

Title: How Good is Good Enough: Establishing a Statewide Emergency Medical Services (EMS) Scope of Practice Surveillance Program

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Introduction: EMS providers are required to make numerous care decisions in a moment's notice that could mean the difference between life and death. Clinical judgment can vary from provider to provider based on agency guidance, training and individual experience. These discrepancies in care are therefore expected, and EMS agencies have established policies and procedures for evaluating them. What is not established however, is a high-level approach to monitor for critical outliers within a larger system. This project fills that gap by building a statewide surveillance program which utilizes objective, aggregate information to enable data driven decision making without reviewing case-level, protected information.

Objective: (1) Improve patient care report (PCR) data quality to objectively understand care provided, and (2) establish statewide guidelines that can be monitored in the PCR to develop a systematic approach to evaluate patient care across Colorado.

Methods: Once the need for a statewide monitoring program was agreed upon, a well-respected field provider was brought in as a project lead to ensure robust understanding of stakeholder perspectives, and an existing advisory council was consulted frequently. Because the scope of practice for EMS providers is as vast as it is nuanced, the program required a focused approach that could be expanded as needed. First, specific medications and procedures were identified for additional monitoring. Next, data specialists proposed an abbreviated list of NEMSIS 3.4.0 required elements that could be used for monitoring. This list became the foundation for a data dictionary which was utilized as a resource for future reference. After refinement from subject matter expertise, the data dictionary was finalized and integrated into a required training program that educated EMS agency leaders on appropriate data entry including identified medications and procedure codes for consistent, reliable documentation. Then, building upon this critical foundation, the data specialists focused on frequent and timely data reports that conveyed the completeness of these specific data elements. A trial period was established to allow agencies to train providers and receive feedback on data quality.

As data quality improved, the project focus shifted to solidifying agreed upon standards of care for the selected medications and procedures. First, an internal team developed a general framework for a standard of care guideline document, which utilized current research, agency protocols, and medical director input to determine what parameters were necessary for statewide application. Parameters were limited by their ability for surveillance, so the team consulted and refined the data dictionary. Patient demographics, provider level and setting, as well as required patient monitoring, were universally established across all care acts. Once the framework was constructed, the advisory council's work began. This group spent countless hours discussing the various applications of the medications and procedures, as well as individual experiences, current research, and training techniques. After guidelines were confirmed, they were disseminated to all agency medical directors authorized to oversee the selected acts, and eventually required to attest to compliance with the established guidelines.

Once a standard was set, the data specialists built reports to monitor and identify outliers. These compliance reports captured all parameters discussed in the guidelines, and highlighted PCRs that indicated missing data or responses outside the expected standard of care. These reports were sent to both agency directors as well as state leadership to address issues at both the local and state level.

Results: Building relationships with the EMS community proved critical to establishing a statewide surveillance system for EMS scope of practice. Using subject matter expertise, the abbreviated data dictionary, consisting of only 24 variables, focused the project to only the most critical elements for surveillance, and

defined documentation expectations including medication and procedure codes that align with national standards. Next, these data were distributed back to the agencies to allow for data discrepancies to be updated, and for verification from the medical director to ensure the data accurately reflects the care being provided.

Dissemination of EMS data back to the agencies opened the door to necessary technical assistance conversations, and illuminated many higher-level data inefficiencies and barriers. Frequent feedback along with technical assistance and training greatly improved data quality; In December 2021, 44.7% of PCRs were missing one or more required data elements, whereas in April of 2022 only 15.7% were incomplete. In addition, responses from EMS agency leaders were exceedingly positive, highlighting the desire for this type of feedback: “The insight gained through these reports has directly resulted in more accurate patient care reporting and documentation by EMS clinicians. This has enabled a more complete picture of patient care by EMS practitioners, both for quality management internally and also for receiving hospitals in the continuum of patient care.”

Once the data were validated, PCRs were used for surveillance of established standards of care. These guidelines were agreed upon by field and subject matter experts and included the following: 1) indications, contraindications, and precautions including appropriate patient age groups and care settings, 2) appropriate medication dosing practices including consistent units of measurement, dose ranges, routes, and cumulative maximum doses, or minimum equipment necessary for procedure 3) acceptable provider levels for administration and care, and 4) minimum patient monitoring expectations.

Conclusion: While this project focuses on only a select handful of EMS scope of practice acts, it lays the foundation for system level, objective surveillance of the care provided by EMS providers in the field. Further project work includes establishing thresholds for outliers, enforcement action plans for continued non-compliance, and ultimately, expansion to surveil additional medications and procedures.