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STATE REGULATION OF COMMUNITY PARAMEDICINE PROGRAMS: A NATIONAL ANALYSIS

Melody Glenn, MD, Olivia Zoph, MD, MPH, Kim Weidenaar, JD, Leila Barraza, JD, MPH, Warren Greco, Kylie Jenkins, Pooja Paode, Jonathan Fisher, MD, MPH

ABSTRACT

Background: Community Paramedicine (CP) is a rapidly evolving field within prehospital care where paramedics step outside of their traditional roles of treating acute conditions to provide elements of primary and preventive care. It is unclear if current state oversight regarding the scope of practice (SOP) for paramedics provides clear guidance on the novel functions provided and skills performed by CP programs. **Objective:** To determine the process and authority, as currently defined by state laws and regulations in the United States, to expand paramedic SOP in order to perform CP roles and to assess state EMS agencies' interpretation of paramedic SOP as it applies to CP. **Methods:** We conducted a systematic review of laws, regulations, and policies from the 50 U.S. states in effect between February and June 2016 that define or apply to paramedic SOP. We determined whether each state's SOP included 21 potential skills applicable to CP within the following categories: assessment, treatment & intervention, referrals, and prevention & public health. Laws were also queried for mechanisms for expanding SOP, alternate destinations, and community paramedicine for each state. Additionally, we surveyed representatives from U.S. State Emergency Medical Services (EMS) agencies and asked which of these skills were a part of their current SOP. All data was coded into Excel™ and analyzed using descriptive statistics.

Results: All 50 U.S. states have laws relating to EMS. Forty-one states have a statewide SOP (82%), and 3 states have statewide protocols from which the SOP has been inferred for purposes of this study, but may not legally constitute SOP in this jurisdiction (6%). 20 states (40%) had a clearly defined mechanism for expanding SOP. Sixteen states (32%) had laws specific to CP. Seven states (14%) allowed for patients to be transported to alternate destinations. Of the 21 skills surveyed, on average there were 8.63 (6.41–10.85) fewer skills for paramedics found in state SOP laws and regulations than were reported as being a part of a state's paramedic SOP. All skills demonstrated variability between the legal review and survey results with 13.04–96.15% concordance. **Conclusion:** There is a lack of guidance and consistency regarding CP programs and scope of practice. Further studies are needed to understand best practices around regulation and oversight of CP. **Key words:** public health; community paramedicine; mobile integrated health; health policy; EMS

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INTRODUCTION

Community paramedicine (CP) is a new and evolving model of community-based care where Emergency Medical Services (EMS) personnel operate outside of their conventional emergency response roles in order to offer additional resources in populations with unmet healthcare needs including primary care and preventive health services. CP programs were developed to reduce unnecessary 9-1-1 calls, emergency department crowding, and hospital readmissions (1–3). These programs have the potential to produce cost savings and better health outcomes (4, 5). Although CP program initiatives were only recently instituted in the United States, they have quickly become a hot-topic in EMS. Mobile integrated healthcare (MIH) is often used synonymously with CP. However, MIH models place greater emphasis on involvement of other healthcare professionals in the prehospital setting to deliver a wide array of healthcare services to the community setting via integration with EMS.

This new role for EMS has faced several financial and regulatory obstacles. Current policies, standardized training programs, and reimbursement practices reinforce EMS systems' traditional focus on providing emergency care for acute illnesses and emergencies (6). Due to the rapid evolution of community paramedicine

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Address correspondence to Melody Glenn, MD, San Francisco General Hospital, Emergency Medicine, 1001 Potrero Avenue, San Francisco, CA 94110-3518, USA. E-mail: melodyglenn2013@gmail.com.

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programs across the country, current practice models are often poorly explained, if at all, in state law and policy (7, 8). Within the realms of community paramedicine and mobile integrated healthcare, innovation has occurred at a rate faster than the rules governing the novel healthcare model can be updated and established.

It is unclear the extent to which the novel functions provided through CP are reflected in the state laws that govern prehospital scope of practice (SOP). SOP prescribes the boundaries of permissible skills and activities based on level of licensure, certification and training and SOP is often derived from state statutes and regulations as a result of the historical development of EMS. Therefore, an investigation was conducted to examine current SOP related to CP, as defined by state statutes and regulations in the 50 U.S. states.

METHODS

Using LexisNexis and Westlaw, the investigators conducted a systematic review of laws, regulations, and policies from the 50 U.S. states in effect between February 2016 and June 2016 that define or apply to paramedic SOP (to increase transparency in our methods, the authors who conducted the various methodological tasks will be listed by their initials in parentheses; MG, OZ, KW, LB). Search terms included, "scope of practice," "paramedic," "emergency medicine," "EMS," "mobile integrated health," "community paramedicine," "alternate destination," "immunizations," and "emergency medical." The decision was made to focus on paramedic SOP for several reasons. The levels of EMT's vary greatly by state and, thus, would be more difficult to compare. In addition, many paramedic SOP documents include EMT SOP; thus, more CP skills could be theoretically identified if the search were based on paramedic SOP. The focus was on skills, not level of training.

Often times, SOP was not clearly defined in laws or regulations, the EMS agency had been authorized to create or further clarify SOP. Therefore, each state's EMS agency website was also searched between May and June of 2016 for relevant rules, policies, and practice documents (MG, OZ, KJ, PP, JF). A board-certified EMS physician (JF) instructed the other reviewers how to review state EMS agency websites. Occasionally, no formal SOP could be found; in those cases, it was inferred via documents of standing orders/protocols or practice manuals.

Public health attorneys helped examine whether a state had a mandatory statewide SOP or if SOP was determined by individual medical directors, counties, or some other level below the state (KW, LB). If the state had a statewide SOP, researchers sought a clearly defined process to expand SOP. Expansions that were only granted in states of emergency were excluded.

TABLE 1. Potential community paramedicine skills

Assessment skills	Check blood glucose Prescription drug compliance monitoring Drug interaction assessment Vital signs Assessing patient safety risk (e.g., falls) Diet evaluation Venous blood draw Venous blood result interpretation
Treatment/Intervention	Polypharmacy intervention Help patient administer own medications Breathing treatment Wound care/dressing changes Help interpreting discharge instructions
Referrals/transport	Help patients apply for insurance Arrange PCP follow up appointments Arrange mental health/substance abuse referrals Social services referrals
Prevention/public health	Immunizations Well baby checks Asthma education Diet education

Public health attorneys also searched existing state laws via Westlaw to determine which states had documents specific to CP or MIH (KW, LB). The search terms "community paramedic" and "mobile integrated health" were used, as were the filters to show only proposed and enacted legislation and regulations. This was last queried in June of 2016. The results were expressed in the term of a ratio: the percentage of total states that have CP-related laws. After reviewing CP literature, other states not identified via the defined search methods were found to also have documents specific to MIH-CP; as a result, they were also included (MG, OZ).

If a state had a statewide SOP document, or laws specific to community paramedics, they were searched to determine if they included skills unique to CP (MG, OZ, KJ, PP). Specifically, 21 potential CP activities, based on skills found in existing CP programs (9) were searched for (Table 1). The skills were organized into the following categories: assessment, treatment/intervention, referrals, and prevention/public health. Investigators determined if these skills were explicitly mentioned or implied in the state laws or SOP document. The total number of skills mentioned in each state's scope of practice was calculated for each state. (MG, OZ, KJ, PP).

Many SOP documents were somewhat vague, and instead of clearly listing the specific CP skills searched for, they used broad terms that could potentially include those skills. An interpretation was made as to whether those activities met the case definition for each of the skills. For example, Arkansas' SOP document allows for "coordination of community services."

This was interpreted to include helping patients apply for insurance, arranging primary care physician (PCP) follow up, arranging mental health/substance abuse referrals, and arranging social service referrals. Similarly, “wound care” is a broad category, and when referred to in paramedic SOP documents, it is usually assumed to apply to acute management of traumatic injuries, not to dressing changes or chronic wound care. Nonetheless, mentioned skills of “bandaging” and “management of soft tissue injuries” were counted as the CP skill of “wound care,” but “hemorrhage control” or care that was solely intended to “protect wounds during transport” was not. Similarly, the ability to provide immunizations during a state of emergency was not included, as this does not apply to daily CP practice.

Conversely, the CP skills of “helping patients with their own medications” and “breathing treatments” were much broader than what was often included in SOP documents. Many documents specified only a few medications that paramedics could help with, such as albuterol and nitroglycerin. These were not included as meeting the case definition, as they are just for treatment of acute medical conditions. Likewise, the research team did not interpret “simple and comprehensive patient assessments,” APGAR scores, or pediatric assessment triangles as examples of well-baby checks. Several documents mention “scene safety” but this was not as interpreted as ensuring a safe environment for prehospital personnel, thus did not apply to “assessing patient safety risk.”

If a state had specific CP regulation that prohibited community paramedics from performing several skills that were allowed for paramedics, such as blood draws, those skills were removed from the total skill count for this state, even though their “regular” paramedics had these skills listed in their SOP documents.

Similarly, existing laws and regulations were searched to determine which states specifically allowed for alternate destinations within their SOP (MG, OZ). Some states were not found through the search methods, but incidentally via other sources. When public health attorneys confirmed these jurisdictions, they were included (KW, LB). The results were expressed in the term of a ratio: the percentage of total states that allow for alternate destinations.

Fifty percent of the states were reviewed by each of the two physician reviewers (MG, OZ). Public health law reviewers and/or physicians completed a second review for 20% of the states (MG, OZ, KW, LB). If there was a discrepancy between the two reviewers’ interpretations, the final decision was agreed upon in a consensus meeting between the lead authors (MG, OZ, JF).

State EMS agency representatives were contacted by emergency physician authors (MG, OZ) to conduct an anonymous, standardized phone survey, designed in consensus with a board-certified EMS physician (JF).

Each representative was queried regarding whether their current SOP document currently allowed for the 21 skills (as optional or standard), SOP expansion, or alternate destinations. Each state EMS agency was called up to three times, at which point if no one could answer the questions, no further attempts were made.

When coding the EMS agency representative’s answers, any skill that they said was currently part of the paramedic’s SOP or an optional skill was included. The coding became somewhat less clear when representatives added qualifiers to their responses. For survey responses with qualifiers, the investigative team came to consensus agreement on whether the qualifiers would be prohibitive or restrictive as applied to each MIH-CP skill (MG, OZ, JF). For example, if the practice of administering immunizations was standard/optional only in public health emergencies, it was not coded as a positive response in the final skill count. Skills relating to medications were not included in the final skill count if the agency representative said that the skill was only allowed for the specific medications in their protocols, because these tended to apply solely to emergent medications, such as albuterol, aspirin, or nitroglycerin, which are generally not related to the practice of CP. If a medication was only permitted with a doctor’s order, it was interpreted as prohibited. However, if it was permitted with base hospital contact, it was counted as standard/optional. Similarly, if a representative said that wound care is only allowed if traumatic/acute, it was coded as a prohibited skill. Although infant assessment (which was often just the pediatric resuscitation triangle) was not considered a proxy for well-baby checks in the legal review, when representatives stated well baby checks were a “standard skill [because] we can assess babies,” the research team coded this as a positive response.

All data was abstracted and coded into Excel 2016 (Microsoft, Redmond, WA) and analyzed using STATA14.0 (StataCorp, College Station, TX). Data was analyzed using descriptive statistics and 95% confidence intervals (CI). The research team included CIs for some measurements because, while there is an exact number of states for the denominator, there may be a source error in quantifying the numerator. There is a possibility that there is a SOP process or pathway that is not clearly published. When calculating CIs, the research team used an exact method for small samples.

To compare the discrepancies between the legal analysis and the EMS agency responses, for each of the 21 skills, alternate destinations, and expansion of SOP, the research team calculated the proportion of states that had matching interpretations (included in scope of practice or not) in the legal analysis and in the EMS agency survey (Table 2).

TABLE 2. Concordance between legal review and emergency medical services' agency survey

Skill	Proportion Same	CI lower	CI upper	n
Blood glucose	0.8889	0.6893	0.9665	27
Prescription drug compliance monitoring	0.3704	0.2034	0.5754	27
Drug interaction assessment	0.1304	0.0388	0.358	23
Vital signs	0.9615	0.7459	0.9953	26
Patient safety	0.2500	0.1096	0.4744	24
Diet evaluation	0.3043	0.1434	0.5335	23
Venous blood draw	0.7407	0.5324	0.8776	27
Venous blood result interpretation	0.4400	0.2516	0.6474	25
Polypharmacy intervention	0.4348	0.2397	0.6524	23
Help administer patient's own meds	0.4545	0.2509	0.6746	22
Breathing treatment	0.9259	0.7284	0.9831	27
Wound care	0.5417	0.3321	0.7374	24
Discharge instructions	0.3478	0.1741	0.5744	23
Apply for insurance	0.5000	0.2875	0.7125	22
PCP follow up	0.3478	0.1741	0.5744	23
Mental health	0.4000	0.2001	0.6398	20
Social services referral	0.3913	0.2062	0.6140	23
Alternate transport	0.4167	0.2294	0.6314	24
Immunization	0.5926	0.3904	0.7676	27
Well baby	0.3846	0.2114	0.5931	26
Asthma education	0.2917	0.1375	0.5154	24
Diet education	0.3914	0.2062	0.6140	23
Expand SOP	0.6667	0.4596	0.8247	27
Mean Difference Survey – Review	– 8.63	– 10.85	– 6.41	27

CI = Confidence interval.

RESULTS

Thirty-five states have a statewide SOP that is found in state law or regulation (70%). Six States have a statewide SOP that was issued by an authorized Agency (12%). Three states have statewide protocols, from which the SOP has been inferred for purposes of this study, but may not legally constitute SOP in this jurisdiction (6%). Six states have no statewide SOP (12%) (Figure 1).

Most states' SOP protocol documents included less than half of the 21 skills we identified as potential community paramedicine skills. Figure 2 depicts the numbers of skills included in each state's SOP document.

Two states (Florida and Minnesota) granted authority for paramedics to perform several of the skills examined in the absence of statewide SOP. Florida specifically allows immunization administration and Minnesota permits eight of the CP skills assessed.

Sixteen states with laws and regulations specific to CP (32%) were found (Figure 3). Of the 16 states found via the Westlaw search, only 14 were included because Maryland and New Jersey's documents did not seem to fit the CP definition. Ohio and Washington were then included; even though they were not found via the defined search criteria (they do not specifically mention CP or MIH), they have laws that may still apply to CP activities. Of the 16 states with CP laws, only six affected paramedic SOP.

Twenty states had policies or laws allowing for clear methods to expand SOP (40%) (Figure 4). Seven states had documents or laws allowing for alternate destinations (14%), and as three of these were found

outside of the research methods (10), it is possible that more states also allow for alternate destinations (Figure 5).

Thirty-two states participated in the phone survey. There was notable variation between CP skills included in statutory and regulatory SOP and those reported by EMS agencies. Of the 21 skills surveyed, on average there were 8.63 (CI 6.41–10.85) fewer skills found in statutory and regulatory SOP than were reported by EMS agencies as being a part of a state's SOP.

No states had 100% concordance between the legal review and the EMS agency survey results for any of the 21 skills, expansion of SOP, or alternate transport. Percent concordance varied from 13.04% (drug interaction assessment) to 96.15% (vital signs) (Table 2). Percent concordance was 66.67% for expansion of SOP and 41.67% for alternate transport.

DISCUSSION

There was significant discordance between the legal review and the EMS agency survey results for the 21 skills investigated. Concordance varied between 13.04–96.15% for the skills assessed.

The greatest concordance observed between our legal review and state EMS representatives was related to traditional EMS skills. The skills with the highest concordance were assessing vital signs, administering breathing treatments, and assessing blood glucose. Conversely, the skills with the lowest concordance were assessing drug interactions, assessing patient safety, and providing asthma education.

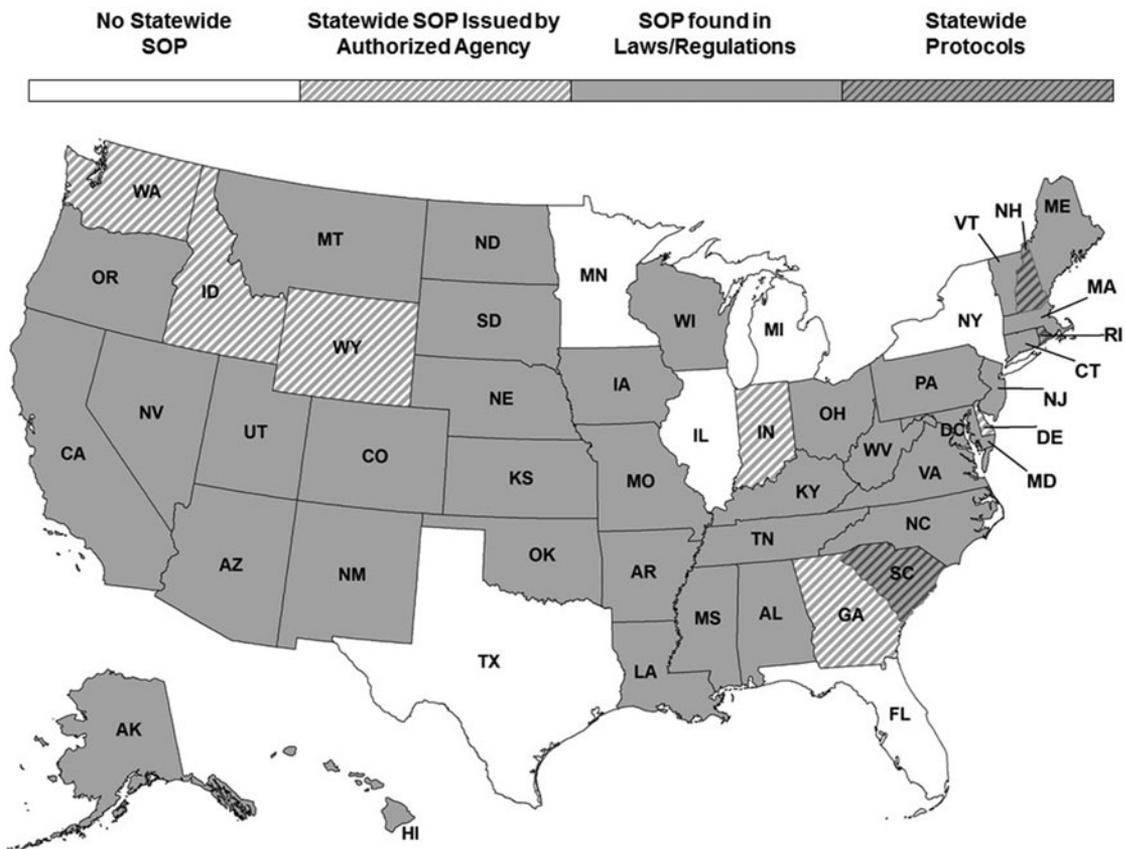


FIGURE 1. Existence of statewide SOP.

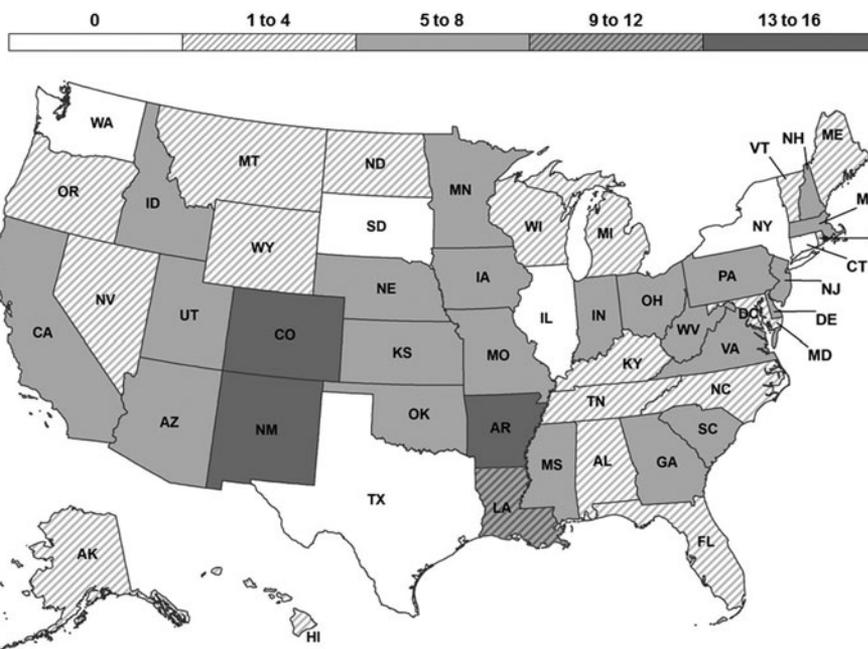


FIGURE 2. Number of community paramedicine skills found in state scope of practice.

practice. As this is a rapidly evolving field, it has often outpaced the ability for regulation to keep up with the field. Further studies are needed to understand best practices around regulation and oversight of community paramedicine while still allowing for the evolution of the field to meet the needs of patients and the healthcare system.

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