

Home Rule-Emergency Medical Services (EMS) Project

A Snapshot of State and Local Laws, EMS Funding, and Organization

May 9, 2023 | Moriah Bailey, JD and Amanda Brown, JD, DrPH

AREB Coffee Breaks 2023

Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Division for Heart Disease and Stroke Prevention



Hello and welcome to today's Coffee Break presented by the Applied Research and Evaluation Branch in the Division for Heart Disease and Stroke Prevention at the Centers for Disease Control and Prevention.

My name is Cindy Huang, and I am an ORISE Fellow and I will be acting as today's moderator. Our presenters today are Moriah Bailey, a contracted Public Health Advisor, and Amanda Brown, a contracted Public Health Policy Analyst, both on the Applied Research and Translation Team within the Division for Heart Disease and Stroke Prevention's Applied Research and Evaluation Branch.

Before We Begin...

- Any issues or questions?
- Use Q & A box on your screen
- Email AREBHeartInfo@cdc.gov



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Before we begin, there are some housekeeping items. If you are having issues with audio or seeing the presentation, please message us using the Q&A or send us an email at AREBheartinfo@cdc.gov. Please submit any questions for the presenters using the Q&A as well. Since this is a training series on applied research and evaluation, we hope you will complete the poll at the end of the presentation and provide us with your feedback.

Disclaimer

The information presented here is for training purposes and reflects the views of the presenters. It does not necessarily represent the official position of the Centers for Disease Control and Prevention.

This presentation is not intended to promote any particular legislative, regulatory, or government action.

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So, without further delay. Let's get started. Moriah and Amanda, the floor is yours.

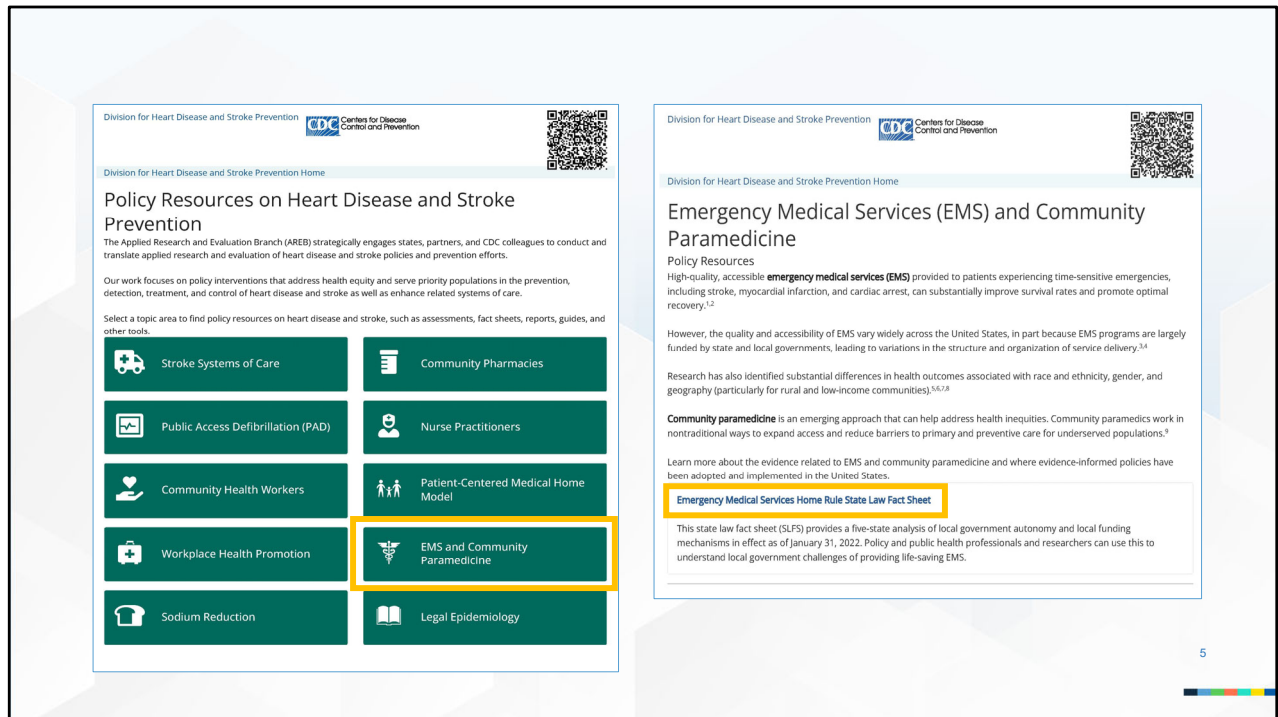
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- Project Background & Overview
- New & Upcoming Products
 - Methods
 - Findings
 - Conclusions
 - Implications
- Q&A

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Good afternoon, my name is Moriah Bailey. Today, I will be presenting alongside my colleague Amanda Brown.

During today's presentation, we'll give a brief project background and overview and introduce recently developed products, and then we will walkthrough the methods, findings, and conclusions of each product. Discuss the public health implications from our studies combined. We will end with a Q&A session.



Before we get into our work we would like to show you the new location of our EMS & Community Paramedicine policy work. This slide shows the policy resource webpage for the Applied Research and Evaluation Branch (AREB) of the Division for Heart Disease and Stroke Prevention. We have recently added a new button for EMS and Community Paramedicine. Currently, this new webpage houses the EMS Home Rule State Law Factsheet, and we plan to build out more translation products in the future.

Background

- Variation in Quality of EMS
 - Differences in travel time to nearest emergency rooms
 - Greater mortality risk in rural and low-income communities
 - Differences in available funding and resources

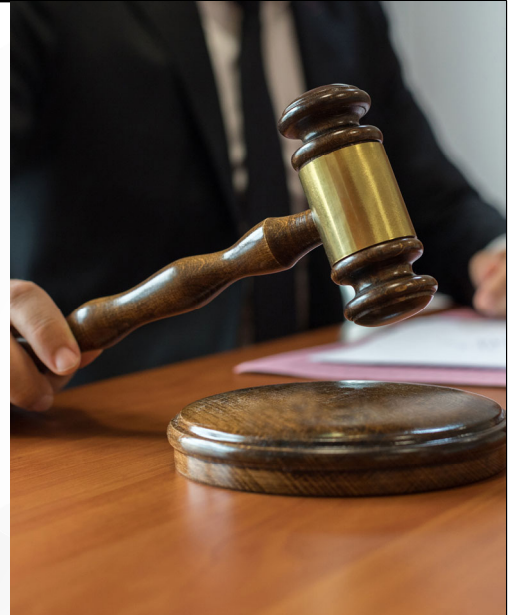


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The US has a decentralized approach to the structure and organization of EMS nationwide which has led to variation in the quality and accessibility of EMS between and within states. These variations may include differences in travel time to nearest emergency rooms, greater mortality risk in rural and low-income communities, and differences in available funding and resources.

Background *cont.*

- Home Rule Authority
 - **Delegates** a portion of state governing **authority** to local governments.
 - **Empowers local governments** to enact own laws to address issues of local concern.
 - Provides local governments the **authority and flexibility** to adopt their own public health laws around **provision and funding of emergency medical care**.



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Local government autonomy may play a crucial role in giving local government units the flexibility to create and fund EMS with limited local resources. Home Rule authority delegates a portion of state governing authority to local governments. It empowers local governments to enact their own laws to address issues of local concern, and it provides local governments the authority and flexibility to adopt their own public health laws around provision and funding of emergency medical care.

Home Rule-EMS Project

Examine

Examine home rule or local autonomy conferred by states upon local governments.

Analyze

Analyze the relationship between local government autonomy, the availability of local EMS funding mechanisms, and the provision of EMS

Explore

Explore the relationship between laws granting local autonomy; housing affordability; and stroke, myocardial infarction, cardiac arrest, and related outcomes.

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The HR-EMS project is designed to

- Examine home rule or local autonomy conferred by states upon local governments,
- Analyze the relationship between local government autonomy, the availability of local EMS funding mechanisms, and the provision of EMS, and
- Explore the relationship between laws granting local autonomy; housing affordability; and stroke, myocardial infarction, cardiac arrest, and related outcomes.

Home Rule-EMS Project Products

- 1 EMS Home Rule State Law Fact Sheet
- 2 EMS Primer: Local Authority, EMS Funding, Organization, and Management
- 3 EMS Primer: A Look at Disparities in Funding and Outcomes

Our Home Rule EMS Project currently has one published product and two products forthcoming....

The newly released product is a state law fact sheet that walks through the types of state laws analyzed between January 2021 and January 2022 by public health attorneys on the Applied Research and Translation Team in AREB. It describes the collection and analysis of state laws related to local government autonomy to establish and fund local EMS. We will drop the link to the EMS Home Rule State Law Fact sheet in the chat for you all.

View the EMS Home Rule State Law Factsheet here:

https://www.cdc.gov/dhdsp/policy_resources/ems/home_rule.htm

The two forthcoming products are policy primers. The first policy primer focuses on Local Authority, Funding, Organization, and Management of emergency medical services; while the second examines disparities in funding and outcomes.



EMS HOME RULE STATE LAW FACT SHEET

Next, we'll discuss the methods, findings, and conclusions of the state law fact sheet.

EMS Home Rule State Law Fact Sheet

A Five-State Analysis of Local Government Autonomy and Local EMS Funding Mechanisms in Effect as of January 31, 2022

Public Hearing and Notice Requirements

	Alabama	California	Georgia	Massachusetts	Ohio
Alabama	Public hearings and notice required for debt				
California		Public notice only required for short term borrowing			
Georgia			Public notice and hearings required for municipal bonds		
Massachusetts				Public hearings and hearings required prior to issuance of local bonds	
Ohio					No public hearings or notice requirement analyzed

Authorized Special Districts by Category

	Alabama	California	Georgia	Massachusetts	Ohio
Community Services					
EMS					
Fire Services					
General Services					
Health					
Hospital					
Special Improvement					
Tax					

Tax Limit Overrides Allowed

	Alabama	California	Georgia	Massachusetts	Ohio
Alabama	"Hard ceiling": Voters may override the general tax limits up to a specified maximum				
California		No general override of 1% tax limit			
Georgia			No general property tax limit to override		
Massachusetts				Tax limit can be overridden with supermajority vote	
Ohio					Property tax limit can be overridden by a majority vote or a charter provision

- Introduces the influence that local government autonomy and property tax laws have on EMS and health outcomes.
- Describes the collection and analysis of state laws related to local government autonomy to establish and fund EMS.
- Fills knowledge gap on local governments' ability to provide and fund emergency medical services through local autonomy laws, tax laws, and special district laws.

Figures included in the EMS Home Rule State Law Fact Sheet.

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As previously discussed, the Home Rule-EMS project was created to assess the influence of local government autonomy on emergency medical services and its relation to cardiovascular disease outcomes in medically underserved communities.

The EMS home rule state law fact sheet, published in November 2022, describes the collection and analysis of state laws related to local government autonomy to establish and fund local EMS in five states.

To the best of our knowledge and after an extensive literature review, this is the first study to capture local governments' ability to provide and fund services by gathering data on local autonomy, local taxes, and special districts. The state law fact sheet was developed to help public health decisionmakers, public health practitioners, and researchers to understand structures, facilitators and challenges facing local governments in their ability to provide and fund life-saving EMS services as well as advance health equity.

EMS Home Rule State Law Fact Sheet

State Law Policy Surveillance



States Selected

State Selection Criteria

- ✓ Geographic diversity
- ✓ Rural/urban breakdown
- ✓ Economic diversity of local property taxes
- ✓ Availability of public information

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For the state law fact sheet, we selected Alabama, California, Georgia, Massachusetts, and Ohio based on their geographic diversity, the rural/urban breakdown within each state, economic diversity in the amount of local government revenue generated from property taxes, and availability of public information.

EMS Home Rule State Law Fact Sheet

State Law Policy Surveillance *cont.*



Alabama



California



Georgia



Ohio



Massachusetts

State Laws Related to EMS Funding

- Local taxes
- Special districts
- Mutual aid contracts
- Government bonds
- Fees

Inclusion Criteria

- Local government autonomy
- Establishment of local EMS
- Funding local EMS

Exclusion Criteria

- Case law
- Property laws concerning eminent domain, blighted property, or tax penalties

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Through our research, we found that state laws addressed local governments' ability to establish and fund local EMS through local taxes, special districts, mutual aid contracts, government bonds, and fees.

The state law fact sheet only includes state laws granting local government autonomy and laws related to the establishment and funding of local EMS services.

The analysis presented in the fact sheet does not include local autonomy or home rule authority established through case law nor property laws pertaining to eminent domain, blighted property, or tax penalties.

We would also like to note that this study is subject to limitations. First, laws analyzed in this study do not represent the totality of state laws that may address local government autonomy and the enactment of local laws permitted by state governments. Second, this state law fact sheet examines only five states, so it presents a limited analysis of the relevant laws and policies across the nation.

Local EMS Funding Sources

Local Taxes

- Special
- Property
- Sales
- Realty Transfer

Special Districts

- Fire Services
- Hospital
- EMS
- Tax
- General Services

Mutual Aid Contracts

- To provide EMS to other local government units
- To receive EMS from other local government units

Government Bonds

- Municipal
- Revenue
- Special Purpose
- General Obligation

Local Fees

- General
- User/Service
- Impact
- License

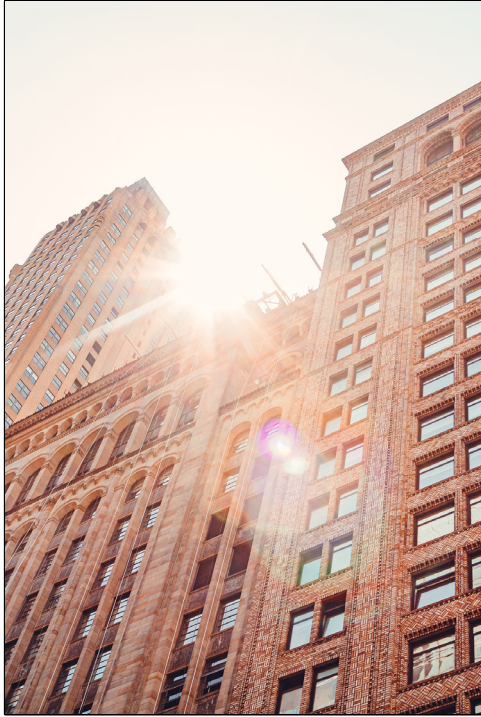


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Each of the 5 states in our study authorized their local governments to establish and fund local EMS services. EMS is funded through local taxes, special districts, mutual aid contracts, government bonds, and local fees. In table 1 of the state law fact sheet, which we are dropping in the chat box now, you will see a breakdown of what's permitted in each state. In all 5 states, local governments were permitted to levy property taxes and implement user/service fees to raise revenue for EMS.

View Table 1 of the EMS Home Rule State-Law Fact Sheet here:

https://www.cdc.gov/dhdsp/policy_resources/ems/home_rule_tables.htm#table1



Limitations and Procedural Requirements

Restrictions

- Public Purpose and Type of Local Tax Levies
- Frequency of Local Property Tax Assessments
- Maximum Local Assessment Rates
- Type of Special Districts
- Public Purpose and Type of Local Government Bonds

Procedural Requirements

- Voter Approval:
 - Establish Special Districts
 - Override Tax Limits
 - Issuance of Bonds
 - Special Tax Levies
- Public Notice
- Public Hearing

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The state law fact sheet not only discussed local government autonomy and local EMS funding mechanisms but also the limitations and procedural requirements required prior to the implementation of some funding. During our coding process, we also captured state government restrictions for each statute. All of the restrictions listed on the screen are mentioned in at least one of the statutes analyzed for each state. However, I would like to mention that Alabama was the only state that authorized local taxes and bonds with geographic limitations. Those limitations either exclude specific counties from levying a tax/issuing bonds or authorize specific counties to levy local taxes and issue bonds.

CONCLUSIONS

Understanding the relationship between a community's socioeconomic status and its EMS resources may help guide improvements and advance health equity

A community's property value influences the availability of funds for local EMS

Availability of local EMS funds through property taxes raises health equity concerns for lower-income communities



The state law fact sheet aims to illustrate how understanding local governments' legal authority to self-govern and establish local EMS agencies will aid efforts to improve health disparities in access to pre-hospital care among underserved communities across the United States.

In each state analyzed, a community's property value influenced the availability of funds for local EMS. There is a lack of research into the relationship between a community's socioeconomic status and its EMS resources. Further research can help examine EMS funding and its correlation to cardiovascular disease outcomes in disproportionately affected communities.

Availability of local EMS through property taxes raises health equity concerns for lower-income communities.

The policy surveillance information presented in this fact sheet may help guide improvements and advance health equity within states.

Now, I'll hand it over to Amanda.

EMS POLICY PRIMERS

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Good afternoon. As Moriah noted at the beginning, my name is Amanda Brown, and I will describe the EMS policy primers.

EMS Policy Primers


- Review literature on EMS organization, funding, and delivery
- Review literature on disparities in EMS services based on race, sex, income, and geography
- Explore local laws, revenue & spending, and EMS quality indicators in California
- Explore how local jurisdictions in California regulate and fund EMS
- Explore how findings in California may be relevant to EMS more broadly.

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The policy primers are similar, but somewhat longer, than fact sheets put out by AREB in the past. They provide an in-depth analysis of the organization, funding, and management of emergency medical services on the national and local level. They also identify EMS disparities based on race, sex, income, and geography. In addition, they explore local laws, revenue & spending, and EMS quality indicators in California, and they examine how local jurisdictions in California regulate and fund EMS. Lastly, they explore how findings in California may be relevant to EMS more broadly across the nation.

EMS Primers

California Policy Surveillance



Selection Criteria

- ✓ Economic, geographic, and demographic diversity
- ✓ Availability of EMS data at the state and local levels
- ✓ Type of LEMSA: 3 single-county and 2 multi-county LEMSAs

Policy Surveillance for California

- ✓ Complete a detailed literature review
- ✓ Review publicly available documents related to EMS
- ✓ Code laws related to funding and regulation of EMS
- ✓ Analyze economic and epidemiological data from LEMSA reports, WONDER database, and the Census Bureau
- ✓ Compile and analyze EMS core quality indicators

LEMSA = Local Emergency Medical Services Agency
 WONDER = Wide-ranging Online Data for Epidemiologic Research

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For both primers, our methodology included:

A selection of 11 California (CA) counties which included 5 local EMS agencies for a case study. The counties were selected based upon the following criteria:

- Economic, geographic, and demographic diversity – geographic diversity includes a mix of urban and rural counties.
- Availability of EMS data at the state and local levels
- Type of LEMSA: we included 3 single-county & 2 multi-county LEMSAs.

The methodology also included:

- A detailed literature review of emergency medical services
- Detailed review of state and local government websites and publicly available documents related to EMS within CA.
- Legal coding of local California laws related to funding and regulation of EMS.
- Compilation and analysis of economic data from LEMSA reports, including local government revenues and EMS funding sources.
- Analysis of economic and epidemiological data gathered from the WONDER database and the Census Bureau.
- And a compilation and analysis of CA EMS core quality indicators.



PRIMER 1 FINDINGS
**EMERGENCY MEDICAL SERVICES: LOCAL AUTHORITY,
FUNDING, ORGANIZATION, & MANAGEMENT**

The next group of slides will illustrate findings from the first primer, entitled Emergency Medical Services: Local Authority, Funding, Organization, and Management.

EMS Local Authority, Funding, Organization, & Management

- Rarely classified and funded as “essential services.”
- Primarily funded at the local level and often severely underfunded
- Typically concurrent state and local jurisdiction over EMS. EMS programs are usually:
 - Administered and funded at the local level but
 - Required to comply with state regulations.
- EMS systems may be run by:
 - A public health department,
 - County health service agency, or
 - Other government entity (such as a fire department).

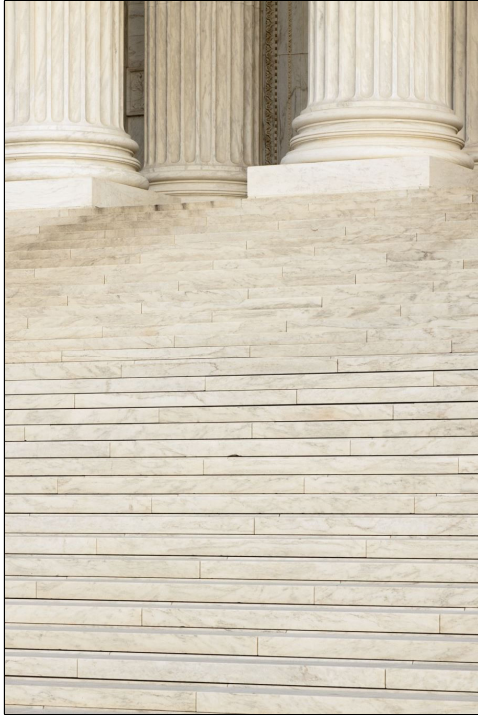
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Unlike police and fire services, it is rare for emergency medical services (EMS) to be classified and funded as “essential services.”

EMS are primarily funded at the local level, and often they are severely underfunded. One report described “the many reports of ambulances being held together with duct tape,” and “bake sales to pay for fuel.”

There is typically concurrent state and local jurisdiction over EMS. EMS programs are usually run at the local level but required to comply with state regulations.

EMS systems may be run by a public health department, county health service agency, or other government entity (such as a fire department).



California Case Study: Legal Background

- Historically, CA was considered a "home rule" state with strong local government autonomy.
- 1978: Prop 13 passed.
 - Statewide 1% limit on local property taxes.
 - Other states followed shortly after with similar limits.
- California has charter & general law counties. Charter counties:
 - Have substantial autonomy related to their own governance
 - Can supersede state laws on certain matters of local concern
 - Are still subject to strict statewide limits on local property taxes.

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Historically, CA was considered a "home rule" state with strong local government autonomy.

In 1978, Prop 13 passed. Voters pushed back against what was seen at the time as excessive taxation and spending by enacting a statewide 1% limit on local property taxes. Other states followed shortly after with similar limits.

California has two types of counties: charter and general law counties. Charter counties draft a governing document known as a charter. They have substantial autonomy related to their own governance. For example, they can pass laws that supersede state laws on certain matters of local concern. However, they are still subject to strict statewide limits on local property taxes.

Authorized Taxes and Assessments in 11 Counties In California, 2022

Special Taxes Related to the Provision of EMS & Related Services

County	Tax Purpose	Tax Amount
Alameda	Fund EMS District	\$21.14 per benefit unit
Alameda	Fund fire department to provide EMS services within EMS district	\$10.00 per benefit unit
Los Angeles	Public improvements	As authorized by special assessment
Los Angeles	Fund fire protection districts	As authorized by voters
Los Angeles	Fund fire suppression equipment	\$4.76 per acre

- Common Local Taxes**
- 1.25% sales tax (assessed by 10/11 counties reviewed),
 - Real property transfer tax of \$.55/\$500 (assessed by 9/11 counties reviewed)
 - Transient Occupancy (Hotel) Tax (assessed by 9/11 counties reviewed, ranges from 6%-12%)

- This table is based upon laws publicly available in Municode and local government websites. It is up to date as of April 2022. There may be additional laws not included in those sources. The 11 counties that were searched include Alameda, Los Angeles, Kern, Lake, Del Norte, Humboldt, Alpine, Calaveras, Mariposa, Amador, and Stanislaus.
- Some of the taxes are based upon "benefit units" of the building. Buildings are assigned between one and six benefit units based on their size and purpose. Single family residences are assigned a single benefit unit.
- All taxes are subject to approval by 2/3 of voters.

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The first table shows relevant special taxes identified during the coding process.

Alameda is the only county which has enacted an EMS-specific tax levy. It is measured in benefit units: within the county, buildings are assigned "benefit units" based upon their size and purpose. Single family residences are assigned one benefit unit.

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Los Angeles also has relevant special taxes. There, as in many places, the fire department provides EMS services, so funding for fire protection districts and even for fire suppression equipment may also benefit EMS by freeing up other funds. In addition, public improvements could include funds for EMS-related projects.

Authorized Taxes and Assessments in 11 Counties In California, 2022

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Common Local Taxes

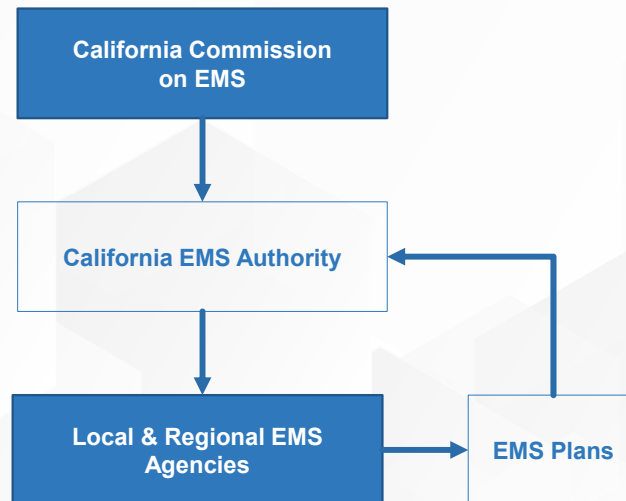
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No other counties that we studied had EMS-related special taxes; however, funds from a county's general fund can be used to provide a variety of services, including EMS. In addition to property tax, there are several common local taxes, listed in the box on the right. These include a sales tax, a real property transfer tax, and a hotel tax.

EMS Organization, Structure, and Management in California



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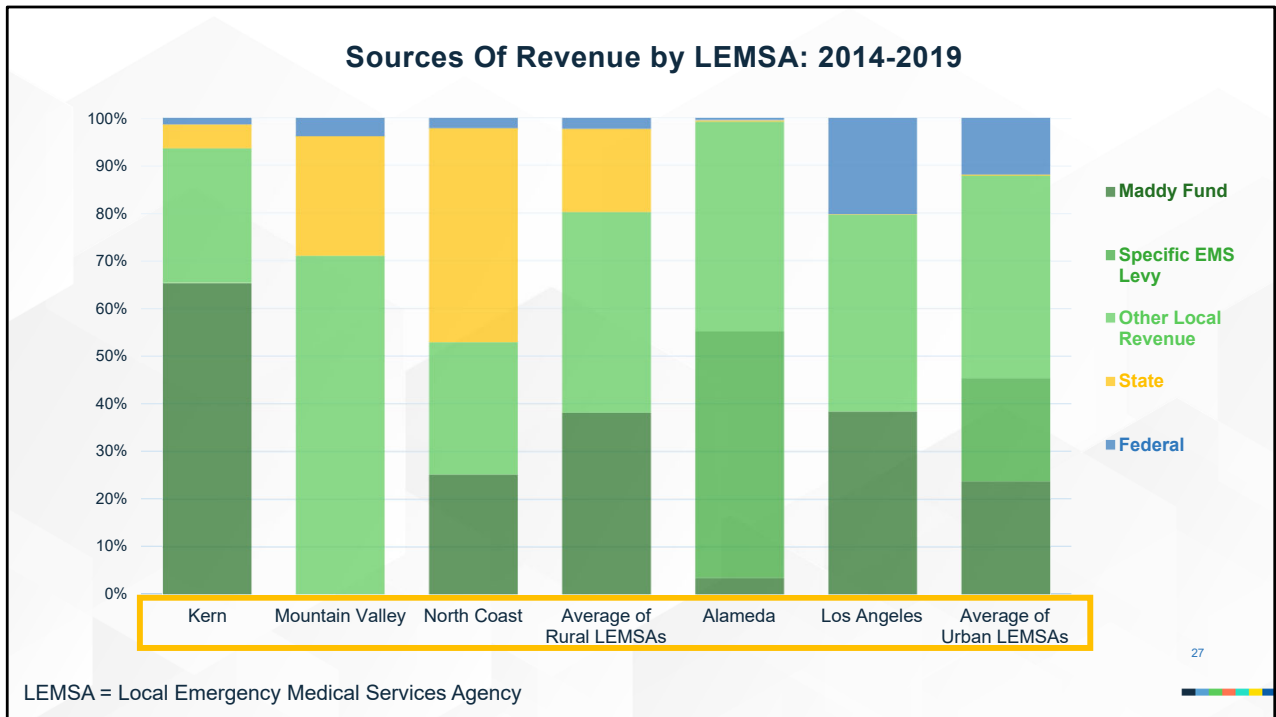
This slide provides a simplified look at EMS structure within California.

EMS is administered and funded by local and regional EMS agencies (LEMSAs).

Each LEMSA must draft and submit an EMS plan to the California EMS Authority each year.

The California EMS Authority develops regulations and guidelines for the LEMSAs and approves local EMS Plans.

Finally, the California Commission on EMS is an 18-member body representing the wide variety of EMS stakeholders, which advises and approves regulations and guidelines developed by the EMS Authority. It may also hear appeals by local EMS agencies regarding local EMS plans.



This graph shows sources of revenue for three rural local EMS agencies, Kern, Mountain Valley, and North Coast, and two urban LEMSAs: Alameda & Los Angeles.

Local sources of revenue are represented in different shades of green, and as you can see, they make up the vast majority of revenue in all five LEMSAs. The darkest shade of green represents the Maddy Fund: this is a fund generated by an assessment of an additional \$2.00 penalty for every \$10 collected in fines, penalties, and forfeitures by local governments for criminal offenses. It was designed primarily to fund uncompensated hospital care, but some of the funds may also be used to fund EMS. Rural LEMSAs are also able to receive limited funding from state governments, as shown in yellow, and Los Angeles, one of the urban LEMSAs, was able to obtain some funding from federal grants as shown in blue. Alameda is able to obtain substantial funding by levying a tax specific to EMS.



PRIMER 2 FINDINGS
EMERGENCY MEDICAL SERVICES: DISPARITIES
IN FUNDING AND OUTCOMES

The next set of slides will present findings from the second primer, entitled Emergency medical services: Disparities in Funding and Outcomes.

Nationwide Disparities in EMS

Disparities in state level funding of EMS offices

Geographic disparities in EMS based on urbanicity

Income disparities in EMS response times

Sex disparities in pre-hospital recognition of stroke

Racial disparities in the assessment and treatment for pain by EMS providers

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We found several types of nationwide disparities in EMS funding.

- First, disparities in state level funding of EMS offices:
 - Only three state governments reported providing more than \$10.00 per person annually, however
 - 24 states and the District of Columbia reported providing less than \$0.50 per person or declined to answer.
- Next, geographic disparities in EMS exist based on urbanicity. In rural areas:
 - More staff volunteer or work part time,
 - Response times are longer,
 - Paramedics typically have lower levels of certification, and
 - EMS relies heavily on fee for service funding.
- We also found income disparities in EMS response times
 - EMS response times for patients with cardiac arrest are 10% longer in low-income neighborhoods than in high income neighborhoods.
- In addition, there were sex disparities in pre-hospital recognition of stroke: Women experience less timely care and longer response times than men in the prehospital setting, specifically related to chest pain, out of hospital cardiac arrest, and provision of guideline-concordant stroke care.
- Finally, there were racial disparities in the assessment and treatment for pain by EMS

providers.

- For example, a 2019 Oregon-based study of 25,732 EMS encounters found that Hispanic and Asian patients are less likely to be assessed for pain than White patients, and Hispanic, Asian, and Black patients are less likely to be treated for pain than White patients.

California Disparities in EMS

Racial
Disparities in
EMS

Funding
Disparities in
EMS

Disparities in
EMS Core
Quality
Indicators

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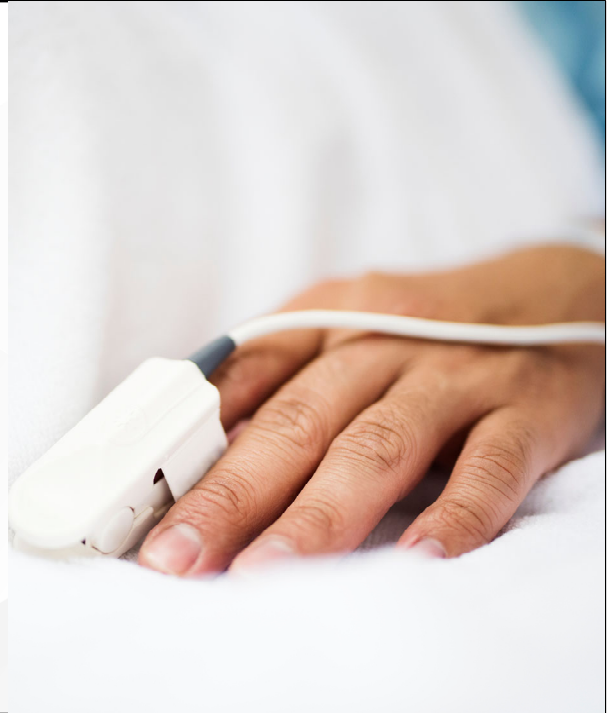
We identified three types of disparities in EMS within California, which we will describe in the following slides.

- Racial disparities
- Funding disparities
- And disparities in EMS Core Quality Indicators

California Racial Disparities in EMS

In California, black persons are:

- Disproportionately affected by crowding in emergency rooms
- More likely to encounter ambulance diversion, leading to
 - Reduced likelihood of receiving medically appropriate services
 - Less access to cardiac technology
 - Higher mortality rates



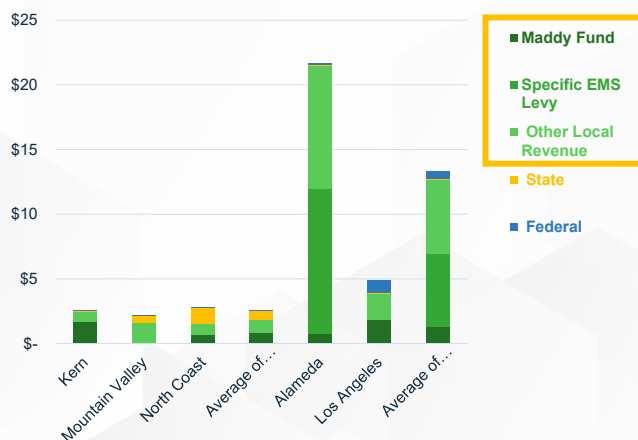
Crowding in emergency departments in California has been shown to disproportionately affect racial/ethnic minority groups, with hospitals serving predominately Black populations more likely to encounter ambulance diversion (redirection of ambulances away from hospitals because of a lack of available beds). Ambulance diversion is linked to a reduced likelihood of receiving appropriate services (e.g., revascularization), less access to cardiac technology, and higher mortality rates.

California Funding Disparities in EMS

Per Capita Spending on EMS in Five LEMSAs in 2018 or Most Recent Available Year



Sources of Revenue: Dollars per Person per LEMSA, 2014–2019



Local Emergency Medical Services Agency = LEMSA

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EMS quality is frequently compromised by insufficient funding. The graph on the left shows disparities in EMS expenditures between the LEMSAs studied. As you can see, the urban LEMSAs studied receive more funding than the rural LEMSAs, and Alameda receives substantially more than other counties as a result of its EMS tax levy.

The graph on the right shows the sources of available funds. There are three local funding sources listed: the Maddy EMS Fund, EMS levies, and all other local funding sources. There is a small amount of supplemental state funding available for multicounty LEMSAs, and some LEMSAs can get limited federal funding, but the vast majority of LEMSA revenue comes from local resources.

California Disparities in EMS Core Quality Indicators

Stroke-Related EMS Core Quality Indicators for Five LEMSAs and Statewide Median

LEMSA	STEMI Patients			Stroke Patients	
	Aspirin given	Hospital Notified in Advance	Pre-hospital screening	Glucose testing	Hospital notified in advance
Alameda	86%	89%	91%	94%	54%
Kern	52%	47%	91%	90%	36%
Los Angeles	81%	94%	98%	98%	95%
Mountain Valley	34%	78%	76%	94%	52%
North Coast	52%	21%	69%	47%	54%
Statewide Median	63%	49%	82%	90%	70%

- Percentages refer to the percent of cases meeting the core quality indicators for each LEMSA and the median for all LEMSAs statewide.
- Green indicates that the LEMSA falls within the highest quintile (20%) for a given core quality indicator, and yellow represents the bottom quintile.

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Local Emergency Medical Services Agency = LEMSA

The EMS System Core Quality Measures Project measures the quality of EMS care provided within each local EMS agency (LEMSA). The project was established in 2012 with grant funding from the California Health Care Foundation. It was created to make prehospital data more accurate and accessible for public, policy, academic, and research purposes and to highlight opportunities to evaluate and improve the quality of patient care delivered within an EMS system.

The figures on the table represent the percentages of cases meeting the core quality indicators. Those that are highlighted in green fall within the highest quintile (or 20%) statewide, and those that are highlighted in yellow fall in the bottom quintile.

The two urban LEMSAs on the table are Alameda and Los Angeles; and the three rural LEMSAs are Kern, Mountain Valley, and North Coast.

Note that in Los Angeles, all core quality indicators fall within the top quintile statewide, and in Alameda, one falls within the top quintile. None of the indicators in either LEMSA fall within the bottom quintile.

Note that Kern, Mountain Valley, and North Coast each have no quality indicators in the top quintile and at least one indicator in the bottom quintile.

Conclusions

Substantial variation in how emergency medical services (EMS) are structured, funded, and managed across the United States

Disparities and potential inequities in the funding mechanisms and comprehensiveness of EMS nationwide

Nationwide disparities in EMS based on income, sex, race, and geography

Nationwide disparities in EMS funding based on urbanicity

California rural LEMSAs: (1) receive less funding, and (2) have more core quality indicators in the bottom quintile and fewer in the top quintile

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There is substantial variation in how emergency medical services are structured, funded, and managed across the United States

This includes disparities and potential inequities in the funding mechanisms and comprehensiveness of EMS nationwide

There are also nationwide disparities in EMS based on income, sex, race, and geography, and there are nationwide disparities in EMS funding based on urbanicity.

Within the California case study, we found that rural LEMSAs: (1) receive less funding, and (2) have more core quality indicators in the bottom quintile and fewer in the top quintile

Public Health Implications



Informs selection of resource allocation measures based on population needs



Facilitates identification of best practices in local EMS approaches



Highlights health equity disparities in lower-income communities

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This study may inform resource allocation measures based on population needs. Documenting and analyzing local EMS approaches may facilitate identification of best practices. Because the majority of EMS funds come from property tax, some communities have substantially more per capita resources to provide EMS services. This study highlights health equity concerns for lower-income communities, such as access to quality care and differences in health outcomes.



Thank you!

We will now start the Q&A session.

Thank you, Moriah and Amanda! At this time, we'll take questions,. First, we'll check to see if any questions have come in through the Q&A box.

Question #1: In regards to your State Law Fact Sheet, what statutory trends did you notice in funding mechanisms among the five states?

Answer #1: In all five states, state laws permit local government units to establish local property taxes, tax districts, user/service fees, municipal or general obligation bonds, and mutual aid contracts to provide and raise revenue for local EMS services. However, it's important to keep in mind that local governments may choose not to utilize these funding mechanisms for many reasons (like public disapproval or a local government's decision to not impose more fiscal or tax burden on their community). Local governments can assess what's best for their community and exercise their local autonomy to provide for its community's needs.

Question #2: As you mentioned, all this research is new and has not been done at this scale, are you all working on any other corresponding products to build out this research?

Answer #2: We are currently working on the collection and analysis of laws from the remaining 45 states (not including DC or US territories). Once we complete the fifty state analysis, we plan to undertake a supplementary case law study in selected states. Our team is also currently using the National Emergency Medical Services Information System

(NEMSIS) and the AREB Stroke Systems of Care legal database to analyze associations between enactment of laws reflecting EMS-related best practices in stroke care and improvements in EMS-related stroke care. Finally, our team is in the preliminary stages of a related housing project examining the association between historic redlining and current housing policies such as inclusionary zoning which are designed to maximize affordable housing. Both historic redlining and availability of affordable housing are associated with improved cardiovascular outcomes. Inclusionary zoning policies are also linked to home rule, since only a limited number of local governments have the autonomy to enact them.