



**Health
Information
and Quality
Authority**

An tÚdarás Um Fhaisnéis
agus Cáilíocht Sláinte

Review of progress made in implementing recommendations following HIQA's 2014 review of pre- hospital emergency care services

March 2017

About the Health Information and Quality Authority

The Health Information and Quality Authority (HIQA) is an independent authority established to drive high-quality and safe care for people using our health and social care services in Ireland. HIQA's role is to develop standards, inspect and review health and social care services and support informed decisions on how services are delivered. HIQA's ultimate aim is to safeguard people using services and improve the safety and quality of health and social care services across its full range of functions.

HIQA's mandate to date extends across a specified range of public, private and voluntary sector services. Reporting to the Minister for Health and the Minister for Children and Youth Affairs, HIQA has statutory responsibility for:

- **Setting Standards for Health and Social Services** — Developing person-centred standards, based on evidence and best international practice, for health and social care services in Ireland.
- **Regulation** — Registering and inspecting designated centres.
- **Monitoring Children's Services** — Monitoring and inspecting children's social services.
- **Monitoring Healthcare Safety and Quality** — Monitoring the safety and quality of health services and investigating as necessary serious concerns about the health and welfare of people who use these services.
- **Health Technology Assessment** — Providing advice that enables the best outcome for people who use our health service and the best use of resources by evaluating the clinical effectiveness and cost-effectiveness of drugs, equipment, diagnostic techniques and health promotion and protection activities.
- **Health Information** — Advising on the efficient and secure collection and sharing of health information, setting standards, evaluating information resources and publishing information about the delivery and performance of Ireland's health and social care services.

Note of terms and abbreviations used in this report

A full range of terms and abbreviations used in this report is contained in a glossary at the end of this report.

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Executive Summary

Background to this Review

The Health Information and Quality Authority (HIQA) 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, (referred to in this report as the 2014 HIQA Review) was published on 2 December 2014. The 2014 HIQA Review was undertaken at the request of the then Minister for Health following concerns raised due to a number of publicly reported patient safety incidents relating to pre-hospital emergency care in Ireland at that time.

Up until 2005, ambulance services were provided by nine providers. This resulted in a fragmented approach to service delivery. Today, ambulance services in Ireland are provided by two publicly funded services; the National Ambulance Service (covering most Ireland) and Dublin Fire Brigade (covering most parts of Dublin).

The 2014 report identified that there was significant scope to improve ambulance services for patients in Ireland. Notwithstanding the need for additional resources (that were due to be quantified by a parallel, HSE commissioned National Capacity Review), HIQA identified that many of the improvements required could be achieved within existing resources, through improved management of the service.

The 2014 HIQA Review outlined 12 high-level recommendations to be implemented which required significant changes in leadership, strategic planning, funding, cooperation and coordination of services by both service providers. In addition, potential improvement with respect to operational efficiency, and performance management and monitoring were also identified as being achievable and necessary. Eight of these recommendations specifically related to the collective provision of emergency ambulance services by the National Ambulance Service and Dublin Fire Brigade. A further four were of specific relevance to the National Ambulance Service and the Health Service Executive (HSE). A full list of those recommendations is outlined in Appendix B of this report.

Against the backdrop of this original HIQA review in 2014, the National Ambulance Service had already started to reform and reconfigure its service. A key change was the planned consolidation of call taking and control from multiple sites to one centre located across two sites. It should also be noted that in 2014, a number of other parallel reviews were also either underway or were soon to commence, that were relevant to informing the future direction and changes needed to improve pre-hospital emergency care services nationally in Ireland.

This follow-up review by HIQA began in July 2016 and aimed to determine the level of progress made in implementing the recommendations of the 2014 HIQA Review. It focused on a number of key areas which were identified as needing significant improvement. These key areas are:

- the level of coordination and cooperation between the National Ambulance Service and Dublin Fire Brigade when providing services to the people of Dublin
- clinical governance and risk management in the National Ambulance Service
- the degree to which both service providers had improved how they monitor and measure the quality and safety of their services, and progress in improving performance against these measures since 2014.

Methodology

This follow-up review was carried out by HIQA staff (referred to in this report as the HIQA Review Team), who are authorized to monitor compliance with standards, in accordance with section 70(1) (a) of the Health Act 2007 (the Act).

Documents and data provided to HIQA by the respective organisations provided information that informed some of the findings and helped to direct further lines of enquiry for the follow-up review. In addition, information received was validated through staff and senior management interviews, and on-site visits to ambulance control centres. Evidence gathered through these activities provide the basis for the findings of this follow-up review.

Findings

The 2014 HIQA Review concluded that in order to improve the quality, safety and reliability of pre-hospital emergency care services in Ireland, more effective leadership, governance and management was required. Many of the first eight recommendations of the 2014 HIQA Review related to the need to improve collective governance arrangements, cooperation and coordination between the National Ambulance Service and Dublin Fire Brigade. Deficiencies highlighted in the 2014 HIQA Review required actions from the HSE, the HSE's National Ambulance Service, Dublin City Council and Dublin Fire Brigade.

HIQA found during this follow-up review that significant changes had occurred to address the recommendations outlined in the 2014 report. In line with Recommendation 1 of the 2014 HIQA Review, a joint action plan addressing the 12 recommendations of the 2014 report has been developed by both the National Ambulance Service and Dublin Fire Brigade. This joint plan was published in May 2016. Much of the 25 outlined actions in this action plan were ongoing at the time of

this follow-up review, with the full completion of all actions targeted for the end of 2020.

At the time of this follow-up review, the National Ambulance Service had successfully completed its transition of control functions over to the National Emergency Operations Centre operating on two sites as planned. This control centre has improved visibility of all National Ambulance Service ambulances and emergency vehicles at any given time across the country. It has also better enabled the service to address some of the performance management requirements identified by HIQA in 2014, which found that valuable time was being lost in the process of call handling and dispatch that could be readily targeted for improvement. Moreover, auditing of control centre function now meets international standards, and has enabled the service to achieve international accreditation with respect to call handling.

The National Ambulance Service, through its commissioning of a number of external reviews, has a better understanding of the resources and initiatives required to improve its performance and service delivery. This has been of particular importance in light of ever increasing demand for emergency ambulance services experienced over recent years. There was evidence to indicate that transformation of the service was appropriately supported at senior level within the HSE. However, it was clearly evident during this follow-up review that much more needs to be done to fully address the recommendations of the 2014 review. The HIQA Review Team was informed that completion of all actionable items listed in the published action plan was dependant on receiving the sustained funding and support required into the future.

It was reported to HIQA that the National Ambulance Service had received a 9% increase in funding since the initial 2014 review. Much of this funding has gone toward the implementation of improvement measures listed in this action plan. For example, a significant portion of the additional funding has gone towards replacing an aging fleet of pre-hospital emergency care vehicles such as ambulances, recruiting additional staff, upgrading equipment, or paying overtime costs required to maintain service levels.

In contrast, both the funding mechanism, and the overall level of funding provided by the National Ambulance Service to Dublin Fire Brigade has remained unchanged since 2014. This is despite an increase in the overall demand for services in Dublin.

Governance leadership and management

A key change since HIQA's 2014 report has seen the appointment, in 2015, of a dedicated HSE National Director of Ambulance Services and Emergency Planning. With the creation of this role, ambulance services now have dedicated

representation at the most senior level within the HSE. This follow-up review identified that this has helped to facilitate the required reform identified as necessary by HIQA, at an appropriate level within the HSE.

Recommendation 3 of the 2014 HIQA Review identified the need for better corporate and clinical governance arrangements to be put in place to facilitate the integration of ambulance services in the greater Dublin area. Since 2014, day-to-day communication and cooperation between the National Ambulance Service and Dublin Fire Brigade has improved, aided through the setting up of a joint oversight governance group. This group is jointly chaired by the HSE National Director of Ambulance Services and Emergency Planning; and the Deputy Chief Executive of Dublin City Council.

Overall, it was reported to HIQA and identified by the Review Team that the approach to inter-service communication and joint working had improved as a consequence of these initiatives since the 2014 review. Indeed, it should be noted that in concluding the writing of this report, feedback from all four key affected parties (the HSE, the National Ambulance Service, Dublin City Council and Dublin Fire Brigade) was jointly coordinated as a single response to HIQA. This would not have been possible in 2014, and is a further positive indication of how far working relationships have developed during the intervening time period.

Indeed, HIQA identified during this review that following the publication of the 2014 report, both service providers proceeded to formulate long-term strategic plans separately from each other. However, as this follow-up review concluded, HIQA were informed that this divergence in planning had begun to be addressed through inclusion of the Dublin Fire Brigade in the National Ambulance Service five year strategic plan. HIQA was informed that this plan was officially agreed by the HSE and other relevant parties towards the end of 2016.

However, notwithstanding this improved working relationship between both service providers, a critical finding of this follow-up review is that a detailed plan for the delivery of emergency ambulance services in the greater Dublin area, still does not exist. This was also a finding of the 2014 HIQA Review and formed the basis of Recommendations 2, 3 and 5 from that HIQA report. It remains a concern for HIQA that this fundamental issue remains unresolved two years later.

The HIQA Review Team found that the ongoing uncertainty and lack of decision-making relating to the medium and long-term direction of emergency ambulance services in Dublin has had a negative impact on the service in general. For example, limited progress with the introduction of alternative models of care in line with international best practice has occurred. However, while the National Ambulance Service have begun efforts to progress this recommendation through the development of 'hear and treat' services, the lack of collective planning with the

Dublin Fire Brigade has hindered their involvement in this initiative. As a result, as things stand a two-tier model of care for patients who dial 122/999 could emerge in Ireland, in the absence of more collective long-term planning.

The Review Team found that the pace of change relating to the implementation of an integrated clinical governance model across both services has likewise been relatively slow. A formalised joint clinical governance working group involving both services' medical directors and other relevant staff was established in February 2016. There was evidence of progress made in aligning clinical processes through the joint implementation of clinical practice guidelines. While in the early stages of development, this joint approach to clinical governance shows much promise.

Clinical governance of the National Ambulance Service

The 2014 HIQA Review identified a need for the National Ambulance Service to improve its approach to risk management, and to enhance clinical governance as indicated in Recommendation 11 and 12 respectively.

This follow-up review found that the appointment of a National Ambulance Service Quality and Patient Safety Manager has resulted in an improved focus on risk management, incident reporting and the management of compliments and complaints at a senior level in the organisation.

The Review Team also found that more needed to be done to enhance oversight of clinical safety within the service. This includes a need to further develop clinical audit which remained very limited at the time of this follow-up review; to enhance monitoring of patient outcomes; and to further encourage and promote more extensive reporting of clinical incidents. Furthermore, governance and oversight of community first responder schemes affiliated with the National Ambulance Service need to improve and adhere to established policies and procedures. These steps are needed for future planned alternative models of care, which will require both enhanced training and competency of paramedical staff, and a greater ability to monitor the quality and safety of the enhanced range of services that these practitioners may be empowered to implement.

Little has changed since 2014 with regard to the model of care in use by both service providers. At the time of this follow-up review, all patients requesting emergency ambulance services continue to be transported to hospital emergency departments. As highlighted by HIQA in 2014, this is not the best use of limited resources in light of ever increasing demands on the service. Limited progress has been made in introducing alternative treatment pathways to patients. In addition, the expansion of treatment options offered by emergency ambulance services in Ireland have not advanced in line with international best practice, including practice in many neighbouring countries. Therefore, the benefits experienced by other

services relating to performance and outcomes have not as yet been experienced by service providers or patients in Ireland.

Evidence indicates that out-of-hospital cardiac arrest survival rates have improved in Ireland in recent years, and compare favourably with the performance recorded by other ambulance services. This is a very positive development, and provides both assurance, and a further target for improvement. In reflecting upon the benefits of such surveillance of performance for this key condition, it is of concern to HIQA that little progress had been made in developing other clinical key performance indicators since 2014, as recommended by HIQA at that time. A project steering group with responsibility for developing an appropriate set of key performance indicators was established in April 2016, but there has been no published output from this group at the time of writing this report.

Performance management

The 2014 review identified that better response time performance for potentially life-threatening calls could be achieved through:

- better pooling and use of existing resources in Dublin (Recommendation 1)
- implementing alternative models of care (Recommendation 5)
- improved support and training for managers (Recommendation 6)
- public engagement on appropriate use of services (Recommendation 8)
- further development of community first responders (Recommendation 10)

Changes initiated at the time of this follow-up review relating to each of these recommendations were ongoing, and at varying stages of implementation.

Some progress has been achieved in improving operational efficiency particularly in the National Ambulance Service. The reconfiguration of call taking and dispatch to one centre over two sites has not only assisted in streamlining resources, but also enabled the full separation of call taker and dispatcher roles in line with best practice. Separation of these roles has however not yet occurred in Dublin Fire Brigade, contrary to recommendations made by HIQA in 2014. Monitoring of service performance has also improved with evidence of better reporting structures and escalation of risk. Improvements were evident in the management of hospital turnaround times, address verification, technology and communications. In addition, the introduction of intermediate care vehicles has further positively impacted on freeing up the availability of emergency ambulances.

Despite these developments, it was also evident that more needs to be done to achieve better operational efficiencies in both services. For example, dynamic

deployment* has not been formalised in either service. Response times have remained stable but have not improved since 2014, in part because demand has increased. In addition, there is still scope for improved efficiency in the use of resources. Nonetheless, resources in both services still remain too low to enable a significantly improved approach to reaching target response times.

Efforts to engage and educate the public on the appropriate use of ambulances have also been limited since the 2014 review. It was anticipated that the appointment of three community engagement officers to the National Ambulance Service in early 2017 would enable progress in rolling out a national patient education programme on the use of alternative care pathways.

In 2014, HIQA highlighted a need to build on efforts to enhance the number and geographic spread of community first responder schemes nationally. HIQA identified at that time that a number of regions in the country had led the way in developing such programmes, which aim to supplement ambulance services in providing a first response in certain time critical conditions. This is an especially important support in Ireland given its largely rural population.

Improvements were evident at the time of this follow-up review, with 42 additional community first responder schemes which were linked to the National Ambulance Service having been established in Ireland since 2014. However, the lack of oversight found relating to clinical safety already highlighted in the National Ambulance Services was likewise reflected in the overall governance and clinical monitoring of care provided by community first responder schemes. More needs to be done to provide assurance that all registered community first responder schemes that are linked to the National Ambulance Service, are in compliance with the National Ambulance Service policies, procedures and guidelines. In addition, greater effort to strategically encourage the establishment of schemes in priority areas which might significantly benefit from them due to the rural nature is also needed. As things stand, such schemes have not been set up in large parts of rural Ireland which might benefit most from their establishment.

Ongoing risks to patients in Dublin identified during this review

In 2014, HIQA found that arrangements for the joint provision of ambulance services in Dublin by Dublin Fire Brigade and the National Ambulance Service resulted in a situation whereby the Dublin Fire Brigade (who receive all of the 122/999 calls for the region) needed to regularly request assistance from the National Ambulance Service at peak times due to a lack of available resources. HIQA found that this process resulted in some instances in emergency calls being placed into a queue

* A system whereby ambulances or other emergency ambulance response vehicles are strategically positioned at various strategic locations away from ambulance stations in order to rapidly respond to anticipated demand.

rather than receiving an immediate response, due to a lack of available capacity across both service providers. Moreover HIQA found that, when the National Ambulance Service were in a position to provide assistance, vital minutes could be lost during the process of call transfer from the Dublin Fire Brigade to the National Ambulance Service.

Finally, the arrangements for call handling and dispatch also meant that because Dublin Fire Brigade resources would be sent first to a call without awareness of the relative positioning of National Ambulance Services resources, a Dublin Fire Brigade ambulance of fire appliance might be sent to a potentially life threatening call, despite the fact that an available National Ambulance Service ambulance was nearer to the patient, and would have got to them more quickly. In effect, the system in place did not ensure the nearest appropriate resource would always be immediately sent to the patient, regardless of which agency provided it. This collection of linked findings represented one of the more significant risks to patients identified by HIQA during the 2014 review, which therefore required a timely and effective collective response.

In 2016, HIQA found that this situation had not been resolved, and instead had worsened due to increased demand for services – at a time when available resources levels had remained unchanged.

Furthermore, analysis of calls transferred from Dublin Fire Brigade to the National Ambulance Service in a typical 24 hour period in Dublin by HIQA identified that

- a high proportion of calls that were being queued were potentially life threatening DELTA calls.
- for the minority of these DELTA calls which could be transferred over to the National Ambulance Service because they had available capacity at that time, a number experienced a delay in first response of between four and 10 minutes due to the to and fro of the process of call transfer between services.

Consequently, during the course of this review, HIQA escalated concerns to Dublin City Council (who are responsible for governance of Dublin Fire Brigade) in relation to this high risk to patients. In response, the joint DCC/HSE governance group met, and additional National Ambulance Service resources were provided in the Dublin area. It was also stated to HIQA in response to risk escalation that greater priority would be placed upon resource allocation to address DELTA calls so that queuing of these potentially life threatening cases would be minimised.

In addition, an external review by consultants was commissioned by the joint governance group, to determine how best to deploy resources in Dublin, and re-examine the ongoing approach to call handling and dispatch. This external review concluded that, while the identity of the service providing the response was of less

concern, there was a need to transition to a single point of call handling and dispatch to ensure that potential delay that was inherent in the current process of call handling and dispatch in Dublin could be avoided.

At the time of writing this report, it was too early to determine if the additional resources provided to address the risk found by HIQA had resulted in a sufficient degree of sustained improvement. However existing arrangements around call handling and dispatch remained unchanged. Therefore, as things stand, if a patient with a potentially life threatening condition in Dublin calls 112/999 for an ambulance, current arrangements for call handling and dispatch can result in a delay in response for what could be crucial minutes, due to the process for transfer calls from Dublin Fire Brigade to the National Ambulance Service. Alternatively in some instances, a Dublin Fire Brigade Resource may continue to be dispatched to such a call in a situation where a nearer National Ambulance Service resource may have been available, and better placed to provide an appropriate timely response.

At the time of writing this report, the Review Team was told that senior managers within Dublin City Council and the HSE had highlighted HIQA's ongoing concerns through their respective governance structures. HIQA was also informed that as a result of this process, both parties were required by their respective parent government departments to compose a joint proposal for resolving this significant patient safety risk. However, HIQA has to date not been made aware of any further progress in this matter, and risk in Dublin related to call handling and dispatch arrangements remain unresolved.

Workforce and service performance

In contrast to findings in 2014, the National Ambulance Service now has a clear understanding of current staffing resources and what is needed to deliver a safe, high-quality and responsive service to patients over the coming years. Action has been taken to increase the staff relief factor required to cover sick leave, annual leave and training through the recruitment of additional frontline staff. In addition, the National Ambulance Service has stabilised and enhanced the workforce complement: in 2014, staffing numbers were falling at a concerning rate due to recruitment levels being too low to keep up with staff attrition rates. However, staff numbers still fall well short of the identified required level, and the service remains reliant on overtime to maintain services.

While the number of trainee paramedics recruited in both services since 2014 has increased, a staffing shortfall remains. Recruitment of trainee paramedics is restricted to the number of training places currently available, and the ability of the service to be able to absorb and appropriately supervise new recruits. As a consequence of the poor state of workforce planning prior to and at the time of the

2014 review, an ongoing reliance on overtime will be required for a number of years while yearly recruitment builds capacity.

The National Ambulance Service has also begun to strengthen the focus on the training and development needs of all staff, including managers in line with Recommendation 9 of the 2014 HIQA Review. An external review of the existing organisation structure within the National Ambulance Service was ongoing at the time of this follow-up review. HIQA was informed that it is anticipated that this review will be concluded by the end of March 2017, and it is anticipated that this review will inform the strategic organisational design needed to support staff to effectively deliver pre-hospital emergency care into the future. It is imperative that further progress in this regard proceeds without additional delay.

Conclusion

Genuine progress has been made in working to enhance pre-hospital emergency care provision in Ireland since the publication of the 2014 HIQA Review. Moreover, given the degree of transformation that was identified by HIQA as necessary at that time, the degree of progress achieved in the intervening period should be considered in the context of what will inevitably need to be a well-supported, 5- to 10-year transformation process.

Since 2014, a number of key improvements have occurred in the provision of pre-hospital emergency care services. In particular, the National Ambulance Service transition to a single control centre over two sites has been a major enhancement in service provision. Improved control centre auditing, targeted investment in technology, and a significant improvement in the relative age of the ambulance fleet have also been key developments. These developments have been aided by a significant increase in budget for the National Ambulance Service.

Crucially, the National Ambulance Service now has a very clear understanding of what it needs to do to progress services, aided through the work of a series of reviews examining capacity requirements, workforce development and fleet management. It is also better governed and supported by the HSE to progress this improvement, albeit a formal review of the organisational structure has not yet been fully concluded.

The National Ambulance Service still lacks necessary capacity, and despite increased recruitment rates, remains reliant on overtime to maintain services. A significant increase in staff, supported by a long-term commitment to finance this increase, will be required to enable the National Ambulance Service to meet response time performance levels identified as being achievable in an Irish context by the National Capacity Review. In addition, more could be done within existing resources. However, the fact that there is now defined clarity around what the service needs to

do to achieve desired improvements is a major progression on findings from 2014, and indeed, a potential learning point for other aspects of the Irish healthcare service.

In contrast to these developments, a lot more needs to be done to improve the level of clinical governance oversight in the National Ambulance Service. Progress to date has been slow, and while efforts are progressing, the pace of change in this regard needs to quicken. Risk management arrangements also remain fragmented and should be further revised and enhanced.

In Dublin, it was clear to the HIQA Review Team that in contrast to the 2014 HIQA Review findings, lines of communication, formal governance arrangements and working relationship at senior management level within the HSE and Dublin City Council were much improved. The day-to-day working relationship between the National Ambulance Service and the Dublin Fire Brigade was also much improved. However, these arrangements are not as effective as they might possibly be, in the absence of a formal decision on the future direction of services in Dublin. Ultimate decision-making with respect to how ambulance services will be provided in Dublin into the future is still pending.

Outstanding risks will remain in Dublin until such time as this issue is properly addressed, in particular with respect to collective capacity in the face of increasing demand, and arrangements around call handling and dispatch functions. The status quo puts patients at risk, and cannot be allowed to continue. It is therefore incumbent on those with overall governance responsibility for publicly-funded pre-hospital emergency care services in Ireland to ensure that there is a clear plan for the future of services in Dublin, that is based on ensuring the safest and best possible service for patients, as quickly and efficiently as possible.

Chapter 1. Introduction

This report presents the findings from the follow-up review of pre-hospital emergency care services undertaken by the Health Information and Quality Authority (HIQA) in 2016.

The review came two years after HIQA's *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*, which was published on 2 December 2014.¹

The aim of this follow-up review was to see what level of progress had been achieved by the Health Service Executive (HSE), its National Ambulance Service and the pre-hospital emergency care service provided by Dublin Fire Brigade since 2014 to provide high-quality, reliable, responsive and safe patient care.

Progress made was assessed against HIQA's *National Standards for Safer Better Healthcare*.² A review of pre-hospital emergency care was part of HIQA's planned healthcare monitoring and assurance programme for 2016.

1.1 Background

1.1.1 Pre-hospital emergency care

Pre-hospital emergency care is the emergency care provided to a patient before and during transfer to a hospital or appropriate healthcare facility. Pre-hospital emergency care needs to be clinically safe and responsive, and should deliver high-quality outcomes for patients in this care setting.

Pre-hospital emergency care depends upon:

- the most appropriately trained person or people with the necessary resources attending the emergency incident within an acceptable time frame
- providing necessary immediate care
- ensuring that the patient continues ongoing care in an appropriate setting.

Traditionally, pre-hospital emergency care services have routinely transported all patients to acute hospitals. Increasingly, experience internationally has seen a change whereby the type and range of onward services that pre-hospital care providers take patients to has begun to include other healthcare or alternate care pathways for some patients where clinically appropriate.

In Ireland, pre-hospital emergency care is provided by the HSE's National Ambulance Service with the exception of Dublin City and County, which are served by both the National Ambulance Service and Dublin Fire Brigade. In addition to the services

provided by National Ambulance Service and Dublin Fire Brigade, pre-hospital emergency care services also include aeromedical services, which are provided in line with HSE service level agreements with the Irish Defence Forces and the Irish Coast Guard.

The National Ambulance Service consists of over 1,600 staff. This complement includes control staff, emergency medical technicians, paramedics and advanced paramedics. The overall staffing complement of Dublin Fire Brigade includes over 800 dual trained firefighter-paramedics. Forty-six of these firefighter-paramedics are also trained to advanced paramedic level.

1.1.2 HIQA's 2014 national review of pre-hospital emergency care services

HIQA's national review of pre-hospital emergency care services began in April 2014. That review was undertaken at the request of the then Minister for Health. The request had been triggered by a high degree of public concern relating to the quality and safety of publicly funded ambulance services in Ireland. This concern was informed in part by the public reporting of a number of high-profile patient safety incidents, and ongoing difficulty by the National Ambulance Service and Dublin Fire Brigade (in the context of the latter's largely urban area of responsibility) in achieving response time targets comparable with those achieved by ambulance services in other countries.

The objective of HIQA's 2014 national review of pre-hospital emergency care was to establish if both the National Ambulance Service and Dublin Fire Brigade had the necessary essential elements in place to ensure high-quality performance in the assessment, diagnosis, initial clinical management and transport of acutely ill patients to appropriate healthcare facilities.

The review also examined the governance arrangements in place within these two publicly funded emergency ambulance services in Ireland. Of note, the review specifically focused on responses to potentially life-threatening calls (classified through standard call triage systems as ECHO and DELTA calls), as distinct from less acutely unwell patients, or those patient more stable requiring transport between healthcare facilities. The response to these ECHO and DELTA calls had been determined to represent the greatest patient safety risk.

Against the backdrop of this original HIQA review in 2014, the National Ambulance Service had already started to reform how it configured its service, with a key change being moving to a national command and control centre from multiple sites to one centre located across two sites.

On completion of the review, a report was published by HIQA on 2 December 2014. It identified significant scope to improve governance and management of emergency

ambulance services. The 2014 report outlined 12 recommendations in total, eight of which related to the collective provision of emergency ambulance services by the National Ambulance Service and Dublin Fire Brigade. A further four recommendations specifically related solely to the National Ambulance Service and the HSE (See Appendix B at the end of this report).

The 2014 report concluded that achieving high-quality, safe and reliable pre-hospital emergency care depended on effective leadership, governance and management. The recommendations made by HIQA in its 2014 national review report required action from:

- the HSE
- the HSE's National Ambulance Service
- Dublin City Council (which governs Dublin Fire Brigade)
- Dublin Fire Brigade.

This action was required in order to ensure that deficiencies related to inter-service cooperation, coordination and operational inefficiencies identified during the 2014 review could be addressed.

1.2 National Ambulance Service transition to the National Emergency Operations Centre

At the time of the 2014 HIQA Review, the National Ambulance Service had been in the middle of a substantial project which aimed to consolidate all of its then six remaining ambulance control centres into a single system located over two geographic sites in Tallaght, Co Dublin, and Ballyshannon, Co Donegal. This project represented a critically important investment for the service, with a total estimated capital cost in the region of €30 million.

The project intended to transform the National Ambulance Service and aimed to achieve the following:

- an improved approach to performance management within the new control function
- improved visibility of all ambulances and emergency vehicles at any given time across the country
- a single information technology system across the service allowing greater uniformity and timely access to performance information
- greater staff cohesion over a more limited number of sites, and
- staffing synergies and efficiency that resulted from greater economies of scale.

Following publication of the 2014 HIQA Review, the National Ambulance Service successfully completed its transition of control functions over to the National

Emergency Operations Centre operating on two sites as planned, with the centre being officially opened by the then Minister for Health on 3 July 2015. This transition also aided in efforts to improve auditing of control centre functioning, and the control centre has since achieved both ISO 9001:2008 accreditation and accreditation from the International Academies of Emergency Dispatch.

Both the National Ambulance Service and the HSE deserve considerable credit in achieving this move. The completion of the reconfiguration of control functions within the National Ambulance Service has better enabled the service to address some of the operational inefficiencies identified during the 2014 HIQA Review. Progress achieved to date in addressing these issues is further outlined throughout this report.

1.3 Parallel reviews

HIQA started its 2014 Review of pre-hospital emergency care following a request from the then Minister for Health in response to identified concerns about publicly funded services across the State. It should be noted, however, that at that time, a number of other parallel reviews were also either underway or subsequently commenced, which were of relevance to informing an improved approach to pre-hospital emergency care services. These were:

- a HSE commissioned National Capacity Review
- three National Ambulance Service commissioned human resources related review reports
- a further National Ambulance Service commissioned review into fleet management
- a review commissioned by Dublin City Council and the HSE into ambulance services provided in Dublin.
- A review commissioned by the management/trade union forum, chaired by a former Chief Fire Officer.

The following section of this report outlines the nature and purpose of these reviews, and progress in relation to their completion at the time of writing this report.

1.3.1 The HSE National Ambulance Service of Ireland Emergency Service Baseline and Capacity Review³

In late 2013, and prior to starting the initial HIQA Review, the HSE commissioned The National Ambulance Service of Ireland Emergency Service Capacity Review (referred to in this report as the National Capacity Review), which was conducted by an external company with international experience in the field. Ambulance service capacity reviews are intended to determine, based upon:

- information related to historic service demand
- patterns of population
- geography and travel infrastructure

the required degree of resource allocation and distribution to ensure an agreed level of service in relation to response time targets.

In many ambulance services, capacity reviews would happen at certain time intervals to ensure that resource availability and deployment was best matched to demand. Such capacity reviews are a crucial planning tool for services.

In Ireland, while a number of regionally focused capacity reviews had been commissioned in the past, a full national capacity review had never been conducted prior to 2013. This meant that the location of ambulance stations and deployment of ambulance services in Ireland was largely based upon historic grounds, with distribution across each former health board area, rather than taking a national view of where best to position resources based upon data.

Furthermore, a scientific analysis of how much resource, and of what type, was required to meet an acceptable standard of response for patients based upon calculated demand had never occurred in Ireland. As a result, this HSE-commissioned National Capacity Review took on added significance for the National Ambulance Service.

While commissioned in late 2013, the report of the National Capacity Review was not published by the HSE until May 2016. The full report can be accessed on the HSE website [here](#). Findings of relevance to this follow-up HIQA review will be outlined throughout this report.

1.3.2 Other internally commissioned reviews by the HSE and the National Ambulance Service

In addition to its National Capacity Review, the HSE and National Ambulance Service also commissioned a series of other internal reviews that were intended to provide greater clarity as to how to reform the service.

In May 2014, the HSE commissioned a review which was conducted by an external consultancy firm to examine the management structure within the National Ambulance Service relative to other comparable services internationally. This process then evolved in response to the then ongoing 2014 HIQA Review, to include a review of the wider workforce needs of the service, through the compilation of a human resources strategy document, and also the development of a separate but associated workforce planning document.

At the time of writing this follow-up HIQA report, both of these documents had been finalised and they were being actively used by the HSE and National Ambulance Service to inform planning. However, a further third human resources related review which examined the National Ambulance Service management structure had yet to be finalised. Further reference to these three bodies of work, as they relate to the implementation of relevant recommendations are outlined in Chapter 4 of this report.

Following the initial HIQA review during 2014, the HSE and National Ambulance Service also commissioned a review of the National Ambulance Service's approach to pre-hospital vehicle fleet management. This fleet management review, which was again conducted by an external management consultancy firm, was finalised in 2016. Further reference to this review as it relates to the 2016 HIQA National Review report is also outlined in Chapter 4.

1.3.3 Other recent reviews conducted into publicly funded pre-hospital emergency care services in Dublin

The initial HIQA review identified scope for improved cooperation and coordination between both publicly funded service providers in Dublin – Dublin Fire Brigade and the National Ambulance Service. These findings merely reflected a long-standing recognition, as articulated through numerous prior reports, that arrangements in Dublin needed to improve.

Indeed, immediately before the 2014 HIQA Review, Dublin City Council and the HSE jointly commissioned a review of pre-hospital emergency care services in Dublin, which ran parallel to the HIQA review (and which at the time of writing this report of the 2016 follow-up HIQA review had yet to be published).

Following the publication of HIQA's national review report in December 2014, Dublin City Council and the HSE announced an agreement in principle⁴, in March 2015, to migrate all call taking and dispatch functions for ambulances in Dublin over to a new National Emergency Operations Centre, which officially opened in July 2015. In addition, plans to make the Medical Director of the National Ambulance Service solely responsible for clinical governance across both the National Ambulance Service and the Dublin Fire Brigade were publicly proposed as part of this announcement.

These proposed changes prompted public concern from trade unions and staff in Dublin Fire Brigade^{5,6}. This HIQA follow-up review found that neither proposal had been introduced. Rather, Dublin Fire Brigade Management/Trade Union Forum commissioned a further review (in addition to the Dublin City Council/HSE review commissioned in 2014, and which was still underway at the time) to examine the proposals outlined by Dublin City Council and the HSE in March 2015⁷.

This review, which was chaired by a former Chief Fire Officer of Dublin Fire Brigade and supported by external expertise, was tasked with trying to achieve a consensus between all parties in working to address risks identified during the 2014 HIQA Review, and in light of the proposals outlined by Dublin City Council and the HSE. The report from this review was concluded in December 2015. A copy of this report was provided to HIQA by both Dublin City Council and Dublin Fire Brigade during the course of HIQA's follow-up review. The contents were considered alongside all other sources of evidence gathered during this review in determining the overall findings of this report.

1.4 The purpose of this follow-up review by HIQA

The 2014 HIQA Review of pre-hospital emergency care services identified both examples of good practice across both State-funded services providers, and the need to significantly improve the way services were delivered both individually and collectively between them in the best interest of patient safety.

In setting out its planned business objectives for 2016, HIQA identified a need to follow up with the service providers following its 2014 review to check progress in addressing the safety concerns identified at that time. The resulting follow-up review coincided with a similar follow-up review conducted into HIQA's 2015 Portlaoise Hospital investigation⁸. Both follow-up reviews intended to proactively assess what had improved since the publication of each report, and where further progress may be needed.

1.5 Review methodology

This HIQA follow-up review began in July 2016. It was designed to verify the level of progress achieved by the National Ambulance Service, Dublin Fire Brigade, Dublin City Council and the HSE in progressing the 12 recommendations from the 2014 HIQA national review.

In light of the overall findings from HIQA's 2014 review, this follow-up review by HIQA predominantly focused on a number of key areas which had been identified as being in particular need of improvement:

- the level of coordination and cooperation between the National Ambulance Service and Dublin Fire Brigade when providing services to the people of Dublin
- clinical governance and risk management in the National Ambulance Service, and
- the degree to which both service providers had improved how they monitor and measure the quality and safety of their services, and progress in improving performance against these measures since 2014.

Documents and data provided to HIQA by the respective organisations provided background information that informed some of the findings and helped to direct lines of enquiry (questions) for the follow-up review. In addition, information received was validated through staff and senior management interviews, and on-site visits to ambulance control centres. Full details of the methodology used during the follow-up review are presented in Appendix A.

1.6 The structure of this report

HIQA's 2014 review of pre-hospital emergency care had made 12 high-level recommendations that needed to be implemented to improve the quality and safety of services nationally (See Appendix B). Eight of these recommendations related to both the National Ambulance Service and the Dublin Fire Brigade, whereas a further four related solely to the National Ambulance Service. In addition to these high-level findings, further recommendations for improvement were included throughout the report.

This follow-up review report sought to identify the degree of progress achieved in implementing these high-level recommendations. While the following chapters address each of these recommendations, the report does not critique the recommendations in sequence. Rather, the report is written under the following headings, with discussion of relevant linked recommendations outlined in each chapter;

- corporate governance, cooperation and coordination between the National Ambulance Service and the Dublin Fire Brigade
- clinical governance and risk management in the National Ambulance Service
- workforce and performance.

In the final chapter, the report then outlines conclusions based upon the findings of this follow-up review. Given both the nature of the totality of findings from the 2014 review, and the ratio of the pre-hospital emergency care services provided by each service, most of this report relates to changes to services provided by the National Ambulance Service.

However, where areas for improvement also relate to services provided by Dublin Fire Brigade, this is clearly outlined throughout the report. Further context in relation to the services provided by both agencies prior to HIQA's 2014 review is available in HIQA's 2014 review report.

Chapter 2 – Corporate governance, coordination and cooperation between the National Ambulance Service and Dublin Fire Brigade

Summary of key findings

- Since 2014, day-to-day communication and cooperation between the National Ambulance Service and Dublin Fire Brigade has improved, aided through the setting up of a joint oversight governance group. This group is jointly chaired by the HSE National Director of Ambulance Services and Emergency Planning; and the Deputy Chief Executive CEO of Dublin City Council. However, both services continue to plan for the long term independently of each other.
- National Ambulance Service funding has been increased by 9% since 2014, whereas funding provided by the National Ambulance Service to Dublin Fire Brigade to part-fund ambulance services has remained unchanged since 2014. Both services have experienced a year-on-year increase in the demand on services since 2014.
- The 2014 HIQA Review had identified problems with the total level of resources available in Dublin across both the Dublin Fire Brigade and the National Ambulance Service to respond to calls, relative to the amount of demand for ambulances. In 2014, HIQA also found problems with the amount of time it took to transfer calls from Dublin Fire Brigade to the National Ambulance Service in situations where Dublin Fire Brigade had reached operational capacity. This 2016 follow-up review found only very limited action to address these problems, and the potential risk to patients had in fact increased as demand for emergency ambulances had increased in the interim while resource levels had remained static.
- HIQA escalated concerns during the review in relation to this deteriorated situation. In response, additional ambulance resources were made available in Dublin, and further analysis from external experts was commissioned to determine how to best address this risk. At the time of this follow-up HIQA review, it was too early to verify the level of impact that these initiatives had achieved.
- While some increase in resources had been provided, at the time of writing this report, ongoing arrangements around call handling and dispatch across the two services have not been resolved to an acceptable level to prevent inherent and potentially avoidable delay for some patients who require an ambulance.
- Ultimately, this problem will not be resolved until a substantive decision around the long-term configuration of call handling and dispatch is made by senior decision makers.

2.1 Introduction

Both the National Ambulance Service and Dublin Fire Brigade have a statutory remit to provide State-funded ambulance services independently of each other. One of the key findings from the 2014 HIQA Review of pre-hospital emergency care was that more needed to be done to improve cooperation and coordination between them in order to provide a better service for patients in the Dublin area. In light of this requirement, the first eight high-level recommendations arising from the 2014 HIQA Review applied to both service providers. An emphasis was placed in all of the recommendations on the need to work together.

The following chapter outlines findings from this follow-up review in relation to the degree of change achieved by the National Ambulance Service and Dublin Fire Brigade relating to this finding since the 2014 review. In particular, this chapter will address findings related to recommendations 1–4 from that review, and will include 2016 findings on the need for better strategic planning, as had been outlined in Recommendation 5 from 2014 (see Appendix B).

This cohort of 2014 recommendations collectively had called for:

- improved corporate and clinical governance cooperation and coordination between both services
- collective planning to address shared risks and use potential synergies between both services to improve operational efficiencies
- greater integration of both services into the unscheduled care system provided within the health service, including greater involvement in service planning and the change agenda in acute hospitals in relation to their interaction with ambulance services
- Dublin Fire Brigade's involvement in the National Ambulance Service's migration of various call centres to one control centre operating over two sites
- collective clarity as to the overall strategic direction of State-provided ambulance services in Ireland.

2.2 Background

Recommendation 2 in the 2014 HIQA Review called for ambulance services to be embedded as a clinical service into the unscheduled care system, under the remit of the acute hospitals division within the HSE. This recommendation was informed by findings from the 2014 review which identified problems in gaining the required level of support from senior management within the HSE to enable the degree of change required to fully modernise ambulance services in Ireland.

Senior management within the National Ambulance Service highlighted their perceived difficulties in negotiating necessary supports while they were positioned

outside of the main service directorates within the HSE, as one small group in a much larger organisation. Furthermore, HIQA identified that there was a need for greater formalised involvement by ambulance service providers in the planning process for service reconfiguration — a process that is required in any acute healthcare service on an ongoing basis.

At the time of the previous review, responsibility for senior HSE management of the National Ambulance Service fell to the then Chief Operating Officer of the HSE, who was also the Deputy Director General. This remit was one part of this senior manager's overall portfolio of responsibility.

2.3 Changes to leadership, governance and management

Following publication of the 2014 HIQA Review, the HSE acted to appoint a new National Director for Ambulance Services and Emergency Planning. This position holder's main responsibility lay in working to improve ambulance services in light of the HIQA review and other parallel HSE commissioned review findings and oversee the ongoing reform agenda to modernise the service.

It was explained to HIQA during the review that it had been decided to appoint a dedicated national director to this role, who was a member of the HSE senior leadership team, rather than adding responsibility for ambulance services to the National Director for Acute Services. This was due to the significant body of identified change and improvement required specifically within the service in light of the HIQA and other review findings.

During the course of this follow-up review, senior National Ambulance Service management told the HIQA Review Team — and it was identified by HIQA — that this change in senior management reporting relationships within the HSE had better enabled service reform at an appropriate level within the HSE, due to the presence of a dedicated manager who had been assigned to this change programme.

In addition, while the National Ambulance Service continues to sit as a stand-alone entity within the wider HSE, it was identified by HIQA that some lessons had been learnt in relation to the degree of ambulance service involvement in service planning within the unscheduled care system. For example, the review found that the National Ambulance Service had been fully involved in developing the Dublin Midlands Hospital Group Draft Action Plan for services at the Midland Regional Hospital Portlaoise.

It is important that the gains achieved from these changes in both management reporting and practice within the HSE are sustained and enhanced into the future.

2.4 Changes to funding levels and arrangements

Since 2014, the National Ambulance Service's budget has increased by 9%. Its total budget allocation for 2014 stood at €139 million. In 2016, its annual allocation stood at €151.4 million. This increase has funded the recruitment of new additional staff, increased filling of shifts through overtime, and there has been increased expenditure on fleet and equipment.

In 2014, the National Ambulance Service spent €7.5 million on replacing pre-hospital emergency care vehicles such as ambulances. In 2015, expenditure on replacement ambulances increased to €12.9 million, while the allocation for ambulance replacement for 2016 stood at €14.5 million — a near doubling of the fleet replacement spend compared to 2014.

Ambulance services provided by the Dublin Fire Brigade are funded in part through the allocation of an annual funding allocation from the HSE and National Ambulance Service.

The nature and amount of funding provided by this mechanism has been a long-standing bone of contention between the HSE's National Ambulance Service and Dublin Fire Brigade over a long period of time, and was clearly identified as an ongoing issue by HIQA during its 2014 review. Direct negotiations on annual funding between the services happened in 1998 and again in 2010, while current arrangements were signed by both services in 2013.

In 2016, the National Ambulance Service provided €9.182 million to Dublin Fire Brigade to fund the service provided by 11 emergency ambulances in the Dublin area. This allocation was unchanged from the allocation provided in 2015. Dublin Fire Brigade told HIQA during this follow-up review that this allocation does not go far enough to cover its calculation of the full €13.98 million cost of service provision.

Dublin Fire Brigade stated these additional costs, the difference between its projections and the funding received from the National Ambulance Service, included provision for:

- the control centre function
- an additional emergency ambulance in the Swords area which has been added to the 11 ambulances already funded due to increased demand
- providing a paramedic car
- clinical audit and training
- a Medical Director
- replacement ambulance costs
- the cost of mobilising fire appliances to respond to some critical calls as a first response.

Dublin Fire Brigade told HIQA that this shortfall is instead provided by Dublin City Council.

HIQA identified during this review that HSE funding of its National Ambulance Service has increased significantly since the 2014 HIQA Review. However, funding in turn provided by the HSE's National Ambulance Service for Dublin Fire Brigade's pre-hospital emergency care service in the greater Dublin area appears to have remained static, with many of the related[†] issues identified in 2014 remaining unresolved.

2.5 Collective National Ambulance Service and Dublin Fire Brigade governance oversight

Significant scope for improved cooperation and coordination between the National Ambulance Service and the Dublin Fire Brigade had been identified during the 2014 HIQA Review.

After the 2014 HIQA Review was published, both the HSE and Dublin City Council acted to form a joint governance group for ambulance services, which at the time of this follow-up review was being jointly chaired by the HSE National Director for Ambulance Services and Emergency Planning, and the Deputy Chief Executive of Dublin City Council. This joint governance group, which includes senior management representation from the National Ambulance Service and Dublin Fire Brigade, meets regularly. Minutes from meetings reviewed by HIQA identified a more structured approach to formal inter-service communication, short-term planning and service delivery.

This governance group's work is additionally supplemented by a joint National Ambulance Service and Dublin Fire Brigade operations working group which meets regularly at senior and middle-management level across both services. A joint clinical governance working group involving both services' medical directors and other relevant staff has also recently been formed. This revised clinical governance relationship is further explored in Chapter 3 of this report.

Overall, it was reported to HIQA and identified by the Review Team that the approach to inter-service communication and joint working had improved as a consequence of these initiatives since the 2014 review.

Of note, however, the Review Team identified that the Dublin Fire Brigade does not have formalised links at a senior level with other divisions within the HSE — for example, the Acute Services Division. As a result, Dublin Fire Brigade relies on its

[†] During the due process phase of concluding this report, HIQA was informed that a revised and agreed approach to funding had been finalised between the HSE and Dublin City Council. However at the time of finalising this report, this funding mechanism had yet to be publically declared by both parties and enacted.

relationship with the National Ambulance Service to communicate on its behalf with other branches of the HSE. This represents a potential weakness in current arrangements, particularly in ensuring that there is an appropriate level of Dublin Fire Brigade involvement in service planning and redesign of unscheduled care services. This should be examined within the revised governance structure described.

2.6 A joint action plan to address findings from HIQA's 2014 Review

In line with Recommendation 1 of the 2014 HIQA Review, in May 2016 the HSE and Dublin City Council published a joint action plan which was aimed at addressing both the recommendations from the HIQA review and also the recommendations from the HSE-commissioned National Capacity Review. This joint action plan outlines a number of actions enacted, undertaken or which were about to commence, dating back to the beginning of 2013 and which had been identified as being in need of collective resolution.

This plan, which includes some action points that are expected to be completed up to the end of 2020, outlines detailed planned actions for each of the recommendations. Relevant progress achieved to date by both parties is outlined in this HIQA follow-up report.

2.7 Long-term strategic planning

It was evident to the HIQA Review Team that changes to the approach to collective governance oversight by both parties, and agreeing a joint action plan, had led to an improved collective approach to communication. The benefits of this new arrangements were expressed at both senior and middle-management level in both services, and it demonstrates an improvement over the situation in 2014. However, HIQA notes that notwithstanding these improvements in the practical day-to-day working relationship between both service providers, from the perspective of long-term planning, both parties continue to work independently of each other.

At the time of completing this follow-up review, the National Ambulance Service had worked to conclude the drafting of a comprehensive strategic plan — entitled 'Vision 2020' — which outlines a strategic path for the service from 2016 to 2020 and beyond. This draft document, which HIQA were informed during the finalisation of this report was officially approved by the HSE towards the end of 2016, was available to view by HIQA during its follow-up review. It was evident that the strategic plan only related to the National Ambulance Service, rather than a collective plan with Dublin Fire Brigade.

Likewise, Dublin Fire Brigade explicitly states in its Emergency Medical Service Strategic Plan 2015 - 2018 that in relation to pre-hospital emergency care, it asserts

its rights as an independent statutory provider of publicly funded ambulance services to chart its own course alone. Therefore, the HIQA Review Team concluded that while day-to-day communication and cooperation across services had improved in a practical sense, this was not accompanied by a clearly stated and shared strategic vision for both ambulance services in the Dublin area.

As a result, a clear medium- to long-term strategic plan for publicly funded pre-hospital emergency care in Ireland which includes both ambulance service providers does not exist. This is a significant inherent weakness in current governance arrangements which in the opinion of the Review Team will hinder collective ambulance service improvement.[‡]

Indeed, as further outlined in this report, this lack of collective strategic direction has presented a barrier to improved services in a number of areas since 2014 which needs to be urgently addressed. It is therefore incumbent on those with overall responsibility for governance oversight of publicly-funded pre-hospital emergency care services in Ireland to ensure that there is a agreed, shared strategy for both service providers, which at its heart ensures the best possible service for patients.

2.8 Changes to coordination and cooperation between services at the front line

In its follow-up review, HIQA examined both the level of change that had occurred at a senior management and governance level across both services and also explored what these changes meant at a practical level for patients receiving front-line services.

In any ambulance service, front-line services can broadly be divided into two staffing groups that need to work seamlessly together to provide high-quality care for patients — namely front-line paramedical staff (referred to in the National Ambulance Service as operations staff) and staff involved in command and control, who are responsible for call-handling, dispatch and organising patient transport.

In evaluating the working relationship between both services, this follow-up review focused in particular on the relationship between both command and control functions in each service provider. This focus was chosen as it represented the area of greatest interface between services on a day-to-day basis.

[‡] During the due process phase of completing this report, it was highlighted to HIQA that Dublin Fire Brigade were consulted in the formulation of the Vision 2020 strategic plan. It was also explained that it was intended that where possible the Dublin Fire Brigade would be involved in joint implementation of this strategic plan. However, as further highlighted in this chapter, this plan does not provide a clear future vision for the provision of services in Dublin, which at the time of this report still require clarification.

2.9 Command and control functions and cooperation between services

In Dublin, all 112/999 calls for ambulances are transferred through to the Dublin Fire Brigade to handle and arrange for a response. Neither Dublin Fire Brigade nor the National Ambulance Service has sight of the location of each other's resources as they operate different and separate computerised dispatch systems which are not linked together.

The 2014 HIQA Review found a situation whereby Dublin Fire Brigade did not have sufficient resources to arrange for an immediate response to all calls in Dublin alone. The National Ambulance Service also have ambulances resources based in Dublin, and on any given day additional National Ambulance Service resources which are based outside of Dublin will also be located in Dublin for a period of time on account of becoming available following the transfer into Dublin of patients from other parts of the country.

Therefore, a situation had evolved at the time of the 2014 review whereby when Dublin Fire Brigade had reached capacity with its ambulances, calls for ambulances were being queued and a telephone request was being placed with the National Ambulance Service to determine if they had any availability to take over the call. In this situation the call would be transferred to the National Ambulance Service if it had available resources.

Alternatively if the National Ambulance Service did not have resources to send, then the call would remain in a queue until such time as an ambulance resource became available within either service. It should be noted that the small proportion of potentially life-threatening calls classified as ECHO were being prioritised for a response from both service providers, and consequently transfer and delay related to these calls was not found by HIQA.

The HIQA review team also identified a practice whereby Dublin Fire Brigade would arrange for a resource to begin to travel towards the scene of a call despite that resource being a long geographic distance from the scene, and then contact the National Ambulance Service to request support in the hope that it might be in a position to mobilise a closer resource. If a National Ambulance Service resource was available, the Dublin Fire Brigade resource would then be stood down.

HIQA had found this practice led to potentially avoidable delays in responses for patients because in practice Dublin Fire Brigade was often closer to the scene in practical terms than the National Ambulance Service by the time of the communication between them occurred. This was despite Dublin Fire Brigade's resource starting from a distance further away from the incident than the available National Ambulance Service resource at the time when the call was initially taken.

In 2014, HIQA found that the practicalities of the process of call receipt by Dublin Fire Brigade, with a need in a high proportion of cases to seek external support, led to avoidable delay in response for patients in some instances due to the process of call transfer between agencies. This represented a significant concern for HIQA and was one of the key risks identified during the review. Consequently, HIQA recommended that both service providers needed to work together in the best interest of patients to try to address this risk.

2.10 Proposed changes following HIQA's 2014 review

Following publication of the 2014 HIQA Review, Dublin City Council and the HSE announced in March 2015⁴ a proposal to transfer all call taking and dispatch over to the National Ambulance Service on a phased basis through use of the newly opened National Emergency Operation Centre in Tallaght, Dublin. However, at the time of reporting this review, such a changeover had not happened.

In the interim, the 2016 follow-up review by HIQA found that both Dublin Fire Brigade and the National Ambulance Service had worked closely together through new joint governance arrangements to try to streamline the existing process of inter-service communication around collective resource availability and call transfer where appropriate, within the constraints of the existing process.

2.11 Ongoing high risk to patients in Dublin identified during this follow-up review

Given the potentially high risk to patients identified during the initial 2014 HIQA Review in relation to existing capacity, and potentially avoidable delays in responses for patients due to the call taking and dispatch arrangements in Dublin, this follow-up review closely evaluated what had changed since 2014 to ensure a better, safer service for patients in light of HIQA's 2014 findings.

During the course of the follow-up review, HIQA visited both the Dublin Fire Brigade control centre in Tara Street, Dublin 2, and the National Emergency Operation Centre in Tallaght, on two separate occasions each. These four visits were intended in part to evaluate current arrangements around inter-service call handling cooperation and coordination.

This evaluation identified that both the Dublin Fire Brigade and the National Ambulance Service have established dedicated desks in each control centre to facilitate communication between services and the handover of calls. HIQA's evaluation included direct observation of the functioning of each desk on consecutive days. It also included a data request which allowed HIQA to analyse all calls where communication between agencies occurred over a typical 24-hour period, to determine what the current arrangements mean for patients in Dublin.

During both visits to the Dublin Fire Brigade control centre, it was highlighted to the Review Team by Dublin Fire Brigade staff that the current arrangements in Dublin, commonly continue to result in a situation whereby a substantial number of calls at peak times are placed in a queue, due to a lack of available resources from either service. Furthermore, these visits confirmed that a significant proportion of these calls are potentially life-threatening DELTA calls, as identified by standard call-taking prioritisation processes.

In addition, this review of practices across both control centres identified that there is inherent delay in the current process of call transfer from one agency to another in situations where the National Ambulance Service is deemed to have a closer available and appropriate resource to the patient. Despite efforts from both services to streamline communication and transfer, this is a result of the fact that both services use different computer systems, allied to the fact that there is an absence of oversight and control over all potentially available resources at the initial decision-making point for dispatch.

Dublin Fire Brigade receives an average of around 320 emergency ambulance calls per day. In evaluating the current arrangements, HIQA conducted an analysis of data over a 24-hour period which examined information from both services' computer systems in situations where communication occurred between Dublin Fire Brigade and the National Ambulance Service. This analysis identified the following for the 24-hour period in question.

- There was a requirement for Dublin Fire Brigade to contact the National Ambulance Service on 107 occasions to identify if it was able to provide a resource closer to the incident than the one being mobilised by the Dublin Fire Brigade, or when Dublin Fire Brigade was unable to send a resource due to lack of availability
- In only 20 instances out of these 107 calls, Dublin Fire Brigade (DFB) and the National Ambulance Service (NAS) had decided to transfer over the call from DFB to NAS. In the remainder of cases, there was either no National Ambulance Service resource available or it was identified that the already mobilised Dublin Fire Brigade resource would be on scene more quickly than the identified available National Ambulance Resource.
- Of these 20 calls that were transferred, 10 were for potentially life-threatening DELTA calls.
- Analysis of these 10 potentially life-threatening calls identified that in five cases where a National Ambulance Service resource was subsequently deployed and provided the first on-scene response to the call, delay of between four and 10 minutes ensued between the time the call was initially received by Dublin Fire Brigade and the call being both transferred and accepted by the National Ambulance Service.

In analysing these findings for just one 24-hour period, the HIQA Review Team determined that notwithstanding the efforts that had been made between both services to streamline the call-transfer process, the arrangements as analysed above, and if replicated on an ongoing basis, represented a high risk to patients.

Identified potential reasons for this risk included:

- apparent insufficient collective ambulance capacity in the Dublin region to deal with the current and increasing number of calls at peak times[§]
- inherent delay associated with the to and fro of the current process of inter-service communication and where appropriate the transfer of calls.

In light of these findings, HIQA acted during the course of this follow-up review to escalate concerns in relation to this risk to the Deputy Chief Executive of Dublin City Council, as the person with overall governance responsibility for Dublin Fire Brigade.

2.12 Action following HIQA's escalation of this risk during this review

In response to HIQA concerns over capacity and delays in the Dublin area, the joint Dublin City Council/HSE governance group met to address these concerns. This group arranged for an external consultancy company to review current collective ambulance capacity in Dublin, and to determine how best to make use of current resources, alongside finding out what extra resources were needed and how they might be best deployed.^{**} A copy of this company's report was subsequently provided to HIQA by Dublin City Council during this review.

In the interim of completion of this external review, the joint governance group agreed to increase National Ambulance Service resources in Dublin to include use of three additional rapid response vehicles during the peak hours of 8am to 8pm Monday to Friday. The National Ambulance Service also added an extra intermediate care vehicle to the Dublin area to free up extra emergency ambulance capacity, and introduced one extra emergency ambulance. So in total, five extra vehicles were made available in Dublin over a short period of time to address this risk.

Furthermore, it was explained to HIQA that it was now intended that the allocation of resources across both services would also aim to target potentially life-threatening DELTA calls more systematically than had occurred previously.

[§] It should be noted that the National Capacity Review identified a deficit in available capacity across the whole of Ireland, not just Dublin. However in evaluating the risk associated with this relative lack of capacity in Dublin, HIQA determined that because of the high absolute number of calls received in Dublin (as a major urban area) compared to other geographic areas in Ireland, a greater likelihood of patient harm existed in Dublin at the time of this follow-up review due to collective capacity deficits.

^{**} The company commissioned to conduct this work, was the same company that undertook the National Capacity Review. This National Capacity Review previously identified that additional resources were required in the Dublin area along with up to 30 active drive zones.

In addition, the externally commissioned consultants evaluated the functioning of the current process of inter-service communication and where appropriate call transfer. This evaluation reported that the current process was running as efficiently as it could within the current arrangements. HIQA notes that the consultants advised that from a safety perspective, patient safety risks related to current call-handling and dispatch arrangements would only be resolved by creating one single point of contact for both call handling and dispatch. The agency providing the emergency response was of less priority to the consultants.

At the time of this follow-up review, avoidable delay in the arrival of a first responder to some life-threatening calls in Dublin was occurring on account of current arrangements around resource allocation, and having two separate and sequential potential points of ambulance dispatch.

This arrangement also resulted in wasted collective resources between services in situations where a resource was mobilised from one service and then stood down when it becomes apparent that the other service is closer to the scene — rather than immediately ensuring that the nearest appropriate resource was dispatched to the patient. Indeed, these arrangements resulted in a situation where a Dublin Fire Brigade resource could be allocated to an incident if available, despite the fact that a National Ambulance Service resource was closer to the scene of the call and available for dispatch.

Ultimately, from a patient perspective, arrangements in Dublin need to ensure that when a 112/999 call is made for or on behalf of a patient with a potentially life-threatening condition, the nearest appropriate pre-hospital emergency care resource is immediately sent to them, regardless of which agency provides the response.

2.13 Joint Dublin City Council and HSE proposal to address this issue

As this review progressed to its conclusion, the Review Team was told that senior managers within Dublin City Council and the HSE had highlighted HIQA's ongoing concerns through their respective governance structures. It was also told that as a result of this process, both parties were required by their respective parent government departments to compose a joint proposal for resolving this significant patient safety risk for the population of Dublin. At the time of writing this report, HIQA had not been made aware of any further progress in this matter, and risk related to call handling and dispatch arrangements in Dublin remained unresolved.

2.14 Conclusion related to corporate governance, coordination and cooperation between services

It was clear to the HIQA Review Team that in contrast to the 2014 HIQA Review findings, lines of communication and formal governance arrangements were much improved between both services. This progress has been aided in particular by the formation of a close working relationship at senior management level within the HSE and Dublin City Council. Formalising governance arrangement has had knock-on benefits at less senior levels where joint working arrangements — which had been in some instances already in place — have been formalised and improved.

In addition, efforts to try to streamline control-centre coordination has resulted in genuine efforts to try to make current arrangements work better. Indeed, the degree of cooperation between the services required to improve arrangements is itself an improvement on the 2014 findings. However, these arrangements are as effective as they might possibly be as the services are currently configured. In the opinion of the Review Team, and based on the data gathered over one 24-hour period, they still result in inherent and potentially avoidable delay in the collective response by both service providers for a sizable number of patients.

It is clear to HIQA that — in common with the findings of numerous reviews by different parties in the past — current control-centre arrangements in Dublin are still not configured to provide the best possible service to patients. This represents a potentially serious risk to patients in Dublin. Ultimately, from a patient perspective, call-handling and dispatch arrangements need to ensure that when a call is made for or on behalf of a patient with a potentially life-threatening condition, the nearest appropriate resource is immediately sent to the patient, regardless of which agency provides this response. This does not currently happen.

Overall, while the practical working relationship between both service providers has improved since HIQA's 2014 review, it is clear to HIQA that underlying structural problems in relation to collective long-term planning and future strategy still need to be resolved. Ultimate decision-making with respect to how ambulance services will be provided in Dublin into the future is still pending. Outstanding risks will remain until such time as this issue is properly addressed.

It is imperative from a patient safety perspective that the status quo does not persist. It is therefore vitally important that senior decision makers act to resolve the existing risks that remain within a short timeframe following the publication of this report. In particular, current arrangements around call-handling and dispatch in Dublin must be revised as quickly and safely as possible, so that the ongoing risks identified in this report are addressed in as safe, timely and cost-effective way as possible.

What do these findings mean if I am a patient?

- Since 2014, the National Ambulance Service and Dublin Fire Brigade have worked more closely together to try to improve services for patients. This has meant that both services now work better together both in the short- to medium-term organisation of services, and in their day-to-day provision of pre-hospital emergency care.
- However, this improved approach to coordination and cooperation has not extended to shared long-term planning, and no combined strategy exists for pre-hospital emergency care services in Dublin. Ongoing uncertainty in this regard had led to a pause in continued progress in Dublin around collective investment. HIQA found that this hiatus and a lack of investment in the face of increased demand has eroded the ability of Dublin Fire Brigade to meet demand for ambulance services. This represented a high risk to patients with potentially life-threatening conditions who need an ambulance.
- In addition, improved day-to-day cooperation and coordination between providers has not gone far enough. If a patient or member of the public rings 112/999 for an emergency ambulance in Dublin, there is no means of ensuring that the nearest available appropriate resource from either service is always immediately sent to answer the call, regardless of whichever agency is providing the resource.
- HIQA raised concerns during this follow-up review around the level of emergency resources available in Dublin when compared to demand, and arrangements around how calls are taken and managed. As a result, measures were put in place to try to address these concerns to make ambulance services safer and better for patients. However, these changes do not fully address all of the risks identified.
- Further changes — which will need senior decision-maker agreement — are needed to truly address these problems, and in doing so make services as safe as they should be for patients.

Chapter 3 – Clinical governance and risk management in the National Ambulance Service and Dublin Fire Brigade

Summary of key findings

- A joint clinical governance group between Dublin Fire Brigade and the National Ambulance Service was established in February 2016. As a result, there was evidence of progress made in ensuring better communication, shared learning and standardisation of practices and equipment.
- A National Quality and Patient Safety Manager for the National Ambulance Service was appointed in July 2015. Improvements had been made in relation to risk management structures, which had been set out in a published action plan. However, more needs to be done to embed quality and safety best practice in the National Ambulance Service.
- Incident reporting and the management of complaints and compliments had improved overall in the National Ambulance Service. However, the percentage of clinical risks reported when compared to other types of reported incidents has remained relatively low.
- The pace of development of clinical audit in the National Ambulance Service has been slow between the 2014 and 2016 HIQA Reviews. This was attributed by senior management of the National Ambulance Service to lack of designated resources, supports and the full implementation of the electronic patient care records needed to automate data collection for clinical audit. These findings were similar to the findings of the initial 2014 Review.
- Progress has also been slow in developing key performance indicators for pre-hospital emergency care since HIQA's 2014 review. A national steering group with responsibility for devising a clinical key performance indicator framework for the National Ambulance Service was set up in March in 2016. There had been no published output to date from this group at the time of this review.
- Some progress has been made in implementing structures to support the 'hear and treat' model of care by the National Ambulance Service.
- Both emergency ambulance services have continued to play a key role in supporting the implementation of National Clinical Care Programmes requiring rapid access to treatment.
- The development of community first responder (CFR) schemes had improved, with a notable increase in the number of CFR schemes registered with the National Ambulance Service. However, a more targeted approach is needed to the development of these schemes where they are most needed. In addition, better governance of the established CFR schemes is also required.

3.1 Introduction

Effective clinical governance and risk management structures and practices are essential in ensuring the provision of quality and safe care for all healthcare services including the emergency ambulance service. Following the 2014 HIQA Review of pre-hospital emergency care, clinical governance and risk management arrangements were reviewed by the National Ambulance Service and Dublin Fire Brigade.

The following chapter outlines findings by the HIQA follow-up Review Team relating to the changes implemented since the 2014 review. In particular, this chapter will address findings related to Recommendations 5, 8, 10, 11 and 12 (see Appendix B) which focused on the following:

- improved clinical governance
- a review of corporate and clinical risk management
- improved assurance on the standard of clinical performance provided to the public through the start of clinical audit by the National Ambulance Service
- alternative models of care that provide direct access to a wider choice of care pathways other than emergency departments
- the development of a comprehensive national programme of community first-responder schemes
- the development and implementation of an ongoing community education programme to promote the appropriate use of ambulances and enhance public awareness of services provided by the emergency ambulance service.

3.2 Clinical governance for the National Ambulance Service and Dublin Fire Brigade

3.2.1 Background

Prior to the 2014 review, independent clinical governance structures were in place in the National Ambulance Service and Dublin Fire Brigade; however, their approaches differed. A formalised working relationship between the medical directors of both agencies did not exist at that time. Clinical governance structures within the National Ambulance Service and between the National Ambulance Service and Dublin Fire Brigade needed to be significantly upgraded in order to improve quality monitoring and performance from a clinical safety perspective. In addition, HIQA recommended in 2014 that structures to support shared learning from investigations following severe incidents, which had a potential to impact across both services, needed to be developed in order to further improve practices.

In addition, there had been limited internal quality assurance mechanisms which were focused on clinical governance and the clinical performance of practitioners in place in the National Ambulance Service at that time.

3.2.2 Changes to clinical governance

As outlined in Chapter 2, a joint implementation group was formed in January 2015 between the Health Service Executive (HSE) and the Dublin City Council. The function of this group was to address the recommendations of the HIQA report. The work of this group was overseen by a high-level governance oversight group. One of the priorities of the joint implementation group was to develop an integrated governance system across both services. A sub-working group was tasked with developing an integrated clinical governance model.

However, progress on implementing this proposed integrated clinical model was slow initially. Without an agreement on a long-term decision relating to this issue being reached, clinical governance has remained the responsibility of the medical directors of Dublin Fire Brigade and the National Ambulance Service. However, the 2016 Review Team found that some progress has been made in formalising integrated clinical governance arrangements between the two services.

3.2.3 A Joint Clinical Governance Group

The National Ambulance Service and Dublin Fire Brigade Clinical Governance Group was established in February 2016. Membership includes the medical directors from both services in addition to the Deputy Medical Director and the Emergency Medical Services Support Officer from Dublin Fire Brigade. The group meets on a monthly basis with the main focus being the alignment of clinical processes and procedures across both services.

The Review Team was informed that the arrangement was working well and was an improvement on the situation prior to 2014. The medical directors of both organisations stated at interview that their key priority was to formalise a process for the joint implementation of clinical practice guidelines issued by the Pre-Hospital Emergency Care Council to ensure consistency and standardisation of practices across both services.

To this end, a joint approach to the roll out of a clinical practice guideline has been agreed. It is anticipated by this joint clinical governance group that all clinical practice guidelines issued by the Pre-Hospital Emergency Care Council would be fully implemented by both services within 18 months of publication. It was also reported that both the National Ambulance Service and Dublin Fire Brigade have agreed in

principle to a harmonised approach to staff training in relation to new clinical practice guidelines and other upskilling that may be required^{††}

It was also reported during interview with senior managers that implementation of the Electronic Patient Care Record Project was ongoing in the National Ambulance Service. Funding for this project had been provided and the procurement process completed. The HIQA Review Team were informed that it is planned to pilot electronic patient care records in Cork in March 2017, with the intention to extend this to all operational areas within the National Ambulance Service within a 12 month period. Expansion of this project to include Dublin Fire Brigade was under discussion. Plans to coordinate the future procurement of medical equipment and electronic patient care records between the two organisations had also been discussed. However, the HIQA Review Team was informed that progress on coordinated procuring depended on further clarification relating to the provision of future funding for both services.

At the time of reporting, the joint clinical governance arrangements were in the early stages of development. The work carried out to date is to be welcomed. Such joint arrangements should be considered a positive building block in working towards the development of a future framework designed to support the delivery of coordinated and integrated governance of quality and safety in the provision of emergency ambulance services.

3.3 Risk Management in the National Ambulance Service

3.3.1 Background

Specific risk management deficiencies in the National Ambulance Service were identified in the 2014 HIQA Review. This section of the report examines what degree of progress has been achieved to date in addressing the deficiencies identified.

Recommendation 11 of the 2014 review report called for the National Ambulance Service to review the totality of its approach to both corporate and clinical risk management. This was to enable the service to effectively determine and manage risk at all levels of the organisation.

During the 2014 review, HIQA had found that improvements were required in the following areas:

- corporate and risk management structures and resources
- organisational and collective responsibilities relating to risk management

^{††} During the due process phase of completing this report, it was identified to HIQA that both the National Ambulance Service and Dublin Fire Brigade had also very recently formed a joint Drugs and Therapeutics Committee to collectively oversee the governance of medicines usage and medication safety measures.

- trend analysis of risk
- reporting culture relating to incidents
- sharing of learning from serious incidents
- feedback from service users and relevant stakeholders.

In addition, a need for improvements was identified relating to infection prevention and control issues. For example, the management of day-to-day cleaning of ambulances and routine rostering of ambulances for deep cleaning required improvement. The deficiencies outlined in the 2014 HIQA Review report were such that there was significant concern that the controls in place at that time were not sufficient to prevent the spread of healthcare-associated infection and therefore posed a potential risk to both patients and staff.

3.3.2 What has changed since the HIQA pre-hospital emergency care review?

3.3.3 Joint action plan

In response to the 2014 HIQA Review and recommendations, a joint action plan⁹ to address the findings of this report was developed. Six actions were to be implemented to address the deficiencies highlighted by HIQA relating to risk management as follows:

- appoint a National Ambulance Service National Quality and Patient Safety Manager
- review and agree the ambulance service's national quality and patient safety structures
- implement the HSE Open Disclosure National Policy
- implement the HSE Corporate Policy on Integrated Risk Management
- train all managers and supervisors on the risk management policy
- review on a monthly basis the Corporate Risk Register.

The time frame allocated for implementation of these recommended interventions was scheduled to run from April–June 2014 to October–December 2016. Two of these six actions had been completed at the time of this follow up review in 2016, while the remaining four actions had started and were ongoing at the time of drafting this follow-up report in early 2017.

3.3.4 Quality and safety organisational structure

A National Quality and Patient Safety Manager for the National Ambulance Service was appointed in July 2015. Minutes from senior management meetings viewed by the HIQA Review Team show that the focus on risk management within the National

Ambulance Service has improved at a senior management level in the interim period between the two HIQA reviews.

Regular review and updating of the National Ambulance Service Risk Register with escalation of high-rated risks to the HSE Corporate Risk Register was also evident during this review. The 2016 HIQA Review Team was informed that local and regional risk registers are now populated and risks are escalated as required. However, risk management at less senior levels was identified by HIQA as being less advanced at the time of this follow-up review.

The newly appointed National Quality and Patient Safety Manager reports to the Medical Director and is a member of the Medical Directorate. A National Ambulance Service Quality and Patient Safety Committee was not in place at the time of this follow-up review^{**}. Nonetheless, there was evidence of improved reporting of issues relating to quality and safety at senior management level following the 2014 HIQA Review. Senior management reports, such as the monthly Director's Report, are more comprehensive and demonstrated regular feedback relating to complaints, incidents and compliments from each of the three regional National Ambulance Service operational areas.

However, a lack of an effective connection between the National Ambulance Service's three operational areas and senior risk management arrangements was identified during this review. Integration of management structures between the National Ambulance Service operational areas and senior management needed to improve, while better support for area quality safety and risk management roles was also required. For example, the Review Team were informed that area quality safety and risk managers do not have a direct line of communication or working relationship with National Quality and Patient Safety Manager. This was also evident in the current reporting structure. A fragmented approach to the management of risk across the service remained, similar to the 2014 findings.

Quality safety and risk committees are in place in each of the National Ambulance Service areas. In contrast to the senior management meetings, minutes from area quality, safety and risk management meetings contained limited evidence of clinical risk being discussed as a standardised agenda item across each of the three National Ambulance Service areas.

A review of incidents occurring since the beginning of January 2016 up to 31 July 2016 showed that of the 364 incidents reported, 21 were sub-categorised as relating to clinical care. This represents a very low rate of reporting overall and an especially low rate of reporting relating to clinical care when considered against the overall

^{**} During the due process phase of this review, the National Ambulance Service stated that a National Ambulance Service National Quality and Safety Committee has been established. However it was stated that it had not yet met.

amount of patient interactions that occur on an annual basis. Many of the incidents reported related to staff health and safety issues, which are clearly important. However, more focus is needed on patient-centred incident reporting.

The HIQA Review Team was informed that revised draft arrangements relating to quality and patient safety governance structures within the National Ambulance Service were under consideration at the time of this review. As changes to current arrangements continue to evolve, efforts need to be enhanced to improve the links between the historical National Ambulance Service operational areas, and the developing quality and patient safety structures that have emerged at a more senior management level since the 2014 review.

3.3.5 Management of complaints, incidents and compliments

There was evidence of improvement in the collective management and reporting of complaints and compliments received from patients during this follow-up review. The 2016 HIQA Review Team was informed during interview with senior management staff that incident and near miss data are circulated to all staff members and feedback to individual staff members is also provided as required.

The National Incident Management System (NIMS)⁵⁵ was a regular item on the agenda of Leadership Team Meetings with evidence of increased reporting rates.

Implementation of the HSE Open Disclosure Policy and the HSE Corporate Policy on Integrated Risk Management was also underway, and staff training and awareness programmes relating to these policies were ongoing.

3.3.6 Infection prevention and control

An audit by the HSE's Quality Assurance and Verification Division¹⁰ was conducted between July and September 2015 on the National Ambulance Service's compliance with the *National Standards for the Prevention and Control of Healthcare Associated Infections*.¹¹ The audit identified specific findings and made several recommendations to be implemented across the service to ensure compliance with the National Standards. Similar to the findings of the 2014 review, the audit reported that limited assurances relating to the prevention and control of infections were in place in the National Ambulance Service.

In response to these findings, the 2016 Review Team was informed at interview that an Infection Prevention and Control Working Group had been set up and an action plan was in place to address identified issues. However, it was identified by HIQA

⁵⁵ National Incident Management System (NIMS) is a web-based system that provides support to the HSE and HSE-funded services and other participating organisations to risk manage incidents throughout the lifecycle. The system enables the identification of emerging trends, facilitates reporting of incidents to the States Claim Agency and improve patient and service user safety.

during the follow-up review that more needs to be done to ensure that practices relating to infection prevention and control are standardised across each operational area within the service if compliance with the National Standards is to be achieved.

Similar to the 2014 review, this audit again found that issues such as the need for adequate sluice facilities, processes for regular and deep cleaning of emergency ambulances and better assurance systems were recurring issues evident in the minutes of meetings viewed.

3.4 Clinical audit

3.4.1 Background

Tracking the performance of a service is essential to ensuring the provision of high-quality care to patients. Clinical audit is an essential quality assurance mechanism that facilitates the review of patient care in a systematic way, leading to improvements in the required standards of care and ultimately better patient outcomes.

The HIQA 2014 review found that there was a lack of a systematic process for reviewing patient care in place in the National Ambulance Service. This was not the case in the Dublin Fire Brigade which has a limited but long-standing practice of reviewing patient care records as part of a quality assurance and improvement mechanism.

Lack of clinical audit in the National Ambulance Service was identified by HIQA as being a significant barrier to effective clinical governance. It had been reported to HIQA during the 2014 review that the National Ambulance Service had identified that the lack of dedicated staff, electronic patient records and supporting infrastructure hindered the implementation of effective clinical auditing. The 2014 report had recommended the appointment of a clinical quality lead at senior level reporting to the Medical Director. It also recommended that clinical audit should be progressed without delay to assist in enhancing clinical governance capability. In making this recommendation, HIQA noted that clinical audit has been successfully implemented across many areas of the health service elsewhere, in an environment which predominantly use paper-based patient healthcare records. The limitations posed by a reliance on retrieval of such records did not act as an absolute barrier to audit elsewhere, and it was therefore determined that it need not prevent clinical audit in the National Ambulance Service.

The National Out-of-Hospital Cardiac Arrest Register (OCHAR) project¹² was established in June 2007 to report on out-of-hospital cardiac arrest outcomes. At the time of the 2014 HIQA Review, the National Ambulance Service had been monitoring return of spontaneous circulation on arrival at the emergency department in

bystander-witnessed out-of-hospital cardiac arrest (as per the Utstein criteria^{***}) as a continuous clinical quality indicator. Both the National Ambulance Service and Dublin Fire Brigade were contributing data to the out-of-hospital cardiac arrest national database at the time of the 2014 review.

3.4.2 What has changed since the HIQA pre-hospital emergency care review?

3.4.3 Clinical audit, resources and supports

In contrast to the level of transformation observed in other aspects of the National Ambulance Service that have happened since 2014, it is notable that the pace of development of clinical audit in the service has been relatively slow. The 2016 Review Team was informed that four audits were scheduled to take place in 2016. Three were referred to as being clinical audits and one was identified as being a process audit. These four areas for audit were:

- diabetic emergencies
- care management (an audit of compliance with documentation requirements in completing the care management section of the patient care report form)
- medicines management
- pain management.

Three of these were in progress at the time of the review and due for completion by the end of November 2016. These tentative steps towards the introduction of a more comprehensive approach to monitoring clinical performance are a welcome improvement on the 2014 findings. However, when these efforts are considered in the context of 1,600 pre-hospital emergency care practitioners attending to over 300,000 patients per annum, this clinical audit schedule represents an ongoing limited level of assurance around clinical safety.

The HIQA Review Team believes more needs to be done to enhance this audit programme.

It was reported to the follow-up Review Team that the paper-based patient record system currently in use and the ongoing lack of dedicated staffing resources remained a barrier to implementing effective clinical audit. However, this was also cited as a barrier to this issue during the 2014 review. The introduction of an electronic patient recording system was in progress in the National Ambulance Service at the time of this follow-up review with a projected implementation and full

^{***} The Utstein comparator group⁽⁶⁹⁾ are patients with cardiac arrest of presumed cardiac origin, where the arrest was bystander-witnessed, and the initial rhythm was ventricular fibrillation or ventricular tachycardia. Health services internationally measure performance in this subgroup of patients as it allows for a consistent definition of cases, and therefore enables more reliable benchmarking of performance.

roll out of this new system to be completed by the end of 2017. At the time of this review, Dublin Fire Brigade had not been included in implementing this system.⁺⁺⁺ HIQA note that arrangements at the time of this review, whereby both providers operate separate computer dispatch systems, will preclude the ability of Dublin Fire Brigade to seamlessly integrate with this initiative.

Evidence from minutes of the National Ambulance Service's Director's Report in June 2016 indicated that a clinical audit strategy was being developed to support clinical audit across the service. In addition, it was reported in these minutes that a clinical audit committee — which was to have been chaired by the Medical Director — was to have been established. However, this clinical audit committee was not in place at the time of this follow-up review.

3.4.4 Clinical outcome measurement

Both the National Ambulance Service and Dublin Fire Brigade continue to supply data to the out-of-hospital cardiac arrest national database at the time of this follow-up review. As a follow on to monitoring outcomes for out-of-hospital cardiac arrest patients, the National Ambulance Service has developed a performance improvement initiative aimed at improving the management of cardiac arrest and ultimately improving patient outcomes. The One Life Project⁺⁺⁺ was formally launched in early 2015 and seeks to increase out-of-hospital cardiac arrest survival rates in Ireland. Dublin Fire Brigade's participation in this project was under discussion at the time of this review.

Recorded survival rates for patients receiving care from the emergency ambulance service following an out-of-hospital cardiac arrest has demonstrated significant improvement since its introduction. The national target for 2016 was a 40% for return of spontaneous circulation (ROSC) on arrival at the Emergency Department.

Both the National Ambulance Service and Dublin Fire Brigade have demonstrated consistent compliance with this target since the beginning of 2016. In 2016, 43% compliance was achieved in quarter 1, and this increased to 53% in quarter 2. These rates compare favourably with other ambulance services, and have improved from a 24% survival rate recorded in quarter 4 2014.

HIQA notes that the link between improved survival rates and this programme have yet to be formally evaluated — it is recommended by the HIQA Review Team that such an evaluation occurs both to ensure sustained improvement where a causal link

⁺⁺⁺ HIQA were informed during the due process phase of writing this report that Dublin Fire Brigade representation had very recently been added to this project

⁺⁺⁺ The One Life Project is an initiative undertaken by the National Ambulance Service to improve the recognition, treatment and measurement of out of hospital cardiac arrest (OHCA) with the aim of improving survival rates in Ireland.
http://www.hse.ie/eng/services/list/3/National_Ambulance_Service/life/memo.pdf

is found, and in the interest in sharing learning with other ambulance services and among ambulance teams. Quality improvement initiatives resulting in improved patient outcomes such as this are a highly positive development and should be encouraged and further expanded upon.

3.4.5 Progress in developing additional clinical key performance indicators

With the exception of the One Life Project, there has been limited additional advancement since 2014 in relation to monitoring the patient's experience and other clinical outcomes for patients.

Information received and reviewed by HIQA during the early stages of this follow-up review indicated that progress had been slow in developing clinical outcome indicators for specific conditions as outlined in Recommendation 7 of the 2014 HIQA Review. Additionally, the original suite of clinical indicators — that HIQA had been told in 2014 were under development — had yet to be introduced into use by either the National Ambulance Service or the Dublin Fire Brigade two years later.

Since the HIQA 2014 review, development of a key performance indicator framework for pre-hospital emergency care services was commissioned by the HSE National Director for Ambulance Services and Emergency Planning. Terms of reference for this framework, viewed by the HIQA Review Team, were agreed in March 2016 and indicate that both the National Ambulance Service and Dublin Fire Brigade are represented on this group. A six month timeframe was allocated for completion of its work. It was planned to monitor and report against these newly developed key performance indicators by the July–September period of 2017. A project steering group with responsibility for developing an appropriate set of key performance indicators and implementation framework for pre-hospital emergency care had been due to start work in April 2016 and be completed by the end of 2016. This steering group has a broad based group membership with representation from relevant stakeholders such as emergency ambulance service providers, and key divisions of the HSE. The HSE's National Director of Quality Improvement chairs this group.

The Review Team were informed during senior management interviews that five clinical outcome indicators have been agreed up to November 2016 but had, on conclusion of this review, yet to be implemented across the service. Overall, the HIQA Review Team found that the pace of progress relating to Recommendation 7 has been slow since 2014.

3.5 National clinical care programmes¹³

Pre-hospital emergency care has a significant role to play in a number of HSE national clinical care programmes in place and under development. The 2016 Review Team was informed by senior managers of both services, that both have continued

to contribute to supporting the implementation of national clinical care programmes. Of note, emergency ambulance services play a pivotal role to the Acute Stroke Clinical Care Programme¹⁴ and the Acute Coronary Syndrome Clinical Care Programme¹⁵ through providing faster access to care.

It is important that the participation of emergency ambulance services is considered in further similar work conducted by these or other HSE clinical care programmes as needed into the future.

3.6 Conclusions related to the progression of clinical audit and outcome monitoring

Measuring the quality of care delivered by emergency ambulance services may be challenging. However, such assurance is important in determining how a service is performing and what needs to be done to improve and deliver high-quality, safe care to patients. Development and changes to service provision should be considered within the parallel ability of the service to monitor clinical performance to provide assurance on patient safety. Therefore, clinical audit and measurement against key performance indicators are important quality assurance mechanisms which need to be progressed as a priority.

3.7 Alternate patient care pathways

3.7.1 Background

The model of care provided by the emergency ambulance services in Ireland at the time of the 2014 review was one in which 100% of patients requiring an emergency ambulance were transported to hospital. HIQA proposed in Recommendation 5 (see Appendix B) of the 2014 review, that in keeping with practice in many other ambulance services internationally, alternative models of care should be considered and implemented. Alternate models of care offer direct access to care pathways other than emergency departments in larger hospitals. This recommendation was informed by identifying that the current model of care was unsustainable due to ever increasing demands on services working within finite resources.

There had been limited exploration of alternate models of care at the time of the 2014 review in both Dublin Fire Brigade and the National Ambulance Service. HIQA recommended that various options of care such as direct access to local injury units in smaller hospitals, 'hear and treat'^{§§§} and 'see and treat'^{****} alternatives, where appropriate, should be considered in line with international best practice.

^{§§§} Treat patients with certain conditions through telephone consultation and triage.

^{****} Treat patients at the scene and then discharge them; or when necessary refer or transport them to an alternate healthcare provider for follow-up care as required.

3.7.2 What has changed since the HIQA pre-hospital emergency care review?

The HIQA Review Team was informed through interview with senior management from both Dublin Fire Brigade and the National Ambulance Service that both organisations were committed to exploring the implementation and benefits of 'hear and treat' and 'see and treat' models of care. Discussion with emergency ambulance service providers in neighbouring jurisdictions on this subject has occurred. It was reported to the follow-up Review Team that the National Ambulance Service was developing a community paramedic pilot project as part of an EU project.

Community paramedicine is a relatively new model of care enabling paramedics closely connected to their communities to provide expanded services beyond their traditional role of emergency response.

Recommendation 5 outlined in the 2014 HIQA Review proposed the implementation of 'hear and treat' and provision of direct access to alternate care pathways. In addition, the HSE's own National Capacity Review further endorsed HIQA's view that a clinical hub desk be set up to enable the development and roll out of 'hear and treat' service to patients.

3.7.3 Hear and treat

In response to the HIQA 2014 recommendations, the National Ambulance Service has prioritised the implementation of the 'hear and treat' model of care. It was evident that efforts to progress this model of care had occurred. Efforts to recruit staff to operate a new clinical hub desk in the National Emergency Operations Centre had started at the time of this review. However, a commencement date for its introduction had not been finalised up to November 2016.

The HIQA Review Team was informed during interview with senior managers of the Dublin Fire Brigade that a more effective communication system is needed to enable direct communication between the computer dispatch systems in use in the control centres of both Dublin Fire Brigade and the National Ambulance Service prior to developing the 'hear and treat' model of care for patients in Dublin.

The final draft of the National Ambulance Service's strategic plan further outlines a new non-conveyance model of care which, if implemented, should benefit the National Ambulance Service, the wider health service and the patient. Much of the work to date has been focused on consultation, project development and developing the strategic plan. As things stand, other than the planned implementation of 'hear and treat' model of care and an exploration of the potential role for community paramedics, progress towards implementation of other models of care would appear to be something that patients are unlikely to benefit from for a number of years.

3.7.4 Alternate models of care in Dublin Fire Brigade

Exploring and engaging with alternate models of care is described as a key strategic governance success measure in Dublin Fire Brigade's Emergency Medical Services Strategic Plan 2015-2018. However, it was documented and reported to HIQA by Dublin Fire Brigade staff that some of the key quality improvement initiatives within this strategy depend on external factors beyond the control of Dublin Fire Brigade. It was explained to the Review Team during interview with senior management of Dublin Fire Brigade that the current uncertainty about its future role relating to the provision of pre-hospital emergency care in Dublin, was a barrier to progress with implementing new initiatives. In addition, the HIQA Review Team found the lack of clarification relating to future funding and resources has the potential to impact significantly on meeting some of the objectives within this strategic plan.

3.7.5 Conclusions related to progression of alternate care pathways

At interview, some members of the senior management team of both Dublin Fire Brigade and the National Ambulance Service expressed ongoing reluctance relating to non-conveyance models of care. It was suggested that applying these alternate models of care would not only be challenging but would impact on a very small percentage of the overall number of national calls. Therefore, it was communicated by both services to HIQA that their perceived understanding of the benefits offered by alternate models of care such as 'see and treat', and the level of paramedic upskilling required needs to be further explored in the context of the gains to be made from an operational and patient safety perspective.

HIQA notes that a variety of alternate patient care pathways have been implemented in many ambulance services internationally, and are now considered a routine element of many pre-hospital emergency services to ensure that available resources are used efficiently to ensure maximum benefit for the sickest patients.

Indeed, similar neighbouring ambulance services, such as those in Scotland¹⁶ and Northern Ireland,¹⁷ have long-established alternate care pathways which successfully and significantly divert patients away from potentially avoidable visits to hospital emergency departments. However, HIQA also note that the successful implementation of these alternate models of care are underpinned by established supporting services within wider healthcare and community care systems, which in many cases have yet to be developed in Ireland. Changes to the provision of care by these ambulance services has been reported as impacting positively on performance, effective use of resources, reduced hospital admissions and patient satisfaction with the service. As a result, it is evident that such a change is both achievable and desirable.

However, a key enabler for introducing such services in a safe fashion is a requirement for good assurance mechanisms around the clinical safety of care, particularly through clinical audit and clinical outcome measurement. The ongoing limited approach to clinical audit, in the National Ambulance Service in particular, is a key barrier to progression of alternative care pathways. While 'hear and treat' options may be more suitable for progression as things currently stand (due to oversight of compliance with clinical protocols in place in a control centre environment through this model), further care pathway options will be stymied until such time as better clinical governance oversight arrangements are in place.

In addition, the lack of an overall collective strategy between both service providers to change the current model of care to include alternative patient treatment pathways is a barrier to progress. It is important that an interagency and coordinated approach is applied to future developments in order to avoid a two-tiered approach to providing care across the country.

3.8 Community first responder schemes

3.8.1 Background

Recommendation 10 from the 2014 HIQA Review specifically relates to the emergency ambulance service provided by the National Ambulance Service, and the need for it to further facilitate the development of a comprehensive national programme of community first-response schemes in all rural and sparsely populated areas.

The current survival rate of out-of-hospital cardiac arrest (OHCA) in Ireland is 6.9% (a rate similar to many comparable countries). Survival rates decrease significantly in the absence of appropriate intervention. It is recognised that community first responders can play an important role in providing the first response to patients experiencing out-of-hospital cardiac arrest before the arrival of the emergency services. Community first-response schemes are an invaluable additional resource in the provision of first aid for other conditions, particularly in rural and sparsely populated areas.

The 2014 HIQA Review identified a need for improved distribution and coverage of community first responder schemes in many counties across Ireland. HIQA acknowledged that more volunteerism would be needed in order to achieve this. Increasing the number and coverage of these schemes across the country would enable the National Ambulance Service to improve its performance level — especially its ability to meet the first response target times in some areas; a view later shared by the HSE's own National Capacity Review.

The National Capacity Review reported that additional resources would be required in each National Ambulance Service deployment areas to improve rapid first response times to life-threatening ECHO and DELTA calls. Emergency activity in less populated rural areas covered by the National Ambulance Service equates to approximately 40% of emergency activity. The proportion of activity also varies within deployment areas. The National Capacity Review identified that community first responder schemes could bring particular additional benefit in rural areas located greater than 5km from the nearest National Ambulance Service deployment point.

At the time of the 2014 HIQA Review, there were 104 active community first responder schemes then nationally registered by the National Ambulance Service. Distribution of these schemes was unevenly dispersed across the country. Some counties, such as Wicklow and Cork, had a much higher concentration of schemes while others, including many along the western seaboard, had none at all.

Prior to 2014, many community first responder schemes and initiatives were established across Ireland with a common aim to improve outcomes for patients suffering cardiac arrests within their own community. These schemes and groups evolved over time and largely depended on volunteers due to the absence of formal existing support structures. CFR Ireland¹⁸ - the National First Responder Network was a new organisation at the time of the 2014 HIQA Review. It is a national organisation that aims to support and assist community first response schemes in Ireland in collaboration with the National Ambulance Service. It also links in with other voluntary organisations such as the Irish Heart foundation. CFR Ireland offers a central contact point for community first responder schemes across Ireland.

3.8.2 What has changed since the HIQA pre-hospital emergency care review related to CFR schemes?

In January 2017, the HIQA Review Team was informed by the National Ambulance Service that there were now 146 schemes currently affiliated with the National Ambulance Service. This represented an increase of 42 schemes since 2014. The HIQA Review Team was informed at interview with senior management of CFR Ireland, that much progress had been made by CFR Ireland since it was established in 2014. Approximately 135 CFR schemes were affiliated with the network at the time of writing this report; 50 of which were supported by CFR Ireland in the last year. Not all schemes were however linked to the National Ambulance Service.⁺⁺⁺⁺

⁺⁺⁺⁺ It was explained to HIQA that some of these schemes were in the early stages of development and therefore not yet live with the National Ambulance Service, whereas others had formed on a more informal basis, and operate a local defibrillator system with phone numbers of local responders supplied. CFR Ireland explained to HIQA that it does not endorse this as an efficient system, but they continue to engage with such systems as they often evolve into National Ambulance Service linked systems.

A good working relationship between both organisations was described by staff of the National Ambulance Service and CFR Ireland.

The HSE's National Capacity Review recommended that the demand for emergency response to ECHO calls needed to be of a sufficient level to justify Ambulance Service targeting of the establishment of new schemes. In addition, such schemes needed to be resourced, supported and maintained to ensure their sustainability. The National Capacity Review report identified 82 potential new locations for community first responder schemes. HIQA found that in 14 of these 82 locations, new schemes had been established since the 2014 HIQA Review.

However, this review identified that some schemes remain unaffiliated with the National Ambulance Service. In addition, the formation of new schemes is very much driven by local volunteerism, which is of course very welcome and needed. However, greater success in establishing schemes in areas prioritised by the National Capacity Review should be encouraged.

3.8.3 Clinical governance of CFR Schemes

Required improvements in governance of quality and safety in community first responder schemes were identified by senior management in the National Ambulance Service and CFR Ireland during this review. Ambiguity was evident at different levels of management relating to the overall governance and operational responsibility for existing community first responder schemes.

Community first responder schemes are established on a voluntary basis, are generally independent, and are self-sustaining. However, their main function in situations where they are linked to the National Ambulance Service is in the provision of first responder care to ill patients on behalf of the National Ambulance Service. Therefore, community first responder schemes are expected to operate in compliance with the National Ambulance Service local policy and standard operating procedures as relevant.

In turn, the National Ambulance Service provides the necessary supports outlined in its policy to linked schemes, such as clinical indemnity, clinical guidance, expert advice and support, replacement of consumables, clinical waste management and critical incident stress management. However, potential risks were identified by HIQA during the review relating to current governance and management arrangement in place for some existing linked community first responder schemes.

There were some inconsistencies in the monitoring and oversight of a small number of existing community first responder schemes not fully integrated within the National Ambulance Service. In addition, clinical audit and audit of operational effectiveness of each scheme by the National Ambulance Service — as outlined in

the National Ambulance Service policy relating to community first responder schemes as being an important safety control — was not in place at the time of this review. This meant that, while HIQA had no evidence to suggest poor practice, at the time of this review, there were a lack of quality assurance mechanisms around the clinical safety of care provided.

The Review Team was also informed that some community first responder schemes, which are in existence for longer time frames, do not have updated mobile phones with appropriate communication systems that enable the first responder to communicate to the control and command centre of the National Ambulance Service to inform when they are on scene.

In response to the above risks, the National Ambulance Service performed a risk assessment in August 2016 which outlined additional controls that are required to mitigate these risks. These risks were also added to the National Ambulance Service's Corporate Risk Register.

3.8.4 National Community First Responder Strategy

A draft National Community First Responder Strategy has since been developed jointly by the National Ambulance Service and CFR Ireland outlining the strategic direction for the development of future community first responder schemes.^{****} The aim of this draft strategy is to improve clinical outcomes for patients experiencing emergency life-threatening situations by achieving a number of critical objectives. These include:

- supporting the development of current community first responder schemes
- promoting the establishment of new schemes in rural or sparsely populated areas
- increasing the range of response provided by first responders at an incident.

The ultimate aim of these objectives is to improve survival and decrease morbidity of patients experiencing life-threatening conditions. An implementation plan for these objectives is included in this strategy. HIQA found that the community first responder strategy is still in draft form only. The allocated timescales for full implementation of this draft strategy, as outlined in the joint action plan and draft strategy implementation plan, is the end of 2020. Several potential challenges were described to the Review Team in delivering this community first responder strategy relating to:

- resources

^{****} HIQA were informed during the due process phase of completing this report that this strategy was signed on 4th March 2017, and renamed the National CFR Framework

- training
- communication
- the lack of a national community first responder forum to assemble the main stakeholders, to coordinate and oversee the strategy's implementation.

The recruitment process for three new community engagement officers for each of the National Ambulance Service areas had started in early 2016. It was anticipated that these new positions would be in place by early 2017 and should have a role to play in implementing the community first responder strategy once appointed.

As part of this national strategy, a new national forum for community first responder schemes to include representatives from the National Ambulance Service and CFR Ireland is planned. The aim of this forum will be to provide the appropriate governance, coordination for the implementation of this strategy, and to support and assist community first responder groups. The Forum for Community First Responder Schemes should have a key role to play in implementing this strategy and had been due to have been in place by the end of 2016. However, this forum group had not been established up to November 2016. The time frame for full implementation of this community first responder strategy, as outlined in the National Ambulance Service Action Plan for HIQA Review and Capacity Review Recommendations, is the end of 2020.

The Review Team was informed that an examination of all community first responder schemes that receive call outs from by the National Ambulance Service was intended to have been carried out by the National Ambulance Service in January 2017, and would continue on an annual basis thereafter. The controls outlined in the National Ambulance Service risk assessment relating to community first responder schemes need to be swiftly acted on in order to assure patient and first responder safety and to ensure safe effective care. Formal connection and integration of all community first responder schemes to the National Emergency Operations Centre should be prioritised by the National Ambulance Service.

Additionally, the governance of community first responder schemes needs to be strengthened and supported by placing such governance on a more formal footing. Given that the National Ambulance Service initially receives the 112/999 call and then activates a third-party response, it is HIQA's view that the National Ambulance Service need to take greater responsibility for oversight of third-party involvement in patient care, as routinely occurs in many other ambulance services internationally.

3.9 Community education programmes

3.9.1 Background

Recommendation 8 from the 2014 HIQA Review identified that more needed to be done by both the National Ambulance Service and Dublin Fire Brigade to implement an ongoing community education programme. The overall aim of this recommendation was to improve:

- public awareness on the appropriate use of ambulances
- the skill set of ambulance staff and
- the use of alternate care pathways.

Community education programmes offer a means to improve public education, promote public involvement and improve efficient use of resources.

3.9.2 What has changed since the HIQA pre-hospital emergency care review?

The National Ambulance Service's action plan in response to the 2014 HIQA Review outlined three proposed actions to address this recommendation:

- design and implement a national patient education programme on the appropriate use of 112/999 calls and the use of alternative care pathways
- the National Ambulance Service and Dublin Fire Brigade to implement a national community education programme on the use of alternative care pathways
- appoint a community engagement officer in each National Ambulance Service operational area.

A time frame of up to the end of 2018 was outlined to implement these interventions. The action plan indicates the intention to recruit new community engagement officers by the end of 2016. The Review Team was informed that the recruitment for these posts was completed in early 2017. In addition, documentation viewed indicated that progress on implementing the actions outlined in the action plan depended on attracting funding in 2017.

While tangible progress in introducing a structured community communication programme was limited at the time of this review, noteworthy initiatives were evident in both Dublin Fire Brigade and the National Ambulance Service. Dublin Fire Brigade has an established school visits programme in Dublin promoting the fire and emergency services provided by the service. This programme was updated to include education on the appropriate use of emergency ambulance services following the 2014 HIQA Review. There is scope to expand this programme into the wider Dublin community in the future. In addition, both Dublin Fire Brigade¹⁹ and the

National Ambulance Service²⁰ have participated in reality television series which have given viewers an insight into the services provided to the public.

This follow-up review concluded that progress — as outlined in the action plan addressing Recommendation 8 of the 2014 review — has been slow. The National Ambulance Service's Vision 2020 Strategy focuses on improving patient centred pre-hospital emergency care in the future. Patient participation and engagement is crucial in achieving successful implementation of this strategy, and therefore the initiative outlined need to be supported and developed.

3.10 Overall conclusion related to clinical governance and risk management

Significant progress has been made at many levels across the National Ambulance Service while responding to increasing demand on services. As has been highlighted throughout this chapter, progress in implementing the action plan developed following the 2014 HIQA Review to address Recommendations 5, 8, 10, 11 and 12 was evident.

However, limited progress had been made in developing and implementing assurance mechanisms such as clinical audit and outcome measurement since the 2014 HIQA Review. The ability of the national Ambulance Service to monitor clinical performance and risk, in order to provide assurance on quality and safety of patient care, needs to be progressed as a priority. Effective clinical oversight, including clinical risk management, is a crucial enabler to enhance clinical practice to the level required to implement alternate models of care.

A need for better clinical oversight and stronger governance of community first responder schemes were also identified during this follow-up review. Development of new community first responder schemes is intrinsically linked with the implementation of a comprehensive community education programme. Building community awareness on the function, role and most appropriate use of emergency ambulances can be paralleled with promoting the volunteerism necessary to establish community first responder programmes in targeted rural and sparsely populated areas.

HIQA acknowledges that the resources and complexities of the ongoing National Ambulance Service reform agenda. It is also recognised that it will take time and extensive resources to realise the goals laid down in the National Ambulance Service's Vision 2020 Strategy. A critical first step along this development pathway is the introduction of more comprehensive clinical audit and outcome measurement mechanisms. Efforts need to be redoubled to further strengthen this part of the National Ambulance Service following this review.

What do these findings mean if I am a patient?

- A commitment to improving patient care and how it is delivered was evident at every level of both Dublin Fire Brigade and the National Ambulance Service during this Review. Many new initiatives are under development. It is going to take time before patients benefit fully from these initiatives.
- Evidence indicates that out-of-hospital cardiac arrest survival rates have improved in Ireland, and compare favourably with performance recorded by other ambulance services.
- More needs to be done to monitor the care provided to patients by the emergency ambulance staff to ensure high-quality care is consistently provided to improve patient outcomes for other conditions.
- The only treatment pathway currently available to ill or injured patients ringing for an ambulance is to be transferred to an emergency department. Other treatment options need to be developed to provide patients with the most suitable care, in an appropriate setting, closer to home and within their communities.
- The lack of community first responder schemes in several counties in Ireland can potentially result in delay in first responder care. This means that patients in these areas may not receive the care they need within a time frame fast enough to prevent deterioration of their condition. The public can help by volunteering for new or existing groups within their local communities.

Chapter 4 – Workforce and Service Performance

Summary of key findings since the 2014 HIQA Review:

Workforce:

- The National Ambulance Service has developed a five-year workforce plan for 2016–2020 in response to the 2014 HIQA Review. This means that the service now has a clear understanding of current staffing resources and what is needed to deliver a safe, high-quality and responsive service to patients over the coming years. However, continued support of this five-year workforce plan is essential if the National Ambulance Service is to achieve the changes necessary to drive and sustain improvements for patients.
- The National Ambulance Service has taken action to address its reliance on staff overtime by increasing the intake of trainee paramedics annually since 2014. The relief factor required to cover sick leave, annual leave and training has increased to 21%, but remains below the recommended 34%. However, the benefits of the measures implemented so far will not be fully realised for a number of years due to a limit on the annual rate at which staff can be safely recruited and trained.
- The National Ambulance Service has begun to strengthen the focus on training and development needs of all staff, including managers.

Performance:

- The National Ambulance Service has moved from six control centres across Ireland to one single National Emergency Operations Centre over two sites. This means that the National Ambulance Service can now dispatch the most appropriate resource for every incident across Ireland regardless of location (with the exception of the Dublin area covered by Dublin Fire Brigade).
- In contrast to findings at the start of the 2014 review, and in keeping with existing Dublin Fire Brigade practice at that time, the National Ambulance Service are now using advanced quality assurance reporting (AQUA) to audit 3% of all emergency calls received in the control room to ensure compliance with international best practice standards.
- The implementation of dynamic deployment by the National Ambulance Service or Dublin Fire Brigade has not progressed since the 2014 HIQA Review. This is contrary to HIQA recommendations from that time.

- The process for oversight of turnaround times at hospital emergency departments is now more operationally formalised and embedded in ambulance services. There is still some scope for improvement in communications between Dublin Fire Brigade and the acute hospitals and between both ambulance services and the Acute Hospital Division of the HSE.
- In the context of a significant increase in demand annually for ambulance services provided by both the National Ambulance Service and Dublin Fire Brigade up to 2016, emergency response time performance has remained stable rather than showing any improvement.
- Expenditure on maintenance and upgrading of the National Ambulance Service fleet has almost doubled from €7.5 million in 2014 to €14.5 million in 2016. The average age of an emergency ambulance deployed by the National Ambulance Service has reduced from 6.4 years in 2014 to 4.2 years in 2016.

4.1 Introduction

The following chapter outlines findings by the HIQA follow-up Review Team relating to the changes implemented since the publication of the 2014 HIQA Review. In particular, this chapter will address findings related to Recommendations 6, 7 and 9 of the 2014 review (see Appendix B).

This cohort of recommendations collectively called for:

- better workforce planning by the National Ambulance Service
- more effective support structures for managers in the National Ambulance Service, including a review of job descriptions, assessment of management capabilities and provision of routine and ongoing training for managers.
- more comprehensive and balanced monitoring of service performance by the National Ambulance Service and Dublin Fire Brigade, to include clinical, response time and other key performance indicators for pre-hospital emergency care.

4.2 Workforce Planning

4.2.1 Background

One of the key findings from the 2014 HIQA Review was that the National Ambulance Service had an underdeveloped approach to workforce planning. This meant that it could not anticipate its current or future staffing requirements to support the service's overall strategic direction or future demands on the service.

While the National Ambulance Service had an internal Human Resources and Organisational Development Strategy for 2013 to 2018, this strategy did not outline the required resources for service delivery or the necessary anticipated requirements to deliver any future service model. The 2014 HIQA Review also found that while the National Ambulance Service had increased the number of call-takers and dispatchers, the rate of recruitment and training for new entrant paramedics had not kept pace with demand and had in fact declined to the point that the National Ambulance Service was becoming ever more reliant on both overtime and the cutting back of ambulance service provision. The number of advanced paramedics required to achieve the appropriate response to certain emergency calls was also less than ideal in both the National Ambulance Service and the Dublin Fire Brigade.

4.2.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

Since the 2014 HIQA Review, the National Ambulance Service has made a number of changes to address the workforce issues identified by HIQA. The National

Ambulance Service commissioned an external consultant to three key strategic human resources related plans:

- a human resources (HR) people-plan
- an organisational structure and governance plan
- a workforce plan.

At the conclusion of the follow-up review, one of these three plans was in draft format and all three were closely aligned to the HSE's corporate strategy; the HSE's people plan; and the National Ambulance Service's Vision 2020 strategy. The Workforce Plan 2016 to 2020 and the HR Plan 2016 to 2020 have been approved by the National Ambulance Service for implementation across the service.

The implementation of a number of the recommendations in both plans has already been started by the National Ambulance Service in response to the 2014 HIQA Review. The draft organisational structure and governance plan was in the earlier stages of development and was yet to be finalised at the conclusion of the follow-up review^{§§§§}. The HR and workforce documents were reviewed by the 2016 HIQA follow-up Review Team and key findings are described below.

4.2.3 HR people strategy 2016 to 2020

The HR people strategy describes deliverables and action plans under strategic priorities aligned with the HSE people strategy 2015 to 2018. These include priorities which were identified as deficiencies in the HIQA 2014 review such as:

- leadership and management development programmes
- clarity on roles, responsibilities and accountability arrangements
- development of a staff engagement and communication model
- development and implementation of a workforce plan
- implementation of clinical supervision and audit.

4.2.4 Workforce planning 2016 to 2020

The 2016–2020 workforce plan describes a best estimate for future resource requirements using a number of different model scenarios, including requirements for implementing the recommendations of the HSE-commissioned National Capacity Review. The analysis describes the requirements for each year from 2016 to 2020 for the following grades:

- paramedic grades
- National Emergency Operations Centre

^{§§§§} During the due process phase of this review, the National Ambulance Service stated that the draft organisational and governance plan is due to be submitted to the HSE for approval in March 2017

- intermediate Care Operatives
- management, administration and miscellaneous grades.

The 2016 Review Team found through documentation review and interview with senior National Ambulance Service management that the service now has a much clearer understanding of both current staffing resources and the resources required to deliver a safe, high-quality and responsive service to patients over the coming years. Implementation of this plan will require a year-on-year increase in staffing resources to ensure the most appropriate and effective human resources are in place.

The majority of staff in the National Ambulance Service work as part of the complement of emergency medicine technicians (EMTs), paramedics and advanced paramedics who act as ambulance crew to provide pre-hospital emergency care.

The 2014 HIQA Review had found that the number of trainee paramedics recruited in 2013 and 2014 had been insufficient to meet attrition rates experienced by the National Ambulance Service. In response to this issue, recruitment of trainee paramedics has increased year on year with an estimated recruitment of up to 112 trainee paramedics for 2017. This is the maximum number of trainee paramedics that can be accommodated in the National Ambulance Service Training College.

Data taken from the National Ambulance Service's workforce plan indicated that in September 2015, it was calculated that the service required an additional 701^{*****} staff across different grades to fill gaps in the service at that point and to primarily meet its future capacity needs (assuming full agreement to fund recommended staffing levels as outlined as required in the National Capacity Review).

This equated to an estimated requirement for:

- 610.6 paramedic and advanced paramedic staff
- 66.4 intermediate care operatives
- five staff for the National Emergency Operations Control Centre
- 19 other staff.

4.2.5 Vacancies for approved positions at the time of this review

It was reported to HIQA at interview that the National Ambulance Service had 109 vacant paramedics and advanced paramedics posts that were approved to be filled at the time of the review.

Newly qualified paramedics were being prioritised to:

***** This figure is based on data from September 2015, which therefore may have changed in the interim.

- fill posts in the newly opened stations in Mulranny, Co Mayo, and Tuam, Co Galway
- aid in the elimination of on-call in the west of Ireland
- address deficiencies in the service, such as the overreliance on overtime.

4.3 Overtime and elimination of on-call

4.3.1 Background

The 2014 HIQA Review found that declining paramedic numbers had resulted in a reliance on the payment of overtime to staff ambulance rosters, or in some cases the dropping of ambulance shifts.⁺⁺⁺⁺ This practice has been repeatedly identified in numerous ambulance service reports to be less than ideal as it results in excessive staff working hours over the course of a weekly roster, and it can result in delay in responding to a call. The 2014 HIQA Review also found that the practice of on-call activation⁺⁺⁺⁺ was in place in some stations in counties Donegal, Sligo, Leitrim and Mayo. HIQA recommended that this practice cease following the 2014 HIQA Review.

4.3.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

During this follow-up review, senior National Ambulance Service management stated that the National Ambulance Service was working to address a reduction of overtime across the service in order to ensure compliance with the European Working Time Directive. To achieve this, the service had started implementing its human resource workforce plan by:

- placing a monthly cap of 12.5% on overtime, which equates to one in eight shifts being covered by overtime
- deploying newly qualified paramedics to areas with high overtime requirements
- prioritising the elimination of on-call in the west of Ireland by allocating 27 out of the identified 30 extra staff required to achieve this. (The National Ambulance Service was facilitating staff to transfer nationally and allocating non-rostered staff to rostered posts with an aim to have on-call eliminated by the end of 2016).
- improving the relief factor — reported to be 21% at the time of this follow-up review — towards the recommended 34% required to cover annual leave, sick leave and staff training.

⁺⁺⁺⁺ Dropped shifts refer to times when an emergency ambulance is not available due to non-availability of staff.

⁺⁺⁺⁺ On-call activation is a process where a crew remains available to respond to calls outside of and in addition to their normal working hours, usually from home.

In the National Ambulance Service workforce plan 2016 to 2020, the Service estimated that under the current service model, 148 whole-time equivalent posts would need to be covered by overtime in 2016. It was also anticipated that due to training constraints, and indeed the requirement to prioritise posts as described above, this level of overtime will be required until 2019 to fill gaps identified.

In addition, senior National Ambulance Service management stated during interview that dropped shifts may still occur during this transformation process, but not to the same extent as they did in 2014.

4.3.4 Dublin Fire Brigade workforce related findings

4.3.5 Background

The 2014 HIQA Review found that the relatively low number of advanced paramedics available for deployment within Dublin Fire Brigade was such that it was unable to routinely meet Pre-Hospital Emergency Care Council standards — for ensuring that all patients who would potentially benefit from the added spectrum of therapies that such a practitioner could provide beyond those of a paramedic — in all cases.

Furthermore, the model of service employed by Dublin Fire Brigade included the use of fire appliances to provide a first response to all life-threatening ECHO calls and a small number of DELTA calls. The 2014 HIQA Review Team found that Dublin Fire Brigade had been increasingly relying on the practice of mobilising fire appliances to provide a first response to patients in Dublin due to a lack of available emergency ambulance resources. HIQA, at that time, found that there had been no compelling evidence to support use of fire appliances for such a response, and had recommended that the practice of sending a crew of five trained paramedic firefighters in such a vehicle to calls be reviewed in the context of having insufficient emergency ambulance resources to meet demand.

4.3.6 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

At the time of this 2016 follow-up review, HIQA found that between 2014 and 2016 the Dublin Fire Brigade had increased the number of advanced paramedics by ten whole time equivalent positions. However, notwithstanding this increase, ongoing problems as identified during 2014 with respect to the ability to ensure that advanced paramedics are deployed to all calls where such a response might offer additional benefit remained, due to continued limited absolute numbers. In addition, the reliance on fire appliances to provide a first response had increased. The reason given at interviews with senior Dublin Fire Brigade management for the continued shortfall in the number of advanced paramedics was due to a reported current

restriction to four places for Dublin Fire Brigade staff on the advanced paramedic programme to allow training to be prioritised for paramedics working in rural areas.

Advanced paramedics in Dublin Fire Brigade are currently deployed to rapid response vehicles, emergency ambulances and on fire appliances. Advanced paramedics deployed to fire appliances who attend the scene of a medical emergency will travel in the ambulance with the patient to the hospital.

4.3.7 Conclusions relating to workforce planning

The current workforce plan was in the early stages of implementation within the National Ambulance Service and needs to be finalised. Recruitment numbers for paramedic training programmes have increased and the service has begun to address legacy issues in relation to overtime and dropped shifts. Such improvements should be considered a positive development from where the service was in 2014.

However, full implementation of this plan will depend on a number of factors including receipt of appropriate financial resources annually to deliver the incremental changes required to propel improvements within the service.

4.4 Management training

4.4.1 Background

Recommendation 9 of the 2014 HIQA Review had identified the need for more effective support for managers at all levels. HIQA found that:

- job descriptions, roles and responsibilities for managers needed to be reviewed
- management capabilities needed to be assessed against job descriptions
- improved routine and ongoing training of core areas for managers was needed
- attendance at many management training courses provided by the National Ambulance Service Training College needed to be supported and improved.

4.4.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

4.4.3 Training

In response to Recommendation 9 of the 2014 HIQA Review, an evaluation of 19 job descriptions at executive, management and supervisory level had been completed. National Ambulance Service senior management reported that efforts to improve supports for managers has also been addressed as part of the draft National Ambulance Service's organisational structure and governance plan. In addition, competencies specific to roles had also been identified as part of this draft plan.

A review of documentation and interviews with senior National Ambulance Service management during the 2016 follow-up review highlighted that a significant proportion of staff were attending ongoing development training. However, attendance varied between the three National Ambulance Service regions and training dates sometimes had to be re-scheduled. Similar to the 2014 review, it was reported to HIQA by some staff that the ongoing demands of the job meant that staff were not always available to participate in this training.

4.4.4 Conclusions relating to management training

Findings from this 2016 HIQA follow-up review indicated that the National Ambulance Service has put plans in place with a focus on developing the training and development needs of staff. However, in the interim the National Ambulance Service should focus on efforts to improve staff attendance at training to help drive the development of the national training programme across the service.

4.5 Staff wellness

Interviews with senior National Ambulance Service management during the 2016 follow-up review highlighted that following the 2014 HIQA Review, the National Ambulance Service has worked to develop communications systems between front-line staff and management. This has included the introduction of:

- a communications working group which meets quarterly
- a staff newsletter
- a clinical newsletter
- a staff survey.

Between 2014 and 2016, the National Ambulance Service supported 34 staff to participate in professional training programmes facilitated by external educational bodies. The service has also started a staff wellness project which was being piloted in the National Emergency Operations Centre to include training for staff on clinical incident stress management. As part of the National Ambulance Service staff wellness programme, training was provided to managers and supervisors on risk management and incident investigation management.

4.6 Quality monitoring and performance

4.6.1 Background

Recommendation 7 in the 2014 HIQA Review called for the National Ambulance Service and Dublin Fire Brigade to improve their collective approach to the measurement and public reporting of clinical response time and other key performance indicators.

In the 2014 HIQA Review, the issue of a potential need for additional available capacity for the National Ambulance Service and Dublin Fire Brigade to deploy appropriate resources within a desired time frame was acknowledged by HIQA. This requirement was subsequently and definitively confirmed by the National Capacity Review. However, both HIQA and then the National Capacity Review noted that both the National Ambulance Service and Dublin Fire Brigade's approach to the management of call-handling, dispatch, mobilisation and dynamic deployment were all factors which could be improved to contribute to better performance without additional extensive financial investment.

The National Capacity Review supported the findings of the earlier 2014 HIQA Review by identifying the following issues in the National Ambulance Service:

- potential to reduce the mobilisation time of ambulance crews through investment in vehicle and control room technology, and improved management focus
- potential to reduce the time it takes vehicles to drive to the scene of an incident by reviewing the points from where the vehicles start.

Taken together, the National Capacity Review estimated that enhancements in both these areas could improve the National Ambulance Service's performance against performance indicators as follows:

- 7 minute 59 second performance for a first responder at the scene of life-threatening ECHO and DELTA calls by 9.1%
- 18 minute 59 second performance for a patient transport vehicle at the scene of life threatening ECHO and DELTA calls by 3.7%.

It was also recognised that the full benefits of this change would not be realised until new technology and the centralised control room infrastructure was in place.

In addition, the National Capacity Review recommended that measurement of response times for calls for public reporting purposes and performance management should be recorded in the following categories:

- major urban
- minor urban
- rural.

It was also of concern to HIQA in 2014 that the National Ambulance Service had ceased to publicly report performance against the 7 minute 59 second key performance indicator for a first responder at the scene of potentially life-threatening ECHO and DELTA calls.

The 2014 HIQA Review team had looked at the sequence of individual process steps within the pre-hospital emergency care patient pathway as part of the review. They had found that improved performance could be achieved by improving processes and performance management in:

- call handling (including address verification)
- dispatch
- resource mobilisation.

HIQA recommended that performance management of each step of the process should therefore be a key priority for an ambulance service focused on improving and optimising patient care. There was also significant scope for improving the information and technology systems. Notwithstanding the need for investment to transform the service, HIQA found that much of the improvements needed could be achieved within the existing resources at that time.

Chapter 3 of this report highlights that efforts by the National Ambulance Service and Dublin Fire Brigade to implement clinical audit and monitor clinical outcome performance indicators are still in the early stages of development, with the exception of out-of-hospital cardiac arrest.

In the absence of performance information relating to the clinical outcome indicators, the remainder of this chapter will focus on response time performance and other operational improvements relating to performance. Further information related to relevant response time performance related data is contained in Appendix C of this report.

4.6.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

During this follow-up review, it was reported to HIQA that the National Ambulance Service has seen a fundamental growth in emergency demand. This increase was calculated in the National Capacity Review to be 6.5% per annum from 2011 to 2013, which it stated was in line with international findings. It also found that Dublin Fire Brigade emergency demand growth was 1% for the same period. More recently, data identified during this review has found that the National Ambulance Service had seen an increase in the total number of calls received from 2014-2016 of 8% per year. Similarly, the Dublin Fire Brigade have seen an increase in the average number calls per month of 3.3% in the period between January and June 2016, when compared to the same six month period in 2015.

Table 1 – The National Capacity Review estimation of the level of improvement in response time performance that might be achieved if recommendations contained in the report were implemented across the National Ambulance Service

Response Time Key Performance Indicators for ECHO and DELTA calls^{§§§§§}		First Responder on scene in 7 minutes 59 seconds	Patient transport on scene in 18 minutes 59 seconds
2014 national performance level^{*****}		26.6%	67.2%
<i>Suggested process improvement</i>	<i>Rationale for improvement intervention</i>	<i>Suggested possible level of improvement on 2014 performance levels</i>	
Investment in control room, vehicle technology and improvement in management process	Reduces time taken from the time the call is received to the time the ambulance becomes mobile	6.9%	2.9%
Improved location of deployment points	Reduces the time taken for the ambulance to reach the scene	2.2%	0.8%
Additional resources	Extra ambulance, ICV and RRV hours for urban areas. Increased CFR schemes for rural areas	24.9%	10.6%⁺⁺⁺⁺⁺
Estimated optimum achievable target response rate		60.6%	81.5%

This is against the backdrop of a steadily increasing population and growing number of elderly people who tend to require more medical care. The increasing demand for

^{§§§§§} An incoming emergency call is classified as:

- ECHO where it is deemed that the caller is reporting an immediately life-threatening cardiac or respiratory arrest.
- DELTA call where the caller is reporting life-threatening conditions other than cardiac or respiratory arrest.

^{*****} National Ambulance Service performance for both the 7 minutes 59 second and 18 minute 59 second performance indicators for the period March–August 2014 as described in the National Capacity Review published in 2015.

⁺⁺⁺⁺⁺ The introduction of CFR schemes for rural areas will only reduce the time for a first response as there is still a requirement for a patient-carrying vehicle to convey a patient to hospital.

pre-hospital emergency care services has impacted heavily on the ability of the National Ambulance Service and Dublin Fire Brigade to respond promptly to emergency calls.

The National Capacity Review proposed improvements which it calculated could potentially result in improved performance for the service as highlighted in Table 1. The National Capacity Review estimated that the combined benefits of better operational processes, additional resources and extended use of community first responder schemes would improve the:

- 7 minute 59 second performance for ECHO and DELTA calls from the 2014 level of 26.6% to 60.6%
- 18 minute 59 second performance from the 2014 level of 67.2% to 81.5%.

4.7 Operational process improvements

4.7.1 Introduction

The next section of this chapter will address the following operational issues and describe any changes since the 2014 HIQA Review:

- call handling and dispatch
- advanced quality assuring (AQUA) reporting
- response time key performance indicators
- dynamic deployment
- aeromedical services
- intermediate care services
- turnaround times at emergency departments
- fleet management.

4.7.2 Call-handling and dispatch

4.7.3 Background related to control room function, and ensuring the separation of the role of call-taker and dispatcher

At the time of the 2014 HIQA Review, the National Ambulance Service had six control rooms in different geographical areas, using three different computer-aided dispatch systems to dispatch a response to emergency calls. These systems were not integrated. In the Dublin area there were two control centres, one for Dublin Fire Brigade and one for the National Ambulance Service.

In addition, the 2014 HIQA Review highlighted that the National Ambulance Service and Dublin Fire Brigade had not fully implemented the recommendations from an internal National Ambulance Service serious adverse incident investigation, which recommended a requirement for:

- adequate role demarcation for call-takers and dispatchers in control rooms
- improvement in collective oversight of resources at the point of initial dispatch. This would ensure effective coordination of resources across both services to avoid persistent avoidable delays in an emergency ambulance response to the scene of a call-out (this issue is further discussed in Chapter 2).

4.7.4 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

Following the publication of the 2014 HIQA Review, the National Ambulance Service completed the transition to a single National Emergency Operations Centre over two sites. The aim of this move was to allow for an improved approach to performance management within the control function. The National Ambulance Service can now monitor its response time performance per region on live dashboards in the control centre.

The National Ambulance Service now functions with one computer-aided dispatch system which allows the control room (over two sites) to dispatch the most appropriate resource for every incident across the country regardless of location (with the exception of the Dublin area covered by Dublin Fire Brigade). This is a significant improvement from six control centres functioning with different computer-aided dispatch systems allowing limited oversight of available resources.

During this follow-up review, the HIQA Review Team visited the National Ambulance Service control centre in both Tallaght, Dublin and in Ballyshannon, Co Donegal. As part of these visits, the review team sat with call-takers and dispatchers and also spoke with managers on site. Staff reported that the single national computer-aided dispatch system interfaces with other aspects of the emergency management process including call triage, aeromedical, the gazetteer^{*****} mobile data terminal system and automated vehicle locator with an aim of improving an accurate and timely response for patients. The system is also designed to accept the caller's Eircode to further enhance address identification.

At the time of this follow-up review, HIQA found that since the amalgamation of all National Ambulance Service control centres into one National Emergency Operations Centre (over two sites), the service now complies with the recommendation for separation of the role of call-taker and call dispatcher. However, the combined role of call-taker and dispatcher in Dublin Fire Brigade remains unchanged from the 2014 HIQA Review.

***** An accurate geographical system used by the control centre to identify the location of incidents.

4.7.5 Additional technological advancements

Technology improvements in the National Ambulance Service since the 2014 HIQA Review include the following.

- A digital radio communication system known as TETRA has been fully introduced with the aim of improving communications across the national service and with other emergency services.
- A new digital mobile data system was introduced in July 2016. This was piloted initially in ambulances located in Cork ambulance stations, with a further plan to roll it out across the service nationally. This system allows ambulance crews to receive alerts from National Emergency Operations Centre staff via their handheld TETRA terminals. They can respond immediately to advise of their position. The system when in place nationally will help to reduce allocation and mobilisation times across the service. The system also has the capacity to send call details and location data through an integrated navigation tool to assist ambulance crews in determining the correct location of the patient requiring assistance.

4.8 Advanced Quality Assuring (AQUA) reporting

4.8.1 Background

At the time of the 2014 HIQA Review, Dublin Fire Brigade had been routinely auditing emergency calls using advanced quality assurance (AQUA) reporting in line with international standards. However, the National Ambulance Service, at that time, was not routinely auditing emergency calls in most control centres. International best practice requires that a minimum 3% of calls per month are audited to ensure that the call-taker follows the validated call-taking protocol accurately. Failure to follow this protocol to the letter can result in inappropriate categorisation of calls.

4.8.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

The 2016 HIQA follow-up review identified that significant progress has been made in relation to performance management in call-handling in the National Ambulance Service since the 2014 HIQA Review. The National Emergency Operations Centre is now routinely auditing emergency calls received using advanced quality assurance (AQUA) reporting in line with international best practice. The 2016 HIQA review team was informed that 3% of calls are audited each month to ensure that the call-taker follows this protocol accurately. High compliance levels were regularly achieved with evidence of feedback and follow-up demonstrated.

4.9 Response time key performance indicators

4.9.1 Background

The 2014 HIQA Review highlighted that an ambulance service's performance is dictated, among other things, by the overall capacity of the service in relation to ambulance crew resources and the efficiency of usage of the resources that are available. The 2014 HIQA Review team also commented on the challenges presented by variation in demand and factors such as the rural location of incidents or other geographic challenges. These findings were supported and quantified by the National Capacity Review. The National Capacity Review also highlighted that the Irish ambulance services have to serve a much greater rural population than many other ambulance services. (see Appendix C).

4.9.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

In viewing a comparative analysis of performance by the National Ambulance Service and Dublin Fire Brigade, HIQA looked at published response time data, and response time data submitted by both services during this follow-up review to determine what has happened since the 2014 review.

Since 2014, both services have introduced a number of measures to try to improve operational efficiency in ensuring a timely response to life-threatening ECHO and DELTA calls. However, despite introducing these improvement measures, both services have failed to reach suggested best achievable response rates calculated by the National Capacity Review (which assumed best possible resourcing, and optimal efficiency in use of that resource).

Response time rates have remained static over this period. However, this is set against the background of an annual increase in demand for emergency services and a historical lack of capacity within both services to address improvements in performance.

4.10 Dynamic deployment

4.10.1 Background

At the time of the 2014 HIQA Review, the review team concluded that neither the National Ambulance Service nor Dublin Fire Brigade were using dynamic

deployment^{§§§§§§} of pre-hospital emergency care vehicles as described internationally as a means of improving emergency response times.

The National Capacity Review supported the 2014 HIQA Review in recognising that the potential to reduce travel time to the scene of an incident by reviewing where the vehicle starts from could improve performance response times. The National Capacity Review found that in many cases, deployment points were not well located for the communities they served. Therefore, the average drive times in urban areas was nearly 10 minutes. This compares to about 4 minutes in high-performing ambulance services in other countries.

However, the review estimated that reducing travel times through more strategic deployment of resources would improve the National Ambulance Service's response to life-threatening ECHO and DELTA calls: 7 minute 59 second performance by a 2.2% and the National Ambulance Service 18 minute 59 second performance by 0.8%.

4.10.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

The 2016 HIQA follow-up review team notes that the National Ambulance Service has a practice of continuously strategically moving ambulance resources around certain geographic areas, in an effort to try to cover areas within a dispatchers realm of responsibility with remaining available resources, based on local dispatcher knowledge and evolving geographic demand for ambulances. However this has not been progressed to the extent of full dynamic deployment, where emergency ambulances are routinely strategically positioned in areas identified using current information to determine anticipated future demand.

At interview, senior National Ambulance Service management stated that the service were in the process of procuring a software system which would allow the National Ambulance Service to interrogate data using statistically-based evidence analysis. This in turn would assist the service to determine the most appropriate deployment points for ambulances.

During this follow-up review, the review team noted that the position of Dublin Fire Brigade in relation to dynamic deployment of ambulances in the Dublin area is unchanged from the findings in the 2014 HIQA Review.

^{§§§§§§} A system whereby ambulances or other emergency ambulance response vehicles are strategically positioned at various predetermined tactical locations away from ambulance stations in a geographic area, in order to most rapidly respond to anticipated demand.

4.11 Aeromedical service

4.11.1 Background

At the time of the 2014 HIQA Review, it was noted that the air ambulance had proven to be a highly effective means of reaching patients in remote areas, and was a vital tool for dispatchers to deploy in situations where conventional transport would be incapable of achieving an effective response and transportation time. It was also noted that in a country such as Ireland with a remote and dispersed population in many areas, the availability of such a resource was vital and an important development.

4.11.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

Since the 2014 HIQA Review, changes to the air ambulance service had included moving the control centre for this service from Athlone to the National Emergency Operations Centre in Tallaght, Dublin. This move ultimately means that air ambulance dispatch is now located in the same room as the majority of the other National Ambulance Service call handling and dispatch functions. In June 2015, the service marked its 1,000th 'air ambulance' mission. A cross-sectoral working group has recommended that the service should be established on a permanent basis and this proposal has gone to Government for approval.*****

As stated in the 2014 HIQA report, this service is an important emergency response option for rapidly transporting patients with especially time dependent conditions, such as treating and transporting patients in remote locations who have heart attack (STEMI) to specialist centres for stenting (PPCI). The recommendation for setting up this service on a more permanent basis is a welcome move given that 40% of emergency incidents in Ireland occur in a rural location, a rate that is high compared to many ambulance services internationally.

4.12 Intermediate Care Vehicles (ICV's)⁺⁺⁺⁺⁺

4.12.1 Background

At the time of the 2014 HIQA Review the National Ambulance Service was operating 54 intermediate care vehicles that were staffed by 120 intermediate care operatives. These vehicles had been introduced to facilitate the transport of patients with less

***** HIQA were informed during the due process phase of preparing this report that such approval has since been provided.

+++++ An intermediate care vehicle is an ambulance used to transport less acutely ill patients, usually between care or treatment centres. They do not have the same level of equipment as emergency ambulances and they transport patients who are not emergency cases between healthcare facilities.

urgent healthcare needs and reduce the pressure on the emergency fleet. The use of these vehicles released emergency ambulances and made them available to respond to more urgent calls.

4.12.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

Since the 2014 HIQA Review, the National Ambulance Service has gradually increased the number of patient transfer calls handled by intermediate care services from 76% of calls in April 2014 to 89% of calls in August 2016. The National Ambulance Service publicly reports on the percentage of non-emergency patient transfers which were provided by intermediate care vehicles as opposed to an emergency ambulance with an associated target of 80% of calls.

A review of documentation submitted by the National Ambulance Service showed that the number of intermediate care operatives employed by the National Ambulance Service has decreased marginally from 120 in 2014 to 116 in 2016. As the National Ambulance Service increased the use of intermediate care vehicles for the transfer of non-emergency patients, the demand for their service continued to rise. Documentation reviewed as part of this follow-up review indicated that the recruitment and training of new intermediate care operatives was not keeping pace with staff turnover. For example, in 2016, a panel established to provide staff for an intermediate care operative training program was unable to provide enough trainees to fill all the available vacancies that arose through staff turnover. Given the importance of this service in improving the services efficiency and freeing up emergency ambulance capacity, efforts need to focus on ensuring both its sustainability and increased growth. The National Ambulance Service should also continue to work closely with the acute hospital groups to agree a programme for continued utilisation of intermediate care vehicles for the transfer of non-emergency patients between hospitals.

4.13 Turnaround at hospital emergency departments (EDs)

4.13.1 Background

Findings from the 2014 HIQA Review indicated that critical ambulance capacity was being lost due to delay in handing over patients to the care of staff in emergency departments in acute hospitals. While acknowledging the complexity of the problem, the 2014 review stated that the National Ambulance Service and the Dublin Fire Brigade could do more to work in partnership with acute hospitals to address this issue.

4.13.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

There has been some improvement in turnaround times since the 2014 review (see Appendix C) as follows.

- The National Ambulance Service and Dublin Fire Brigade have collectively worked to ensure the process for oversight of turnaround times at hospital emergency departments is more operationally formalised and embedded in the service.
- Some progress had been made to improve communications between the HSE Acute Hospital Division and the National Ambulance Service and Dublin Fire Brigade.
- The National Ambulance Service publicly reports on a key performance indicator about the number of times the Service has to escalate turnaround time delays experienced by ambulance staff at emergency departments. Data relating to this indicator is used as part of the escalation process to alert the required levels of management both within the National Ambulance Service and the wider healthcare system about delays in the release of ambulance resources.

However, on exploring this escalation process with senior Dublin Fire Brigade management at interview, it became apparent that Dublin Fire Brigade ambulance staff do not link in directly with the acute hospital system when they experience delays at hospital emergency departments. Instead they contact the National Ambulance Service which in turn escalates the delay with the hospital through its escalation framework process. There may be benefit to both services exploring this process further to identify any inherent weakness that may arise from adding an extra layer of communication during an escalation period.

4.14 Fleet

4.14.1 Background

In 2014, the average age of an emergency ambulance being deployed by the National Ambulance Service was 6.4 years. The policy that covered the replacement of the National Ambulance Service fleet at the time advised that an emergency ambulance should be replaced after seven years or 500,000km service. HIQA found that 18% of the fleet was eight or more years old, and a further 28% of the fleet was due to cross the seven-year old threshold for replacement. The relative aging nature of the fleet had contributed to ever increasing problems with fleet reliability, which impacts on the ongoing quality of service provision.

4.14.2 What has changed since the HIQA 2014 review of pre-hospital emergency care services?

The National Ambulance Service acted to address findings from the 2014 review. The 2016 follow-up Review Team found that:

- An external review of the National Ambulance Service fleet and equipment was conducted leading to a change of policy relating to the replacement of the National Ambulance Service fleet.
- Expenditure on maintenance and upgrading of the National Ambulance Service fleet has almost doubled from €7.5 million in 2014 to €14.5 million in 2016.
- The average age of all vehicles in the National Ambulance Service fleet has reduced from 6.9 years to 5.6 years.
- Emergency ambulances which were seven years or older made up 45% of the fleet in 2014. This had been reduced to 27% in 2016.
- In 2014, 67 out of 266 emergency ambulances had more than 350,000km logged on their odometers. At the time of this review, odometer readings in excess of this were recorded in only 16 of the 264 emergency ambulances.*****
- The National Ambulance Service has updated its fleet maintenance schedule and in February 2016 introduced a maintenance cycle for all patient-carrying vehicles.
- A recruitment process for a National Ambulance Service director of fleet management to oversee the management of the entire fleet for the Service had started.

Senior National Ambulance Service management indicated at interview that further improvements are required to improve oversight of the maintenance, replacement, technical specification and cost of the vehicles in the fleet. It was reported that improvement initiatives to be implemented will be aligned with the recommendations of the external fleet review. Such sustained improvements will be subject to the appointment of a director of fleet management, support staff and receipt of continued funding.

***** A review of documents submitted by the National Ambulance Service for the 2016 HIQA review show that the overall number of ambulances has decreased as part of the refurbishment and replacement of the fleet.

4.15 Conclusion related to performance

Since the 2014 HIQA Review, the National Ambulance Service has moved from a position where it had six control centres functioning on different computer-aided dispatch systems to one National Emergency Operations Control Centre over two sites. This is a major achievement for the Service and should be recognised as a key quality improvement initiative to improve pre-hospital emergency care for patients.

When examining response time performance, the 2016 HIQA follow-up review found that the National Ambulance Service and Dublin Fire Brigade are not meeting response time targets identified in the National Capacity Review as being potentially achievable if services were optimally resourced, most efficiently deployed, and where appropriate supported by a community first response. While the National Ambulance Service has made improvements by moving to one national control centre, progress has been slower on other possible operational efficiencies.

Since the 2014 HIQA Review, emergency-response-time performance has stabilised rather than showing any major improvement. In the context of a consistently increasing annual level of demand for services, this performance rate — while below potentially achievable levels in a best case scenario — should be considered a marginal improvement in overall operational efficiency as activity has increased. However, given the investment associated with the increase in the use of intermediate care vehicles for inter-hospital transfer of patients, and the move for the National Ambulance Service to a single national control centre, stabilisation of performance during a period of increased activity would not be an unreasonable expectation. In contrast to these improvements that have been implemented, other possible improvements that had been identified during the 2014 review, such as dynamic deployment, have yet to happen.

Both service providers still fall a long way short of the potentially best achievable response time targets that were identified in the National Capacity Review. One of the reasons cited by the National Ambulance Service and Dublin Fire Brigade for this under-achievement is due to the lack of resources, both staff and vehicles, to deliver a service capable of achieving these targets. Estimation of necessary resource requirements, as laid out in the National Capacity Review would suggest that these assertions are legitimate, if not entirely responsible for current poor performance levels. As identified earlier in this chapter, the National Ambulance Service now has a five-year workforce plan in place which is a significant improvement upon 2014 findings. This plan needs to be supported with the necessary resources annually if it is to achieve the changes necessary to drive and sustain improvements for patients.

While some efforts to improve operational efficiencies in the use of resources have yielded some benefit in terms of reaching response time targets, the slow progress

in developing other required improvements which are less reliant on increased workforce numbers — such as dynamic deployment — have not progressed as quickly as might have been expected. Measurement of performance by both service providers also remained limited, and efforts to broaden the approach to performance measurement need to be progressed.

Overall, this follow-up review identified that while there have been some improved operational efficiencies within the services, more could be done within current resources to improve response times to potentially life-threatening calls for patients. In addition to what might be achieved within current resources, it is also clear that in order to provide the level of response outlined as being achievable in Ireland in the Capacity Review, further resources are needed.

State-funded ambulances services in Ireland remain at the early stages of what will inevitably be a 5- to 10-year transformation process. This transformation process will require additional resources, and indeed significant increased State investment has been forthcoming since 2014. However, in addition to improvement achieved through increased investment, other improvements through increased efficiency in the use of current resources are also necessary. In the opinion of the Review Team, both the National Ambulance Service and Dublin Fire Brigade still have to unlock further potential efficiencies, notwithstanding an additional need for resources.

What do these findings mean if I am a patient?

- Since 2014, the National Ambulance Service has developed a five-year workforce plan for the Service. This means that the National Ambulance Service now has a clear understanding of what staffing resources it currently has and what resources are required to deliver a safe, high-quality and responsive service to patients over the next five years.
- From a patient's perspective, the benefit of a single National Emergency Operations Centre means that all 112/999 emergency calls for the country (with the exception of the Dublin area covered by Dublin Fire Brigade) are answered and dispatched from one centre. This allows for the nearest available resource to be dispatched in the shortest possible time to each emergency request.
- Some progress has been achieved in improving efficiency, particularly in the National Ambulance Service with the opening of a new control centre. However, more needs to be done. Response times have remained stable but have not improved since 2014 because demand has increased. In addition, there is still scope for improved efficiency in the use of resources. Nonetheless, resources in both services still remain too low to enable a significantly improved approach to reaching target response times.
- The National Ambulance Service has invested in the maintenance and upgrading of its ambulance fleet since 2014. This means that emergency ambulances are more regularly maintained and are replaced more frequently than previously, and are therefore more comfortable and reliable for patients.

Chapter 5 – Conclusions

5.1 Introduction to conclusions

The HIQA Review of pre-hospital emergency care was published on 2 December 2014. The report made 12 key recommendations as to where publically funded ambulance service provided needed to focus improvement efforts. It identified considerable scope to improve collective governance, leadership and management arrangements between the National Ambulance Service and Dublin Fire Brigade. Significant improvement was also needed to address the operational inefficiencies identified during this review which were impacting on the quality and safety of emergency ambulance services nationally at that time.

In response to this review, a joint action plan was developed by both services and published in May 2016 outlining proposed improvements to address the 12 recommendations.

This follow-up review was undertaken by HIQA in line with its 2016 business plan to assess the degree of progress made in implementing these high-level recommendations, and in doing so make services safer and better for patients. The following sections outline the key conclusions of this review.

5.2 Changes to Leadership Governance and Management aimed at providing fully integrated ambulance service in the greater Dublin area

The 2014 HIQA Review found that improvements were required by the National Ambulance Service and Dublin Fire Brigade in relation to:

- cooperation and coordination between the services
- corporate and clinical governance arrangements between both services

Such actions were identified as necessary to enable improvement in operational inefficiencies and towards collective planning for the delivery of emergency ambulance service across Dublin city and county.

The 2016 HIQA Review found:

- Communication lines and formal governance arrangements between both services have improved.
- A new joint governance forum between senior managers of the Dublin City Council and the HSE was established leading to better working relationships, and improved cooperation, coordination and operational oversight between the two services.

- Joint clinical governance arrangements have improved since the 2014 Review albeit at a slower pace. At the time of this follow-up review, these new arrangements are in the early stages of implementation. It is therefore too early to assess their true impact. However, there was evidence of improved formal working relationships between the National Ambulance Service and Dublin Fire Brigade with respect to clinical matters, relative to what was found in 2014.

Overall, the Review Team found these new joint governance arrangements between the Dublin Fire Brigade and the National Ambulance Service has led to better day-to-day communication, shared learning and standardisation of practices and equipment between the services. However, the arrangements in place at the time of this review were in the early stages of development and more needs to be done to progress development of a future framework to support the delivery of a modern, efficient, coordinated and integrated emergency ambulance service.

5.3 Longer-term strategic planning for emergency ambulance services in Ireland

Among the critical findings from the 2014 HIQA Review was a lack of a clear collective strategic direction for emergency ambulance services. In addition, the need for better integration of ambulance services within the wider HSE hospital health service provision and in the greater Dublin area was also identified. This lack of strategic direction had led to a fragmented approach to the delivery of services in Dublin. This finding merely reflected a well recognised problem which had been clearly outlined in a number of prior reports into ambulance services by various bodies. As a consequence, HIQA identified that better coordination and cooperation in the Dublin area was needed as a matter of urgency.

This follow-up review found that:

- A fragmented approach to the delivery of services in Dublin remains in place.
- Collective medium to long-term strategic planning including both services for the provision of publicly funded pre-hospital emergency care in Ireland does not exist.
- Since 2014, both the National Ambulance Service and the Dublin Fire Brigade have experienced an annual increase in demand for emergency ambulance services. In the same period, the National Ambulance Service has received a 9% increase in funding. However, the funding provided to Dublin Fire Brigade by the National Ambulance Service in the same period has remained static.
- Limited progress was made in integrating and embedding ambulance services into the unscheduled healthcare system. While some progress has been made by the National Ambulance Service in its involvement in service planning and

redesign of unscheduled care services, this was not the case for Dublin Fire Brigade. The Review Team found this represents a potential weakness in current governance arrangements

As it stands, the lack of certainty around the future provision of emergency ambulance services in the Dublin area has had a negative impact on collective long-term strategic development, integration of the emergency ambulance service into the wider healthcare system and the progression on changes needed to modernise the service. The HIQA Review Team again reiterates the importance of determining the future provision of emergency ambulance services in the Dublin area as a priority.

5.4 Patient Safety Risk identified relating to current call taking and dispatch arrangements in place between Dublin Fire Brigade and the National Ambulance in Dublin

This follow-up review identified significant patient safety risks in the Dublin area during the course of the review, which were immediately escalated by HIQA to service providers so that they might be mitigated. HIQA found during this follow-up review that a high number of potentially life threatening calls were placed in a queue rather than having an ambulance immediately dispatched to them, and this resulted in a delayed response. Such a situation was identified in 2014 by HIQA, and recommendations made during the review at that time were aimed at targeting this risk. However, in 2016 HIQA found that these risks had not been addressed, and had in fact worsened due to an increased demand for services on a background of static levels of resource allocation.

The identified reasons for this high risk included an apparent lack of required ambulance capacity in Dublin, and ongoing arrangements around call handling and dispatch. Problems with call handling and dispatch stemmed from the sequential nature of call handling between Dublin Fire Brigade and the National Ambulance Service, which led to inherent delay in response for some patients when Dublin Fire Brigade had reached maximum capacity. In response to HIQA escalating concerns in relation to this risk, additional collective ambulance resources were added in the Dublin region – however it was too early to determine at the time of this review what impact this had made to improve performance. However ongoing risk related to call handling and dispatch functions in Dublin remains at the time of writing.

As things currently stand, if a patient with a potentially life-threatening condition dials 112/999 for an ambulance in Dublin, current call handling and dispatch arrangements do not ensure that the nearest available appropriate ambulance service resource is always sent immediately to treat that patient, regardless of whichever service provides the response. In addition, in situations where calls need to be transferred to the National Ambulance Service, inherent delay as a result of

the to and fro that occurs between agencies can also add minutes before a resource begins its journey towards a potentially critically ill patient. On the basis of evidence gathered during this review, potentially clinically significant delay may therefore result.

It is HIQA's view that decision-making by the bodies responsible for governing both service providers is urgently required to address this identified patient safety risk relating to call taking and dispatch arrangements for the Dublin area, and to provide greater clarity around collective strategic direction. Given the potential risks involved, a solution to this ongoing risk needs to be found as quickly and efficiently as possible, in the best interest of patients.

5.5 Changes to leadership, governance and management in the National Ambulance Service

This follow-up review found that a new HSE National Director for Ambulance Services and Emergency Planning was appointed following the 2014 HIQA Review. The Review Team found that this new position had been a key enabler in progressing service reform. Furthermore, the appointment of a National Quality and Patient Safety Manager and a National Control Operations Manager in July 2015 also contributed to improvement in governance infrastructure within the service.

The Review Team also found:

- an improved focus on risk management and reporting of quality and patient safety issues at senior management level
- implementation of HSE National Open Disclosure Policy and Corporate Policy on Integrated Risk Management was ongoing
- improved management of complaints, compliments and incidents at operational and senior management level
- an ongoing training programme for all managers and supervisors in relation to the risk management policy

However, this follow-up Review identified a lack of connection between the National Ambulance Service operational areas and senior managers with respect to risk management. The existing infrastructure does not support a direct communication line or working relationship with the National Quality and Safety Risk Manager. A fragmented approach to the management of risk across the service was evident and needs to be addressed. In addition, incidents reported relating to patient care was relatively low when compared with overall patient care incidents that occur annually. Efforts need to be enhanced to ensure that evolving quality and patient safety structures are progressed across the service.

5.6 Collective management and monitoring of service performance

The Review Team found that collective management and monitoring of service performance between the National Ambulance Service and Dublin Fire Brigade have improved since the 2014 HIQA Review. Better oversight, data collection, monitoring and assurance mechanisms relating to performance management and processes have also occurred. This in turn has led to improved awareness of how the service is performing and what needs to be improved.

The Review Team found the following:

- Reconfiguration of the National Ambulance Service ambulance control centres across the country into one single system located in two sites has contributed significantly to improvements made to date.
- The introduction of new technology and communication systems has enabled the National Ambulance Service to audit its control centre functioning in line with best practice and address some of the operational inefficiencies identified during the 2014 Review.
- The new Computer Aided Dispatch (CAD) system has improved accessibility to a suite of performance reports which are reported and published at national level. Compliance with advanced quality assurance audits and medical priority dispatch system protocols have improved and are meeting HSE national targets.
- There was evidence of improved communication of audit results to National Ambulance Service staff through internal communication systems and new electronic display systems located in the control and command centres.
- Aero-medical services have proven to be an efficient means of transporting patients requiring pre-hospital emergency care from rural and sparsely populated areas to hospital. This service has proven to be particularly beneficial to patients requiring rapid access to specialist care.
- Expenditure on maintenance and upgrading of the National Ambulance Service fleet has doubled from €7.5m in 2014 to €14.5m in 2016. The average age of an emergency ambulance deployed by the National Ambulance Service has reduced from 6.4 years in 2014 to 4.2 years in 2016.

In contrast to these improvement measures that have been implemented, other possible improvement measures that were identified during the 2014 have been slower to progress.

A critical finding of this review was that both the National Ambulance Service and Dublin Fire Brigade face ongoing day-to-day challenges in meeting defined emergency response times relating to ECHO and DELTA calls. Some of the influencing factors identified by this Review Team and external consultants relate to

the need for additional resources, increasing demand on the service, the need for improved operational processes, and the relative rurality of the geographical area covered by the National Ambulance Service.

Since the 2014 HIQA Review, emergency response time performance has remained static and below expected levels of performance. However, this static performance should be considered in the context of increased demand for ambulances during this time period, with no change to the prevailing model of care. Therefore, it could be argued that maintaining performance levels has represented an improvement in overall service efficiency. However there has been significant investment in control and other technology in the National Ambulance Service, and therefore such improvements should be expected. It was evident to HIQA during this follow-up review that further improvement in response time performance is potentially achievable, both through ongoing strategic investment in increased resources, and in making better use of the resources that have already been allocated. This improvement will therefore require ongoing commitment to funding by those that govern the services, and prolonged management focus. .

The 2014 HIQA Review recommended that response time targets should differentiate between urban, rural and combined response results to drive incremental improvements in each setting. The National Capacity Review supported this view and recommended that response times for calls should be further categorised into major urban, minor urban and rural categories. HIQA found that response times had not yet been differentiated into recommended categories at the time of this review.

Better processes for managing, monitoring, and acting to address delay with acute hospitals when necessary in relation to prolonged ambulance turnaround times were evident during this review. However, this issue, which predominately relates to ongoing difficulties with patient flow through acute hospitals, continues to present challenges for ambulance service providers, with resultant loss of available ambulance capacity. In addition, enhanced integration of the Dublin Fire Brigade within the existing communication processes related to ambulance turnaround times is also required.

Limited progress relating to dynamic deployment of appropriate resources based on scientific analysis of data had occurred. An interim practice of mobilising resources around certain areas based on dispatcher knowledge and drive times was evident in the National Ambulance Service. However, full dynamic deployment of ambulances both in the Dublin and across the country has not occurred. Therefore the potential for improved services for patients that would be achieved through this practice, as identified by HIQA in 2014, has yet to be realised.

5.6.1 Clinical audit in the National Ambulance Service

The pace of progress relating to the overview of clinical performance of the quality and safety of services provided has remained slow. Limited clinical audit was evident at the time of this review in the context of the overall level and complexity of care provided. Similar to the 2014 review, the lack of electronic patient records was reported to be a significant barrier to the meaningful advancement in clinical audit within the service. However, the introduction of electronic patient records has commenced and should be implemented across the National Ambulance Service by the end of 2017.

Assurances around clinical safety are crucial in the provision of quality and safe care to patients. Therefore, clinical audit and patient outcome monitoring needs to be progressed as a priority.

5.6.2 The development of additional key performance indicators

The Review Team found during this review that progress had been slow in developing clinical outcome indicators outlined in Recommendation 7 of the 2014 Review Report. It was reported that a steering group with responsibility for devising a clinical key performance indicator framework for the National Ambulance Service was established towards the end of quarter two in 2016. There had been no published output from this group up to November 2016.

5.7 Community First Responder schemes

In 2014, the HIQA recommended that more community first responder schemes were needed in all rural and sparsely populated areas to assist in achieving timely and appropriate first response to ECHO calls. Since then, 42 new schemes which are formally linked in with the National Ambulance Service have been established. This is a welcome and much needed development. However, more needs to be done to further strategically target locations with a potential to impact positively on first response times.

The Review Team found that strengthening of governance, leadership and quality assurance over community first responder schemes was required to ensure better oversight and compliance of all existing schemes with the policies and procedures of the National Ambulance Service. Interim mitigating control measures need to be implemented as a priority to address the potential risk identified in this regard.

5.8 Alternative models of care for patients

The 2014 HIQA Review found that all patients were taken to an Emergency Department following a 112/999 call. It was highlighted that dependence on one

model of care was neither sustainable in the background of increasing demand on the service or in line with international best practice.

The 2016 HIQA review found that limited progress had been made by both services in exploring alternative treatment pathways that were more suited to a patient's condition and located within their local communities where appropriate. HIQA found that efforts to implement a 'hear and treat' model of care had commenced and recruitment of staff to operate a clinical hub in the National Emergency Operations Centre was underway. However, limited progress had been made in the development of other models of care. Furthermore, significant barriers to the introduction of new patient care pathways were identified. These related to the lack of clinical safety assurances such as clinical audit and clinical outcome measurement and the lack of an overall collective strategy for the future provision of pre-hospital emergency care in the Dublin area.

5.9 Workforce Planning

The HIQA Review Team found that there had been significant improvements in the National Ambulance Service's approach to workforce planning since the 2014 Review including the following:

- An external consultant was commissioned to deliver plans relating to human resources, workforce and organisation and structure. At the time of this follow-up review, human resources and workforce plans viewed by HIQA were in draft form. The National Ambulance Service Organisational Structural Review was not concluded at the time of this follow-up review, and this needed to be addressed
- However, the National Ambulance Service were now able to demonstrate a clear understanding of their current and future required staffing needs. Recruitment numbers for paramedic training programmes had increased since 2014
- The service has begun to address legacy issues in relation to overtime and dropped shifts.
- There was evidence to show that support for managers was being addressed through the provision of management training courses and clearly defined job descriptions aligned with appropriate management capabilities required for specific roles. However more needs to be done in facilitating staff to attend training.
- A focus on staff wellness was apparent and ongoing efforts to improve communication systems to enable better staff engagement between frontline staff and management during this review.

- The role of call-taker and dispatcher are now separate roles in the National Ambulance Service, aided in part by the reconfiguration of the control room function into one National Emergency Operations Centre. However, this is not the case in the Dublin Fire Brigade where the role of call-taker and dispatcher has not separated and remains unchanged since the 2014 Review.

While progress to date relating to Recommendation 6 of the 2014 Review is welcome, the draft plans viewed need to be finalized. More importantly, continued support of the recommendations and initiatives within these plans is essential if the National Ambulance Service is to achieve the changes necessary to drive and sustain improvements for patients.

5.10 Community Education Programmes

Community education and awareness has the potential to support future application of alternative care pathways, improve appropriate use of emergency ambulance services and promote volunteerism required in the establishment of community first responder schemes. The Review Team found that limited progress had been made to address HIQA's Recommendation 8 of the 2014 Review. Implementation of a community education and awareness programme should be progressed and run parallel with service improvement.

5.11 Concluding remarks

Overall, the 2016 HIQA review found that improvement had been achieved with respect to some aspects of pre-hospital emergency care service provision nationally, and measures have been put in place to address the recommendations of the 2014 report. Many of the initiatives implemented were at varying stages of delivery at the time of this follow-up review. Crucially, there is now much greater clarity within the National Ambulance Service with respect to future planning. The commitment shown by staff of both services to improve the service and patient safety during this follow-up review was also notable.

There has been a significant increase in the funding for the services provided by the National Ambulance Service. Key changes to governance and leadership structures, improved monitoring of performance and a defined direction on what needs to be done to fully address the findings of the 2014 Review have been achieved. Given the challenging reform agenda commenced before the 2014 HIQA Review and increasing demands on the service, the improvements achieved to date are to be welcomed. Efforts needed to progress the level of changes seen to date in modernising the National Ambulance Service are notable and should be acknowledged.

HIQA recognizes that the changes outlined in the joint action plan developed following the 2014 Review will take a significant length of time to implement. The

timeframe for its completion will more than likely extend beyond those targets outlined in this action plan.

Notwithstanding the positive findings, this Review found that there is scope for further improvement and a lot more needs to be put in place as part of what will inevitably be a 5- to 10-year transformation process. The goal of achieving a modern effective emergency ambulance service is however dependent on sustained investment in the service, support at national level and ongoing commitment of staff. The focus of resolving future potential challenges relating to the provision of emergency ambulance services needs to be patient centred, if meaningful progress is to be made.

A critical finding of this Review relates to services provided in Dublin. High risk was identified during the course of this review which stemmed from a lack of collective ambulance capacity, and arrangements for call handling and dispatch. Current arrangements can result in a high number of potentially life threatening calls being queued rather than receiving an immediate response. Moreover, where resources are available at the time of a call, current arrangements do not ensure that the nearest available ambulance is always immediately sent to all patients. Delay can also ensue when calls need to transfer from the Dublin Fire Brigade to the National Ambulance Service. Notwithstanding the measures implemented to improve co-ordinated governance arrangements between the National Ambulance Service and Dublin Fire Brigade, the ongoing lack of coordination in the collective use of resources between both services remains largely unchanged since the 2014 HIQA Review. As a result patients are put at risk due to potentially avoidable delay in dispatching a resource to the scene of an incident.

An ongoing lack of senior decision-making and a collective long-term strategy outlining the future provision of emergency ambulance services in Dublin remains a major barrier in collective ambulance service improvement. It is incumbent on those with overall responsibility for governance of publicly-funded pre-hospital emergency care services in Ireland to ensure that there is an agreed, shared strategy for both service providers, that fundamentally ensures the best possible service for patients.

Glossary of terms and abbreviations used in this report

<p>Accountability: being answerable to another person or organisation for decisions, behaviours and any consequences.</p>
<p>Advanced paramedic: a highly trained, experienced paramedic who undergoes rigorous upskilling to enable clinical interventions to be provided to patients beyond those already embedded through paramedic practice. This includes training in advanced life support. Enhanced clinical judgment is a key competency required for this grade.</p>
<p>Alternative care pathways: care pathways provided for patients with specific conditions used as an alternative to transporting the patient to an ED.</p>
<p>AQUA: Advanced Quality Assurance reports</p>
<p>Call-taker: a member of the control centre staff who is responsible for accurately establishing the patient contact details and address, and the determination of the patient's chief medical complaint following a set protocol. This process generates a dispatch code, which informs the call dispatcher's resource-prioritisation decision-making.</p>
<p>Capability: the application of learning and skills by staff to facilitate change and improvement.</p>
<p>Capacity review: a review to establish the optimum number of emergency vehicles, and the best way to employ that resource to best meet demand.</p>
<p>Clinical governance: a framework that is in place throughout the organisation that:</p> <ul style="list-style-type: none">• is explicit about the standard of care delivered,• explains how patients are protected from harm,• explains how the service plans and measures improvement
<p>Clinical practice guidelines: systematically developed clinical protocols used to assist pre-hospital emergency care practitioners to make best practice decisions in the management of specific clinical conditions.</p>
<p>Command and control: command and control is the means by which an ambulance dispatcher recognises what needs to be done and sees to it that appropriate actions are taken.</p>
<p>Community First responder (CFR): a first responder is defined by the Health Information and Quality Authority as a person who attends a potentially life-</p>

threatening emergency who:

- is suitably trained and holds a recognised qualification, as a minimum, in basic life support and the use of a defibrillator
- attends regular refresher courses
- is formally networked with a national ambulance control centre.

Computer-assisted Dispatch (CAD): a method of dispatching emergency service vehicles assisted by computer. The central idea is that persons in a dispatch center are able to easily view and understand the status of all units being dispatched. CAD provides displays and tools so that the dispatcher has an opportunity to handle calls-for-service as efficiently as possible.

Control centre: the call centre where emergency and other calls are answered and ambulances are dispatched from.

Corporate governance: the system by which services direct and control their functions in order to achieve organisational objectives, manage their business processes, meet required standards of accountability, integrity and propriety and relate to external stakeholders.

DELTA calls: calls reporting a potentially life-threatening condition other than a cardiac or respiratory arrest.

Dispatcher: a member of the control centre staff who is responsible for the dispatch and oversight of an emergency response through the use of information communications technology (ICT) systems in the control room. This staff member must dispatch the most appropriate response to an incident using the details collated by the call-taker. They also need to tactically manage the overall deployment and workload of all available resources in a given geographic area in response to and anticipation of ongoing demand.

Dynamic deployment: a system whereby ambulances or other emergency ambulance response vehicles are strategically positioned at various predetermined tactical locations away from ambulance stations, in order to most rapidly respond to anticipated demand. This is as opposed to being routinely, statically stationed in one place. This process requires the very regular movement of resources over the course of a day or week, in response to the anticipated pattern of demand for resources in a given geographic area. It also ensures that the deployment pattern of remaining available resources are best positioned to most likely cover the overall possible future need for ambulances in an area in response to one or more resources being occupied with calls.

<p>ECHO calls: calls reporting an immediately life-threatening cardiac or respiratory arrest.</p>
<p>Emergency Medical Technician (EMT): emergency medical technician. This ambulance crew member provides the baseline level of ambulance service pre-hospital emergency care to a patient which includes a wide range of interventions which are fundamental to on-scene emergency care.</p>
<p>Fleet: the emergency medical response vehicles used by the National Ambulance Service and the Dublin Fire Brigade.</p>
<p>Front-loaded model: an improved model for quicker call-taking and dispatching, which includes ambulance deployment in advance of a dispatch code being generated.</p>
<p>Gazetteer: a computerised dropdown geographical dictionary, linked to an electronic map which is used to locate an incident.</p>
<p>Governance: in healthcare, an integration of corporate and clinical governance; the systems, processes and behaviours by which services lead, direct and control their functions in order to achieve their objectives, including the quality and safety of services for patients.</p>
<p>Hear and treat: a system to allow the treatment of conditions through phone advice rather than via ambulance transport to an emergency department by a Medical Doctor or other suitably trained and qualified individual located in the ambulance control centre.</p>
<p>HIQA: the Health Information and Quality Authority.</p>
<p>Local injuries unit: a locally based service which enables patients who present with a list of certain minor injuries to be both assessed and treated to the point of discharge.</p>
<p>Mobile data terminal: a computerised device used in emergency vehicles, such as ambulances to communicate with a control centre via data sent and received.</p>
<p>National Emergency Operation Centre (NEOC): This National Ambulance Service centre is responsible for the deployment of ambulances at national level and incorporates a national computer-aided dispatch (CAD) system.</p>
<p>National Incident Management System (NIMS): web based system that provides support to the HSE and HSE funded services which supports participating organisations to manage incidents.</p>

On-call activation: this is an ambulance crew rostering practice whereby a crew remains available to respond to calls outside of and in addition to their normal working hours, usually from home. On-call activation results in staff mobilisation from home, when the conventionally rostered resources are fully in use, yet there remains a need for further ambulance capacity to respond to a call.

One Life Project: an initiative undertaken by the National Ambulance Service with the clear aim of increasing out of hospital cardiac arrest (OHCAR) survival rates in Ireland.

Operational plan: a detailed outline of how an organisation will use its available resources to achieve specific goals over a period of time pertaining to the organisation's strategic plan.

Out of Hospital Cardiac Arrest Register (OHCAR): collects data on out of hospital cardiac arrests in the Republic of Ireland which are confirmed and attended by the Emergency Medical Services (EMS) and where resuscitation is attempted.

Paramedic: a skilled healthcare practitioner who is trained to provide a significant range of diagnostic and treatment modalities in the emergency setting. Their skills and privileges build on those of the emergency medical technician (EMT) grade.

Patient-carrying vehicle: A patient-carrying vehicle is any vehicle able to transport the patient in a clinically safe manner and dispatched from an ambulance service control room. An example includes a CEN [Comité Européen de Normalisation (Committee for European Standardization)] B compliant double crewed fully equipped ambulance.

Pre-Hospital Emergency Care Council (PHECC) is the national body with responsibility for the professional regulation of ambulance personnel and education and training in the area of pre-hospital emergency care in Ireland. It also maintains a statutory register of pre-hospital emergency care practitioners, and facilitates the setting of clinical practice standards through the production of clinical practice guidelines.

Pre-hospital emergency care: the emergency care provided to a patient before transfer to a hospital or appropriate healthcare facility

ProQA: emergency medical dispatcher software package.

Rapid response vehicle (RRV): a car or jeep-type vehicle which carries all of the equipment contained within an emergency ambulance except for the

stretcher. It is staffed by one experienced paramedic or advanced paramedic, and attends only emergency calls.

Relief Factor: estimates the number of hours (or days) required to fill a post during a given shift, when the person who is regularly assigned to that post on that shift is unavailable to fill that post because he or she is occupied elsewhere, either on annual leave, sick leave, attending training, injured, or otherwise not available for assignment to that post. To account for the time that the regularly assigned person is not available, additional staff time must be allocated to that post to ensure the duties assigned to that post are completed.

See and treat: the treatment of a patient by paramedics or advanced paramedics without the need for further referral to an additional healthcare provider or emergency department to complete their episode of care.

Service level agreement: a framework for the provision of services, including details of quality and governance requirements.

Service user: this term includes people who use healthcare services (this does not include service providers who use other services on behalf of their patients and service users, such as general practitioners [GPs] commissioning hospital laboratory services); parents, carers, family and potential users of healthcare services.

Strategic plan: a focused guide which outlines future direction for an organisation through the development of targets to achieve strategic goals. It is generally a long-term vision (three to five years) and enables the development of an operational plan.

TETRA: Terrestrial Trunked Radio. As used in this report, TETRA refers to the National Digital Radio Service in Ireland, a purpose-built secure digital mobile radio network owned and managed by TETRA Ireland in the areas of security, fire and safety, healthcare, Government and public service agencies.

Turnaround time: the measurement of time from the point of an ambulance's arrival to an emergency department, to the point when the patient is physically handed over from the ambulance crew to the care of hospital staff.

Unscheduled Care Services: services which cover health and/or social care needs that cannot reasonably be foreseen or planned in advance of contact with relevant services. Such demand can occur any time, and must be available 24 hours a day. Unscheduled care is usually urgent with a need to take action at the time of contact with services. Unscheduled care does not include delivery of routine or non-urgent services on an as-needed and uncontrolled basis 24 hours

a day.

Utstein criteria: patients with cardiac arrest of presumed cardiac origin, where the arrest was bystander-witnessed, and the initial rhythm was ventricular fibrillation or ventricular tachycardia.

Ventricular Fibrillation: a heart rhythm problem that occurs when the heart beats with rapid, erratic electrical impulses. This causes pumping chambers in your heart (the ventricles) to quiver uselessly, instead of pumping blood.

Ventricular Tachycardia: a type of regular and fast heart rate that arises from improper electrical activity in the ventricles of the heart.

Appendix A – Methodology

This section outlines the methodology used by HIQA to review progress with the implementation of the recommendations of HIQA's 2014 report on the *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*. It describes the follow-up Review Team and the phases of the review.

Review Team

This review was developed and carried out by HIQA staff who are authorised to monitor compliance with standards, in accordance with section 70(1)(a) of the Health Act 2007 (the Act).

Lines of enquiry

Lines of enquiry were developed by HIQA to guide the review approach and to provide the Review Team with a framework for the selection and gathering of information.

The lines of enquiry were aligned to the:

- the *National Standards for Safer Better Healthcare*
- findings and recommendations of *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*

Phases of the follow-up review

HIQA's review process took place over four phases. These were:

- **Phase one:** documentation and data review, and initial on-site visits to the National Emergency Operations Centre on one of its two sites (Tallaght, Co Dublin) and the Dublin Fire Brigade Control Centre at Tara Street in Dublin (August–September 2016)
- **Phase two:** on-site visits and review of each control centre (September–October 2016)
- **Phase three:** governance interviews with senior management from each service and other relevant key personnel as necessitated by the review lines of enquiry
- **Phase four:** triangulation and review of information gathered and reporting of findings.

Phase One: documentation and data review

In accordance with section 8(1)(c) of the Health Act 2007, HIQA issued formal documentation and data requirements to the National Ambulance Service. Similarly, a document and data request relevant to the review was also issued to Dublin Fire Brigade.

The Review Team obtained documentation and data that covered areas such as the:

- corporate and clinical governance structure and management arrangements
- patient activity and patient-outcome data in relation to emergency calls and or incidents
- performance against national key performance indicators relating to emergency ambulance services within a specified time frame
- risk management systems including reported adverse incidents
- lists of operational and clinical policies and procedures
- workforce planning and staffing arrangements
- data outlining the number of emergency calls in the Dublin area requested and transferred between the National Ambulance Service and Dublin Fire Brigade within a specified time frame
- information specific to the progress made relating to the recommendations by HIQA in the report of the national review of pre-hospital emergency care.

Phase two: on-site visits and observation

The Review Team visited the National Ambulance Service's National Emergency Operations Centre in Tallaght, Co Dublin on two occasions, and its National Emergency Operations Centre site in Ballyshannon, Co Donegal on one occasion to inform the review. In addition, the Review Team visited the Dublin Fire Brigade Control Centre at Tara Street, Dublin 2, on two occasions during the review.

During all of these visits, the Review Team met with and interviewed relevant staff, observed the functioning of the control centres, recorded observations and reviewed relevant documentation and data.

Phase three: governance interviews

HIQA carried out interviews with senior managers from the following organisations:

- Health Service Executive (HSE) staff at national level whose role related to aspects of the governance and quality and safety of the National Ambulance Service
- Dublin City Council
- the National Ambulance Service

- Dublin Fire Brigade.

All individuals who were interviewed were provided with a minimum of 10 working days' notification of interview. Where an individual was unavailable on the allocated day, alternative arrangements were put in place to facilitate an interview at a later date, where possible.

HIQA interviewed selected individuals using a framework of areas of exploration related to the lines of enquiry. The interviews were used to:

- clarify issues that may have been identified during the Review Team's review of documentation and data
- gather information generally
- consider any further information that was provided
- inform the Review findings.

Phase four: triangulation and review of information gathered and reporting of findings

HIQA provided a copy of the relevant excerpt(s) of the confidential draft report of the follow-up review findings, on an individual basis or in a representative role, to relevant personnel as deemed appropriate by the Review Team. Those who received a copy of the relevant excerpt(s) were invited to offer their feedback and commentary generally on any matters in the draft report excerpt. HIQA provided a time frame of 10 working days for the return of any feedback and comments from the date of issue of the draft excerpt of the report. Every comment received was carefully considered by HIQA prior to the publication of this report.

Appendix B - Recommendations from the 2014 HIQA Review

Recommendation 1 HIQA Review 2014

Both the National Ambulance Service and Dublin Fire Brigade must address the operational inefficiencies identified within this report and publish a joint action plan outlining proposed steps to improve individual and collective performance in call-handling, address verification, dispatch, ambulance deployment, mobilisation, navigation and the coordination of calls between both services

Recommendation 2 HIQA Review 2014

State-funded emergency ambulance services should be operated as a clinical service embedded in the unscheduled care system, under the remit of the Acute Hospitals Directorate of the Health Service Executive (HSE), and a key part of the wider reform of hospital health service provision. This should be reflected in the strategic plans of the HSE and ambulance services.

Recommendation 3 HIQA Review 2014

As a matter of urgency, both the National Ambulance Service and Dublin Fire Brigade must put the necessary corporate and clinical governance arrangements in place to provide a fully integrated ambulance service in the greater Dublin area. This should include a binding service level agreement, which includes formal quality and performance assurance reporting mechanisms.

Recommendation 4 HIQA Review 2014

The Health Service Executive and National Ambulance Service must immediately involve Dublin Fire Brigade in the National Ambulance Service Control Centre Reconfiguration Project to ensure a seamless and safe transition of services in Dublin.

Recommendation 5 HIQA Review 2014

The strategic direction of emergency ambulance service provision needs to be clearly articulated by the Health Service Executive, to include both the National Ambulance Service and Dublin Fire Brigade. In addition, both ambulance service providers must now review the current model of care provided which requires 100% transporting of patients to hospital emergency department in all cases. In the interim, both services should act to implement 'hear and treat' and direct access to alternative care pathways, to include local injuries units in smaller hospitals, where appropriate.

Recommendation 6 HIQA Review 2014

A comprehensive workforce plan should be devised and implemented to deliver an up skilled and modernised emergency response workforce, enabling a greater levels of professional autonomy and clinical decision-making.

Recommendation 7 HIQA Review 2014

Both the National Ambulance Service and Dublin Fire Brigade must continue to enhance their approach to the collective monitoring of service performance through the ongoing development of an accurate and balanced system of measurement and public reporting against both clinical, response time and other key performance indicators for pre-hospital emergency care.

This suite of measures should include the 7 minute 59 second first-response time for all ECHO and DELTA calls (patients who are in cardiac or respiratory arrest; and patients with life-threatening conditions other than cardiac or respiratory arrest) to include specific response times for cardiac arrest, stroke and heart attack, alongside measurement of ambulance turnaround times at hospitals. Response time indicators and their aligned targets should differentiate between urban, rural and combined response results, with the aim of driving incremental improvement in each setting.

Recommendation 8 HIQA Review 2014

Both the National Ambulance Service and Dublin Fire Brigade must develop and implement an ongoing community education programme promoting appropriate use of ambulances. Such public education should seek to reduce unnecessary requests for ambulances, and improve public awareness of the clinical skills and competencies that pre-hospital emergency care practitioners possess. Public awareness of, and support for alternate care pathways will be critical to their successful application

Recommendation 9 HIQA Review 2014

The National Ambulance Service needs to more effectively support managers at all levels. To enable this, the National Ambulance Service should undertake:

- A review of all job descriptions for executive, management and supervisory positions to ensure that key accountabilities and management competencies are properly articulated against business requirements
- An assessment of current management capabilities against revised job descriptions
- The provision of routine and ongoing training in a number of core areas for managers, to include: financial management, human resources management, performance management, quality improvement and information management.

Recommendation 10 HIQA Review 2014

To achieve timely and appropriate response to ECHO calls (patients who are in cardiac or respiratory arrest), the National Ambulance Service must as a priority actively promote the development of a comprehensive national programme of community first-response schemes in all rural and sparsely populated areas. The successful further development of these schemes will also require a significant increase in local volunteerism.

Recommendation 11 HIQA Review 2014

The National Ambulance Service must review the totality of its approach to both corporate and clinical risk management, to enable it to effectively determine and manage risk at all levels of the organisation. This requires the full cooperation of all National Ambulance Service personnel.

Recommendation 12 HIQA Review 2014

The National Ambulance Service must act to further enhance clinical governance capability, to include both the setting of standards and improved assurance. The National Ambulance Service must commence clinical audit, to allow it to be able to assure itself that the standard of clinical performance provided to the public is timely, effective and safe. This needs to begin now, and need not be delayed by the current lack of an electronic method of recording data. To facilitate clinical audit, it is recommended that the National Ambulance Service publically advertise and appoint a clinical quality lead at a senior level, reporting to the Medical Director of the National Ambulance Service.

Appendix C — Additional response time performance-related data findings of relevance to this review

This appendix outlines the additional response time performance-related data analysed for the purposes of this review.

Background

The 2014 HIQA Review included 12 recommendations around the provision of pre-hospital emergency care in Ireland that applied to both the National Ambulance Service and Dublin Fire Brigade. Recommendation 7 related to service performance and required both services to develop an accurate and balanced system of measurement and public reporting against both clinical, response time and other key performance indicators for pre-hospital emergency care.

At the time of this follow-up review, a comprehensive suite of performance indicators, including clinical outcome indicators, had not been developed by both services. In the absence of this, the 2016 Review Team analysed data in relation to response times for ECHO and DELTA calls against the targets determined by the HSE-commissioned National Capacity Review.

The 2014 HIQA Review had recommended that ambulance response times should differentiate between urban, rural and combined response results, with the aim of driving incremental improvement in each setting. The National Capacity Review supported this recommendation when it estimated the potential ability of the National Ambulance Service to deliver performance based on call frequency by geographical area.

This involved categorising ambulance calls into major urban, minor urban and rural areas. The findings also support the 2014 HIQA recommendation that the National Ambulance Service could potentially achieve improved response times through improved operational efficiencies.

Response times in the context of the Ireland's relative rurality

The National Capacity Review highlighted that the difficulty in achieving response rates similar to other jurisdictions may be due to Ireland's lower and more dispersed population as it is more difficult to respond quickly to calls in rural areas due to increased driving distances. The National Capacity Review identified that there was increasing demands on the resources of both services over the period 2011–2013. Demands on the National Ambulance Service and Dublin Fire Brigade grew by around 6.5% and 1% respectively during this period. The interim period between 2014 and 2016 saw an increase in the demands on both services. Figures supplied

to the HIQA Review Team showed the National Ambulance Service saw an average increase in total calls received over this period of 8% per year.

Similarly, the Dublin Fire Brigade saw an average monthly increase of 3.3% in the numbers of emergency ambulances dispatched from January to June 2016, when compared to the same six month period in 2015. This demonstrates the increasing demand on the resources provided by both services. The following sections discuss the performance of both services against this increasing demand.

First responder on scene within 7 minutes and 59 seconds

First-response time reflects the time it takes for a suitably qualified individual who is notified of an incident by the ambulance control centre, to reach the patient. The National Capacity Review found that the potential best achievable response time in Ireland given its comparative rural nature was a response within 7 minutes 59 seconds in 60.6% of cases. It was found to be the best achievable rate possible if the National Ambulance Service was fully resourced, using that resource as efficiently as possible, and supported by a comprehensive network of community first responder schemes.

National Ambulance Service

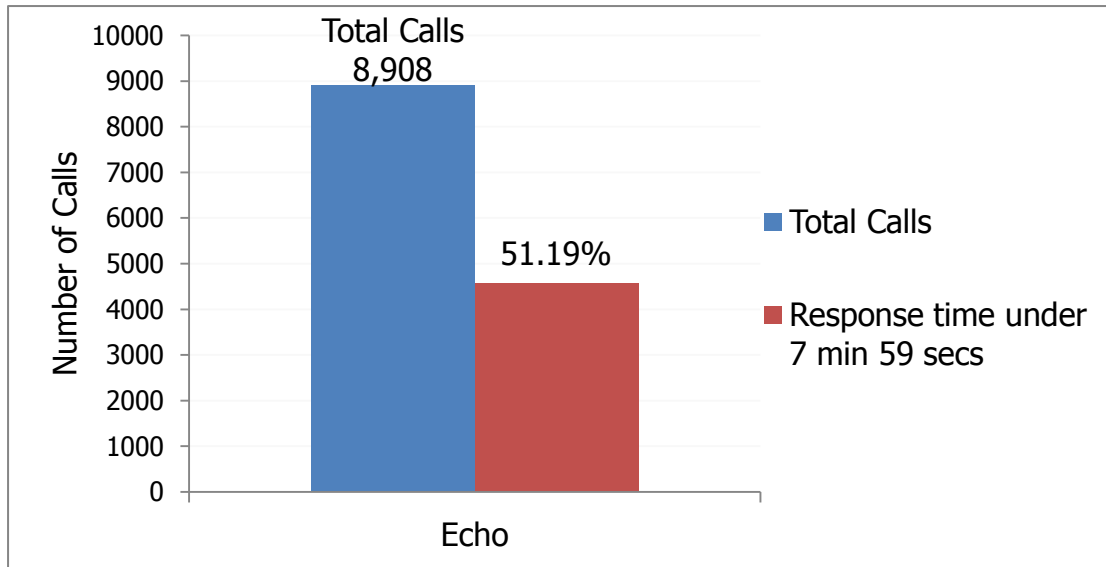
As part of this follow-up review, the National Ambulance Service submitted figures for a first responder at the scene of a life threatening ECHO or DELTA incident for the period from April 2014 -July 2016.

These figures indicate that the National Ambulance Service:

- received 247,624 emergency calls that were classified as either ECHO or DELTA calls
- 8,908 or 4% of these calls were classified as ECHO
- 238,716 or 96% were classified as DELTA.

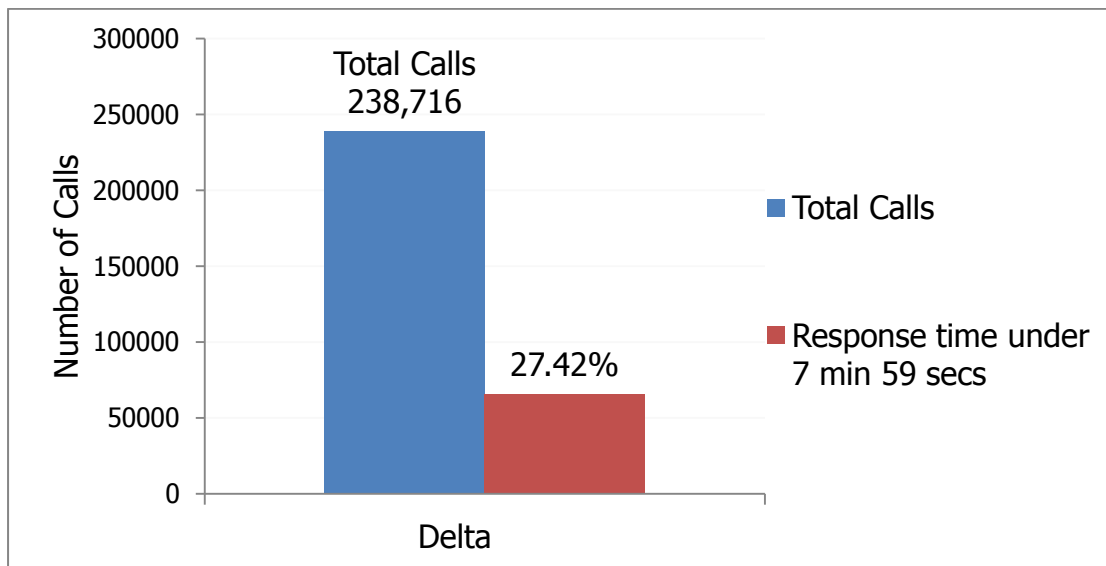
Of the 8,908 ECHO calls received, a first responder was on the scene of incident within 7 minutes and 59 seconds in 51.19% of the time (see Figure 1).

Figure 1 — National Ambulance Service ECHO response times within 7 minutes 59 seconds April 2014–July 2016



Of the 238,716 DELTA calls received, a first responder was on the scene of incident within 7 minutes and 59 seconds in 27.42% of the time (see Figure 2).

Figure 2 — National Ambulance Service DELTA response times within 7 minutes 59 seconds April 2014–July 2016



These figures show that the National Ambulance Service had a first responder on the scene within 7 minutes and 59 seconds, for 51.19% of ECHO calls and 27.42% of DELTA calls. This falls below the response rate of 60.6% advocated by the National Capacity Review as being potentially achievable in a situation where it was fully resourced, using those resources optimally, and supported where appropriate by a community first response.

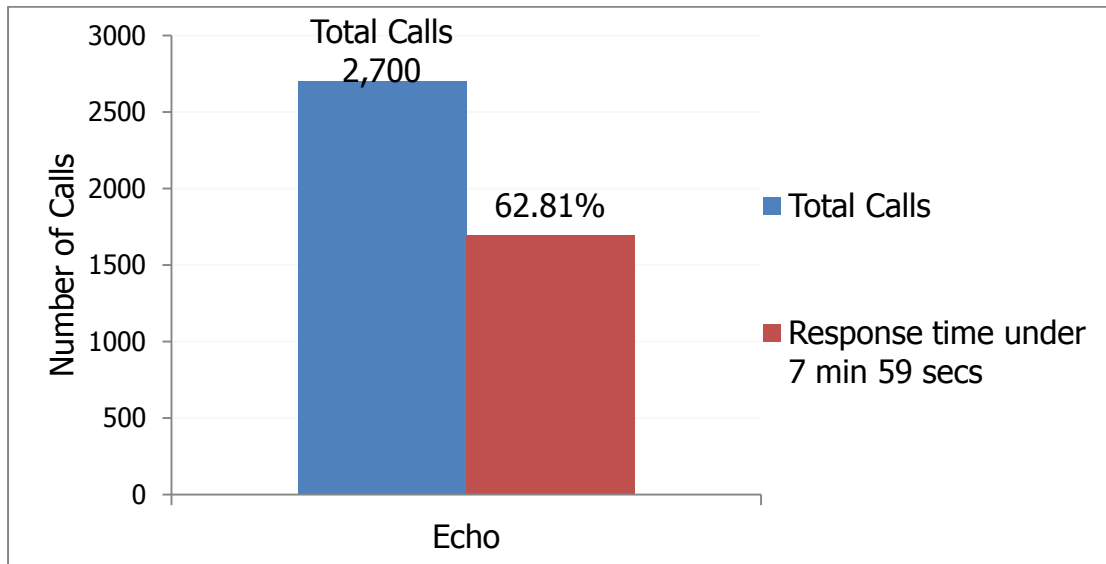
Dublin Fire Brigade

Figures supplied by the Dublin Fire Brigade during the course of this follow-up review show that for the same time period from April 2014–July 2016, Dublin Fire Brigade:

- received 73,003 emergency calls that were classified as either ECHO or DELTA
- 2,700 or 4% were classified as ECHO calls
- 70,303 or 96% were classified as DELTA calls.

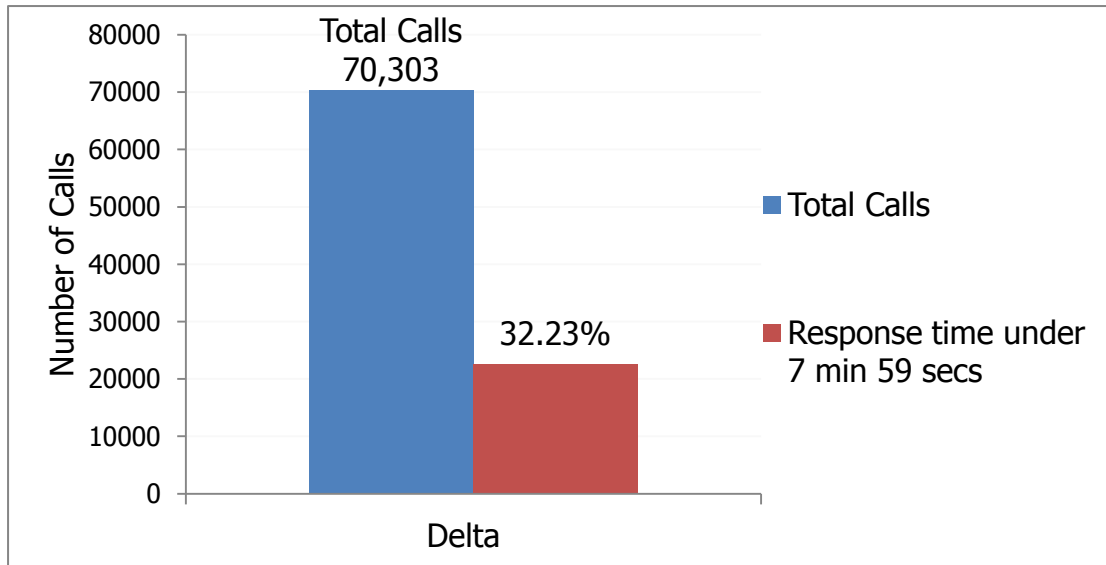
Of the 2,700 ECHO calls received, a first responder was on the scene of incident within 7 minutes and 59 seconds in 62.81% of ECHO calls (see Figure 3).

Figure 3 — Dublin Fire Brigade average ECHO response times within 7 minutes 59 seconds April 2014–July 2016



Of the 70,303 DELTA calls received, a first responder was on the scene of incident within 7 minutes and 59 seconds in 33.36% of DELTA calls.

Figure 4 — Dublin Fire Brigade average DELTA response times within 7 minutes 59 seconds April 2014–July 2016



The response rate for ECHO calls for Dublin Fire Brigade was above the expected National Capacity Review figure. However, from the submitted data, it is clear that ECHO calls comprise a small minority of the overall number of life-threatening incidents which Dublin Fire Brigade responds to. The response rate for DELTA calls is 33.36% — below the potentially best achievable national response rate of 60.6% advocated by the National Capacity Review.

In further interpreting this data, it should be noted that Dublin Fire Brigade responds to calls in the City of Dublin and North County Dublin, which is made up of a predominantly major urban area with some minor urban and rural areas. The National Capacity Review recommended that in a major urban[‡] area, an appropriate potentially achievable response rate target that a first responder should be on the scene of an ECHO or DELTA incident within 7 minutes 59 seconds was 85%.

Dublin Fire Brigade performance during this time period fell significantly below the national 85% performance target for DELTA calls as advocated by the National Capacity Review.

Patient carrying vehicle on scene within 18 minutes 59 seconds:

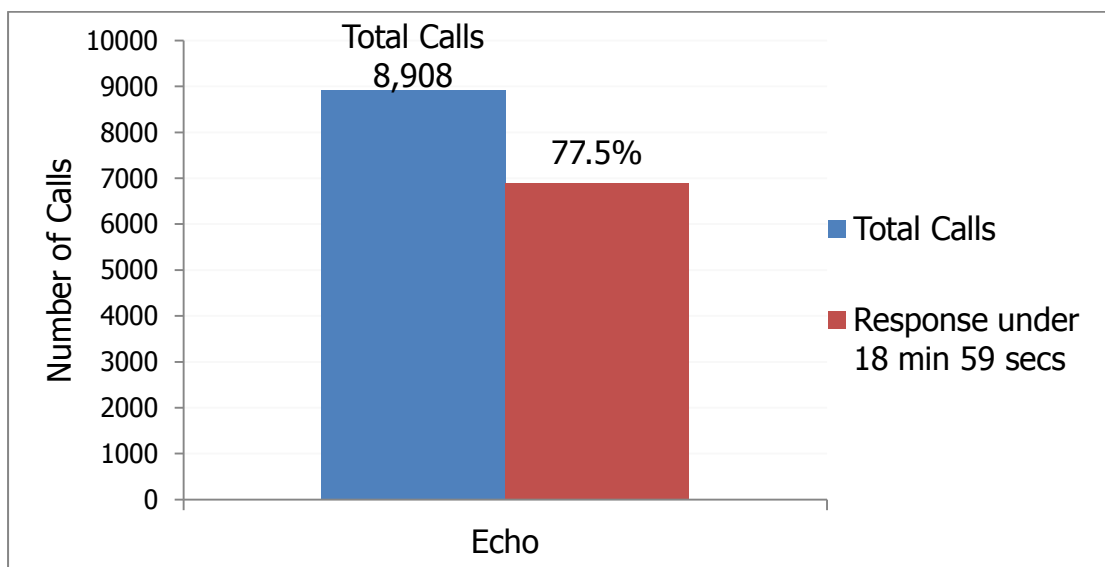
The National Capacity Review indicated that the best potential response rate for a patient carrying vehicle to be on scene within 18 minutes and 59 seconds for an adequately resourced, efficient ambulance service operating in Ireland would be 81.5%.

[‡] These are areas of a 5km radius that have 6 or more emergency incidents per day. National Ambulance Service of Ireland emergency service baseline and capacity review. Lightfoot Solutions UK Ltd 05 October 2015 P27

National Ambulance Service

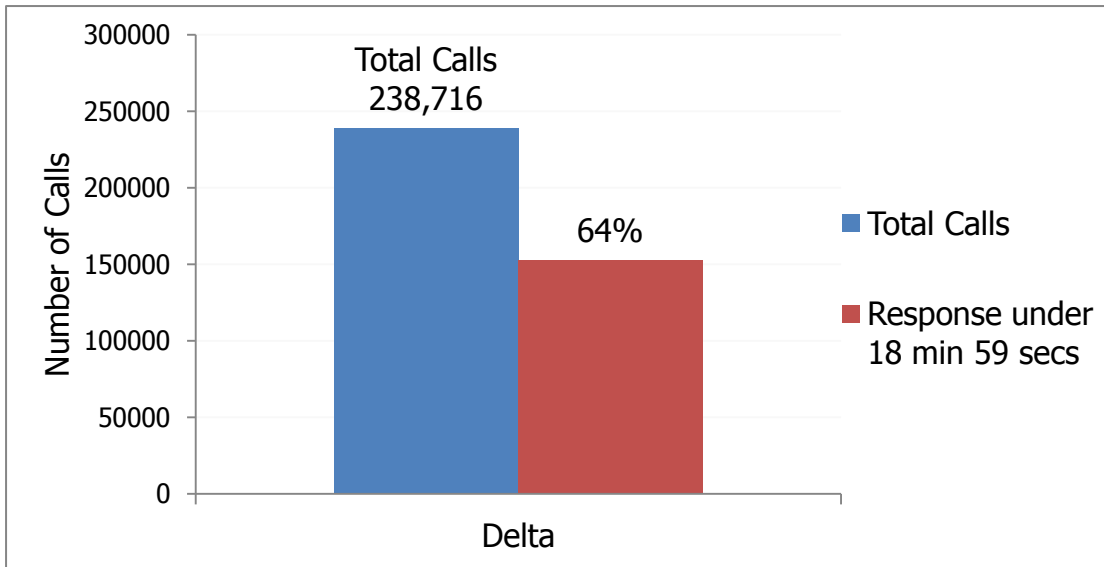
The response times for ECHO and DELTA calls responded to by the National Ambulance Service with a patient-carrying vehicle from May 2014–September 2016 are outlined in the following set of graphs. An analysis of performance data published by the HSE shows that for ECHO calls, the National Ambulance Service falls just short of the recommended target identified by the National Capacity Review of 81.5% in a situation where it was fully resourced and performing optimally. For this period, the National Ambulance Service received 8,908 ECHO calls. A patient-carrying vehicle was on the scene of the incident within 18 minutes and 59 seconds in 77.5% of ECHO calls (see Figure 5).

Figure 5 — National Ambulance Service ECHO response times 18 minutes 59 seconds April 2014–July 2016



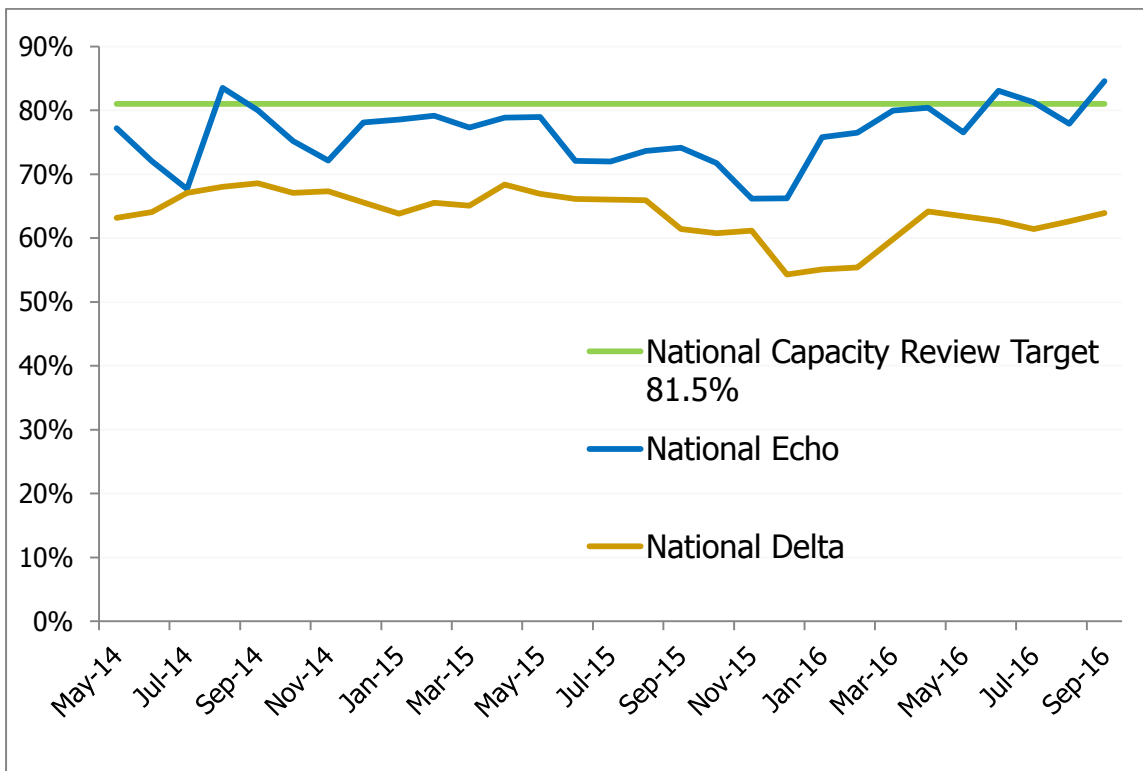
For the same period, the National Ambulance Service received 238,716 DELTA calls. A patient-carrying vehicle was on the scene of the incident within 18 minutes and 59 seconds in 64% of DELTA calls.

Figure 6 — National Ambulance Service DELTA response times 18 minutes 59 seconds April 2014–July 2016



The graph below shows the National Ambulance Service response rate for a patient carrying vehicle on the scene of an incident within 18 minutes and 59 seconds.

Figure 7 — National Ambulance Service ECHO and DELTA response times within 18 minutes 59 seconds May 2014–Sept 2016



This data shows that the recommended average response time of 81.5%, as outlined by the National Capacity Review in a situation where the service was fully

resourced and performing optimally, is generally not being met by the National Ambulance Service.

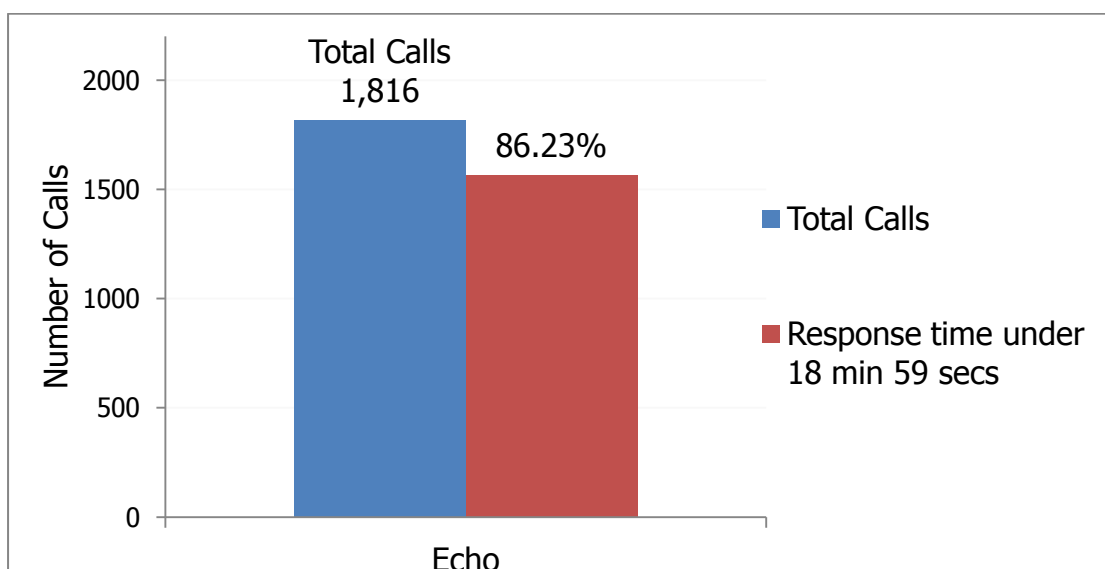
Dublin Fire Brigade

Similarly, an analysis of performance data published by the HSE for Dublin Fire Brigade for the same time period shows that the average response time for a patient-carrying vehicle to be on scene within 18 minutes and 59 seconds was 86.23% for an ECHO call and 74.98% for a DELTA call.

The National Capacity Review recommended that in a major urban area, a patient-carrying vehicle should be on the scene of an ECHO or DELTA incident within 18 minutes 59 seconds in 95.5% of all cases in a situation where the service was fully resourced, and using that resource optimally. As stated previously, most incidents to which the Dublin Fire Brigade responds to happen within Dublin City. This falls within the definition of major urban area. However, data published by the HSE indicates that Dublin Fire Brigade is not consistently meeting this target of 95.5%.

Therefore, data has been compared to both national and major urban targets as calculated by the National Capacity Review. For this period, the Dublin Fire Brigade received 1,816 ECHO calls. A patient carrying vehicle was on the scene of incident within 18 minutes and 59 seconds in 86.23% of ECHO calls (as illustrated in Figure 8).

Figure 8 — Dublin Fire Brigade ECHO response times within 18 minutes 59 seconds April 2014–July 2016



For this period, Dublin Fire Brigade received 63,735 DELTA calls. A patient-carrying vehicle was on the scene of incident within 18 minutes and 59 seconds in 74.98% of DELTA calls (see Figure 9).

Figure 9 — Dublin Fire Brigade DELTA response times within 18 minutes 59 seconds April 2014–July 2016

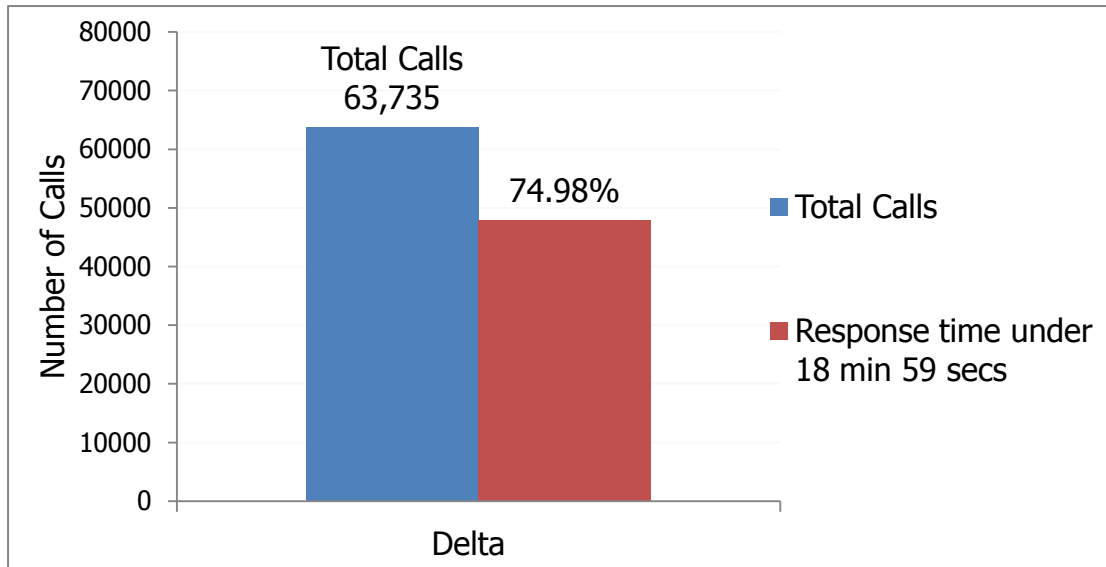
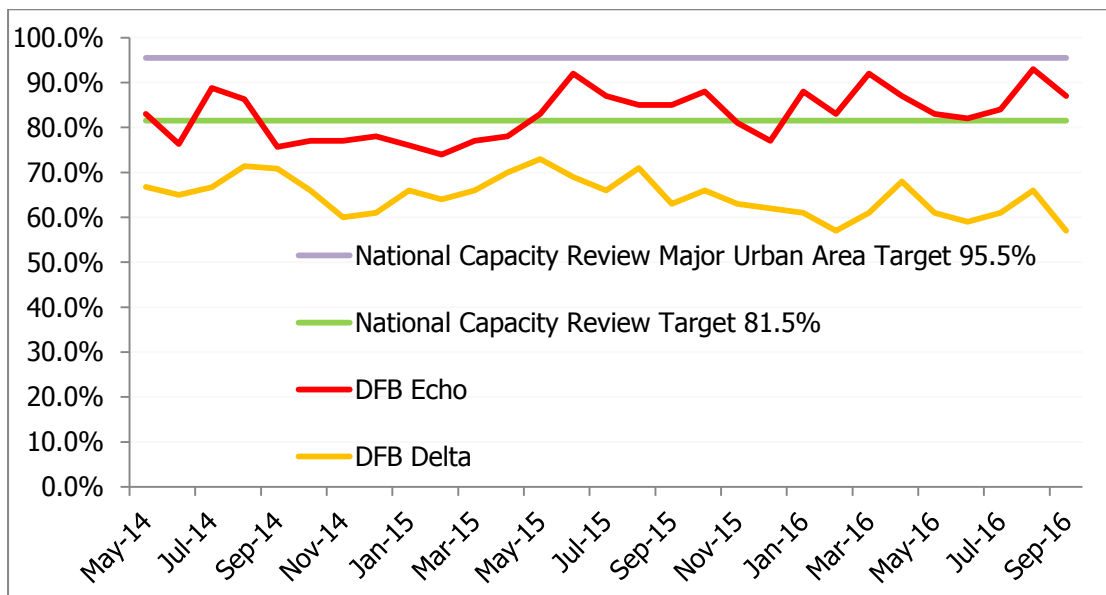


Figure 10 — Dublin Fire Brigade ECHO and DELTA response times within 18 minutes 59 seconds May 2014–Sept 2016



Therefore, the Dublin Fire Brigade emergency ambulance response time — for a patient-carrying vehicle at the scene of an ECHO or DELTA call in 18 minutes and 59 seconds — is below the level identified for an adequately resourced service where those resources are being efficiently used.

It should be noted, however, that the data for both ECHO and DELTA calls is set against a background of increasing year-on-year demands on the ambulance services operated by the National Ambulance Service and Dublin Fire Brigade.

Turnaround times

The 2014 HIQA Review had found that in May 2014, the National Ambulance Service in conjunction with the HSE's National Acute Hospitals Division introduced a performance indicator to monitor ambulance turnaround time at hospital emergency departments.

The HSE implemented a target of 30 minutes total turnaround time for the emergency vehicle and crew being ready to respond to the next incident. Up to December 2014, the National Ambulance Service reported to the HSE against the following two indicators:

- % of emergency ambulances released and their crews and vehicles available to respond to further calls within 30 minutes or less
- % of crews and vehicles clear and available to respond to further calls within 60 minutes.

Then in January 2015, a third performance indicator was added to the monthly performance reports as follows:

- % delays escalated where ambulance crews were not cleared nationally in 60 minutes in line with the process and or flow path in the ambulance-turnaround framework.

The 2016 HIQA Review Team noted that from August 2015, the HSE's performance reports stopped reporting against the following performance indicator:

- % of emergency ambulances released and their crews and vehicles available to respond to further calls within 30 minutes or less.

This change in the reported data shows a shift away from reporting on the status of an ambulance at an emergency department after 30 minutes toward reporting on its availability status against a higher turnaround time of 60 minutes.

The following table — taken from the HSE monthly performance reports from January–September 2016 — indicates the total number of ambulances with turnaround times greater than three hours for this time period in the following categories:

- greater than 3–4 hours
- greater than 4–5 hours
- greater than 5–6 hours.

Figure 11 – Ambulance turnaround times for January 2016 - September 2016

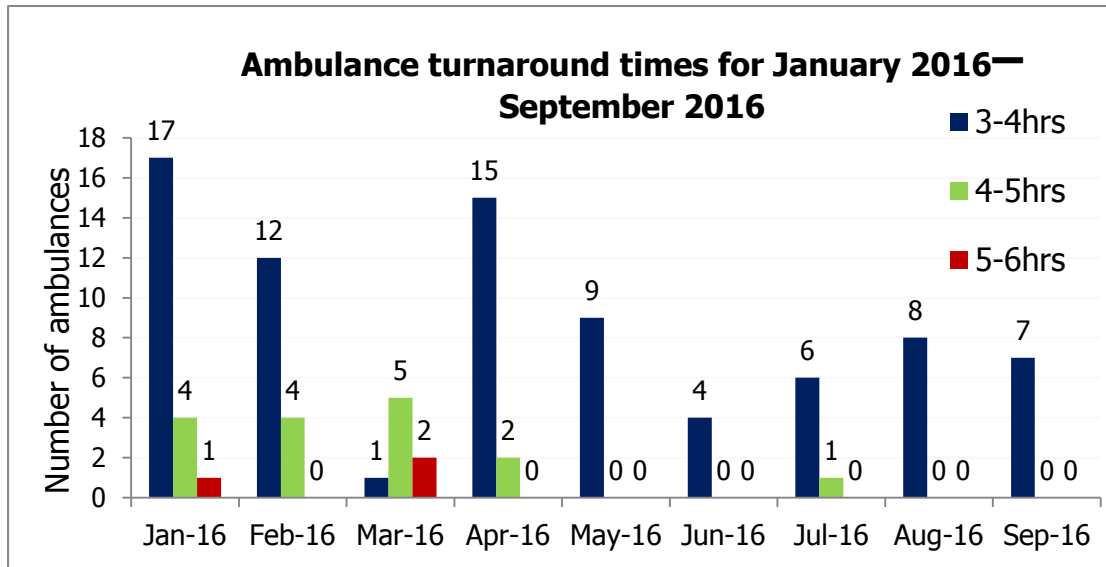


Figure 11 shows that for this period, the number of ambulances with turnaround times greater than three hours generally decreased. This indicates that patients were usually transferred from an ambulance to the hospital more efficiently and that ambulance crews were therefore available to respond to subsequent emergency calls sooner. This is a positive indicator of improvement in the efficiency of the service during this time window. However given that the ability of ambulance services to handover patients at emergency departments may be significantly impacted upon by patient flow and crowding difficulties in these departments, it is likely that seasonal factors outside of the control of ambulance services may have also contributed to this pattern of improvement. It is important that both service providers continue to measure, publicly report and work to improve and influence performance with respect to this aspect of the patient journey.

Conclusion

In conclusion, there have been some improvements in the quality and safety of the service provided by both the National Ambulance Service and the Dublin Fire Brigade since the 2014 HIQA Review. However, since the 2014 HIQA Review, limited progress has been made in developing and implementing assurance mechanisms, such as clinical audit and outcome measurement. Progress has also been slow in developing clinical outcome indicators for specific conditions as advised in Recommendation 7 of the 2014 HIQA Review.

§§§§§§§§ number of emergency ambulance and the time spent by each ambulance in hospital emergency departments nationally

Without such indicators, the 2016 follow-up Review Team focused on response times as a performance measure used by both services. This follow-up review found that both services do not achieve the response rates calculated as being potentially achievable by the National Capacity Review, in a situation where the service was fully resourced, performing optimally, and supported by an extensive and effective network of community first responder schemes. This is set against the background of increasing demands on resources due to increased call volumes for the National Ambulance Service and Dublin Fire Brigade. Of particular concern is the performance by Dublin Fire for life-threatening DELTA calls. This concern was escalated by HIQA to the Deputy Chief Executive CEO of Dublin City Council during this review for further mitigation, as outlined in Chapter 2 of this report.

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