Missed Opportunities Audit

Scarborough Hospital

Emergency Medicine Department

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Drafted by

[Redacted]

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Introduction

Method and Sample

This document contains an overview report of the 'missed opportunities audit' undertaken in June 2022. The period covered is January to May 2022 and a sample of one hundred patients is included from 17,069 attendances in that period, representing 0.6% of attendances. A random sample of all attendances was taken using Microsoft Excel and the random number feature. The top 100 patients, when the random numbers are arranged in ascending order, were selected for the sample. All timing data, as much as possible, was maintained and copied into the audit tool. Any timings were transcribed into minutes by formulae, rather than hours and minutes as per CPD, to allow assessment of timings on an equal basis and to allow for easier calculations for analysis.

A separate document on assessing each different criteria was also produced, to allow for a consistent approach. Whilst this is available, an overview of some definitions is provided in the next section for clarity.

This report aims to provide an overview of the data, describing the issues identified and providing raw data behind the judgements and issues identified. Some potential recommendations are also provided. The audit tool from the review must be used in parallel with this report; the aim of this document is not to repeat all the results of the audit, but to analyse them, providing only headline data within the report itself.

Definitions

Generic Definitions used in drop-down lists

Uncertain

This is used where there is not enough information available in the documentation to come to a reasonable conclusion about the appropriateness of the decision made at the time.

Specific Element Definitions and Comments

NEWS

The NEWS provided is the earliest available NEWS from streaming, triage, or the ambulance notes.

Onward referrals

Element W refers to onward referrals. This decision relates to triage- or streaming-based decisions. If a decision is made to make an onward referral after clinical review, this is not such a decision and thus the answer provided is 'no'. However, the decision to refer for a peripheral unit review is documented in X as 'clinical review'. Such decisions generally should have taken place earlier in the patient journey.

Conveyance

Element O provides a judgement with regards to the appropriateness of the conveyance using an **emergency** ambulance. There is an option for 'uncertain' which is used on occasion where on the balance of probabilities the conveyance was inappropriate, but there is not enough information to reach a firm judgement in this regard. The options to explain the reason behind a likely inappropriate conveyance include the recommendation that alternative transport could have been utilised (i.e., public transport, patient's own transport) based on the clinical presentation and documented social circumstances. Where a GP is documented as having called the ambulance, and this is felt to have been inappropriate, the comment is based on both social and clinical circumstance.

Medications

Medications are documented as being ‘given’. This does not necessarily mean they were required, but there is no way of knowing this after the event. Critical medication (elements AI and AM) are defined as medications that are either a critical regular medication, that the patient takes in the community (anti-epilepsy drugs, insulin, Parkinson’s medications), or one that is required in an emergency setting as early as possible (antibiotics for sepsis, adrenaline for anaphylaxis, or hydrocortisone for patients who are unwell and have Addison’s disease). The mode of SC/IM which is provided also covers other ‘middle’ methods of administration such as intra-nasal and nebulised medications.

Investigations

Where investigations have been requested, the perspective of them being ‘necessary within ED’ is taken. If they are not necessary within an acute setting the perspective of ‘not required’ is taken to mean ‘not required in an acute setting’.

Note that the ECG timing depends on the accuracy of the time on the ECG. This is known in Scarborough to be reliable; there is one instance in the audit of where this is not the case as the time on the ECG pre-dates the arrival time of the patient into ED.

Specialist reviews

The need for specialist reviews to be undertaken is a judgement as to the requirement to be for undertaken in ED itself. Reviews taken in ED due to ward capacity issues are not counted as ‘reviews in ED’ as they would normally have taken place on the ward. The timing figure refers to an urgent referral to a specialty for review in ED itself, required promptly within ED after the referral.

During the audit, the tool was used from left to right, using information that would only have been available at that time within the assessment to avoid significant bias due to hindsight. For example, a decision regarding triage and the appropriateness of onward referral was made using the information that would have been available at that juncture – i.e., the information on the streaming document or VoCare streaming documentation.

The timing of this review is documented – routine clerking times are not calculated or referred to where ‘not required’ is the status for the need for a review in ED.

Missed opportunities

Missed opportunities refer to process-related elements of care and are concerned with the opportunity to reduce the length of time a patient spends in the department. The idea is that the patients receive the right care in the right place. For example, a patient may require a review, but not in an emergent setting – an acute setting such as the Emergency Assessment Unit may be more appropriate. The earlier such a referral is done the better, more appropriate care the patient receives, and the more efficient the delivery of safe, high-quality care. Where a patient is in the wrong place, not only does this delay care for that patient, it also delays care for other patients in the ED who may be more appropriate for emergent treatment within ED. The earlier appropriate patients are referred to more appropriate, less emergent areas, the less the risk of harm to other, more acutely unwell patients, due to a reduction in unnecessary delays in care for patients who require emergency treatment. The individual patient requiring acute care (versus emergency care) has the time of their attendance impacted upon (as they wait unnecessarily for an emergency care doctor), and the care of other patients is delayed – potentially resulting in patient harm. Missed opportunities are an important aspect of ensuring delivery of safe, high-quality care, ensuring an optimal experience for all patients.

These missed opportunities are in order of the time in the journey they were missed. For example, if a referral from an ambulance was missed and the referral was made at a clinical review, then ‘referral from ambulance’ is the first missed opportunity in the journey, and ‘referral from triage’ is the second.

Note that the missed opportunities assume that the referring unit is open. If UCC or EAU is unavailable a missed opportunity is identified as if the unit is available. EAU is available every day, but not at night for an acute review. The missed opportunities at night and during the day can be assessed using a pivot table within the master data sheet to exclude EAU referrals which could have been made when the patient arrived during a night shift, when EAU was closed for a discharge without admission overnight.

Clinical issues

Clinical issues are issues identified in the care of the patient's care, which affect the quality and safety of care. Clinical issues may result from missed opportunities. For example, 'wrong place' care mainly results from missed opportunities to refer to an appropriate place of care. 'Wrong care' generally results from a lapse or error in the delivery of care and is generally not related to a missed opportunity. Delayed care generally results from missed opportunities, as the delay in care can result from a patient requiring acute care (on EAU, for example) having a significant delay waiting (inappropriately) in ED, or a patient who requires emergency care experiencing a delay in their care because of the number of inappropriate patients in ED requiring acute treatment but waiting in a setting designed to deliver emergency care.

Hindsight

The methodology of reviewing the documentation as a 'live' document, and not reviewing results available after subsequent decision-points attempts to reduce the issue of 'analysis with the benefit of hindsight'. Element BV attempts to quantify this. This hindsight judgement relates to the clinical issues and missed opportunities. If not enough information is available to reach a judgement on the role of hindsight 'uncertain' is selected to demonstrate this.

Clinical commentary

The clinical commentary gives an overview of each case, with an explanation behind the perceived clinical issues and missed opportunities. This gives an opportunity to summarise the case to the reviewer and to allow a degree of judgement insight to the reader.

Admission criteria

The Sherwood admission criteria are utilised. Where an admission did not meet criteria the case was re-reviewed (including notes, clerking and available results **within ED**) to ensure that this was an appropriate judgement.

Data Quality

Analysis of data limitations

This subsection provides an overview of the potential limitations of the audit tool, as applied to analysis of missed opportunities and timings, as well as any identified clinical issues.

The table provided in the definitions file provides an overview of the source of the data.

CPD data is taken directly from CPD and not appraised further.

Formula data is used to translate data from CPD into usable figures; these are checked on a random basis for consistency

Manually derived data is input by the reviewer into the audit tool. Human error is attempted to be mitigated using 'check' figures in the results worksheet (see below). The whole tool was checked for consistency for all rows and columns (i.e., an ambulance CPD arrival mode was not down as a walk-in for the detailed mode column). The data was also checked for consistency of approach when reaching judgements for onward referrals and the appropriateness of investigations and the requirement of a review within ED.

There are some elements of the data which need to be highlighted:

1. ECG timings are taken from the ECG paper – the time programmed into the machine may not be reliable
2. Investigations are generally blood tests; the time is when they were requested, not the time they were performed
3. All timings come with the caveat that they are only as reliable as the data which was entered (and calculated and/or analysed) by the CPD system and the data obtained from Signal as part of the review process
4. The presenting complaint and diagnosis columns are direct from CPD; they are notoriously inaccurate as not all presenting complaints are taken contemporaneously and may be inputted without knowledge of the patient upon final coding (potentially by another clinician, days after the attendance), and not

all diagnoses are available as a code, with 'no abnormality detected' being used and the actual diagnosis being put into the GP notification (not available in the Signal dataset used to inform the audit)

5. The specialty referred to within the audit tool is the final specialty which reviews the patient; it may not necessarily be the first specialty if a patient is referred from surgery to medicine after a surgical review, for example. The timings for such cases, therefore, are potentially unreliable as the time will refer to the final specialty, and not the initial specialty who has reviewed the patient.
6. All analysis is taken in good faith. Information on all available documentation is included and considered 'at the time' of decision points within the patient journey (i.e., data which would not have been available at a particular decision point is not taken into consideration when coming to a judgement at a given point in time). The missed opportunities and clinical issues, as well as the appropriateness of an admission are still a judgement call from a clinician who is reviewing the cases with the benefit of hindsight. This is assessed in the final column. Even if it is not felt that hindsight is playing a part in the judgement, it may still be doing so, and the clinician reviewing the data is not doing so from within a busy ED, and so does not have the common environmental distractions and human-factors to contend with within a department during a clinical shift.

Check figures on the results worksheet

To ensure that there is consistency in approach, and that results 'make sense' there is a 'check' figure for datapoints where this is possible. Where it is not possible to make a 'check' figure available a review was undertaken by the reviewer to check the results manually. A 'check' figure is obviously not provided where it is likely to be unreliable. The results were reviewed at the end of the exercise, and any deviations from the 'check' figure were corrected within the main spreadsheet to ensure high quality data was produced from the final analysis. All check figures should be 100%, as they are based on the sample size (or a sub-population of the sample size for activities not undertaken on all patients, such as the administration of medication).

Analysis

This section analyses the data, through each patients' journey within ED, and with regards to timings of activities such as referrals and administration of medications or performance of investigations. It also provides some recommendations for managing the issues identified within the journey of the patients records, appraised in the audit.

Sample demographics and arrival mode

As above, the sample represented 0.6% of all attendances to SGH ED between January 2022 and May 2022. The average age of patients was 53; the median was 58. The oldest patient was 95; the youngest 10 days.

73% of patients arrived during a day shift (between 8am and 8pm), with 27% arriving during a night shift. The sample was split 50/50 between ambulance arrivals and walk-ins. Only one patient in the sample was referred by 111 but was suitable for UCC but referred to ED majors instead.

50% of patients had a NEWS of 0 at their first observations, and 2% of patients had a NEWS of 10 or above.

GPs referred in 16% of patients – 6 (38%) of which were by emergency ambulance. MIU referred in 6% of patients. Self-presentations accounted for 78% of attendances (41% of total arrivals as self-presentations by ambulance, and 37% as walk-in self-presentations of the total of arrivals).

Headlines

1. 73% of patients arrived during the day
2. 50% of patients arrived by ambulance, 50% were walk-ins
3. Most patients self-presented
4. Very few patients come to ED by 111

Streaming (walk-in patients only)

Only 44% of patients who were streamed to ED were appropriate for ED, as an emergency case. 26% of patients could have gone to EAU directly, 4% could have been signposted to community services, and 26% should have been streamed to UCC. There is no way of knowing the availability of UCC with regards to the cases that could have gone to UCC, but were instead streamed to ED. The absence of UCC was documented in only two cases. Regardless, as UCC and Streaming are the responsibility of the same provider, it was judged that a referral to ED was inappropriate as emergency care was not required, the patients should have been asked to reattend when a service was being provided, or have been redirected to another, more appropriate, setting. The classification of these patients as unsuitable streams is appropriate to ensure accountability of the UCC provider, to further highlight issues and the pressures placed on ED by inappropriate streaming decisions (based on clinical presentation or UCC availability).

The mean time to streaming was 12 minutes. The median time was 7 minutes. The longest waiting time for streaming was over an hour and a half (92 minutes).

Headlines

1. 66% of patients streamed to ED were inappropriate, and alternative options for delivering appropriate care should have been utilised within services in the community or within the hospital
2. The mean time to wait for streaming, if an ECG is required, leaves only three minutes for this to be performed following streaming to ED to meet the 15-minute target
3. There is large variability in the time of arrival to streaming; an hour and a half to be streamed presents a significant danger to patient safety. In addition, patients waiting prolonged lengths of time to be streamed are not visible to the NHS ED area and so deterioration of a patient in the waiting room may not be noted and may cause administrative issues if a patient is moved from one system onto another (and a wristband is not printed until referral to ED is made from streaming, so the patient will be unidentified).

Triage (walk-ins)

On average, patients wait over one hour from arrival to triage (77 minutes). The median for triage is just under an hour (51 minutes). The highest waiting time for triage was almost five hours (289 minutes). This represents a significant risk to patient safety – with a patient in ED for such a prolonged period, in a waiting room, with no review by a registered practitioner. Regular observations of the patients in the waiting room are now undertaken to mitigate this risk – due to the absence of un-streamed patients on CPD this can only take place on patients who have been streamed to ED. Of the six patients requiring escalation, four were escalated, but two were not.

Of note, is that where a patient is inappropriately streamed to ED this has a knock-on effect on patients who are appropriately in ED. An incorrect stream (see previous subsection on streaming) delays triage for all other patients and runs the risk of deteriorating patients becoming critically unwell in the waiting room before they have been triaged, as the triage nurse has been undertaking triage of inappropriate patients, referred from streaming.

Headlines

1. A third of patients in the waiting room requiring escalation and medical review were *not* escalated
2. The time for triage for walk-in patients is over an hour – representing a significant risk to patients
3. Inappropriate streaming to ED creates a bottleneck in triage, representing another significant risk to patients.

Conveyance appropriateness and patients arriving by ambulance

52% of conveyance by ambulances were deemed as inappropriate. The reviewer did not have access to the policies of YAS, which may account for the low number of *appropriate* conveyances, however based on clinical judgment for cases presenting by ambulance the arrivals should have presented either to a community service (33%) or via their own transportation methods (38%), as their documented clinical condition and social circumstances allowed for this.

17% of ambulance arrivals were judged to be inappropriate referrals from primary care practitioners for an emergency ambulance. This analysis included the documented social and medical circumstances of the patients.

Headlines

1. Almost half of the ambulance arrivals were deemed as inappropriate for conveyance
2. 17% of ambulance arrivals were perceived to be due to the inappropriate request of an emergency ambulance by a primary care practitioner
3. 33% of patients arriving by ambulance did not need to attend the hospital, and 38% could have made their own way as their social and clinical circumstances allowed for this

Triage (ambulances)

The mean time for triage of ambulances was 41 minutes – a significant length of time for a patient arriving by ambulance. Inappropriate conveyances contribute to this – the more inappropriate conveyances requiring triage from an ambulance, the more significant the delay to the care of other patients requiring emergency care. The time is likely this long due to the need for ambulances to have space for their patient upon arrival (hence the significantly lower median time of 23 minutes, and the maximum time of over three hours, 191 minutes).

The current system of triage creates a ‘two-tier’ system, producing two bottlenecks within the system. This means that those who arrive by ambulance receive care faster, which may not be clinically appropriate, and may increase potential harm to patients

in the waiting room, who arrive via their own transportation means. The existence of two bottlenecks also makes demand difficult to manage during times of surge, particularly when there are significant differences in the demand for the two groups of patients arriving via two different modes of transport.

Headlines

1. There is a significant delay between arrival and triage for ambulance arrivals; with a significantly lower mean than median, this suggests significant variation day-by-day
2. Inappropriate conveyances adversely impact on triage times
3. There are two bottlenecks in the system, making demand surges difficult to manage and creating a 'two-tier' system for initial assessment.

Onward referrals (ambulance arrivals and walk-ins)

30% of patients were suitable for EAU, 6% for SAU, 3% for CAU, 8% of ambulance arrivals were suitable for UCC (for the purposes of the audit, the assumption is made for walk-in patients that it is 'too late' in the journey to override a streaming decision by the time the patient is triaged, and the streaming data provides comments with regards to the appropriateness of streaming), and 11% of arrivals were suitable for referral direct to a specialty from arrival (i.e. from ambulance or triage for ambulance arrivals, and streaming for walk-ins). 46% of arrivals were inappropriate for onward referral and required an ED review before a decision could be made regarding further management.

Where a referral was indicated, this was only done in 24% of cases, and 76% of the time the patient was inappropriately reviewed by an ED doctor. Most onward referrals were made at triage, although many more could have been made overall, and many more could (and should) have been undertaken at the point of streaming for walk-in patients.

33% of patients in the sample were appropriate for onward referral, but this was not done at any point in the patient's journey.

1. 74% of patients are not appropriately referred to a more appropriate area at point of streaming or triage
2. Almost 10% of ambulance arrivals could be streamed to UCC
3. Early referrals are not being undertaken, introducing delays in care
4. Many appropriate referrals are not being made, at any point in the patient journey

Investigations

Investigations within ED were required and undertaken in 53% of patients. In 46% of patients who did not required investigations within ED, they were performed regardless. Such investigations weren't indicated either at all, or could have been undertaken in a different setting, beyond ED.

Only 3% of investigations were undertaken on EAU/SAU, with the majority being undertaken in ED triage (73%). Two patients were referred from UCC to ED for investigations (an XR and bloods, in the case of the blood tests, ED was an inappropriate location, and an onward referral should have been made by UCC – this patient was in ED for a total of 568 minutes unnecessarily).

On average, investigations were undertaken within 108 minutes of arrival, with a median of 53 minutes, for all modes of arrival. The longest wait for investigations at triage was 10 hours, an unacceptable delay, though this patient may have been re-referred from UCC, where the 'clock starts' upon arrival. Where an ECG was required, and undertaken, the mean time for this was over three hours, with a median of 127 minutes. The lowest wait for an ECG was 18 minutes – above the 15-minute target set by NHS England. 17% of investigations could have been undertaken on SAU/EAU, substantially reducing the delays within ED at triage and beyond.

Headlines

1. 46% of patients had unnecessary investigations in ED
2. Investigations were required in 53% of patients within ED itself
3. More investigations could have taken place on peripheral units, to speed up processes and deliver appropriate and safe care
4. Blood tests were unnecessarily requested via UTC; UTC could have undertaken these blood tests and avoided a 500-minute delay in care

Medication, Walk-Ins

Medication was required in 34% of walk-in patients. Most was PO, 25% was IV, and a further 20% was IM/SC/Neb/IN. 38% of medications given in the waiting room were time critical. On average, medication was provided to waiting room patients almost three and a half hours after the arrival of the patient to ED (median; 132 minutes).

Headlines

1. Only a third of waiting room patients required any medication
2. Those waiting room patients who required medication waited an average of three and a half hours before receiving it

Medication, Ambulance

Medication was required in 50% of ambulance patients. 40% was oral and a further 48% was IV. 48% of medications given to ambulance patients were time critical. On average, medication was provided to waiting room patients almost three and a half hours after the arrival of the patient to ED (median; 132 minutes). The mean time to administration was 133 minutes (115 minutes, median). At almost two-hours from arrival to administration, this is double the sepsis requirements for administration of antibiotics (though, of course, the data does not break this information up). Given the high percentage of medication classified as critical, however, this is a significant delay.

Headlines

1. There is likely a significant delay in the administration of critical medications for patients who arrive by ambulance
2. Almost two-hours pass, on average, before medications are administered to patients arriving by ambulance

ED Review and Referral

The median time to ED review was just over 2 hours (130 minutes, median of 95 minutes). The longest wait for an ED review was 11 hours from arrival. Medicine represents the most significant proportion of ED referrals to specialties. The mean time for ED to refer to a specialist was 220 minutes, median 151 minutes. 60% of patients who had a review by a specialist in ED (appropriate or not, excluding routine clerking and reviews as part of post-take reviews occurring in ED due to service pressures) could have had such as review undertaken elsewhere. Most of these reviews were unnecessary – generally due to an inappropriate referral by ED at the point of clinical review. Decisions regarding admission or discharge were, on average, taken within 207 minutes (median; 178 minutes). 9% of patients were discharged from ED following a specialist review; most of these were surgical patients who could have been reviewed on SAU, releasing space within ED.

Headlines

1. The time to see an ED doctor is prolonged, but reasonable given the current pressures and the number of patients inappropriately triaged and streamed to ED
2. Decisions regarding specialty review are made within a reasonable timeframe, again given current service pressures
3. Specialty reviews are unnecessarily taking place in ED, reducing the available capacity for critically unwell patients. Most of these reviews take place because of unnecessary referrals by ED
4. A significant number of surgical patients are inappropriately reviewed in ED, where they could be reviewed on SAU by the surgical team

Missed Opportunities

MO1. Missed Opportunities L1 [Up to 3 per Attendance]	Count
Referral from streaming	21
Referral from triage	1
Referral from ambulance	5
Transfer following clinical review	0
Navigation to community-based service	15
Other (add comment)	4

MO2. Missed Opportunities L2 [Up to 3 per Attendance]	Count
Referral from streaming	6
Referral from triage	16
Referral from ambulance	4
Transfer following clinical review	0
Navigation to community-based service	10
Other (add comment)	0

MO3. Missed Opportunities L3 [Up to 3 per Attendance]	Count
Referral from streaming	1
Referral from triage	7
Referral from ambulance	1
Transfer following clinical review	2
Navigation to community-based service	1
Other (add comment)	1

The missed opportunities are shown above. As a reminder, there is the potential for three missed opportunities per attendance. The missed opportunities are in order of the time they occur in the journey of the patient (hence the decreasing number of

streaming referrals, for example, by MO3 as this is later in the journey). In 21% of cases the first opportunity missed was a referral to an appropriate unit from streaming. In 15% of cases, a referral to a community unit (or a stream to UCC from ED) would have been appropriate.

During the audit it was noted that where a patient was inappropriately streamed to ED, further missed opportunities were prevalent but were less easy to utilise. Where a patient could have gone to UCC patients were never referred to UCC, due to administrative (and likely political) difficulties. Once a patient who was inappropriate for ED (particularly if they were more appropriate for UCC) was in ED, they got 'stuck' in an area delivering care to them in the wrong place, at the wrong time, and likely waited for periods of time that were much longer than was necessary, or that they would have been waiting had they been streamed correctly in the first place. Patients became 'stuck' in ED due to a lack of pathways to allow any other option open to the ED staff to ensure that the patient could have received care elsewhere, and not delay the care of patients requiring emergent care.

Headlines

1. Significant numbers of missed opportunities are occurring throughout the patient journey, though most are at the beginning.
2. Inappropriate streaming, and lack of referral to community-based services is causing significant unnecessary pressure on ED
3. Earlier missed opportunities are those which are easier to allow for appropriate care to be delivered; inappropriate ED streams result in poor care being delivered in the wrong place, with prolonged waits, and re-referral is more difficult than it would have been in the first instance

Actions

Each headline from the elements above is summarised in the table below, with a comment and potential action.

Headline	Comments
Very few patients come to ED by 111	This demonstrates that those who call 111 are being appropriately managed. It may also suggest that 111 is not being utilised by patients, given the appropriateness of other patients who are in ED
66% of patients streamed to ED were inappropriate, and alternative options for delivering appropriate care should have been utilised within services in the community or within the hospital	Inappropriate streaming to ED has the potential to cause significant harm by introducing delays to the care of patients requiring emergent care. Streaming practices must be improved to encourage early transfer to peripheral units, and appropriate utilisation of UCC.
The mean time to wait for streaming, if an ECG is required, leaves only three minutes for this to be performed following streaming to ED to meet the 15-minute target	There needs to be a way of ensuring that urgent investigations (such as ECGs) are undertaken as early as possible, as the streaming delays introduce an element of risk into patients presenting with chest pain, for example.
There is large variability in the time of arrival to streaming; an hour and a half to be streamed presents a significant danger to patient safety. In addition, patients waiting prolonged lengths of time to be streamed are not visible to the NHS ED area and so deterioration of a patient in the waiting room may not be noted and may cause administrative	These significant waits need to be reviewed, and appropriate action taken to manage this risk. Unidentified patients, where waits are prolonged, presents a particular risk to safety. The utilisation of two computer systems increases this risk (as pertinent clinical information is not available for

issues if a patient is moved from one system onto another (and a wristband is not printed until referral to ED is made from streaming, so the patient will be unidentified).	patients who deteriorate, and a wrist-band stating the identity of the patient is not provided until the patient has been streamed to ED).
A third of patients in the waiting room requiring escalation and medical review were not escalated appropriately	Escalation processes from the waiting room need to be reviewed and audited.
The time for triage for walk-in patients is over an hour – representing a significant risk to patients. Inappropriate streaming to ED creates a bottleneck in triage; representing a significant risk to patients.	The reason behind the delays in this regard need to be reviewed. There are plans to introduce an initial assessment system to manage bottlenecks within the system for both the waiting room and ambulance queues.
Almost half of the ambulance arrivals were deemed as inappropriate for conveyance. 33% of patients arriving by ambulance did not need to attend the hospital, and 38% could have made their own way as their social and clinical circumstances allowed for this	Inappropriate conveyances adversely impact on triage times, and result in fewer ambulances on the road for conveyance of patients in need of emergency, and lifesaving, care. The results highlighted here need to begin a review of conveyance criteria and review of further records of patients who have been conveyed to ED to provide a larger sample.
17% of ambulance arrivals were perceived to be due to the inappropriate request of an emergency ambulance by a primary care practitioner	This should be highlighted to those who monitor and regulate primary care.
There is a significant delay between arrival and triage; with a significantly	The reason behind the delays in this regard need to be reviewed. There are plans to introduce an initial assessment

lower mean than median, this suggests significant variation day-by-day	system to manage bottlenecks within the system for both the waiting room and ambulance queues.
Almost 10% of ambulance arrivals could be streamed to UCC	There needs to be an efficient system introduced to allow this to become normal practice.
Many appropriate referrals are not being made, or are not being made early enough in the patient journey	Early decision making regarding the appropriateness of ED for the care of a patient (rather than on peripheral units) needs to become part of the culture of decision making. Streaming nurses need to be clear on the requirement for early onward referral at the point of streaming.
46% of patients had unnecessary investigations in ED Blood tests were unnecessarily requested via UTC; UTC could have undertaken these blood tests and avoided a 500-minute delay in care	Initial assessment, run by clinicians, is being reintroduced to ensure that only appropriate investigations are requested by medically qualified individuals. The case referred to should be highlighted to VoCare.
More investigations could have taken place on peripheral units, to speed up processes and deliver appropriate and safe care	Encouragement of peripheral units undertaking their own investigations would help manage the bottlenecks at triage, and increase available physical capacity within ED
Those waiting room patients who required medication waited an average of three and a half hours before receiving it	It is not clear if medication was not provided to these patients because it was not indicated, or because there was no one available to prescribe it.
There is likely a significant delay in the administration of critical medications for patients who arrive by ambulance	This is likely due to ambulance waits outside ED; a risk mitigation protocol should be put in place to manage this risk

Almost two-hours pass, on average, before medications are administered to patients arriving by ambulance	
Specialty reviews are unnecessarily taking place in ED, reducing the available capacity for critically unwell patients. Most of these reviews take place because of unnecessary referrals by ED	ED doctors should consider 'how will this referral change my management decision?' if a referral is made to a specialty. The delay in specialty reviews of over an hour (median) from the time of referral reduces the available capacity of ED for emergent patients
A significant number of surgical patients are inappropriately reviewed in ED, where they could be reviewed on SAU by the surgical team	The utilisation of SAU needs to be improved, and the surgical team need to be encouraged to review patients on SAU, rather than in ED. A new process has recently been introduced and should be audited to monitor progress.
Significant numbers of missed opportunities are occurring throughout the patient journey, though most are at the beginning. Earlier missed opportunities are those which are easier to allow for appropriate care to be delivered; inappropriate ED streams result in poor care being delivered in the wrong place, with prolonged waits, and re-referral is more difficult than it would have been in the first instance	Patients are becoming 'stuck' in a system for emergency patients, following inappropriate streaming. This presents significant, unnecessary clinical risk for other patients in ED for whom care (triage, review, treatment, specialist care) is delayed as part of a domino-effect of crowding in ED.
Inappropriate streaming, and lack of referral to community-based services is	There is a need for streaming and/or triage to refer to community-based

causing significant unnecessary pressure on ED	services to reduce pressure on ED, where attendance at ED is inappropriate and a pharmacy, or the patient's own GP could deliver appropriate care.