



**The Legal Network Analyzer (LENA)  
and  
The Emergency Law Database (ELDB)  
User Guides**

## Section 1.0 Introduction to LENA

**NOTE:** The content on this site is offered only as a public service and does not constitute solicitation or provision of legal advice. This site and these tools should not be used as a substitute for obtaining legal advice from an attorney licensed or authorized to practice in your jurisdiction. You should always consult a suitably qualified attorney regarding any specific legal problem or matter.

The **Legal Network Analyzer (LENA)** and **Emergency Law Database (ELDB)** are tools developed by the Center for Public Health Practice at the University of Pittsburgh Graduate School of Public Health to help individuals understand the emergency laws that direct **public health system agents (“PHS agents”)** to work collaboratively. The PHS agents serving as the bases for the tools are shown and defined in **Figure 1. PHS Agents Included in LENA and the ELDB.**

LENA has three primary uses:

- LENA allows individuals to create a LENA Network Map showing which PHS agents are required by law to work with other agents in a single jurisdiction.
- LENA allows individuals to create a LENA Network Map that compares which PHS agents are required to work in one jurisdiction with those PHS agents in a second jurisdiction.
- LENA can be used to access the ELDB, a searchable repository of over 5,900 laws.

LENA Network Maps can be created in 13 jurisdictions: Alaska; California; Florida; Kansas; Maryland; New York; North Dakota; Ohio; Pennsylvania; Rhode Island; Texas; Wisconsin; and, the federal government.

**Figure 1. PHS Agents Included in LENA and the ELDB**

PHS Agents	
<b>Administrative Agencies:</b> A federal, state, or local department or agency that is not part of the legislative or judicial branches and that has power delegated to it by Congress or the state legislature to make administrative decisions.	<b>Fire:</b> A federal, state, or local department operating with the intent and purpose of carrying out the duties, functions, powers, and responsibilities normally associated with a fire department, including the protection of life and property against fire, explosions, and other hazards. This definition includes both paid and voluntary fire departments. This definition also includes individuals, fire protection districts, fire safety organizations which counsel fire departments on best practices, and fire-related commissions which set regulatory measures.
<b>Community Health Center:</b> A public or incorporated nonprofit health facility that provides comprehensive primary health care to citizens in a community. This definition includes poison control centers, drug facilities, ambulatory care facilities, and renal dialysis facilities. This definition does not include facilities that primarily provide behavioral and mental health services.	<b>Governmental Public Health:</b> An organization and its divisions designated by the federal, state, or local government as having the usual powers and duties of a board of health or health department to protect and preserve the public’s health. This definition includes epidemiologists, medical examiners, and coroners.
<b>Civic:</b> A non-profit entity that is organized primarily for civic, fraternal, or charitable purposes. This definition includes the American Red Cross, volunteers/volunteer organizations, food banks, non-profit organizations such as the Small Business Association, and libraries.	<b>Home Health Care:</b> An agency that furnishes medical and custodial care services to ill, disabled, or infirm individuals in their homes or residences.

**Figure 1. continued**

<p><b>Corrections:</b> An entity responsible for supervising adults and juvenile offenders, including their confinement, detention, care, and treatment. This definition includes boards of probation and parole.</p>	<p><b>Hospitals:</b> An institution that, under the supervision of licensed doctors, primarily provides inpatient services for individuals who are sick, injured, or disabled. This definition includes rehabilitative facilities, but not facilities that primarily provide skilled nursing care (such as nursing homes and other long-term facilities).</p>
<p><b>Department of Agriculture:</b> An executive branch agency or department at the federal or state level responsible for agricultural development. Responsibilities of departments of agriculture may also include animal health, plant health, and/or food safety and inspection.</p>	<p><b>Laboratory:</b> A facility for biological, serological, biophysical, cytological, and pathological tests, as well as a facility for the chemical or other examination of materials from water, air, or other substances.</p>
<p><b>Department of Environmental Protection:</b> An executive branch agency or department at the federal or state level responsible for ensuring clean air, clean water, and clean soil. Responsibilities of departments of environmental protection may also include waste recycling and reduction, seismic safety and/or the cleanup of hazardous waste sites and spills. This definition includes agencies as being state-related agencies of the Federal Department of Environmental Protection (see: <a href="http://www.epa.gov/epahome/state.htm">http://www.epa.gov/epahome/state.htm</a>) and departments of water resources.</p>	<p><b>Law Enforcement:</b> A publicly funded public service organization whose principal activities pertain to crime prevention, control, reduction of crime, or to enforcement of the law. This definition includes departments of public safety and motor vehicles, the FBI, and law enforcement commissions which set standards and training practices.</p>
<p><b>Department of Transportation:</b> An executive branch agency or department at the federal or state level responsible for the safety and mobility of the transportation system. This definition includes turnpike commissions.</p>	<p><b>Long Term Care:</b> A residential facility that provides skilled nursing care, intermediate care, assisted living facility, home for the aged (including community care facilities).</p>
<p><b>Doctor/Health Care Provider:</b> A person required by state or federal law or regulation to be licensed, registered, or certified to provide health care services. This definition includes physicians, nurses, medical examiners/coroners, pharmacists, social workers, and health care therapists/specialists.</p>	<p><b>Mental Health:</b> A medical or non-medical service designed to address behavioral and mental health issues. A mental health professional includes psychiatrists, psychologists, licensed social workers, licensed professional counselors, psychiatric nurse specialists, and psychotherapists. This definition includes psychiatric hospitals.</p>
<p><b>Elected Officials:</b> Persons voted into positions of government, including federal, state, county, local, or regional levels of jurisdiction. Examples include President, Governor, Commissioner, County Executive.</p>	<p><b>Public/Individuals:</b> An individual or a group of individuals who are not subordinate, functionally related, or connected to any federal, state, or local governmental agencies, or to any of the other public health agents defined herein.</p>
<p><b>Emergency Management Agency:</b> A federal emergency management agency, state office or agency of emergency management, and/or county or municipal agencies that have been designated as local emergency management agencies. This definition does not include emergency management services, fire departments, law enforcement, or other agencies defined elsewhere under these definitions.</p>	<p><b>Schools:</b> A public or private educational institution encompassing kindergarten through twelfth grade, and post-secondary educational institutions, including vocational and technical schools. This definition does not include day care centers or tribal schools.</p>
<p><b>Emergency Medical Service:</b> An entity that provides immediate stabilization care as required by an emergency. This definition includes the care and transportation of individuals by ambulance services and the performance of authorized emergency care by a physician, professional nurse, a licensed physician assistant, or other authorized attendant.</p>	<p><b>Special Response Team:</b> A complement of individuals or entities organized with the intent of providing a specified aspect of emergency preparedness, planning, or response in accordance with standards developed by a federal, state, local emergency management agency, or Department of Homeland Security.</p>

**Figure 1. continued**

<p><b>Employer:</b> An institution, organization, person, or other entity that pays a salary or wages to an employee(s). This definition does not include the United States, any state or political subdivision of a state, or any agency thereof as an employer.</p>	<p><b>Transit: Transportation by a conveyance that provides regular and continuing general or special transportation to the public. This definition includes port authorities, transportation authorities, and water transportation authorities. This definition does not include school bus, charter, or sightseeing transportation.</b></p>
<p><b>Faith Institution:</b> A church, ecclesiastical, or denominational organization at which nonprofit religious services and activities are regularly conducted, and any bona fide religious group that does not maintain a specific place of worship. "Religious institution" includes any separate group or corporation that forms an integral part of a religious institution that is exempt from federal income tax under the provisions of section 501(c)(3) of the Internal Revenue Code, and that is primarily supported by funds solicited inside its own membership or congregation.</p>	<p><b>Tribal Health:</b> Any tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation. This definition includes health programs or facilities pertaining to Indian tribes.</p>

## Section 1.1 The Components of LENA

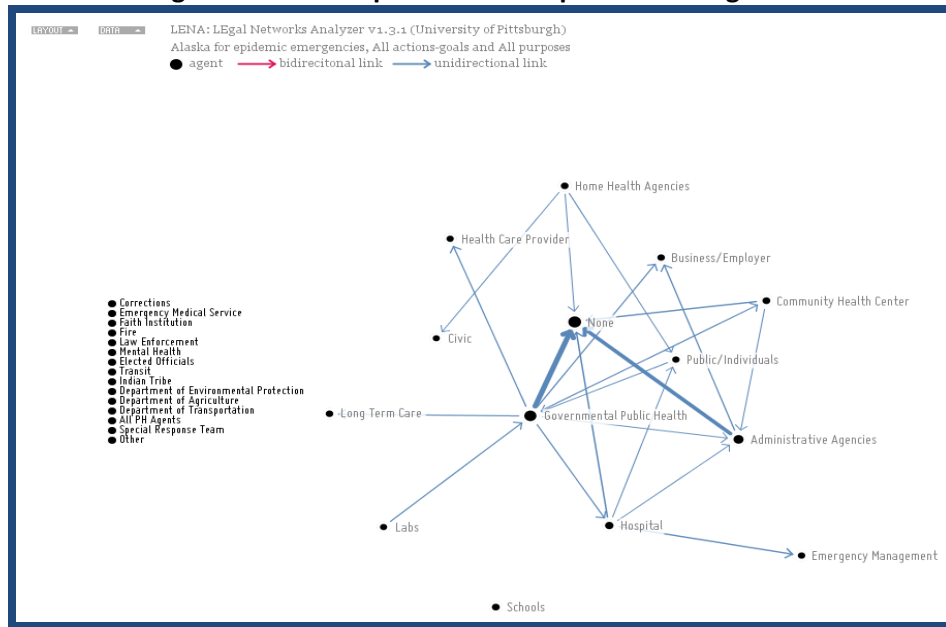
The first screen that appears when LENA is accessed is its **Default Screen (Figure 2)**. The Default Screen is an otherwise empty page instructing the individual to select a jurisdiction. Hints appear at the left bottom corner.

**Figure 2. Default Screen**



The individual is instructed to select a state from the "Data" menu. For example, if Alaska is selected, a network is created showing all the PHS agents involved, along with their connections, as shown in **Figure 3**, for epidemic emergencies in the state of Alaska.

**Figure 3. LENA Map for Alaska – Epidemic Emergencies**



The networks created through LENA are comprised of circles that represent PHS Agents and lines that connect PHS Agents if there is a law or a series of laws directing the agents to work together.

- **Circles.** The circles (or “nodes”) represent the 26 PHS agents shown in **Figure 1**.
  - The size of the circle corresponds to how central the PHS agent is to the network. The larger the circle, the more central the PHS agent is to the network. On the Alaska network shown in **Figure 3**, Governmental Public Health, Administrative Agencies, and None are represented by the largest circles and are the most central to the network.
    - The node “None” is used when a PHS Agent is directed to perform a function, but is not required to collaborate with any other PHS Agent. For example, a hospital might be required to prepare an emergency plan but is not be required to work with another PHS Agent to do so. On the Alaska network shown in **Figure 3**, Home Health Care, Hospital, Governmental Public Health, Community Health Center, and Administrative Agency are all connected to the None node.
  - A PHS Agent that is in the network but is not connected to another PHS Agent with a line is an “Isolated PHS Agent.” This means that the PHS agent is directed to perform a function with itself. For example, a school nurse may be directed to report a child with an infectious disease to the principal of the school but not to any outside PHS Agent. On the Alaska network shown in **Figure 3**, Schools is an Isolated PHS Agent.
  - The PHS Agents on the left hand side of the screen are not legally required to perform any function in the network. On the Alaska network shown in **Figure 3**, there are such 15 agents.
- **Lines.** The lines (or “edges”) connect PHS Agents when there is a law or group of laws directing two PHS Agents to work together.
  - The blue lines are unidirectional, meaning that that one PHS Agent (Acting PHS Agent), is legally directed to perform a function with another agent (Participating PHS Agent), but the Participating PHS Agent is not legally required to perform a function with the Acting PHS Agent. All of the relationships shown in **Figure 3** are unidirectional.
  - The red lines are bidirectional, meaning that the Acting PHS Agent is legally directed to perform a function with a Participating PHS Agent and the Participating PHS Agent is legally required to perform a function with the Acting PHS Agent. There are no bidirectional relationships in the Alaska network shown in **Figure 3**.
  - The thickness of the lines connecting PHS public agents signifies the number of laws directing the PHS agents to collaborate (or “frequency”). The thicker the line, the greater the number of laws directing

functions between the agents. On the Alaska network shown in **Figure 3**, there are more laws directing Governmental Public Health and Administrative Agencies to work with None than the other PHS Agent pairings.

## Section 1.2 Creating a LENA Network Map for One Jurisdiction

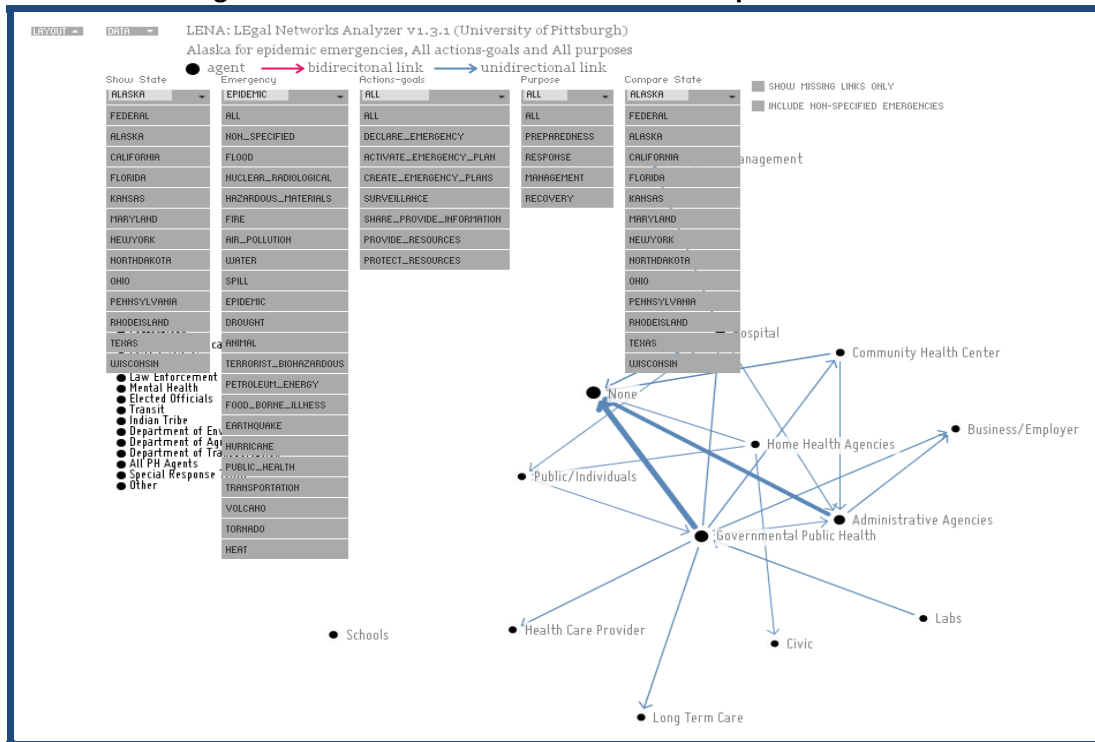
A LENA Network Map of a single jurisdiction is created by selecting a Show State, an Emergency type, an Action-goals pairing, and a Purpose from drop down menus located across the top of the screen. See **Figure 4**. **LENA Drop Down Menus.**

**Figure 4. LENA Drop Down Menus**



One selection can be made from each of the five drop down menus. In addition, there are two boxes that can be clicked.

**Figure 5. Available Selections from LENA Drop Down Menus**

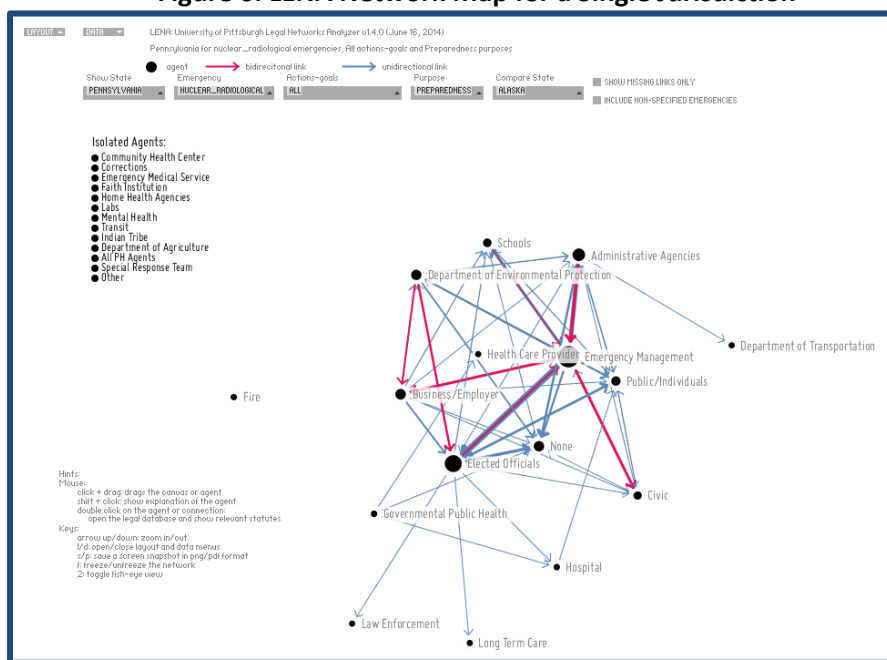


- **Show State.** The Show State is the jurisdiction for which the LENA Network Map is being drawn. There are 13 jurisdictions that can be selected: Alaska; California; Florida; Kansas; Maryland; New York; North Dakota; Ohio; Pennsylvania; Rhode Island; Texas; Wisconsin; and, the federal government.
- **Emergency.** The Emergency is the type of natural or man-made disaster. There are 21 types of emergencies that can be selected. Select "All" to create a LENA Network Map that includes all types of emergencies.
- **Action-goals.** The Action-goals are functions that the PHS agents perform. There are 7 specific action-goal pairings. Select "All" to create a LENA Network Map that includes all functions.
- **Purpose.** The Purpose means whether the Action-goals are performed for Emergency Preparedness, Response, Management, or Recovery. Select "All" to create a LENA Network Map that includes all Purposes.

- **Compare State.** The Compare State menu is only used when comparing jurisdictions, not for creating a LENA Network Map for one jurisdiction. See **Section 1.3**.
- **Include Non-Specified Emergencies.** Non-Specified Emergencies occur when a law refers to an emergency, but does not state specifically what kind of emergency it is.
- **Show Missing Links Only.** The Show Missing Links Only box is only used when comparing jurisdictions, not for creating a LENA Network Map for one jurisdiction. See **Section 1.3 Creating a LENA Network Map Comparing Two Jurisdictions**.

**Example of a Network Map for a Single Jurisdiction**

**Figure 6. LENA Network Map for a Single Jurisdiction**



**Figure 6** is an example of a LENA Network Map for a single jurisdiction created using the following selections from the drop down menus:

- **Show State:** Pennsylvania
- **Emergency:** Nuclear-Radiologic
- **Action-goals:** All
- **Purpose:** Preparedness
- **Compare State.** No Compare State is selected since a single jurisdiction map is being created. Alaska is the default Compare State.
- **Include Non-Specified Emergencies:** Not Selected
- **Show Missing Links Only.** Not selected since a single jurisdiction map is being created

There are both unidirectional and bidirectional relationships in **Figure 6**. Emergency Management Agency and Elected Officials are most central to this network. Fire is an Isolated PHS Agent. Twelve PHS Agents have no legally directed function in this network. See **Section 1.1 Components of LENA** for additional information.

**Section 1.3 Creating a LENA Network Map Comparing Two Jurisdictions**

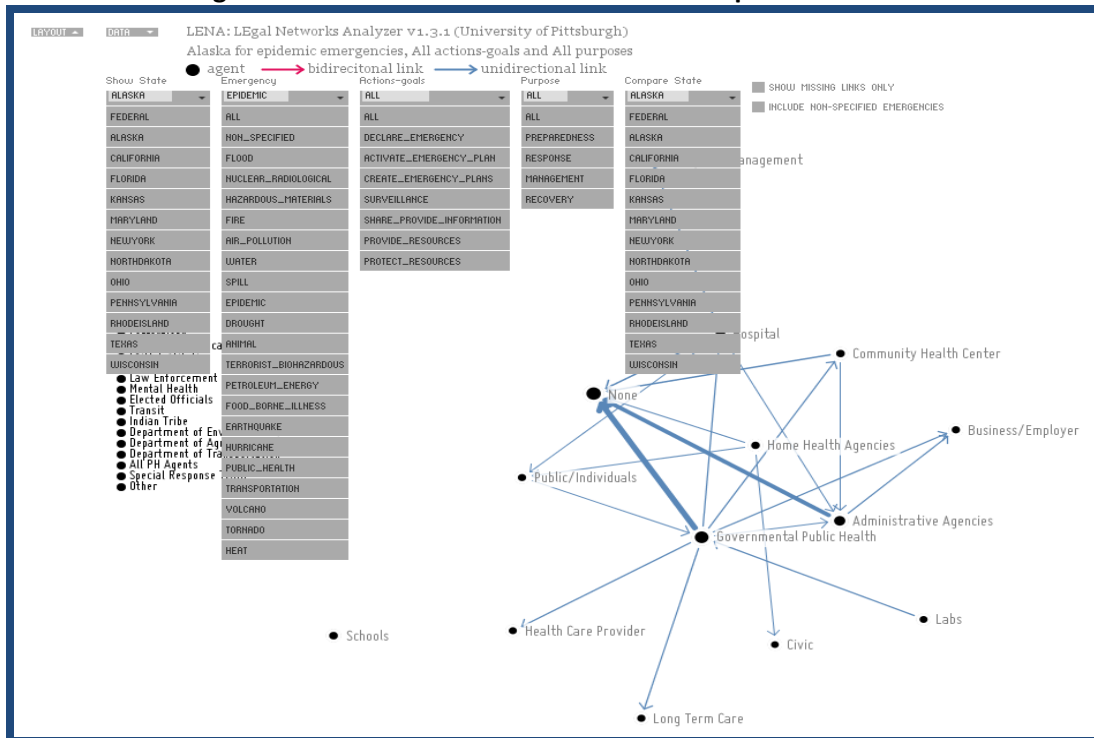
A LENA Network Map comparing two jurisdictions is created by selecting a Show State, an Emergency type, an Action-goals pairing, and a Purpose from drop down menus located across the top of the screen. See **Figure 4. LENA Drop Down Menus**.

Figure 4. LENA Drop Down Menus



One selection can be made from each of the five drop down menus. In addition, there are two boxes that can be clicked.

Figure 5. Available Selections from LENA Drop Down Menus



- **Show State.** The Show State is the first jurisdiction for which a network map is being drawn. There are 13 jurisdictions that can be selected: Alaska; California; Florida; Kansas; Maryland; New York; North Dakota; Ohio; Pennsylvania; Rhode Island; Texas; Wisconsin; and, the federal government.
- **Emergency.** The Emergency is the type of natural or man-made disaster. There are 21 types of emergencies that can be selected. Select "All" to compare LENA Network Maps that include all types of emergencies.
- **Action-goals.** The Action-goals are functions that the PHS Agents perform. There are 7 specific action-goal pairings. Select "All" to compare LENA Network Maps that include all functions.
- **Purpose.** The Purpose means whether the Action-goals are performed for Emergency Preparedness, Response, Management, or Recovery. Select "All" to compare LENA Network Map that includes all Purposes.
- **Compare State.** The Compare State is the jurisdiction that is being compared to the Show State. There are 13 jurisdictions that can be selected: Alaska; California; Florida; Kansas; Maryland; New York; North Dakota; Ohio; Pennsylvania; Rhode Island; Texas; Wisconsin; and, the federal government.
- **Include Non-Specified Emergencies.** Non-Specified Emergencies occur when a law refers to an emergency, but does not state specifically what kind of emergency it is. Select this box to compare Network Maps that include laws that refer to a specified emergency, such as "Epidemic," as well as those that refer to "Emergency" in general.
- **Show Missing Links Only.** The Show Missing Links Only will show only the relationships that exist in the Show State and not in the Compare State.



### Lines on the Network Map Comparing Two Jurisdictions

- **Pink lines** on a LENA Network Map comparing two jurisdictions show relationships that are similar in both the Show State and the Compare State.
- **Green lines** on a LENA Network Map comparing two jurisdictions indicate relationships that are present in the Show State but not in the Compare State.
- **Brown lines** on a LENA Network Map comparing two jurisdictions indicate relationships that are present in the Compare State but not in the Show State.

### Example of a Network Map Comparing Two Jurisdiction

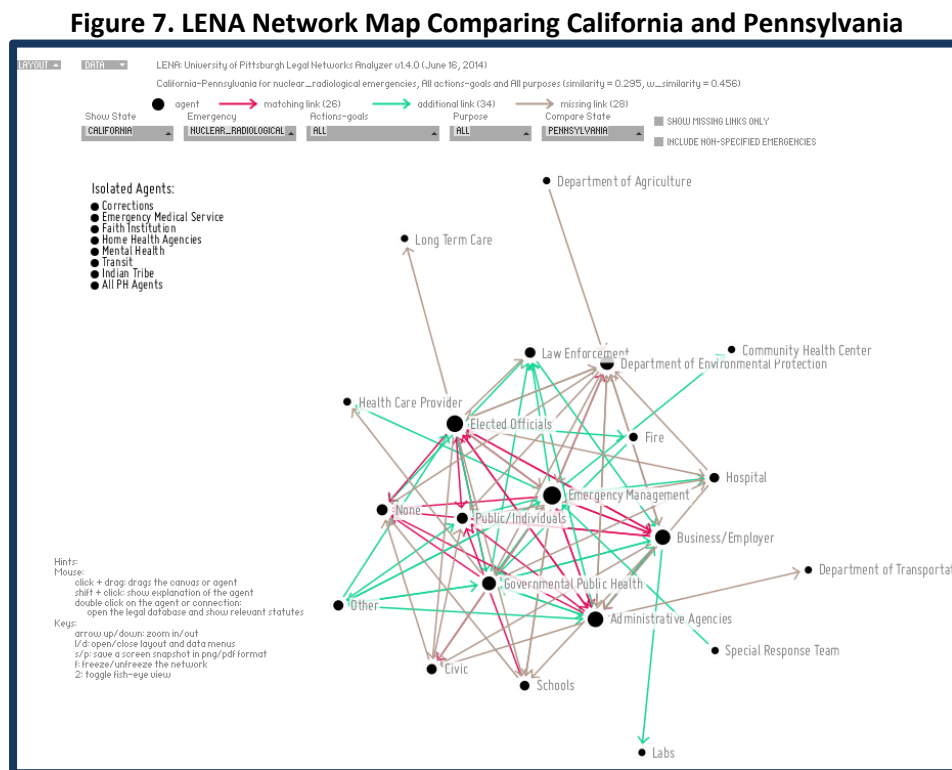


Figure 7 is a comparison of legally directed relationships in New York and Texas for surveillance activities for hurricane emergencies. The following selections were made from the drop down menu:

- **Show State:** California
- **Emergency:** Nuclear-Radiological
- **Action-goals:** All
- **Purpose:** All
- **Compare State:** Pennsylvania
- **Include Non-Specified Emergencies.** The Non-Specified Emergencies box was not selected.
- **Show Missing Links Only.** The Show Missing Links Only box was not selected.

There are 26 PHS agent pairings that are the same in California and Pennsylvania, such as Elected Officials and Business/Employer, and Emergency Management Agency and Administrative Agencies. The green lines indicate relationships that are present in California, but not in Pennsylvania, such as Business/Employer and Labs. The brown lines show relationships present in Pennsylvania but not in California, such as Civic and Elected Officials.

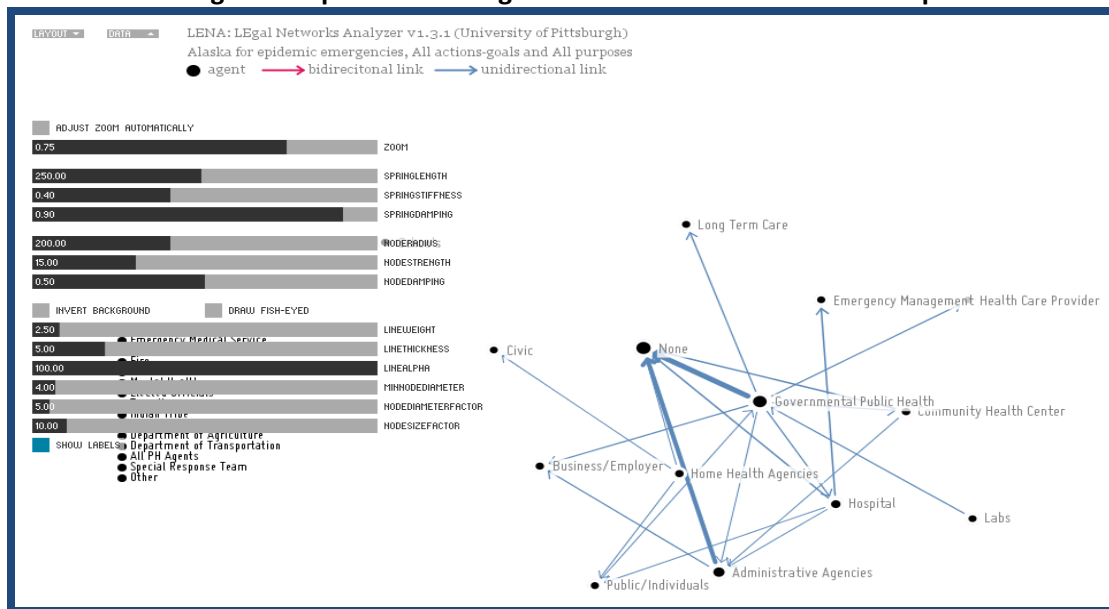
## Section 1.4 Using LENA to Access the Emergency Law Database

The LENA Network Maps act as an interface to the Emergency Law Database. Clicking on a PHS agent (i.e., a circles or node) reveals all of the laws pertaining to that agent in the created network. Clicking on the lines between PHS agents reveals all of the laws pertaining to both of the agents in the created network.

## Section 1.5 Changing the Look of the LENA Network Maps

Options in the **Layout Menu** are used to change how LENA Network Maps look. The individual can access the LENA Layout Menu by left clicking the Layout Menu option in the upper left hand corner of the screen. The screen shot in **Figure 8** shows the various options to change the look of the network map.

**Figure 8. Options to Change the Look of a LENA Network Map**



The options for changing how the LENA Network Maps look can be grouped into different sets such as the commands for zoom, line length, and node size.

- **Zoom:** Zoom adjusts the distance from which the network is visualized. “Adjust Zoom Automatically” adjusts the zoom level so that the network fits the screen.
- **Spring Length, Spring Stiffness, Spring Damping, Node Radius, Node Strength, Node Damping:** These options can be used to adjust the distance between the nodes, the speed of drawing and its settlement.
- **Invert Background:** Click this option to invert the color of the screen. A light colored background becomes dark and dark objects (lines and nodes) become light colors.
- **Draw Fish-Eyed:** Click on this option to zoom in on the central part of a network. This is useful if the central part of the network looks very crowded.
- **Line Weight, Line Thickness, Line Alpha:** These options change the size ratio of arrows and line, the thickness of lines, and the visibility of lines, respectively.
- **Min Node Diameter, Node Diameter Factor, Node Size Factor:** These commands change the parameter size of the nodes.
- **Show Labels:** Click on this option to show or hide PHS agent labels.
- **Other Commands and Shortcuts:**
  - Mouse clicks:
    - Click + Drag—Drags the canvas or agent
    - Shift + Click—shows explanations about the agent

- Double Click—opens the Emergency Law Database and shows the statutes citing the agent (when clicked on an agent) or the pair of agents (when clicked on a line)
- Arrow up/down: Zoom in/out
- l/d: open/close layout and data menus
- s/p: save a screen snapshot in png/pdf format
- f: freeze/unfreeze the network (this stops the movement of the nodes trying to settle down)
- 2: toggle fish-eyed view

## Section 2.0 Introduction to the Emergency Law Database

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The **Emergency Law Database (ELDB)** is a tool developed by the Center for Public Health Practice at the University of Pittsburgh Graduate School of Public Health to help individuals understand the emergency laws that direct **public health system agents (“PHS agents”)** to work collaboratively. See **Section 1.0 Introduction to LENA** for a description of the PHS Agents.

ELDB is a searchable repository of over 5,900 emergency laws analyzed in the PHASYS project in 13 jurisdictions: Alaska, California, Florida, Kansas, Maryland, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, Texas, Wisconsin, and the federal government. The ELDB does not contain every emergency law in these jurisdictions. The purpose of the PHASYS project is to look at which PHS agents are legally directed to work collaboratively with others for emergency preparedness, response, and recovery activities. As such, certain types of laws were deemed to be outside of the scope of this project, including most fiscal matters, laws concerning *Methicillin-resistant Staphylococcus aureus*, hospital-acquired diseases, sexually transmitted infections, and HIV/AIDS. Routine safety measures were not included as emergency measures.

## Section 2.1 Using the ELDB

The first screen that appears when the Emergency Law Database is accessed is its **Default Screen (Figure 9)**.

Figure 9. ELDB Default Screen

The screenshot displays the ELDB Default Screen interface. At the top, it features the University of Pittsburgh logo and the PHASYS Public Health Adaptive Systems Studies header. The main section is titled "Emergency Law Database" and includes a search bar with a "Your results will appear here" placeholder. Below the search bar, there are several filter sections:
 

- Jurisdiction:** A dropdown menu with options for Alaska, California, Florida, Kansas, Maryland, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, Texas, Wisconsin, and Federal.
- Acting Agents:** A section with a "None" dropdown and a "Subsets" dropdown.
- Participating Agents:** A section with a "None" dropdown and a "Subsets" dropdown.
- Additional Search Parameters:** A section with multiple dropdown menus for "Emergencies", "Actions", "Preparations", "Conditions", "Timeliness", "Goals", and "Preparedness".

 At the bottom, there is a "Search" button and a "Clear All Values" button. The interface is designed for filtering and searching through a large database of emergency laws.

Laws are searched by terms entered in the **Enter the Keyword(s)** space. Entering a single term, for example, “quarantine,” brings up all of the laws that contain that word. Two or more terms, such as “quarantine” and “isolation” can also be entered in the Enter the Keyword(s) space. Multiple terms must be separated by a comma. Clicking “or” to the right of the keywords will bring up all the laws that contain either term. Clicking “and” to the right of the keywords will bring up all the laws that contain both the terms. A listing of citations appears under the “Your results will appear here” column on the left-hand side of the screen. Clicking on the citation will take the individual to the full text of the statute or regulation.

The scope of laws can be narrowed by selecting one or more qualifier described below. A single qualifier, multiple qualifiers, or all qualifiers can be selected.

- **Jurisdiction.** Laws can be searched in one or more of the following jurisdictions: Alaska; California; Florida; Kansas; Maryland; New York; North Dakota; Ohio; Pennsylvania; Rhode Island; Texas; Wisconsin; and, the federal government.
- **Acting Agents.** Acting agents are those entities and individuals legally directed to perform a function.
  - **Nodes.** A single acting agent, multiple acting agents, or all 26 acting agents can be selected.
  - **Subsets.** Subsets represent the level of the acting agent, such as federal, state, or local.
  - **Footnotes.** These entities and individuals are in addition to the 26 PHS agents. The footnoted agents are not represented in the LENA network maps.
- **Participating Agents.** Participating agents are those entities and individuals with which acting agents are legally directed to perform functions.
  - **Nodes.** A single participating agent, multiple participating agents, or all 26 participating agents can be selected.
  - **Subsets.** Subsets represent the level of the participating agent, such as federal, state, or local.
  - **Footnotes.** These entities and individuals are in addition to the 26 PHS agents. The footnoted agents are not represented in the LENA network maps.
- **Additional Search Parameters**
  - **Emergencies.** The Emergency is the type of natural or man-made disaster.
  - **Actions.** Actions are the verbs characterizing what is to be done, such as “prepare.”
  - **Goals.** Goals are the object of the action, such as “a plan.”
  - **Prescriptions.** Prescriptions are whether the law states a mandate, a prohibition, or an option.
  - **Conditions.** Conditions are a precipitating event, such as “when an emergency is declared.”
  - **Timeframes.** Timeframes are the period during which an Action/Goal activity is to take place, such as “immediately” or “within 24 hours.”
  - **Purposes.** Purposes are whether the Action/Goal activities are for emergency preparedness, mitigation, response, or recovery.

The number of citations that appear per screen can be selected at the bottom of the screen.