

Epidemiology and Law

Epidemiology in the Legal Context

Epidemiology is “the study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the control of health problems” (Last, 1988, p. 42). The word “forensic” has been defined as “(1) Relating to, used in, or appropriate for courts of law or for public discussion or augmentation . . . (3) Relating to the use of science or technology in the investigation and establishment of facts, or evidence in a court of law” (*American Heritage Dictionary*, 2000, p. 688).

These two concepts were first integrated into the term “forensic epidemiology” in 1999 to refer to the use of epidemiologic data in civil litigation and reliance on epidemiologists as expert witnesses in legal proceedings (Loue, 1999). Later, the term was used to refer to investigations of the source and the possible criminal nature of disease outbreaks (Alibek & Handelman, 1999; Altman & Kolata, 2002, quoting Dr. Julie Gerberding), in the formulation of legislative and regulatory provisions, as the basis for community organization and advocacy efforts,

and as a process for the study of disease in the social context in which it is situated (Loue, 2002).

Previous texts have discussed forensic epidemiology in each of these contexts, with the exception of compliance and law enforcement. This text extends the inquiry into forensic epidemiology to focus specifically on its use in the context of law enforcement functions related to issues within the purview of public health. Law enforcement is viewed here broadly, to encompass the development and promulgation of regulatory and statutory provisions; the conduct of criminal and administrative investigations; and the conduct of administrative, civil, and criminal proceedings related to the enforcement of regulatory and statutory provisions.

The following section of this chapter provides a brief overview of our legal system to place the subsequent chapters in context. Chapters 2 through 4 provide an understanding of our systems of criminal, administrative, and public health law and related procedures and the relevance of epidemiology to each of these domains. Chapters 5 through 8 offer case studies to illustrate further how forensic epidemiology can be used in a variety of law enforcement contexts to enhance investigational efforts. Chapter 9 concludes with a discussion of the critical questions to be considered as we increasingly expand the scope of forensic epidemiology and its applications.

The US Legal System

THE US CONSTITUTION

The US Constitution has been called “the supreme law of the land.” All state constitutions, statutes, administrative rules and regulations, and court decisions must be consistent with the provisions of the federal Constitution.

The federal Constitution defines the limits and functions of government and, additionally, indicates which powers fall within the purview of the federal government. These include, for example, the power to collect taxes, to regulate interstate commerce, and to declare war. Powers that are not specifically granted to the federal government are reserved to the states. This includes many functions related to public health, such as disease reporting, the regulation of housing conditions, and the enforcement of sanitation requirements, among others. State constitutions similarly define the powers, functions, and limitations of the state governments.

There are 27 Amendments to the Constitution; the first 10 are known as the Bill of Rights. It is beyond the scope of this chapter to

review in detail all of the Amendments and provisions of the Constitution. A brief outline of these Amendments is provided in Table 1-1; those Amendments that are especially relevant to the later discussions in this volume have been bolded for ease of reference.

Table 1-1	
Provisions of the Amendments to the Constitution	
Amendment	Provisions
I	Freedom of religion; freedom of the press; freedom of assembly
II	Right to bear arms
III	Prohibition against quartering soldiers in homes
IV	Right to be free from unreasonable searches and seizures; requirement that warrants be based on probable cause
V	Requirement of grand jury indictment for capital or "otherwise infamous crime"; prohibition against double jeopardy; right against self-incrimination; right to due process; requirement of just compensation for taking of private property
VI	Right to speedy and public trial in criminal prosecutions; right to be informed of charges, to confront witnesses, to present own witnesses, and to have the assistance of counsel
VII	Right to trial by jury
VIII	Prohibition against excessive bail, excessive fines, and cruel and unusual punishment
IX	Provides that the enumeration of rights in the Constitution does not deny others
X	Powers not delegated to the federal government are reserved to the states
XI	Relates to judicial powers
XII	Relates to voting
XIII	Abolishes slavery
XIV	Relates to citizenship, eligibility to serve as member of Congress, public debt
XV	Prohibits denial or abridgement of rights based on race, color, or previous servitude
XVI	Allows Congress to impose and collect income tax
XVII	Relates to composition of Senate
XVIII	Relates to alcohol manufacture and sale; repealed by 21st Amendment
XIX	Prohibits denial or abridgement of rights on the basis of sex
XX	Relates to the terms of the president and vice president
XXI	Repeals the 18th Amendment
XXII	Prohibits election to office of president for more than two terms
XXIII	Relates to voting
XXIV	Prohibits imposition of poll tax
XXV	Provides that vice president to assume the duties of president if he or she is removed from office, dies, or resigns
XXVI	Provides that individuals 18 years of age may vote
XXVII	Relates to compensation for members of Congress

The federal Constitution also divides the government into three branches: the executive, the legislative, and the judicial. It has often been stated that the executive branch of government is responsible for the enforcement of laws that are promulgated by the legislature, while the judiciary is responsible for the interpretation of these laws and that a similar structure and similar function are created at the state level by state constitutions. However, this portrayal of the three branches of government, while accurate, greatly oversimplifies what actually occurs. A better understanding of the basic structure and function of each branch of government is critical to an understanding of how epidemiology relates to law enforcement within the context of our legal system.

THE STRUCTURE AND FUNCTIONS OF GOVERNMENT

The Executive Branch

The Constitution provides for the executive power to be vested in the President of the United States, who is to hold office for a 4-year term (Art. II). In the event that the president is removed from office due to death, resignation, or inability to perform his or her responsibilities, the vice president becomes responsible for the fulfillment of these responsibilities (Art. II).

The president serves as the commander-in-chief of the armed forces. He or she may enter into treaties with the advice and consent of the Senate and appoint ministers, consuls, and justices of the Supreme Court (Art. II). The Vice President of the United States serves as the president of the Senate. However, he or she may not vote unless there is a tie vote, in which case the vice president may vote to break the tie (Art. I).

The Legislative Branch

As indicated, the existence, structure, and function of the federal Congress derive from the federal Constitution. The Constitution provides that the legislature may provide for the common defense and general welfare, impose taxes, regulate the economy, create courts and military forces, declare war, and ratify treaties. According to the terms of the Constitution, it may not, however, tax state exports; pass bills of attainder, which is legislation that declares someone guilty of a crime without having had the benefit of a trial; or adopt ex post facto legislation, that is, legislation that modifies the legal standing of a past action or event (Art. I).

The federal legislature, known as Congress, consists of two chambers, the House of Representatives and the Senate (Art. I). The composition of the House of Representatives is dependent on the population

of each state; the more populous a state is, the greater the number of representatives that it may elect to this House. Each such representative serves a 2-year term. The Senate consists of two senators elected from each state to serve a term of 6 years. In this way, there exists both a mechanism of direct representation through the House of Representatives and of indirect representation through the Senate (Art. 1).

Much of the work that is done in Congress initially passes through committees of the House and the Senate. Former President Woodrow Wilson observed:

The House sits, not for serious discussion, but to sanction the conclusions of the Committees as rapidly as possible. It legislates in its committee-rooms; not by the determination of majorities, but by the resolution of specially-commissioned minorities; so it is not far from the truth to say that Congress in session is Congress on public exhibition, whilst Congress in its committee-rooms is Congress at work. (Wilson, 1885/1981, p. 69)

The number and focus of committees is determined by members of Congress; the number may vary across each chamber of Congress and over time. During the 103rd Congress, which spanned the time period 1993 to 1994, the House of Representatives had 22 standing committees, while the Senate had 17. During the 105th Congress (1997 to 1998), the House of Representatives had 19 committees compared to 17 in the Senate (Loomis, 1998).

Subcommittees of each committee may be limited in number. For example, during the 103rd Congress, committees were limited to six subcommittees. During the 105th Congress, the House of Representatives had 88 subcommittees, and the Senate had 68.

The committees and their subcommittees are characterized by specialized knowledge relevant to specific subjects, such as the Finance Committee and the Judiciary Committee. This specialized knowledge is to be shared with the relevant chamber at large to the benefit of the whole. Congresspersons try to obtain positions on particular committees based on the interests of the district that they represent, their own policy goals, and/or a desire for increased power within Congress (Loomis, 1998).

The laws that are promulgated by Congress, known as statutes, must be consistent with the US Constitution. Similar local governmental bodies may promulgate ordinances; these must be consistent with both the relevant state constitution and the federal Constitution. The legislative body may create administrative agencies through the promulgation of legislation; in doing so, the legislation must define the purpose of the agency and the scope of its authority. If granted the power to do so through legislation, these agencies may, in turn, promulgate rules and regulations, which serve to operationalize the purpose of the statute.

These rules and regulations and the processes by which they are formulated and enforced make up administrative law, which is the focus of Chapter 2. All rules and regulations must be consistent with the federal Constitution and, in the case of a state rule or regulation, with the relevant state constitution.

The promulgation of legislation may come about in a variety of ways. First, a legislator in either the House of Representatives or the Senate may draft the legislation by him- or herself and seek to have it passed by both Houses of Congress. Or, a citizen or concerned group may draft the legislation and then approach their representative to have it introduced as proposed legislation (Sinclair, 1997). Alternatively, the ideas can be incorporated into legislation that is already being drafted by a legislative committee, or they can be offered as an amendment to someone else's proposed legislation. Congresspersons or their aides may consult experts outside of government on specific topics as they draft legislation and/or may rely on experts within governmental agencies for information and guidance.

Regardless of what mechanism is used to draft the legislation, a member of Congress must introduce it into Congress. This can be accomplished through either the House of Representatives or the Senate. The bill will be assigned a number, but it may also be known by a title or name (Smith, 1995). After the bill has been introduced into one of the chambers of Congress, the presiding officer of the chamber into which it was introduced will send it to the appropriate committee. In some cases, if the subject matter of the bill falls within the jurisdiction of several committees, it will be sent to multiple committees, a process known as multiple referral. The legislation is often sent to the subcommittee of a full committee. The committee and subcommittee may decide to conduct hearings on the bill, during which time they will receive testimony from interested parties and experts; such experts may include epidemiologists, depending upon the focus of the proposed legislation.

Committees may also mark up legislation, that is, consider legislation in detail and then amend it as they deem necessary. The committee may report back on the bill to the full House of Representatives or Senate if a majority of the committee's members are present at the time. The committee is required to provide a report in reporting back the bill. These reports are frequently authored by a committee staff member and often include a minority viewpoint (Smith, 1995). Alternatively, committees may refuse to take any action on the proposed legislation (inaction). In this case, the proposed bill is said to have died in committee.

The general process of committee consideration, amendment, and mark up is followed by consideration of the proposed legislation on the floor of the chamber in which it is being considered. The pro-

cedure for the consideration of the legislation on the floor differs between the two chambers. In the House of Representatives, when major legislation is being considered, the sponsors of the legislation may request a special rule from the Committee on Rules. If granted, the special rule limits the general debate on the legislation to 1 hour. The order of voting on amendments to the legislation may be structured. Members may be permitted to vote on more than one version of the legislation.

There is no Rules Committee in the Senate. The scheduling of legislation that is to be heard on the floor is accomplished by making a motion to proceed to consider it. The motion to proceed can be debated, sometimes for so long that it is said that the legislation is “talked to death,” a process known as a filibuster. A filibuster can be terminated through the process known as cloture, meaning that, if all of the senators are present, 60 of the 100 senators must support cloture to end the filibuster.

The final version of the bill as it is approved by one chamber of Congress is known as an engrossed bill (Smith, 1995). The bill, however, must be approved by both chambers of Congress before it can be sent to the President for executive action. To accomplish this, the second chamber may pass the legislation in the same form as it was passed in the chamber in which it was first considered. Alternatively, the two chambers may exchange amendments on the bill until they reach a version on which they can agree. Yet another approach consists of sending the proposed legislation to a conference committee that consists of representatives from both chambers of Congress, who have been appointed by committee leaders to attempt to resolve the differences that exist between the two chambers with respect to the proposed legislation.

The final version of the bill that has been approved by both chambers is known as an enrolled bill. This bill is printed on parchment and is certified by either the Clerk of the House or the Secretary of the Senate, depending on which chamber passed it first. It is then signed by the speakers of the House and the president pro tempore of the Senate, with space reserved for the President’s signature (Smith, 1995).

Legislation relevant to agencies may be for authorization or appropriations. Authorizing legislation relates to an agency’s organization, purpose, and ability to make rules, while appropriations legislations provides the funding necessary for the operation of the agency.

Lobbyists and special interest groups may also play a significant role in the legislative process by convincing a member of Congress to put a specific issue on the agenda or keep an issue off of the agenda. A lobbyist is “someone who is paid to communicate with Congress on behalf of others” (Smith, 1995, p. 326). Special interest groups may use one or more strategies in attempting to influence legislation, including testifying at hearings, contacting government officials directly,

engaging in informal contacts with government officials, presenting research findings or technical information, sending letters to organization members to inform them about activities, entering into coalitions with other organizations, attempting to influence the implementation of policy, interacting with media representatives, consulting with government officials to plan legislative strategy, assisting with the drafting of legislation, participating in letter writing campaigns, organizing grassroots lobbying efforts, and prevailing upon local constituents to contact the local offices of their representatives (Schlozman & Tierney, 1986).

If Congress is still in session when the legislation is approved by both chambers of Congress and sent to the President, the President may sign the bill into law, veto the bill and send it back to Congress with a statement detailing his or her objections to the provisions of the legislation, or do nothing. A presidential veto can be overridden by a vote of two-thirds of both chambers. If the President chooses to do nothing, the bill will become law in 10 days (Smith, 1995).

If Congress is scheduled to adjourn within 10 days, the President has the same possible courses of action open to him or her. However, because Congress will not be in session and cannot override a veto, the bill will die if the President vetoes it or does nothing. The veto of a bill by doing nothing when the Congress is scheduled to adjourn within 10 days is known as a pocket veto. Not surprisingly, in view of this extensive process, relatively few bills—approximately 10%—ever become law, and most actually never make it out of committee to reach this point (Loomis, 1998).

There are mechanisms through which the President can exert influence on legislation in addition to the use of the veto. One of the most significant powers is the ability to set the national policy agenda through the proposed annual budget (Loomis, 1998). The President's agenda requires that Congress address the enumerated issues, and the President can engage in negotiations with key congresspersons. However, the ability of the president to accomplish his or her agenda may be limited by the partisan balance existing in Congress, the President's standing with the US public, and the President's political capital.

The Court System

Federal Courts

Although the federal Constitution provides for a judicial system, it does not specify the structure of that system other than to mandate the existence of a Supreme Court. The Constitution states, "The judicial Power of the United States, shall be vested in one Supreme Court, and in such inferior Courts as the Congress may from time to time ordain and establish" (Art. III). It was not until 1789 with the Judiciary Act that Congress created a system of lower federal courts.

The federal judicial system created by the Judiciary Act of 1789 established three levels of courts: the district courts, the courts of appeal, and the Supreme Court. The district courts hear criminal cases that arise under federal statutes and civil actions that arise under federal statutes or the US Constitution. The district courts will also entertain what are known as diversity actions, which involve a controversy between citizens of different states that involves a specified minimum sum. (The requisite amount in controversy has varied over time.)

Federal district courts have exclusive jurisdiction with regard to certain matters; these issues cannot be tried in state courts. In other matters, the federal courts may share jurisdiction with the state courts (concurrent jurisdiction).

Circuit courts of appeal hear appeals from the decisions of the federal district courts located within the relevant circuit. Appeals from the circuit courts of appeal to the US Supreme Court are not automatic. Rather, the party wishing to have the case heard by the Supreme Court must petition the Court to hear the case by filing a writ of certiorari.

The federal court system also includes various specialized courts whose jurisdiction is limited to specified matters, such as bankruptcy and tax. There are also administrative courts with limited jurisdiction, such as the Executive Office for Immigration Review and the National Labor Relations Board.

The scope of the US Supreme Court's authority was not established until 1803, with the decision in the case of *Marbury v. Madison* (1803). This case involved a refusal by Secretary of State Madison to deliver to two individuals their commissions as justices of the peace in the District of Columbia. Their appointments had been advised and consented by the US Senate as required by the Constitution, and the commissions had been signed by the past president. The court held that the appointment is complete and irrevocable after the commission is signed by the President and transmitted to the Secretary of State to be sealed and recorded. As a result of this decision, it became clear that it is the responsibility of the judiciary to say what the law is, that any law that conflicts with the Constitution is void, and that the courts and all other governmental branches and entities are bound by the provisions of the Constitution.

Judicial decisions are subordinate to statutes if the statutes are not in conflict with the relevant provisions of the applicable federal or state constitutions or with other statutes. Under our common law system of law, courts are guided in their decisions by the precedential decisions relating to similar issues that are entered by higher level courts within the same jurisdiction and by the court of last resort. For example, precedential decisions rendered by a federal circuit court of appeals are binding on federal district courts within that jurisdiction but not those district courts that are situated in a different circuit. All courts are bound by the decisions of the US Supreme Court. In essence, this is a

body of law that is judicially made apart from statutory law. Every state has its own body of common law, and a federal body of common law exists as well. The judiciary is also charged with the interpretation of statutes and ordinances. The extent of courts' authority in this regard is discussed in greater detail in the chapters that follow.

State Courts

Although the structure of the state court system varies by state, there are generally three principal levels: courts of general jurisdiction that hear misdemeanor cases and civil cases involving a sum that is less than a specified maximum; an intermediate-level appellate court that hears appeals from these lower courts in addition to more serious criminal matters and civil cases involving sums above a threshold amount; and a state supreme court that hears appeals from the intermediate-level appellate courts. States also have specialized courts, which may include probate court, housing court, juvenile court, family court, mental health court, drug court, traffic court, and others.

At both the state and federal levels, depending upon the specific case, judges and juries may hear and weigh the opinions of expert witnesses in rendering a decision. Reliance on epidemiologists is becoming increasingly common, as the following chapters illustrate.

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