



**Health
Information
and Quality
Authority**

An tÚdarás Um Fhaisnéis
agus Cáilíocht Sláinte

Review of pre-hospital
emergency care services
to ensure high quality in
the assessment, diagnosis,
clinical management and
transporting of acutely ill
patients to appropriate
healthcare facilities

2 December 2014

Safer Better Care

Executive Summary

Providers of emergency ambulance services are critical public safety organisations. Historically, ambulance services in Ireland have been fragmented, with nine providers working relatively independently until 2005. This fragmentation hindered overall service progression. At that time, the National Ambulance Service was created to merge into one entity the ambulance services provided by eight former health boards. Today, ambulance services in the State are provided by the National Ambulance Service, covering most of Ireland, and Dublin Fire Brigade, covering most parts of Dublin.

Over the past 10 years, much progress has been made with ambulance services nationally. During this time, there has been a considerable expansion of the clinical competency of pre-hospital emergency care practitioners. The increase in the numbers of paramedics and advanced paramedics and the expansion in the treatment options that these healthcare professionals can provide to patients at the first point of contact with the emergency health services has been a major advance for patients. The National Ambulance Service and Dublin Fire Brigade have also played a pivotal role in both the Health Service Executive's (HSE's) Acute Coronary Syndrome and Acute Stroke Clinical Care Programmes.

These improvements have been led by the ambulance service providers, the pre-hospital emergency care practitioners themselves and the Pre-Hospital Emergency Care Council. They deserve great credit in rolling out these improvements for patients. However, despite progress in clinical care capability, other aspects of the services provided to patients have not progressed as well as they could have. In short, many of the legacy issues associated with the fragmented nature of the original nine providers remain, and the National Ambulance Service has struggled to fully integrate these services into one entity.

To overcome this problem, ambulance services in Ireland must continue to undergo significant change. Such change is ongoing, with the National Ambulance Service moving from six ambulance control centres to one national ambulance control centre located over two sites (each acting as a back-up to the other).

Significant change in many other areas, as outlined in this report, will be vital to improve services for patients. To enable this, effective leadership, clear strategic planning and ongoing constructive cooperation between management and staff will be vital to effect the necessary improvements required to best serve patients who rely on the service. Better performance could also be achieved through an ongoing investment in management support and training. Using alternative models of treatment, better pooling and use of existing resources, further development of community first responders, and public engagement on appropriate use of services will also be necessary.

It is possible that the number of emergency ambulances and other response vehicles on the ground may need to be expanded to improve performance. However, throughout this review process, it has become apparent to the Authority that there is also significant scope to improve ambulance services in Ireland within existing current resources. In particular, there is considerable potential for improving ambulance service response times if efforts are directed towards building the operational efficiency of control-centre call handling (including address verification), dispatch and resource mobilisation. In addition, both ambulance service providers could improve response times by:

- better matching of available resource to anticipated demand
- ensuring more tactical deployment of resources away from ambulance or fire stations based on predictive analysis of ambulance need, in what is known as dynamic deployment*
- better ownership of performance amongst staff and managers, and the development of a culture of continuous improvement.

In addition, at the moment, nearly all patients who call for an emergency ambulance and consent to travel to hospital are brought to an Emergency Department. This model of care is not in keeping with international best practice which, when it is safe to do so, now looks to treat patients with certain conditions via telephone consultation; treat patients at the scene and then discharge them; or treat patients at the scene and then refer them to an alternate healthcare provider for follow up care. In some services internationally, in excess of 40% of patients are successfully treated by paramedics without the need to transport patients to hospital. Transporting what is an annually increasing number of patients to the Emergency Department is not sustainable for the two ambulance services or acute hospitals.

Efforts by the National Ambulance Service to explore alternative treatment pathways have been limited to date, and at their current rate of progression will not result in the required level of change needed. Dublin Fire Brigade has likewise not begun to fully explore the potential for use of alternative care pathways. The lack of an overall strategy to support this change to the service model – which encompasses a need for more comprehensive clinical governance structures – was noted as a key barrier to meaningful progress. More effective workforce planning to further increase the clinical capability of the workforce will also be necessary. This progression will through necessity require an increase in advanced paramedic numbers in both services. Both the National Ambulance Service and Dublin Fire Brigade need to more effectively address the potential for alternative

* At the time of the Authority's review, two other parallel reviews of ambulance services in Ireland were also independently underway. Firstly, a capacity review has been commissioned by the Health Service Executive (HSE) to technically determine the most appropriate way to resource ambulance service providers and deploy ambulances across Ireland. In addition, a joint HSE-Dublin City Council review into ambulance service provision in Dublin city and county was ongoing.

patient treatment pathways. In addition, there is also scope in some circumstances for transporting patients to local injuries units rather than Emergency Departments, which may be more appropriate for some patients and ambulance service providers alike.

This review also explored the issue of ambulance delay at the Emergency Department. Currently, critical ambulance capacity is being lost due to delay in handing over patients to the care of the Emergency Department. Delay in turnaround is a complex problem, which results from difficulty in relation to patient flow through the hospital system. Resolution of this problem will require a multifaceted approach, with full engagement from all stakeholder groups. Notwithstanding the complexity of this problem, the National Ambulance Service and the Dublin Fire Brigade could do more to work in partnership with acute hospitals and other key stakeholders to more effectively address what is a critically important issue in terms of making best use of available ambulance capacity.

The public has an important role to play in ensuring that emergency ambulances are used in an appropriate way. Both the National Ambulance Service and Dublin Fire Brigade could do more to engage with service users to gain a better insight into how improvement to services from a patient perspective can be best achieved. Public awareness of and support for the use of alternative care pathways - which differ from the traditional approach of transporting all patients to the ED - will be critical to the success of such initiatives.

In reviewing how ambulance services are provided in Dublin, it was evident to the Authority that services provided by Dublin Fire Brigade and the National Ambulance Service are not integrated. The Authority's Review Team identified poor levels of cooperation between both entities, which was not in the best interest of patients. In particular, poor coordination in ensuring the best use of pooled ambulance and dispatch resources meant that patients did not universally receive a response in as fast a time as would be achievable with better cooperation between them. As a matter of urgency, it is important for both organisations to work together to better coordinate services, and make best use of their collective resources. In addition, the National Ambulance Service must immediately involve the Dublin Fire Brigade in the Ambulance Service's national control centre reconfiguration planning process. This needs to happen to ensure seamless service provision by both providers during the transition period of moving the National Ambulance Service's control centre functions from Dublin City Centre to Tallaght in Co Dublin.

This report outlines some potential opportunities for improvement by the Dublin Fire Brigade in attaining better response times within current resources. Notwithstanding this potential for improvement, the current configuration of resource capacity, deployment and the underlying model of care used is such that the Dublin Fire Brigade regularly do not have enough available capacity to meet demand. In these circumstances, the Fire Brigade ask the National Ambulance Service over the phone for assistance in responding to calls. It should be noted

that neither service has oversight of the other's ambulance resources, and organising assistance over the phone takes valuable time. This can lead to delay in resource deployment and ultimately prolongs response times for patients.

On some days, up to 50% of all emergency calls received by Dublin Fire Brigade may be delayed for various periods of time due to non-availability of a closely located Dublin Fire Brigade resource, or in some cases a lack of availability of any Fire Brigade resources. In 2013, Dublin Fire Brigade requested National Ambulance Service assistance in responding to calls 26,920 times out of a total of 81,432 calls that it received that year. This amounted to just under one-in-three of all calls received. Of these, the National Ambulance Service was in a position to offer assistance for a total of 8,076 calls. The remaining 18,844 calls either received a response from a Dublin Fire Brigade resource mobilised from a relatively long distance away from the incident, or where no resource was available, the call needed to be queued for a period of time until a resource from either service became available to respond to the call. Dublin Fire Brigade explained to the Review Team that it estimates that calls need to be queued until a resource becomes available approximately 14,000 times per annum.

There are also challenges in rural areas serviced by the National Ambulance Service. Staff interviewed highlighted a particular challenge on some occasions in finding the correct locations for calls in rural areas using current systems. The long distances that crews need to travel to patients, coupled with the pattern of one-off housing in rural areas also makes the universal attainment of rapid response times difficult. It is anticipated that the HSE capacity review will explore this in further detail. However, it is of significant concern to the Authority that the well known ambulance 'black spot' areas of Tuam Co Galway, Mulranny Co Mayo and Loughglynn Co Roscommon remain without a dedicated ambulance resource.

Geographical challenges in rural and sparsely populated areas will always present some difficulties for ambulance services in achieving timely and appropriate responses to ECHO* and DELTA** calls. A more comprehensive national programme of community first response schemes located in all rural and sparsely populated areas should be developed. The National Ambulance Service must take steps to effectively lead this progression nationally. Extensive community involvement will also be critical to the successful achievement of a more comprehensive national network of schemes.

It is of significant concern to the Authority that the National Ambulance Service's clinical governance arrangements do not include any clinical audit or assurance processes to ensure patients are receiving the most up-to-date and appropriate care. As a result, the opportunity to improve patient care and outcomes through the methodical review of care against clear criteria is not happening. Though the National Ambulance Service has made recent progress in its ability to effectively

* Patients who are in cardiac or respiratory arrest.

** Patients with life-threatening conditions other than cardiac or respiratory arrest.

investigate serious adverse clinical incidents, more should be done to embed effective clinical and corporate risk management structures and clinical quality assurance mechanisms throughout the Service. The National Ambulance Service needs to review the totality of its approach to risk management.

The Review Team investigated the progress made by the National Ambulance Service in implementing the recommendations from a previous *Report of the investigation of an incident (incident 50379)*, in the seven months between its publication and the outset of this review. This report related to an emergency call made to the National Ambulance Service, where an ambulance was not dispatched to the scene. Following a sequence of additional events, the patient subsequently died in hospital. Some of the recommendations of the subsequent report had been enacted by the National Ambulance Service, including the comprehensive introduction of a more thorough system for dealing with callers who have difficulty with speaking English. However, full implementation of all of the recommendations had not yet occurred. Recommendations not fully in place included the separation of call-taker and dispatcher roles in all ambulance control centres.

At the time of the review, some control centres remained challenged, due to staff shortages, in separating the call-taking and dispatch function as recommended in the enquiry report into incident 50379, published in late 2013. The Authority reviewed staffing levels in control centres throughout the review, and found that on some occasions the staffing levels in some ambulance control centres fell below the required safe levels. This risk was escalated during the review by the Authority to the National Ambulance Service. The Review Team also identified that the National Ambulance Service has failed to maintain recruitment of paramedics at a rate sufficient to replace those staff that leave the service. Declining paramedic numbers has resulted on a reliance on the payment of overtime to staff ambulance rosters, or in some cases the dropping of ambulance shifts. Both immediate and sufficient paramedic recruitment, and more effective ongoing workforce planning is required to address this problem.

There is significant scope for improvement in the information and communication technology systems employed by both services. While this will require investment, both services could also act to make better use of information readily available to them from current systems to progress the quality of care provided. The Authority is also concerned about the ageing profile of the National Ambulance Service's fleet of emergency ambulances. Its fleet programme aims to replace vehicles over seven years old and with mileage greater than 500,000 kilometres. Of its 266 emergency ambulances, at the time of the review 18% (47 vehicles) were eight or more years old. Other ambulances will soon also need replacement. It is the Authority's view that the age of many of the National Ambulance Service's vehicles increases the inherent risk of ambulance breakdown compared to that which might be expected with a younger fleet. Staff repeatedly identified an increase in emergency ambulance breakdowns which they perceived to be due

to a reduction in fleet investment, while senior staff highlighted lack of real-time fleet management information. The National Ambulance Service needs to act to mitigate this risk in the short term.

The Irish health service is undergoing a period of significant change. As the acute hospital service moves towards a model of hospital groups, it is vital that ambulance services are fully included in this strategic planning process. To better enable this, it is imperative that ambulance services operate as a clinical service embedded in the unscheduled care system, under the remit of the Acute Hospitals Directorate of the HSE. This change should be reflected in the strategic planning of both the HSE and emergency ambulance service providers. Furthermore, it is critical that strategic planning from the HSE clearly articulates a vision for the progression of emergency ambulance service in Ireland over the medium- to long-term. The realisation of such a vision will also require more effective leadership and management of the ambulance service at all levels. Better leadership and management will also need to be allied with sustained cooperation from all staff to progress services, in the best interest of the public that they serve.

Given the significant need for, and indeed potential for improvement in ambulance service provision in Ireland, it is vital that the HSE, the National Ambulance Service and the Dublin Fire Brigade use this report as a catalyst for improvement. On foot of this report, both service providers, and the HSE must act to formulate and implement quality improvement plans to ensure improvement in the short, medium and long term. The plans should be detailed, and include timelines for action, and assign accountable persons to each task. Where there are areas of joint responsibility for improvement between the National Ambulance Service and the Dublin Fire Brigade, a collective plan for improvement should be formulated and enacted. These quality improvement plans should also be published so that the public who avail of these services can be informed of how it is intended that improvement will be realised. In addition, over time each plan should be regularly updated to keep the public informed on progress.

Published by the Health Information and Quality Authority

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