#63

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Page 1

Q1

Define the problem: [Outline the challenge(s) your recommendation will address. Insert links to reports where appropriate.]

Older road users (drivers, occupants, and pedestrians) have a higher fatality per 100,000 population and per unit of exposure than all other road users except those in their late teens and early twenties (https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/810853). Much of this excess fatality is due to increased susceptibility among older adults—i.e., higher chance of fatality compared with younger people in a crash of equal severity (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3583287/). It is well known that survival can be enhanced by rapid medical attention and that longer EMS response times are a component in delayed medical care. It has also been demonstrated that EMS response times vary dramatically across the state, for example, between urban and rural locations. Distance between crash site and medical facility is a major component of this difference. Discussions with EMS agencies and personnel across the state, however, indicate that there are other critical factors involved, including communication (e.g., sporadic cell phone coverage), spacing of ambulance facilities, and jurisdictional issues (e.g., closer facilities may be out of the jurisdiction of a particular crash). The impact of the closing of rural hospitals or a reduction in service in rural areas is also a consideration.

Q2

Pick your Master Plan for Aging goal(s): [Check the goal(s) your recommendation aims to fulfill. View MPA Framework document for reference]

Goal 3: Health & Well-being. We will live in communities and have access to services and care that optimize health and quality of life.

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Goal 4: Economic Security and Safety. We will have economic security and be safe from abuse, neglect, exploitation, and natural disasters and emergencies throughout our lives.

Q3

Choose your MPA Framework objective: [Check the objective(s) your recommendation will accomplish. View MPA Framework document for reference.]

Objective 1.1: Californians will have access to the help we need to live in the homes and communities we choose as we age.

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Objective 3.1: Californians will live in communities with policies and programs that promote well-being throughout our lifespans.

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Objective 3.2: Californians will have access to quality, affordable, and person-centered health care through delivery systems that are age-friendly, dementia-friendly and disability-friendly.

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Objective 4.3: Californians, as communities and as individuals, will plan, prepare and respond to disasters and emergencies fully including the needs and vulnerabilities of older adults and people with disabilities.

Q4

Outline your recommendation: [In one to two sentences, sketch out your idea for the Master Plan for Aging.]

This recommendation involves creating a protocol based on existing data to identify gaps in EMS service (e.g., response time) at the county level and to explore specific strategies to address these factors. These findings will be compiled in annual reports to communicate this information to local, regional, and state EMS agencies.

Q5

Identify and quantify your target population: [Describe which groups of Californians will be impacted by this recommendation, with numbers if available.]

Aging populations across the state who depend on EMS services in the event of traffic-related and other injury, and medical emergencies. While aging populations are the most vulnerable, analyses for identifying gaps in EMS services should benefit the entire population.

Q6

Share your recommendations for an age-friendly California: [Insert detailed bullet points describing your Master Plan for Aging ideas.]

- Identify factors, in addition to distance, leading to increased EMS response and transport time.
- Explore approaches addressing these factors (e.g., enhanced communication, dispatch strategies, ambulance siting).
- Investigate other strategies to increase promptness and quality of emergency treatment (e.g., telemedicine).
- Use simulation tools to estimate effect of EMS or hospital coverage and service characteristics (e.g., rural hospital closures).
- Provide this information in annual reports to EMS agencies across the state to assist in improving EMS response and EMS service in general.

Q7

Provide any supporting evidence for your recommendation: [Add links or summaries of research evidence that support your unique vision.]

Excess fatality among seniors in traffic injury

The over-65 age group made up 21 percent of crash fatalities among females, yet this age group only accounted for 14 percent of the female population. Three age groups, 16 to 20, 21 to 25, and over 65, had more crash fatalities than other age groups among males. (National Highway Traffic Safety Administration. 2017. Traffic Safety Facts Annual Report. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812806)

Injuries and fatalities in adult drivers 18–65 years of age have decreased in recent years due to safer vehicles, enhanced medical policies, and implementation of injury prevention policies. However, adult drivers over 65 years of age are continuing to suffer from motor vehicle collision-related injuries and fatalities at a more constant rate. A number of physiological factors contribute to the deterioration in visual acuity, slower reaction speeds, and decreased awareness in older drivers. This study examined injury severity and fatality rates in older drivers compared to their younger counterparts in Orange County, California. The findings demonstrated that older adult fatalities and the percentage of collisions that involved other visible injuries or severe injuries increased with age, with those ages 75–84 experiencing the highest fatality rate.
(Lotfipour, et al., 2013. Fatality and Injury Severity of Older Adult Motor Vehicle Collisions in Orange County, California, 1998-2007. West J Emerg Med. 2013, 14(1).)

Variation in EMS response

A significant proportion of fatalities from motor vehicle collisions (MVC) could be prevented through better emergency medical service (EMS) care. Despite a lack of conclusive research, there is a consensus that prehospital time (the time between the MVC and the patient's arrival at the hospital) must be reduced as much as possible. Many studies use response time (the time between EMS dispatch and arrival at the scene) as an indicator of overall prehospital time and a metric of EMS performance. However, there are other components of prehospital time that may be equally important, including the discovery time between the collision and EMS notification, the on-scene time, and the transport time from the scene to the hospital. In rural MVCs, the discovery time can be substantial if there are no witnesses or survivors capable of calling emergency services. Technologies that automatically detect MVCs can shorten discovery times in such circumstances. Transport times depend on the distance between the crash scene and the hospital; this time could be reduced by increasing access to trauma centers, especially in rural areas. On scene time is a component of the total time, however there is a trade-off between minimizing scene time to reduce total time and providing optimal on-scene care. Increasing capacity of EMS personnel and/or utilizing technology such as telemedicine should be considered as part of this trade-off.
(Doggett, Sarah; Ragland, David R. 2018. Prehospital Response Time and Traumatic Injury—A Review. SafeTREC.)

Rural motor vehicle collisions are not intrinsically more deadly—one study found that rural and urban motor vehicle crashes result in similar injury severities. Mortality rates are similar for severely injured patients regardless of whether the incident occurs in an urban or a rural setting; this indicates that patients with lower injury severity contribute to the generally higher mortality rate in rural areas.
(Gonzalez, R. P.; G. R. Cummings; H. A. Phelan; M. S. Mulekar, and C. B. Rodning. 2009. Does Increased Emergency Medical Services Prehospital Time Affect Patient Mortality in Rural Motor Vehicle Crashes? A Statewide Analysis. The American Journal of Surgery, 197(1).)

Benefits of improved EMS response

There is widespread belief in the significance of the 'golden hour' immediately following an injury, during which time resuscitation, stabilization and transport to a medical facility offer the greatest chance of survival for the patient.
(Harmsen, A. M. K., et al. 2015.The Influence of Prehospital Time on Trauma Patients Outcome: A Systematic Review. Injury, 46(4).)

Caring for older adults is a major function of emergency medical services (EMS). Traditional EMS systems were designed to treat single acute conditions; this approach contrasts with best practices for the care of frail older adults. Care might be improved by the early

identification of those who are frail and at highest risk for adverse outcomes. Paramedics are well positioned to play an important role via a more thorough evaluation of frailty (or vulnerability). These findings may inform both pre-hospital and subsequent emergency department (ED) based decisions. Innovative programs involving EMS, the ED, and primary care could reduce the workload on EDs while improving patient access to care, and ultimately patient outcomes. Some frail older adults will benefit from the resources and specialized knowledge provided by the ED, while others may be better helped in alternative ways, usually in coordination with primary care. Care should be timely, with a focus on identifying emergent or acute care needs, frailty evaluation, mobility assessments, identifying appropriate goals for treatment, promoting functional independence, and striving to have the patient return to their usual place of residence if this can be done safely. Paramedics are uniquely positioned to play a larger role in the care of our aging population. Improving paramedic education as it pertains to geriatrics is a critical next step.
(Goldstein, J.; McVey, J.; Ackroyd-Stolarz, S. 2016. The Role of Emergency Medical Services in Geriatrics: Bridging the Gap between Primary and Acute Care. CJEM, 18(1).)

Q8

Give examples of local, state or national initiatives that can be used as an example of best practices: [Provide any available links and sources.] Local: State: National: Other:

Local: The Quality Improvement Plan of the Napa County EMS system is designed to create a consistent approach to facilitate attainment of the key EMS quality objectives based on input from the providers and customers of those services. These objectives include the following:

- Assure that the level of patient care is consistent with policies, procedures and guidelines.
- Maintain and continually improve the quality of patient care given by all EMS personnel/providers.
- Provide a mechanism whereby EMS personnel or other interested parties can have quality improvement (QI) issues and questions related to out-of-hospital care and the continuum of care addressed.
- Evaluate, on a continual basis, the Napa County EMS Plan and/or Emergency Medical Services Quality Improvement Program (EQIP), including the effectiveness of local policies and treatment protocols.
- Evaluate and improve system performance.
- Establish an advisory committee to the EMS Agency to: monitor; evaluate and report on the quality of care given by EMS personnel (e.g., County CQI, Medical Advisory Committee [MAC], Prehospital Trauma Advisory Committee [Pre-TAC], Cardiovascular Systems of Care [C-SOC]).
- Create a consistent approach to QI and a resource document for Paramedic Liaison Officers (PLO), Prehospital Liaison Nurse (PLN) and base hospital Physicians.

(Napa County EMS Continuous Quality Improvement (CQI) Program)

State: State legislation is driving changes in EMS data systems related to data quality and data accuracy. Specifically, four bills were enacted in 2015 and became effective January 2016.

- AB 1129 requires each EMS provider to utilize electronic health record systems that are compliant with the "current version of NEMSIS" to collect EMS data.
- AB 503 authorizes a health facility to share patient-identifiable information with EMSA or other appropriate EMS entities for the purposes of addressing quality improvement.
- AB 1223 requires EMSA to adopt standards related to data collection for ambulance patient off-load time.
- SB 19 requires EMSA to establish a pilot project to be known as the California POLST eRegistry for the purpose of collecting information received from a physician or their designee.

(California EMSA: California EMS System Core Quality Measures Data Year 2017)

Q9

Provide a roadmap to implementation: [Insert any actions state agencies, legislators, counties, local government, or philanthropy can take to move this recommendation forward. Some of the entities listed below may or may not be applicable to each recommendation.] State Agencies/Departments: [action to be taken by Governor or specific state agencies] State Legislature: [legislation needed to implement recommendation] Local Government: Federal Government: Private Sector: Community-Based Organizations: Philanthropy: Other:

State Agencies/Departments: [action to be taken by Governor or specific state agencies] Executive order to evaluate and improve EMS services across the state.

State Legislature: State plan to evaluate EMS services and provide for improvements statewide.

Local Government: Local evaluation of EMS services.

University: With funding, analysis of factors limiting EMS effectiveness and strategies to address these factors, prepare annual report with specific recommendations at the county level.

Q10

Identify person-centered metrics: [What are the individual measures of inputs or outcomes that can be used to predict your recommended action's impact on people.]

EMS response times as determine by CEMSIS data.

Q11

Measuring Success: [Describe specific metrics that could be used to empirically measure the effectiveness of your recommendation]

- Report on statewide EMS evaluation
- Reduction in EMS response times
- Improvement in outcomes in the case of injury and acute medical events

Q12

Measuring Success: [How would we know that the implementation of your recommendation is successful?]

Short term: By 2020…	**Report on evaluation of EMS services across the state.**
Mid term: By 2025…	**Implementation protocol/tools to assess EMS service at the local level.**
Long term: by 2030…	**Reduced EMS response times and improved outcomes in the event of injury or acute medical events.**

Q13

Provide data sources: [What existing data can be used to measure success or progress?]: Existing data sources: [specify datasets, variables, and data owner/location] Suggestions for data collection to evaluate implementation of this goal when no data sources exist:

- California EMS Information System (CEMSIS)
- Traffic injury fatality by age (California Statewide Integrated Traffic Records System)

Q14

Identify potential costs and/or savings: [Provide any research, actuarial analysis or other evidence of the cost of, or potential savings from, implementing your recommendation.]

- Reduced cost of road injuries
- Reduced costs of injury
- Reduced cost of acute medical events

Q15

Prioritize your recommendation: [How would you prioritize your recommendation relative to other needs/priorities?]

High

Q16

Contact information: [Let's stay in touch!]

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