

Understanding the Paramedic's Role in Primary Care: A Realistic Review

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Abstract: Background: Since 2002, healthcare professionals have worked in primary care in the United Kingdom (UK), a transition that is also reflected in Australia, Canada and the United States. To understand how healthcare workers impact (or don't) on primary care workers, we conducted a case study.

The documents include from the United Kingdom, Australia, Canada and the Americas, countries where the role of healthcare professionals in primary care is well established.

Our findings highlight that health care workers are more likely to contribute effectively to the primary care workforce when they are supported to expand their current roles through formal education and clinical surveillance. We have also found that unless healthcare professionals are fully integrated into primary care services, they do not have the socialization necessary to build a relationship of trust with patients or physicians. doctor. Indeed, for patients to accept primary care health workers, their role and its implications for their care must be described by a reliable source.

Conclusion: Our field review highlights the complexities surrounding the inclusion of health care workers in primary care roles.

In addition to providing insight into understanding the professional identity of healthcare professionals, we also discuss the range of expectations this professional group will face when transitioning to primary care.

This review is the first to provide insight into the impact health workers can have on the international primary health care workforce and how they can be deployed effectively. optimal way.

Keywords: Primary health care, Paramedic, Realist review, Extended roles, Additional roles, Allied health personnel, Ambulatory care, Urgent care

I. INTRODUCTION

Background

Paramedics within the United Kingdom (UK) are traditionally associated with the provision of emergency care within an emergency medical service (EMS), responding to life-threatening emergencies through the 999 call system. However, over the last decade, changes to health-care access for patients have created a sociocultural dependence on EMS [1]; now, only 8% of 999 calls are for life-threatening illnesses or injuries [2], indicating that a large proportion of patients access EMS with lower acuity presentations. As the care provided by EMS has changed, the role of the paramedics has subsequently evolved. As well as advanced life support, paramedics now need to be skilled in managing long-term conditions, acute presentations of mental ill-health, social-care assessments and a range of urgent care presentations [3–5]. For the UK, this expanded role for paramedics to focus on urgent care has coincided with a move to degree-level pre-registration programmes [6], and a career framework for paramedics to progress in specialist

practice in urgent or critical care, before moving onto more generalist advanced roles through post-graduate study [7]. Whilst the UK has been at the forefront of the professionalization of paramedics globally, similar changes to EMS in other high-income countries (such as Australia, Canada and the United States of America (USA)) have prompted a similar development of the paramedic role to include provision for urgent, as well as emergency, calls. As the paramedic profession has steadily evolved, primary care workforces have simultaneously undergone significant changes. With an increased demand in services, and more patients requiring complex case management within the community, primary care services are facing unprecedented challenges [10]. These challenges are leading to recruitment and retention issues for doctors within primary care [11], requiring workforce changes and opportunities for other clinicians to work in this setting to support general practitioner (family physician) roles [12, 13]. Attracted to ‘normal hours’ and an opportunity to further develop their practice [14], the professional evolution of paramedics within EMS has equipped them to be well suited to work in primary care. The literature from Australia, Canada and the USA also features examples where paramedics are employed by local EMS to provide primary care services. Examples include community outreach/first aid posts [17, 18], preventative or rehabilitation services for vulnerable patient Whilst paramedics may be primed to work well in primary care, as they transition into these roles, their knowledge and skillset will undoubtedly change [3, 4, 13]. Our recent scoping review of evidence published since 2005 [21] outlined that paramedics can safely apply their extended skills to assess and treat patients in primary care, but there were conflicts in relation to job titles, roles and responsibilities. This scoping review outlined the lack of standardization and complexity of the role of paramedics in primary care and that paramedics working in primary care are most helpfully conceptualised as a complex intervention. Understanding complex interventions requires a clear theoretical model outlining the contributing components and how these work together to produce outcomes [22], which are context-sensitive. The factors that underpin how paramedics work well (or not) in primary care are unclear and likely to depend on a range of different contexts. This realist review builds on the aforementioned scoping review [14] to offer an in-depth understanding of how paramedics might work in practice, for whom, in what circumstance and how to optimize the contribution of paramedics to primary care.

II. METHODS

We used our exploratory literature [21] to develop an early program theory (Figure 1) to explain how paramedics function in primary care. Building on this theory and through discussions with our patient group (n=8) and representatives of key stakeholders (n=6), we focused on a subset of issues that seemed most relevant to understanding this complex intervention.

Our review is reported following the RAMSES publication standards for realist synthesis [25].

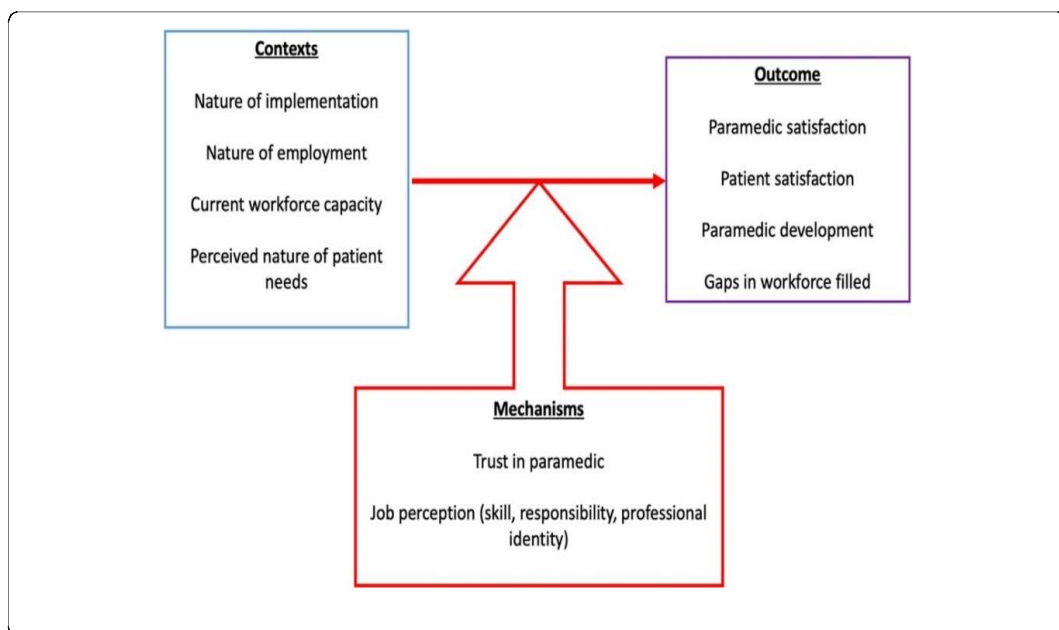


Fig. 1 Initial programme theory

Step 1: Searching process

We rely on searches designed during our systematic scope review, tested and refined with the assistance of an information specialist. Cochrane Database of Systematic Reviews [January 29, 2021], MEDLINE (OvidSP) [2002-2021/01/29], CINAHL (EBSCOhost) [2002-2021/01/29], PsycINFO (OvidSP) [2002-29/ 01/2021], Embase (OvidSP) [2002-29/01/2021], NHS EED and DARE via CRDWeb (<https://www.crd.york.ac.uk/CRDWeb/>) (January 1, 2002 to January 29, 2021), ERIC (Mission Pro-), Joanna Briggs Institute (<https://jbi.global/>), EBP (<https://jbi.global/ebp>) and the OpenGrey database (<http://www.opengrey.eu/>) were searched using the keyword free text and subject headings for two key concepts: paramedics medical and general health/primary care. An additional Google search was performed for matching keywords, where the first ten pages of results were examined (see Supplementary File 1). Citations of selected articles are also considered for any new publications not found in the searches. Our previous scoping review limited results to healthcare workers working in the UK [21], but was extended to this actual review to capture relevant articles. Other. These included articles were written in countries where the paramedic profession is similar to that in the UK (by education or regulation) and where healthcare workers work in community roles [26 - 29]. Table 1 presents the inclusion and exclusion criteria used during the search. Although UK paramedics were first known to work in primary care positions in 2002 [30], there were no empirical articles on healthcare workers in the UK prior to 2004. articles were searched for the first time between January 2004 and March 2019. The search strategy was repeated. in April 2020 and January 2021 to determine the presence of any new entries following significant events for the paramedic profession, such as a change in independent prescribing legislation in the UK. UK in 2019 [19] and updated GP contract date in UK in 2020 [31]. The official search result was 4446 articles, after removing duplicates through reference management software (Mendeley version 1.19.8). Selected material includes journal publications, policy, stakeholder analysis, workforce reports, conference proceedings, case studies, job postings and articles opinion.

Step 2: Selection and appraisal of documents

The selection of articles was carried out by GE in two stages, first by title and abstract, and then by full text. In both phases, inclusion and exclusion criteria described in protocol [32] were used (see also Figure 2). Full-text articles that were evaluated for validity were read and checked to see if they contained sufficient closely related data [33]. Data are considered relevant if they contribute to the development or testing of emerging CMOCs within the framework of program theory. Of the out of 205 articles included in the review, 20% were checked for consistency by another researcher, with two articles leading to discussion for inclusion regarding the rigor of the method used. These were included after further discussions with GW.

Step 3: Data extraction and organization

Document characteristics were extracted into an Excelspreadsheet and included full-text documents uploaded into NVivo for data management and coding by GE. Coding was initially inductive, classifying content into abstract categories, such as education, scope of paramedic role and perceptions of paramedics. Ten per cent of these initial codes were viewed independently by another researcher.

Step 4: Synthesizing evidence and drawing conclusions

Following the sorting of data into abstract categories, and (where possible) potential contexts, mechanisms and outcomes within each category, a realist logic of analysis was applied to develop CMOCs that explain how an outcome was caused by the interaction between the context and mechanism. We used the process set out by Papoutsis et al. for operationalizing a realist logic of analysis [34]. This was repeated for all the data found within each abstract category [35]. It enabled sets of potential CMOCs to be built by GE that started to explain the factors affecting how paramedics work in primary care [36].

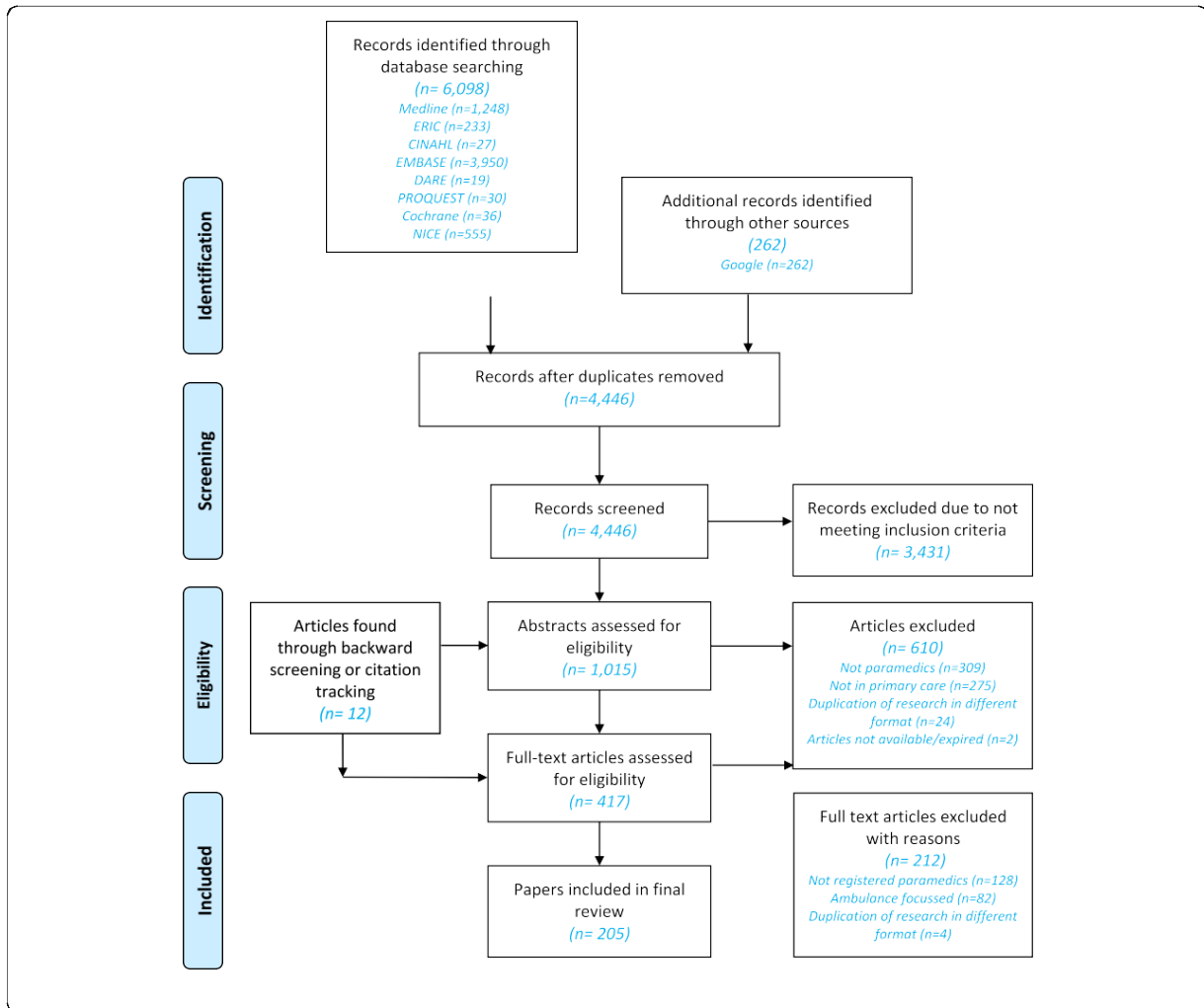


Fig 2: Document selection and appraisal flowchart

Discussions about potential CMOCs to be built by GE took place among GW, ST, VW, and KRM, throughout the evaluation. This continued until the CMOCs were able to account for the range of outcome patterns found in the data from the accompanying articles. Discussion with stakeholders and members of the public The CMOCs were presented to our patient engagement team and representatives of key stakeholder groups, including healthcare professionals, and GPs working in primary care, the British College of Medicine, Health Education, the Nuffield Trust and the Royal College of General Practitioners.

Discussion with individuals is used to confirm, refute, or refine CMOCs and to develop an understanding of how and where these fit into program theory.

Interaction with foundation theory:

All foundational theories mentioned in the article have been considered. As CMOCs and program theories evolved, we looked at a range of existing theories to gain insight into the emerging findings. Throughout the data collection and organization, we searched for connections between emerging CMOCs and existing underlying theories, to gain insight into how healthcare professionals operate. primary care and increase the usefulness of the theory of the whole developing program.

III. RESULTS

A total of 205 documents were coded to refine our original program theory and develop the CMOCs. Materials published between 2004 and 2021, covering healthcare workers working in primary care roles in Australia, Canada, England, Finland, Scotland, Wales and the United States, are described in Supplementary File 2. As shown in the FIG. 3, most of the material used to develop CMOCs comes from case studies, job postings, articles, workforce reviews, or reports. In this section, we provide a narrative overview of the three main abstract categories that emerged from the 28 CMOCs that evolved from these documents to produce our final program theory of how practices of healthcare workers in primary care roles .

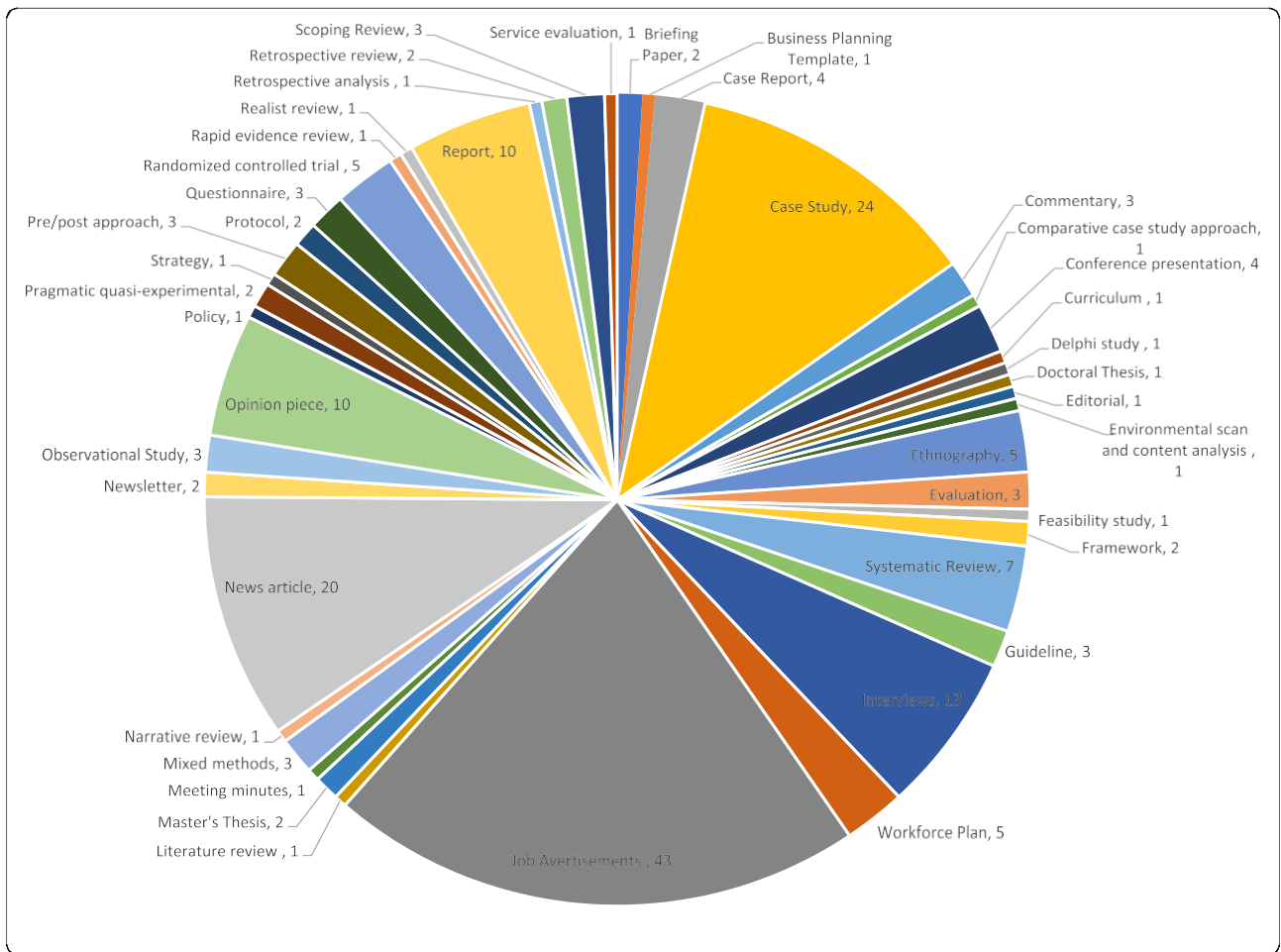


Fig. 3: Types of document pie chart

Item Summary 1: Expectations of healthcare workers working in primary care Although the role of healthcare workers may be well established in some systems, such as the UK NHS He, understanding the expectations of how health care workers can contribute and work in primary care was considered important in the literature we found. These expectations are considered against the patient and professional perspectives of GPs and healthcare professionals, as well as determining the contribution of healthcare professionals to the local workforce. Uncertainty exists when the healthcare worker's role is not clearly explained to the patient or their expectations are not met if they go to the clinician's appointment when they think they are seeing a doctor. In several peer-reviewed publications, patients expressed initial confusion about being seen by medical staff in a primary care setting, fearing that their problem would be perceived by the provider as a primary care provider. However, as patients become accustomed to this role, trusting the credibility of healthcare professionals through their work in primary care, high satisfaction rates have been reported. There is evidence that healthcare professionals have longer consultation times than their GP colleagues and that patients respond positively to this because they appreciate the opportunity to discuss the issue.

A GP's view in every country included in this review, there is evidence of 'early adopters' in primary care – family doctors who can see potential of healthcare workers in their traditional role of helping the primary care workforce. For these early adopters, paramedics have been positively evaluated by GPs and are associated with reduced workload and time savings in getting patients to appointments. Similarly, GPs worked together with their local health professionals (for example, when referring patients to GP visits after the presence of the primary care physician). healthcare through EMS) got a glimpse of the abilities of each paramedic and then offered them the job because they realized that their skills were useful to the team. Although there are many positives to evaluating primary care health care workers from the GP's perspective, in some of the reviewed publications, GPs looked at Healthcare workers only provide an “eye and ear” approach. By using them only for an evaluative role, healthcare professionals are not considered to be independent clinicians capable of self-diagnosing and patient management, thus requiring clinical supervision by a physician.

The document emphasizes that healthcare professionals consider themselves general clinicians who, by virtue of their work in EMS, must accommodate all types of patients, at any age, with any claim made. Because of their generic nature, healthcare professionals will be looking for opportunities to work in primary care, believing their abilities will be a good fit for that workforce.

Similarly, healthcare professionals see employment in primary care as an opportunity to develop their existing skills in an organized and supportive environment, as opposed to a of emergency services. The ability to build a relationship with the patient, rather than engaging in one-off stages of care, is considered professionally accomplished. The idea that paramedics were pluripotential was considered a useful addition for primary care teams, where they had the capabilities to deal with a breadth of issues, as well as being developed to a narrower focus as the setting demanded. However, where the skills and competencies of the paramedic were not suitable for primary care (such as when urgent assessment clinics were already being run by another discipline, such as nurses), paramedics were not considered to be a useful addition to the team.

There was evidence to suggest that paramedics working in primary care roles make a difference in environments where access to healthcare otherwise would not be available or delayed, such as in rural communities. Such workforce 'rotational' models were highly valued by commissioners, employers, paramedics working in them and the patients who benefited from improved healthcare access. for the employment of paramedics), paramedics were more widely considered to be a credible addition to the local primary care workforce, as they were regarded as having been endorsed by trusted organizations (such as NHS England). Abstract category 2: Transition from EMS into primary care roles Some evidence suggested that paramedics can transition into primary care (particularly to advanced practice roles) when supported by primary care (e. getting access to formal education and clinical supervision within the workplace).

The need to build upon existing skills and competencies for paramedics to be more effective in primary care was considered across many of the case study and evaluation literature. The clinical gaps that need to be filled for a successful transition to primary care centred around biochemistry (for the understanding and interpretation of blood tests), pharmacotherapy (to support independent prescribing for long-term conditions or complex patient groups) and some technical skills such as wound care, urinalysis and imaging. The success of the transition to primary care from EMS was linked to the provision of supervision to support paramedic clinical development. Supervision also enabled GPs to build up trusting relationships with the paramedics, who could then be accepted into the primary care team. Where clinical supervision was not provided, or where there were difficulties in the supervisory relationship, paramedics reported feelings of isolation and lower satisfaction with the work in their role, opting to return to EMS employment. Throughout the literature across all countries, an arbitrary 5 years of post-registration experience within EMS was considered a requirement for paramedics entering primary care roles. policymakers, employers and paramedics, all of whom made links between the length of exposure to patients as an autonomous clinician within EMS and successful transition into primary care. When considering the factors that affect the integration of paramedics into the primary care team, the literature suggests that when the role or responsibilities are unclear, there is dysfunction in the employment of paramedics in primary care. Both were less likely to occur when the professional role boundaries of the paramedic in primary care did not overlap with existing healthcare professionals, and where paramedics were aware of their own professional competencies. However, where role boundaries became blurred, or where the paramedic was viewed as Johannes factotum (or jack-of-all-trades), the literature suggests that resistance to paramedic roles was due to a lack of trust from other healthcare professionals, or other healthcare professionals feeling threatened or disempowered due to the implementation of these new roles alongside the existing ones. The ability of paramedics to build rapport and trusting relationships in a short amount of time (as required during emergencies) was considered an important component for replication in primary care. Patients were more satisfied when attended by paramedics with strong interpersonal skills and enthusiasm, citing their ability to connect to these healthcare professionals as a key marker of the success of their work in primary care. This was seen in the literature reviewed, where the concept of role substitution, rather than workforce addition, was a commonplace concern for GPs and other clinical staff within primary care. In considering how paramedics view themselves and are viewed by patients and other healthcare professions, we draw on theories of professional identity from Frierson [39]. Knowledge, uncertainty and discretion [39] are essential elements in the work for healthcare professionals, and trust in the cognitive authority of the paramedic is needed to enable them to be accepted into the primary care environment. This discretion is given to the paramedic based on trust that the paramedic will use their knowledge and skills in the best interest of the patient and that they are not only morally involved, but also involved from a point of regulation. Within the literature we reviewed, paramedics were accepted into primary care workforces (or not) based on perceptions of their professional identity by GPs. In a similar way, paramedics chose to enter employment in primary care when they were comfortable with their professional identity. and the contribution they could make within the work- force team.

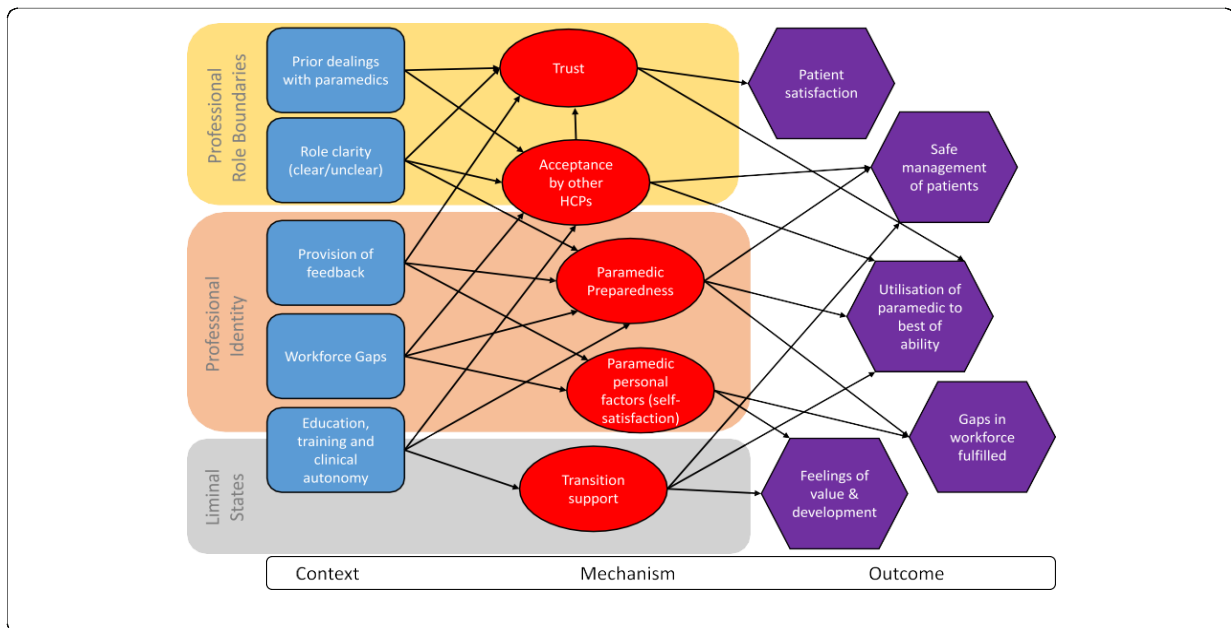


Fig. 4: Final programme theory and substantive theory

IV. DISCUSSION

Our review of policy documents, workforce evaluations, case studies and primary research suggests that benefits associated with paramedics working in primary care settings include a reduced GP workload, better access to health assessment and care for patients and career development for this group of professionals outside of their traditional EMS employer. This review has drawn on 205 documents to present a programme theory outlining how paramedics may currently be working in primary care and the extent of their contribution in these roles.

Our programme theory proposes that paramedics entering primary care need to navigate complex professional role boundaries in order to establish their professional identity and contribute to the primary care workforce. Desired outcomes, such as providing an addition to the primary care team (and perhaps reducing GP workload), may then transpire. In order for paramedics to work successfully as part of the primary care team, they need to transition effectively in these roles, supported through formal education to fill the knowledge gaps and clinical supervision to build trusting relationships with GPs. For paramedics working in rotational roles between primary care and the EMS, their peripatetic nature means that they may often practice on the periphery of both settings and, consequently, have a weaker connection to the organizational or professional norms and values, limiting their development and contribution. Recent guidance published by Health Education England has produced a 'roadmap' for paramedics to follow as they transition into primary care roles [43].

This has helpfully outlined specific qualifications, skills and aptitudes for two tiers of paramedics working in primary care: first contact practitioners and advanced practitioners. For example, whilst we have found that interpersonal skills of the paramedic are important, consideration of the patient perspective is also needed. Our review highlighted the importance of patient understanding of this new role working in primary care in building acceptance, trust and confidence in being seen by clinicians other than their usual GP. The CMOCs and programme theory were developed through regular team discussions, as well as contributions in the form of feedback and advice from patients and members of the public and representatives of key stakeholder groups. Limitations include our analysis on publicly accessible literature, located through recognized research databases and Google. Whilst we found workforce reports and case studies through our searches, these do not account for similar documents that undoubtedly exist within organizations, but which have not been made publicly available.

Many of the documents found in this review were evaluation, case study or opinion. Where primary research was included, these were not without methodological limitations that affected either reliability or transferability of the reported results. Such data may not be considered reliable in a traditional hierarchy of evidence, but by drawing our interpretations from data contained within multiple documents, we were able to develop explanatory theories that had plausibility [45].

Whilst this has enabled us to make the knowledge claims set out in our program theory, this should be interpreted with caution until additional primary data collection can confirm, refute or refine parts of this theory.

Such data collection should address the gaps that our theory presents, such as the experience needed for the paramedic to contribute efficiently to primary care, or whether standardization of this role can exist within regulatory boundaries. Whilst similar education and scope of practice exist between paramedics in these settings to their UK counterparts, there are differences in the standardization of practice, regulation and overall role contribution to healthcare. However, our interpretation of the literature we reviewed is that there are more similarities for paramedics working in primary care within these countries, compared to work they undertake in EMS. Our review outlines the mechanisms that are triggered when paramedics work in primary care roles and the range of contexts that exist within these roles that trigger these mechanisms. In particular, we identify a range of outcomes, some of which differ from predicted desired outcomes that the implementation of paramedics into the primary care workforce seeks to have from a policy perspective [46].

This has potentially important implications for England and possibly wider afield, where the recruitment of paramedics into primary care roles is a key component of the proposed workforce strategy [12, 15]. Based on this realist review, the employment and integration of paramedics into primary care should consider the following, which is also summarized in Fig. Patient acceptance of the paramedic role in primary care Patients need to develop confidence and trust in seeing paramedics in primary care. Therefore, clear communication with patients, as paramedics enter employment within primary care settings, is crucial. This could be done at both a local or national level and needs to come from a respected source for patients to accept paramedics.

Socialization of the paramedic role into the primary care team To contribute effectively to the primary care setting, paramedics need to be embedded within the workforce. Understanding the individual paramedics' scope of practice is important as this impacts how the additional role can most effectively contribute. Being embedded within the workforce also fosters trust between paramedics and other healthcare professionals, and paramedics are more likely to be satisfied with their role. This is imperative for paramedics who are employed in rotational models between two clinical settings (such as EMS and primary care), to ensure they can become effective team members within both settings. Clarity regarding role and responsibilities for paramedics for paramedics to be accepted by other healthcare professionals in primary care settings, clear expectations regarding their roles and responsibilities are crucial. When paramedics are not used to the best of their ability, patients may experience duplicate consultations, and paramedics are frustrated by a lack of autonomy.

Understanding the role and responsibilities of the paramedic also needs to be in consideration of other healthcare professionals employed in the setting, to avoid repetition of workload or role-creep into other healthcare professionals' roles, such as nursing. Support for transition into new roles Paramedics will need support to apply their existing knowledge and skills to lower-acuity or complex case presentations. Support for transition into primary care roles could be in the form of formal education (such as a master's degree) and/or the provision of clinical supervision to support their practice development. Equally, paramedics need to have an awareness of personal and professional limitations in order to seek support when required to benefit patient care. The ability to build rapport and trust with patients is a key component of emergency care, which transfers well into primary care.

The criteria for paramedics being able to successfully embed within their new roles, contribute to the workforce capacity and reassure patients include the following: Our final programme theory has highlighted the areas requiring further investigation in order to determine the contribution paramedics can make to primary care.

- How a paramedic can best transition into primary care roles from EMS and the education they require to fill in knowledge gaps and to work efficiently in this new practice setting primary care, without causing duplication, substitution or boundary disputes with existing primary care roles
- Whether paramedics maintain their existing professional identity as they move into primary care and whether this is required for them to work in
- Exploration of which specific patient groups paramedics may be best targeted when working in primary care The evaluation of cost-effectiveness existed in some of our included literature that we have not focused on in this review.



Fig. 5: A framework to support the implementation of paramedics in primary care

V. CONCLUSION

Although healthcare workers are well established in primary care roles in the UK, Australia, Canada and the US, there is still a lack of understanding of “how” these roles work to contribute for the primary care team and the patients they see. Our hands-on review highlights the complexities surrounding the inclusion of healthcare workers in primary care roles. As a complex intervention, the work that healthcare workers undertake in primary care must have a strong theoretical background that can explain how they work, why they work, and what they work best for. who to guide the actual implementation. We have developed a program theory for this purpose. Our program theory emphasizes that a key factor for health professionals to be effective in these roles is formal education and clinical supervision to support and develop decision-making as well as their autonomy. Such support enables healthcare workers to transition from EMS to primary care and helps them navigate the boundaries of their professional roles and develop their professional identity. As well as providing insight into the understanding of healthcare professionals' professional identities, we highlight the range of expectations this professional group will face as they transition into primary care. , coming from the patients themselves, GPs and medical staff. This is the first published review to provide insight into understanding the impact health professionals can have on primary care workers, and we cover indication gaps. needs to be addressed if the deployment of these medical professionals is to be effective and contribute effectively to first aid.

Abbreviations

CMOCs: Context-mechanism-outcome configurations; EMS: Emergency medical services; GP: General practitioner; NHS: National Health Service; UK: United Kingdom; USA: United States of America

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12916-021-02019-z>.

Authors' contributions

GE was involved in developing the protocol, all stages of data collection and management, and analysis and led on writing the paper. GW was involved in developing the protocol, decisions on study inclusion, analysis and writing the paper. NR was involved in developing the protocol, piloting and refining the search terms, literature searching and writing the paper. VW was involved in developing the protocol, analysis and writing the paper. ST was involved in the data extraction and analysis and writing of the paper. KRM was involved in developing the protocol, decisions on study inclusion, analysis and writing the paper. All authors read and approved the final manuscript.

Declarations

Ethics approval and consent to participate

Not applicable as this is a synthesis of existing literature.

Consent for publication

Not applicable as this is drawing on previously published data that we appropriately reference in the paper.

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