



ASSOCIATION OF
AMBULANCE
CHIEF EXECUTIVES

Bringing together skills, expertise and
shared knowledge in UK ambulance services

Delayed hospital handovers: Impact assessment of patient harm



NOVEMBER 2021

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1.0 Executive Summary

The nationally defined target for hospitals included in the NHS Standard Contract states: “All handovers between ambulance and A+E must take place within 15 minutes with none waiting more than 30 minutes”. Since April 2018, an average of 190,000 handovers have missed this target every month (accounting for around half of all handovers). In September 2021 over 208,000 exceeded the 15 minutes target.

This report by the Association of Ambulance Chief Executives (AACE), uniquely focuses on a structured clinical review, undertaken to assess the potential harm that patients experience as a result of extended delays in their handover between ambulance and hospital clinicians. We have done this as an exploratory exercise, and to provide learning for all Integrated Care Systems (ICSs) so that providers can work together to reduce the patient safety risks inherent in handover delays.

In publishing the findings from this review, we do so to reflect the impact of the pressures on urgent and emergency care systems across the country and how this is affecting patients. We recognise that many things are changing for the better in the way healthcare is delivered and much has been learned from the significant and rapid collaboration between providers to problem solve during the Covid-19 pandemic. But on top of the need to catch up with elective work, demands on all services across the NHS are increasing, as are delays in handover of patients at emergency departments (ED) which are also increasing in duration.

All parts of the system have a part to play in how we manage demand pressures and mitigate the risks to patient safety. This report is not a finger-pointing exercise, and no one sector or provider holds the blame in an ever-fluctuating environment. This is, however, a clarion call for NHS England and Improvement, and all ICSs, to work with providers so that handover delays do not occur and do not result in harm and poor patient experience.

A fundamental principle for the NHS is that no patient should come to harm whilst in the care of an NHS body. Hospital handover delays are a known risk to patients, whether for those waiting outside in the ambulance for admission to the ED, those patients on an ambulance trolley in a hospital corridor, or for patients waiting for an ambulance response in the community, which may be delayed due to resources being held up outside hospitals. Such delays result not only in poor patient experience, and impact negatively on ambulance staff, but they also have a potentially adverse effect on the patient’s condition and outcome.

Despite ongoing efforts over the years by hospital and ambulance trusts to mitigate this risk and avoid harm to patients, handover delays remain a significant problem. Whilst there have been noticeable improvements in some areas in respect to handover processes, logistical arrangements in EDs and patient flow into and out of hospitals, the challenge of handover delays persists in some places on a daily basis, and we continue to see a rise in both the number of patients affected and the length of these delays. We are, however, also clear that the problem can be solved and should not be seen as intractable. Even in recent months we have seen some hospitals where there have been persistent difficulties with handover delays, turn the situation around and maintain that improvement despite the current pressures on the Urgent and Emergency Care (UEC) system. More needs to be done to share what works and spread learning and best practice across systems.

The risks of harm being caused by belated access to definitive care are often very clear, such as delay to reperfusion of a blocked coronary artery. However, there are many other forms of harm that can be experienced by these delays such as emotional harm, cumulative harm, and harm from having to lay on a stretcher, for an extended period of time, that is not designed for frail and vulnerable skin. We know that some patients have sadly died whilst waiting outside EDs, or shortly after eventual admission to ED following a wait. Others have died while waiting for an ambulance response in the community. Regardless of whether a death may have been an inevitable outcome, this is not the level of care or experience we would wish for anyone in their last moments. Any form or level of harm is not acceptable, and we need to shine a light on the patient experience of these delays.

The key finding of our clinical review which looked at samples of handover delays of over an hour that occurred across the country on 4th January 2021, is that the proportion of patients identified as potentially having experienced harm is significant. Over 8 out of 10 of those whose handover was delayed beyond 60 minutes were assessed as likely to have experienced some level of harm, with just under 1 in 10 being classified as potentially experiencing severe harm. The extensive presence of the possibility of harm identified within this sample is deeply concerning. The number of delays experienced on 4th January 21 is typical of most days, and it is therefore legitimate to extrapolate this data to give an indication of the overall harm being experienced in any given month or across the year. Extrapolated data shows that the likely frequency and levels of harm being experienced during handover delays is extremely concerning and presents a position that is totally unacceptable to all involved in patient care. It is therefore imperative that action is taken to eliminate these delays once and for all.

In view of the harm that delays in handover can cause to patients, we seek to emphasise that **there is still not enough being done to adequately address this risk.** We need tangible steps be taken at national, regional and ICS level, to implement *rapid* system improvement, particularly for those hospitals where delayed handovers are occurring consistently. By rapid we mean in addition to the current improvement initiatives underway and the routine monitoring of related action plans.

This is a challenge for whole systems, in many places requiring a change in mindset and a wider awareness of the risks and responsibilities involved. Innovative and collective thinking is required, with more focus on out-of-hospital care provision and care pathways availability (especially out-of-hours), including other services that can take the pressure off EDs eg Same Day Emergency Care Services (SDEC). Systems must ensure that patients have access to care in the right place, and only patients who need to receive emergency treatment are referred to ED. Equally, an increase in availability and access to social care is vital in assisting patient flow into and out of hospital. In light of the evidence pointing to patient harm highlighted by this review, we are calling on system leaders to join us in sending a clear message that delays in taking handover from ambulance clinicians must not happen.

Focus on handover delays is continuing at national level in the review of the UEC Standards. There needs to be caution in setting these new metrics so that there are no unintended consequences for patients arising from incentives to meet individual measures eg for EDs to 'hold' patients in ambulances in order to preserve the binary scores of other measures relating to ED waiting times. **In monitoring handover delays this standard needs to ensure that it does not hide excess wait times** - ie it would be possible for a hospital to achieve 90% compliance with the 15 minutes standard but have multiple waits of over an hour.

Following on from the clinical review we have undertaken, we would like to see a consistent **methodology adopted by ICSs, to measure potential and actual harm arising from handover delays and long waits in the community**, to keep the focus on patients and their experience whilst in UEC - including capturing actual outcomes. This is an important learning exercise that, in the longer term, could help identify where improvements need to be prioritised for the benefit of patients across systems.

Given that multiple patients are likely experiencing preventable severe harm, **all handover delays over 60 minutes must be viewed as completely unacceptable**. Firm and immediate action needs to be taken at national, regional and ICS level to eliminate these delays once and for all and ensure that they do not reoccur going forward.

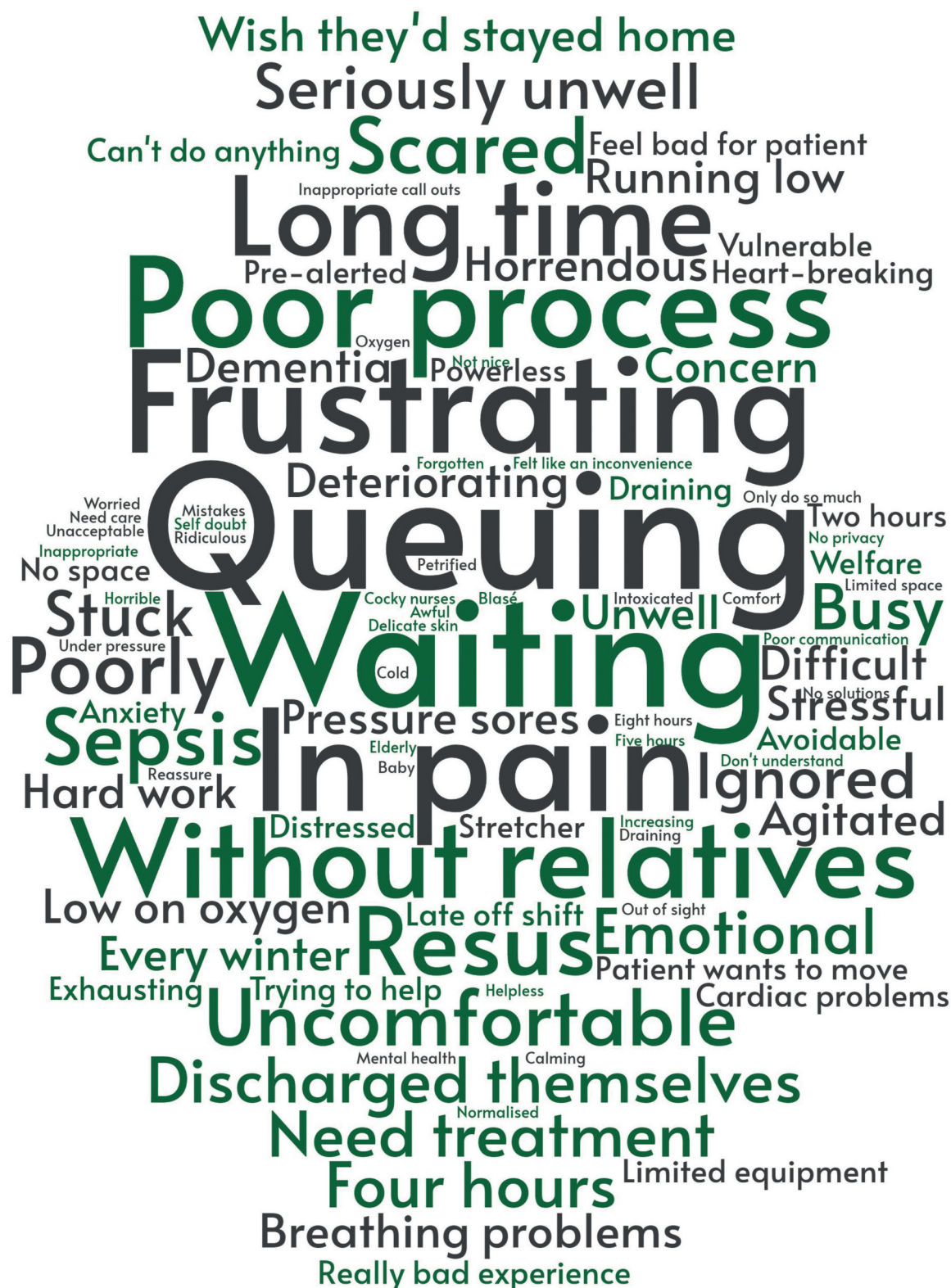
We are recommending to the Health Services Investigation Bureau (HSIB) that handover delays, and serious incidents that arise for patients waiting for a response due to ambulance resources being held up outside EDs, are subject to an **independent thematic review**; the aim being to share focussed learning of what works in addressing these challenges to ensure improvements can be more widely implemented.

We are calling on the **CQC to include hospital handover delays in their inspections of local health systems** to ensure that any risks are clearly identified to ICSs in order to ensure that the significant patient safety concerns we have raised are robustly addressed with a meaningful and well-led whole system approach.

All ambulance services across the UK remain absolutely committed to working with their partners in implementing changes that prevent harm to patients, improve patient care and ensure that ultimately the handover standard of 15 minutes can be consistently met.



The Impact of Handover Delays on Ambulance Clinicians

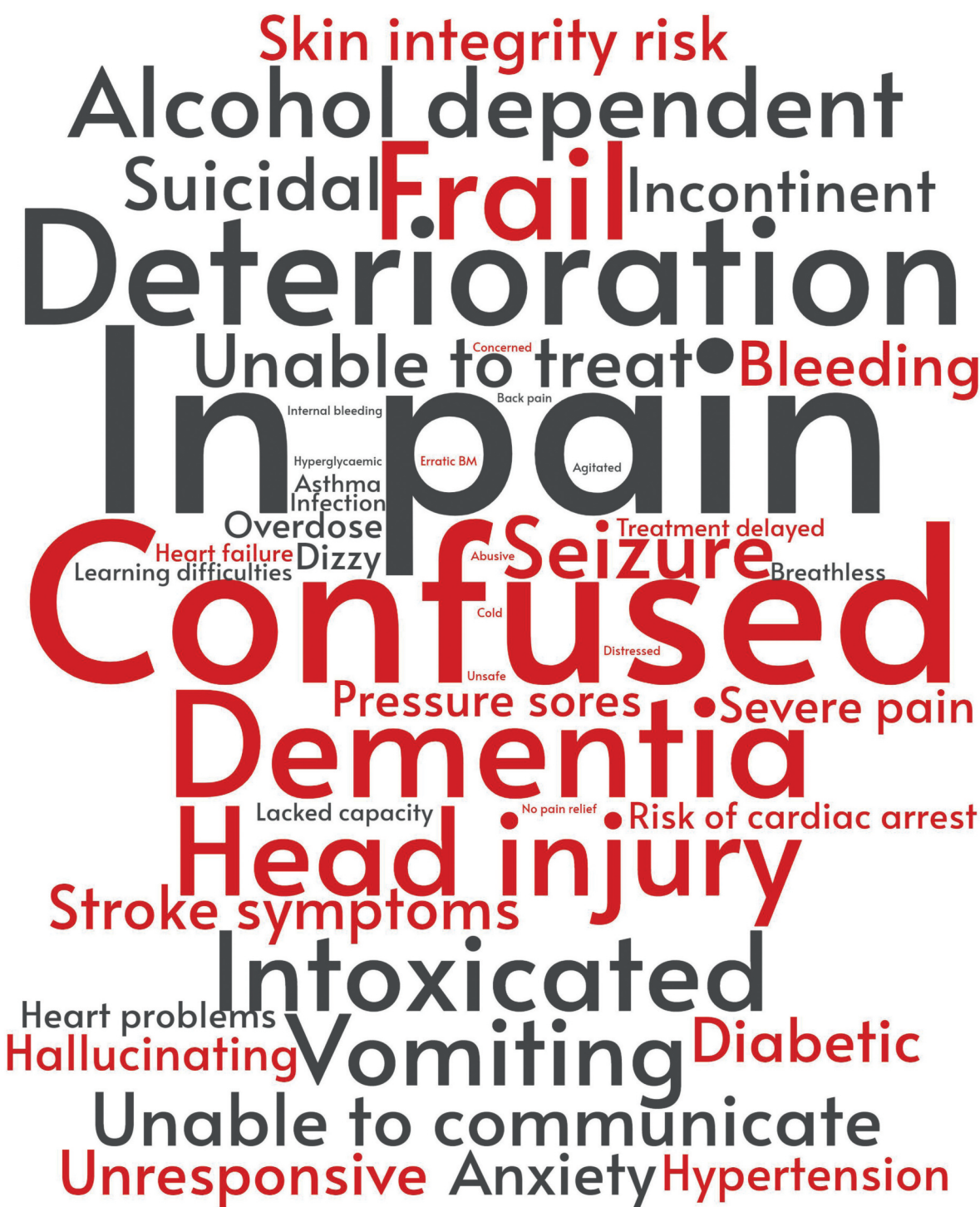


Words and phrases derived from staff interviews:
size of word relates to number of mentions within interviews





The Patient Experience from Handover Delays



Words and phrases derived from 470 case reviews:
 size of word relates to number of mentions within case reviews



2.0 Background

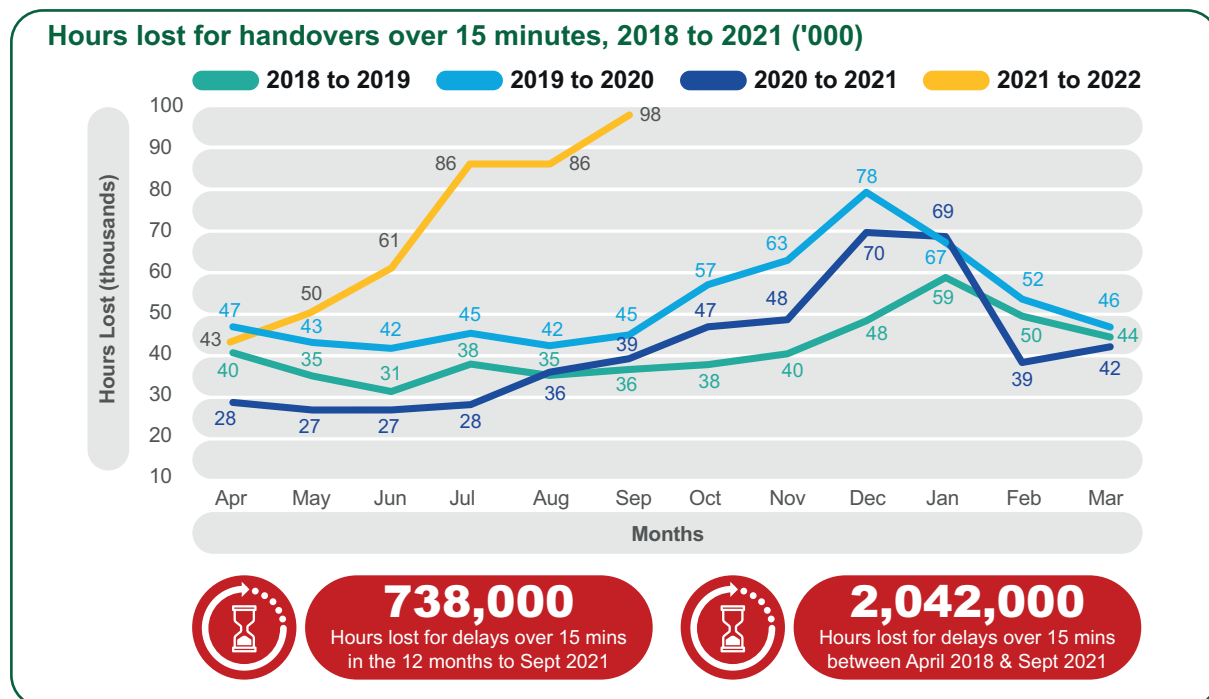
One of the most significant ongoing challenges faced by hospital and ambulance trusts has been to achieve the handover of patients at hospital within the agreed standard of 15 minutes¹.

During the past 18 months while responding to the coronavirus pandemic this challenge has been exacerbated by the impact of multiple factors. Handover delays reduced dramatically across the country early on in the pandemic (January - April 2020) due to necessary changes in healthcare arrangements to protect NHS capacity, as well as public fear and behaviour, however, the numbers quickly rose back up again as winter approached. We now have a situation where each month there are over 200,000 patients experiencing handover delays, with up to 25,000 of these delays being more than four times longer than the expected standard of 15 minutes. In the 12 months to September more than 185,000 patients experienced a delay in handover at ED of longer than an hour. This has not been helped by surges in demand, essential infection prevention and control measures required within EDs, and resourcing challenges due to sickness absence of healthcare workers.

As the second wave hit and with the onset of winter 2020, handover delays escalated such that large numbers of patients were being held in ambulances outside hospital EDs for unprecedented lengths of time - some cases waiting more than 10 hours. The Royal College of Emergency Medicine and College of Paramedics released a joint statement in January 2021 highlighting the problems associated with delayed handovers². It is especially worrying when we have handover **delays in cases where the ED has been pre-alerted by the ambulance crew** of the pending arrival of a patient who needs immediate handover to definitive care e.g. for a patient whose condition is rapidly deteriorating, or who has a certain life-threatening condition.

But delays in hospital handover had been a **significant concern long before the pandemic arrived** - highlighted in the Zero Tolerance report produced by AACE with the NHS Confederation in 2012³. Every hour lost to handover delay represents a patient that could have been attended to, following their call to 999 (see Figure 1a).

Figure 1a.



Source: Ambulance trusts operations handover reporting data

¹NHS England » NHS Standard Contract Particulars – Full Length

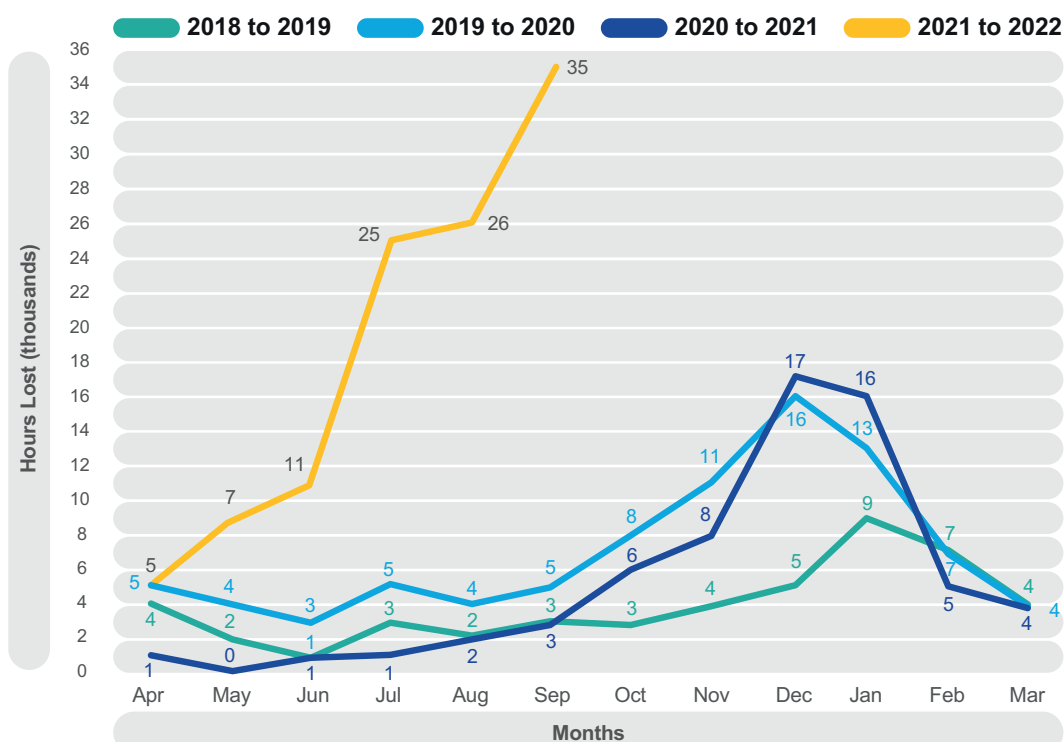
²RCEM_College_Paramedics_Joint-Statement_Handover_Delays_Mar_2021-3_3710e8c1d.pdf (cloudinary.com)

³Zero tolerance: Making ambulance handover delays a thing of the past - aace.org.uk



Figure 1b.

Hours lost for handovers over 60 minutes, 2018 to 2021 ('000)



8,000

Monthly average number of patients
delayed > 60 mins
12 months to September 2019

8,100

Monthly average number of patients
delayed > 60 mins
12 months to September 2020

15,500

Monthly average number of patients
delayed > 60 mins
12 months to September 2021

Source: Ambulance trusts operations handover reporting data

Despite our 2012 report, lengthy delays in handover continue to cause **concern for patient safety - both in respect of those patients waiting to receive care in the ED, and for the patients who may have life-threatening conditions waiting in the community for an ambulance to arrive.** An expedient handover and turnaround time for the ambulance crew (within 15 minutes after handover) are important to ensure that the patient reaches definitive care promptly, and the ambulance can be prepared and ready to attend waiting emergency calls in the community, within 30 minutes from arrival at the ED.

Ambulance clinicians are not trained to care for patients for extended lengths of time, and the ambulance environment and equipment are not designed for long-term care. No healthcare professional can deny that treating patients for extended periods of time in the back of an ambulance is inappropriate. And no one can deny that patients having to wait lengthy periods for an ambulance to arrive after calling 999 is not safe practice or a positive patient experience. **Such instances do not represent the high level of quality care all those who work in the NHS would wish to provide for their patients.**

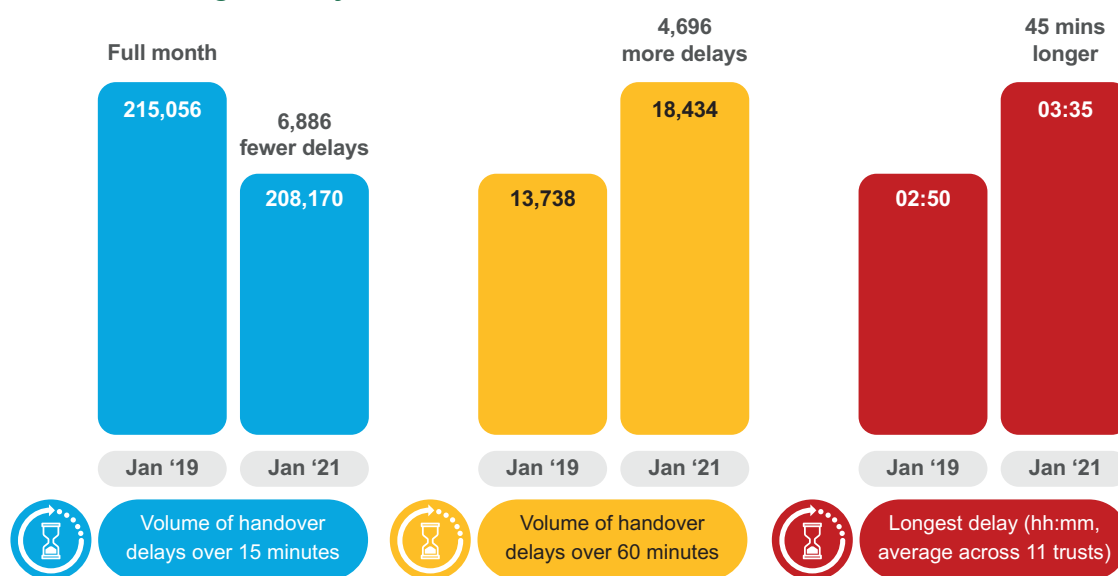
For several years now, amidst increasing demand on health systems, individual hospitals have been endeavouring to ensure timely and effective patient flow into and out of their EDs. The problem of handover delays, however, continues to persist in many hospitals across the country. All hospitals will experience 'bad days' in terms of matching capacity to surges in demand, but it is frustrating, and not good for patients, that **for some hospitals every day is a 'bad day'.**

Whilst the number of delayed handovers in 2020/21 has for most months been slightly less than in 2019/20, the numbers of patients waiting longer than 1 hour have increased by more than 4,500 (see Figure 2). In January 2019 the longest delay was just over 8 hours, and in January 2021 it was 9 hours 20 mins. **Our review demonstrates that an increase in longer waits means an increase in the risk of harm to patients.**



Figure 2.

Although the volume of all delays decreased, delays over 60 minutes have increased, as have the longest delay times.



Source: Ambulance trusts operations handover reporting data

Efforts continue at national and regional levels to monitor hospital handover delays and the factors that influence this, and to identify where trusts can learn from effective improvements and ensure solutions are implemented. In many hospitals the improvements in practice are noticeable and reductions in delays have been significant, but they have not yet been eliminated.

So far, no attempt has been made to assess the impact of handover delays on patient safety, harm, and experience. Recognised deterioration and missed opportunities for early intervention with obvious impacts on outcome have resulted in recording of cases as Serious Incidents (SIs), and subsequent investigation may identify patient harm; but to-date no actual attempt to measure and collect evidence of harm on a national scale has been conducted.

There remains some confusion and conflict in terms of ownership of SIs relating to handover delays, and which provider (hospital or ambulance) is responsible for reporting and investigating. This is not so much a problem when events take an obvious untoward turn during a handover delay but is more so when there is no recognition of the poor patient experience or potential harm caused as a result. Ambulance services rarely have access to patient outcomes which makes it

harder to identify when a SI may have arisen. Roll out of the Ambulance Data Set (ADS) and improvements in an integrated system approach to metrics such as handover targets should, in time, make this easier. However, the aim should always be to remove the risk of these delays so that subsequent SIs do not occur.

Whilst instances of severe harm are obviously most concerning, every case of harm, even low-level harm (for example lack of basic welfare needs such as toileting, access to food and drink, and warmth) is unacceptable. These factors can still contribute to poor clinical outcomes and may have long lasting, detrimental psychological effects on the patient and their experience of care.

We are also aware of the impact of hospital handover delays on the health and wellbeing of our staff. Anecdotal feedback from ambulance clinicians has often highlighted the adverse impact handover delays and the poor patient experience can have on them as frontline workers, particularly when their patient is extremely unwell or distressed and they are unable to do any more for them. Experienced staff have been reduced to tears, and this, again, is not what anyone wishes for their patients or workforce. This has been an additional adverse factor over the past year, on top of the unprecedented pressures of working in a pandemic. Not only is it distressing and frustrating for staff who are unable to get their patient the treatment they need in a timely manner, they can end up with delayed meal breaks and/or working sometimes several additional hours after a 12 hour shift. This inevitably impacts significantly on their own safety, health and well being. Interviews have been conducted in some trusts to gain feedback from staff on their experiences of handover delays. Formally assessing the levels of harm experienced by ambulance staff was not however included as part of this study, but we envisage including this aspect in more detail in future reviews.

The AACE has worked with all ambulance trusts to coordinate the clinical review that informs this report, to assess potential levels of harm experienced by a sample of patients who were subject to a delay in their handover in January 2021, and specifically to highlight the patient perspective of handover delays.



3.0 Structured Clinical Review

AACE initiated an impact assessment through a structured clinical review process, to support discussions at a national level and to encourage the development of a consistent process for ICSs in assessing levels of harm to patients as a result of delays in handovers at ED. Every case is of course different and to measure the impact in terms of 'harm caused' within the clinical review conducted, was to some extent subjective especially as, for the majority of cases, the actual outcome for the patient is not known to the ambulance service.

The harm assessment methodology we have used for this review was developed as an iterative process involving a number of ambulance trust leads including nurses, paramedics, risk, medical and quality leads. All UK ambulance chief executives have supported this work, along with approval of the methodology by the National Ambulance Service Medical Directors (NASMeD) and ambulance Quality Improvement, Governance & Risk Directors (QIGARD), many of whom are nursing directors.

This report contains the findings from the review of a sample of clinical records across trusts to quantify and describe levels of harm, as assessed by experienced clinicians, during one day in January 2021 across the UK, **for patients who waited longer than 60 minutes in an ambulance outside ED**. The study involved reviewing a number of aspects of care including the additional medical and care needs required by the patient whilst awaiting handover to hospital staff. Clinicians undertaking the reviews have determined a potential impact harm level based on this by adapting and using the National Reporting & Learning System (NRLS) harm scoring template as a tool (see Appendix A).



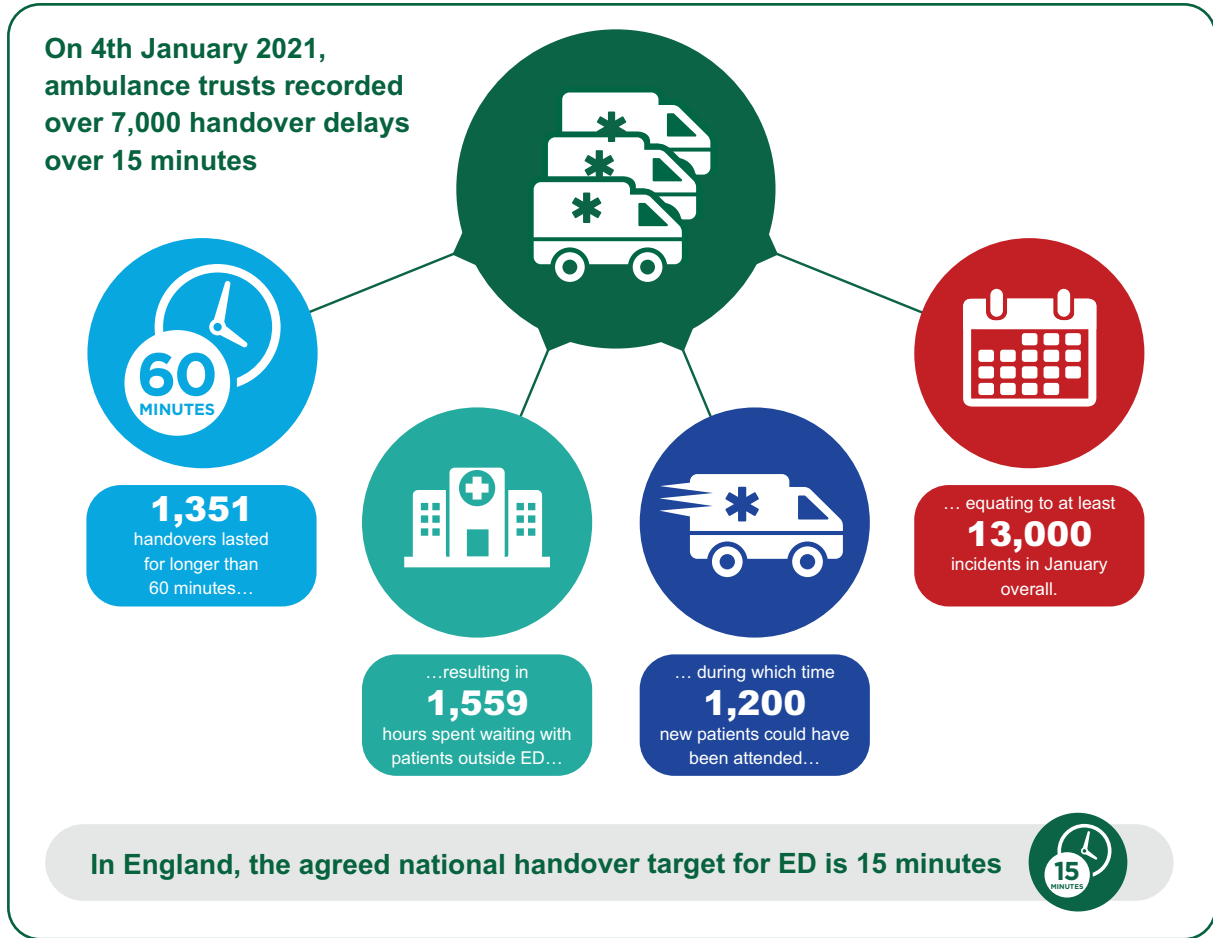
3.1 Context

The structured review looked at a sample of cases across ambulance trusts on 4th January 2021.

Analysis shows that the national handover data for this day is highly comparable with equivalent periods in previous years, especially 2020. Although there were fewer delays overall on January 4th 2021, they tended to be longer than in previous years and numbers varied considerably by ambulance trust.



Figure 3.



Further information and breakdown of handover data for 4th January 2021 can be found in Appendix B.



4.0 Review Methodology

A maximum of 50 cases from each ambulance service across the UK were selected from clinical records for Monday 4th January 2021.

The 50 cases involved delays at hospital of 60 minutes and over, from the ambulance arrival time at hospital to handover in ED for:

- **Adult patients aged 16 and over**
- **Patients conveyed to a hospital providing acute care**

Ambulance trusts that had more than 50 such cases on 4th January were asked to select 50 at random; those trusts who had fewer than 50 such cases were asked to review as many as they had.

The NRLS definitions for levels of harm were adapted to the ambulance context to facilitate judgements being made by clinicians reviewing the records. Examples were developed and provided for each harm level to ensure consistency between reviewers. A pilot was undertaken in one ambulance trust to check for consistency between clinicians in assessing harm levels using this measure. Briefing sessions for all of the clinician reviewers were undertaken to ensure they were clear about the process to be followed for the structured clinical reviews.

For the purposes of this review:

Severe harm was defined as: *“Any unexpected or unintended incident that had the potential to cause permanent or long-term harm to the patient”*.

Moderate harm was defined as: *“Any unexpected or unintended incident where the patient required further treatment or procedures, cancelling of treatment or transfer of care to another area”*.

Low harm was defined as: *“The patient required extra observation or minor treatment”*.

(see Appendix A for definitions and examples).

The clinician reviewers were also asked to consider any delayed ambulance response (i.e. excess time taken for the ambulance to reach the patient following the 999 call) as part of the decision-making in assessing potential harm e.g. for any cumulative impact for a patient who had experienced a fall and had already had a ‘long lie’ due to a delayed ambulance response; or delayed response times to patients identified as needing definitive care within a clinically specified standard such as STEMI and stroke.

If potential severe harm or a serious adverse incident was identified during the reviews, then it was recommended that these should be reported internally to the trust patient safety team for further review in line with local trust procedures, if this had not already been undertaken.



4.1 Exclusion Criteria

Cases were not included for:

- **Hospital handover delays less than 60 minutes**
- **Patients aged 15 and under**
- **Pregnant patients**
- **Patients conveyed to a non-acute hospital, such as community hospital or urgent treatment centre**
- **Cases where we were unable to locate the clinical care record**



Making the Headlines - What the Papers Say

Man with terrible burns waited 78 minutes for ambulance in Wales
 Report shows 23 ambulances were being used as 'waiting rooms' while man lay in agony...

The Guardian on MSN.com · 8d



The Guardian,
 Tuesday, October 3, 2020

Patients queuing in corridors as ambulance service declares major incident

Paramedics cancelled their breaks to deal with the backlog of patients as the service was put under immense pressure...

Liverpool Echo on MSN.com · 8d



Liverpool Echo,
 Tuesday, November 3, 2020

Coronavirus in Scotland: Ambulances wait for hours outside A&E units with no beds

Ambulances are queueing more than ten deep to hand over sick patients at hospitals in Scotland because of bed shortages...

The Times · 6d



The Times,
 Friday, November 6, 2020

Ambulances are 'waiting up to FIVE HOURS to transfer patients to A&E at north kent hospital' amid surge in coronavirus cases

The number of Covid patients being treated at Medway Maritime Hospital soared by 82% last week, when almost 100 people were...

Daily Mail · 52m



The Daily Mail,
 Friday, November 13, 2020

Northampton Chronicle

Northamptonshire hospitals face double whammy of staff..

This means there is no capacity across the acute trust, there are severe ambulance delays and ambulances are unable to offload within 120 minutes, there are...



Northampton Chronicle & Echo,
 Monday, November 16, 2020

BBC

Pressure on hospitals 'at a really dangerous point'

What about ambulance delays? Delays in ambulances transferring patients over to emergency staff when they arrive at hospital are also causing knock-on ...



BBC News,
 Friday, December 18, 2020

HSJ

Ambulance trust reveals patient's death amid handover delays...

An ambulance trust has highlighted the death of a woman which it says was due to "being delayed on the back of an ambulance", just two days...



HSJ,
 Friday, May 28, 2021

Queues of ambulances line up outside Royal Cornwall Hospital

One local said there were '23 South Western Ambulance Service vehicles queued along the main road' outside the Royal Cornwall Hospital in Truro...

Cornwall Live



Cornwall Live,
 Saturday, Jun 26, 2021



5.0 Review Results

The following findings relate to cases reviewed by the ten ambulance trusts in England⁴:

East of England (EEAST)
East Midlands (EMAS)
London (LAS)
North East (NEAS)
North West (NWAS)

South Central (SCAS)
South East Coast (SECAMB)
South Western (SWAST)
West Midlands (WMAS)
Yorkshire (YAS)

In total, 470 cases involving handover delays of more than 60 minutes were reviewed. Only two trusts had fewer than 50 of these cases: SCAS = 34 and NEAS = 36. The cases reviewed represent 35% of all patients who experienced a delay in their handover that day.



5.1 Assessments of Harm

The key finding of this review is that the proportion of patients identified as experiencing actual or potential harm is significant.

- **Over 8 out of 10 (85%) of those whose handover was delayed beyond 60 minutes were assessed as potentially experiencing some level of harm, with just under 1 in 10 (9%) having potentially experienced severe harm** (Figure 1).

Examples of cases where severe harm was indicated include:

- **Delay 1hr 6mins** - Patient with epilepsy, possibly has Covid, had two seizures and high NEWS2 score⁵, very unwell. Blood samples were taken by hospital staff in the ambulance before patient offloaded.
- **Delay 1hr 42mins** - Patient with epilepsy actively fitting. Ambulance crew gave diazemuls medication to try to stop the fit, then the ED Doctor was also in the ambulance trying to stop the fit.
- **Delay 1hr 13mins** - Patient with confirmed Covid and oxygen levels less than 50% (ie extremely low). Kept patient on oxygen therapy and waited over an hour for hospital treatment. Patient at significant risk of cardiac arrest.
- **Delay 1hr 28mins** - Older male with possible red flag sepsis, very high NEWS2 score of 10. This patient didn't receive timely treatment such as antibiotics which is lifesaving.
- **Delay 1hr 3mins** - Patient had collapsed with an unrecordable blood pressure, distended abdomen and dehydrated. Unable to gain IV access to give fluids.
- **Delay 1hr 29mins** - Emergency call with a 7-minute response to the patient. COVID positive patient with very high blood sugars and ? diabetic ketoacidosis (DKA). Recent history of thirst, polyurea and weight loss. Nursing staff attempted unsuccessfully to obtain IV access whilst patient was in the ambulance, so no fluids given.

⁴Isle of Wight Ambulance Service was not included as they reported no delays.

⁵National Early Warning Score (NEWS) - NEWS is a well validated track-and-trigger early warning score system that is used to identify and respond to patients at risk of deteriorating. It is based on a simple scoring system in which a score is allocated to physiological measurements already undertaken when patients present to or are being monitored in health care settings.

- **Delay 4hrs 41mins** - Patient with learning disabilities, autism and living with frailty, confirmed as Covid positive. NEWS2 score increased, oxygen saturations low so had to give oxygen therapy.

Examples where moderate harm was indicated include:

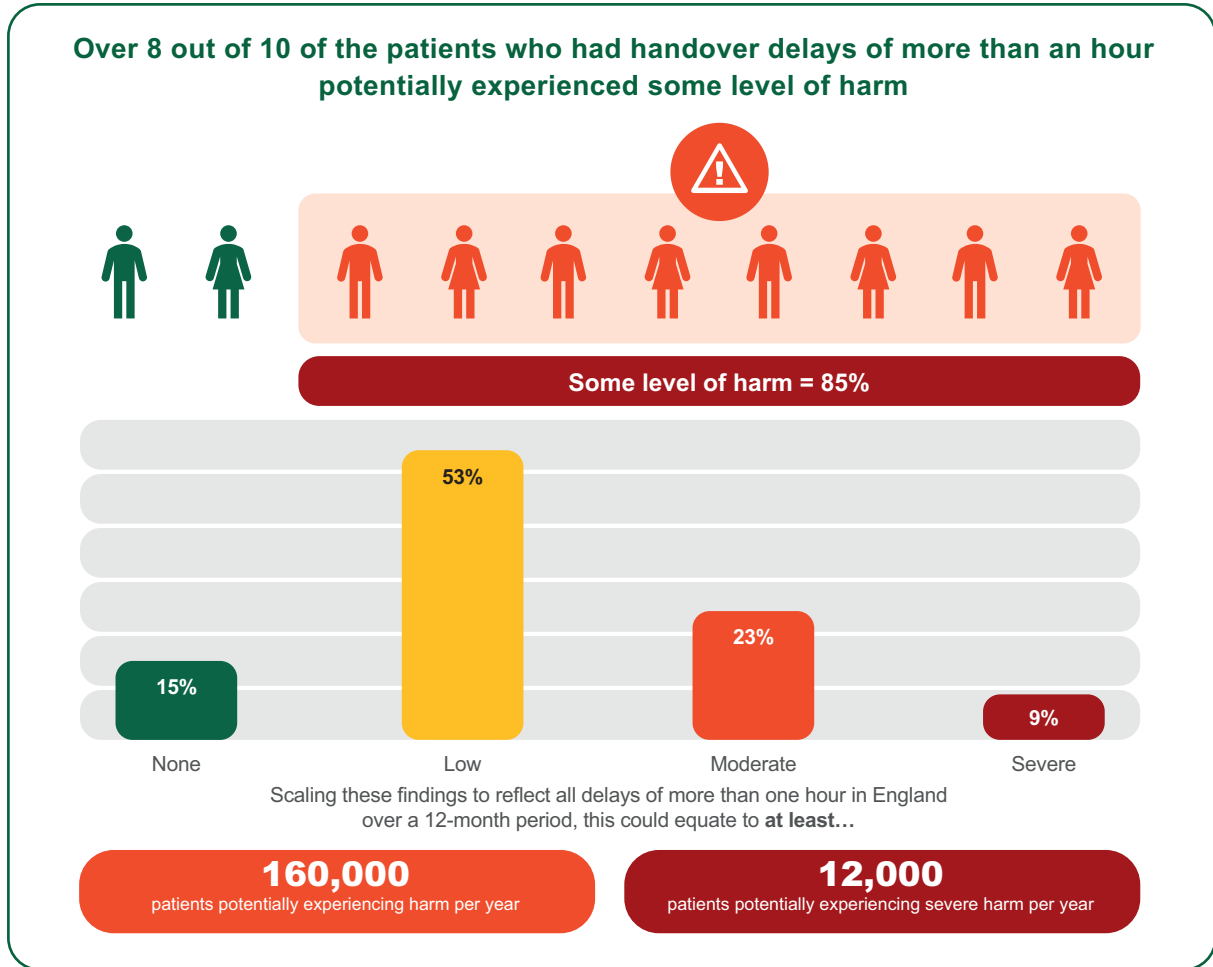
- **Delay 3hrs 57mins** - Male aged 80 fallen at home and injury to groin. Had been incontinent to urine so risk of pressure sores, no escalation or handover and almost 4 hours on an ambulance trolley.
- **Delay 2hrs 27mins** - Unwell elderly male with dementia, unable to communicate verbally and relied on hand signals. Complaining of chest and abdominal pain. Rapid heart rate. Patient had a percutaneous endoscopic gastrostomy (PEG) and was prone to aspiration. Patient was agitated on the ambulance and communication was challenging.
- **Delay 4hrs 20mins** - 94 year old male suffering with poor mobility and having hallucinations suspected to be caused by very low sodium levels which needed urgent hospital treatment. Significant delay to treatment.

Other examples of potential harm identified on 4th January 2021 included:

- **Frail and sick patients with significant risk of pressure sores, becoming progressively more unwell**
- **Patients becoming increasingly distressed, anxious, sometimes aggressive – particularly those with learning difficulties, dementia, substance misuse or mental health conditions**
- **Cumulative harm due to prolonged wait for the ambulance at the point of call exacerbated by a continued wait upon arrival at hospital with associated worsening of condition/ symptoms**
- **Patients being toileted in the ambulance**
- **Patients unable to access or have food or drink while waiting for long periods**



Figure 4.



5.2 Length of Delay

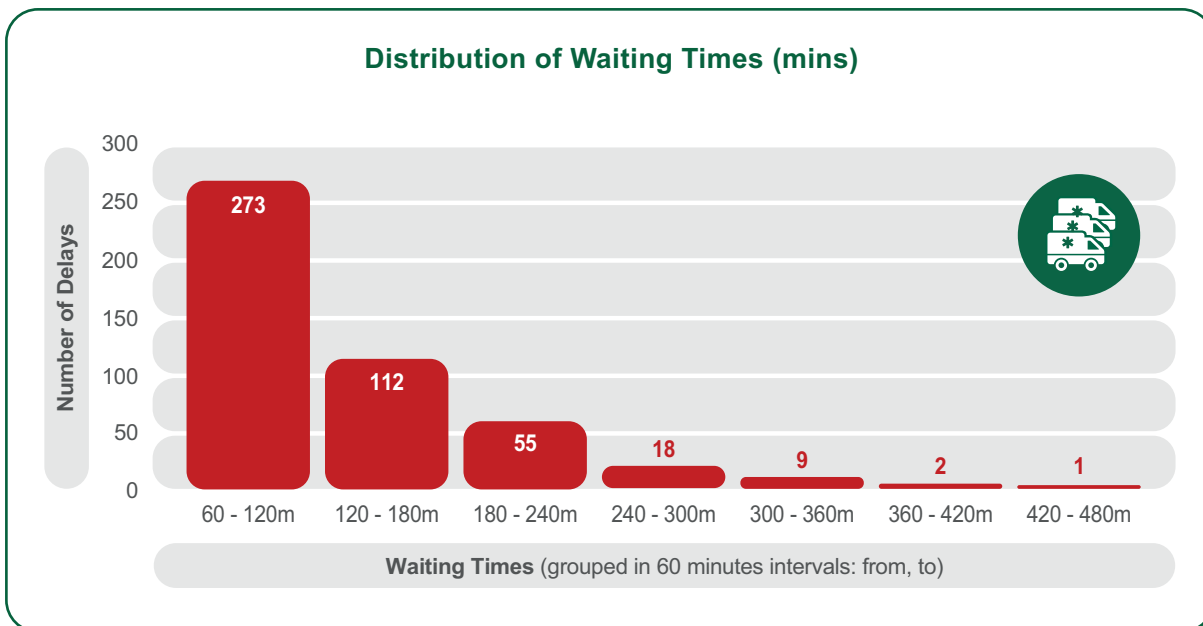
The majority of cases reviewed (58%) experienced delays of 4 times longer than the national standard of 15 minutes. 42% experienced delays of more than 8 times longer than the standard.

The average waiting time for the assessed delays was 2hrs 9mins. 42% of patients were delayed by more than 2 hours and 18% by 2hrs 30mins.

A delay of over 4 hours was recorded by 6% of the assessments, and the longest waiting time recorded was 7hrs 47mins (Figure 5).



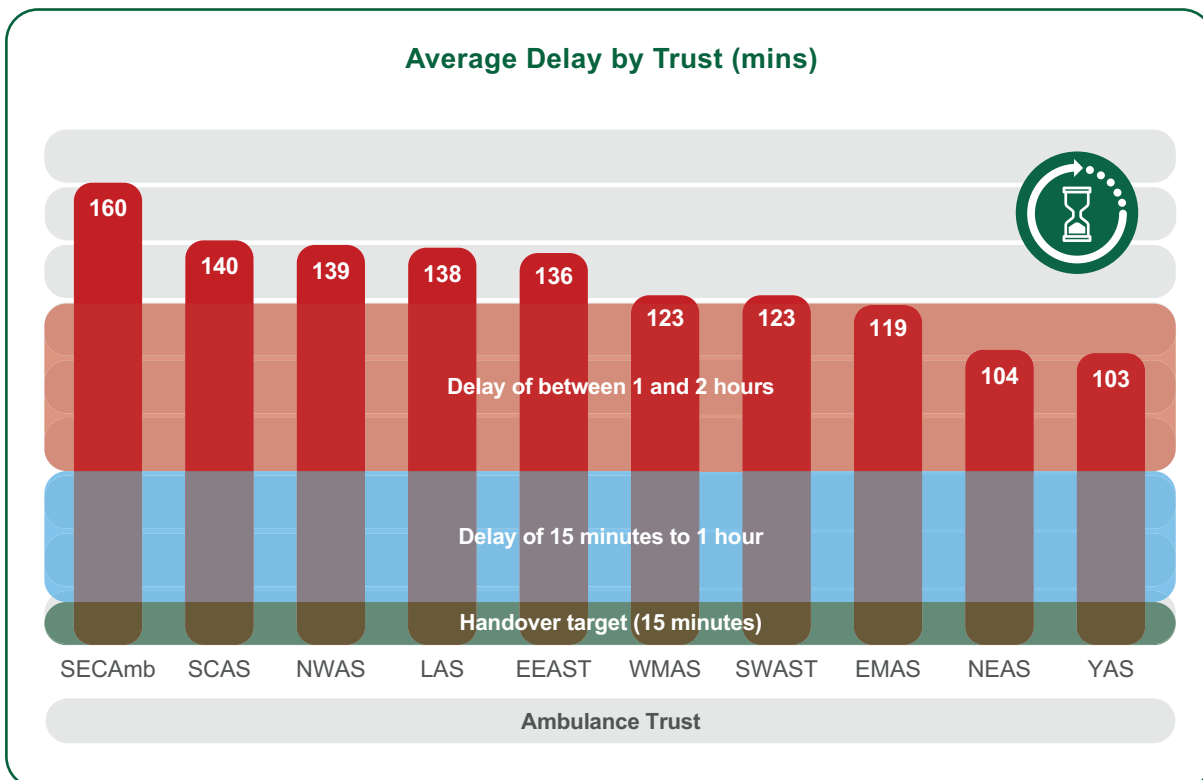
Figure 5.



Waiting time varied across trusts, with SECAMB recording the longest average waiting time (2hrs 40mins) and YAS the shortest (1hr 43mins) (Figure 6).



Figure 6.



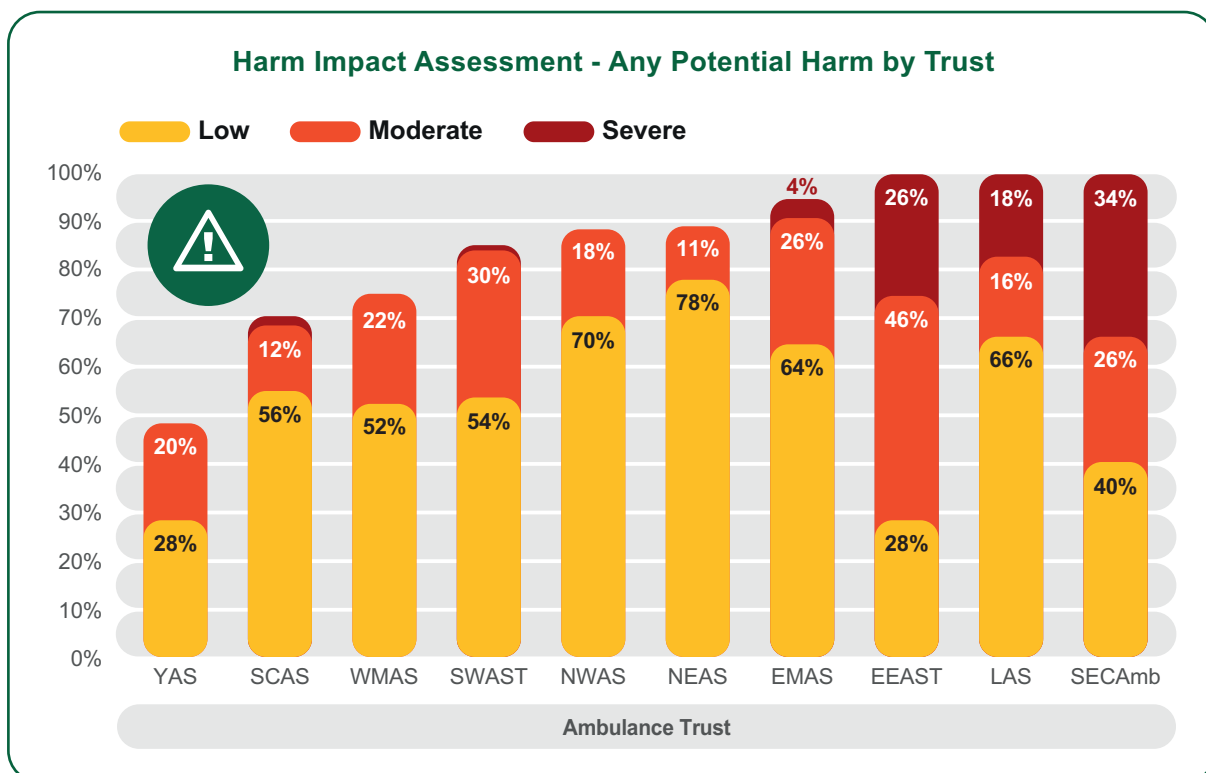


5.3 Harm Broken Down by Ambulance Trust

Incidents and severity of potential harm varied between trusts (Figure 7). The trust with the fewest number of incidents where potential harm was indicated, YAS, still saw just under half of these cases (48%) assessed as experiencing some level of harm. For the samples in three trusts - EEAST, LAS and SECAMB - all of their cases were assessed as having potentially resulted in some level of harm. SECAMB reported the most incidents of potential 'severe' harm, followed by EEAST.



Figure 7.



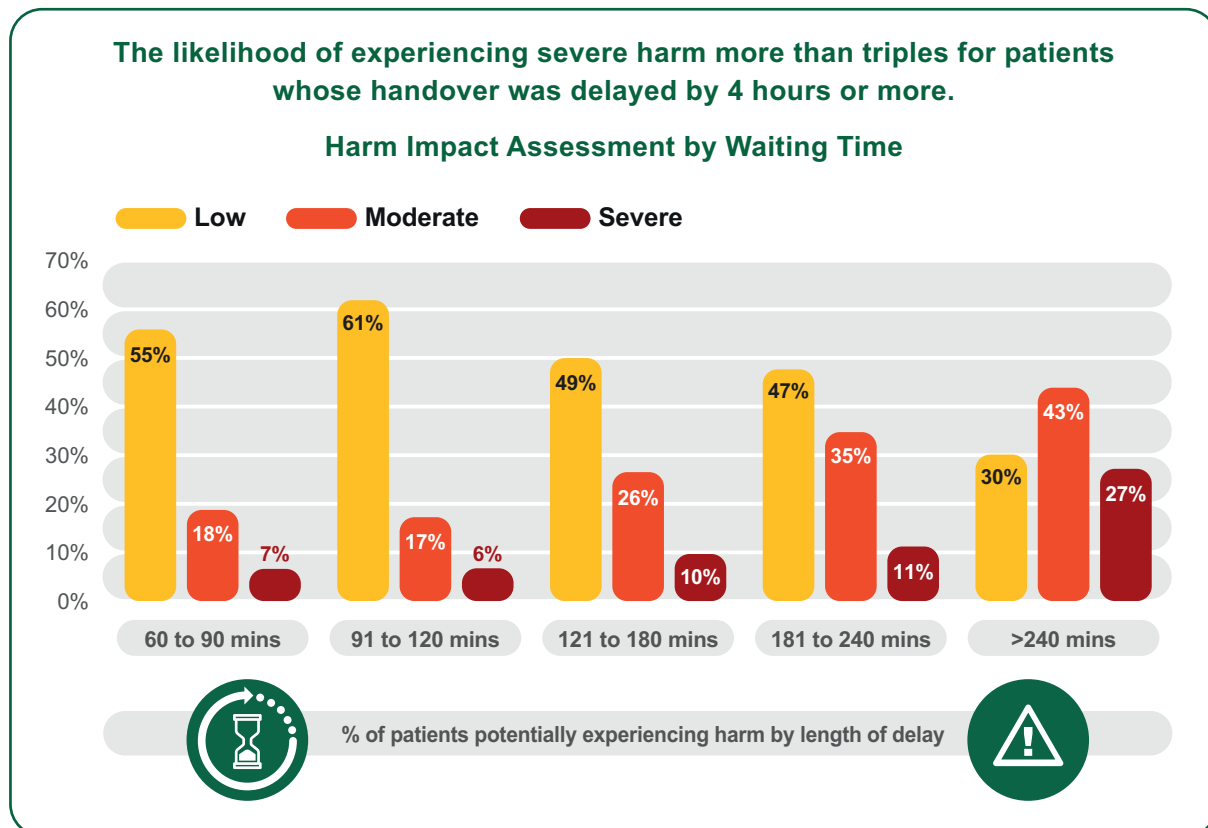


5.4 Waiting Time and Harm

The likelihood of experiencing harm increases with time, as does the severity of the harm experienced. The proportion of assessed harm rated as “severe” quadrupled between the shortest and longest waiting time periods recorded in the study. The likelihood of experiencing some level of harm increases to 100% for those waiting over four hours, at which point 70% of patients were assessed as potentially having experienced severe or moderate harm (Figure 8).



Figure 8.





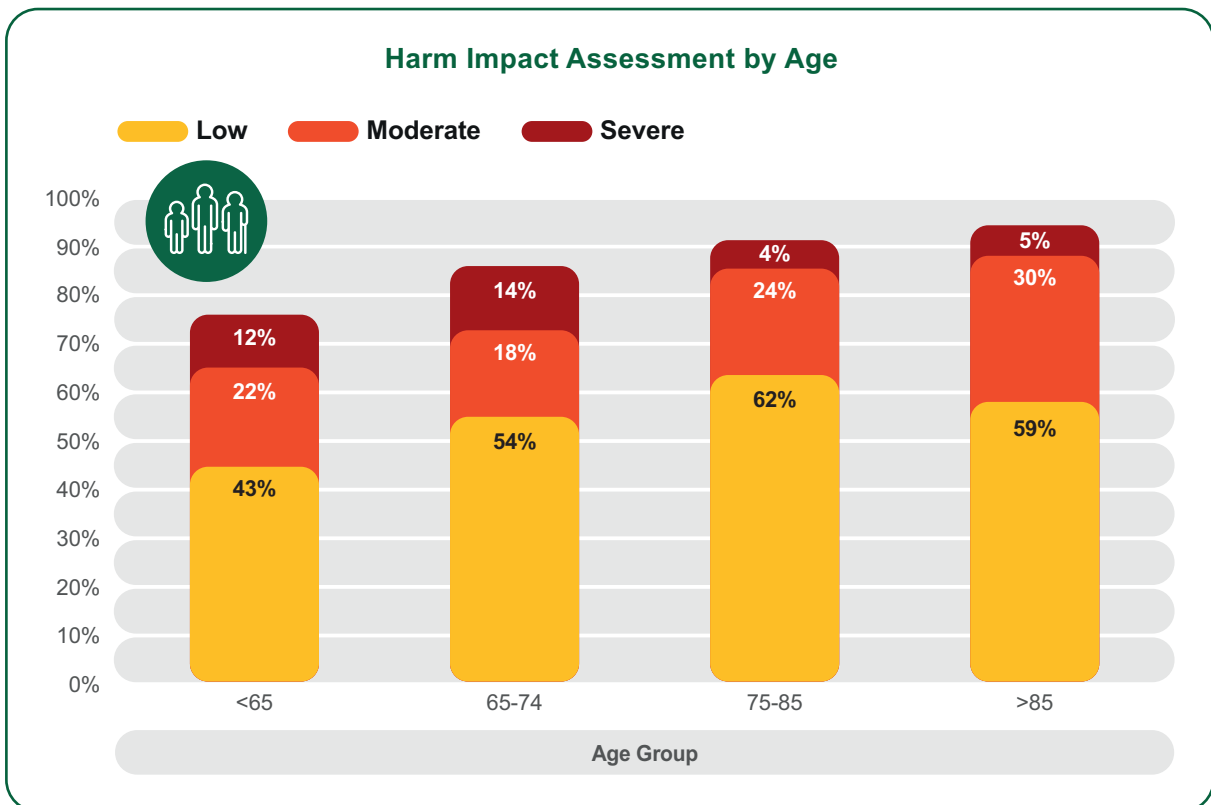
5.5 Harm and Patient Characteristics

There was an equal split of male and female patients across the cases reviewed. The sample tended to be older - 61% aged over 65, and 20% aged 85 or over.

Risk of some level of harm increases with age - although not so much the severity of harm. Figure 6 shows that where patients may have experienced some level of harm the likelihood increased from 77% for those aged 65 and under to 94% for those aged over 85.



Figure 9.



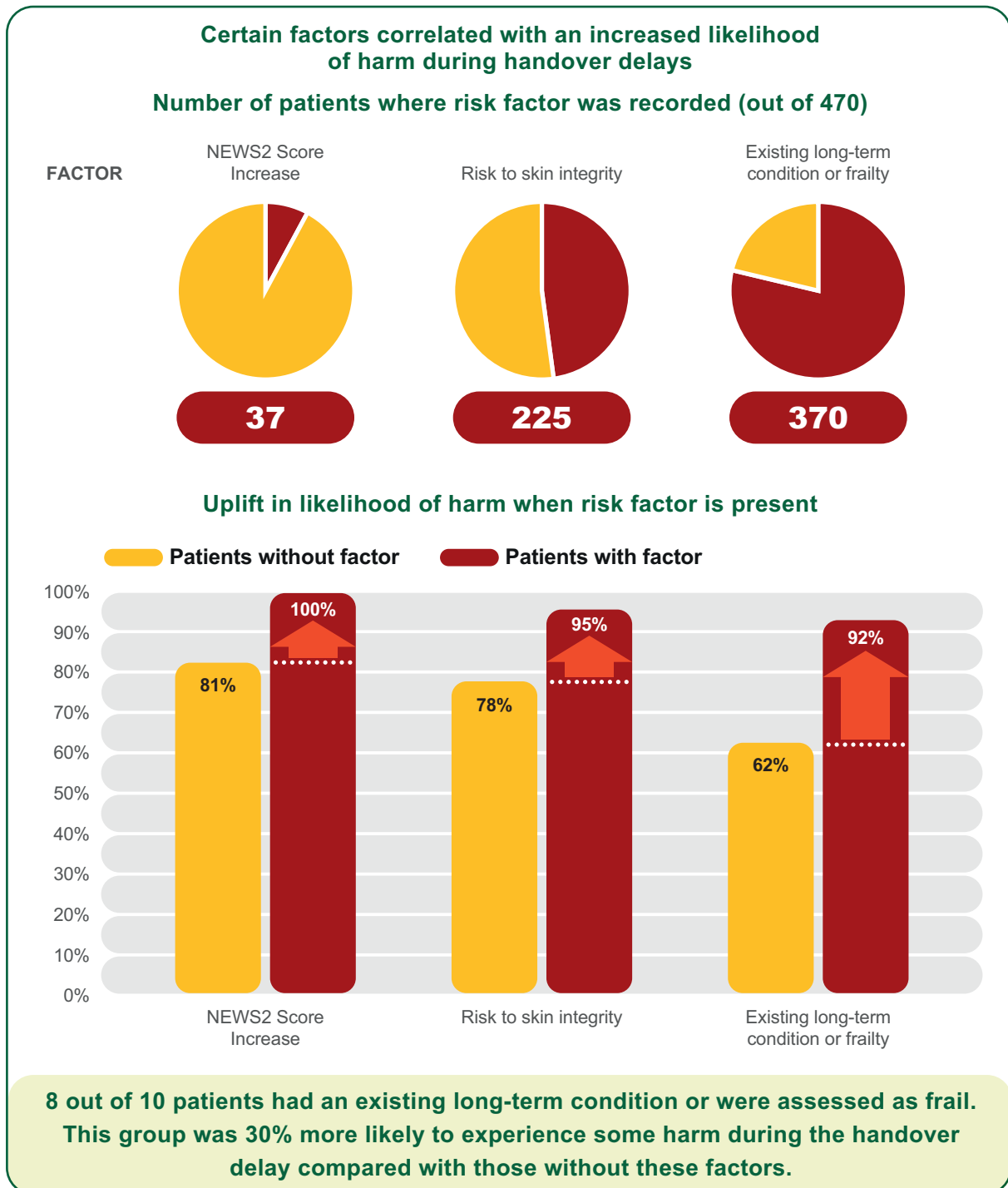


5.6 Harm and Other Risk Factors

Harm is also more likely to have been experienced in conjunction with a number of other factors relating to patient wellbeing and events during their wait for handover; most notably an increase in NEWS2 score (indicating deterioration in condition), risk to skin integrity or the presence of an existing long-term condition, or frailty (Figure 10).



Figure 10.

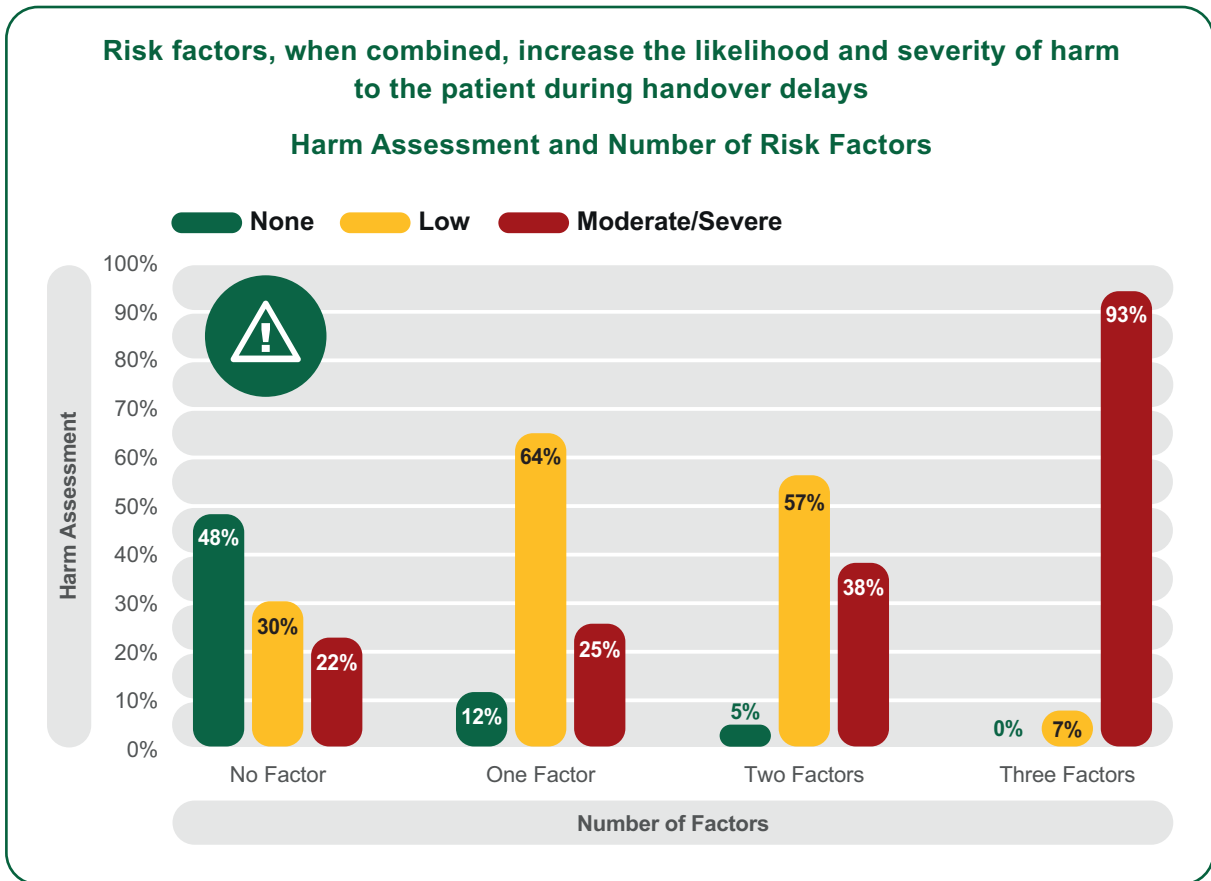


17% of patients reviewed had none of the three risk factors listed above, 34% had one, and 49% had two or three.

The greater the number of factors the greater the likelihood of a more severe harm assessment. Figure 11 shows that around half of patients without any of the above three factors were assessed as experiencing “no harm”. In contrast, where patients experienced all three factors, over nine in ten were assessed as potentially experiencing moderate or severe harm.



Figure 11.





6.0 Summary of Findings

This structured clinical review, by experienced ambulance clinicians, of a sample of cases where patients waited longer than 60 minutes outside ED has clearly demonstrated that it is likely that these delays have led to harm. Such potential harm can be in varying degrees and forms, but for 85% of patients waiting over 60 minutes it is likely that some level of harm was experienced and for 10% this was assessed as potentially severe harm.

Examples where potential or actual harm was indicated, within the cases reviewed included:

- Deteriorating sepsis patients not receiving rapid treatment such as antibiotics, or missing window for appropriate treatment
- Frail and sick patients with significant risk of pressure sores, becoming more unwell
- Patients having seizures whilst waiting
- Deteriorating Covid-19 patients having to receive continuous oxygen therapy due to low oxygen levels
- Patients with learning difficulties, dementia, confusion becoming more distressed whilst unwell and waiting
- Cumulative harm due to prolonged wait for ambulance at point of call exacerbated by continued wait upon arrival at hospital with associated worsening of condition/ symptoms
- Patients being toileted in the ambulance
- Patients unable to access or have food or drink while waiting for long periods

It was found, perhaps not surprisingly, that the longer the patient waited, the greater the likelihood they would experience some harm, and the severity of that harm increased over time too. The older the patient was, the more likely they were to experience harm, but the severity of harm was not found to increase with age. If there were certain other risk factors present such as multiple co-morbidities, again, the likelihood and severity of harm was found to increase.

Due to Covid-19 restrictions, in most cases these patients were alone with the clinician, without family or relatives in attendance to reassure, provide clarification to their loved one about what was happening and to advocate for them. This will undoubtedly have had an impact on the emotional and mental wellbeing of the patient, especially the more vulnerable patients such as those living with dementia, patients with learning disabilities and mental health issues, although the actual impact is difficult to quantify. Patients were cared for by ambulance clinicians who, although highly skilled, are not specifically trained in many aspects of nursing care, or equipped to care for patients for extended lengths of time in the back of an ambulance whilst waiting to handover.

The actual final clinical diagnosis and outcome for the patients were not available and not sought, so unless it was clear that actual harm was caused by delay, in many cases the assessments by experienced clinicians, can only be said to indicate potential harm. Systems to enable ambulance services to efficiently access patient outcome information for clinical audit, learning and quality improvement are poorly developed and not consistently available across the UK health system. Introduction of the ADS will assist this process greatly.



7.0 Conclusion

The findings of this review process represent the likelihood that unacceptable levels of preventable harm are being caused to patients. If these results from the 4th January 2021, which was not an atypical day, are extrapolated across all handover delays that occur every day, the cases of potential harm could be as high as 160,000 patients affected per year. Of those, approximately 12,000 patients could potentially experience severe harm as a result of delayed handovers.

Patients who receive an ambulance response to a 999 call and who are subsequently conveyed to ED by definition require either emergency life-saving treatment, or urgent assessment, and in excess of 45% will need admission to hospital. Ambulance trusts have been striving for years now to safely reduce conveyance rates to ED by treating the patient in their home, referring to a community team or primary care, or by conveying to an appropriate destination other than ED. This relies on there being suitable alternatives for the patient's needs. Conveyance rates to ED nationally are now less than 60% of 999 calls. Ambulance trusts only convey to ED when there is no other safe option for the patient and when the patient needs comprehensive assessment, treatment in the ED or admission. Periodic reviews of the types of patients being transported to ED has not raised concerns that they are being conveyed inappropriately, although it is accepted that greater access to suitable alternative care pathways available 24/7 could reduce this still further. Availability of out-of-hospital care provision, especially out-of-hours, and more direct referral pathways to alternative destinations need to be accelerated in ICS planning and commissioning as important elements in relieving pressure on EDs.

When very sick patients arrive at hospital and then have to wait an excessive time for handover to ED clinicians, to receive assessment and definitive care, it is entirely predictable and almost inevitable that some level of harm will arise. This may take the form of a deteriorating medical or physical condition, or distress and anxiety, potentially affecting the outcome for patients and definitely creating a poor patient experience. Any assumption that for the patient to wait on the ambulance, being cared for by ambulance clinicians, is acceptable because they are in a 'safe setting' is neither appropriate nor safe. Ambulance clinicians are not trained to care for patients for lengthy periods of time; the ambulance environment and available equipment are not designed for extended periods of patient care; and the ambulance and crew are needed to respond to other patients who have called 999.

In addition to the range of harm we have assessed within our 4th January cohort of patients, all ambulance trusts have more examples of patients who have been the subject of internal SI investigations. Sadly, this includes some patients who we know have died in the back of ambulances whilst waiting to be taken into ED, or died waiting for an ambulance response in the community when ambulances have been held up at ED. Whilst we may never know whether these patients could have had a different outcome, it is totally unacceptable that the levels of care fall so far below what should be expected in their last moments of life.

Senior level discussions about how to prevent handover delays have been taking place for years, and whilst both ambulance and hospital trusts have endeavoured to implement improvement measures to address the issue, the problem persists. Ambulance trusts meet on a monthly basis with NHSEI national and regional colleagues, chaired by the National Strategic

Ambulance Advisor (England), to monitor trends in handover delays across the country. Improvement programmes instigated by NHSEI, working with Emergency Care Improvement Support Teams (ECIST) have been focussed on some of the worst-performing areas for handovers. Monitoring to date, however, tends to concentrate on the numbers of patients involved and the lost ambulance hours and whilst this is important and indeed welcomed, these programmes have not assessed the avoidable harm being caused to patients in these delays, and has clearly not resolved the issue.

The focus on handover delays is continuing at national level in the recent review of the UEC Standards. AACE has provided a comprehensive response to the consultation on proposed ways of measuring system performance in this respect. There needs to be caution in setting these new metrics so that there are no unintended consequences for patients arising from incentives to meet individual measures eg for EDs to 'hold' patients in ambulances in order to preserve the binary scores of other measures relating to ED waiting times. In monitoring handover delays the standard needs to ensure that it does not hide excess wait times - ie it would be possible for a hospital to achieve 90% compliance with the 15 minutes standard but have multiple waits of over an hour.

This structured review represents a first stage in attempting to quantify and qualify the extent of the harm that results from handover delays. Ideally, we would like to see a consistent methodology adopted by all ICSs, to measure potential and actual harm arising from handover delays, to keep the focus on patients. Further work is required to refine and test this methodology and include patient outcomes so that UEC can be better informed and aware of the impact on patients. Systems to enable the rapid retrieval of patient outcome information for clinical audit, learning and quality improvement are poorly developed and not consistently available across the UK health system. We very much hope this situation will improve with the roll out of the ADS in the coming months.

It is our intention to continue to repeat these periodic reviews to assess likelihood of harm being caused and to include more work to define the levels of harm being caused to patients waiting in the community because there is no ambulance available. We are aware that the causes of this are multi-factorial and relate to overall capacity coupled with demand levels but there is no doubt whatsoever that large numbers of ambulances unable to handover at hospital, and therefore being unavailable to respond, contribute to this significantly. Future work also needs to include a more comprehensive assessment of the impact on the health and wellbeing of ambulance staff who are subjected to the increased stresses of dealing with these delays.

We are recommending to HSIB that handover delays, and SIs that arise for patients waiting for an ambulance response due to ambulance resources being held up outside EDs, should be subject to an independent thematic review. This would mean that focussed learning of what works in addressing these challenges can be more widely recognised and implemented. Given the levels of avoidable harm we have found it is vital that a different approach is taken at a system level. There must be an acceptance that this cannot be allowed to continue, and a program of rapid system improvement must be undertaken to change mindsets where necessary and eliminate the root causes. Fundamental process changes, as well as innovative mitigating actions must finally be put in place to ensure that no ambulance patient ever waits longer than the standard 15 minutes for handover to ED clinicians.

Whilst not condoning delays of under 60 minutes our findings suggest that the potential for the most severe harm occurs after this time and progressively worsens as that delay continues. Delays over 60 minutes must therefore be viewed as completely unacceptable. Firm and immediate action needs to be taken at national, regional and ICS level to eliminate these delays of over 60 minutes once and for all and ensure that they do not reoccur going forward.

We are calling on the CQC to include hospital handover delays in their inspections of local health systems to ensure that any risks are clearly identified to ICSs in order to ensure that the significant patient safety concerns we have raised are robustly addressed with a meaningful and well-led whole system approach.



Appendices

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Appendix A: Harm levels

What is harm?⁶

Harm is defined within the National Reporting and Learning System (NRLS) as injury, suffering, disability or death. The level of harm (or severity) can be **none / no harm, low, moderate, severe, or death.**

The effects of patient safety incidents go beyond the impact of the physical injury itself. Patients and their families can feel let down by those they trusted, and the incident may also lead to further unnecessary pain and additional therapy, or operative procedures and additional time under community care or in hospital.

Psychological injury such as shock, anxiety, depression, uncertainty about recovery, fear of future treatment, and disruption to work and family life are just some of the effects following a patient safety incident.



National Reporting & Learning System - patient safety incident grading definitions

Trust Grading	NRLS Grading	Definition
Negligible	No Harm	<p>Incident prevented – any patient safety incident that had the potential to cause harm but was prevented, and no harm was caused to patients receiving NHS funded care.</p> <p>Incident not prevented – any patient safety incident that occurred but no harm was caused to patients receiving NHS funded care.</p>
Low	Low Harm	Any patient safety incident that required extra observation or minor treatment and caused minimal harm to one or more patients receiving NHS funded care.
Moderate	Moderate Harm	Any patient safety incident that resulted in a moderate increase in treatment and that caused significant but not permanent harm to one or more patients receiving NHS funded care. (Moderate Harm Incident – please refer to Serious and Moderate Harm Incident Policy and flag to Patient Safety Team).
Significant	Severe Harm	Any patient safety incident that appears to have resulted in permanent harm to one or more patients receiving NHS funded care. (Serious Incident – please refer to Serious and Moderate Harm Incident Policy and flag to Patient Safety Team).
High	Death	Any patient safety incident that directly resulted in the death of one or more patients receiving NHS funded care. (Serious Incident – please refer to Serious and Moderate Harm Incident Policy and flag to Patient Safety Team).

⁶NRLS - What is Harm?

- a) Minor treatment is defined as first aid, additional therapy, or additional medication. It does not include any extra stay in hospital or any extra time as an outpatient, or continued treatment over and above the treatment already planned; nor does it include a return to surgery or readmission.
- b) Moderate increase in treatment is defined as a return to surgery, an unplanned readmission, a prolonged episode of care, extra time in hospital or as an outpatient, cancelling of treatment, or transfer to another area such as intensive care as a result of the incident.
- c) Permanent harm directly related to the incident and not related to the natural course of the patient's illness or underlying condition is defined as permanent lessening of bodily functions, sensory, motor, physiological or intellectual, including removal of the wrong limb or organ or brain damage.
- d) The death must be related to the incident rather than to the natural course of the patient's illness or underlying condition.



Adapted harm levels definitions for handover delay structured review:

Impact assessment harm level	Description
NO HARM	<p>The delay appears to have caused no harm to the patient</p> <ul style="list-style-type: none"> ● <i>The patient was not receiving treatment prior to arrival or during the delayed handover process</i> ● <i>Had no deterioration documented</i> ● <i>Required no additional care or treatment</i> ● <i>Had no long-term conditions, frailty or skin integrity risk factors</i>
LOW HARM	<p>The patient required extra observation or minor treatment</p> <ul style="list-style-type: none"> ● <i>The patient required on going treatment and interventions such as delivery of oxygen and fluid whilst awaiting handover</i> ● <i>The patient required additional aspects of care e.g., reassurance, basic personal care, comfort measures, repositioning, mobilisation, warming</i> ● <i>Deterioration was observed but no new or additional treatment was not required</i> ● <i>The patient had a long-term condition, frail or skin integrity risk factor</i> ● <i>Considered to have no possible long-term consequences</i> ● <i>Some increasing distress, confusion, agitation post-arrival at hospital requiring a degree of monitoring or intervention (consider patients with mental health problems, dementia, learning disability)</i> ● <i>Missed essential medications</i>
MODERATE HARM	<p>Any unexpected or unintended incident where the patient required further treatment or procedures, cancelling of treatment or transfer of care to another area.</p> <ul style="list-style-type: none"> ● <i>Additional medical treatment or intervention after arrival of hospital was required/was indicated e.g. medications such as pain relief, bleeding control, warming (cold weather/heater issues)</i> ● <i>The patient's clinical observations deteriorated - NEWS2 (one point) and GCS</i> ● <i>The further treatment or procedures could contribute to further deterioration, incapacity, disability, delayed discharge, or death</i> ● <i>Deterioration was observed and new or additional treatment was required</i> ● <i>Significant increasing distress, confusion, agitation post-arrival at hospital requiring continuous monitoring and intervention (consider patients with mental health problems, dementia, learning disability)</i> ● <i>Delayed timeframe for definitive care e.g. STEMI, stroke, sepsis, trauma</i> ● <i>Missed essential medications</i>
SEVERE HARM	<p>Any unexpected or unintended incident that had the potential to cause permanent or long-term harm to the patient.</p> <ul style="list-style-type: none"> ● <i>The patient was pre-alerted by the ambulance crew as per national pre-alert guidance</i> ● <i>The patient deteriorated and required in hospital treatment within the hospital resuscitation level care</i> ● <i>The patient suffered a cardiac/respiratory arrest or peri-arrest</i> ● <i>Missed timeframe for definitive care e.g. STEMI, stroke, sepsis, trauma</i>



Appendix B – Context information for 4th January 2021

Data collection.

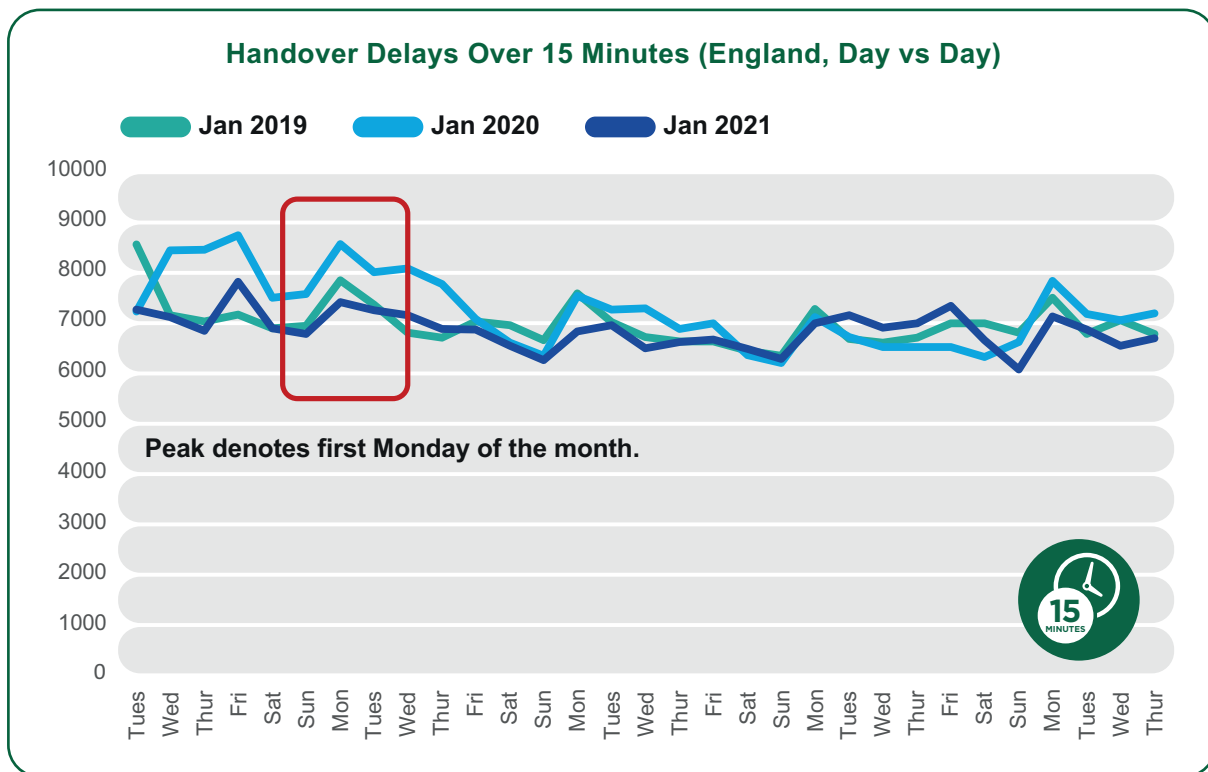
- English data on hospital handover delays is collated on a monthly basis for each hospital trust (This handover harm report does not identify individual hospitals).

Daily trends.

- January 4th 2021 was the first Monday of the month.
- Analysis of national data since April 2018 shows trends are more closely linked to day than date, for example Mondays almost always see a marked uplift in delays from Sunday which then decrease throughout the week to the following Monday.
- This trend was seen in early January 2021 and also reflected on the first Monday of 2019 and 2021 (Figure A1).



Chart A1.



Source: Ambulance trusts operations handover reporting data, Q1 2021

Delays over 15 minutes.

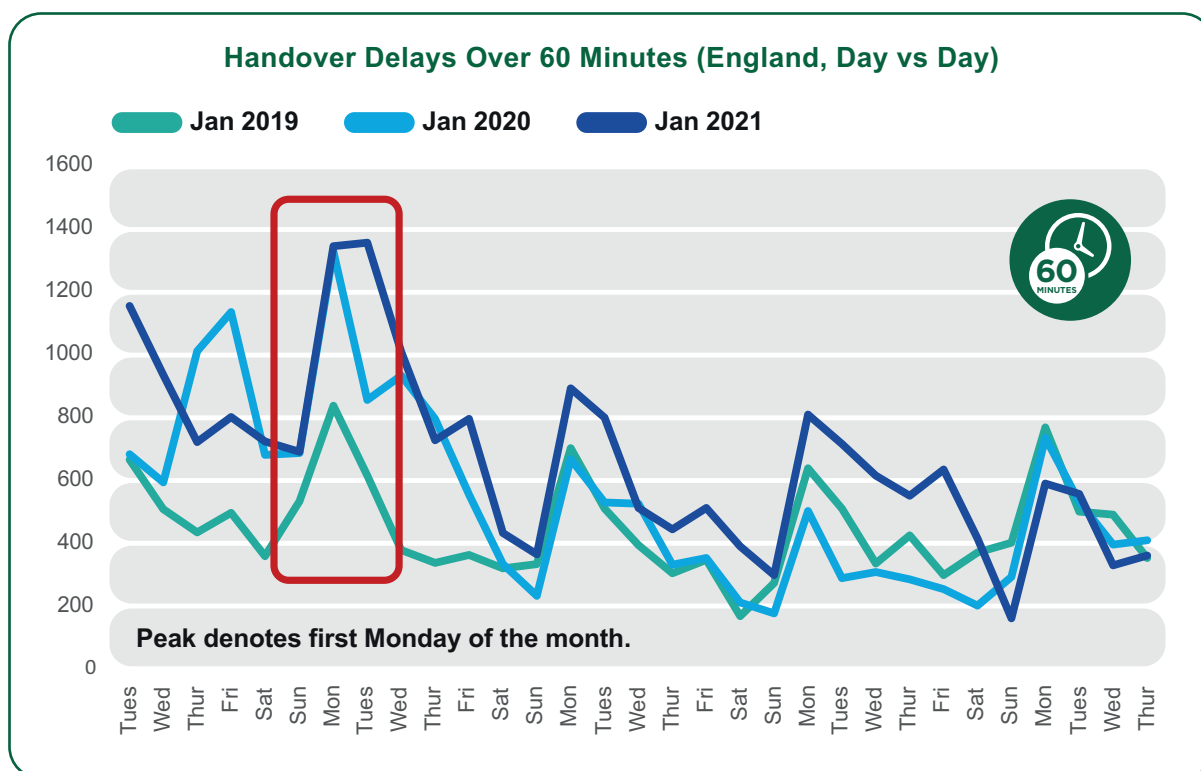
- Across ambulance trusts, there were 7,361 delays over 15 minutes on Monday 4th January. This is less than the equivalent Monday in 2020 (8,505) and 2019 (7,794).
- In 2021 these delays accounted for 58% of all handovers, higher than in 2019 (50%) but lower than 2020 (60%).

Delays over 60 minutes.

- There were 1,351 delays over 60 minutes. This is somewhat higher than the same Monday in 2019 (836) but only marginally higher than 2020 (1,334, see Figure A2).



Chart A2.

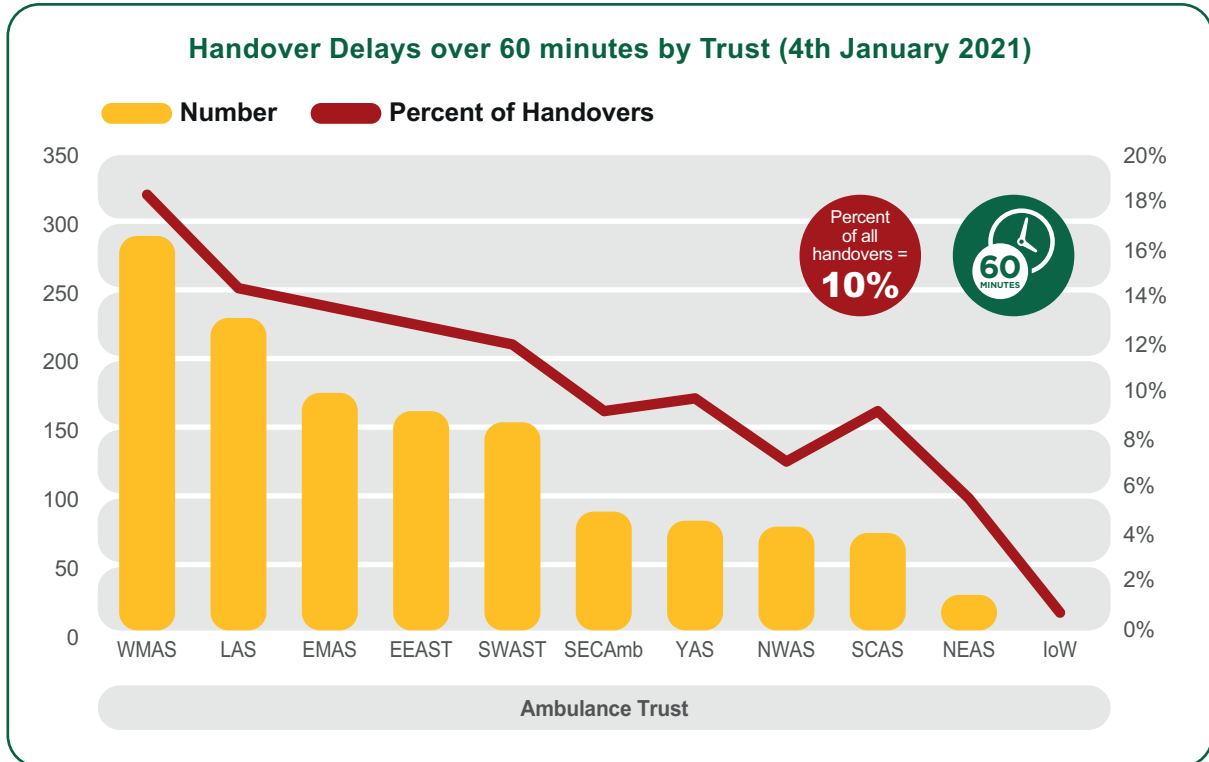


Source: Ambulance trusts operations handover reporting data, Q1 2021

- As a proportion of handovers, delays over 60 minutes accounted for 10% in 2021, compared with 9% in 2020 and 5% in 2019.
- Given the varied size and geography of trusts across the UK, it is perhaps unsurprising that the number of delays varies considerably: WMAS reported 290 and IoW did not register any delays (Figure A3). The percentage of handovers represented by these delays was slightly more consistent however, averaging 10% across trusts.



Chart A3.



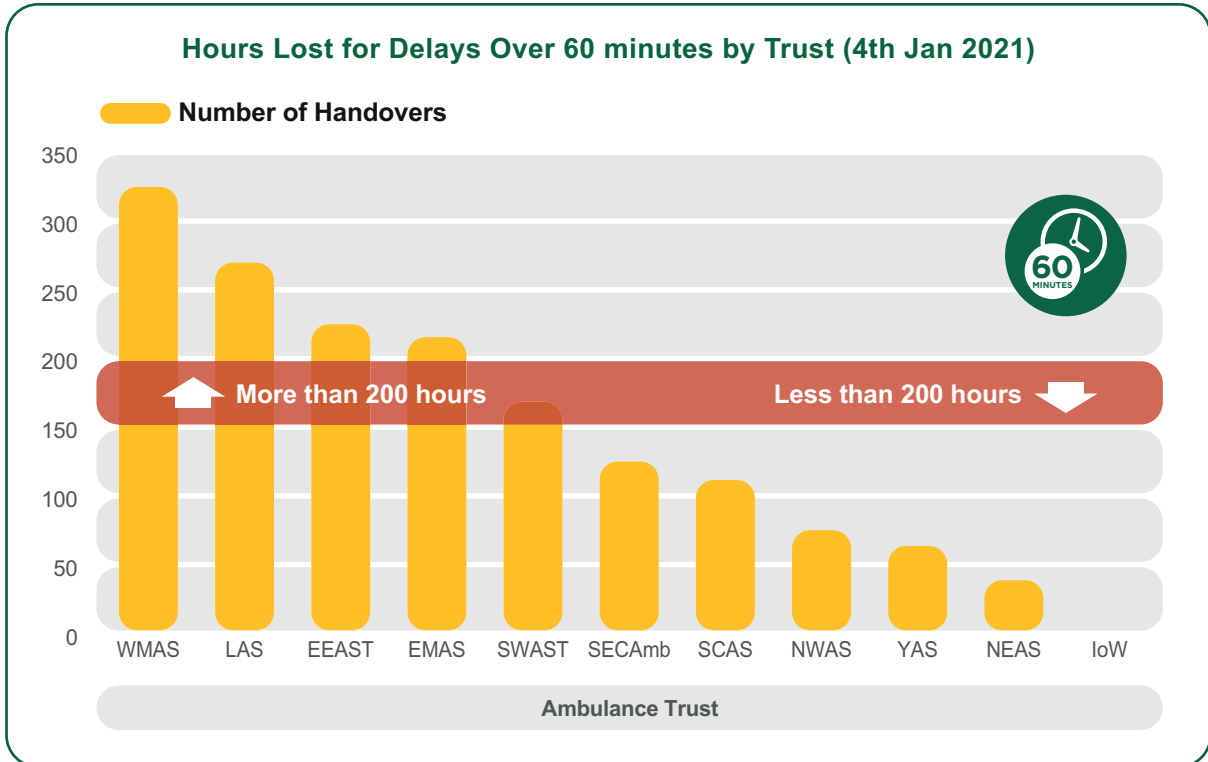
Source: Ambulance trusts operations handover reporting data, Q1 2021

Hours lost to handovers over 60 minutes.

- There were 1,558 hours lost due to delays over 60 minutes on 4th January 2021 (compared with 690 hours in 2019 and 1,259 hours in 2020).
- This equates to an average of 142 hours being lost per trust, but again there was considerable variation with four trusts losing more than 200 hours and four trusts less than 100 hours.
- Nonetheless, the trust with the smallest recorded loss (NEAS) still lost the equivalent of over a day (Figure A4).



Chart A4.



Source: Ambulance trusts operations handover reporting data, Q1 2021



Appendix C – Case studies and staff experiences of hospital handover delays



Within Appendix C we have included examples of cases where handovers have been delayed in recent months, and also quotes from staff reflecting on their experience of handover delays.



“

I have seen long standing members of staff crying and being upset following long delays with patients. These are staff who have been in the Service for 10 plus years.”



I went to tell ED staff that the patient was deteriorating. We were told to stay in the ambulance, even though we had pre-alerted ten minutes previously. We informed the hospital ambulance liaison officer (HALO) that the patient was not vomiting blood but possibly bleeding internally, heart rate was 211 and the patient clearly wasn't well. They continued to deteriorate with increased back pain and started to go mottled across the abdomen – we were really worried the patient was seriously ill now and close to dying. We were constantly liaising with the HALO and staff in the hospital. After 20 minutes of waiting, the patient went into cardiac arrest in the ambulance. We were then able to get them into Resus and ROSC was achieved, but sadly they did not survive.



“

Hospital Y is amazing, the way that they have handover and have done throughout Covid - they've swapped things about a bit, which entrance you went in but they had a phone set up in the doorway so you could phone through to reception and book your patient in without having to go into reception and contaminate it, you went straight through. They've always got a screen available, there's somebody there that will give you the number when they've done the handover, it's really smooth going. They're a busy hospital but every time you go it is so well structured, everyone knows what the process is and, especially during Covid, it's been fantastic.

Yet you go to hospital Z and it's all so disjointed, it's horrendous. We've got the ePRF, but whereas we used to go in the backdoor to reception, since Covid we're not allowed in there, so now you have to go around to the front and queue with patients that are waiting to book in, to book your patient in, and then they're asking your details which they can get from ePRF, which they do at every other hospital but somehow at hospital Z they don't seem to. And when you go to do your screen at hospital Z, theirs is locked off and you've got to have a staff card to unlock the computer. If there's nobody there, you're then stood there just 'can anyone give me your number'. Things like that are just infuriating and it just makes you feel like you're an inconvenience by asking for numbers for the board to handover. I think Covid has exacerbated it to a certain extent, but every winter at hospital Z, it's horrendous. I think at hospital Z the staff dynamic isn't cracking and that doesn't help. At hospital Y they're all more at ease with each other. But, if you can do it at one hospital, why can't you at another? With this state-of-the-art new A&E department that they've got at hospital Z, I don't get it, I don't understand why they can't.”



Patient had been on floor in own urine for around 24 hours and had around 17% burns from urine. Patient was in pain and distress. Crew tried to pre-alert hospital due to patient's condition but was met with the response that it is going to be 'a long wait and you are at the back of 9 ambulances'. Held for 3 hours and 20 minutes outside ED.



Frail, older patient living with dementia had already been on the floor for more than 12 hours as we had no resources to send. Rhabdomyolysis [a condition in which damaged skeletal muscle breaks down rapidly]. We waited 1hr 10mins for handover.



“ It felt to me like the hospital on call team were working hard – but the rest of the hospital were not supporting them. ”



“ You feel demoralised.

There is only so much 'chat' and sets of observations you can do.

As mentioned before, you feel drained as well. It is hard work mentally to have to go to the scene of an emergency, treat the patient, then monitor them constantly for hours at a time. There's just no let up. ”



“ Every week there are patients who self-discharge from the back of an ambulance outside ED – we cannot appropriately safety-net them from there.

It is worrying when we know they have not had the care they need.

They could deteriorate and end up coming back in a worse state. ”



Patient having induced miscarriage with ongoing pain and severe bleeding and had passed out. Crew unable to gain IV access to give pain relief or anti-sickness meds. Were told no beds available in ED or Gynae. The gynae doctor came into the ambulance and proceeded to carry out an internal procedure to deliver the foetus and reduce the bleeding. A deputy sister who had just come on shift came onto the ambulance and was extremely angry that the patient had been left in the ambulance, advising that there was in fact room in green Resus.



“ It has a bigger impact than what is on the surface. It is scary for patients. It is scary for new clinicians whose patients may dramatically deteriorate...and there are patients who are sat there for hours waiting for ambulances because we are at the hospital and they are at risk. ”



Patient with grade 4 infected pressure ulcer on sacrum had to wait on stretcher for 2 hours in the ambulance outside ED.



Patient in their 50s, with worsening chest pain in the preceding 24 hours. Crew administered treatment on scene and attempted referral through cardiac pathway to CCU. No capacity so took to nearest ED. After waiting outside ED for 1hr 46mins patients pain score had increased, and ECG showed ST elevation (indicating heart attack). ECG trace was reviewed by Resus team who asked us to bring the patient in – this was after 3hrs 31 mins waiting.



“ It’s become a normalized part of our job to do sadly. This winter has been particularly of note but that’s because we were worried about our safety as well. Being in a confined area with someone who you are suspecting may have Covid is scary. ”



“ When you’re sat there with the backdoors of an ambulance closed up, I think the staff forget about you.

No-one can see that there is anybody in there. And it gets cold, so you have got to have the engine running. It’s just, it’s not the nicest place to be when you’re there with a poorly patient for several hours really. ”

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Appendix D – UK NHS Ambulance Services





Acknowledgements

AACE would like to thank all UK ambulance services for contributing to this report. We are particularly grateful to those individuals who helped develop the methodology for the clinical review and those who conducted the reviews in their trust. We are proud of our ambulance clinicians and call-handlers who themselves experience significant pressures in these circumstances, and commend them in maintaining their professionalism and compassion at all times.



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About the Association of Ambulance Chief Executives (AACE)

The Association of Ambulance Chief Executives (AACE) is a membership organisation providing NHS ambulance services with a central body that supports, coordinates and implements nationally agreed policy. The primary focus of AACE is the ongoing development of the UK ambulance service and the improvement of patient care. Aside from this, the organisation provides the general public and other stakeholders with a central resource of information about UK ambulance services. AACE also engages in carefully chosen consultancy activities designed to help improve ambulance services in general, both at home and abroad.



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