

FACULTY OF PRE-HOSPITAL CARE

Student and Trainee Group

Essay Competition: 1st Place

Topic: 'Making Decisions with Incomplete Information: The Reality of Pre-Hospital Care'

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Introduction

Pre-hospital care relies on constant decision making, often in situations where information is incomplete or constantly changing. Incomplete information is one of the most cited sources of uncertainty and is a major obstacle to effective decision making⁽¹⁾. Therefore, understanding the sources of incomplete information, how they impact the quality of care, and how the risk of this can be minimised is essential for clinicians. This essay explores how incomplete information is a constant in the pre-hospital environment and accepting this lack of information is necessary when making decisions.

Sources of Incomplete Information

The two main sources of incomplete information in pre-hospital care arise before patient contact and once on scene. Before seeing the patient, information has been provided to a 999 call handler, this is triaged before being allocated to the necessary pre-hospital resource. Hernborg et al. (2019) reported that initial incomplete information from the dispatch centre can misdirect ambulance staff as they often stick to their first initiative⁽²⁾. There is a high risk of misunderstanding as information passes through a chain of communication and clinicians may end up prioritising the wrong line of treatment. Having an idea of what to expect on arrival is helpful to prepare but if solely relied on can instead delay proper treatment.

Imperfect information allows bias to influence the final decision. Tory et al. (2022) showed how the lack of certainty around the correct decision for the patient was impeded by an emotional bias to finish on time. The incorrect diagnosis was then affirmed by confirmation and anchoring biases with information being manipulated and some facts relied upon too heavily⁽³⁾. When not completely informed, it is easier for decisions to be made supported by biases rather than with evidence and tacit knowledge, therefore clinicians must be open minded and consciously aware of external factors affecting their judgement.

Once on scene, clinicians face difficulty sorting through the facts to find what is life threatening and decide a plan from this. A registry study in Denmark showed that 1 in 8 ambulance patients had an altered level of consciousness and a Japanese study found that 20.3% of ambulance patients arrived to the emergency department with delirium^(4, 5). With a significant number of patients being unable to tell an accurate history, the risk of not being fully informed is increased. Clinicians may not be able to correctly ID their patients and may not be aware of any allergies or past medical history. In addition, resources are limited, scans and blood tests are only available in hospitals and there is not always the ability to access GP records. This culminates in having a reduced understanding of the patient situation so relies on strategies to reduce this uncertainty.

Accepting Incomplete Information

In pre-hospital medicine, sometimes a quick decision is better than delaying. In a traumatic injury, often the most important factor is that the decision to ‘scoop and run’ is made rapidly over the alternative of on-scene resuscitation as prolonged time on scene was associated with mortality⁽⁶⁾.

The lack of information is not always purely medical. The ethical information too can be absent, not knowing the patient’s wishes for how they want to be treated either because they are not conscious or do not have the capacity to share. This bridge can be gapped by Recommended Summary Plan for Emergency Care and Treatment (ReSPECT). These recommendations can be helpful to reduce the uncertainty around the patient’s wishes in a pre-hospital emergency and allows shared-decision making for the patient. However, research into this use of the ReSPECT form showed that decision-making may compromise the patient’s best interests due to forms not anticipating certain emergencies or not detailing the patient’s wishes enough. Furthermore, patient’s preferences may change over time so if the form is not up to date, it is uncertain whether the recommendations are still valid⁽⁷⁾.

Similarly, patients may have a Do Not Attempt CPR(DNACPR) in place. If a clinician arrives on scene to a cardiac arrest but doesn’t have any information about the patient and isn’t aware of a DNACPR, they will attempt to resuscitate. They have to work on the information and knowledge that they have at that moment in time.

Reducing the Uncertainty

To make informed decisions, clinicians have to seek additional information. Family, carers and neighbours can be useful with a collateral history however these are not always reliable. Searching the surrounding environment for items such as dosette boxes, medical alert jewellery or steroid cards can provide necessary knowledge.

Examining the patient provides accurate-to-time facts about the patient's health but this can flag up further questions such as how does this compare to the patient's baseline. Equally, when observations suggest multiple differentials, this can cause diagnostic uncertainty that can only be resolved in secondary care.

Risk stratification is available to assist and provide support in decisions but evidence on this varies. The National Early Warning Score 2 (NEWS2) is commonly used for adults particularly by ambulance staff. Martín-Rodríguez et al. (2020) showed that a high pre-hospital NEWS2 score correlated with a higher probability of early mortality⁽⁸⁾. Therefore, it can support the decision to take a patient into hospital. The study also presented a relatively low sensitivity meaning some patient's illness is under-classified by this leading to a lower care response and in some cases avoidable mortality. Despite being a useful tool in safe decision making, it is important that it is only ever an additional help and does not replace the structured clinical evaluation. This applies to all methods of risk stratification as no scoring system is able to predict risk perfectly.

Conclusion

Pre-hospital medicine is not about making perfect decisions every time but is about making a safe decision despite not having all the facts. The risk can be minimised by searching for the missing information, recognising personal bias, and combining clinical reasoning with evidence-based models and guidelines. Ultimately, pre-hospital clinicians need to be comfortable with uncertainty, they must be prepared to not have all the answers and yet make a decision that will significantly impact every patient.



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