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# Utilization of Pre-Hospital Laboratory Specimens

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## Background

- Elimination of laboratory services in ED
- No current practice to accept prehospital specimens

## Significance of the Problem

- Time to treatment is increased due to waiting for blood work to be drawn and sent to the laboratory
- Tower Health - Reading Hospital does not have a current policy for implementation of pre-hospital labs
- Decreased patient satisfaction related to unnecessary additional venipunctures

## PICO

- P- Patients that utilize Emergency Medical Services at Reading Hospital
- I- Acceptance of pre-hospital labs drawn by EMS
- C- Not accepting pre-hospital labs drawn by EMS
- O- Decreased time to diagnosis and treatment of patient's in the Emergency Department
- T- Door to treatment

## Practice Question

Does the use of pre-hospital laboratory specimens expedite diagnosis and treatment in patient's brought into the Emergency Department by Emergency Medical Services?

## Summary of Evidence

- The importance of the evidence found, supports the notion of a notable decrease in patient treatment times and patient length of stay in the Emergency Department. The article also stated that a decreased length of stay in the Emergency Department directly affects patient satisfaction ratings (Ducharme et al., 2019).
- Standardize prehospital biomarker sampling can be implemented in all EMS units to provide a median timesaving of more than 30 minutes to first blood sample (Mattila, et. al., 2016)
- The collection of prehospital labs could potentially decrease unnecessary treatment options and increase cost effectiveness in the department (Matilla et al., 2016).
- The significance of drawing pre-hospital labs can decrease time from symptom onset to diagnosis of serious conditions, such as myocardial infarctions (Sorensen et al., 2011)
- A 2017 prospective interventional study performed a comparison between labs drawn in a hospital setting vs. labs drawn in a pre-hospital setting that were subjected to a "worst-case scenario" en route to hospital (Prottegeier et al., 2017)
- It was shown that pre-hospital labs remain stable throughout transport to hospital, and produce results within an acceptable range of those same labs that were drawn in a hospital setting (Prottegeier et al., 2017).
- It has been reinforced that the utilization of prehospital labs allow for laboratory results to be available quicker, which in turn decreases time to diagnosis which allows for a decreased length of stay throughout the emergency department. (Harrison et al., 2010).
- "The lack of a statistically significant difference in the hemolysis rates in this study supports the practice of accepting prehospital phlebotomy specimens drawn by EMS in the field." (Harrison et al., 2010).
- It was found that there were no statistically pertinent differences in overall laboratory redraw rates and that there was a significantly shorter ED throughput time of approximately 17 minutes for the EMS group. (Harrison et al., 2010).

## Databases

Cinahl; PubMed; Ebscohost; Joanna Briggs

## Recommendations for Change Based on Evidence Synthesis

- Create policy for pre-hospital lab draws for Reading Hospital
- Standardizing EMS pre-hospital lab draws across Berks County hospitals
- Develop pre-hospital lab draw kit
- Create label for lab draw kit with patient identification

## Considerations for Practice

- Review other local hospital policies participating with prehospital lab acceptance
- ED staff and EMS education
- Proficiency of lab draw
- Meeting manufacturer recommended fill levels
- Compliance
- Hemolysis
- Sufficient Specimens
- Supplies
- Creation of Lab Draw Kits
- Labeling System

## Translation of Evidence into Practice

- Changing Practice and creating a new policy
- Education for hospital staff and EMS staff
- Assign designated staff to create kits for EMS use
- Edit Epic charting system to integrate pre-hospital lab labeling process



<https://www.ucihealth.org/blog/2017/06/lab-tests>

## Keywords

pre-hospital", "out of hospital", " emergency", "EMS", "en route", "labs", "laboratory tests", "Diagnostics", "diagnostic tests", "blood", "blood work", "blood draw"

## Evaluation of Practice Change

- Decrease door to treatment time
- Improve patient outcomes
- Decrease lab result time

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