EMS Use of Clinical First Impressions

Capstone Project in Partial Fulfillment of EdD Requirements

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Executive Summary

Orange County Emergency Services (OCES) in North Carolina responds to more than 16,000 9-1-1 calls, 24 hours a day, year-round. OCES paramedics treated 11,865 patients in FY 2019-2020 and transported 9,314 patients to medical facilities in Orange County and neighboring counties for treatment[1]. While under the care of OCES, patient treatment is provided by highly trained emergency medical services (EMS) health care providers, credentialed by the State of North Carolina as Paramedics or Emergency Medical Technicians (EMT)[2]. Paramedic training in North Carolina meets national EMS standards with up to 1,000 hours of training, including clinical education in various medical settings which include intensive care units and hospital emergency departments. The purpose of the clinical setting training is to build up a 'library' of patient care experiences to draw upon in clinical decision making[3].

While under the care of paramedics, patients are assessed using patient interviews, history gathering, and physical examination to determine a 'first impression'. This first impression process is intended to develop an accurate differential diagnosis, where signs and symptoms of a patient presentation are used to determine an accurate treatment plan. Treatment plans for a differential diagnosis in EMS for OCES are provided in protocols approved by the Medical Director. Differential diagnosis information is coded in patient care reports (PCRs) as first impressions, and this information is provided to receiving physicians at the emergency department (ED) for all treated patients. The first impression information is utilized by the ED as part of the patient handover process. During the handover process, completeness and accuracy of

[1] Orange County Annual Budget FY 2019-2020
[2] For this project, EMS providers are referred to as 'paramedics' as a generic term to encompass all provider skill levels.
[3] North Carolina Office of EMS Paramedic Education Requirements

information is an important step in the continuity of patient care (Maser & Foster, 2011). Additionally, incorrect first impressions have the potential to impact patient outcomes.

PCRs are regularly reviewed by OCES as part of an ongoing quality assurance (QA) process. During this QA process, differences were noted between paramedic-documented first impressions and ED differential diagnosis. While complete agreement is not expected between first impressions and the ED diagnosis, OCES does expect consistency in first impressions determined by paramedics. During the QA review process, differences were noted in a significant portion of reviewed PCRs. Additionally, inconsistencies were noted in how paramedics use the first impression codes. OCES attempted to address the differences and inconsistencies in first impressions with additional training for specific conditions such as respiratory emergencies, in an effort to improve the paramedic's ability to correctly identify the patient's condition and subsequent treatment plans. Repeated training efforts failed to improve the rate of differences and inconsistencies. The assumption was that the paramedic's competence was responsible for the first impression differences and inconsistencies.

In an effort to understand the failure of the training efforts, OCES's assessment raised concerns that the training effort was not addressing the root cause of the inconsistencies. Using a clinical decision model that considered a rational multifaceted approach to decision making (Donn, 2017), several primary research questions with sub-question are posed for review:

Research question #1

When considering a paramedic's intellectual ability (instinctual ability)

How does a paramedic choose a first impression?

- Is this dependent on patient presentation?
- How often is this occurring?

Research question #2

When considering a paramedic's knowledge base (cognitive ability)

What information do paramedics use to reach a first impression?

- What information is needed to make an accurate first impression?

Research question #3

When considering a paramedic's critical thinking skills (emotional ability)

How do paramedics learn clinical skills?

- What role do EMS partners play in this process?
- What role do physicians in the ED play in this process?

Research question #4

When considering a paramedic's individual characteristics (social ability)

How do paramedics improve their competence?

- What role does professional relationships play in professional development?

Using this approach to understanding the first impression differences and inconsistencies, the source and type of the inconsistencies were identified in patient presentations with a 2 year review of secondary data. Additionally, using survey

instruments and semi-structured interviews, a set of recommendations was developed to address the research questions.

Recommendation #1

(related to addressing the differences and inconsistencies in the PCRs)

- Review the coding structure and purpose with paramedics
- Create a guide for coding accuracy by symptoms, event and differential diagnosis to match treatment protocols
- Socialize this process with ED physicians

Recommendation #2

(related to what information do paramedics use to reach a first impression)

- Clarify the use of first impression coding with ED physicians for a more proficient patient information transfer process
- Introducing conceptual models to paramedics to aid in the decision making process

Recommendation #3

(related to how do paramedics learn clinical skills)

- Provide opportunities for cross training with EMS providers and physicians to improve differential diagnosis use by paramedics

Recommendation #4

(related to how do paramedics improve their competence)

- Create opportunities for the establishment of professional learning relationships to improve the individual 'in the moment' case feedback loop.

Ultimately, this study project identified some root causes of the differences and inconsistencies. It is not always an error in documentation due to the first impression code selection, for example, which code to use in which circumstance, but that first impression clinical decision making for paramedics is a complex process and involves multiple constructs that need various approaches to resolve. Implementation of the recommendations should improve the differences and inconsistencies and help OCES focus professional development training that improves paramedic competency and patient care outcomes.