outcomes in jurisdictions with and without rule-making boards of health.

Slide 31

A third element of legal epidemiology is **policy surveillance**. Policy surveillance is related to both legal etiology and legal prevention and control. It also directly serves legal evaluation, which is the systematic, scientific collection and analysis of laws and institutional policies of health significance over time and across jurisdictions.

Take the example of the effects of laws regarding traumatic brain injury in youth sports across jurisdictions and over time. The first law of this kind was enacted in 2009, and since then, every state has passed a similar law. These laws are ripe for policy surveillance and legal evaluation to determine whether they are effectively reducing brain injuries in young athletes.

Slide 32

All three of these elements depend upon scientific methods to measure:

- The nature and distribution of laws – in other words, which jurisdictions have a particular law and what the law says,
- The implementation and impact of legal interventions on public health,
- The implementation and impact of laws defining health agency powers and duties, AND
- The health effects of non-health laws. As we discussed, an example of this would be the criminal defense of stand your ground laws.

At this point, you may be wondering what we mean by evaluation. When talking about evaluation, we're referring to the use of scientific methods to measure processes and outcomes. As you will learn, there are many approaches to evaluation, depending upon available resources and data. There's always something to learn when you approach public health law work from the standpoint of evaluation.

Slide 33

Legal epidemiology project teams might involve lawyers, public health practitioners, researchers, and policy experts. They may also include economists, statisticians, academics, and social scientists, among others.

Evaluating the effect of law on public health and tracking the effects of law over time require many different skills. The parties involved must design and conduct quantitative and qualitative evaluation research, carry out legal research, and have a good understanding of public health and legal systems. It is rare that one person will possess all these skills. In a *multidisciplinary* model, people in different disciplines work alongside each other on the same problems.

The practice of legal epidemiology is built on the model of a *transdisciplinary* team. In a transdisciplinary model, the boundaries break down and participants draw directly on each other's skills.

For example, lawyers conduct legal research for evaluation using scientific methods, and epidemiologists use research methods from socio-legal research on how legal systems work and why people obey the law. This integration of disciplines is why we speak of "legal epidemiology" and not "law and epidemiology."

Slide 34

This slide illustrates how legal epidemiology is the scientifically focused counterpart of public health law practice. On the left side of the screen, it is noted how the elements of public health law practice, which relies on lawyers to counsel health officers; represent health agencies and other stakeholders in legal proceedings; and research, develop, and analyze the legal frameworks that shape practice.

But that picture of public health law has always been incomplete. It does not include all the important legal work that non-lawyers do in public health – most importantly, monitoring and evaluation. That’s where the overlap with legal epidemiology comes in. On the right side of the screen, it is noted how the elements we just discussed – legal etiology, legal prevention and control, and policy surveillance – fit in.

Slide 35

The transdisciplinary nature of public health law and the role of legal epidemiology are evident when we think about the Five Essential Public Health Law Services. These services are critical to the successful development and proliferation of laws that promote health.

Developing a legal solution to a health problem initially requires the people involved to share existing evidence, experience, and expertise. These people may be health scientists, health practitioners, lawyers, policymakers, or citizens.

Once a policy idea takes shape, lawyers must put it into the most appropriate legal form, which could be a statute, regulation, or executive order. Lawyers, scientists, health officials, and community members all play a role in getting a law passed. Once a law is in place, many different kinds of people – including lawyers and public health workers – help put the law into practice and enforce its terms. While all that is happening, legal epidemiologists must maintain surveillance of the law’s adoption and evaluate its impact.

Slide 36

Let’s pause again for another multiple-choice question. Legal epidemiology is which of the following?

- A. Scientific in its approach
- B. Measurable
- C. Traditional legal research
- D. A and B, OR
- E. A and C

Slide 37

If you picked D, you’re correct! Legal epidemiology is scientific in its approach and measurable. It is very different from the way lawyers measure law in traditional legal research, which is why choices C and E are incorrect.

Slide 38

Now that we understand what legal epidemiology *is*, let’s discuss why you might use it.

Slide 39

First, legal epidemiology can help us achieve important results.

- It turns law into data for statistical analysis.
- It creates valid, replicable studies that inform both legal and public health practice.
- And it tracks trends across jurisdictions and over time.

Slide 40

Legal epidemiology also supports qualitative studies and answers research questions. It shows the impact and effectiveness of laws on health. And it informs best practices and research innovation for the field.

It all boils down to this: Legal epidemiology makes the law more evidence-based.

Let's think about a comparison. It is universally accepted that a drug should *not* be used on patients until that drug has been properly tested. It needs to be both safe and effective.

Laws, by contrast, are commonly applied in large doses to millions of citizens without any testing whatsoever. But public health laws, like pharmaceutical drugs, are treatments. It is important to know whether they work and, if so, with what side effects.

Legal epidemiology is the field devoted to this inquiry. It draws on a wide range of behavioural theories and research methods.

Slide 41

To recap, why might someone use legal epidemiology?

- A. It creates valid, replicable studies
- B. It tracks trends
- C. It shows the impact and effectiveness of laws on health
- D. A and B, OR
- E. A, B, and C

Slide 42

The answer is E. As we've discussed, legal epidemiology does all these things.

Slide 43

Now that you have a better understanding of what legal epidemiology is and why it's important, let's explore how it is used in practice.

Slide 44

One way to practice legal epidemiology is to create a project using legal mapping. Legal mapping is a process for capturing important features of laws and policies and identifying how those laws vary across jurisdictions and institutions over time.

For example, if you wanted to look at the legal landscape and history of smoking laws across the country, you could conduct legal mapping. Legal mapping takes many forms, and it is the focus of the second module in this series. However, because it is important to our discussion today, we will briefly highlight two types of legal mapping.

Slide 45

Legal mapping can be conducted using transparent scientific methods for empirical research in legal epidemiology. As noted on the left side of the screen, legal epidemiology involves two types of legal mapping: policy surveillance and legal assessments. We'll talk more about these shortly.

It's important to note that legal mapping can also use conventional legal research methods to answer important questions in multijurisdictional public health law practice. This is represented on the right side of the screen. There are two types of legal mapping methods in public health law practice: legal scans and legal profiles.

Slide 46

But in this training, we're focusing on legal epidemiology. As we mentioned in the previous slide, the two methods of mapping in legal epidemiology are policy surveillance and legal assessments.

For an in-depth look at legal mapping, you can check out the Public Health Law Academy module, "Introduction to Legal Mapping."

Slide 47

First, we're going to look at policy surveillance. When it comes to mapping in legal epidemiology, policy surveillance involves collecting data **over time**. It creates longitudinal data sets. For instance, we could map smoking bans from when they were first passed to the current day. Mapping smoking bans over time would yield major trends in state legislation, such as patterns in banning smoking in restaurants, hospitals, cars, and bars.

Slide 48

Legal assessments, on the other hand, collect data at **one point in time**. They create cross-sectional data sets. For example, mapping smoking bans that are effective today could constitute a legal assessment.

Slide 49

Now, let's talk about a few practical steps you can take to put legal epidemiology into practice.

Slide 50

Begin by identifying the problem through robust community engagement, epidemiology, and behavioral science.

Slide 51

Once you identify a problem, you can identify gaps in existing research.

Let's use texting and driving as an example. Many states and localities have passed laws banning texting while driving. But do we know if these laws are doing any public good? Are they being enforced? Are they saving lives?

Slide 52

So, how do you determine whether these laws are affecting health? You can complete a legal mapping study, such as a legal assessment or a policy surveillance dataset, to create legal data that can be used for evaluation research.

Slide 53

Once you have generated legal data from a legal mapping study, you can combine that legal data with outcome data by completing a legal evaluation. An example would be an evaluation of the effects of distracted driving laws on car crash statistics over time and across jurisdictions.

To learn more about how to evaluate laws, please visit the third module in this series, "Introduction to Legal Evaluation."

Slide 54

After completing this legal evaluation, you will have statistically sound evidence showing that laws that prohibit texting while driving reduce car crashes. You can use this evidence to work with policymakers to properly enforce texting and driving laws.

Slide 55

And finally, stay up to date on what's to come. Think ahead and anticipate common obstacles.

Slide 56

Now it's your turn to apply these 6 steps to a real world example – feel free to choose a topic you're working on – that can be studied using legal epidemiology.

[Note to instructor: Distribute handouts and provide instructions]

Slide 57

We hope you now understand some of the key pieces of legal epidemiology. Here's a recap of what we discussed. We talked about:

- How law affects health,
- What legal epidemiology is and its three basic elements,
- Why legal epidemiology is useful, and
- How legal epidemiology is translated into practice.

Slide 58

The views expressed in this training, including written training materials or publications, do not necessarily reflect the official policies of CDC or the Department of Health and Human Services, nor does the mention of trade names, commercial practices, or organizations imply endorsement by the US Government.

Like all trainings associated with the Public Health Law Academy, this training provides legal information, but not legal advice, and no attorney-client relationship is created. Please contact an attorney in your state if you need legal advice.

Slide 59

Questions? Thank you!