Chapter 7
Leadership and System Thinking in the Modern Ambulance Service

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Introduction

Many definitions of leadership turn, entirely understandably, on the ability to motivate individuals to higher levels of performance, such as the quote from Peter Drucker below which extols:

> …Leadership is lifting a person's vision to higher sights, the raising of a person's performance to a higher standard, the building of a personality beyond its normal limitations. (Peter Drucker (1909–2005))

Nevertheless, no amount of motivational zeal, leadership frameworks or entreaties for improvements in leadership generally is likely to succeed unless the relationship between the leader and the system and procedures with which they work is fully considered. Peter Scholtes (1998) in his book *the Leader's Handbook: Making Things Happen: Getting Things Done,* amongst others, recognises this fact, and organisations such as the military and others emphasise the relationship between doctrine, organisation, culture and leadership at every level. The issue for ambulance service leaders and for paramedics is that the systems within which they operate are often poorly understood, underdeveloped and increasingly in something of a state of flux. As the demands for service grow, finances contract or at least do not keep pace, and the role of the paramedic, who are rapidly morphing into one of a mobile healthcare provider, continues to expand.

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Effective leadership is, therefore, unlikely if there is a lack of clarity regarding the organisation's role or the systems and process that collectively make up the system itself. What, for example, is the organisation's doctrine? Essentially, the principles and beliefs that underpin the reason for the service's existence, for example, is it fundamentally a transport organisation or a provider of mobile health care? Every decision in respect of finances, the education and training of paramedics, equipment, vehicles and all importantly the 'concept of operation' and flow is dependent upon answering this question.

The transition from a traditional health transport role is therefore hampered, as are any associated reforms and modernisation effort, by a lack of clarity in these areas and also has widespread implications for the workforce. The situation in much of the UK ambulance service today is also exacerbated by the differing cultures within management, itself, partly negatively influenced by the above and the constant requirements to meet sometimes clinically questionable, but rigorously imposed, national targets, often relating to response times (Wankhade 2011, 2012). These damaging effects in terms of the retardation of professionalisation of paramedics, themselves, have been discussed in 'Still Blue-Collar after all these Years?'(McCann et al. 2013). There is, indeed, a high price to pay in terms of delays in releasing the full potential of paramedics in such circumstances. This chapter discusses the context in which ambulance service leaders have to operate and will set out some of the system changes that might help counteract the many current challenges to leadership at all levels of the ambulance service and to paramedics working at every level of the Paramedic Post Registration Career Framework, College of Paramedics (2015).

A Challenging Leadership Environment

A few decades ago, ambulance personnel were regarded as essentially manual labourers, employed primarily as 'drivers', with first-aid training courses provided by the voluntary aid societies, principally the St John Ambulance Brigade. The task assigned to ambulance crews was a relatively simple one; the service itself was generally regarded as something of a *Cinderella service* in comparison to the other more established emergency services.

Vehicles, equipment and training were rudimentary, and, while science had developed, modern resuscitation techniques (Safar et al. 1958; Kouwenhoven et al. 1960) had yet to be widely adopted. The technologies taken for granted today (automated external defibrillators (AEDs), 12 lead ECG machines, etc.) were the weight of a small family car often requiring mains power to operate. Only in the late 1960s, with the publication of two major national reports (Ministry of Health, Scottish Home and Health Department 1966, 1967) did the situation begin to change. These reports followed an earlier BBC panorama broadcast (British Broadcasting Corporation, BBC 1963), which identified major weaknesses in the ambulance service.

The dominant philosophy in the 1960s, still echoed in the media today, is that the ambulance service exists to serve the needs of the seriously ill and injured and

to transport patients to local hospitals, a concept that can be traced to a much earlier period of pre-hospital care. Dominique Jean Larrey, a French surgeon of the Napoleonic period, is often credited as the originator of the 'modern' ambulance and the developer of triage. In many ways, he is the father of ambulance services (Richardson 2000).

Larrey's rigorous focus in developing the life-saving potential of early pre-hospital treatments has become a guiding principle and has shaped the concept of the operation of ambulance services since. Indeed, the service's reputation accelerated dramatically in the 1970s and 1980s, precisely because it became far more capable at saving lives (and managing serious cardiac illness, in particular). This was largely due to the work of pioneers such as Douglas Chamberlain and Peter Baskett, who developed paramedic advanced resuscitation services with a particular focus on cardiac care in the UK (Chamberlain et al. 1976; Baskett et al. 1976). Today's world is a radically different place, and the pattern of epidemiological demand has changed significantly. Yet, Larrey's inspiring and beguiling principles continue to exercise a strong influence over the culture, ethos and role of paramedics and doctors, who shape the ambulance service and influence other development such as the new subspeciality of pre-hospital emergency medicine.

This is probably the wrong paradigm for ambulance services in the modern world and may be leading ambulance services in the wrong direction or at least distorting public and professional perceptions, thereby limiting the speed at which the service and paramedic practice adapts to the needs of most patients today. Larrey's work helped inform the subsequent development of the Union Army's medical services during the American Civil War with his ideas being translated into the civilian setting in a number of American cities after the war (Post and Treiber 2002). A visiting Liverpool surgeon, Reginald Harrison, was so impressed by what he saw of the ambulance services in America in 1881, that he introduced a similar service in England on his return, setting the pattern in the UK and elsewhere (Burr 1969).

The model worked well during the industrial age and adapted to the modern plagues of the twentieth century with what the European Resuscitation Council called the 'first hour quintet of cardiac arrest, chest pain, stroke, acute breathlessness and major trauma'. But these, and other life-threatening conditions, no longer represent the core demand for most ambulance services. This is gradually being recognised in the UK (Martin and Swinburn 2012) and abroad, the acuity of patients does appear to be changing as a recent study shows (Munjal et al. 2012). Nevertheless, emergency ambulance providers have been slow to react and appear to struggle with defining what 'appropriate' emergency ambulance care actually is (Judge 2004).

In the twenty-first century, life-saving remains a key objective and a key competency for paramedics and ambulance services delivering ever more effective services for patients with life-threatening conditions, recently acknowledged in a position statement from the National Emergency Medical Service (EMS) Advisory Council (National EMS Advisory Council 2009). However, it can no longer be regarded as other than one priority amongst many responsibilities as recently acknowledged by a leading EMS commentator, who lamented the slow response of American services

to recognise a need for change (Heightman and McCallion 2011). What is required today is a new guiding principle coupled with a new concept of operation taking into account demographic change, a professionalised paramedic workforce and harsh realities of the current economic climate.

Though the modern ambulance service has demonstrated greatly enhanced clinical capabilities in a short period, transport continues to be the dominant theme, and new concepts of operation, based on a more clinical, decision-focused approach have not yet become fully embedded, resulting in a delay of progress.

Ambulance Services and the Need to 'Shift Left'

The challenges of the economic climate will continue for some time, therefore, ambulance services need to absorb increased activity (much of it comprising what, in earlier years, would have been dealt with by primary care) and assimilate this into a lower unit cost, all against a backdrop of falling funding. Indeed, 999 call volumes have increased from approximately 1 million in 1966 to over 8 million today, with a massive increase in the order of 100 % occurring between 1996 (3.2 million) and the 8.47 million calls received during 2013–2014 (Health and Social Care Information Centre 2014), with a continuing upward trend today, albeit with a reduced growth.

As far back as 1999, informed commentators were describing the trend as 'astonishing' (Carney 1999), while others opined about the legitimacy of demand and 'inappropriate' use (Palazzo et al. 1998). Such concerns are not new; in 1903 (Hadfield 1903), the Liverpool horse-drawn ambulance service was observed and received the following comment:

> …there can be little doubt in the mind of an independent observer that a considerable proportion of those carried in ambulances get there, either directly or indirectly through the abuse of drink. Either their own bad habits have been the cause of injury, or they have been the victims of the drunken violence of others. (Municipal Ambulance Work. The Windsor Magazine (1903))

He also noted that there were a small number of 'chronic malingerers', who were encountered during his forays while observing ambulance crews. Papers regarding 'inappropriate' use seem less common today, perhaps due to the introduction of triage systems from 1996 (NHS Management Executive 1996), but more likely due to studies showing that many of these cases are generated by genuine concerns over the severity of systems (Sanders 2000), due to patients finding that accessing care, particularly out of hours (Lakhani et al. 2007), was 'confusing' or because of the actions of bystanders whose public spiritedness it would be churlish to deride (Volans 1998). It could also be partly as a result of the failure of media campaigns to mitigate the issue and perhaps also because the advent of tariff creates an incentive to deal with demand that presents itself. After a review of the literature (Snooks et al 1998), it was suggested that ambulance services should worry less about 'appropriateness' and devote more effort to providing appropriate care.

Raising productivity and ensuring high standards of clinical service are essential, but is no longer a sufficiently expansive objective for paramedics or the ambulance

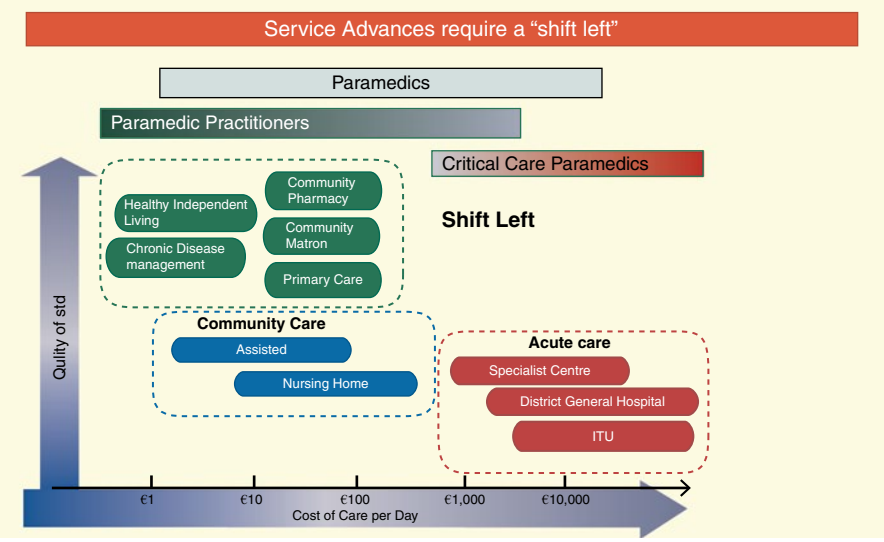

Fig. 7.1 Diagram demonstrating how the role of paramedics and specialist paramedics can be 'shifted left'. *ITU* Intensive Treatment Unit (Adapted from Rasmus 2009)

service. Further urgent reforms in operation and the introduction of modern managerial methods are now essential. The current model as it stands will continue to transport many patients to hospitals unnecessarily, which is unsatisfactory and unsustainable when other options are available.

There are several keys to accelerating and completing the changes that are urgently needed. The first is to recognise that a major shift in health care is taking place within the developed world, but it is less explicit than might be expected and not yet fully entrenched in policy. This change is mostly financially driven, but clinical benefits also exist, if executed effectively. This movement of patients from high-acuity and high-cost areas on the right side of Fig. 7.1, to less costly locations on the left, illustrates this phenomenon. The diagram also shows that in this example, ambulance services can specialise or tier their staff with, for example, paramedics developed in primary, urgent care, while others are focused on critical care. The model also promotes the move to undergraduate status of student paramedics.

Transforming Ambulance Services Before It Is Too Late

The second challenge has been recognised for some time and was the subject of a detailed study *Life in the Fast Lane*, published by the Audit Commission (1998), and considered again in 2011 in the National Audit Office's report *Transforming Ambulance Services* (National Audit Office (NAO) 2011) and relates to efficiency and the application of lean methods.

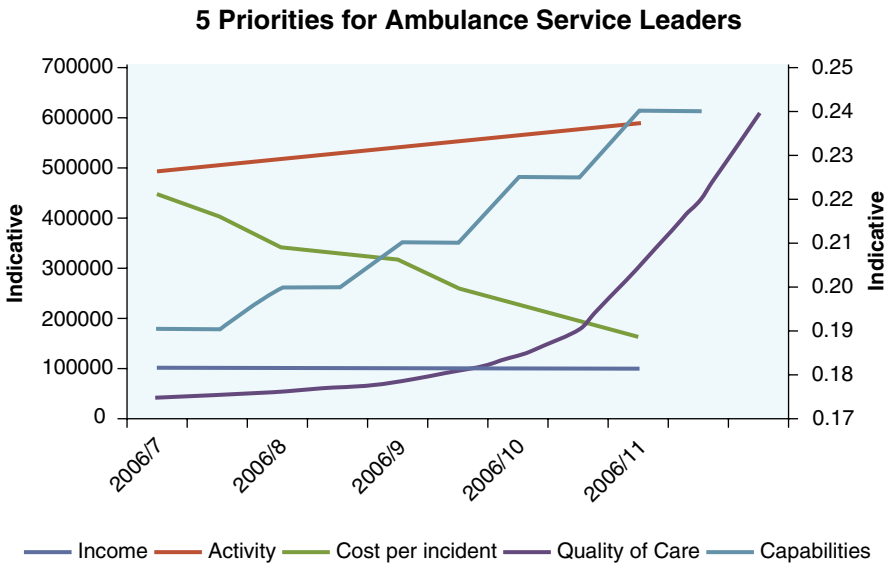

Fig. 7.2 'Spinning plates': Five priorities for ambulance service leaders

Both reports skirted the issues of what real transformation in terms of the concept of operation might look like, but they did make useful observations and suggestions as to how greater productivity could be encouraged in the ambulance section. In some respects, these findings paralleled earlier American ambulance reports which set out the primary goals that all emergency ambulance services should strive for response time reliability, clinical sophistication, customer satisfaction and economic efficiency (Stout 1983a, b; American Ambulance Association 2008).

These principles would fall into what are often termed 'lean' management methods and derived from Deming's quality management theories (Ryan 2002). The previous American reports(Stout 1983a; Stout 1983b) demonstrate a useful metric, termed 'unit hour utilisation', to determine the productivity of an ambulance service by simply dividing the number of patients transported, or patient contacts, by the availability of ambulance time expressed in hours. For example, an ambulance service producing four unit hours of ambulance time, and moving one patient would be operating at a 0.25 level of utilisation/productivity.

This simple system has yet to be widely adopted in the UK, although discussion regarding a standardised approach is now underway. However, a continuing quest for higher productivity and stronger response time performance will no longer be sufficient as the following points will illustrate.

The diagram in Fig. 7.2 brings together the external forces and some countermeasures with the red line showing rising demand and the lower, *blue line* reflecting falling income. Bringing down the unit cost is therefore imperative through enhanced utilisation (or improved productivity), shown in *green*.

To address the current pressures caused by increasing low-acuity demand, the key strategic priority should be to recoup and reinvest a proportion of the funds de-

rived from enhanced utilisation to develop new clinical capabilities (income), while ensuring that conventional indicators of quality (activity), such as response time performance, patient safety, clinical governance and patient experience continually improve as well.

In this context, improved capabilities revolve around developing specialist paramedic practice to address patient needs in both primary and critical care as the primary means of making the system generate the productivity gains. Delivery of primary care would include the assessment and treatment of a wide range of clinical presentations such as wound management, near patient testing and a wide range of referral options. Critical care would include patient assessment, the provision of a broader range of therapeutics, advanced airway management, cardiovascular support and the introduction of new technologies such as ultrasound, to help guide treatment in the field, ideally, with the provision of online support from more senior paramedics and medical staff where necessary.

The conundrum for the ambulance services and the paramedic profession is how to continue to add value and improve quality in a financially constrained environment. Some might be tempted to reduce (or at least not to improve) clinical quality or to settle for more traditional transport-oriented concepts of operation. This approach fails to grasp the opportunities associated with the use of more highly qualified paramedics, such as specialist and advanced paramedics, which would unlock the prospect of delivering mobile health care and adopting a gate-keeping function. Such approaches are predicated on the basis that unnecessary transportation to hospital can have adverse financial consequences for the rest of the health economy and only works if the issues considered are at the 'whole healthcare system' level, rather than considering the ambulance service to be one of many silos.

If the choice is to continue with the predominant transport model, it is possible, although by no means certain, that private ambulance providers might be able to accomplish this more cheaply than many existing National Health Services (NHS) ambulance services. However, this might be achieved at the expense of transmitting larger numbers of patients into overburdened emergency departments, unless the private services invested in the same work force capabilities are as advocated above. An opportunity to develop an integrated, system-wide approach could also be lost resulting in increased cost and clinical risk as large numbers of patients are unnecessarily taken to hospital, ramping up downstream costs.

Clinical care came under the microscope at the turn of the century, with an ambulance service association sponsored paper (Nicholl et al. 1999). This may have helped influence the 2001 Department of Health's glimmering of interest in widening the ambulance service's role in reforming emergency care (DH 2001), spawning a veritable industry of 'reforming' publications. These went largely unchallenged from the ambulance service, but for the occasional, cautionary note from commentators, who questioned the scale and wisdom of the proposed changes in respect of the ambulance service (Judge 2004). By 2005, the report *Taking Health Care to the Patient* (DH 2005) condensed these policy ideas and other initiatives into a document focused specifically on the ambulance service role.

The report made the correct diagnosis but the implementation of the necessary changes was, arguably, poorly executed. The second edition of the report (Associa-

tion of Ambulance Chief Executives 2011), was the closest the NHS ambulance services have had to current policy, but while some of the recommendations have seen some action, the failure to build them into the NHS operating framework, and the lack of clear doctrine has attenuated the report's effect. This situation has improved with the publication of the urgent and emergency care review (NHS England 2013), which brings together many of the necessary ingredients for positive change in the NHS. Notably, it also recognises and supports the need for a change of paradigm from transport to treatment at the point of contact for the ambulance service and paramedics, placing this in the context of systematic organisational changes designed to move the focus from hospitals to a reformed and reinforced set of community services.

A Changing NHS Model

The NHS today is strikingly similar to that which was established at its inception in 1948 (NHS 2014), a surprising finding, given the very dramatic changes in demography, disease patterns (epidemiology), social norms, medical technology, increased medical specialisation and other factors. There is still a large reliance upon acute hospitals, typically district general hospitals (DGHs) which, until quite recently, were generally regarded as capable of dealing with the majority of ill health and injury from catchment populations that do not generally exceed 250,000 people. In reality, hospitals provide only 10% of the health care for their communities, with the other 90% being provided by the primary care services, but the dependency of patients who are admitted to hospitals is increasing.

In the future, it is likely that hospitals will be graded into specialist emergency centres and urgent care centres, with the former serving a larger population base of approximately 1,000,000 or possibly larger, the exact size is still somewhat uncertain. There will be a continuing emphasis upon services provided in the community, with a concomitant need for higher levels of interservice integration than has been achieved before. Such arrangements, particularly in terms of the role of grading hospitals, although less so in the provision of supporting community services, have been common in North America, while many European and other industrialised countries have achieved both changes in hospital roles and more reliance upon community services decades ago. The specialist emergency centres in particular are expected to provide more sophisticated services for those patients requiring cardiology, neurological care, major vascular surgery, complex trauma care and intensive therapy services. There will be many occasions when it will be in the direct interest of patients to be directly transported to such facilities, especially so when one considers the acutely time-dependent nature of many medical and surgical emergencies, such as heart attack, stroke and major haemorrhage.

It is increasingly apparent that at least some ambulance services in the UK are developing, almost by default, a doctrine of mobile healthcare provision, hospital and admission avoidance and becoming increasingly integrated into the wider NHS. The emergency function remains, but the resultant cultures and operating methods

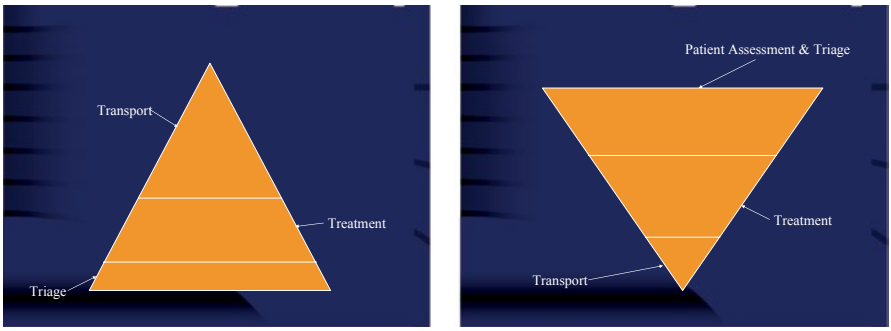

Fig. 7.3 The changing concept of operation of the ambulance service

to achieve both effective emergency response and meeting undifferentiated urgent care needs are different and not always easily reconciled. Supporting this new reality requires a change in clinical concept of operations (CONOPS) which literally turns historical operating models on 'their head', generating a new set of systems and processes (see Fig. 7.3). Virtually all strategic and tactical decisions that managers and leaders make, whether in respect of the training and education of staff, equipment, vehicles, the employment of triage systems and clinical governance arrangements, these decisions are invariably dependent upon both the doctrine and the resulting concept of operation. If unclear as to which model is appropriate in a given area, the result is likely to be a lack of clarity by the wider organisation, leaders, staff and potentially patients too. Such a situation risks compromise and provides a poor basis for achieving a high-quality result for patients.

The clinical ramifications of these changes are substantial, both operationally and in regard to professional issues for paramedics, upon whom the preponderance of the new responsibilities fall. In reality, this evolution in role has been led by patient demand and reconfiguration within the wider NHS, particularly those that have affected general practice, including the amendments in the contractual obligations of general practitioners (GPs). As previously discussed, the 999 call volumes have increased, with 100 % occurring during the past two decades. Essentially, the report 'Taking Health Care to the Patient'(DH 2005), has made a virtue out of necessity and recommended that the ambulance service take on the responsibilities of a mobile healthcare provider, with the broad objective of reducing the number of patient transports to hospital by approximately 25 % or roughly 1.5 million journeys per annum. The more recent review report on urgent and emergency care (NHS England 2013), adopts a strategic reappraisal of the wider NHS context and provides a considered framework for meaningful change.

The operational model for delivering ambulance services will need to be radically revised and this will need to be accomplished at the same time as incorporating the many professional and educational changes that will need to accompany the process. The model will have many differences to the transport-based operations provided today. It will be 'front loaded', in the sense that the ambulance clinicians attending patients will increasingly be paramedics with further skills in patient

assessment, management and referral. For these staff to be effective, it will be important to have a range of referral opportunities, therapies, good communications and procedures with the local health economy, as well as good relations, particularly with GPs, some of whom will be responsible for much of the clinical training and support of staff.

This modernisation effort is far-reaching and involves a large number of stakeholders and will need to complete the efficiency recommendations identified and discussed throughout the chapter. The potential benefits of achieving and implementing this within ambulance services has already been realised (Health Education England 2014; Francis 2013). To achieve these aspirations requires a clear business and quality performance framework for the twenty-first century patient care that represents a logical approach and context for the leaders of tomorrow's ambulance service leaders.

Conclusion

Effective leadership can only take place in the context of 'systems thinking' coupled with the other well-established leadership competencies. But effective system thinking itself relies upon having a clear doctrine, describing what the ambulance services role actually is and delivering mobile health care in an integrated manner. The doctrine must be coupled with a clear CONOPS which is likely to see the traditional transport function progressively replaced by a more skilled and educated paramedic profession, capable of delivering critical decision-making, managing and treating increasing numbers of patients presenting with urgent, primary care and emergency conditions, thus making the paramedic more relevant to present and future patient populations. Future clinical leaders will be able to discharge their responsibilities and articulate a shared, attractive vision all the more convincingly when the relationship between generic leadership skills and a well-conceived system design are transparent and understood by all.

References

American Ambulance Association. (2008). *Structured for quality: Best practices in designing, managing and contracting for emergency ambulance service*. McLean: American Ambulance Association.

Association of Ambulance Chief Executives. (2011). *Taking healthcare to the patient 2: A review of 6 years' progress and recommendations for the future*. London: Association of Ambulance Chief Executives.

Audit Commission. (1998). *Life in the fast lane, A: Value for money in emergency ambulance services*. London: Audit Commission Report.

Baskett, P. J., Diamond, A. W., & Cochrane, D. F. (1976). Urban mobile resuscitation training and service. *British Journal of Anaesthesia, 48*(4), 377–385.

British Broadcasting Corporation (BBC). (1963). Panorama. The ambulance services are under fire. http://www.bbc.co.uk/archive/nhs/5161.shtml. Accessed 16 Aug 2014.

Burr, M. L. (1969). A concise history of ambulance services in Britain. *The Medical Officer, 121,* 228–235 (Reprinted in Ambulance UK 2001, 16, 161–181).

Carney, C. J. (1999). Prehospital care—a UK perspective. *British Medical Bulletin, 55*(4), 757–766.

Chamberlain, D. A., Brown, P. M., & Briggs, R. S. (1976). The Brighton resuscitation ambulances: A continuing experiment in prehospital care by ambulance staff. *British Medical Journal, 2,* 1161–1165.

College of Paramedics. (2015). *Paramedic Post Registration—Career Framework* (3rd ed.). Bridgwater: College of Paramedics.

Department of Health (DH). (2001). *Reforming emergency care: First steps to a new approach*. London: Department of Health Publications.

Department of Health (DH). (2005). *Taking healthcare to the patient: Transforming NHS ambulance services*. London: Department of Health Publications.

Francis, R. (2013). *Mid Staffordshire NHS foundation trust public inquiry. Final report*. London: The Stationery Office.

Hadfield, H. (1903). Municipal ambulance work. *The Windsor Magazine, 18*(3), 339–437.

Heightman, A. J., & McCallion, T. (2011). Management lessons from Pinnacle: Key messages given to EMS leaders at the 2011 conference. *Journal of Emergency Medical Services, 36*(10), 50–54.

Health and Social Care Information Centre. (2014). Ambulance services, England—2013–2014 (NS). http://www.hscic.gov.uk/catalogue/PUB14601. Accessed 3 Aug 2014.

Health Education England. (2014). *Framework 15: Health education England strategic framework 2014–2029*. London: Health Education England.

Judge, T. P. (2004). "Reforming Emergency Care" and ambulance services. *Emergency Medicine Journal, 21*(2), 4.

Kouwenhoven, W. B., Jude, J. R., & Knickerbocker G. G. (1960). Closed-chest cardiac massage. *Journal of American Medical Association, 173,* 1064–1067.

Lakhani, M., Fernandes, A., & Archard, D. (2007). *Urgent care: A position statement from the royal college of general practitioners*. London: The Royal College of General Practitioners.

Martin, J., & Swinburn, A. (2012). Paramedic clinical leadership. *Journal of Paramedic Practice, 4*(3), 181–182.

McCann, J., Granter, E., Hyde, P., & Hassard, J. (2013). Still blue-collar after all these years? An ethnography of the professionalization of emergency ambulance work. *Journal of Management Studies, 50*(5), 750–776.

Ministry of Health, Scottish Home and Health Department. (1966) *Report by the working party on ambulance training and equipment: Part 1—training*. London: HMSO.

Ministry of Health, Scottish Home and Health Department. (1967). *Report by the working party on ambulance training and equipment: Part 2—equipment*. London: HMSO.

Munjal, K. G., Silverman, R. A., Freese, J., Braun, J. D., Bradley, J. K., Kaufman, B., et al. (2011). Utilization of emergency medical services in a large urban area: Description of call types and temporal trends. *Pre-Hospital Emergency Care, 15*(3), 371–380.

National Audit Office (NAO). (2011). *Transforming NHS ambulance services. Report by the comptroller and auditor general. HC 1086 Session 2010–2012*. London: The Stationery Office.

National Health Service (NHS). (2014). The history of the NHS in England. http://www.nhs.uk/NHSEngland/thenhs/nhshistory/Pages/the-nhs%20history.aspx. Accessed 17 Aug 2014.

National EMS Advisory Council. (2009). EMS makes a difference: Improving clinical outcomes and downstream healthcare savings. A Position Statement of the National EMS Advisory Council. www.ems.gov/pdf/nemsac-dec2009.pdf. Accessed 16 Aug 2014.

National Health Service Management Executive. (1996). *Review of ambulance performance standards: Final report of the Steering Committee*. London: NHS Executive.

Nicholl, J., Turner, J., & Martin, D. (1999). *The future of ambulance services in the United Kingdom: A strategic review of options for the future of ambulance services carried out on behalf of the ambulance service association: Towards perfect vision 2000–2010*. London: Ambulance Service Association.

NHS England. (2013). *High quality care for all, now and for future generations: Transforming urgent and emergency care services in England—urgent and emergency care review end of phase 1 report*. Leeds: Urgent and Emergency Care Review Team.

Palazzo, F. F., Warner, O. J., Harron, M., & Morrison, W. R. (1998). Misuse of the London ambulance service: How much and why? *Journal of Accident and Emergency Medicine. 15*(6), 368–370.

Post, C., & Treiber, M. (2002). History. In: A. E. Kuehl (Ed.), *Prehospital systems and medical oversight* (3rd ed.). Dubuque: Kendall/Hunt Publishing Company.

Rasmus, W. (2009). *Listening to the future, why it's everybody's business: Microsoft executive leadership series*. New Jersey: Wiley.

Richardson, R. (2000). *Larrey: Surgeon to Napoleon's imperial guard (revised ed.)*. London: Quiller Press.

Ryan, J. L. (2002). Quality management. In: A. E. Kuehl (Ed.), *Prehospital systems and medical oversight* (3rd ed.). Dubuque: Kendall/Hunt Publishing Company.

Safar, P., Lourdes, A., Escarraga, M. D., & Elam, O. J. (1958). A comparison of mouth-to-mouth and mouth-to-airway methods of artificial respiration with chest pressure arm lift methods. *New England Journal of Medicine, 258*(14), 671–677.

Sanders, J. (2000). A review of health professional attitudes and patient perceptions on 'inappropriate' accident and emergency attendances—The implications for current minor injury service provision in England and Wales. *Journal of Advanced Nursing, 31*(5), 1097–1105.

Scholtes, P. R. (1998). *The leader's handbook: Making things happen: Getting things done*. New York: McGraw-Hill.

Snooks, H., Wrigley, H., George, S., Thomas, E., Smith, H., & Glasper, A. (1998). Appropriateness of use of emergency ambulances. *Journal of Accident and Emergency Medicine, 15*(4), 212–215.

Stout, J.L. (1983a). Measuring your system. *Journal of Emergency Medical Services, 8*(1), 884–891.

Stout, J. L. (1983b). System status management: The strategy for ambulance placement. *Journal of Emergency Medical Services, 8*(5), 22–32.

Volans, A. (1998). Use and abuse of the ambulance service. *Pre-Hospital Immediate Care, 2,* 190–192.

Wankhade, P. (2011). Performance measurement and the UK emergency ambulance service: Unintended consequences of the ambulance response time targets. *International Journal of Public Sector Management, 24*(5), 384–402.

Wankhade, P. (2012). Different cultures of management and their relationships with organizational performance: Evidence from the UK ambulance service. *Public Money & Management, 32*(5), 381–388.

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