Clinical leadership in paramedic services: a narrative synthesis

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Abstract

Purpose – In North America, delegated practice “medical direction” models are often used as a proxy for clinical quality and safety in paramedic services. Other developed countries favor a combination of professional regulatory boards and clinical governance frameworks that feature paramedics taking lead clinician roles. The purpose of this paper is to bring together the evidence for medical direction and clinical governance in paramedic services through the prism of paramedic self-regulation.

Design/methodology/approach – This narrative synthesis critically examines the long-established North American Emergency Medical Services medical direction model and makes some comparisons with the UK inspired clinical governance approaches that are used to monitor and manage the quality and safety in several other Anglo-American paramedic services. The databases searched were CINAHL and Medline, with Google Scholar used to capture further publications.

Findings – Synthesis of the peer-reviewed literature found little high quality evidence supporting the effectiveness of medical direction. The literature on clinical governance within paramedic services described a systems approach with shared responsibility for quality and safety. Contemporary paramedic clinical leadership papers in developed countries focus on paramedic professionalization and the self-regulation of paramedics.

Originality/value – The lack of strong evidence supporting medical direction of the paramedic profession in developed countries challenges the North American model of paramedics practicing as a companion profession to medicine under delegated practice model. This model is inconsistent with the international vision of paramedicine as an autonomous, self-regulated health profession.

Keywords Evidence-based practice, Clinical governance, Clinical leadership and culture

Paper type Literature review

Introduction

Quality, safety and professional accountability are central to the operation of all health and medical services (O’Hara et al., 2012; Freeman et al., 2016). This tenet is no less true for paramedic services even though differences in funding sources and regulatory regimes, education and certification requirements separate them from their respective health systems. They almost universally have historic roots in the military, voluntary organizations or the emergency services sector that continue to strongly influence paramedicine (Reynolds, 2009).

This narrative synthesis examines the quality and safety approaches of paramedic services adopted in the Anglo-American ambulance or emergency medical service (EMS) model that uses paramedics to staff ambulances as a distinct occupational group (Al-Shaqsi, 2010; Timmermanna et al., 2008). Within this model, there are variations in how paramedic services...
are funded, structured and managed; including the leadership and management of the quality and safety of clinical services. In the USA and much of Canada the delegated practice “medical direction” model is used as a proxy for optimal patient outcomes in paramedic service delivery (Garza and Mitchell, 2012; Fitzgerald, 2014; Becknell, 1997), while in contrast countries such as the UK, Ireland, Australia and New Zealand use an emerging combination of professional regulatory boards and clinical governance systems to manage quality and safety (Halligan and Donaldson, 2001; Ambulance Tasmania, 2012; Colbeck, 2014; Bury, 2005).

In the USA, medical oversight is considered to be a fundamental component of every EMSs system; the dominant argument is that “The quality of physician medical direction has a significant impact upon the system and patient outcome” (Cunningham et al., 2010). This view is enshrined in key US EMS policy documents and legislation, and is deeply embedded into emergency medical technician and paramedic curricula (US National Highway Traffic Safety Administration, 1996; National Rural Health Association, 1997; Michael and French, 2000; US Congress, 2016). An example of this position is found in an EMS Medical Directors Handbook that argues that “[…] the medical director should have ultimate authority over all clinical and patient care aspects of the EMS agency […] including the authorization to limit immediately the patient care activities of those who deviate from established standards or do not meet training standards.” (Garza and Mitchell, 2012) Across the USA, paramedics obtain certification or licensure through a department or office located within their State government structure. Even after this certification, paramedics are unable to function unless under the supervision of a licensed paramedic service and under the delegated medical practice of a physician medical director. The medical director is responsible for patient care activities performed by paramedics, taking responsibility for their appropriateness, and that these activities are within their scope of practice and operational expectations (Garza and Mitchell, 2012; Bass et al., 2015):

Physicians have advocated that physician medical direction, regardless of other design features, will produce reliable response times and quality. However, if systems with physicians in direct control of operations do not always produce reliable response times or safe policies this could lead decision makers to consider other design features in order to ensure quality. While effective medical direction may be essential to a well performing system, the presence of physicians in management roles in the absence of other critical features may not guarantee reliable response time performance or quality (Dean, 2004; p. 19).

The view that medical oversight and direction are essential to the operation of paramedic services is not universally accepted, with some high-performing paramedic services operating without any legal or regulatory requirement to involve the medical profession in their operation and management (Eburn, 2014; Colbeck, 2014). Likewise, the accreditation of educational programs and the certification of individual paramedics to practice in many developed countries is the responsibility of either paramedic services that issue certificates to practice or professional regulatory boards under the control of the State or the paramedic profession (Eburn and Bendall, 2010; Council of Ambulance Authorities, 2010; Health and Care Professions Council, 2015). In contrast to the USA and much of Canada, the role of physician medical directors in other developed countries is not central to the operation of paramedic services. Medical officers tend to be employed as expert advisors, rather than necessarily exercising direct executive authority over the management of the paramedic service in the North American sense (Wilkes, 2010; O’Meara et al., 2001).

Clinical governance is a more recent governance model that is widely deployed in the UK and other countries with similar health system structures. It emerged during the mid-1990s following a number of high profile cases documenting systems failures and poor health care quality standards that emerged within the UK National Health Service (NHS). A high profile example of this was the “Bristol Case” where there was a large systems failure and the standard of care given was below the acceptable level for the health professionals concerned.
Since its implementation and refinement, clinical governance has become an important framework that encourages autonomy and accountability within various types of health care organizations, including paramedic services (Ambulance Service of New South Wales, 2015; Ambulance Tasmania, 2012; Robertson-Steel et al., 2000). For instance, in all Australian states and territories, clinical governance structures are mandated for health services and hospitals (Spigelman and Rendalls, 2015).

The aim of this narrative synthesis was to critically examine the long-established North American medical direction model and make some comparisons with the more recent UK inspired clinical governance approaches that are used to monitor and manage the quality and safety in other Anglo-American paramedicine services. In the literature, their respective elements, strengths and weakness are described, with the narrative synthesis considering how each approach to the management of clinical quality and safety might inform the other. Exploration of international efforts to professionalize paramedicine and move toward forms of autonomous practice and professional self-regulation provide a contemporary paramedicine context.

**Methods**

The research approach sought to find and assess the available evidence related to these two approaches to the management of quality and safety of paramedic services and paramedic practice, and to gain an appreciation of the contextual factors that have resulted in different quality and safety systems evolving in broadly similar paramedic services.

Searches of the peer-reviewed literature relating to medical direction and clinical governance in paramedic services and paramedic practice took place using CINAHL and Medline. They were the most likely databases to list relevant articles, with Google Scholar used to capture a broader range of publications in a less systematic manner. Search terms were medical direction, medical oversight, clinical governance and quality assurance; with each then combined with EMS, paramedic*, or ambulance. A further search combining clinical leadership and paramedic* was employed following preliminary analysis of the data. The search was limited to English-language sources since 2000 to reflect the relatively recent development of professional paramedic education and scholarship, as well as the widespread emergence of paramedic roles involving high-level clinical interventions. Examination of the reference lists of identified studies produced additional papers.

A process of narrative synthesis provided a summary of the current state of knowledge and located a critique within the question of clinical leadership and the self-regulation of paramedic practice within the Anglo-American paramedicine model (Popay et al., 2005). This methodological approach has been used elsewhere in health services research (Pretorius et al., 2015) and is well suited to examining the sometimes long established policies and practices which in this instance are variously described as medical direction, medical oversight, clinical governance, self-regulation and clinical leadership.

**Evidence from the literature**

The essential elements, strengths and weakness of medical direction and clinical governance are considered and how each approach to quality assurance might inform the other. Both approaches share the common motive of improving efforts to manage clinical quality and safety in paramedic services and paramedic practice. The scholarship surrounding contemporary paramedic professionalization and leadership facilitated critical analysis of the evidence for medical direction and clinical governance.

**Medical direction and clinical governance**

There is limited evidence in the peer-reviewed literature that empirically supports or refutes the effectiveness of medical direction. This is consistent with the findings of a recent
systematic review that highlighted “[...] the lack of evidence on effective safety governance strategies in emergency care settings, particularly in the field of prehospital emergency care” (p. 11) (Hesselink et al., 2016). Many of the identified articles identified in the review tended to argue how essential medical direction is without any firm rationale or recent empirical evidence to support the model. Typically, one non-refereed paper from the late-1990s argued that “[It] [...] should be intuitive and logical that a qualified EMS physician would have a positive impact on prehospital emergency care” (Matera, 1997). In total, 26 papers met the inclusion criteria (Table I), 19 focused on EMS medical direction (mainly derived from the USA), while seven related to clinical governance in paramedic services. Despite two of the medical direction papers selected being non-refereed, they were included due to their relevance (Busko et al., 2006; Peterson, 2002).

Millin et al. (2011) provided a comprehensive literature review of EMS physician roles in the USA. There are few comparative studies available, with Munk’s paper focusing on whether there was a relationship between medical direction and an improvement in EMS quality indicators (Munk et al., 2009). In a recent paper, Cushman et al. (2010) examined the effects of physician oversight of a prehospital rapid-sequence intubation program. While they concluded that close concurrent and retrospective physician oversight is associated with improved cognitive skills, they were not able to make a causal link. A much older paper was located that compared the impact of medical direction against a fire chief (Frank, 1984), however apart from being dated, this study has little meaning to those with no reference points for Fire/EMS systems. Modern paramedic services outside North America take for granted that paramedic services are paramedic-led with fire brigades providing basic life support first responder programs under the direct coordination and control of paramedic services (Stanley, 2014; Woollard, 2006).

Other papers focused on the availability, recruitment and retention of medical directors (Slifkin et al., 2009; O’Meara et al., 2001; Cone et al., 2014; Knott, 2003) and the quality or frequency of medical director involvement in EMS (Stone et al., 2000; Studnek et al., 2009; Busko et al., 2006). One US paper examined variability in the capacity and availability of medical directors to provide a field response in the out-of-hospital environment (Cone et al., 2000), while another examined tactical EMS medical direction (Tang and Fabbri, 2003). Related topics have been examined in the UK, partially in terms of medical officers seeking approval from NHS Ambulance Trusts to practice in the prehospital environment (Robertson-Steel et al., 2000; Porter, 2005). The two recent papers from South Korea illustrated the link between the need for medical direction and limited education amongst providers in under-developed EMS systems (Lee and Kim, 2015; Kim et al., 2015).

The remainder of the medical direction papers were guidelines for medical directors or commentaries on the value of medical direction (Barnett et al., 2006; Cunningham et al., 2010; Peterson, 2002; Gausche-Hill et al., 2003; Benitez and Pepe, 2002; Polsky et al., 1993). Peterson’s short paper provides a clear illustration of how emergency physicians see out-of-hospital EMS fitting into a wider EMS system (Peterson, 2002). These papers are highly derivative from a small number of national position papers (Committee on the Future of Emergency Care in the United States Health System, 2007; Delbridge et al., 1998; National Research Council, Committee on Trauma and National Research Council, Committee on Shock, 1971) and a flood of opinion papers in either the emergency medicine literature or in non-refereed EMS journals from the late 1970s to the mid-1980s (Amey et al., 1978; Ferko, 1987; Frank, 1984; Golin, 1980; Henry and Stapleton, 1985; Newman, 1982), with the accepted position on medical direction restated with little change or critique since the first accounts in the 1970s. One group of non-refereed papers that stand out from the late-1990s, provide an optimistic view of the legal and operational evolution of the medical director role in the USA, albeit perpetuating a paternalistic view that medical directors “take care of paramedics” (Becknell, 1997; Matera, 1997; Krohmer, 1997; Nicholson, 1997).
<table>
<thead>
<tr>
<th>Citation</th>
<th>Design</th>
<th>Country</th>
<th>Focus of paper</th>
<th>Major findings (strengths and weaknesses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cushman <em>et al.</em> (2010)</td>
<td>Retrospective cohort</td>
<td>USA</td>
<td>Rapid-sequence intubation</td>
<td>Concluded that close concurrent and retrospective physician oversight is associated with improved cognitive skills, although the observed changes were not causally linked to the intervention.</td>
</tr>
<tr>
<td>Lee and Kim (2015)</td>
<td>Surveys to EMS personnel</td>
<td>South Korea</td>
<td>Recognition of medical direction in EMS personnel according to qualification level</td>
<td>EMT-basics and first responders have higher need for medical direction in an under-developed EMS system “Patient evaluation” was the most common reason for EMTs to request medical direction.</td>
</tr>
<tr>
<td>Kim <em>et al.</em> (2015)</td>
<td>Descriptive analysis</td>
<td>South Korea</td>
<td>Report on the process and results of the newly implemented medical direction system</td>
<td>Hidden values and assumptions (medical dominance) have delayed the adoption of a paramedic self-regulation model in Ontario. Claimed that evidence for medical direction is evolving. Review of USA literature, excluded other countries. Need for clinicians supporting Ambulance Trusts to participate in clinical governance activities.</td>
</tr>
<tr>
<td>Millin <em>et al.</em> (2011)</td>
<td>Literature review</td>
<td>USA</td>
<td>Physician roles in EMS</td>
<td>Clinical governance for out-of-hospital providers other than paramedics.</td>
</tr>
<tr>
<td>Nutbeam (2011)</td>
<td>Commentary</td>
<td>UK</td>
<td>Clinical governance for out-of-hospital providers other than paramedics</td>
<td>Need for clinicians supporting Ambulance Trusts to participate in clinical governance activities.</td>
</tr>
<tr>
<td>Webb <em>et al.</em> (2010)</td>
<td>Descriptive survey</td>
<td>UK</td>
<td>Clinical governance in a correctional institution where doctors, nurses and paramedics provide clinical care</td>
<td>Medical direction associated with improved clinical indicators and quality of care. Recruitment of medical directors is challenging in rural areas.</td>
</tr>
<tr>
<td>Munk <em>et al.</em> (2009)</td>
<td>Comparative study</td>
<td>USA</td>
<td>Improvement in EMS quality indicators</td>
<td>Medical direction associated with improved clinical indicators and quality of care. Recruitment of medical directors is challenging in rural areas.</td>
</tr>
<tr>
<td>Slifkin <em>et al.</em> (2009)</td>
<td>Survey</td>
<td>USA</td>
<td>Assessment of rural-urban differences in medical direction</td>
<td>Recruitment of medical directors is challenging in rural areas. One third of EMS providers had limited medical director contact.</td>
</tr>
<tr>
<td>Studnek <em>et al.</em> (2009)</td>
<td>Survey of EMS professionals</td>
<td>USA</td>
<td>Quantifies the amount of direct contact between EMS professionals and medical directors</td>
<td>Recruitment of medical directors is challenging in rural areas. One third of EMS providers had limited medical director contact.</td>
</tr>
<tr>
<td>Busko <em>et al.</em> (2006)</td>
<td>Commentary</td>
<td>USA</td>
<td>Examination of different models of medical direction</td>
<td>Medical direction has not changed to reflect the needs of modern EMS. Non-referred Derivative document.</td>
</tr>
<tr>
<td>Mason <em>et al.</em> (2006)</td>
<td>Survey and interviews</td>
<td>UK</td>
<td>Describes the development of Extended Care Practitioner programs</td>
<td>Appropriate clinical governance is required.</td>
</tr>
</tbody>
</table>

Table I. EMS medical direction/ambulance service clinical governance (2000-2016)
A small number of medical directors in the USA dominate authorship of these papers with limited input from paramedics or other disciplines.

More recently, a Canadian conference paper by Fitzgerald examined the tension between the existing medical direction model and moves toward self-regulation through the lens of
rhetorical genre theory; it charted the efforts of the Ontario Paramedic Association to argue the case for paramedic self-regulation against opposition from elements of the medical profession (Fitzgerald, 2014). It explicitly critiqued the place of medical direction in paramedic services, while a UK paper by McCann (Table II) examined the tension between the professionalization of paramedics and the strong position of power that medical directors and others exercise (McCann et al., 2013).

Literature on clinical governance within paramedic services was limited, with the seven papers located from the UK and Australia where paramedic services are components of integrated health systems. The papers from Webb et al. (2010) and Walker (2005) reported on cases where clinical governance was a positive factor in implementing changes in clinical practice, while one paper related to the clinical governance of immediate care doctors in the UK with only indirect relevance to paramedics (Porter, 2005). The remaining papers either called for the introduction of clinical governance (Mason et al., 2006; Nutbeam, 2011) or addressed the challenges of implementing it into fragmented and complex healthcare systems (Robertson-Steel et al., 2000; Baker, 2003). One noted that NHS Ambulance Trusts and other healthcare services need to strengthen existing clinical governance in order to deal with patients moving through different parts of the healthcare system (Baker, 2003).

There is little direct evidence supporting or refuting the effectiveness of clinical governance in paramedic services. However, it is difficult to argue that paramedic services should be managed and directed differently than other clinical delivery services such as those found in hospitals and other health services that have been steadily moving away from what is termed the “medical managed universal model” toward more complex and contested models of governance (Boyce, 2001). The traditional roles of medical directors in hospitals have been transformed to a position where medical directors no longer have untrammeled power over other health professions that have their own self-regulatory and registration structures (Kenny and Duckett, 2004).

**Paramedic clinical leadership**

The limited empirical literature related to both medical direction and clinical governance in paramedic services led to an extension of the search. When the search strategy was extended to “clinical leadership” combined with paramedic*, 20 additional papers meeting the inclusion criteria were found (Table II). The Canadian conference paper from Fitzgerald made a link between the limited progress on paramedic professional self-regulation and medical dominance (Fitzgerald, 2014).

In total, 12 papers related predominately to UK paramedic services, with six from Australia and New Zealand, and two from Canada. While a number of excellent studies in the literature addressed the quality and safety of paramedic services and practice (Mason et al., 2003, 2008; O’Hara et al., 2012; Cooke, 2006), they were not linked to clinical leadership, medical direction or clinical governance and were therefore excluded from further consideration.

The major themes identified in the papers were: paramedic professionalization, in particular the UK inspired paramedic professionalization project; paramedic registration or self-regulation developments; and the emergence of paramedic practitioner roles.

The concept of paramedics becoming clinical leaders in ambulance services formally emerged a decade ago in the UK following a call for improved opportunities for ambulance professionals to become clinical leaders using a Medical Leadership Competency Framework that encourages a diffused leadership model (Bradley, 2005; Marsh, 2009). Underlying the drive toward paramedic self-regulation and clinical leadership has been the evolution of advanced care paramedics, such as Critical Care Paramedics and Extended Care Paramedics in those developed countries where practitioner roles have been emerging. This evolution toward practitioner roles has been described in Australia (O’Meara, 2003).
<table>
<thead>
<tr>
<th>Citation</th>
<th>Design</th>
<th>Country</th>
<th>Focus of paper</th>
<th>Major findings (strengths and weaknesses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wankhade and Wankhade</td>
<td>Ethnographic study - semi-</td>
<td>UK</td>
<td>Challenges for the paramedic professionalization agenda related to increased</td>
<td>Evidence for specialist paramedic roles. Highlighted the complexity of decision-making processes to minimize risk to patients</td>
</tr>
<tr>
<td>(2016)</td>
<td>structured interviews and</td>
<td></td>
<td>work intensity</td>
<td>Paramedic students are strong advocates of paramedic professionalism and support the need for regulation</td>
</tr>
<tr>
<td></td>
<td>observations</td>
<td></td>
<td></td>
<td>Consultant paramedics are a key part of the clinical leadership team for the paramedic profession</td>
</tr>
<tr>
<td>Williams et al.</td>
<td>Survey of student paramedics</td>
<td>Australia and New Zealand</td>
<td>Exploration of paramedic students' views on paramedic professionalism</td>
<td>Authority to practice regulations vary within the Anglo-American paramedic model. Delegated practice</td>
</tr>
<tr>
<td>(2015)</td>
<td></td>
<td></td>
<td></td>
<td>from physicians is not universal in modern paramedic services</td>
</tr>
<tr>
<td>Hodge (2014)</td>
<td>Semi-structured interviews with</td>
<td>UK</td>
<td>Place of consultant paramedics in an emerging clinical leadership framework</td>
<td>Hidden values and assumptions (medical dominance) have delayed the adoption of a paramedic self-</td>
</tr>
<tr>
<td></td>
<td>consultant paramedics</td>
<td></td>
<td></td>
<td>regulation model in Ontario</td>
</tr>
<tr>
<td>Colbeck (2014)</td>
<td>Commentary</td>
<td>Australia</td>
<td>International comparisons of paramedic delegated practice and authority to practice</td>
<td>Self-regulated paramedics have the means to influence and ultimately to determine their own scopes of</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>regulatory systems</td>
<td>practice, set their own research agenda, and articulate a distinct professional identity</td>
</tr>
<tr>
<td>Fitzgerald (2014)</td>
<td>Rhetorical genre theory</td>
<td>Canada</td>
<td>Efforts to introduce paramedic self-regulation in Ontario, Canada</td>
<td>Critical of the associated roles of the Health Care Professions Council and the Joint Royal Colleges</td>
</tr>
<tr>
<td>O'Meara (2014)</td>
<td>Commentary</td>
<td>Canada</td>
<td>Examined self-regulation of paramedicine in terms of professional autonomy, job</td>
<td>Ambulance Liaison Committee</td>
</tr>
<tr>
<td></td>
<td>(Non-refereed)</td>
<td></td>
<td>satisfaction and quality of care</td>
<td>National registration is an essential component in gaining recognition by the broader healthcare</td>
</tr>
<tr>
<td>Brady (2013)</td>
<td>Commentary</td>
<td>UK</td>
<td>Professional regulation of paramedics in the UK</td>
<td>industry. Tertiary education is synergistic to national registration and has the potential to enhance</td>
</tr>
<tr>
<td>Lyndon-James (2013)</td>
<td>Focus groups and purposive</td>
<td>Australia</td>
<td>Considered whether paramedicine is a profession</td>
<td>the quality of service delivery. Overall impact of the project on working lives of paramedics is muted</td>
</tr>
<tr>
<td></td>
<td>interviews of members of the</td>
<td></td>
<td></td>
<td>because of limited power over paramedic employers</td>
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<td></td>
<td>public</td>
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</tbody>
</table>

Table II. Paramedic self-regulation and clinical leadership (2000-2016)
<table>
<thead>
<tr>
<th>Citation</th>
<th>Design</th>
<th>Country</th>
<th>Focus of paper</th>
<th>Major findings (strengths and weaknesses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stanley (2014)</td>
<td>Mixed methods comparative study between nurses and paramedics</td>
<td>Australia</td>
<td>Compares the results of two studies, 6 years apart, into the attributes and characteristics of clinical leaders</td>
<td>Both nurses and paramedics identify with leaders’ values and follow them if reflected in the leaders’ actions</td>
</tr>
<tr>
<td>Newton (2012)</td>
<td>Commentary</td>
<td>UK</td>
<td>Future of the ambulance service in the UK</td>
<td>Paramedics are a “disruptive technology” and improved paramedic education that focuses on clinical assessment and decision-making provides the best value for a positive impact on patients</td>
</tr>
<tr>
<td>First (2012)</td>
<td>Review</td>
<td>UK</td>
<td>Transition of the paramedic workforce from a trade to a profession</td>
<td>The development of professionalism amongst paramedics is more likely to be a bottom-up evolution than a top-down revolution</td>
</tr>
<tr>
<td>Newton (2011)</td>
<td>Commentary</td>
<td>UK</td>
<td>Considers the future for paramedics in terms of extended practice</td>
<td>Position Statement from the College of Paramedics on the designation of paramedics</td>
</tr>
<tr>
<td>Walker et al. (2010)</td>
<td>Letter</td>
<td>UK</td>
<td>Announcing the launch of the Report of the National Steering Group on Clinical Leadership in the Ambulance Service</td>
<td>There should be improved opportunities for career progression, with scope for ambulance professionals to become clinical leaders</td>
</tr>
<tr>
<td>Sibson et al. (2009)</td>
<td>Commentary</td>
<td>UK</td>
<td>Discussion of establishment of a National Steering Group on Clinical Leadership</td>
<td>Appropriately trained clinical leaders with experience and influence are needed in paramedic services</td>
</tr>
<tr>
<td>Woollard (2009)</td>
<td>Descriptive</td>
<td>UK</td>
<td>Explores influences on paramedic professional behaviors in the context of clinical governance and self-regulation</td>
<td>How collective behavior and beliefs of paramedics are viewed externally will determine whether paramedicine is seen as a profession</td>
</tr>
<tr>
<td>McPherson et al. (2006)</td>
<td>Systematic review</td>
<td>New Zealand</td>
<td>Synthesis of evidence on extended roles for allied health, including paramedics</td>
<td>Critical that most of the work on extended scopes of practice for paramedics have focused on specific skill acquisition</td>
</tr>
<tr>
<td>Doy and Turner (2004)</td>
<td>Short report</td>
<td>UK</td>
<td>Development of emergency care practitioner (ECP) program run by an Ambulance NHS Trust</td>
<td>Cultural change and development of an infrastructure to support new clinical decision-making and referral pathways is vital to ensure the success of ECPs</td>
</tr>
<tr>
<td>O’Meara (2003)</td>
<td>Soft systems methodology</td>
<td>Australia</td>
<td>Development of a paramedic practitioner model of care</td>
<td>Paramedic practitioner model has potential is in rural settings</td>
</tr>
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</table>
and the UK (Scott and Carney, 2004; Doy and Turner, 2004) where implementation challenges were identified, and more critically examined in New Zealand by McPherson et al. (2006) who criticized the concentration on skill acquisition for extended care paramedics.

Following the UK Report of the National Steering Group on Clinical Leadership in the Ambulance Service in 2009 (Marsh, 2009) discussions began to address questions of governance, professionalization of the workforce and paramedic leadership. A group of paramedic leaders have raised these inter-related issues through several publications in UK paramedic journals (Sibson et al., 2009; Walker et al., 2010; Newton, 2011; Woollard, 2009).

Progress on the professionalization project has been reported further by First (2012), Newton (2012), McCann et al. (2013) and most recently Wankhade and Wankhade (2016) who supported calls for the paramedic services to evolve into mobile healthcare providers in response to the demands of the modern world (Newton and Harris, 2015). More broadly, Hodge (2014) and Stanley (2014) examined paramedic clinical leadership characteristics in the UK and Australia.

There have been optimistic calls for paramedic professionalization in Australia and Canada where successful professionalization programs have been associated with baccalaureate education being available and mandated for entry-level paramedics, combined with paramedic professional registration or self-regulation (O'Meara, 2014; Brady, 2013; Colbeck, 2014; Lyndon-James, 2013; Williams et al., 2015). The concept of paramedics developing more autonomy and higher levels of clinical judgment and decision making is an important component of the collective vision in these papers (O'Meara, 2014; Woollard, 2009). It is notable that there are now textbooks available that focus on paramedic clinical leadership and the development of paramedic clinical practice (Blaber and Harris, 2014; Johnson et al., 2015).

**Future directions**

While this narrative review identified more comment, discussion and debate than strong evidence, it did provide an opportunity to synthesize the available information through the consideration of some key questions. The medical direction, clinical governance and paramedic clinical leadership models are grappling with the challenges of health system fragmentation and efforts to integrate paramedic services into health systems. Broad contextual differences lie in the degree of integration across different health systems and the emergence of paramedicine as a distinct health profession.

Despite its long history in North America, there is a lack of strong evidence supporting paramedic service medical direction. In particular, there are no comparative studies with mature paramedic services operating without medical direction that might demonstrate clinical outcomes that are as good as or superior to the medically led paramedic services in North America. On the other hand, there remains limited evidence that supports the superiority of the clinical governance approach to leading, monitoring and managing the quality and safety systems in paramedic services.

**Quality and safety**

In the USA sourced literature on medical direction, the achievement of quality care and patient safety is used as a justification for medicine’s power to proclaim on the practice rights of other occupations, including paramedicine (McMurray, 2010). Detractors describe this traditional position of medicine as the guardians of quality and safety as either medical dominance or medical paternalism (McCann et al., 2013; Fitzgerald, 2014; Willis, 2006). In the wider literature, this strong delineation of traditional professional boundaries is being challenged; for instance, in emergency medicine the concept of introducing models of care using a wide range of advanced (autonomous) non-medical practitioners in being considered in response to a shortage of physicians (Sujan et al., 2017). In North America, Bourgeault and Mulvale (2006)
argue that the embeddedness of medical dominance undermines efforts to establish more collaborative models of health care, while Kenny and Duckett (2004) in Australia describe the erosion of medicine’s power and dominance. The argument for medical direction in paramedic services is greatly weakened by the absence of strong evidence that the model is associated with improved outcomes (Hesselink et al., 2016).

The papers from South Korea (Kim et al., 2015; Lee and Kim, 2015) implied that medical direction was needed because their EMS personnel lack the education to adequately assess patients or make decisions to institute some clinical interventions without direction. Supporting this argument, the paramedic literature from developed countries such as the UK, Australia and New Zealand, take the position that the solution to poor decision-making is through paramedic professionalization using extended educational preparation and stronger professional accountability.

Fitzgerald is an articulate voice in relation to paramedicine clinical governance in North America, where she argues that the lack of progress on paramedic self-regulation in parts of Canada is a result of continued medical dominance (Fitzgerald, 2014). In the UK, McCann et al. (2013) argue along similar lines that, paramedics have “[…] weak levels of formal autonomy, because most tasks are pre-structured by other professionals,” through devices such as the development of clinical protocols or clinical practice guidelines with limited input of practicing paramedics.

**Health system integration**

In the UK and other countries with well-integrated health systems, there has been a weakening of medical dominance over other health professions through the widespread adoption of clinical governance systems that rely on the combined logic of professionalism and managerialism (McCann et al., 2013). This theme is evident in discussions in the literature about how clinical governance can have a positive impact on the quality and safety of paramedic practice, especially in regard to new emerging roles such as Emergency Care Practitioners to meet the needs of patients, the community and stressed health systems (O’Hara et al., 2012; Mason et al., 2008).

In many of these countries with relatively well-integrated health systems and paramedic services, clinical governance is a well-established part of paramedic services, with senior paramedic managers assigned responsibility and accountability for the overall leadership, monitoring and management of clinical services through established clinical governance frameworks that emphasize the shared responsibility for clinical governance and the delivery of high quality care (Ambulance Tasmania, 2012; Thompson and Playfoot, 2010).

Some of these efforts to better integrate paramedic services with the health, aged care and social service systems have been criticized for their “top down” approach, with practising paramedics unable to make the leap to full professional status because of their inability to achieve a sense of autonomy and discretion over their everyday work (McCann et al., 2013). There has been a persistence of “blue-collar professionalism” amongst practicing paramedics (Metz, 1981) that has been attributed to the dominance of managerialism and the relative weakness of the paramedicine profession to assert sufficient power despite some success in taking on the trappings of professionalism (McCann et al., 2013; Woollard, 2006; Brady, 2013).

**Professionalization and leadership**

Another theme in the literature was the growing professionalization of the paramedic workforce and the accompanying shift in their sources of leadership. This theme largely emanates from the UK and Australia where the professionalization of the paramedic workforce is well advanced, with considerable progress having been made toward the professional regulation of paramedics through State sanctioned registration of paramedics.
and the almost complete transfer of paramedic education into their respective higher education systems (O’Brien et al., 2013; Willis et al., 2010; Brooks et al., 2015). In contrast, there remains a paucity of baccalaureate paramedic programs in North America (Alexander et al., 2009; Barishansky and Kirkwood, 2010).

A study on the perception of clinical leadership in St John Ambulance in Western Australia (Stanley et al., 2012, 2014) is instructive. The paramedic component of this research took place following a government report into the same paramedic service outlining significant clinical governance failures despite having a medical director (Joyce, 2010). These papers and reports argued that clinical leadership is not the sole responsibility or domain of the medical director; the strong message was that paramedics look toward their senior peers as role models and clinical leaders. They concluded that having a capable and skilled medical director without a strong clinical governance framework is a risk that needs to be addressed through the establishment of a classic clinical governance framework with shared responsibility for clinical safety and quality at an organizational level (Joyce, 2010).

In England, paramedicine has moved further toward self-regulation than in other comparable countries. Wankhade and Wankhade (2016), and Newton and Harris (2015) argue that paramedic services and paramedics are in a transitional period between the traditional treat and transport paradigm and the full emergence of paramedics as professionalized providers of mobile healthcare in an integrated health system. Underlying these arguments is the observation that “[…] life-threatening conditions no longer represent the core demand for most ambulance [paramedic] services” (p. 83), with paramedics more likely to be delivering primary care such as wound management, near patient testing and offering referral options to patients (Newton and Harris, 2015). For these changes in the operational model to be successful, changes in paramedic education, relationships with other health professionals and clinical governance arrangements are necessary.

Recently in the USA, questions have been raised by a medical director about the appropriate relationships between paramedics, their medical director and the physicians of patients using mobile integrated healthcare systems (Richmond, 2016). These questions included how to co-ordinate two sets of medical directives, authorization of protocols and assign responsibility for quality assurance. In countries where paramedics work as autonomous, self-regulated health professionals they would consider the clinical situation, consult with other health professionals as indicated (such as the patient’s own physician), and then use their own clinical judgment to act in the best interests of the patient.

Conclusions
While the strategies designed to maintain the quality and safety of paramedic services and paramedic clinical practice in the Anglo-American model have differing underpinnings, the literature cuts across three inter-related themes. These themes of quality and safety, health system integration, and professionalization and leadership are not unique to paramedicine, with other emerging health professions having travelled the same journey from professional subservience to differing degrees of professional autonomy through their “licence to practice” and a “mandate” to define their own practice and conduct (Currie et al., 2003; Dingwall, 2008; Allan, 1997). Paramedics and paramedic services in many developed countries show a preference for professional regulatory boards and clinical governance frameworks to produce high quality services. In these countries, paramedicine is evolving into an autonomous, self-regulated health profession. Paramedics continuing to practice as a companion profession to medicine under a delegated practice model is inconsistent with this vision.

In light of the findings of this narrative synthesis, paramedics and other stakeholders need to consider whether this apparent divergence within the Anglo-American model is
permanent and inevitable. It might be possible to reconcile the tensions between medical dominance and paramedic professionalism through strategic interventions, such as stronger educational structures and self-regulation regimes.

References


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