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The definition of a community paramedic: An international consensus

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Abstract

Community paramedicine is a globally evolving model of care where paramedics provide community-based, preventative and primary healthcare services. With increased global interest and adaptation of the community paramedicine model, there is a lack of a clear definition of the role of a community paramedic. This study sought to come to an international consensus on the definition of a community paramedic. A four-phase Delphi methodology was utilised to achieve a global consensus on the definition of a community paramedic. A systematic approach to expert identification was performed and reported in line with the Conducting and REporting of DElphi Studies standard. A total of 94 community paramedicine experts were identified and 76 experts consented to involvement in this Delphi. Response rate ranged from 81.6% (Phase 1) to 63.1% (Phase 2). Participants expressed the importance of community paramedic definition having components attributed to primary health care, health promotion, chronic disease management and advanced clinical assessment. Participants expressed that these are essential components of the community paramedic skill set, which distinguishes the role from other frontline paramedics. A final consensus with 91% agreement on the definition of a community paramedic was achieved. The four-phase Delphi achieved consensus on the definition of a community paramedic as follows: A community paramedic provides person-centred care in a diverse range of settings that address the needs of the community. Their practice may include the provision of primary health care, health promotion, disease management, clinical assessment and needs-based interventions. They should be integrated with interdisciplinary healthcare teams which aim to improve patient outcomes through education, advocacy and health system navigation. The adoption of the global consensus on the definition of a community paramedic will enhance efforts to promote the value of this specialist role, enabling a better understanding of how a community paramedic contributes to the wider healthcare system.

Keywords

community paramedic, paramedic practitioner, extended care, primary care, Delphi study

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Introduction

Over the past two decades, innovative strategies such as the development of the extended care paramedics,[1] paramedic practitioners[2] and community paramedic roles,[3] have been pioneered by paramedic service providers internationally. These roles, collectively known as community paramedicine, aim to reduce the burden on overwhelmed health services, supplement primary health workforce shortages, and to improve the patient experience.[4–6] As a globally evolving model of care,[7,8] community paramedicine programs provide a bridge between primary healthcare and emergency healthcare, predominantly in rural, remote and other under-resourced communities.[9]

Previous research undertaken in Australasia, North America and Europe, has evaluated outcomes, participant perspectives and benefits of community paramedic program implementation.[5,10,11] While these studies have generally defined community paramedicine as a 'non-traditional' service delivery model, few have clearly defined or questioned the role description of a community paramedic. The International Roundtable of Community Paramedicine (IRCP) developed a broad definition of a community paramedic over a decade ago, which suggests that they practice within an 'expanded scope'. While this might include the application of specialised skills, guidelines and protocols beyond base-level paramedic education and training, alternately the community paramedic might engage in an 'expanded role' working in non-traditional roles using existing skills.[12] This current definition, does not clearly identify the skill set, attributes, knowledge or unique descriptors that community paramedics from other expanded practice roles may have.

This lack of clarity affords services employing community paramedicine models of care the opportunity to use a variety of nomenclature to describe community paramedic roles. This variability in nomenclature may lead to a lack of consistency in approach and confusion to both internal and external stakeholders as to the role of a community paramedic.[13] Previous research has highlighted that there can be confusion about what community paramedics do in their role and this lack of consistent terminology only further contributes to this.[14]

Literature outside of paramedicine has shown the value of providing evidence-based definitions of practice that differ from traditional models. Defining the specialist palliative care role has helped to differentiate between what care should be provided by specialist palliative care services versus non-specialists.[15] This streamlines services, clarifies when specialist involvement is required and defines what care non-specialists should provide in palliative medicine.[15] Similarly, the role of the pharmacists in disaster response has also been defined and this was found to help professionalise the role in disaster response signposting the importance and capacity pharmacists can bring in a non-traditional role.[16]

Likewise, the development of a clear and consistent global definition of a community paramedic is important. It will enhance efforts to promote the value of this role, enabling a better understanding of how a community paramedic can contribute to a patient's healthcare journey. Consistency in definition will provide organisations the opportunity to move to a standardised position on the essential qualification, education, regulation and skill set requirements for the role. The aim of this study is to determine the global consensus definition of a community paramedic.

Methods

Theoretical foundation

This study used a Delphi methodology to come to a consensus on the definition of a community paramedic. While the Delphi methodology can be described as a method of inquiry[17] all research is embedded in a theoretical foundation or research paradigm. This study was embedded in the ontological underpinnings of interpretivism and informed by the paradigm of realism. Realism is underpinned by the belief that there is a single real world and truth, but our interpretation of it will differ due to an individual's context.[18] Where the paradigm of realism departs from the ontological underpinnings of traditional interpretivism approaches is that realism includes the belief that overtime through enquiry researchers can look to understand the single real world through the experiential accumulation of knowledge. Realism is expressed in the Delphi methodology throughout this study as many differing opinions and perspectives are brought together to uncover an agreed or central truth through the experiential accumulation of perspectives and knowledge.[18]

Delphi methodology overview

A Delphi methodology, informed by the process described by Delbecq et al.[19] and Okoli and Pawlowski,[20] was utilised to achieve a global consensus on the definition of a community paramedic.[16] This involved a systematic approach to the identification of key global stakeholders, who would be recruited for this study, based on their expertise and knowledge of community paramedicine. Participants were invited to participate in a four-phase online Delphi questionnaire, via a Qualtrics survey. The methods and results are reported using the standard for Conducting and REporting of DElphi Studies (CREDES).[21]

Identification of experts

An important aspect of the Delphi approach is the selection of experts. Following the guidelines provided by Delbecq et al.[19] the research team identified relevant experts and invited them to participate in the Delphi. In order to seek

input from experts across all community paramedicine domains, the research team sought out representatives from four key stakeholder groups: (1) Management; (2) Clinical; (3) Governance; and (4) Academia. Having an equal representation of participants from each stakeholder group, provided a diversity of perspectives and experience in community paramedicine, to inform on the global community paramedic definition. A Knowledge Resource Nomination Worksheet (KRNW) was utilised to support the identification of key experts, as described by Okoli and Pawlowski.[20]

The research team first identified the most prominent countries and jurisdictions who had implemented a community paramedic program or similar. This was established through a review of peer-reviewed and grey literature, to confirm the existence of these programs. Through the grey and peer-reviewed literature the research team first populated experts' names and contacts.

The representation of experts from all four key stakeholder groups was recruited as follows:

- Management – The convenor of the international round table of community paramedics[22] was consulted for contacts of management and governance officials.
- Clinical – Was sought from the Management/Governance group via a snowballing recruitment technique, to include community paramedicine, clinical leaders and clinicians.
- Governance – Officials involved in the governance of community paramedicine initiatives, were recruited through web searches and via snowballing techniques, recommended by experts in other groups.
- Academia – Were recruited via review of published literature of relevance.

To be classified as an expert in each of the categories the inclusion criterion was applied (Table 1). Where experts could have been included across multiple categories the experts' preferred criterion was applied.

Table 1. Inclusion criteria.

Category of expertise	Inclusion criteria
Management	Current or previous position in managing community paramedics or community paramedic programs
Clinical	Current clinically working community paramedics nominated by those experts identified as management or government as being clinical experts
Governance	Current or previous position in providing governance to community paramedics or community paramedic programs
Academic	At least one publication listed as the first or senior author related to community paramedicine

After the initial population of names occurred in the KRNW, participants were invited to consent to be involved in the Delphi study via an electronic survey link. Participants were also encouraged to invite any other experts from their network to participate in the study, with the first round of contact aimed at increasing the size of the KRNW.

Delphi questionnaire

The Delphi questionnaire was conducted online via the use of Qualtrics software. The four-phase Delphi process is described in Figure 1.

Phase 1– ranking of attributes related to community paramedic. The first step towards reaching a global consensus on the definition of a community paramedic involved critiquing peer-reviewed literature to identify the key attributes of a community paramedic documented from previous definitions. Thirty-five (35) studies were identified which provided a definition of a community paramedic as well as six (6) association websites, see Appendix A. The key attributes were extracted from these definitions and placed into four categories after an inductive content analysis of the existing definitions. The categories created were (a) the role of a community paramedic; (b) the scope of practice; (c) integration within the wider healthcare system and (d) place of practice. Experts were asked at this phase to rank on a Likert scale of 0 to 5, 0 being not important at all to 5 being very important, the importance of that attribute being included in the definition of a community paramedic. The attributes with 80% of rankings scoring 4 (important) or 5 (very important) were then included for ranking in Phase 2. Specific definitions and attributes can be found in Appendixes A and B.

Phase 2 – the refinement of included attributes. From the list of attributes included in Phase 1, experts were asked to identify attributes that they believed should be included in the definition of a community paramedic (minimum of 5 and maximum of 7). Participants were also asked to identify attributes that they believed should be excluded from the definition of a community paramedic (minimum of 0 and maximum of 5). This process of attribute selection has previously been used in the formulation of the definition of Paramedicine by Williams et al.[23]

Phase 3 – ranking of proposed definitions. After analysing the results from Phase 2, the research team formulated possible definitions of a community paramedic. The definitions were formulated by the research team via an iterative process informed by the highest ranked attributes results as well as the content analysis of the free text responses and the from Phases 1 and 2. From these results, the research team created three possible definitions

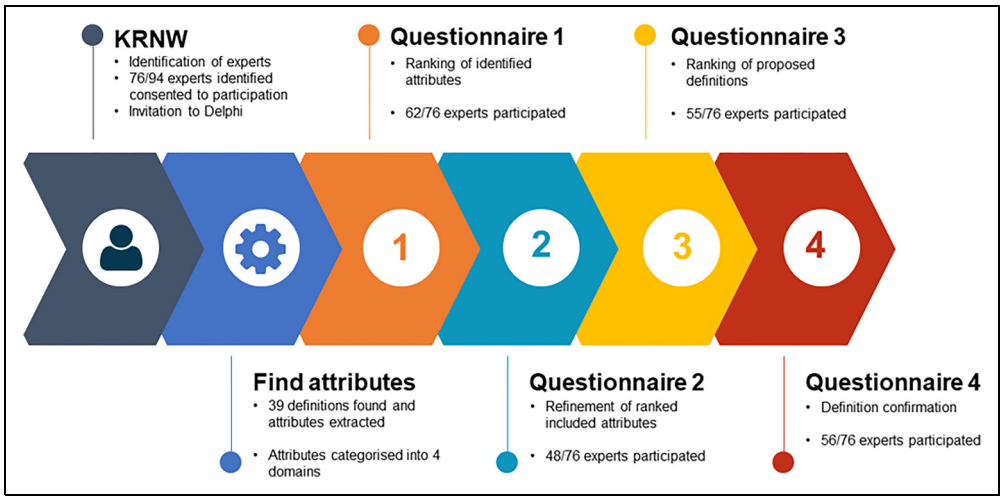

Figure 1. Overview of Delphi process.

Table 2. Trustworthiness criteria.

Criteria	
Credibility	Credibility of the content analysis was achieved through the diversity of included participants and is reported. The inclusion of representative quotes from free text responses at each major theme showcase the credibility of the analysis.
Confirmability	At least two researchers (either BS, SB or AM) performed an inductive content analysis and met to compare findings at the completion of each phase. Similarities and differences across the responses at each phase resulted in presented themes. The researchers discussed and prepared a summary of the analysis at each phase.
Dependability	Upon the completion of each phase, a minimum of two researchers met to summarize free-text responses and quantitative results. Researchers expressed any biases at each phase of the Delphi
Transferability	To ensure the transferability of results research method is described and reported. The international inclusion and reporting of participant demographics enables readers to make judgements on the transferability of the content analysis to their individual context.

that they felt satisfied the participants responses from Phases 1 and 2. Experts were then asked to choose a preferred and non-preferred option from the three community paramedic definitions put forward.

Phase 4 – definition confirmation. In Phase 4, a final and singular definition was presented to the experts. The definition was developed from the results of Phase 3. Experts were asked to confirm or reject the proposed definition of a community paramedic. Participants were provided free text responses at each stage of the Delphi process to comment on attributes and the proposed definitions.

Analysis

The data was exported from Qualtrics to Microsoft Excel for analysis. Descriptive statistics were used for summary statistics. Free-text responses were analysed by the research team via a descriptive inductive content analysis approach at each phase[24] and recorded in NVivo V.12 software.[25] Author (BS) read through each response thoroughly, coding responses as they related to the phase the responses corresponded to. Each participant response was analysed for meaning units (phrases or sentences expressing an idea). Meaning units were subsequently organised into codes, categories and themes.[24] This content analysis was used to identify frequently recurring items from the participants and where appropriate was used to inform each subsequent phase or presented as results. Trustworthiness in the content analysis approach across credibility, confirmability, dependability and transferability as outlined by Graneheim and Lundman[24] is outlined in Table 2.

Convergence of opinion. A minimum of four phases was designed to reach a consensus on the definition of a community paramedic and the final definition consensus a priori was set at 80%. While there is no consensus on the convergence of opinion, commonly 70% is used, however, the research team followed that as outlined by Stewart et al.[26] and aimed to achieve 80% consensus on the final definition provided in Phase 4. Once an agreement of at least 80% was reached, the research team was satisfied that the final phase of the Delphi was

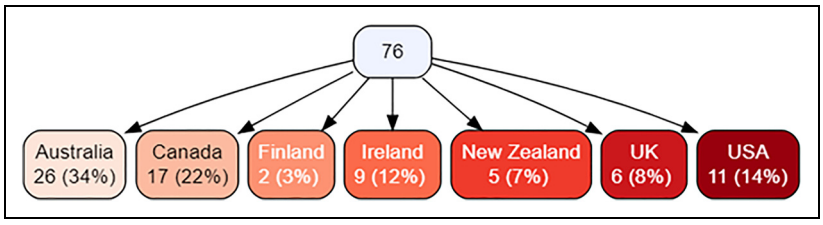

Figure 2. Jurisdictions of included experts.

complete. If the agreement was found to be < 80%, the questionnaire would be recirculated showing the participant's answer and the mean score of other participants for each question along with qualitative answers and they would then be invited to review their responses. To have closure on the final definition in Phase 4 in a timely manner and reduce the burden on participants, the research team planned to use two stop points as outlined in Okoli and Pawlowski[20]:

1. Consensus reached 80% indicating convergence of opinion.
2. Iteration of each phase was stopped if the mean rankings for two successive iterations were not significantly different. This difference was to be measured using the McNemar's test (pre–post-test).[20]

Ethics

This study was provided ethical approval through Monash University, Human Research Ethics Committee, Project ID: 31384.

Results

Included experts

A total of 94 community paramedicine experts were identified and 76 experts consented to involvement in this Delphi. International experts included were drawn from Australia, Canada, Finland, Ireland, New Zealand, the United Kingdom and the United States of America. Raw numbers can be seen in Figure 2.

The category of expertise of the 76 included experts had equal representation across all the included areas sought as shown in Figure 3.

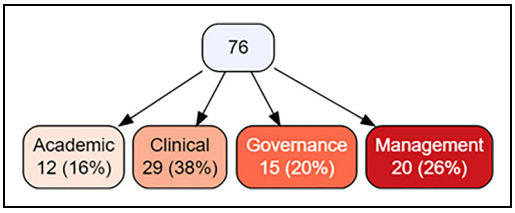

Figure 3. Category of expertise.

Phase 1

The questionnaire for Phase 1 was sent to 76 participants with a response rate of 81.6% (62/76). The 44 attributes extracted from currently existing definitions were ranked on a 5-point Likert scale, see Appendix C for results categorised by domains. There were 22 attributes, which included at least one attribute from each domain, which were scored by at least 80% of participants with a rank of 4 (important) or 5 (very important) and were included in Phase 2.

Content analysis of free text responses – Phase 1. Content analysis of the free text responses in Phase 1 highlighted three important themes; *flexibility, interprofessional practice* and *education requirements*. Participants expressed that attributes to be included needed to showcase the flexibility of the role, should highlight the role of interprofessional practice and that there is ambiguity in including prescriptive education requirements in a definition.

Flexibility. Flexibility as an attribute was commented on frequently, with participants stating that community paramedics and the models of delivery they worked in required flexibility and that this should be reflected in the definition.

> It should not be seen as a one size fits all approach, however. More like a range of possible alternatives that are selected based on any particular community need.

Interprofessional practice. Interprofessional practice and integration within the wider healthcare system was noted to be important attributes especially and that integration with the wider healthcare system was essential. However, participants felt that the place of practice did not need to be overly prescriptive due to the differing models found internationally and the variability in the focus each community paramedicine model may have.

> It shouldn't be limited to the patients home, it can be where ever the patient might be? We run an indigenous focused program which most participants/patients aren't in their

> usual homes. It could be on the street, in an ancillary support agency building, government agency building, etc.

Education requirements. Analysis of responses found that the education and experience requirements for the community paramedic role were a point of contention. These differences were evidenced by terminology such as certification, credentialing and competencies, generally associated with industry standards, and terms such as accreditation, registration and scope of practice, more often associated with professional standards. Most participants agreed that a consensus was needed for the community paramedic role to be standardised, however, others indicated that industry certification was sufficient or that external professional accreditation standards were an important criterion.

> Competency statements are more important as they will allow clinical experience to be recognised, rather than requiring further study.

Although not explicitly defined, some respondents also suggested that experience was an important factor and should be recognised as part of a legitimate pathway into a community paramedic role. There was a mix of opinions over the level of qualification a community paramedic requires, however, the most common opinion supported a master's degree as the most appropriate educational requirement for a paramedic to work in this role.

> Yes of course they need to know more, I feel a Masters degree in paramedic practitioner or community paramedicine is appropriate as it will take us through low and high acuity care and give us more credit with other health care professions. Certificates and diplomas are a thing of the past.

Some responses explicitly linked external, as opposed to industry, accreditation standards as an aspect of professional recognition for the community paramedic role as a specialised position. Many participants commented that education and competency would likely differ depending on inherent entry-level requirements and that prescriptive attributes associated with educational requirements should not be included in a community paramedic definition.

> [Education requirements] is an important part of the role but does not seem essential for the definition.

Based on analysis of attribute rankings and free text responses no further attributes were included beyond those already presented to participants in Phase 1.

Phase 2

Phase 2 received 48 responses (response rate 63.1%). Only two out of the 22 attributes identified in the first phase were identified by more than half of the participants as 'should be included' in the definition (Table 3).

Content analysis of free text responses – Phase 2. Limited free text responses were provided by participants during this phase. The only pertinent component of the analysis of the free text showed that the use of the term specialist could be problematic and should be avoided in the proposed definition:

> Community Paramedicine will need leaders (specialists and consultant paramedics) but the role should not be the role domain of 'specialists'.

Phase 3

Phase 3 received 55 responses (response rate 72.4%) where participants chose a preferred and least preferred option from three created definitions (Table 4).

Content analysis of free text responses – Phase 3. Free text responses in Phase 3 were used by the research team to better refine and provide a proposed final definition in combination with the quantitative results. Two themes were created based on the responses provided; *avoid using specialist term* and suggestion that *no specifics on scope or skills* be included in the definition. Participants noted that the use of the term specialist in a proposed definition was problematic and should be removed:

> I just don't like the 'specialist paramedic' element – as this is a formal level of practice within the UK.

It was further suggested that the inclusion of specifics to the scope of practice or skill was not required to better reflect the flexibility in approach undertaken by community paramedics across the world:

> I don't like how 'skillset' is so prominent. Need to focus on patient care, not vocational notions such as skillset.

Phase 4

A total of 56 responses (response rate 73.7%) were received in Phase 4 (final questionnaire). The participants were presented with the proposed definition formulated by the research team based on the results from the previous three rounds. Participants were asked to accept, defer or reject the proposed definition and had the opportunity to provide qualitative feedback. Ninety-one percent (n = 51/56, 91.1%) reported that they believed it captured the definition of a community paramedic satisfactorily and accepted the proposed definition.

Table 3. Phase 2 results.

Attributes	Include (n)	Include (%)	Exclude (n)	Exclude (%)
Increases access to primary health services and attempts to reduce the need for patient transport and hospital readmissions	31	65%	1	2%
It involves paramedics applying their training and skills in non-traditional environments, often outside the usual emergency response and transportation model	27	56%	2	4%
They have additional knowledge, skills and training in the assessment and management of patients in chronic disease and primary care	23	48%	1	2%
They provide a range of services, including disease management, home assessments, and referral to community services	22	46%	0	0%
It is a model of healthcare delivery that uses paramedics to deliver person-centred care	19	40%	3	6%
Involves the provision of health education, clinical assessment and monitoring, point of care diagnostics.	18	38%	1	2%
Focuses on working directly with other health care professionals, to provide needs-based on-site urgent and non-urgent care	17	35%	4	8%
In patient's homes and in their community.	14	29%	0	0%
There are partnerships between paramedics, emergency medical services systems, and interdisciplinary healthcare teams	13	27%	1	2%
Uses an expanded set of skills, practices, guidelines or protocols	11	23%	1	2%
Improves care management through patient education, advocacy and navigation	10	21%	0	0%
They are integrated with other healthcare entities	10	21%	1	2%
Address specific healthcare needs of people in their homes or within mobile environments	8	17%	0	0%
It provides outpatient urgent and primary care-like services for people who might otherwise visit or be transported to an ED	17	35%	7	15%
Is to identify and treat disease-related symptoms before they escalate to emergency health problems	13	27%	5	10%
A specialist paramedic who has completed a formal and recognised educational program	13	27%	5	10%
It can involve health promotion and disease prevention activities	9	19%	3	6%
Uses an expanded scope of clinical practice in patient assessment and treatment options	9	19%	3	6%
Meet people in their homes or other safe locations, including community clinics or emergency departments	9	19%	3	6%
Non-urgent mobile resources in the out-of-hospital environment	6	13%	2	4%
A specialist paramedic who has completed a formal and recognised certification	5	10%	5	10%
Underserved rural populations	5	10%	5	10%

Content analysis of free text responses – Phase 4. Only 11/56 participants provided further free text responses in Phase 4. One theme was noted that aided in the refinement of the final definition, *the importance of integration*.

Participants noted that the final definition should be aspirational to say that community paramedics 'should' be integrated with interdisciplinary health care teams rather than they 'can' be as originally provided:

> Rather than 'can be integrated' I think it 'should be integrated'. I can't see how a community paramedic that lacks this integration can in fact function or provide a service. The essential nature of the care is its integration within the broader provision of community care – community paramedicine/paramedic cannot and does not live in isolation.

Based on these four phases, the global definition of a community paramedic is described:

> A community paramedic provides person-centred care in a diverse range of settings that address the needs of the community. Their practice may include provision of primary health care, health promotion, disease management, clinical assessment and needs based interventions. They should be integrated with interdisciplinary health care teams which aim to improve patient outcomes through education, advocacy, and health system navigation.

Table 4. Phase 3 results.

Definitions proposed	Preferred (%)	Not preferred (%)
A community paramedic is defined as a paramedic who uses an expanded skill set and scope, which addresses the health care needs of people in their homes or community. They are integrated within interdisciplinary healthcare teams with the aim to improve patient care through education, advocacy, and health system navigation	49	51
A community paramedic provides person-centred care, health education, clinical assessment, monitoring and point-of-care diagnostics. They focus on working directly with other healthcare professionals, to provide needs-based, on-site urgent and non-urgent care in the patient's home and community	38	63
Community paramedic applies their training, skills and knowledge to provide holistic primary health care, centred around disease management, home assessment and appropriate referral pathways to reduce unnecessary hospital attendance.	25	75

Discussion

This Delphi has provided an international consensus on the definition of a community paramedic. This is despite the significant variation in models of service delivery provided across international borders and the differences in underlying general paramedic qualifications and scope of practice.[2] These findings indicate that regardless of education and paramedic scope of practice, the skill set, knowledge and aims of community paramedic roles can be universally adaptable. The community paramedic definition covers a vast area of practice, and the length of the definition reflects this while still providing significant key differences between established and accepted paramedicine definitions.[23] This definition concedes that primary health care, health promotion, chronic disease management and advanced clinical assessment are core components of the community paramedic skill set, that distinguishes the role from other frontline paramedics.

Participants noted in Phase 1 the importance of autonomy of practice over direct medical direction by physicians as a key factor of relevance to the community paramedic role. It should be noted that this may not be reflective of common practice internationally and will depend on underlying education, clinical supervision, and governance structures inherent in the underlying paramedic practice level.[27] For example, autonomy in practice, including the ability to prescribe medication, is integrated within general practice in some areas in the United Kingdom.[28] However, the medical direction may be a requirement in some community paramedic programs where governance structures require it.[29] Despite this, the autonomy of practice is something that paramedics with appropriate training, qualifications and experience are capable of and is something to aspire to for those in areas where this is not yet possible.[30]

Throughout the Delphi process content analysis of the free text, responses were valuable in exploring the nuance of the community paramedic role and requirements for the definition. In particular educational requirements for the community paramedic role were a point of contention. It was noted that entry-level paramedic education did not sufficiently address the knowledge needed to work in a community paramedic role and that experience was also required. The need for specialist community paramedic education beyond entry-level education is implied by the work of the US-based Paramedic Network,[31] which has developed a model curriculum and set up an accreditation system, while the International Board of Speciality Certification has also set up a system to certify individual community paramedic specialists.[32] Further work is required to ascertain the educational requirements for this role. Now at least with consistency in definition, regulatory organisations can move to standardise the education, qualifications, and skill set requirements for the role in their system.

The final phase of the Delphi study revealed that participants placed a strong emphasis on the importance of integrating community paramedics into interdisciplinary care teams. This approach to care delivery has been shown to be particularly effective for patients with complex needs, as it allows for a more comprehensive and collaborative approach to decision making and care.[33,34]

Limitations

While a robust process was conducted to perform this Delphi and was reported utilising an established guideline for reporting in the CREDES guideline there are still limitations.[21] Only 76 of 94 experts identified, consented to participation. Representation of all experts came from only western or European countries with a skew towards Australian-based experts, which may bias the definition to suit this region. There are established variations in models of service delivery and scope of practice amongst community paramedics

across the globe so this definition may not be specific enough to suit all community paramedic roles. However, the final round of 91% consensus on the definition resulting from this Delphi does highlight that the definition does satisfy most experts' opinions, despite these regional variations.

There was decay in participation rates throughout the four phases of the Delphi process, with 73.5% of the original participants included participating in the final phase. Despite this decay, previous research has shown that stability in consensus is generally achieved with Delphi participation numbers of at least 20 participants.[35] With 56 participants included in the final phase of this Delphi the concern with decay in participation is reduced.

Implications

The importance of this research and attaining a consensus definition of a community paramedic supports the standardisation of terminology and supports understanding and advancement of the international community paramedicine model of care. Previous research has highlighted that the non-traditional and unique aspects of the community paramedic role, are routinely misunderstood, not only by external stakeholders but by other Paramedics and direct managers.[14,36] With a consistent definition, the role, scope, and purpose of a community paramedic, could be better understood by health industry leaders and program funders. This will support those developing and implementing community paramedic roles, and advocate the advantages, explaining how they differ from traditional Paramedic roles while standardising the professional view of community paramedic roles. Additionally, it should be noted that the definition of paramedicine[23] has some overlap with the community paramedic role and that many aspects of the traditional paramedic role may be covered in a definition of community paramedic. As the access to essential primary care continues to be a challenge across the globe,[37] jurisdictions may choose to incorporate the community paramedic role within existing traditional Paramedic roles in emergency response, however, the central focus of a community paramedic versus traditional paramedic role will require a core focus on improving patient outcomes through education, advocacy and health system navigation. A final implication that must be considered is that strict use of the definition may limit future flexibility and hinder advancements in the field. To avoid this, it will be important for clinicians, academics and policy makers to remain open to ongoing development and the potential need to redefine the community paramedic role in the future.

Conclusion

Through the utilisation of a four-phase Delphi process, with 91% consensus, an international consensus on the definition of a community paramedic has been developed. The adoption of the global consensus on the definition of a community paramedic will enhance efforts to promote the value of this specialist role, enabling a better understanding of how a community paramedic contributes to a patient's cycle of care and will assist in informing a standardised position on the qualifications, education, regulation, and skillset the role requires.

Author contributions

BS, SB, PO, NF, AM, MK, KS and ALM conceived the study. BS, SB, PO, NF, AM, MK, KS and AM equally designed the study and the questionnaires. BS and ALM undertook the data collection and data analysis. BS, SB, PO, NF, AM, MK, KS and ALM equally interpreted the data. BS drafted the manuscript and circulated it to authors for contribution. SB, PO, NF, AM, MK, KS and AM edited drafts and approved the current manuscript for publication. BS is the author responsible for the overall content as the guarantor.

Declaration of conflicting interests

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Appendix A. Community paramedic definitions identified

Search terms used: ambulance, paramedic, paramedicine, first aid, emergency medical service, EMS, emergency medical technician, EMT, general practice, community paramedicine, mobile integrated healthcare, primary health care, community medicine and community health service.

Table A1. Definitions of community paramedic and community paramedicine.

Lead author	Year	Origin	Title	Definition
Abrashkin	2016	United States	Providing Acute Care at Home: Community Paramedics Enhance an Advanced Illness Management, Program-Preliminary Data.	Community Paramedicine (CP) is a model for health- care delivery that uses emergency medical service (EMS) providers to deliver care that is integrated with other healthcare entities
Agarwal	2020	Canada	Cost-effectiveness analysis of a community paramedicine programme for low-income seniors living in subsidised housing: the community paramedicine at clinic programme (CP@clinic).	Community paramedicine (CP) is an emerging field that is actively expanding across Canada. Community paramedics are deployed in non-traditional, non-acute response settings, which can involve health promotion and disease prevention activities
Ash	2020	United States	Quality of Life for Persons with Chronic Disease Utilizing Mobile Integrated Healthcare	Community paramedic (CP): An individual who is a state-licensed or certified emergency medical services professional that has received additional training beyond the scope of emergency medical care. This training may include education on CDM, point-of-care laboratory testing, patient education and disease prevention (Rural Health Information Hub, 2018; Zavadsky and Hooten, 2016).
Ashton	2017	Canada	Conserving Quality of Life through Community Paramedics.	The practice of community paramedicine (CP) has arisen from grass roots innovation to meet community needs by local paramedic services leveraging their skills and knowledge to address non-emergent client presentations. In contrast to the traditional stabilise and transport of clients to emergency rooms for assessment and management, medics are additionally focussing on preventative measures to support clients to live in their homes as long as possible.
Batt	2021	Canada	Advances in Community Paramedicine in Response to COVID-19	Community paramedic – a paramedic who has completed a formal and recognized educational program and has demonstrated competence in the provision of health education, clinical assessment and monitoring, point-of-care diagnostics, and treatment modalities within or beyond the role of traditional emergency care and transport.[1]
Bennett	2017	United States	Community Paramedicine Applied in a Rural Community.	Community paramedicine (CP), as ' … an organized system of services, based on local need, which are provided by EMTs and paramedics integrated into the local or regional health care system and overseen by emergency and primary care physicians'. This agenda focuses on utilizing CP to fill gaps in the primary care delivery system, particularly in those areas with low call volumes.[8,9]
Bradley	2016	United States	The business case for community paramedicine: lessons from Commonwealth Care Alliances Pilot Program	Mobile integrated health care and community paramedicine (MIH-CP), addresses non-emergency needs by expanding the role of emergency medical services personnel. Rather than focusing only on emergency care, paramedics provide outpatient urgent and primary care-like services for patients who might otherwise visit or be transported to an emergency department (ED)
Brydges	2014	Canada	A Case Study of Older Adult Experiences with a Novel Community Paramedicine Program	Community paramedicine can be described as the management of patient's low-acuity illnesses and injuries
Brydges	2016	Canada	The CHAP-EMS health promotion program: a qualitative study on participants' views of the role of paramedics.	The role of Emergency Medical Services (EMS) is expanding to address a range of health problems in both community and institutional settings. The management of low acuity illnesses in the community has been broadly defined as 'community paramedicine'.[1] While this definition remains ambiguous in nature, community paramedicine programs often feature paramedics working in alternative care models or with the broadened scope of practices.
Chan	2019	International	Community paramedicine: A systematic review of program descriptions and training.	Community paramedicine is an emerging form of health services delivery with the potential to reduce emergency department (ED) visits among high-user groups while making use of existing paramedic resources.[1–3] There is growing interested in community paramedicine and its expansion across Canada, Australia, the United States, and the United Kingdom.[4] Community paramedicine extends traditional paramedic care and is staffed by emergency medical services (EMS) professionals often with additional training.[5] Programs can be tailored to community needs by providing a range of services, including disease management, home assessments and referral to community services.[6,7]

(continued)

Table A1. Continued.

Lead author	Year	Origin	Title	Definition
Choi	2016	United States	Mobile Integrated Health Care and Community Paramedicine: An Emerging Emergency Medical Services Concept.	'Mobile integrated health care and community paramedicine' is the current term for a new model of community-based health care delivery that primarily uses emergency medical services (EMS) personnel and systems.[1] Mobile integrated health care and community paramedicine programs address wellness, prevention, care for the chronically ill, postdischarge care, social support networks and increasing medical compliance for a local population. The model's providers, often called community paramedics if trained at that level, perform assessments and interventions on an outpatient basis but usually do not provide acute transport.[1] First conceived of in programs attempting to expand access to services for underserved rural populations, the delivery system is one potential way to improve health system engagement with the community.
Constantine	2021	United States	Implementation of Drive-through Testing for COVID-19 with Community Paramedics	Mobile integrated health (MIH) and community paramedicine (CP) programs perform a wide array of non-emergent paramedic functions, such as post-discharge care, chronic disease management, and assuring proper health care resource utilization
Dainty	2018	Canada	Home Visit-Based Community Paramedicine and Its Potential Role in Improving Patient-Centered Primary Care: A Grounded Theory Study and Framework.	Community paramedics address patient needs in their homes, identify and treat disease-related symptoms before they escalate to emergency health problems, and refer patients to their primary care physician when necessary.
Gingold	2021	United States	The effect of a mobile integrated health program on health care cost and utilization.	Mobile integrated health and community paramedicine (MIH-CP) programs are partnerships between paramedics, emergency medical services systems, and interdisciplinary healthcare teams that care for patients with complex medical and social needs in their homes and communities.
Goldberg	2014	United States	Mobile integrated healthcare: Using existing out-of-hospital resources to bridge gaps in healthcare services	MIH is 'the provision of healthcare using patient-centred, mobile resources in the out-of-hospital environment. It may include, but is not limited to, services such as providing telephone advice to 9-1-1 callers instead of resource dispatch; providing community paramedicine care, chronic disease management, preventive care or post-discharge follow-up visits; or transport or referral to a broad spectrum of appropriate care, not limited to hospital emergency departments'.[6]
Gregg	2019	United States	Systematic Review of Community Paramedicine and EMS Mobile Integrated Health Care Interventions in the United States.	Community paramedicine (CP) and mobile integrated health (MIH) programs are innovative models for using EMS agencies to provide care to low-acuity patients outside of the ED.
Hanninen	2020	Finland	Patients Seeking Retreatment after Community Paramedic Assessment and Treatment: Piloting a Community Paramedic Unit Program in Southwest Finland	Today the wide scope of community paramedicine is still to increase access to basic health services but also to reduce the need for patient transport and hospital readmissions.[2] The community paramedicine programs are always tailored to address the specific needs of the local community and the local health care system
Hoyle	2012	New Zealand	Introduction of an extended care paramedic model in New Zealand	Paramedics in New Zealand needed an expanded set of skills and protocols,[4,6] and were termed 'extended care paramedics' (ECPs). The aim of this model was to reduce the burden on the ED and to improve the patient experience by avoiding long waiting times for treatment of minor conditions when this could be initiated in the home.[4]
Hughes	2021	United Kingdom	Community paramedicine home visits: patient perceptions and experiences	An example of this is community paramedicine (CP), a model of community-based healthcare, implemented via a range of models to suit local needs (Kizer et al., 2013). CP enables the delivery of community-based healthcare via paramedics such as specialist paramedics (SPs) who have additional knowledge, skills and training in the assessment and management of patients in primary care environments
Leyenaar	2021	Canada	Relevance of assessment items in community paramedicine home visit programmes: results of a modified Delphi study.	Community paramedicine is an emerging area of paramedic practice where paramedics with broadened skill sets provide low-acuity and preventative care, often collaborating with other members of patients' care teams in community settings.[9,10] In community paramedicine home visit programmes, paramedics visit patients at home to identify, treat and conduct referrals for emerging health and social needs.[10,11] This represents an extension of low-acuity paramedic practice, with new aspects of patient assessment required for improved care integration, care planning and case management
Leyenaar	2019	Canada	Report on the status of community paramedicine in Ontario	The umbrella term 'community paramedicine', describes a growing field of paramedicine practice that emphasizes a more proactive and preventive approach to care that utilizes paramedics in expanded roles.[1] Community paramedicine leverages paramedics to provide immediate or scheduled primary, urgent, and/or specialized healthcare to vulnerable patient populations by focusing on improving the health system access, care, and experiences across the continuum of care.[2]

(continued)

Table A1. Continued.

Lead author	Year	Origin	Title	Definition
Martin	2016	Canada	Consumer perspectives of a community paramedicine program in rural Ontario.	Community paramedics are new healthcare professionals providing innovative, preventative and primary healthcare services, in addition to the emergency medical response. Community paramedicine differs from the traditional emergency response and transportation model as it supports paramedics to apply their training and skills in primary care and community-based environments.[7] Community paramedics practise within an expanded scope or role using existing or additional specialised skills
Nowrouzi-Kia	2021	Canada	Quality of work life of paramedics practicing community paramedicine in northern Ontario, Canada: a mixed-methods sequential explanatory study	CP is an evolving, community-based healthcare model where paramedics function outside their usual emergency response and transport roles. In Canada, the emergency response dispatch system is activated when patients, caregivers or bystanders call emergency services. This new CP role's original purpose was to reduce the number of unnecessary emergency calls and emergency department visits and improve patient health promotion by increasing proactivity in addressing patients' health needs in their homes and communities.
O'Meara	2015	Canada	Integrating a community paramedicine program with local health, aged care and social services: An observational ethnographic study	Community paramedicine (CP) is an emerging model of health care where paramedics apply their training and skills in 'non-traditional' community-based environments
O'Meara	2016	Canada	Community paramedicine model of care: an observational, ethnographic case study.	The term CP covers emerging models of care that are a community-focused extension of the traditional emergency response and transportation paramedic model that has developed over the last 50 years. This new model of care calls on paramedics to apply their education, training and skills in 'non-traditional' community-based environments and to embrace expanded scopes of practice
Pang	2019	International	Limited data to support improved outcomes after community paramedicine intervention: A systematic review.	The community paramedicine (CP) model of healthcare delivery bridges gaps in basic care, tailored to local needs. CP leverages well-trained emergency medical services (EMS) personnel outside of emergency (911) response.[1,2] These personnel commonly visit patients in their homes, usually facilitating access to care or as follow-up of established care. Less commonly, CP treats patients' medical needs without the intent of transport to the hospital. By itself, the model is not new; reports over 20 years old describe the CP model.[3,4] The concept originated in rural settings, to improve access to basic health care.[4] The model has since expanded, driven by fragmented care, challenges in accessing care and the ever-growing focus on cost containment. CP is now widespread, certified in many states and part of the EMS Agenda, 2050, outlining the future vision of EM.
Pearson	2014	United States	The Evidence for Community Paramedicine in Rural Areas: State and local findings and the role of the state Flex program	National Consensus Conference on Community Paramedicine, 'Community paramedicine provides care for patients at home or in other non-urgent settings outside of a hospital under the supervision of a physician or advanced practice provider. Community paramedicine can expand the reach of primary care and public health services by using EMS personnel to perform patient assessments and procedures that are already in their skill set'.[20] The specific roles and services of a community paramedic are determined by community health needs and in collaboration with local public health departments and medical directors.[21]
Ruest	2017	Canada	Community health evaluation completed using paramedic service (CHECUPS): design and implementation of a new community-based health program	CP is an emerging model of care, where paramedics apply their training and skills in 'non-traditional' community-based environments to address the challenges of aging populations, overstretched health care system and increasing paramedic service demand
Schwab-Reese	2021	United States	'They're very passionate about making sure that women stay healthy': a qualitative examination of women's experiences participating in a community paramedicine program.	Community paramedicine programs provide non-acute services outside traditional healthcare settings and are one emerging approach to improve patient/provider communication and rapport, increase coordination between providers, and ensure women have access to appropriate levels of care. In their role as physician extenders, community paramedics meet patients in their homes or other safe locations to provide clinical follow-up to established care plans and wraparound services addressing the social determinants of health
Thirumalai	2021	United States	Challenges and Lessons Learned from a Telehealth Community Paramedicine Program for the Prevention of Hypoglycaemia: Pre-Post Pilot Feasibility Study	Mobile integrated healthcare-based community paramedicine programs deploy trained paramedics to help patients with complex chronic conditions at home. By visiting frequent users of the 911 system, these programs reduce the number of unnecessary emergency department transports and the number of nonemergency phone calls, thereby improving care management through patient education, advocacy and navigation

(continued)

Table A1. Continued.

Lead author	Year	Origin	Title	Definition
Thompson	2014	Australia	HWA Expanded Scopes of Practice program evaluation: Extending the Role of Paramedics sub-project	The core of the model is training Extended Care Paramedics (ECPs) to treat patients in their usual place of residence, with referral to other health professionals if appropriate. ECPs manage patients with a diverse, and often ill-defined, range of signs and symptoms. Although these patients are deemed 'low acuity', these cases can be complex and require the ECP to apply advanced clinical reasoning. In many cases, the patient may have multiple chronic conditions and present as generally unwell.
Thurman	2021	International	A scoping review of community paramedicine: evidence and implications for interprofessional practice.	Community paramedicine (CP) is an evolving method of providing community-based health care in which paramedics function outside of their traditional emergency response roles in order to improve access to primary and preventive health care and to basic social services (Patterson and Skillman, 2013). Many different CP models have arisen over the past few decades in order to address the unmet healthcare needs of local communities. CP programs range from the provision of health education and disease management for older adults in their homes (Nejtek, Aryal, Talari, Wang, and O'Neill, 2017) to home safety assessments for families with infants (Brice, Overby, Hawkins, and Fihe, 2006) to provision of transfusions in the home for individuals with cancer and mobility issues (McCarthy and Dalgarno, 2016). Common to each program is the use of emergency medical services (EMS) personnel in extended roles in order to expand the reach of healthcare services to medically underserved groups
Tohira	2013	International	The impact of new prehospital practitioners on ambulance transportation to the emergency department: a systematic review and meta-analysis.	NPPs are similar to paramedics, but their role differs in that they have an expanded scope of clinical practice in patient assessment and treatment options. NPPs (EmCP, PP and ECP) are trained to manage minor illness and injury, for example, perform simple suturing, order investigations such as X-rays and prescribe medications. They are also trained to decide whether a patient needs care at an ED or could be treated at home or in the community. Although there are some differences in the settings and prerequisite qualifications among NPPs, they are all able to provide care at the scene and discharge patients on-site without referral to other clinicians
van Vuuren	2021	International	Reshaping healthcare delivery for elderly patients: the role of community paramedicine; a systematic review.	Community paramedicine (CPN) is a new approach that aims to address this and other system shortfalls. In this extension of their scope of practice, paramedics use their knowledge and skills beyond emergency health response to introduce preventative and rehabilitative health. They are also involved in social programs as part of an integrated healthcare effort, as well as treating minor conditions in the field or referring patients to non-ED health resources
Xie	2021	Canada	Economic Analysis of Mobile Integrated Health Care Delivered by Emergency Medical Services Paramedic Teams.	Mobile integrated health care (MIH) is a new model of community-based health care that uses community paramedics, who work directly with other health care professionals, to provide needs-based on-site urgent and non-urgent care.[1] The concept of MIH is to address specific healthcare needs of patients in their homes or within mobile environments and provide innovative approaches to healthcare that traditionally require emergency medical services (EMS), emergency department (ED) care, or hospital admission. This model was initially designed as a proactive means to improve healthcare access for underserved rural populations. It has since been adapted to real-time reactive response to 911 calls as a safe, timely, and mobile medical care delivery model in the community setting

Association definitions

Source	Definition
https://www.ibscertifications.org/roles/community-paramedic	Community Paramedics care for patients at home or in other non-urgent settings outside of a hospital under the supervision of a physician or advanced practice provider. Community Paramedics can expand the reach of primary care and public health services by using EMS personnel to perform patient assessments.
Minnesota Department of Health – https://www.health.state.mn.us/facilities/ruralhealth/emerging/cp/index.html	A Community Paramedic (CP) is an advanced paramedic that works to increase access to primary and preventive care and decrease the use of emergency departments, which in turn decreases

(continued)

Table A1. Continued.

Association definitions	
Source	Definition
	healthcare costs. Among other things, CPs may play a key role in providing follow-up services after a hospital discharge to prevent hospital readmission. CPs can provide health assessments, chronic disease monitoring and education, medication management, immunizations and vaccinations, laboratory specimen collection, hospital discharge follow-up care and minor medical procedures. CPs work under the direction of an Ambulance Medical Director.
Kentucky Board of Emergency Medical Services – https://kbems.kctcs.edu/media/medical-direction/community-paramedic-handbook-version-1-9-14.pdf	The working definition of Community paramedic is stated as: '… a state licensed EMS professional that has completed a formal standardized educational program through a KBEMS approved level 3 Training or Educational Institution and has demonstrated competence in the provision of health education, monitoring and services beyond the roles of traditional emergency care and transport and in conjunction with medical direction…'. The intent of mobile integrated healthcare is to address areas of need that were identified in community needs assessments. Mobile Integrated Healthcare Systems has been shown to reduce inappropriate utilization of EMS and Emergency Department services for non-emergent care.
American Nurses Association – https://www.nursingworld.org/practice-policy/community-paramedics/	This evolving role builds on the skills and preparation of the Emergency Medical Technician (EMT) and Paramedic, in which they function outside their customary emergency response and transport roles. The possible services CPs may perform include primary care, public health, disease management, prevention and wellness, such as well-baby visits, mental health, oral health services, home assessment, health teaching and consultation, and direct care such as wound management.
https://www.ncbi.nlm.nih.gov/books/NBK549096/	Community paramedic A paramedic who applies their training and skills in non-traditional community-based environments, often outside the usual emergency response and transportation model. Community paramedicine A new and evolving model of community-based health care in which paramedics function outside their customary emergency response and transport roles in ways that facilitate the more appropriate use of resources and/or enhance access to primary care for underserved populations. Emergency care practitioner (ECP) A healthcare practitioner who comes from a nursing and paramedical background and undertakes many activities traditionally carried out by physicians, including an initial assessment of patient status and deciding whether to deliver simple treatments or initiate referral to an appropriate clinical team.
Wingrove G. International roundtable on community paramedicine. Australasian Journal of Paramedicine. 2011;9(1).	Community paramedicine is defined as 'a model of care whereby paramedics apply their training and skills in "non-traditional" community-based environments, often outside the usual emergency response and transportation model. The community paramedic practices within an "expanded scope," which includes the application of specialised skills and protocols beyond the base paramedic training. The community paramedic engages in an "expanded role" working in non-traditional roles using existing skills'.

Appendix B. Attributes

Utilising content analysis, common attribute themes were identified, and four domains were developed:

- The focus and aim of community paramedicine.
- Scope of practice of community paramedics.
- The role of community paramedicine within the wider healthcare system.
- Place of practice.

Table B1. Attributes.

The focus and aim of community paramedic	Scope of practice of community paramedics	The role of community paramedics within the wider healthcare system	Place of practice
Model of healthcare delivery that uses paramedics to deliver person-centred care	Can involve health promotion and disease prevention activities	Is integrated with other healthcare entities	Underserved indigenous populations
Paramedic services leveraging their skills and knowledge to address non-emergent client presentations	Point-of-care laboratory testing, patient education, and disease prevention	Provided by EMTs and paramedics integrated into the local or regional health care system and overseen by emergency and primary care physicians	Low socio-economic areas and homeless populations
Focuses on preventative measures to support clients in their home environment.	Provision of health education, clinical assessment and monitoring, point of care diagnostics.	Fill gaps in the primary care delivery system, particularly in those areas with low call volumes	Underserved rural populations
Focuses on treating minor conditions in the field or referring patients to non-emergency health resources	Expanded set of skills, practices, guidelines or protocols	Involved in social programs as part of an integrated healthcare effort	In patient's homes and in their community.
Attempts to expand the reach of health care services to medically underserved groups	Providing a range of services, including disease management, home assessments, and referral to community services	Partnerships between paramedics, emergency medical services systems, and interdisciplinary healthcare teams	Address specific healthcare needs of patients in their homes or within mobile environments
Provide outpatient urgent and primary care-like services for people who might otherwise visit or be transported to an emergency department	Post-discharge care, social support networks, and increasing medical compliance for a local population		Non-urgent mobile resources in the out-of-hospital environment
Reduce emergency department (ED) visits among high-user groups while making use of existing paramedic resources	Work under the direction of a medical director		Meet patients in their homes or other safe locations, including community clinics or emergency departments
Work as physician extenders	An extension of low acuity paramedic practice, with new aspects of patient assessment required for improved care integration, care planning and case management		Community clinics
Identify and treat disease-related symptoms before they escalate to emergency health problems	Providing innovative, preventative and primary health care services, in addition to emergency medical response		Emergency department

(continued)

Table B1. Continued.

The focus and aim of community paramedic	Scope of practice of community paramedics	The role of community paramedics within the wider healthcare system	Place of practice
Focuses on working directly with other health care professionals, to provide needs-based on-site urgent and non-urgent care Increases access to primary health services and attempts to reduce the need for patient transport and hospital readmissions Paramedics applying their training and skills in non-traditional environments, often outside the usual emergency response and transportation model	Leverages well-trained emergency medical services (EMS) personnel outside of emergency (911) response Improving care management through patient education, advocacy, and navigation An expanded scope of clinical practice in patient assessment and treatment options Are trained to manage minor illness and injury, for example, Perform simple suturing, order investigations such as X-rays and prescribe medications Use their knowledge and skills beyond emergency health response to introduce preventative and rehabilitative health		

Appendix C. Questionnaire 1 results

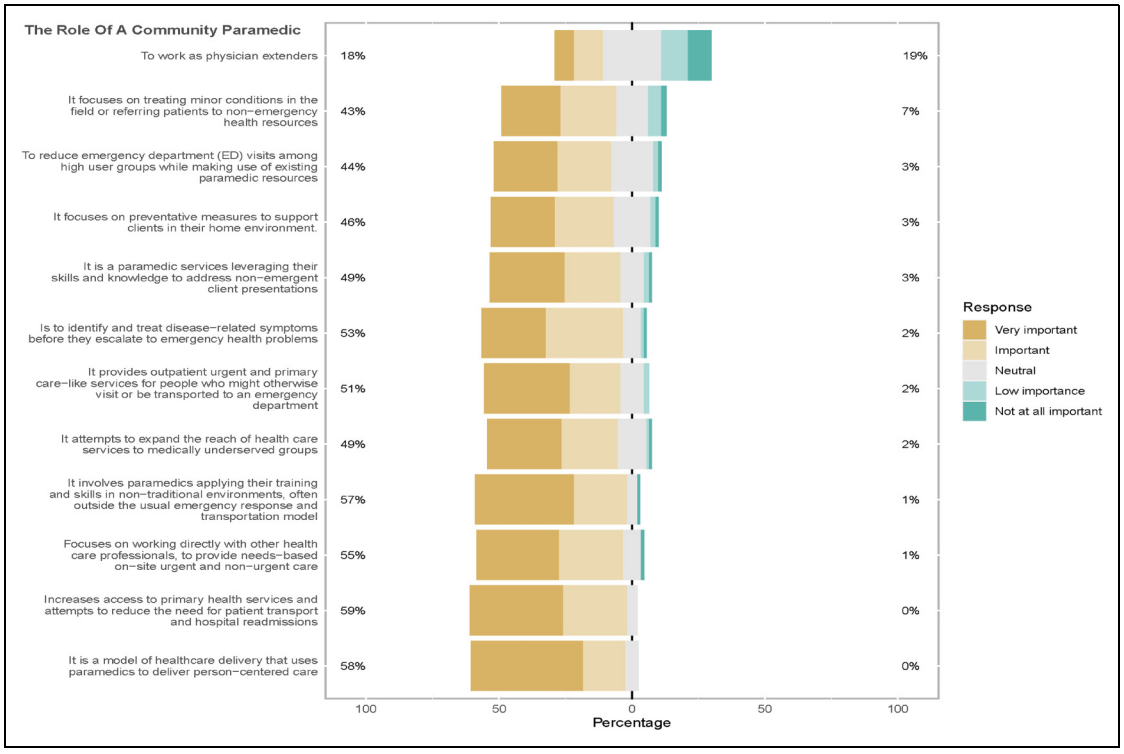

Figure C1. Attribute results – the role of a community paramedic.

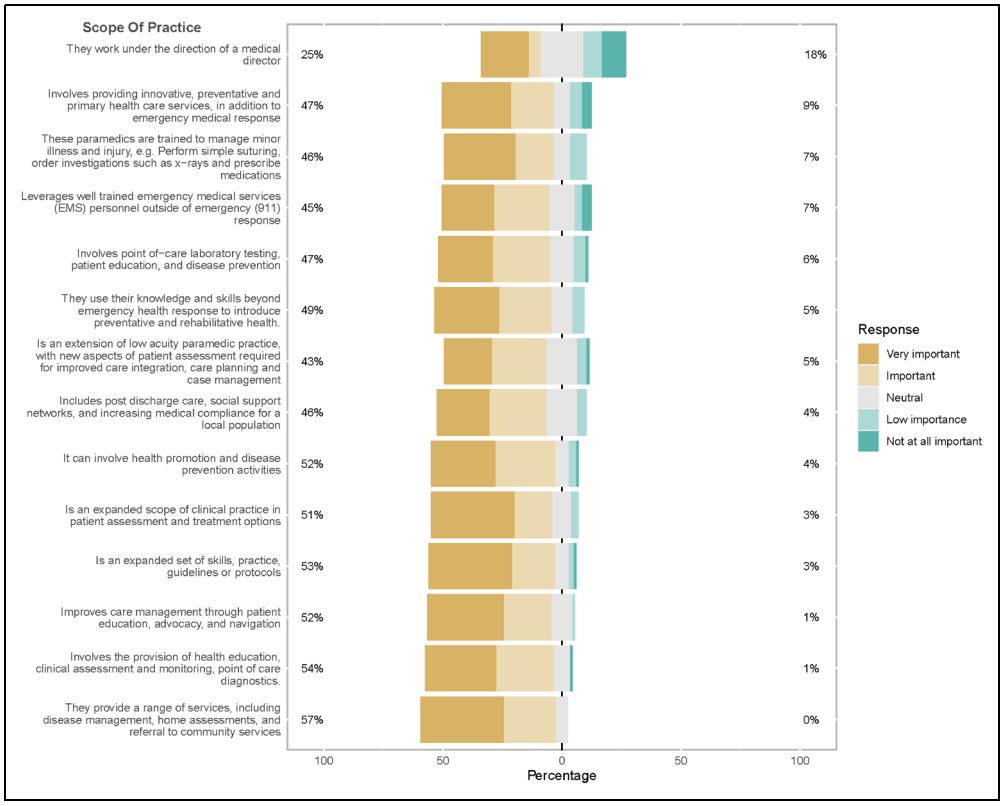

Figure C2. Attribute results – scope of practice of a community paramedic.

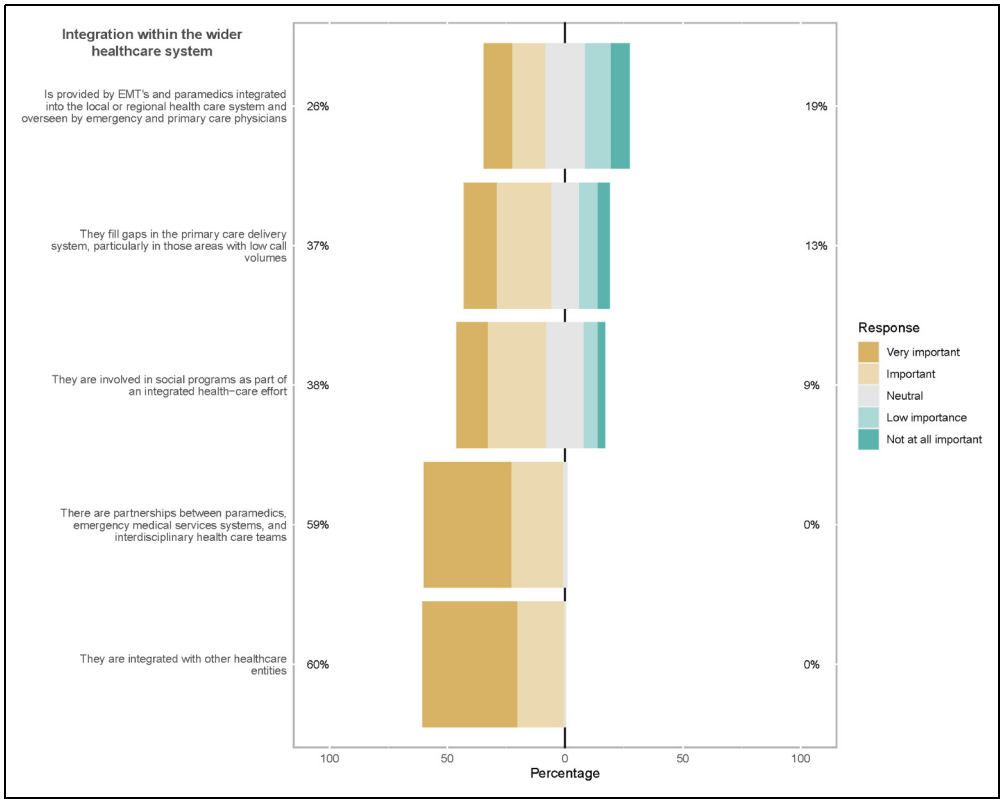

Figure C3. Attribute results – integration within the wider healthcare system.

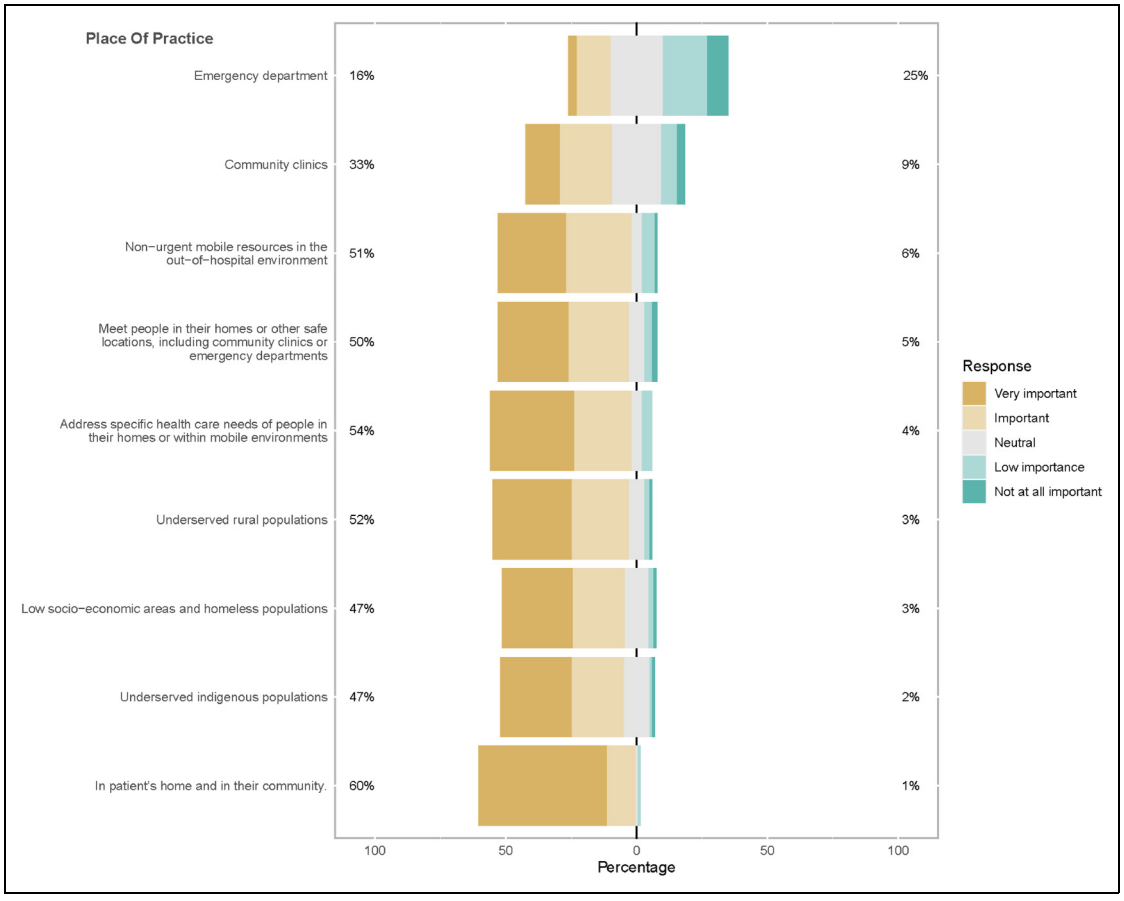

Figure C4. Attribute results – the place of practice of a community paramedic.