

Emergency Medical Services in California: Wages, Working Conditions, and Industry Profile



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EXECUTIVE SUMMARY

Emergency medical technicians (EMTs) and paramedics are the backbone of California's emergency medical services (EMS) system. These professionals deliver vital care to California families and communities when life hangs in the balance. The principal services of this workforce are transporting patients between medical facilities in ambulances, and providing emergency treatment to patients in medical emergencies like sudden trauma and cardiac events (Narad, 1993). EMS is an essential public service provided on a local basis in every California municipality.

This report examines wages and working conditions for California's EMTs and paramedics, and provides context on the industry and governance of the state's EMS system. We have the following main findings:

The majority of workers in this growing sector are employed by private providers

- ▶ In 2015, 16,720 EMTs and paramedics were employed in California.
- ▶ Eighty percent of EMTs and paramedics worked for private EMS providers.
- ▶ Between 2007 and 2013, EMS employment grew by 16 percent. Strong future growth is anticipated in the sector, largely due to the expected growth in California's elderly population.

Wages for private-sector EMS workers are low and stagnating

- ▶ In 2014, the median hourly wage for private-sector EMTs and paramedics in California was \$16.59. More than a third of California EMTs and paramedics were low-wage workers,

defined as earning less than \$13.63 an hour (which is two-thirds of the state median—a commonly used metric for low wages).

- ▶ Private-sector EMTs and paramedics earned 39 percent less than their public-sector counterparts. Even when controlling for age, gender, geography, education, and race and ethnicity, public-sector wages were still much higher than private-sector wages.
- ▶ The median wage for private-sector EMTs and paramedics fell 12 percent between 2007 and 2013, compared to a decline of 7 percent for public-sector EMTs and paramedics, and 5 percent for California workers overall.
- ▶ Private-sector EMTs and paramedics were also more likely to be employed part time or part year.
- ▶ One quarter of private-sector EMTs and paramedics in California were in households with incomes below 200 percent of the Federal Poverty Line, compared to 14 percent of those in the public sector.

EMS work can be dangerous, with high rates of mortality, injury, and mental and physical trauma

- ▶ Previous research has found that EMTs and paramedics suffer disproportionately from post-traumatic stress disorder (PTSD), depression, and suicidal ideation.
- ▶ A common practice called posting (in which an EMT unit awaits calls while parked rather than at a comfort station) places significant hardships on EMTs and paramedics. Posting increases the likelihood of back pain and makes it difficult to take breaks. Temperature regulation is difficult in summer and winter, and posting locations may not be safe.

- ▶ Current provision of training and continuing education is inadequate for both patient and worker safety.

Low wages and difficult working conditions exacerbate turnover among private-sector EMS workers.

- ▶ National studies have found that recruitment and retention of workers is an ongoing problem for private EMS providers.
- ▶ While we lack direct turnover data from private providers in California, key informants interviewed for this study reported that few workers stay with private providers for more than four years.
- ▶ EMS workers in the state are younger on the whole than the overall California workforce, and the private-sector workforce is significantly younger than the public-sector workforce. In 2014, 57 percent of private industry EMTs and paramedics were between the ages of 20 and 29.

California industry context

- ▶ Between 2013 and 2016, 78 percent of EMS service providers were in the public sector, but private firms operated 81 percent of ambulances.
- ▶ The field of private-sector EMS providers is pyramidal: small local firms operate 15 percent of ambulances, medium-sized firms operate 37 percent, and two major firms operate 48 percent of ambulances.
- ▶ Public health insurance providers furnish 58 percent of private-sector EMS revenue.
- ▶ Large-scale private EMS provider firms make strong returns by lowering capital costs, maintaining low labor costs, and capitalizing on local monopolies granted by EMS agencies.

Regulatory context

- ▶ California law requires each county to establish a local EMS program, and to create a local EMS agency (LEMSA) to oversee that program. California's LEMSAs exercise the most direct authority over EMS workplaces through planning, enforcement, and granting of exclusive operating contracts with EMS provider firms. Provisions included—or left unspecified—in these contracts largely determine the working conditions of local EMTs and paramedics.
- ▶ The California State EMS Authority (EMSA), California's EMS agency, acts as a pass-through for federal funds, sets minimum workforce standards, and oversees county and multi-county EMS planning.

Policy recommendations

EMTs and paramedics provide a critical public service. State and county governments should take steps to improve wages and working conditions in this sector and thereby improve worker livelihoods and reduce workforce turnover. We recommend:

- ▶ Minimum labor standards should be established for EMTs and paramedics that reflect their crucial role in emergency response, the risks they face on the job, and the training they are required to obtain. These standards should include higher wage requirements and health and wellness provisions.
- ▶ Minimizing health risks to EMTs and paramedics should be prioritized: time limits should be placed on posting, workers should be provided access to adequate meal and rest breaks, and greater private- and public-sector resources should be directed towards mental healthcare.
- ▶ To promote the creation of a long-term, well-trained EMS workforce, continuing education requirements should be revamped and protections for incumbent workers should be established for when contracts change.



- Turnover rates should be reported by private companies and considered by LEMSAs in granting exclusive operating contracts.

EMS is both a critical healthcare and employment sector. State and local policies to improve working conditions will not only make EMT and paramedic careers sustainable for thousands of current

workers, but will also improve emergency medical care throughout the state by addressing turnover, staffing shortages, and related issues at EMS providers. Policies to improve EMT and paramedic careers will also ensure that the projected growth in California's elderly population translates into thousands of new, middle-class EMT and paramedic jobs in the coming decade.

INTRODUCTION

Emergency medical technicians (EMTs) and paramedics provide vital care to California families when life hangs in the balance. Principal services of this workforce include transportation of patients between medical facilities in ambulances and treatment of patients in medical emergencies (Narad, 1993). Emergency medical services (EMS) delivered by EMTs and paramedics are an essential public service provided in every California municipality.

In 2015, of the approximately 16,720 EMTs and paramedics at work in California, 80 percent worked for private firms. This does not include the more than 30,000 firefighters who are dually trained as EMTs or paramedics. Overall, 78 percent of EMS providers are public-sector establishments; nevertheless, 81 percent of the state's ambulances are operated by private firms.¹

This report describes working conditions for EMTs and paramedics in California, and recommends policies to improve work, service, and outcomes in this essential and growing healthcare sector. EMT and paramedic wages and workplace conditions vary considerably by establishment type and employer in California. Private-sector jobs lag well behind their public-sector counterparts in terms of job quality, compensation, and opportunities for career advancement.

The number of private-sector EMS jobs will grow quickly in the next decade, and, if adequately

regulated, could provide a ladder to the middle class for many California families. In order to fulfill this vision, this report recommends that the state fortify relevant statutes with stronger labor standards for EMTs and paramedics. We also recommend that counties that contract with private EMT providers require labor standards that will improve wages and working conditions.

Overview of report

This report synthesizes findings on California workplace conditions gathered through our analysis of census data, seven key informant interviews, and a comprehensive literature review (see appendix for complete methodology). Earlier EMS studies focused on national employment trends and employment issues only as they related to quality of care, municipal financing, or governance (Washko and Ragone, 2016; Brown, Dawson and Levine, 2003). This study therefore fills a gap in the literature by narrowing the focus to California EMT workers and the conditions of their employment. Section 1 of this report details the hours, working conditions, and general demographics of California EMTs and paramedics. In Section 2, we present our analysis of industry trends that shape today's EMS workplace. Section 3 describes the regulatory structures that affect EMTs and paramedics. The report concludes with county- and state-level policy options to improve the California EMS workplace.

¹ Unless otherwise noted, the data does not include firefighters.

1. California's EMT and Paramedic Workforce

EMTs and paramedics work within emergency medical services (EMS) systems, defined by the federal Emergency Medical Services Systems Act of 1973 as a network of medical professionals and facilities that provides emergency medical care in a given geographic area. EMS systems include 911 dispatch, the first point of contact for emergency response. Dispatchers direct first responders, who have either basic life support (BLS) or advanced life support (ALS) capacity, to scenes of emergency; EMTs and paramedics then transport patients to care facilities, providing BLS or ALS along the way.

National studies establish a strong trend of low wages and difficult working conditions for private-sector EMTs and paramedics (Chapman, Lindler and Kaiser, 2011; Brown, Dawson and Levine, 2003). A recent report from Duke University's Institute for Homeland Security Solutions summarizes findings in the literature of "limited career opportunities, low salary, and poor benefits," (Halpern, 2010). EMTs and paramedics across the nation also face daily physical dangers, including threats of violence, and exposure to infectious diseases (Halpern, 2010). As a result, the private EMS sector faces high rates of employee turnover (Franks, Kocher and Chapman, 2004).

Data analysis, literature reviews, and interviews conducted for this report suggest that trends in national working conditions hold true for private EMTs and paramedics in California. Private-sector EMS wages in California are low and stagnating, and workers face unrelieved stressors on mental and physical health. This combination low pay and a difficult work environment generates high turnover rates in California's private EMS sector, as detailed below.

Exhibit 1

Overview of the EMS Industry in California

| | |
|--|--------|
| Number of workers, 2015 | 16,720 |
| Percent of workers in private sector, 2014 | 80% |
| Public-sector EMS providers, 2016 | 452 |
| Private-sector EMS providers, 2016 | 131 |

Sources: Five-year ACS 2010-2014; California Emergency Medical Services Agency, 2016a; Occupational Employment Statistics, 2015

Low Wages

A number of peer reviewed studies and trade group surveys indicate an enduring pattern of low wages and wage dissatisfaction in the private EMS sector across the United States (National Association of State EMS Officials, 2014; Washko and Ragone, 2016; Brown, Dawson and Levine, 2003). Our analysis of 2014 census data and expert interviews conducted for this examination of the California EMS sector conform with these national findings.

We define low-wage workers as those who earn less than \$13.63 an hour, which is two-thirds of the state median wage (in 2014). In California, 36 percent of private-sector EMTs and paramedics were low-wage workers under this definition in 2014. One quarter earned \$11.19 an hour or less.² Since EMT and paramedic wages are pooled in this data, we can reasonably assume that among EMTs, an

² Demographic and wage data are drawn from the 2010-2014, American Community Survey 5-year sample (see <https://usa.ipums.org/usa/>) and limited to persons between the ages of 16 and 64 with positive income in the past year, and non-military or self-employed persons who worked thirteen or more weeks in the previous year and three or more hours per week.

Exhibit 2
Hourly Wage Distribution:
California EMTs and Paramedics,
public and private

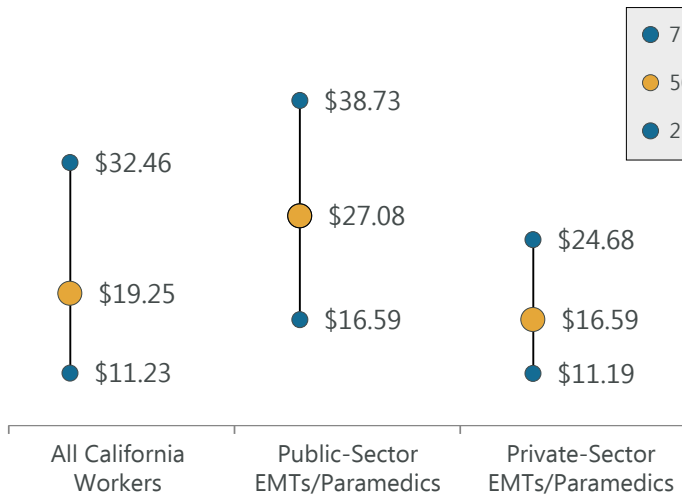
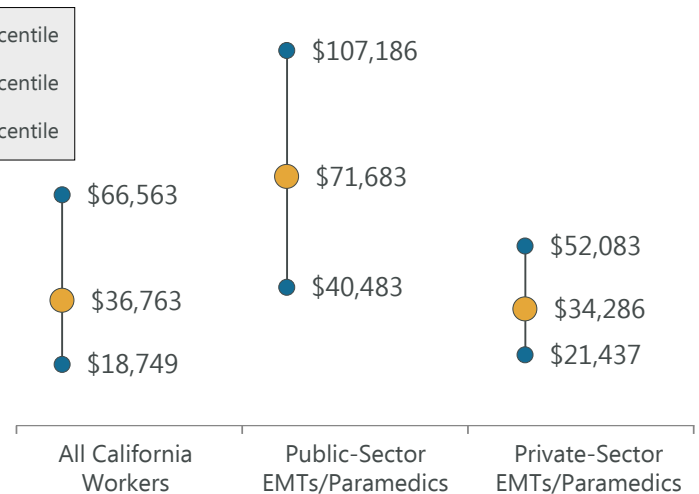


Exhibit 3
Income Distribution:
California EMTs and Paramedics,
public and private



Source: Five-year ACS 1020-1014; presented in 2014 dollars

even greater share are low-wage earners since they earn 20 percent less on average than paramedics in western states (Washko and Ragone, 2016).

The 2014 median wage for private-sector EMTs and paramedics in California was \$16.59 per hour,³ compared to \$27.08 for those in the public sector (Exhibit 2). The annual earnings distribution for private-sector EMS workers is even starker: median earnings for private-sector EMTs and paramedics were lower than the 25th percentile for their public-sector counterparts (Exhibit 3). Controlling for age, gender, geography, education, and race and ethnicity, private-sector EMTs and paramedics still earned 17 percent less than their public-sector colleagues.

Certain subsectors of California's private EMT and paramedic workforce fare marginally better or worse than others. Ambulance-based private-

sector EMTs and paramedics earned 8 percent less than private EMS workers as a whole, and they lagged behind hospital-employed private-sector EMTs and paramedics by 30 percent.

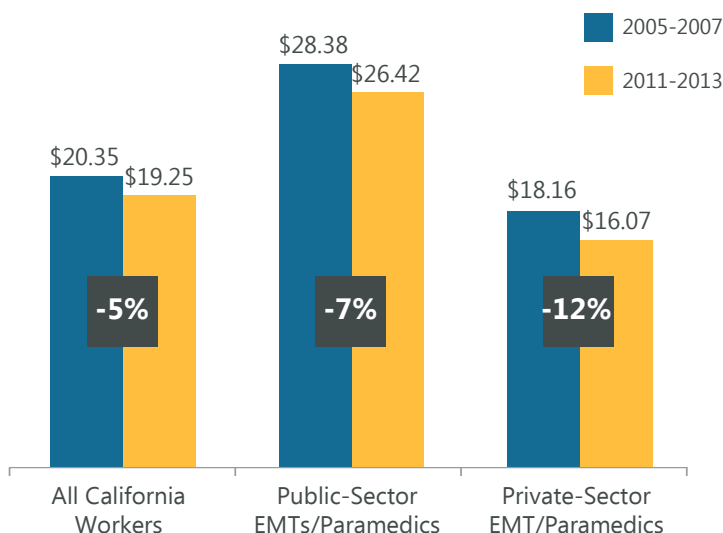
Stagnating Wages

Between 2007 and 2013, wage growth was negative for all California workers due to the Great Recession. As seen in Exhibit 4, EMTs and paramedics fared even worse than the general workforce. Real wages and income decreased in this time period for the whole EMT and paramedic workforce; nevertheless, the decline in the median private-sector EMT/paramedic wage (12 percent) was much greater than the decline for their public-sector counterparts (7 percent) or for the workforce as a whole (5 percent).

³ Wage data are calculated in 2014 dollars.

Exhibit 4

Wage Change for California EMTs and Paramedics between 2007 and 2013, public and private



Source: Three-year ACS 2005-2007, 2011-2013; presented in 2014 dollars

Projected Growth

Over the last ten years, California emergency medical services experienced a 58 percent growth in the number of employees and a 61 percent increase in payroll. Private reporting agencies and government analysts expect strong future growth in the EMS sector. Two core factors will bolster labor and service demand: growth in the elderly population and insurance coverage expansion (Turk, 2016; Franks, Kocher and Chapman, 2004). Elderly population growth is associated with an increase in age-related health emergencies (Shah et al., 2003). The Public Policy Institute of California projects that, based on California Department of Finance data, California's population over 65 will increase 87 percent between 2012 and 2030, by more than four million people (Beck and Johnson, 2015). The rollout of the Affordable Care Act (ACA) and expansion of Medicaid services was also expected to increase demand for EMS services and lower the incidence of bad debt for uncompensated services (Turk, 2016; Brook, 2016). This could reverse with a repeal of the ACA.

Characteristics of California EMTs/Paramedics

EMTs and paramedics in California are much more likely to be white, native born, and male than members of the workforce overall. They are less likely to have college degrees (Exhibit 5).

Comparing public-sector EMTs/paramedics to those in the private sector, Exhibit 5 shows that, in terms of general demographics and education, workers in the two sectors are similar. However, in terms of economic status, there are significant differences. Private-sector EMTs/paramedics are more than twice as likely to be employed part time (18 percent v. 8 percent) or part year (18 percent v. 7 percent). One-quarter of private-sector EMTs/paramedics in California live in households with incomes below 200 percent of the Federal Poverty Line (a higher percentage than for the California workforce as a whole), compared to 14 percent of those working in the public sector. More than a third of private-sector EMTs/paramedics are considered to be low-wage workers under our definition (earning 2/3 of the California median wage), compared to 19 percent of these workers in the public sector.

Exhibit 6 shows the striking difference in age distribution for public-sector compared to private-sector EMTs and paramedics. EMTs and paramedics are younger than the California workforce on the whole, but the private-sector EMT/paramedic workers were significantly younger than those working in the public sector. The median age among EMTs and paramedics in the private sector is 28; in the public sector it is 34. Fully 57 percent of the private-sector workforce is between the ages of 20 and 29. Industry and union experts have explained this by noting that private-sector turnover is high, and that young EMTs and paramedics tend to leave the private sector within four years, either moving to public-sector jobs or leaving to work in another industry.

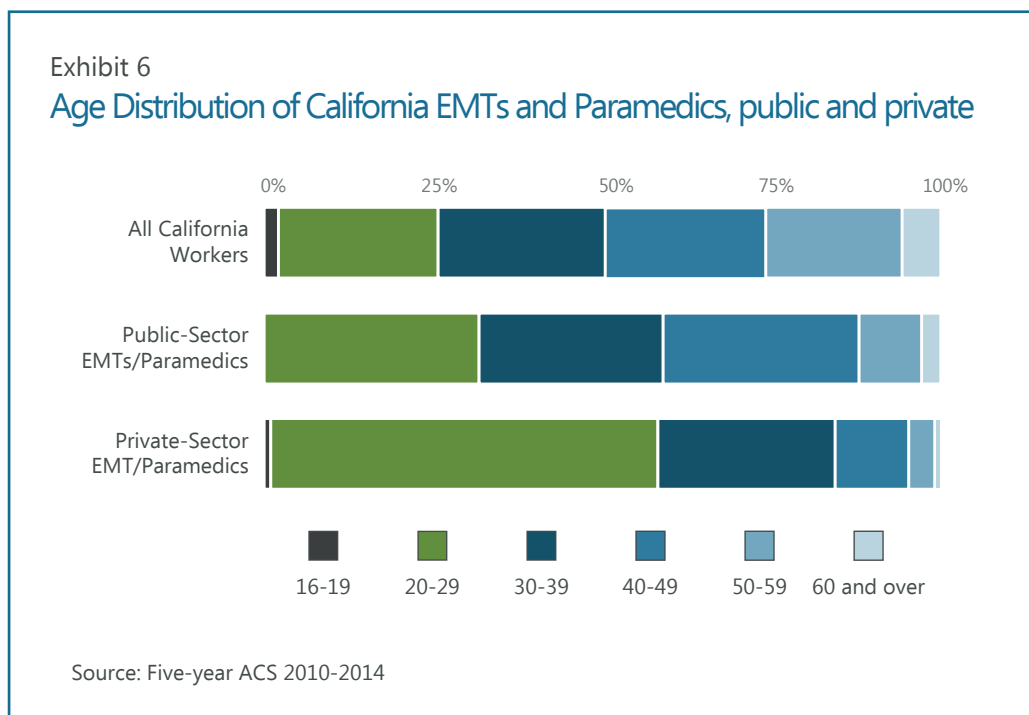
Exhibit 5

Economic Status, Demographics, and Education of California EMTs and Paramedics, public and private

| | Share of Workforce | | |
|--|--------------------|-------------------------------|--------------------------------|
| | California Overall | EMTs/Paramedics Public Sector | EMTs/Paramedics Private Sector |
| Economic Status | | | |
| Working part time | 21 | 8 | 18 |
| Working part year | 16 | 7 | 18 |
| A member of a family living below 200% of the Federal Poverty Line | 23 | 14 | 25 |
| Earning less than two-thirds of the 2014 median wage* | 34 | 19 | 36 |
| Demographics | | | |
| Male | 53 | 89 | 77 |
| Foreign born | 36 | 12 | 7 |
| White non-Hispanic | 41 | 64 | 65 |
| Black non-Hispanic | 5 | 6 | 5 |
| Latino | 38 | 21 | 25 |
| Chinese, Japanese, or other Asian or Pacific Islander | 16 | 9 | 5 |
| Other and American Indian, Alaskan Native | 1 | 0 | 1 |
| Education | | | |
| Less than a high school diploma | 14 | 0 | 0 |
| High school diploma | 20 | 14 | 11 |
| Some college | 33 | 66 | 72 |
| College and/or an advanced degree | 33 | 20 | 17 |

* Two-thirds of California median wage, 2014: \$13.63

Source: Five-year ACS 2010-2014



Working Conditions

Posting and Hours

One of the most taxing elements of a private-sector EMT or paramedic job is posting. This is the practice of placing an EMT/paramedic unit on a street corner or parking lot to await calls, rather than having them wait in a central, fixed comfort station. Posting reduces firms' costs for creating and maintaining fixed comfort stations, and is believed by providers to reduce response times.

According to industry respondents we interviewed for this study, posting has grown more prevalent as small EMS providers have been bought up by larger companies. The logic behind posting comes from a response time optimization method called System Status Management (SSM), in which ambulances are distributed throughout a city according to historical call data. Peak hours and times of week, as well as geographic areas, determine where an ambulance should park; when a crew goes out on a call, all other units are given new locations in order to maintain coverage (Brennan and Krohmer, 2006).

There is some controversy as to whether the SSM method is sound (Bledsoe, 2003; Bledsoe, 2005). But regardless of whether posting does in fact improve response time, it places significant hardships on EMTs and paramedics. Ambulances may be cramped and uncomfortable, and posting has been shown to increase back injury rates (Morneau and Stothart, 1999). Furthermore, bathroom and meal breaks are not always feasible; temperature regulation is difficult in summer and winter; and posting neighborhoods may not be safe. EMTs and paramedics posting on hot summer days and cold winter nights keep the ambulance engine running in order to access heating and air conditioning. Ambulances run on diesel fuel; diesel particulates may be emitted for the entirety of the shift, raising environmental and public health concerns.

According to the 2015 *Journal of Emergency Medical Services* (JEMS) Salary and Workplace Survey (Washko and Ragone, 2016), most EMTs and paramedics nationwide work 12- to 24-hour shifts.

The portion of a shift spent posted on the street depends on the EMS provider, but many EMTs/paramedics post for the entirety of their shift.

Long hours contribute to the significant problem of fatigue among EMS workers, which can impact patient care, especially when long shifts are combined with high-volume workloads (Patterson et al., 2012; Institute of Medicine, 2007). On average, however, employees are only eligible to stop working due to fatigue after 15 hours, and may work up to 37 hours consecutively. The 2015 JEMS Survey indicates that EMTs and paramedics generally work 47 to 50 hours a week (Washko and Ragone, 2016). According to our interviews with industry experts, EMTs in the private sector take on additional hours due to their lower wages. The 2015 JEMS Survey also indicates that 75 percent of EMS workers at reporting agencies have second jobs; this is up from around 50 percent as found in the 2009 through 2013 JEMS surveys (Williams, 2009, 2010; Green and Wright, 2011; Green, 2012, 2013).

California does require both meal and rest breaks; if there is to be an on-duty break, the employee must agree to it in writing (see California Labor Codes 512 and 226.7). For each shift with one or more missed breaks, employees must petition their employers for one hour of extra wages. Nevertheless, many EMTs/paramedics do not have much-needed breaks during their shifts.

Health

The EMS profession is known for imposing great physical and mental stress on its workers. Maguire et al. (2002) found the mortality rate on the job for EMS workers to be only slightly lower than that of police officers—12.7 per 100,000 for EMS workers compared to 14.2 per 100,000 for police officers. In 2000, there were 34.6 injuries per 100 workers, a higher rate than reported by DOL for any industry that year (Maguire et al., 2005). Besides the physical demands of the job (e.g., lifting patients), health risks included ambulance accidents or impact with other moving vehicles, potentially violent patients, and exposure to pathogens. According to the Workers' Compensation Insurance Rating

Shelly Hudelson, who has been an EMT/paramedic since 1990, spoke of her work experience:

"Most EMTs work 12- or 24-hour shifts. Twelve-hour shifts have been getting more and more common. If you're working a 12-hour shift, you're posting the whole time. With the traditional 24-hour, static system, there was a station house; you might get sent out to post because another static unit is out on a call, but you could come in once it is back. And the 12-hour shift used to have comfort stations for rest, meal, and bathroom breaks. Now these have gone to the wayside, because of cost and because of the increase in mobilization times.

When you're posted, you can get out of the ambulance, but you have to be close enough so that if you get a call, you have to have the wheels turning within 60 seconds. So you can't really go to a restaurant or a grocery store. That's too far to get wheels turning in 60 seconds.

If you need to go to the bathroom, you have to check with dispatch. Sometimes they say no, and then we tell people to ask, "Are you denying me a bathroom break?" At that point usually dispatch gives permission. Even then, though, you have to find a place that will allow you to use the bathroom—a gas station or a 7-Eleven. Some people might request a change of posting location in order to use the bathroom at a friendlier store or restaurant.

If you need a meal break (a "C7"), you have to ask dispatch. If you don't get a C7, according to California law, you get an hour of pay to make up for it. But that's just once per shift. Even if you miss two C7s on a 12-hour shift, you only get one hour of extra pay. And just to get one extra hour of pay, the employee has to fill out paper work. The company might contest it, pointing out a free half hour when you could have had a meal—but maybe that was in the first hour on the job. You have to fight to get paid that C7 a lot of the time."

Bureau, private EMTs as a class of worker faced 203 percent of the risk faced by the average California worker; this is more than police forces (182 percent) but less than firefighters (294 percent) (Workers' Compensation Insurance Rating Bureau of California, 2016).

EMTs and paramedics face a higher incidence of post-traumatic stress disorder (PTSD), depression, and suicidal ideation than the general population. These conditions have been shown to develop in individuals repeatedly exposed to traumatic events (Shalev et al., 1998; Durham, McCammon and Allison, 1985). An international meta-analysis of ambulance workers found that, depending on the measurement used, the incidence of PTSD among EMTs/paramedics is between 12 and 21 percent, compared to 1 to 3 percent in the general population (Sterud, Ekeberg and Hem, 2006). Another more recent survey found a 37 percent incidence of suicide contemplation and 6.6 percent incidence of suicide attempts among responding EMTs (National EMS Management Association, 2016; Abbott et al., 2015). In the first nine months of 2014, the U.S. had 58 documented suicides among fire/EMS workers (Erich, 2014).

Our respondents expressed a need for care for EMTs and paramedics after traumatic incidents. While national survey data have shown that most EMS providers make Critical Incident Stress Management (CISM) resources available, their quality is questionable and, depending on the culture of the workplace, use of these resources may even be actively discouraged (Abbott et al., 2015).

Turnover

Two national studies indicate a low-to-average turnover rate for the EMS industry as a whole. Patterson et al. (2010) found wide variation in turnover rates across agencies with a combined turnover rate of 10.7 percent across public and private providers. Williams (2007) found that EMS providers' national turnover rate was 15.2 percent for full-time workers and 23.2 percent for part-time staff. Neither of the studies report out differences in turnover by industry sector. The sample in these studies may not be representative of the sector overall, or of the industry mix in California.

While we do not have direct data on turnover for private EMS providers nationally, or in California, qualitative and quantitative evidence suggest that turnover is a significant

Exhibit 7
EMT/Paramedic Job and Training Levels

| | Training Hours Required | Eligibility Criteria for Training | Scope of Practice | Continuing Education (CE) Requirements |
|------------------------------------|-------------------------|---|-------------------------------|--|
| Emergency Medical Technician (EMT) | 160 | 18 years old | Basic Life Support | 24 hours of CE every two years |
| Advanced EMT (AEMT) | 160 | 18 years old HS diploma EMT certificate CPR card | Limited Advanced Life Support | 36 hours of CE every two years |
| Paramedic | 1,090 | 18 years old HS diploma EMT certificate CPR card | Advanced Life Support | 48 hours of CE every two years |

Source: Excerpted from California Emergency Medical Services Authority (2013), Table 1.

Civilian emergency medical services emerged as a profession in the 1960s. The federal government began an effort in the early 1990s to standardize EMT education, and now offers National Standard Curricula (NSC) for EMS training. States are not required to adopt the NSC, however, and thus training varies from state to state; for instance, the NSC recommends between 1,000 and 2,000 hours of additional training for paramedics, but state requirements for these professionals vary from 270 hours to 2,000.

issue for private providers. Patterson et al. (2010) report that “approximately half of all [EMS provider] agencies surveyed were not fully staffed; 37% of directors said recruitment was always a problem, and 55% reported difficulty with retention.” The Institute of Medicine (2007) found that, in 2005, retention was the top issue for many private EMS providers. The National Highway Traffic Safety Administration names retention as one of 12 critical EMS workforce policy issues nationally, stating that “retaining workers is a challenge, with poor management practices, low wages and benefits, lack of career ladders, and disability contributing to turnover” (National Association of State EMS Officials, 2014).

While we lack direct turnover data from private providers in California, key informants reported that few workers stay with private providers for more than four years. Our key informant interviews also indicated that California EMTs and paramedics see private-sector work as a “stepping stone” to higher-paying public-sector jobs.

The heavily skewed age distribution of California EMTs and paramedics is consistent with this story. Fifty-seven percent of private-sector EMTs and paramedics are between the ages of 20 and 29, indicating short tenures for workers in the private sector.

Training and Professional Development

Emergency medical workers train at three levels in California: EMT, Advanced EMT (AEMT), and paramedic. Each level requires successively more training and entails a broader scope of practice; see Exhibit 7 for more detailed information (California Emergency Medical Services Authority, 2013). In turn, compensation increases from EMT to paramedic; in western states private-sector paramedics earn 25 percent more than private-sector EMTs (Washko and Ragone, 2016). By California law, all public safety personnel (including firefighters, peace officers, and lifeguards) must be trained in first aid and cardiopulmonary resuscitation (CPR); many fire agencies also require EMT certification.

According to industry experts interviewed for this study, training and continuing education for EMTs and paramedics is an area in need of improvement, as these are not currently sufficient for EMS workers to maintain full competence. Continuing education and training is important not only for patient safety, but also for the safety of the EMT workers themselves: Menci et al. (2000) found that 34 percent of EMTs had insufficient knowledge to adequately protect themselves from infectious diseases on the job.

The Institute of Medicine's 2007 study of the country's emergency medical services system identified the lack of a clear career path for EMS workers as another significant challenge for both the workers and the system itself. Key informants confirm this:

private-sector employees look for better-paying public-sector jobs, or move on to another career path within a few years. But even within the public sector, EMS work does not provide a career-advancement track, and employees "must transition out of EMS work...to advance within their organization" (Institute of Medicine, 2007).

Another source of career insecurity for private-sector EMTs and paramedics is that the companies they work for compete for local contracts: if their company loses a contract, they face job loss. While rare, there are examples of even large private companies losing exclusive operating contracts from the local EMS agency (for example, American Medical Response lost the Santa Clara County contract to Rural/Metro in 2011).



2. Industry Conditions

Stakeholders must grasp the specificities of EMS markets and sub-sectors in order to improve EMS labor conditions and ensure market and service stability. The California EMS industry is highly segmented and rapidly evolving. Determinants of risk and profit for private firms include whether the payor is public or private, the density of calls and insured patients in the local EMS service area, an EMS provider's scale of operations, and reimbursement patterns in the health insurance market for a given billing cycle (National EMS Advisory Council, 2012). These industry drivers create a playing field in which national and regional private firms dominate the urban and suburban private EMS transport market, and realize most industry revenue; these same drivers make rural and small-scale EMS economically burdensome. Strategies to improve work must consider the operating assumptions and requirements in this complex sector.

California Industry History

Modern EMS systems emerged in the mid-1960s in response to rising public alarm over growth in accident-related fatalities in the home, workplace, and on the roads (MacKenzie and Carlini, 2013). The first ambulances equipped with trained paramedics and EMTs appeared in 1966. These teams were capable of performing CPR, life support, and other emergency care both on scene and during transport (Franks, Kocher and Chapman, 2004).

From 1965 to 1970, two models of paramedical care provision emerged in California, one primarily urban and one primarily rural. In most urban (and some rural) areas, fully-subsidized public fire departments took on the role of *first response* to emergencies. Small-scale private industry provided transport, except in those cities where fire departments retained both transport and first response duties, for example, Los Angeles and San Francisco (MacKenzie and Carlini, 2013; stakeholder inter-

view). In rural areas, an eclectic mix of for-profit, non-profit, government, and volunteer groups continued to provide transport, while volunteer and paid public fire staff provided first response.

Today, public-sector EMS agencies still provide nearly all emergency first response services in urban areas. The private sector transports patients to care facilities in ambulances, except where the public sector provides both services. Since the 1990s, large private companies have overtaken 48 percent of California's transport market, and currently provide transport in urban areas, except for the notable exceptions of Los Angeles City and the City of San Francisco, where public providers operate more than 50 percent of ambulances (California Emergency Medical Services Authority, 2016a).

Establishments

California EMS providers vary by size and type. Most EMS providers are in the public sector (78 percent), as opposed to the private sector (22 percent). However, the private sector operates most EMS ambulances in the state (81 percent), and services most 911 calls in the state (76 percent) (California Emergency Medical Services Authority, 2016a, 2016c). The field of private-sector EMS providers is pyramidal (Turk, 2016): many small local firms (fewer than 20 ambulances) operate approximately 15 percent of ambulances in the state; medium-sized firms (between 20 and 150 ambulances) operate approximately 37 percent of ambulances in the state; and two major firms (150+ ambulances) operate another 48 percent of private ambulances (California Emergency Medical Services Authority, 2016a). Non-profit private operators represent less than 10 percent of private EMS establishments and less than 3 percent of EMS sector employees (U.S. Census Bureau, 2016). (See Exhibits 8, 9, and 10.)

Revenue Streams

Private- and public-sector EMS providers depend on different sources of funding. Public-sector EMS providers, which include fire departments, municipal EMS services, and county EMS services, pay for personnel, equipment, and facilities with state and community tax funding, local fees, state and federal grants, and fee-for-transport payments from Medicare, Medi-Cal, and private insurers (Kizer, Shore and Moulin, 2013). Some low-income municipalities rely on additional grants from foundations and corporations (U.S. Fire Administration, 2012). Public providers do not achieve a net positive bottom line. Fire department expenses for California municipalities in 2011-2012 were \$3.8 billion, but revenue was only \$184 million (California State Controller's Office, 2014). Some cash-strapped California cities have resorted to EMS capital and personnel cuts during municipal economic crises (Hagen, 2015).

Private firms earn revenue from private pay, insurance reimbursements, and government subsidies. Medicare reimbursements account for nearly 44

Exhibit 8

Numbers and Types of EMS Providers in California

- ▶ Public-sector EMS providers statewide: 452
- ▶ Private-sector EMS providers statewide: 131
- ▶ EMS ambulances operated by private providers: 81 percent
- ▶ EMS ambulances operated by public providers: 19 percent
- ▶ Calls fielded by public providers: 24 percent
- ▶ Calls fielded by private: 76 percent

Source: California Emergency Medical Services Authority, 2016a, 2016c

percent of private industry gross revenue nationwide, with a decreasing share from Medicaid, commercial insurance, and private pay (Krumperman et al., 2008). These figures vary with the demographic profile of California regions, and have fluctuated with developments in federal and

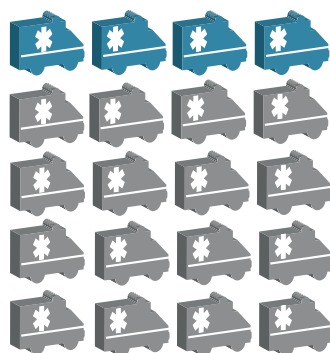
Exhibit 9

Scale of Public and Private EMS Operations



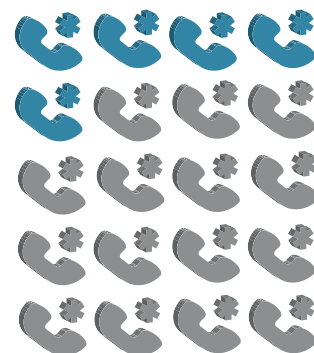
78% of establishments are **Public**

22% of establishments are **Private**



Private Providers operate **81%** of ambulances

Public Providers operate **19%** of ambulances



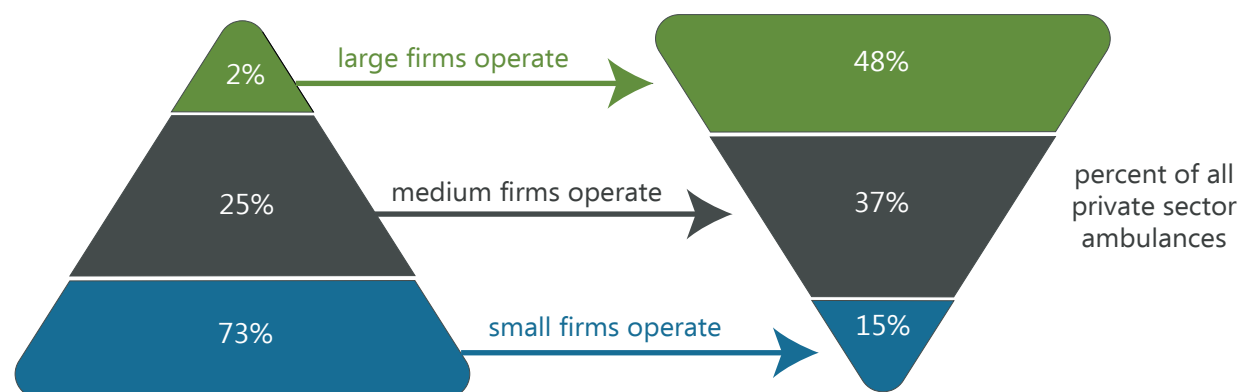
Private Providers answer **76%** of 911 calls

Public Providers answer **24%** of 911 calls

source: California Emergency Medical Services Authority, 2016a; 2016c

Exhibit 10

Private Firm Size and Share of the Private Ambulance Market



source: California Emergency Medical Services Authority, 2016a

state health policy, such as national Medicaid expansion under the Affordable Care Act and California public EMS reimbursement reform (Fitch & Associates, LLC, 2014).

Key Aspects of the Private-Sector EMS Business Model

In the private EMS market, providers stay competitive by utilizing economies of scale, high-yield sub-markets, and low-pay, labor-intensive operations (Brennan and Krohmer, 2006). Firms capitalize on these drivers of revenue to garner profit, while contending with variable reimbursement from insurance providers and individuals. Large providers in urban areas that capitalize on profit drivers and control reimbursement risk earn wider profit margins than small rural providers.

Economies of Scale

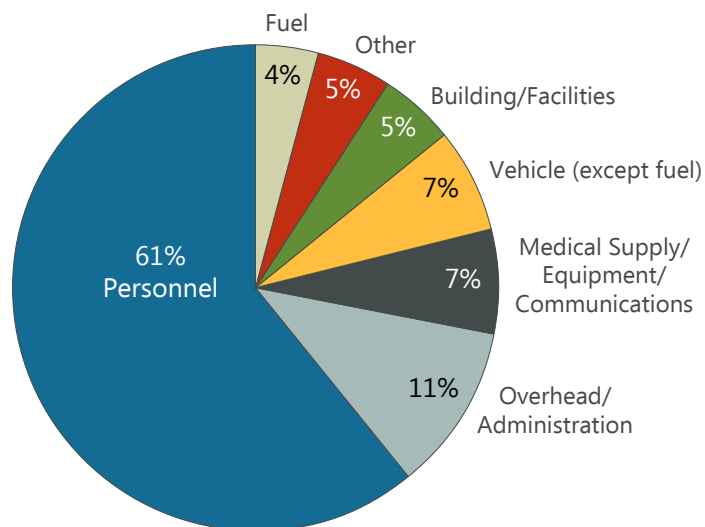
The largest EMS providers in California—American Medical Response (AMR) and Falck USA—achieve economies of scale by consolidating, or buying up and merging, small operators. Having a large fleet of ambulances allows for cost savings on billing, management, and information technology expenses (Carlson, 2014). Through two waves of

consolidation (one in the early 1990s and one ongoing since 2010), Falck USA and AMR acquired 48 percent of all private-sector ambulances in California; their fleet now nears 1,800 (California Emergency Medical Services Authority, 2016a). Nationally, these two companies together have more than 25 percent of the private ambulance market (Envision Healthcare Holdings, Inc., 2015; California Emergency Medical Services Authority, 2016a).

The economies of scale in the EMS market work the same as in other markets: fixed costs are spread out over a larger number of “units of production”—in this case, ambulance transports—and price per unit decreases as a result. The cost per transport thus decreases as the number of transports increases, allowing for greater profits. As explained by Krumpertman et al. (2008), this makes it far more difficult for EMS providers in rural areas to realize profits: lower population densities combined with larger geographic areas result in higher costs per transport. Independent and government studies alike have found that the relationship between call volume and cost—the dynamic of economies of scale—is the major reason rural EMS providers have higher transport costs and a harder time making profits than urban providers.

Exhibit 11

Average Percentage of Ambulance Providers' Total Cost



Source: U.S. Government Accountability Office (2012); see Figure 3 for information on data; <http://www.gao.gov/assets/650/649018.pdf>

High-Yield Submarkets

For-profit providers earn income from high-yield submarkets, including areas in which they secure privileges from local governments to establish an EMS transport service monopoly. California state law enables local EMS agencies to create “exclusive operating areas” (EOAs), in which EMS operations are limited to one or more emergency ambulance service providers (California Emergency Medical Services Authority, 1997). In EOAs, a designated company (or companies) services all 911 calls to local dispatch centers. EOAs are profitable for private operators insofar as firms receive a predictably high volume of calls and subsequently a predictable, recurring amount of revenue (Envision Healthcare Holdings, Inc., 2015). EOAs generate more profit in dense urban areas where heavy 911 call volumes generate economies of scale (Brennan and Krohmer, 2006). The two largest private EMS providers in California operate 50 EOAs in the state (California Emergency Medical Services Authority, 2016b).

Labor and Capital Intensity

Private EMS providers operate in a labor-intensive and capital-light market. The U.S. Government Accountability Office (2012) estimates that personnel

costs account for 61 percent of expenditures in the private EMS sector (see Exhibit 11), while the California Ambulance Association (2013) estimates that 70 percent of revenue goes to personnel expenses. As the greatest operating expense for employers, labor represents a critical bottom line adjustment. Profitability, whether high or low, is largely and directly related to employee wage and benefit levels.

Private providers utilize various strategies in California and across the country to minimize capital and labor intensity of operations, often with adverse impacts to workers. Private EMS providers hold down costs by reducing their property, fuel, and vehicle expenses, which collectively account for the second largest operating expense. They do so by strategically deploying vehicles, and minimizing expenditures on vehicle and staff facilities (Envision Healthcare Holdings, Inc., 2015). Reductions in staffing facilities and the practice of posting (placing ambulances on street corners to await calls) are common cost containment strategies.

Undercompensated Care

By law, California’s EMS systems deliver transport and emergency care regardless of the patient’s insurance status or ability to pay the provider. EMS providers only receive compensation for a portion of the care they deliver, around 90 percent (National EMS Advisory Council, 2012). Causes of undercompensation for care include below-cost reimbursement from Medicare and Medicaid payers; “charity care” provided to uninsured individuals; and insurance reimbursement requirements that limit billable care (for example, insurance that covers only service that ends in a hospital visit) (U.S. Government Accountability Office, 2012; Barr, 2012; Wallace, 2015). The National EMS Advisory Council, a federal advisory body, reports that over 50 percent of transports receive below-cost reimbursement for these reasons (National EMS Advisory Council, 2012). Undercompensated care inhibits small ambulance firms’ ability to meet costs.

3. Regulation

In California, EMS industry workplaces are regulated via statewide EMS legislation and regulations; county and local EMS ordinances; state and federal court decisions; and county contracts and local EMS agreements. Health and safety regulators and labor regulators also provide oversight of EMS workplaces.

Federal Oversight

Federal agencies funded and oversaw EMS systems until 1981, when the federal government turned this authority over to states and their counties. The federal Office of EMS, under the National Highway Traffic Safety Administration (NHTSA), currently provides guidance and leadership through data collection, publication of service guidelines, and convening stakeholders to define best practices in the EMS industry. Federal funding is provided through the Department of Health and Human Services (HHS) block grants, which states may choose to spend on EMS provision (Institute of Medicine, 2007).

State Oversight

The California State Emergency Medical Services Authority (EMSA) serves as the pass-through for federal funds, and oversees county and multicounty local EMS agencies (LEMSAs). EMSA manages certification and practice standards for the Cali-

fornia EMT and paramedic workforce, publishes standards for and approves LEMSA implementation plans, coordinates EMS services among LEMSA jurisdictions, regulates the statewide trauma system, and directs the statewide poison control system (Narad, 1993).

County Oversight

California's 33 local EMS agencies (LEMSAs) exercise the most direct authority over the day-to-day operation of the state's emergency medical services. Organized on a county or multicounty basis, LEMSAs plan, implement, monitor, and evaluate local EMS systems and establish the roles and responsibilities of the various system participants in implementing the plan (Narad, 1993). LEMSAs set the base cost of ambulance rides; in California, these range from a low of \$304 in Yolo County to a high of \$2,490 in Glenn County (Los Angeles County EMS Agency, 2014). LEMSAs also write and enforce contract terms with public and private providers, grant ambulance licenses, and grant exclusive operating area (EOA) rights to EMS providers. EOA contracts involve a Request for Proposals (RFP) for exclusive management of an EMS zone and approval by county boards of supervisors, which include operating standards and guidelines (Narad, 1993).

See Appendix B for more information on state and county EMS governance responsibilities.

4. Policy Recommendations

EMS is at once an essential public service, a low-wage and unsafe private-sector industry, and a highly regulated and government-subsidized economic sector. Government furnishes 58 percent of revenue to private-sector providers, while local agencies license and grant contracts for exclusive operating areas. With such public investment and oversight, Californians should set a higher standard for wages and working conditions for EMTs and paramedics. Stakeholders across the industry spectrum, including the EMS industry lobby, believe that workers deserve “competitive wages and benefits, a safe work environment, and opportunities for career advancement” (Krumperman et al., 2008).

Actions to improve workplace conditions for California’s private-sector EMTs and paramedics must account for impacts on the market for EMS care. Business cost increases to improve work standards will be felt most acutely by small-scale EMS providers in urban and especially rural markets, for whom costs of business are higher and profit margins are smaller than those for large national providers. Achievement of workforce goals may require adjustments to public insurance reimbursement rules to stabilize the market for the diverse array of EMS providers in the state.

Policy Goals

The 2011 NHTSA *EMS Workforce Agenda for the Future*, a federal plan for improving EMS care across the U.S., calls for policies that develop an EMS workforce of “well educated, adequately prepared, and appropriately credentialed EMS workers who are valued, well compensated, healthy, and safe” (Chapman, Lindler and Kaiser, 2011). To that end, we propose the following policy recommendations:

Wage Raise

Many private-sector EMTs and paramedics earn less than a living wage for the state of California.

Private-sector EMS workers earn wages significantly below their public-sector counterparts. Higher wage standards, commensurate to their vital healthcare role, should be established for private-sector EMTs and paramedics.

Stronger Wage and Hour Compliance

EMTs and paramedics should be guaranteed bathroom and meal breaks. The common practice of reimbursement for lack of bathroom and meal breaks over long shifts undercuts working conditions in the EMS industry. Regulators should consider heavier penalties and more frequent investigation to improve enforcement.

Workplace Safety Requirements

Workplace practices that threaten EMT and paramedic safety must be curbed, including posting. When EMTs post on a corner for a long shift, they do not have enough space and are unable to take proper meal, bathroom, and rest breaks. These conditions increase both mental and physical fatigue, increase the likelihood of injury, and decrease the quality of service EMTs and paramedics can be expected to provide. Solutions to workplace safety challenges must include less posting time and greater access to comfort stations for bathrooms, meals, rest, and space.

Health and Wellness Provisions for Workers

EMTs and paramedics provide guaranteed care and transport to all California residents, however our key informants said these workers themselves do not always receive affordable health insurance or adequate sick days. EMS workers should be provided access to affordable health plans, adequate sick leave, and workers’ compensation. Without adequate benefits, the public ends up paying the bill for EMS workers who cannot afford their own medical care (Madland et al., 2010).

Furthermore, when an EMT or paramedic experiences a traumatizing event, they should be allowed

to take an appropriate amount of time off, and counseling should be made available. High-quality Critical Incident Stress Management is one such service that can alleviate mental health repercussions of work in traumatic situations.

Incumbent Workforce Retention and Training

Incumbent workers should be ensured a job and transferral of accrued benefits and seniority status when local ambulance contracts change hands. Retention of experienced personnel ensures that the public is not left without an experienced EMS workforce (Krumperman et al., 2008).

Data Gathering on Workplace Conditions

Transparent public dissemination of workforce and workplace data will allow policy makers and the public to hold EMS providers and public agencies accountable to high workplace standards. Data on private-sector EMS wages, hours, benefits, and turnover should be made publicly available. LEMSAs for Santa Clara and Riverside Counties already require that private EMS providers report turnover statistics. This practice should be mandatory for EMS providers in all LEMSAs, since turnover is an important indicator of job and service quality.

Paths to a Solution

This report calls attention to two policy levers that may be activated to improve EMS workforce conditions: state-level legislation and local contracting practices.

State Legislation

At the state level, legislators and the governor should take proactive steps to ensure that the work of EMTs and paramedics is “valued, well compensated, healthy, and safe” (Chapman, Lindler and Kaiser, 2011). Approaches to state-level change may include amendments to existing EMS legislation, such as the state EMS Act (California Code of Regulations Title 22, Division 9 Prehospital Emergency Medical Services) and the Health and Safety Code standards for ambulance licensure, which should guarantee labor standards, enforcement

mechanisms, and transparency mandates. Legislation to improve working conditions statewide could be modeled on worker “bills of rights” for homecare workers that were passed in California and New York (California Department of Industrial Relations, 2014; New York State Department of Labor, 2014). These laws set statewide wage and hour standards, rest and meal break standards, and standards for addressing workplace violations. The governor might also create state EMS policy through creation of a state wage board on EMTs and paramedics within the state Department of Labor. As in New York State, such a board would study workplace challenges and create industry and workforce-specific labor policy to improve the quality of work and service (New York State Department of Labor, 2015).

Local Contracting

LEMSAs can provide the high-quality, safe EMT and paramedic jobs that California communities need by strengthening their EMS contracting systems, including RFP and EOA award processes. Public agencies throughout California outside of the EMS sector use contracting policies to ensure that jobs under public-sector oversight receive baseline livable wages and decent benefits (California Public Employees’ Retirement System, 2015; Madland et al., 2010). Such contracting policies should be established by California LEMSAs with mandated EMT and paramedic labor standards, including “living wage” requirements, wage premiums when health benefits are not provided, shift length requirements, adequate break time, posting time maximums, and incumbent workforce protections (Krumperman et al., 2008). Strong post-award enforcement mechanisms should also be established by LEMSAs to continuously monitor legal compliance with established standards. Increased data collection and transparency on award processes and performance should be required to ensure the public can adequately judge attainment of EMS agency goals (Madland et al., 2010). These reforms might be achieved through internal LEMSAs policies, direction from the state EMSA, or through county ordinances.

Appendix A: Methodology

Data Analysis

Demographic and wage data are drawn from the 2010-2014 American Community Survey five-year sample (see <https://usa.ipums.org/usa/>). Population count data are drawn from the May 2015 Occupational Employment Statistics database. Samples of the California EMT and Paramedic workforce are limited to persons between the ages of 16 and 64 with positive income in the past year, and non-military or self-employed persons. The sample is also limited to those working thirteen or more weeks in the previous year, and those working three or more hours per week.

The American Community Survey does not provide an hourly wage variable; therefore, this metric was calculated using variables indicating usual hours worked, weeks worked, and annual wage income. Outliers were dropped and the wage distribution was smoothed. Finally, all hourly wage observations were converted to 2014 dollars.

Wage changes were calculated using the 2005-2007 three-year ACS samples, with the same selects are described above. Finally, population counts were drawn from the Occupational Employment Statistics database, from 2015.

Regression

Since EMTs and paramedics in the private sector experience such high rates of turnover and have an extremely young workforce compared to the public sector, it is possible that differences in wages are due at least in part to the experience and seniority of their public-sector counterparts. In order to determine the true difference in wages between public- and private-sector EMTs and paramedics, we regressed the natural logarithm of real hourly wages on sector, age, age squared, sex, education, geography, and a set of race dummy variables.

Literature Review

Academic, government, secondary, and gray literature sources were used to develop a profile of the EMS industry. Academic literature on EMS finance and ambulance service management was consulted to gauge public and private management trends. Trade journals, professional association publications, lobby association publications, op-eds, newspapers, and executive-level interviews were consulted to understand key industry developments and perspectives of institutions and individuals. Government sources including databases were consulted for plans, policies, legislation, legal proceedings, 10-K filings, and regulatory violations pertinent to the EMS sector. Finally, financial literature, including financial service provider reports and stock analyst reports, were consulted to understand the prospectus of various companies.

Interviews

Key stakeholders in California's EMS sector were interviewed to fill gaps and interpret findings from our literature review and data analyses. Key informant interviews were semi-structured. Those interviewed were:

- ▶ August 19, 2016: Jason Brollini, President of local 4911 United EMS Workers
- ▶ August 10, 2016: Meredith Schafer, Strategic Analyst, American Federation of State, County and Municipal Employees, AFL-CIO
- ▶ August 2, 2016: Phil Petit, National Director; Shelly Hudelson, Regional Representative; Dary Sardad, Regional Representative, International Association of EMTs and Paramedics, NAGE-SEIU
- ▶ August 2, 2016: Cathy Chidester, Director, LA Local Emergency Medical Services Agency
- ▶ July 25, 2016: Lewis Stone, Secretary Treasurer, California Professional Firefighters, and Commissioner, California Commission on Emergency Medicine

Interviews were structured as follows:

1. **GENERAL BACKGROUND QUESTIONS:**
 - a. Where are you located, where do you work?
 - b. How are you connected to EMT work? For how long?
2. **WHAT ASPECTS OF THE INDUSTRY HAVE YOU SEEN CHANGE OVER TIME?**
 - a. Workforce—*Please compare changes for union/nonunion/public workers.*
 - i. Working conditions generally; Hours/Posting; Turnover; Overtime; Wage theft
 - ii. Documentation and data: class action lawsuits, OSHA, wage claims
 - b. Service
 - i. Response time—has service improved/deteriorated in particular places? (rural/urban, low-income, PoC)
 - ii. Quality of care
 - c. Performance indicators (evaluated by level of service or level of effort (LOE))?
3. **WHAT ARE THE CAUSES OF INDUSTRY CHANGE, AS YOU SEE THEM?**
 - a. How many companies were there 20 years ago?
 - i. Were they public or private?
 - ii. Is privatization continuing to increase, or has it peaked?
 - b. Have private companies overtaken public agency contracts?
 - i. Where, how, scale?
 - ii. Where and why does privatization happen?
 - c. Do you expect consolidation to continue?
 - i. What does consolidation mean for workers?
 - d. How is private equity affecting the industry?
4. **JOB ROLES AND WORKFORCE DEVELOPMENT**
 - a. Is there a difference in job roles between the public vs. private sector (PMs and EMT)?
 - b. What are career ladders like in the industry? Workforce development? Models?
 - i. Is there EMT-paramedic pipeline? What share advance?
 - c. Do the two groups share demographic characteristics, or are they fundamentally different populations?
5. **POLICY CHANGE**
 - a. What state policy would improve conditions for EMTs in California?
 - i. Union? nonunion? public?
 - ii. Model state legislation?
 - b. What is the role of EMSA, counties, cities and the legislature in privatization?
 - i. What could it be?
 - c. What bills are you following?
 - d. What are other new ideas for industry change?

Appendix B:

State and County EMS Governance Responsibilities

Excerpted from California Emergency Medical Services Authority, (1993).

County LEMSA Responsibilities

- ▶ Establishing policies and procedures for EMS system operations (using State minimum standards).
- ▶ Developing and submitting a plan to the State EMS Authority for its emergency medical services system and, if desired, its trauma care system.
- ▶ Designating and/or contracting with EMS base hospitals and specialty care centers.
- ▶ Developing guidelines, standards and protocols for the triage, prehospital treatment and transfer of emergency patients.
- ▶ If desired, authorizing and implementing a prehospital advanced life support program.
- ▶ Certifying and accrediting prehospital medical care personnel and approving EMS personnel training programs.

State EMS Authority (EMSA) Responsibilities

- ▶ Development of minimum training and certification standards for prehospital emergency medical care personnel in addition to development of first aid and CPR training and examination standards for firefighters, lifeguards, peace officers, and school bus drivers.
- ▶ Review and approval of expanded scopes of practice for Emergency Medical Technicians-Paramedic (EMT-P).
- ▶ Administration of the testing program for certification and recertification of EMT-Ps and administration of the EMT-P registry.
- ▶ Publication of standards and guidelines for the development of emergency medical service systems throughout the state.
- ▶ Review and approval of local EMS plans and trauma care system plans which must comply with the minimum standards set by the EMS Authority.
- ▶ Assessment of EMS systems in order to coordinate EMS activity based on community needs and the effective and efficient delivery of emergency services.
- ▶ Coordination of medical and hospital disaster preparedness with local, state, and federal agencies.
- ▶ Establishment of minimum standards for medical control and accountability of emergency medical services systems.
- ▶ Provision of technical assistance to local and state agencies developing or implementing components of an EMS system and provision of funding, when available, to EMS agencies.
- ▶ Development of statewide trauma systems regulations.
- ▶ Review of county Emergency Medical Care Committee (EMCC) reports and recommendations.
- ▶ Development and oversight of the statewide poison control system.

Works Cited

Abbott, Cord, Erich Barber, Brian Burke, John Harvey, Chad Newland, Monique Rose and Amy Young (2015). *What's Killing Our Medics?* Reviving Responders. Ambulance Service Manager Program. <https://static1.squarespace.com/static/555d1154e4b09b430c18fd39/t/5599d2b2e4b0c805c287aa3a/1436144306212/What%27s+Killing+Our+Medics+Final.pdf>

Barr, Paul (2012). Trauma in EMS: Emergency medical services system faces myriad challenges, including overhaul of reimbursement structure. Modern Healthcare. <http://www.modernhealthcare.com/article/20120512/MAGAZINE/305129910>

Beck, Laurel and Hans Johnson (2015). Planning for California's Growing Senior Population. Public Policy Institute of California. http://www.ppic.org/main/publication_quick.asp?i=1156

Bledsoe, Bryan E. (2003). EMS Myth #7: System Status Management lower response times and enhances patient care. *EMS World*. <http://www.emsworld.com/article/10325076/ems-myth-7-system-status-management-lowers-response-times-and-enhances-patient-care>

Bledsoe, Bryan E. (2005). The Fallacy of System Status Management (SSM). <https://beta.groups.yahoo.com/neo/groups/tcemspo/conversations/topics/1947>

Brennan, John and Jon Krohmer (2006). *Principals of EMS Systems*. Third Edition. Maine: Jones & Bartlett Learning.

Brook, Michael (2016). Initial Affordable Care Act Impact on EMS Reimbursement. Intermedix blog. <https://www.intermedix.com/blog/initial-affordable-care-act-impact-on-ems-reimbursement>

Brown, William E., Drew Dawson and Roger Levine (2003). Compensation, Benefits, and Satisfaction: The Longitudinal Emergency Medical Technician Demographic Study (LEADS) Project. *Prehospital Emergency Care* 7(3):357-362. https://www.naemt.org/docs/default-source/Member-Resources-Documents/Compensation_Benefits_and_Satisfaction.pdf

California Ambulance Association (2013). California's Private Sector Ground Ambulance Services. <http://www.the-caa.org/docs/Calif-EMS-Safety-Net.pdf>

California Department of Industrial Relations (2014). The Domestic Worker Bill of Rights (AB 251). <http://www.dir.ca.gov/dlse/DomesticWorkerBillOfRights.html>

California Emergency Medical Services Authority (2016a). 2016 List of Ambulance Providers 091516. http://www.emsa.ca.gov/Media/Default/XLS/2016_List_Ambulance_Providers091516.xls

California Emergency Medical Services Authority (2016b). Ambulance Zones, Ground Exclusive Operating Areas Status Determinations by EMSA as of September 2016. http://www.emsa.ca.gov/Media/Default/PDF/092316_Ambu_Zone.pdf

California Emergency Medical Services Authority (2016c). EMSA Pre-Hospital and Traffic Safety Data Report, Calendar Years 2013 and 2014. EMSA #R001-2016. http://www.emsa.ca.gov/Media/Default/PDF/R001-2016_Annual_EMS_Report_CY1314.pdf

California Emergency Medical Services Authority (2013). California's Emergency Medical Services Personnel Programs. EMSA #131. http://www.emsa.ca.gov/Media/Default/PDF/emsa_131_12202013.pdf

California Emergency Medical Services Authority (1997). Competitive Process for Creating Exclusive Operating Areas. EMSA #141. <http://www.emsa.ca.gov/Media/Default/PDF/emsa141.pdf>

California Emergency Medical Services Authority, (1993). EMS System Standards and Guidelines, EMSA #101. <http://www.emsa.ca.gov/media/default/pdf/emsa101.pdf>

California Public Employees' Retirement System (2015). Statement of Investment Policy for Responsible Contractor Program. <https://www.calpers.ca.gov/docs/policy-responsible-contractor-2015.pdf>

California State Controller's Office (2014). *Cities Annual Report*, 102nd edition. <http://www.sco.ca.gov/Files-ARD-Local/LocRep/1112cities.pdf>

Carlson, Ken (2014). American Medical Response to cut about 200 Salida jobs. *Modesto Bee* October 15. <http://www.modbee.com/news/local/article3180786.html>

Chapman, Susan A., Vanessa Lindler and Jennifer A. Kaiser (2011). *The Emergency Medical Services Workforce Agenda for the Future*. U.S. Department of Transportation, National Highway Traffic Safety Administration. https://www.ems.gov/pdf/2011/EMS_Workforce_Agenda_052011.pdf

Durham, Thomas W., Susan L. McCammon and E. Jackson Allison, Jr. (1985). The psychological impact of disaster on rescue personnel. *Annals of Emergency Medicine* 14(7):664-668. [http://www.annemergmed.com/article/S0196-0644\(85\)80884-2/abstract](http://www.annemergmed.com/article/S0196-0644(85)80884-2/abstract)

Emergency Medical Services Systems Act (1973). Pub. L No. 93-154. <https://www.congress.gov/bill/93rd-congress/senate-bill/2410>

Envision Healthcare Holdings, Inc. (2015). *Pioneering the Delivery of Care: 2015 Annual Report*. Form 10-K Securities and Exchange Commission Filing. http://investor.evhc.net/sites/emsc.investorhq.businesswire.com/files/doc_library/file/Envision_Healthcare_Holdings_Inc._-2015_Annual_Report_and_Proxy_0.pdf

Erich, John (2014). Earlier Than Too Late: Stopping Stress and Suicide Among Emergency Personnel. *EMS World*. <http://www.emsworld.com/article/12009260/suicide-stress-and-ptsd-among-emergency-personnel>

Fitch & Associates. LLC (2014). EMS Modernization Project Report for Contra Costa County. <http://cchealth.org/ems/pdf/2014-EMS-System-Modernization-Study.pdf>

Franks, Patricia E., Nona Kocher and Susan Chapman (2004). Emergency Medical Technicians and Paramedics in California. UCSF Center for Health Professions. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.569.6691&rep=rep1&type=pdf>

Greene, Michael (2014). 2014 JEMS Salary & Workplace Survey. *Journal of Emergency Medical Services* 39(10). <http://www.jems.com/articles/print/volume-39/issue-10/surveys/2014-jems-salary-workplace-survey.html>

Greene, Michael (2013). 2013 JEMS Salary & Workplace Survey. *Journal of Emergency Medical Services* 38(10). <http://www.jems.com/articles/print/volume-38/issue-10/features/2013-jems-salary-workplace-survey.html>

- Greene, Michael (2012). JEMS 2012 Salary & Workplace Survey. *Journal of Emergency Medical Services* 37(10). <http://www.jems.com/articles/print/volume-37/issue-10/administration-and-leadership/jems-2012-salary-workplace-survey.html>
- Green, Michael and Dianne Wright (2011). JEMS 2011 Salary & Workplace Survey. *Journal of Emergency Medical Services* 36(10).
- Hagen, Ryan (2015). San Bernardino could privatize fire services. *The San Bernardino Sun* May 20. <http://www.sbsun.com/article/LG/20150520/NEWS/150529939>
- Halpern, Michael T. (2010). Adequacy of the Supply and Factors Influencing Potential Shortages Among Emergency Medical Technicians and Emergency Medicine Physicians. Institute for Homeland Security Solutions. https://sites.duke.edu/ihss/files/2011/12/Halpern_ResearchBrief.pdf
- Institute of Medicine (2007). *Emergency Medical Services: At the Crossroads*. Washington DC: National Academies Press.
- Kizer, Kenneth W., Karen Shore and Aimee Moulin (2013). *Community Paramedicine: A Promising Model for Integrating Emergency and Primary Care*. UC Davis Institute for Population Health Improvement. <http://escholarship.org/uc/item/8jq9c187>
- Krumperman, Kurt, Steve Murphy, Jerry Overton, Patrick Smith and Brenda Staffan (2008). *EMS Structured for Quality: Best Practices in Designing, Managing and Contracting for Emergency Ambulance Service*. American Ambulance Association. https://www.washoecounty.us/repository/files/1/EMS%20Structured%20for%20Quality_0308.pdf
- Los Angeles County EMS Agency (2014). BLS & ALS Base Rate Ambulance Transport Charges Averages by County. http://file.lacounty.gov/SDSInter/dhs/223395_Amb_Rate2014.pdf
- MacKenzie, Ellen J. and Anthony R. Carlini (2013). *Characterizing Local EMS Systems*. Report No. DOT HS 811 824. Washington, DC: National Highway Safety Administration. <http://www.nhtsa.gov/staticfiles/nti/pdf/811824.pdf>
- Madland, David, Karla Walter, Paul Sonn and Tsedeye Gebreselassie (2010). *Contracting that Works: A Toolkit for State and Local Governments*. Center for American Progress Action Fund and National Employment Law Project. <http://www.nelp.org/content/uploads/2015/03/ContractingThatWorks2010.pdf>
- Maguire, Brian J., Katherine L. Hunting, Tee L. Guidotti and Gordon S. Smith (2005). Occupational Injured among Emergency Medical Services Personnel. *Prehospital Emergency Care* 9(4):405-411. <https://www.ncbi.nlm.nih.gov/pubmed/16263673>
- Maguire, Brian J., Katherine L. Hunting, Gordon S. Smith and Nadine R. Levick (2002). Occupational fatalities in emergency medical services: A hidden crisis. *Annals of Emergency Medicine* 40(6):625-632. [http://www.annemergmed.com/article/S0196-0644\(02\)00661-3/pdf](http://www.annemergmed.com/article/S0196-0644(02)00661-3/pdf)
- Menci, Francis, Matthew Birkle, Michelle Blanda and Lowell W. Gerson (2000). EMT's knowledge regarding transmission of infectious disease. *Prehospital Emergency Care* 4(1):57-61. https://www.researchgate.net/publication/12680745_EMT'S_knowledge_regarding_transmission_of_infectious_disease
- Morneau PM and Stothart JP (1999). My aching back. The effects of systems status management & ambulance design on EMS personnel. *Journal of Emergency Medical Services* 24(8):36-40.

- Narad, Richard A (1993). EMS System Standards and Guidelines. California EMSA #101. <http://www.emsa.ca.gov/Media/Default/PDF/emsa101.pdf>
- National Association of State EMS Officials (2014). *EMS Workforce Planning & Development: Guidelines for State Adoption*. https://www.ems.gov/pdf/workforce/EMS_Workforce_Guidelines_2013.pdf
- National EMS Advisory Council (2012). *EMS System Performance-Based Funding and Reimbursement Model*. <https://www.ems.gov/nemsac/FinanceCommitteeAdvisoryPerformance-BasedReimbursement-May2012.pdf>
- National EMS Management Association (2016). *Mental Health and Stress in Emergency Medical Services*. https://www.nemsma.org/images/pdfs/Mental_Health_and_Stress_final.pdf
- New York State Department of Labor (2015). Fast Food Wage Board. <https://labor.ny.gov/workerprotection/laborstandards/wageboard2015.shtm>
- New York State Department of Labor (2014). Domestic Workers' Bill of Rights. <https://www.labor.ny.gov/legal/domestic-workers-bill-of-rights.shtm>
- Patterson, P. Daniel, Cheryl B. Jones, Michael W. Hubble, Matthew Carr, et al. (2010). The Longitudinal Study of Turnover and the Cost of Turnover in Emergency Medical Services. *Prehospital Emergency Care* 14(2):209-221. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2883888/>
- Patterson, P. Daniel, Matthew D. Weaver, Rachel C. Frank, Charles W. Warner, Christian Martin-Gill and Francis X. Guyette (2012). Association Between Poor Sleep, Fatigue, and Safety Outcomes in Emergency Medical Services Providers. *Prehospital Emergency Care* 16(1):86-97. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3228875/>
- Shah, Manish N., Cai Glushak, Theodore G. Karrison, Robert Mulliken, James Walter, Peter D. Friedman et al. (2003). Predictors of Emergency Medical Services Utilization by Elders. *Academic Emergency Medicine* 10(1):52-58. https://www.researchgate.net/publication/10965817_Predictors_of_Emergency_Medical_Services_Utilization_by_Elders
- Shalev, Arie Y., Sara Freedman, Tuvia Peri, Dalia Brandes, et al. (1998). Prospective Study of Posttraumatic Stress Disorder and Depression Following Trauma. *The American Journal of Psychiatry* 155(5):630-637. <https://msrc.fsu.edu/system/files/Prospective%20Study%20of%20Posttraumatic%20Stress%20Disorder%20and%20Depression%20Following%20Trauma.pdf>
- Sterud, Tom, Øivind Ekeberg and Erlend Hem (2006). Health Status in the ambulance services: a systematic review. *BMC Health Services Research*. <http://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-6-82>
- Turk, Sarah (2016). Ambulance Services in the US. IBISWorld Industry Report 62191. https://www.homeworkmarket.com/sites/default/files/qx/16/10/07/10/62191_ambulance_services_in_the_us_industry_report_0.pdf
- U.S. Census Bureau (2016). American Fact Finder. Geography Area Series: County Business Patterns by Legal Form of Organization. (2016, April 21). <http://factfinder2.census.gov>
- U.S. Fire Administration (2012). *Funding Alternatives for Emergency Medical and Fire Services*. FEMA, FA-331. https://www.usfa.fema.gov/downloads/pdf/publications/fa_331.pdf

- U.S. Government Accountability Office (2012). *Ambulance Providers: Costs and Medicare Margins Varied Widely; Transports of Beneficiaries Have Increased*. Report to Congressional Committees, GAO-13-6. <http://www.gao.gov/assets/650/649018.pdf>
- Wallace, Jason P. (2015). Ambulance industry: Guidance for intensified government oversight. *Compliance Today*, January 2015:69-79. <http://www.pwc.com/us/en/healthcare/publications/assets/pwc-compliance-today-wallace-ambulance.pdf>
- Washko, Jonathan D. and Michael G. Ragone (2016). 2015 JEMS Salary Survey. *Journal of Emergency Medical Services* 14(1). <http://www.jems.com/articles/print/volume-41/issue-1/features/2015-salary-survey.html>
- Williams, David M. (2010). 2010 JEMS Salary & Workplace Survey. *Journal of Emergency Medical Services* 35(10). <http://www.jems.com/articles/print/volume-35/issue-10/salary-survey/2010-jems-salary-workplace-sur.html>
- Williams, David M. (2009). 2009 JEMS Salary & Workplace Survey. *Journal of Emergency Medical Services* 34(10). <http://www.jems.com/articles/print/volume-34/issue-10/training/clone-2008-jems-salary-workpla.html>
- Williams, David M. (2007). JEMS 2007 Salary & Workplace Survey. *Journal of Emergency Medical Services* Oct: 42-56. <https://ai2-s2-pdfs.s3.amazonaws.com/dce6/4a03a7a74a92c0300ef8ec1d492a85304504.pdf>
- Workers' Compensation Insurance Rating Bureau of California (2016). January 1, 2017 Regulatory Filing REG-2016-00018. http://www.wcirb.com/sites/default/files/documents/1-1-17_regulatory_filing-complete.pdf



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