

Evaluating the Success of the South Carolina Statewide Data Improvement Plan

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INTRODUCTION

The South Carolina (SC) Bureau of EMS uses prehospital patient care data submitted to the PreHospital Medical Information System (PreMIS) for system performance improvement initiatives including setting benchmarks, identifying trends, detecting weaknesses, and researching new treatments. Data quality issues such as inaccurate or missing data limit the ability to utilize these data for performance improvement. Recognizing the importance of valid and complete data, the South Carolina Bureau of EMS initiated a multi-faceted statewide Data Improvement Plan in 2013 to facilitate a wider range of data driven performance improvement initiatives.

OBJECTIVES

To evaluate impact of the SC Bureau of EMS 2013 Data Improvement Plan.

METHODS

In SC, it is required that 100% of prehospital care reports (PCRs) in the state be submitted to PreMIS.

Data errors are defined as responses to SC required elements that are either impossible, such as an arrived scene time that is prior to the dispatch time, or are missing/not reported.

Statewide data quality scores (DQS) are calculated by averaging the number of data errors per PCR for records submitted to PreMIS.

In 2013, SC Bureau of EMS instituted a Data Improvement Plan designed to reduce the DQS statewide. This plan consisted of:

- Training all SC Bureau of EMS staff on the NEMSIS standard and data submission requirements.
- Targeted training to EMS agencies throughout SC.
- Institution of a Data Oversight Subcommittee to the SC EMS Advisory Council
- Rule requiring all agencies have a data manager.

DQS was monitored regularly through August, 2016 to evaluate the success of the SC Data Improvement Plan.

The data analysis was completed using Microsoft ® Excel software (Redmond, WA) and STATA ® 12.1 software (College Station, TX).

This study was determined to be exempt from IRB review by the Office of Human Research Ethics at University of North Carolina – Chapel Hill

RESULTS

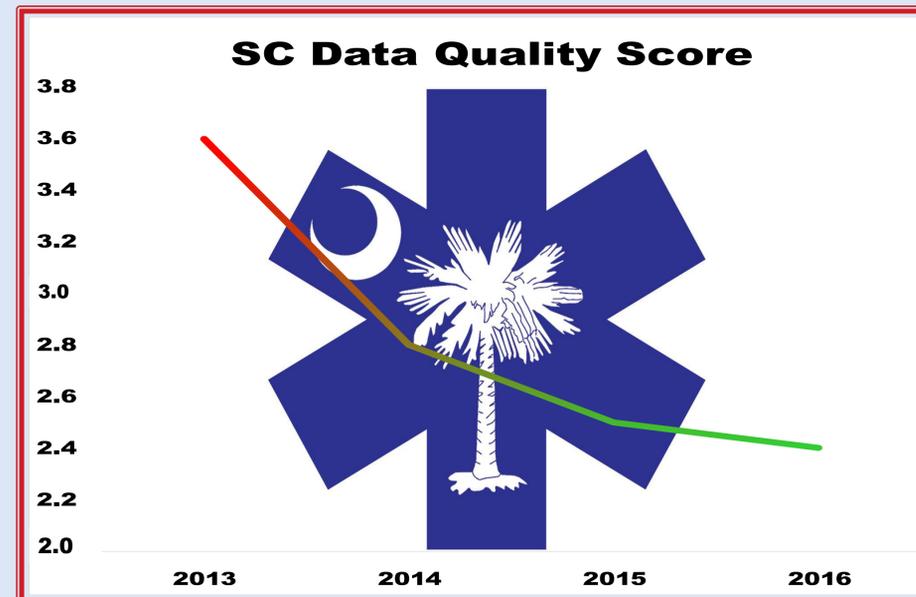


Figure 1: Trend line examining Data Quality Score (average data quality or validation errors per PCR) since the South Carolina Bureau of EMS instituted the Data Quality Improvement Plan.

In January 2013, the statewide DQS average was 3.6 errors per PCR. The first meeting of the SC Data Oversight Subcommittee took place in June of 2013. By December of 2013, the statewide DQS decreased 22.2% to 2.8 errors per PCR. The initial training of SC Bureau of EMS staff and EMS agencies statewide was completed by December 2014. In January 2015, the statewide DQS further decreased by 10.7% to 2.5 errors per PCR. The requirement for all agencies to have a data manager on staff was put in rule in June 2016. Following full implementation of the SC Data Improvement Plan, the statewide DQS average decreased a total of 33.3%, from 3.6 errors per PCR in January of 2013 to 2.4 errors per PCR in August of 2016.

LIMITATIONS

The Data Quality Score is the first line or highest level assessment of data. It provides a the average number of data quality or validation errors per PCR. Further quality assurance and quality assessments must be made on PCR data to ensure EMS Technicians are accurately recording patient encounters using NEMSIS documentations best practice standards.



DISCUSSION

The SC Bureau of EMS makes no distinction between EMS service type and requires all licensed agencies to submit data to PreMIS. While the Bureau of EMS and other EMS stakeholders consider air medical, first responder, interfacility, and medical convalescent data important, it primarily utilizes data from 911 response agencies with transport capability to make assessments and important decisions regarding patient care.

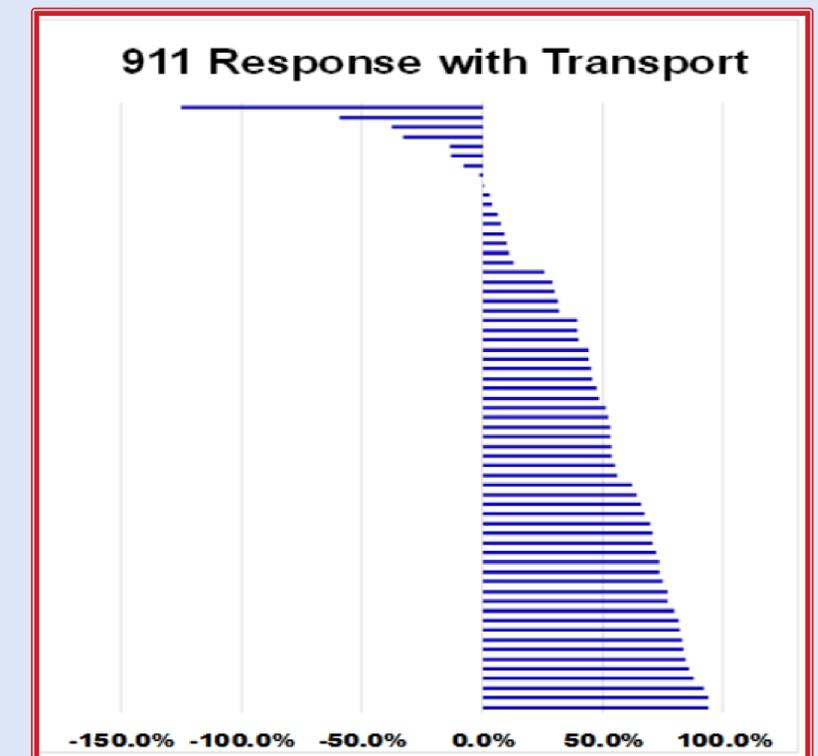


Figure 2: Horizontal bars represent a SC 911 response agency with Transport capability and tracks the percentage of improvement during the course of the Data Improvement Plan.

During this timeframe, 87% of agencies with 911 transport capabilities improved their data quality. The increase in data quality has provided South Carolina EMS the ability to reliably address a wide range of performance improvement initiatives in a more efficient manner.

CONCLUSIONS

Each phase of the SC Data Improvement Plan resulted in statewide improvements in data quality and completeness with a 33.3% overall decrease in the average number of errors per PCR. This work suggests that statewide improvements in EMS data can be achieved with direction from the EMS state office and cooperation from the EMS community.

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Introduction: The South Carolina (SC) Bureau of EMS uses prehospital patient care data submitted to the PreHospital Medical Information System (PreMIS) for system performance improvement initiatives including setting benchmarks, identifying trends, detecting weaknesses, and researching new treatments. Data quality issues such as inaccurate or missing data limit the ability to utilize these data for performance improvement. Recognizing the importance of valid and complete data, the South Carolina Bureau of EMS initiated a multi-faceted statewide Data Improvement Plan in 2013 to facilitate a wider range of data driven performance improvement initiatives.

Objective: To evaluate impact of the SC Bureau of EMS 2013 Data Improvement Plan.

Methods: In SC, it is required that 100% of prehospital care reports (PCRs) in the state be submitted to PreMIS in the National EMS Information System (NEMSIS) version 2 standard within 72 hours of the EMS event. The SC Bureau of EMS requires submission of 315 NEMSIS elements. Data errors are defined as responses to SC required elements that are either impossible, such as an arrived scene time that is prior to the dispatch time, or are missing/not reported. Statewide data quality scores (DQS) are calculated by averaging the number of data errors per PCR for records submitted to PreMIS. In 2013, SC Bureau of EMS instituted a Data Improvement Plan designed to reduce the DQS statewide. This plan consisted of training all SC Bureau of EMS staff on the NEMSIS standard and data submission requirements. This training was also provided to EMS agencies throughout SC. Further, the SC Bureau of EMS added a statewide Data Oversight Subcommittee to the SC EMS Advisory Council and required, in rule, that all agencies have a data manager. DQS was monitored regularly through August, 2016 to evaluate the success of the SC Data Improvement Plan.

Results: In January 2013, the statewide DQS average was 3.6 errors per PCR. The first meeting of the SC Data Oversight Subcommittee took place in June of 2013. By December of 2013, the statewide DQS decreased 22.2% to 2.8 errors per PCR. The initial training of SC Bureau of EMS staff and EMS agencies statewide was completed by December 2014. In January 2015, the statewide DQS further decreased by 10.7% to 2.5 errors per PCR. The requirement for all agencies to have a data manager on staff was put in rule in June 2016. Following full implementation of the SC Data Improvement Plan, the statewide DQS average decreased a total of 33.3%, from 3.6 errors per PCR in January of 2013 to 2.4 errors per PCR in August of 2016.

Conclusion: Each phase of the SC Data Improvement Plan resulted in statewide improvements in data quality and completeness with a 33.3% overall decrease in the average number of errors per PCR. This work suggests that statewide improvements in EMS data can be achieved with direction from the EMS state office and cooperation from the EMS community.

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