

Training provided to Paramedics in Low-Acuity Clinical Conditions

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Ambulance services around the world are increasingly attending to calls for non-emergency conditions. These lower-acuity conditions do not always require patients to be transported to the emergency department. Consequently, over the past two decades, ambulance services have implemented strategies to support paramedics in diverting non-urgent patients to alternative care pathways. However, assessing and managing low-acuity conditions can be challenging for paramedics, especially when education and training has traditionally focused on emergency care.

Keywords: paramedic ; education ; training ; low acuity ; alternative pathways

1. Introduction

Traditionally, paramedics respond to calls in an ambulance for life-threatening illnesses or injuries ^[1]. However, over the past two decades, this has rapidly changed with an increasing proportion of patients requesting assistance for low-acuity clinical conditions ^{[1][2]}. Now, in addition to providing basic and advanced life support, paramedics in many countries have become “mobile healthcare professionals”, who are required to assess and manage a range of chronic, social, non-urgent, and mental healthcare needs ^{[1][3]}. The role of a paramedic is unique and complex; working in uncontrolled and unpredictable environments, they are required to rapidly gather, interpret, and continuously re-evaluate both patient and scene information, as well as formulate treatment and transport decisions ^{[4][5]}. Additionally, various aspects of logistics and resource management is also factored into their decision-making processes ^[6]. A paramedic must constantly analyse whether they are making appropriate and safe decisions for their patients, often with limited equipment and resources ^[4] ^[5]. In acute or time-critical situations, these decisions, particularly the need to transport a patient to the emergency department (ED), are mostly clear ^[7]. However, transport decisions for patients presenting with lower-acuity clinical conditions, which are often complicated by multiple comorbidities or social needs, can be more complex, with higher levels of uncertainty and risk ^{[7][8]}. In these circumstances, paramedics often decide to transport the patient at hand to a hospital, as this is perceived to be the safer option, often leading to a medically unnecessary transport ^{[7][9][10][11][12]}.

2. Training provided to Paramedics in Low-Acuity Clinical Conditions

2.1. Education and Training Approaches

Education ranged from a two-hour training session up to an additional university-level qualification. In two articles where ECPs and SPs had undertaken additional tertiary education which included advanced patient assessment and management, higher non-conveyance rates were demonstrated ^{[13][14]}. It was remarked that graduate-level education and working in a minor injury unit had improved paramedics' confidence and competence in clinical evaluations and decision-making ^[13]. The benefit of clinical placement time was also noted by Pilbery et al. ^[14], as it enabled SPs to enhance their knowledge of local healthcare pathways. In the articles by Snooks et al., paramedics also reported increased decision-making confidence, as well as improved patient assessment skills following in-service education on a suite of treat-and-refer protocols ^{[15][16]}. However, despite the introduction of these protocols and training, they found no significant difference in conveyance rates ^[15]. The paramedics in this study did not undertake clinical placement but did receive education from local primary care agencies. Two days of initial training were provided, but this proved to be inadequate. To address this, two half-day workshops were added, but the authors did not elaborate on exactly why this was required other than stating that it was “due to identified needs” ^[15]. While this extra training was clinically focused, it was still insufficient to influence the non-conveyance rates. This was reflected by the paramedics in the follow-up study by Snooks et al. ^[16], and, while the paramedics were positive about the protocols and the skills they had acquired, more in-depth training and in-field clinical support were necessary ^[16].

In the study by Halter et al. ^[17], paramedics underwent two hours of training time to use a falls' assessment tool. In this qualitative study, the paramedics reported on their usage of the tool and its perceived value. However, in their post-implementation analysis, the tool was underutilised, and the paramedics reported that it provided little assistance with patient assessment and decision-making. This was interesting, considering the authors' note that the paramedics in this study had not had previous training related to falls in older people or non-conveyance decision-making and were relying more on experience and intuition to guide transport decisions. As with the research by Snooks et al. ^[16], this suggests that short training options may not be sufficient to ensure sustained changes to practice, especially when there may be little perceived benefit to using decision support tools or non-conveyance is considered a high-risk activity. In the study by Schaefer et al. ^[18], the extent of EMT training to assess patients for ED avoidance was not well described. Prior to the active intervention phase of their study, there was a three-month period where the EMTs were to identify patients who could potentially be diverted to an alternative destination, but they were to transport to a hospital as per current practice. During this period, it was found that the EMTs were able to accurately identify a high percentage of patients eligible for alternative transport destinations. During the intervention phase, the EMTs were then asked to offer their patients alternative transport options where appropriate. Subsequently, there was a modest decrease in ED conveyance and an increase in diversion to other care options. It is difficult to draw comparisons between the articles due to the heterogeneity of educational approaches as well as differences between international EMS systems, including paramedic accreditation requirements. However, it appears possible that lower-acuity patients can be appropriately diverted to alternative care pathways with suitable education.

2.2. Non-Conveyance Education and Training Needs

Thompson ^[19] found that, despite differences in education, paramedics are adept in their assessment of emergency conditions but are less familiar and confident with the assessment skills required for low-acuity presentations. While certain aspects of assessment were considered universal to all cases, such as history-taking, other standard paramedic assessment approaches may be of limited value in lower-acuity patients. Despite patient assessment being pivotal to clinical decision-making, it was often inconsistent and unstructured, and, when medical conditions were not accommodated for in guidelines, patient assessment was often very limited ^[19]. When observing paramedics using a protocol which included a primary care physician referral pathway, Blodgett et al. ^[10] reported that some paramedics felt that they would be more confident to refer if they received training to improve their assessment skills. Johansson et al. ^[20] found that certain assessments, such as lung auscultation, blood glucose measurement, ECGs, and neurological and abdominal examinations, were often not performed by paramedics when they should be, even when they were indicated within a guideline. Some of the reasons cited for this included cultural practices, knowledge deficits, and cognitive biases from dispatch information and previous experiences, as well as low adherence to the "see-and-treat" guidelines and checklists. Consequently, additional education was implemented including feedback, lectures, and practical skills.

There are several challenges in low-acuity paramedic education. Whilst there is an obvious requirement to focus on the assessment and management of emergency conditions as part of the traditional paramedic role, further education to support paramedics in assessing and managing lower-acuity conditions is needed due to the increasing volume of these cases. Lederman et al. ^[21] identified this imbalance between emergency ambulance nurse education and the reality of clinical practice. It was remarked that, without the necessary non-conveyance education, nurses felt that their patient assessments may be prone to inaccuracies and errors. It was further commented, that for safe non-conveyance, a holistic patient assessment was crucial to avoid hasty decision making. However, due to the often-complex nature of non-conveyance situations, it was remarked that obtaining the entire picture of a patient would be 'utopia' and there may always be a piece of information missing despite their best efforts. Such educational gaps have been highlighted elsewhere, with the same disparities noted between higher volumes of training for emergency procedures compared to the training dedicated to lower-acuity presentations ^[6].

2.3. Education and Training Gaps

Apart from undertaking additional post-graduate university-based education, there are gaps in understanding the amount and type of education and training needed to support paramedics in assessing and managing low-acuity clinical conditions. This includes small sample sizes of paramedics and services, selection biases, convenience sampling, and short study time periods with no long-term follow-ups. In many cases, the information provided on education was limited, including no rationale for the chosen timeframe of training. For example, to use a falls' assessment tool, paramedics were provided with two hours of training ^[17]. It is not clear if this timeframe was determined by the nature of the content, assumptions of paramedics' decision making, operational demands, or other factors. In the study by Snooks et al. ^[15], it was also unclear how it was determined that two days of training would be sufficient. This was supplemented with additional clinically focused workshops, which the authors note were unanticipated. Despite the recognition by Snooks et

al. [16] in their post-implementation research that more training was required and the noted complexities of changing practice, they made no recommendations as to how the training could be modified to address the challenges they found. It is apparent that prior to implementing alternative care pathway protocols or tools, training requirements may need to be tested and validated, including the content and duration with follow-up education, in-field support, and feedback provided to ensure sustained practice changes.

It is worth noting that additional tertiary-based education consolidated through clinical placement does appear to positively influence non-conveyance decision making and improves patient assessment skills and confidence. However, while additional university-based education may be an appropriate requirement for paramedics to undertake extended care or practitioner roles, it is not necessary for all paramedics to be a specialist in community care, and not every low-acuity condition will require complex case management [3][22]. Whilst there are differences between and even within EMS systems and their education requirements across the world, there appear to be gaps in appropriate low acuity clinical education and training. It is vital that appropriate and practical training programs are developed and evaluated for the safe management of low-acuity conditions, which is consistent with the reality of clinical practice.

3. Conclusions

The demand for ambulance services and paramedics to attend patients with lower-acuity clinical conditions has been increasing over the past two decades. This has resulted in the need for protocols and other tools to assist paramedics with low-acuity assessment, management, and conveyance decision-making. Appropriate and higher-level training not only improves ED non-conveyance but also increased paramedic competence and confidence in patient assessment and decision making. This is in contrast with short in-service training sessions, which in the majority of articles, did not demonstrate the same results. There was a notable gap between traditional emergency care training and what paramedics or ambulance clinicians face in actual clinical practice. This leads to the need to further explore what is a sustainable level of education and training required to develop patient assessment skills and decision-making confidence and support the use of low-acuity protocols and alternative care pathways, especially in the general emergency paramedic population.

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