RCEM
Royal College of Emergency Medicine

PAIN IN CHILDREN

NATIONAL QUALITY IMPROVEMENT PROJECT

NATIONAL INTERIM REPORT 2020/21

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Executive Summary

Overview

RCEM would like to thank every Emergency Department (ED) that participated in this Quality Improvement Project (QIP). Over a period of 6-months this RCEM QIP has accumulated 10,873 individual patient cases from 168 emergency departments nationwide.

The findings of the 2017/18 Pain in Children audit indicated that most children (85%) with severe pain were offered analgesia, however, only 50% received this within 30 minutes and 69% within an hour.

The purpose of the QIP was to monitor documented care against the standards published by RCEM in October 2020, and to facilitate improved care using QIP methodology like Plan Do Study Act cycles June 2020 and weekly data feedback. QIP methodology was promoted to encourage EDs to improve towards more consistent delivery of these standards to help clinicians examine the work they do day-to-day, benchmark against their peers, and to recognise excellence.

Interventions can be made at a local level to improve care in the local context and contribute to the overall national results.

Key Results

Quality Improvement

- Nationally, no significant improvement was demonstrated across the three standards over the reporting period. However, despite pressures on services due to the pandemic, the current standards of care were maintained.

Quality Assurance

- For standard 1 (Pain is assessed immediately (within 15 minutes) upon presentation at hospital), 63% of cases achieved this standard.
- For standard 2 (Patients in moderate or severe pain (e.g., pain score 4 to 10) should receive appropriate analgesia within 30 minutes (or in accordance with local guidelines) unless there is a documented reason not to) 67% of cases met the fundamental standard for moderate pain, with a further 50% going on to meet the developmental standard. For severe pain, 71% of cases met the fundamental standard with a further 53% meeting developmental.
- For standard 3 (Patients with moderate or severe pain should have documented evidence of re-evaluation and action within 60 minutes of receiving the first dose of analgesic), 12% of patients had a follow-up within 60 minutes of their first dose of analgesia.

Key recommendations

- The use of pain assessment tools should be built into the systems used by EDs to carry out triage assessments and regular observations
- EDs should be taking every opportunity to re-evaluate that sufficient analgesia is given, and documenting appropriately
- Monitoring demand and demand avoidance improvement measures should be focused on the times of maximum attendance
- Departments should have the staff, training, and equipment in place to deliver timely nerve blocks to children with femur fractures
- Departments should routinely review their assessment and triage processes
- EDs without any local guidelines should consider developing these

Conclusion

Improving care and effecting change in the challenging context of a pandemic and stretched NHS is no easy undertaking. The national picture has remained stable, demonstrating care has been maintained to former quality, which is laudable, as there is the ongoing risk of care deterioration as demand outpaces increases in resourcing.

Some departments on a local level have had success in raising care standards using quality improvement methodology.

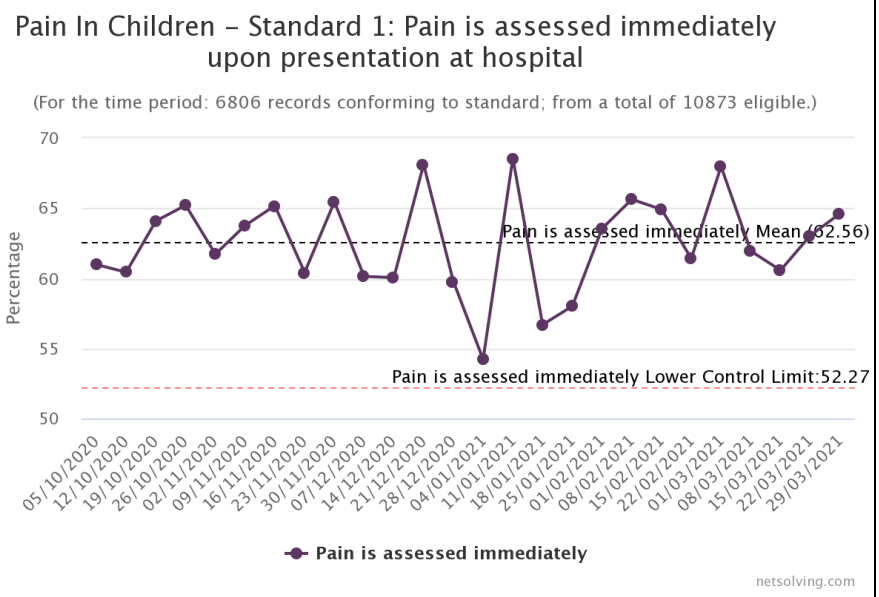
Moving Forward

RCEM aims to improve the networking capabilities and information sharing so effective translatable changes demonstrated locally can be championed to inspire others and help more departments succeed in improving care.

This is the first time we have shifted from an audit, data focused approach for monitoring Pain in Children to a QI and change one. The national team have observed new challenges and complexity in this transition and recognises change takes time. Future QIP will be moving to longer projects, with more process measures incorporated into the portals to facilitate evaluation of PDSA cycle and focus on change.

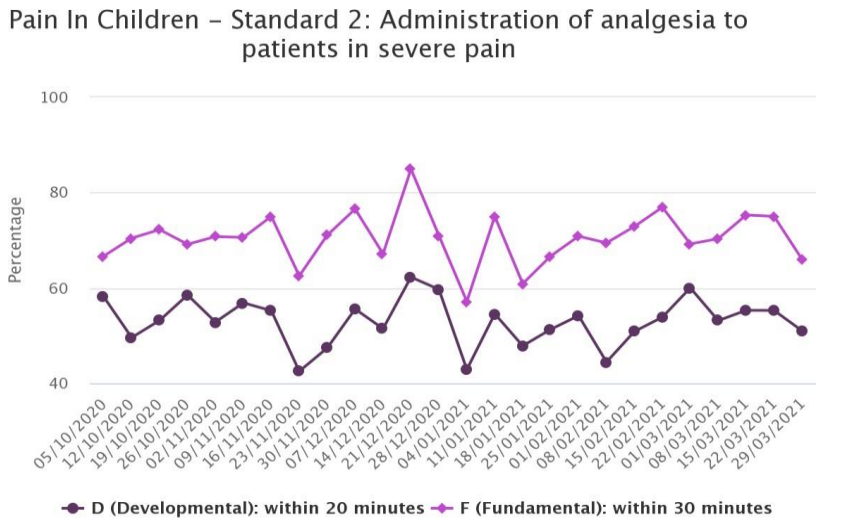
Performance Summary

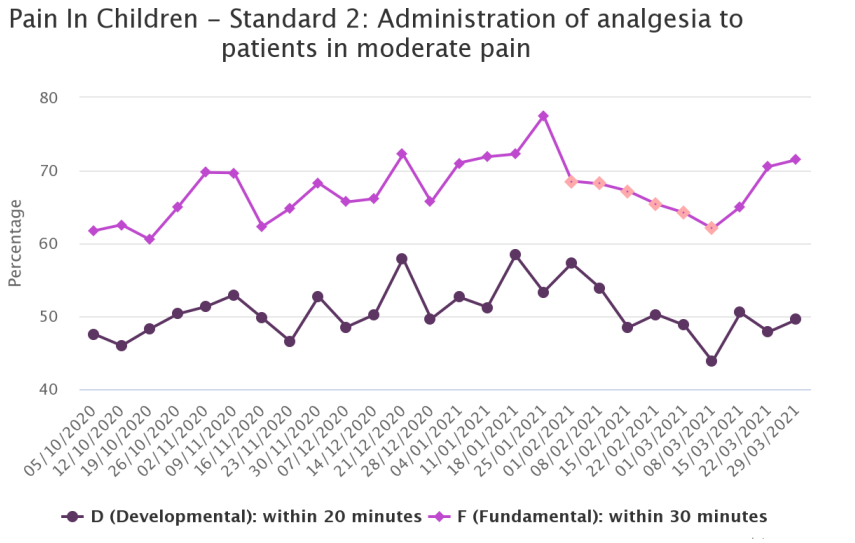
The below graphs show the weekly performance against the 3 main standards between 5 October 2020 – 2 April 2021. See the appendices for a guide to interpreting these charts.

Clinical standard	SPC chart of weekly performance
STANDARD 1: Pain is assessed immediately (within 15 minutes) upon presentation at hospital.	

STANDARD 2:

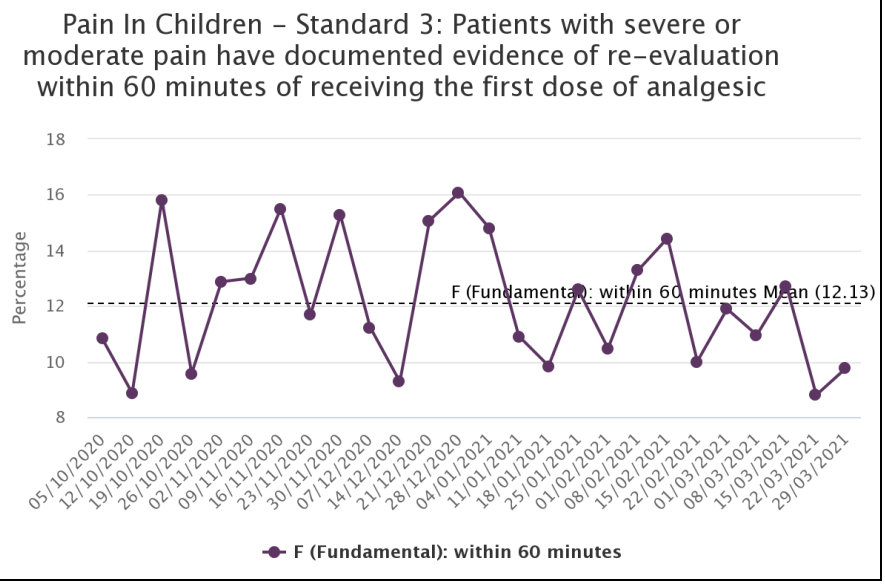
Patients in moderate or severe pain (e.g. pain score 4 to 10) should receive appropriate analgesia within 30 minutes of arrival (or in accordance with local guidelines) unless there is a documented reason not to.





STANDARD 3:

Patients with moderate or severe pain should have documented evidence of re-evaluation and action within 60 minutes of receiving the first dose of analgesic.



Foreword

Dr Katherine Henderson, RCEM President

The Royal College of Emergency Medicine is pleased to highlight the core business of caring for Pain in Children patients in Emergency Departments in this report.

This Quality Improvement Project (QIPs) builds on previous Pain in Children work by the college and allows us to see that some progress has been made in establishing appropriate standards and measures to ensure all children with pain are as safe as possible in our Emergency Departments.

The RCEM Quality Assurance and Improvement Committee are committed to continually evaluating the QIPs and improving them to best support you and improve patient care. We are aware that there are improvements we can make to strengthen local QI support, provide clearer data visualisation, and better communications. We welcome your feedback, ideas, and experiences to help us this winter.

The standards within this QIP focus on the key areas of Pain in Children within Emergency Medicine. Pain is assessed immediately upon presentation at hospital. Patients in moderate or severe pain (e.g., pain score 4 to 10) should receive appropriate analgesia within 30 minutes (or in accordance with local guidelines) unless there is a documented reason not to. Patients with moderate or severe pain should have documented evidence of re-evaluation and action within 60 minutes of receiving the first dose of analgesic.

It is vital we continue to review the performance of emergency departments against these areas. The College is dedicated to improving the quality of care in our Emergency Departments through these important QIPs, undertaking all obligations to ensure the best measures of patient safety are obtained.

Dr Katherine Henderson, RCEM President

Dr Simon Smith, Chair of Quality in Emergency Care Committee

Dr Elizabeth Saunders, Chair of Quality Assurance & Improvement Subcommittee

Introduction

Background

The purpose of the Pain in Children QIP is to improve patient care by **reducing pain and suffering, in a timely and effective manner** through providing measurement to track change but with a rigorous focus on action to improve.

The findings of the 2017/18 Pain in Children audit indicated that most children (85%) with severe pain were offered analgesia, however, only 50% received this within 30 minutes and 69% within an hour. There was also evidence of a deterioration in care when comparing 2017 with 2012.

Nearly half (45%) of children presenting with limb injuries did not have a pain score recorded at all. Only 1/3 (32%) of pain scores recorded were within 15 minutes of arrival in ED, and for those in moderate pain, only 26% were offered or received analgesia within 60 minutes.

There was a worrying proportion of children who were not receiving analgesia despite a documented significant pain score approximately 12% in severe pain and 28% in moderate pain.

The RCEM QIP programme is designed to show the performance of an Emergency Department against nationally agreed clinical standards over time so they can improve locally. Comparison with other departments is also possible, but the emphasis is on improving on your own system's current performance.

National results of the QIP will be published as part of RCEM's work on clinical quality. Participating EDs will also receive a personalised report with their data. This QIP is listed in the Quality Accounts for 2020/21, which require providers in England to report on their participation in identified national QIPs. The RCEM online data collection tool should be used to collect and review the management of children in pain presenting to your ED.

The College is committed to assessing health inequalities relating to patient ethnicity in supporting departments to provide high quality care to all. We will be collecting ethnicity data and monitoring for systemic inequalities and reporting this at a national level.

We hope this year's Pain in Children QIP will continue to highlight key issues in the UK and help to improve the quality of children's care in our EDs.

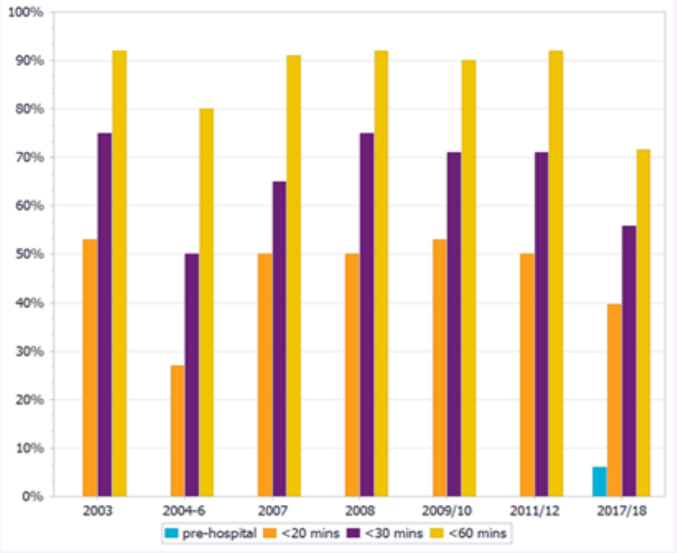
Problem description

As described above, the 2017/18 Pain in Children audit showed that when children attended the ED there were delays in assessing levels of pain and providing timely analgesia with respect to the national targets. It also showed that, once a child has been given analgesia, there was little review of whether this analgesia was sufficient to reduce the pain.

Rationale

Previous RCEM QIPs have run data collection over a six-month period. The data was then analysed, and a report published around 4 months later.

In many departments the audit reports stimulated improvement projects but when the same audit was repeated a few years later the improvements were not sustained. The 2017/18 Pain in Children Audit, in fact, showed a decline against the National standards in comparison to the previous 7 RCEM audits.



Time to analgesia in severe pain (2017/18 report)

This gap between QIPs was compounded by changes in the working practices, such as triage processes, or environment, such as new builds which made the data not comparable from audit to audit for individual EDs.

The aim of the QIP was for departments to be able to identify where standards were not being reached so they could do improvement work and monitor change in **real time**.

This Pain in Children QIP hopes to run over at least two years to allow improvement work to be commenced and hopefully to show that it has become embedded and is **sustainable.**

Focus

The project is focused on:

- Patients receiving a pain assessment within 15 minutes
- Patients in moderate or severe pain receiving appropriate analgesia within 30 minutes
- Patients in moderate or severe pain should have documented evidence of re-evaluation and action within 60 minutes of receiving first dose of analgesia

National Drivers

RCEM has conducted a Pain in Children audit seven times, and this 2020-23 cycle is the first it is being run as a QIP. This QIP will continue the work of the 2009/10, 2011/12, and the 2017/18 data collections. It identifies current performance against RCEM clinical standards, showing the results in comparison with other departments.

Specific objectives

The national objectives of the QIP are to improve the care provided to paediatric patients in the ED who present in severe or moderate pain with a limb fracture by:

- Identifying current performance in EDs against clinical standards
- Showing EDs their performance in comparison with performance nationally and in the ED's country to facilitate quality Improvement
- Empowering and encourage EDs to run quality improvement (QI) initiatives based on the data collected and assess the impact of the QI initiative on their weekly performance data.

Local objectives

1. To improve pain assessment at patient presentation
2. To improve provision of analgesia within 30 minutes for patients in moderate or severe pain
3. To improve re-evaluation of pain and appropriate action within 60 minutes of receiving first dose of analgesia

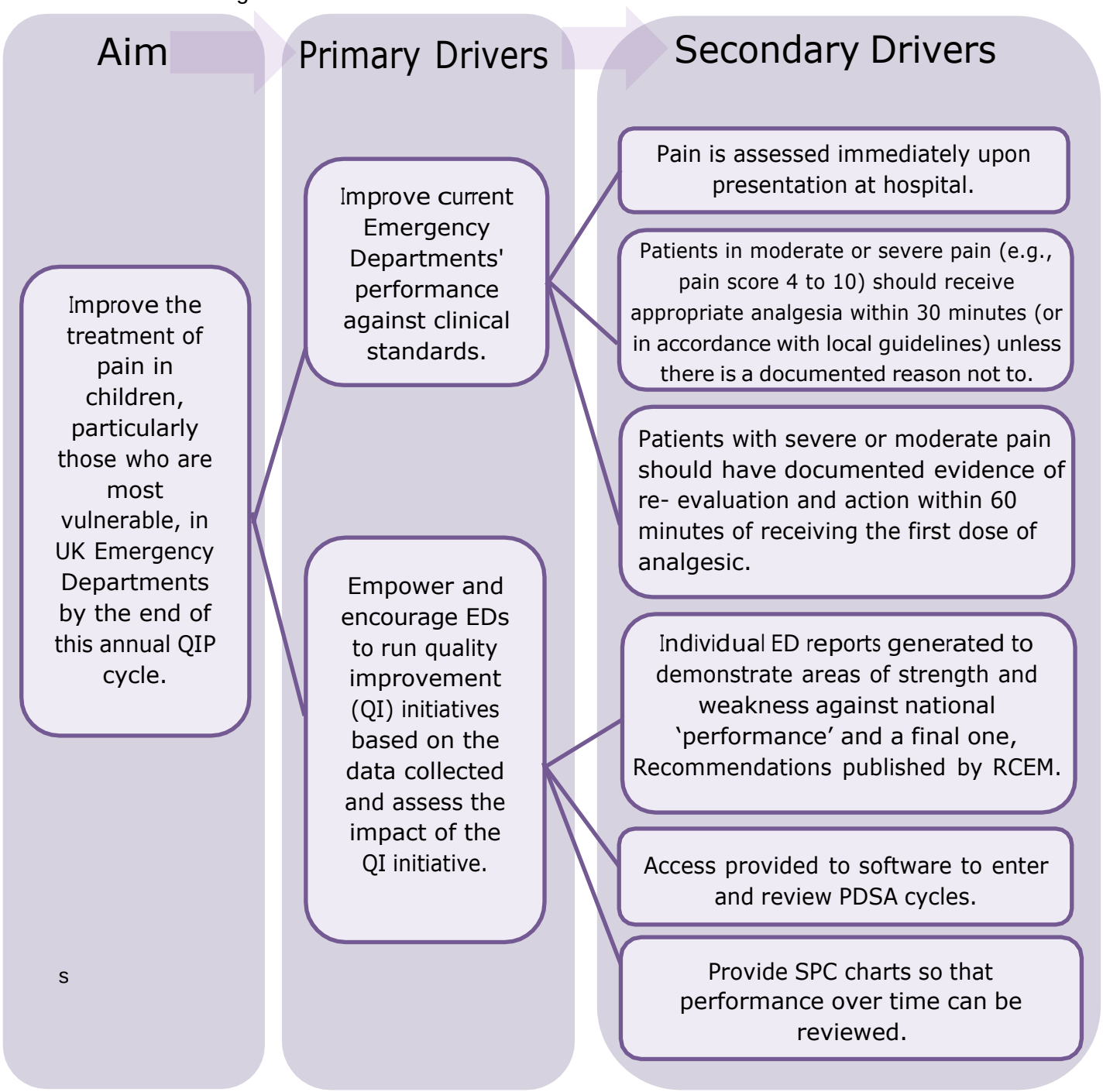
Aim of this report

This is an interim report looking at the first 6 months data on the platform. It follows the pilot and provides a baseline of information for departments to look at their data, their benchmarking, and to commence improvements projects. The platform will remain open for data collection as it goes into its second year.

It is also an opportunity for the College Quality team to review the platform, to consider improvements to the data collection, the live presentation of the data and the delivery of the reports. In effect, to conducting our own PDSA cycle on the National QIP.

Driver diagram

This diagram outlines the aim of the National QIP and the primary and secondary drivers (factors) that will contribute to achieving the aim.



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Case study

A five-year-old boy presented with his dad to the emergency department following a fall off the trampoline in an indoor play gym. He had injured his right arm and elbow. The child put on a brave face for his dad and was not screaming or yelling in pain, but was more stoic and quieter, holding his arm that was visibly swollen in a position of relative comfort. It was a busy day in the ED with delays to see a healthcare practitioner. Arriving straight from the gym, the child had not had any form of painkillers. Upon triage, it was determined that the child needed X rays while he waiting to be seen. He was further complimented by staff and dad for being such a brave boy. The long waiting time was explained to dad with the assurance that the x ray and pain relief will be sorted out in the meantime.

The nursing staff requested the doctor to prescribe some pain relief and to book an x ray. Being unsure of the child's weight, the doctor booked the x ray intending to get back to prescribing the painkiller but was called away to another patient and never got back to doing so. Waiting for more than an hour quietly in the ED, the child was taken to x ray where they could not position the arm for imaging as he was in too much pain on any movement. He was now in tears and sent back to the ED without the x ray being completed.

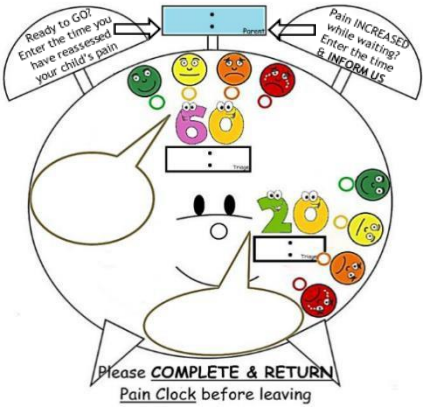
He waited a further two hours to be seen by a doctor who then realised that the x ray had not been carried out and found it extremely difficult to examine the child as now he was extremely apprehensive and exhausted. Appropriate pain relief was then prescribed and given to the child, and he eventually had his x ray, which revealed a supracondylar fracture. He had been in the department for around four and a half hours at this point. The child was then referred to the orthopaedic team for definitive management.

Applying the model for improvement: How could we have improved this child's patient journey

Long wait times in EDs have become an inevitable reality, but that does not mean we can't strive to keep our little patients comfortable through their wait. We can avoid further preventable delays in their care, as seen in this case, by simply focusing on interventions that would ensure timely administration of pain relief and reassessment of their pain. A protracted, uncomfortable experience like this for a child in the hospital can have long term implications in terms of fear and distrust of healthcare personnel and the healthcare environment in general when they ought to be able to see it as a place of safety and us as people they can trust.

What changes can we make that will result in improvement?

We can commit to early identification of children in moderate to severe pain and put in place processes that would ensure that these children get appropriate pain relief and are reassessed in a timely manner through their wait in the emergency department.



QIP Paediatric Pain Clock – 'We watch your pain' (North Tees University Hospital)

How was change made?

Intervention to address 2 key processes:

a) improving the initial assessment of pain
b) improving the reassessment of pain

A universal pain scoring system could be used at consistent time intervals which does not rely solely on doctors or nurses, but actively involves the parents. This was achieved by creating a new initiative called the 'Paediatric Pain Clock' (PPC).

Using PDSA cycles as the driver for change, the new initiative was implemented, and uptake of the new intervention resulted in significant improvement in overall pain management in children.

How will we know a change is an improvement?

Standards set out by RCEM for pain management in children was then used as a proxy measure to assess our department's performance. We demonstrated a significant improvement against all 3 standards. This showed that our department provided better care and a much more positive experience for our little patients.

Methodology

Nationally, **10,873*** cases from **168** EDs were included in this report. Click here to open an interactive map of participating EDs.

Country	Number of relevant EDs	Number of cases*
National total	168/239 (70%)	10,873
England	149/184 (76%)	10,215
Scotland	5/29 (17%)	133
Wales	9/13 (69%)	269
Northern Ireland	4/10 (40%)	196
Isle of Man /Channel Islands	1/3 (33%)	60
*Analysis includes complete cases only		

Intervention

All Type 1 EDs in the UK were invited to participate in June 2020. Data samples were submitted using an online data collection portal. The QIP was included in the NHS England Quality Accounts list for 2020/2021. Depending on the ED, it is possible the number of participating hospitals did not have a sufficient paediatric area to partake in this QIP.

Participants were asked to collect data from ED patient records on cases who presented to the ED between 5 October 2020 – 2 April 2021.

See Appendix 1 for the audit questions and the standards section of this report for the standards.

Recommended sampling

To maximise the benefit of the new run charts and features, RCEM recommended entering 5 consecutive cases per week. This enabled contributors to see their EDs performance on key measures, any changes week by week and visualise any shifts in the data following a quality intervention (PDSA cycle).

The sample of 5 cases per week was recommended based on the average 6-monthly attendance for a Type 1 ED (quarter 3 and quarter 4 A&E Attendances and Emergency Admissions 2019-20 data, NHS England and Improvement).
The sample size calculation was based on a 95% confidence level and 8% margin of error, as a higher margin of error is acceptable for a QIP than a research study.

Expected patient numbers	Recommended sample size	Recommended data entry frequency
<5 a week	All patients	Weekly
>5 a week	5 patients	Weekly

Alternative sampling

In some cases, EDs found weekly data entry too onerous, departments were provided guidance on an alternative methodology of entering monthly data instead. The system recorded each patient's arrival date and automatically split the data into weekly arrivals, thereby preserving the benefit of seeing weekly variation.

Expected patient numbers	Alternative sample size	Alternative data entry frequency
<5 a week	All patients	Monthly
>5 a week	20 patients	Monthly

Study of the intervention

This report features the QIP data, but the departments have been encouraged towards QIP methodology by providing the real time feedback and by introducing an integrated PDSA tool. Measurement of the data against the standards enabled change in practice, with resultant improvement tracked using weekly SPC charts. These are recommended by NHS England, along with other tools that can be found on your personalised dashboard on the RCEM's QIP portal.

Measures

This was the first time this topic has been run as a continuous QIP. The main RCEM standards did not specify particular QI measures, but this QIP embeds the ability for individual departments to identify their own local outcome, process, and balancing measures. The national level data provides a benchmark for the national picture so individual units who are below the mean figure can takes steps to improve.

The standards used were published by RCEM in October 2020:

Standard	Grade
1. Pain is assessed immediately upon presentation at hospital	F
2. Patients in moderate or severe pain (e.g., pain score 4 to 10) should receive appropriate analgesia within 30 minutes (or in accordance with local guidelines) unless there is a documented reason not to	F
3. Patients with moderate or severe pain should have documented evidence of re-evaluation and action within 60 minutes of receiving the first dose of analgesic	D

Understanding the different types of standards

Fundamental This is the top priority for your ED to get right. It needs to be applied by all those who work and serve in the healthcare system. Behaviour at all levels and service provision need to be in accordance with at least these fundamental standards. No provider should provide any service that does not comply with these fundamental standards, in relation to which there should be zero tolerance of breaches.

Developmental: This is the second priority for your ED. It is a requirement over and above the fundamental standard.

Definitions

Standard	Term	Definition
Standard 1	Pain is immediately assessed upon presentation at hospital	Within 15 minutes of arrival or triage, whichever is earlier
Standard 2	Moderate or severe pain	Pain score of 4 to 10, or locally used equivalent
Standard 3	Pain is re-assessed 60 minutes after receiving the initial dose of analgesia	If patient receives analgesia in ED, then documented evidence of re-assessment is done within 60 minutes

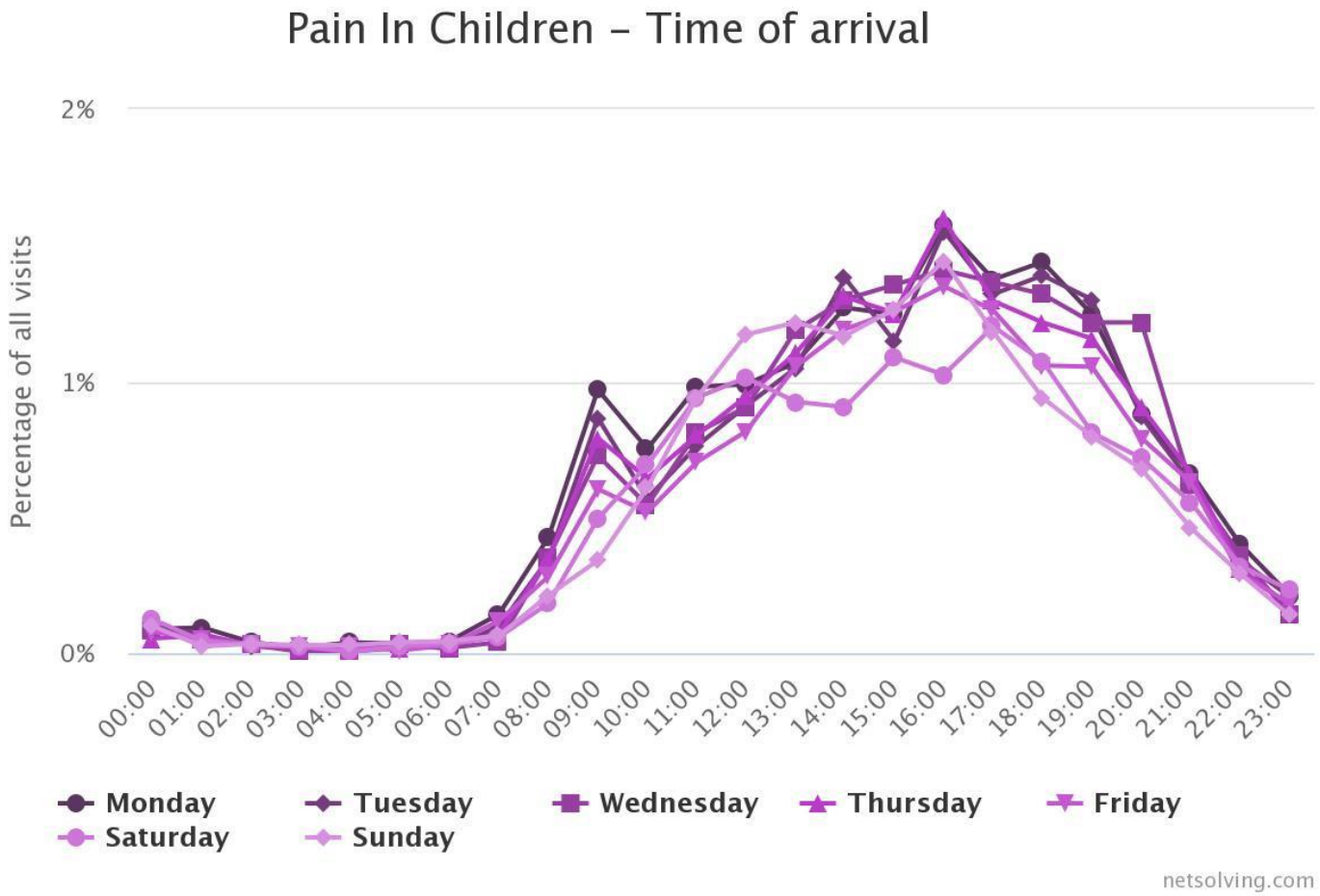
Analysis

RCEM's plan for analysis are based on each standard for this QIP topic. A minimum data set must be met based on each standard to provide results and to show improvement or decline on your SPC charts. Further details can be found in the appendix.

Grade definition

RCEM no longer sets a target percentage for standards, but rather encourages EDs to review real time performance with the aim of constantly improving care in line with the standards for all patients.

RESULTS



Sample: All patients (n = 10,873)

What questions were used for this analysis?

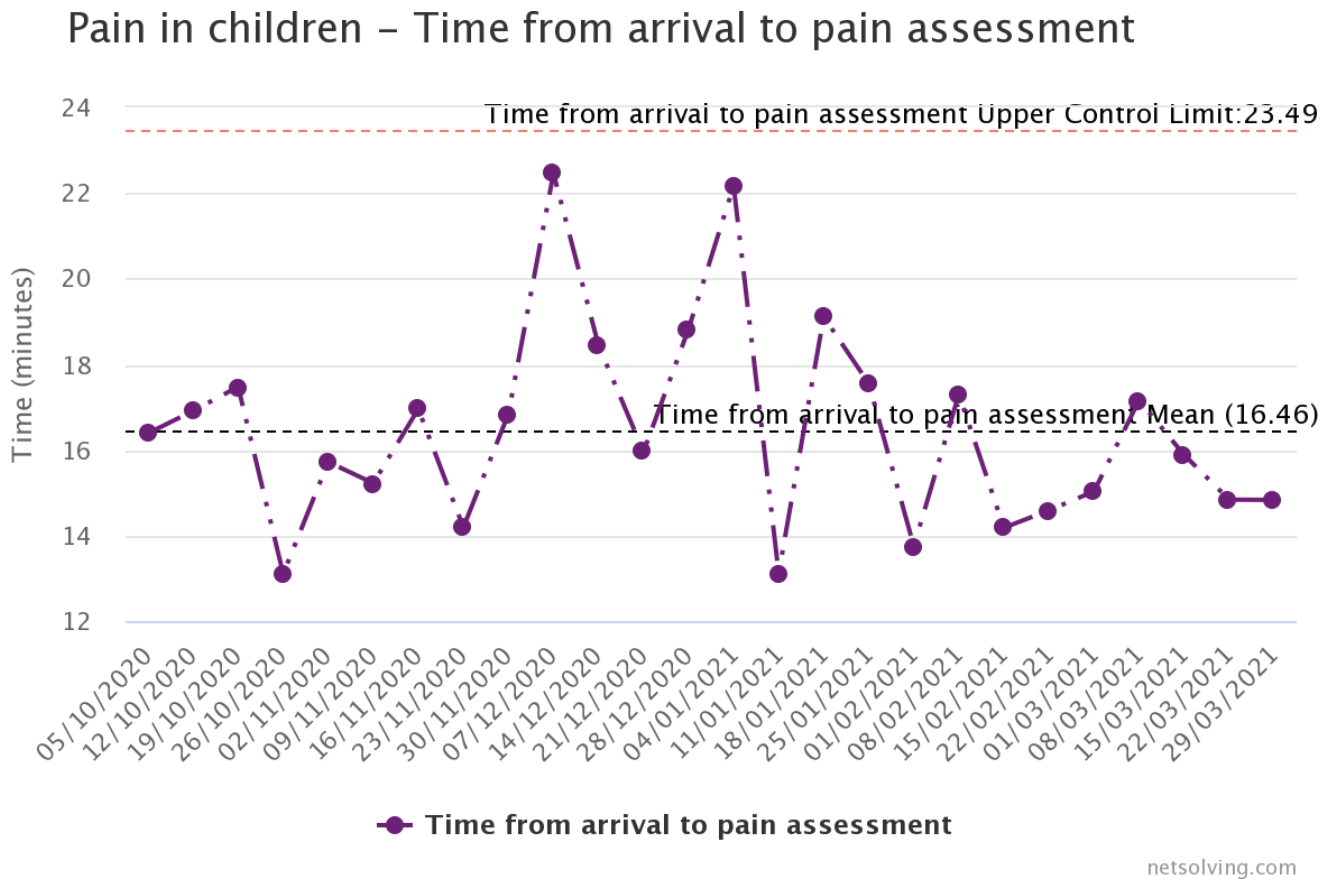
Q1.2: Date and time of arrival or triage

Commentary

This data shows a fairly consistent pattern and no real bias between the days. An initial surge of patients arrive at 09:00 with a sustained increase in presentations peaking at16:00. Presentations tale off at 21:00. This data set was taken in the winter of 2020 and COVID lock-down restrictions were still a major feature.

Recommendation

Changes in this chart represent changes in demand. If for instance there are increases in children attending in the night, this may have a knock-on effect on the time to be assessed later. Monitoring demand and demand avoidance improvement measures should be focused on the times of maximum attendance to reduce capacity being exceeded, particularly around fixed assets like cubicles. Ensuring adequate and increased staff presence during the peaks will also help maintain quality and reduce waits and intervention times.



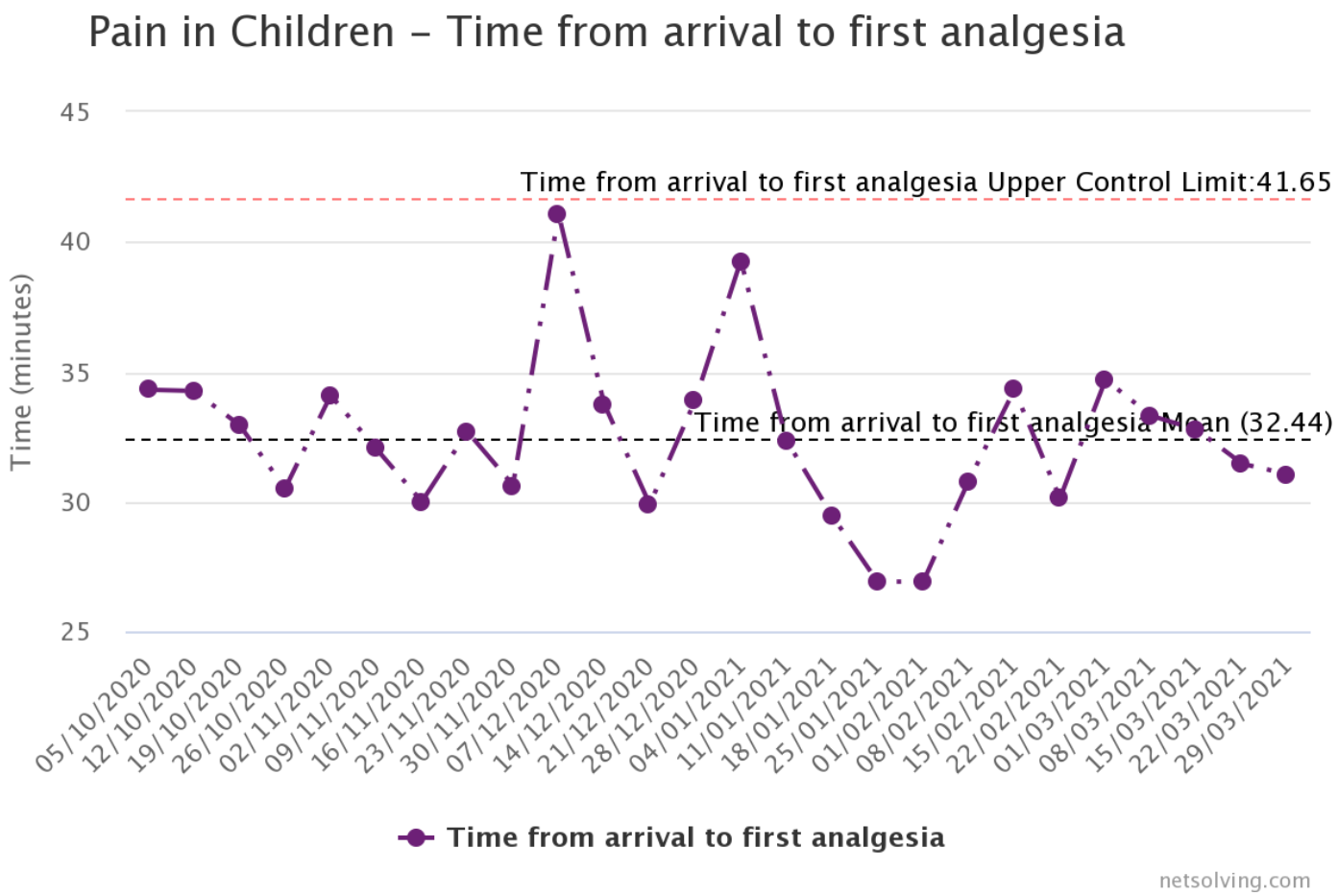
Sample: All patients (n = 10,873)

What questions were used for this analysis?
Q1.2: Date and time of arrival or triage
Q2.1: Was pain assessed on arrival (within 15 mins?)

Commentary
Quality Improvement: Over the data collection period no improvement had been demonstrated at a national scale. There were increased wait times over the holiday/winter period, but this did not cross the Upper Control Limit threshold to denote special cause variation. Aside from the winter period, there was little variance in time to pain assessment suggesting consistent results. As the average time to assessment is close to standard, improvement here would be more difficult.

Quality Assurance: This chart shows that most EDs children are being assessed close to achieving the national standard recommendation of 15 minutes. It's also apparent that there were increased wait times over the holiday/winter period, which has pushed this time above 15 minutes. Aside from the winter period, there was little variance in time to pain assessment suggesting consistent results.

Recommendation
The triage times are a good measure of the overall ED performance. Departments achieving this target should continue to monitor periodically to ensure that this is sustained, especially if there is an increase in demand and intervene if evidence of a fall in quality occurs. If your department is performing well here it would be best to focus change efforts on areas of greater need or specifically cases that fall far from the mean for a deep dive, as demonstrated in the case example, to improve the overall consistency of care.



Sample: All patients (n = 10,873)

What questions were used for this analysis?

Q1.2: Date and time of arrival or triage

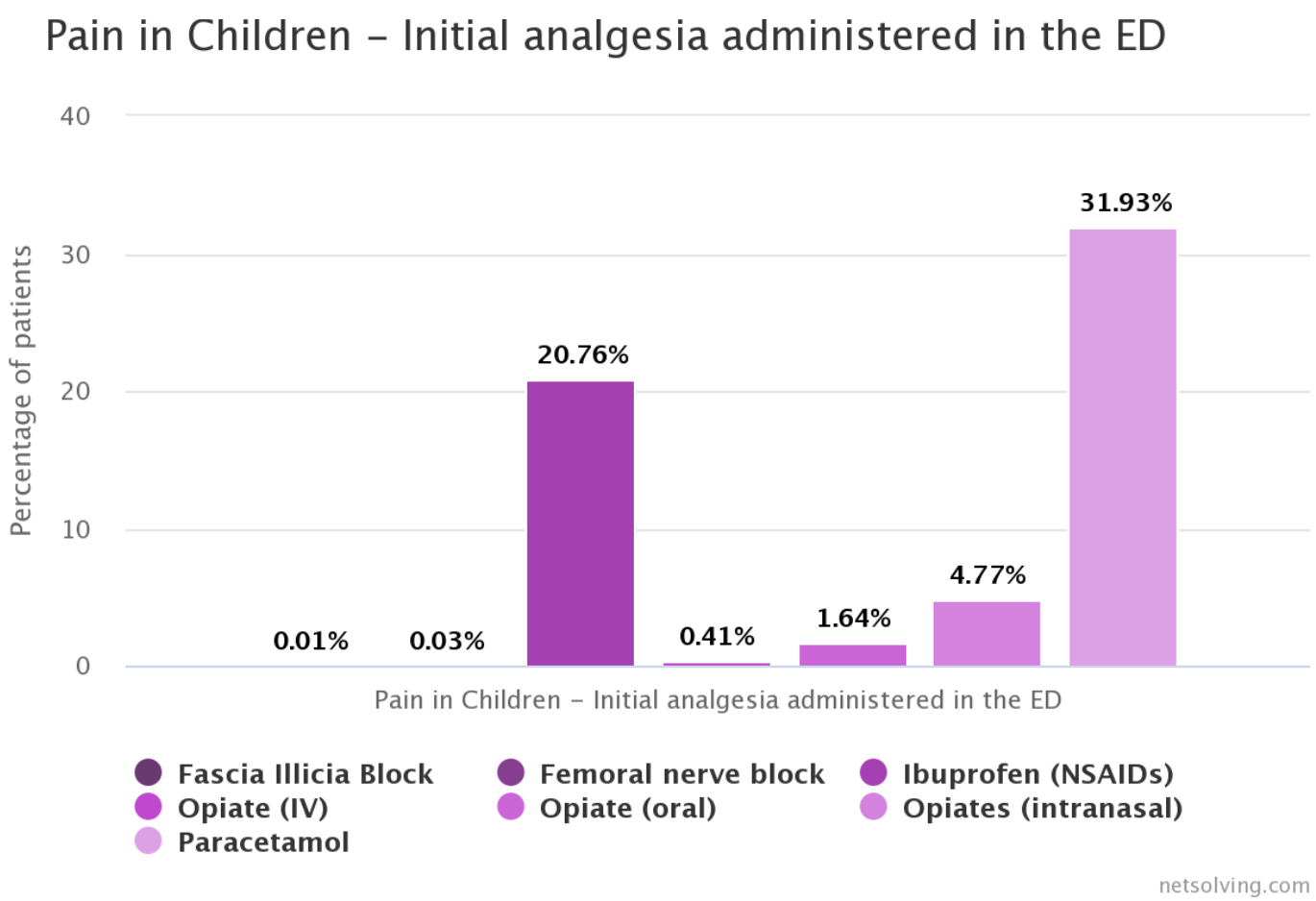
Q2.3: Was analgesia administered in the ED?

Quality Improvement: Over the data collection period no improvement had been demonstrated at a national scale. There were increased wait times over the holiday/winter period, but this did not cross the Upper Control Limit threshold to denote special cause variation. Aside from the winter period, there was little variance in time to pain assessment suggesting consistent results. As the average time to assessment is close to standard, improvement here will be more difficult. However, approximately half of all children are still waiting over 30 minute to receive analgesia which requires action.

Quality Assurance: Similar to the previous results, a mean of 32 minutes demonstrates that the standard of first analgesia was given within 30 minutes was achieved as the national standard for approximately half of all patients. This figure suggests in the majority of cases analgesia can be administered within 15 minutes of pain assessment which would be considered a high level of performance.

Recommendation

Similarly, this target is dependent on demand and availability of staff to deliver the analgesia. The impact of COVID and other issues with availability of staffing such as BREXIT or Government recruitment policies may affect the ability of an ED to provide this timely care due to poor staffing. Monitoring to ensure sustainability is crucial in the coming months. If your department is performing well here it would be best to focus change efforts on areas of greater need or specifically cases that fall far from the mean for a deep dive, as demonstrated in the case example, to improve the overall consistency of care



Sample: All patients (n = 10,873)

What questions were used for this analysis?

Q2.3: Was the analgesia administered in the ED?

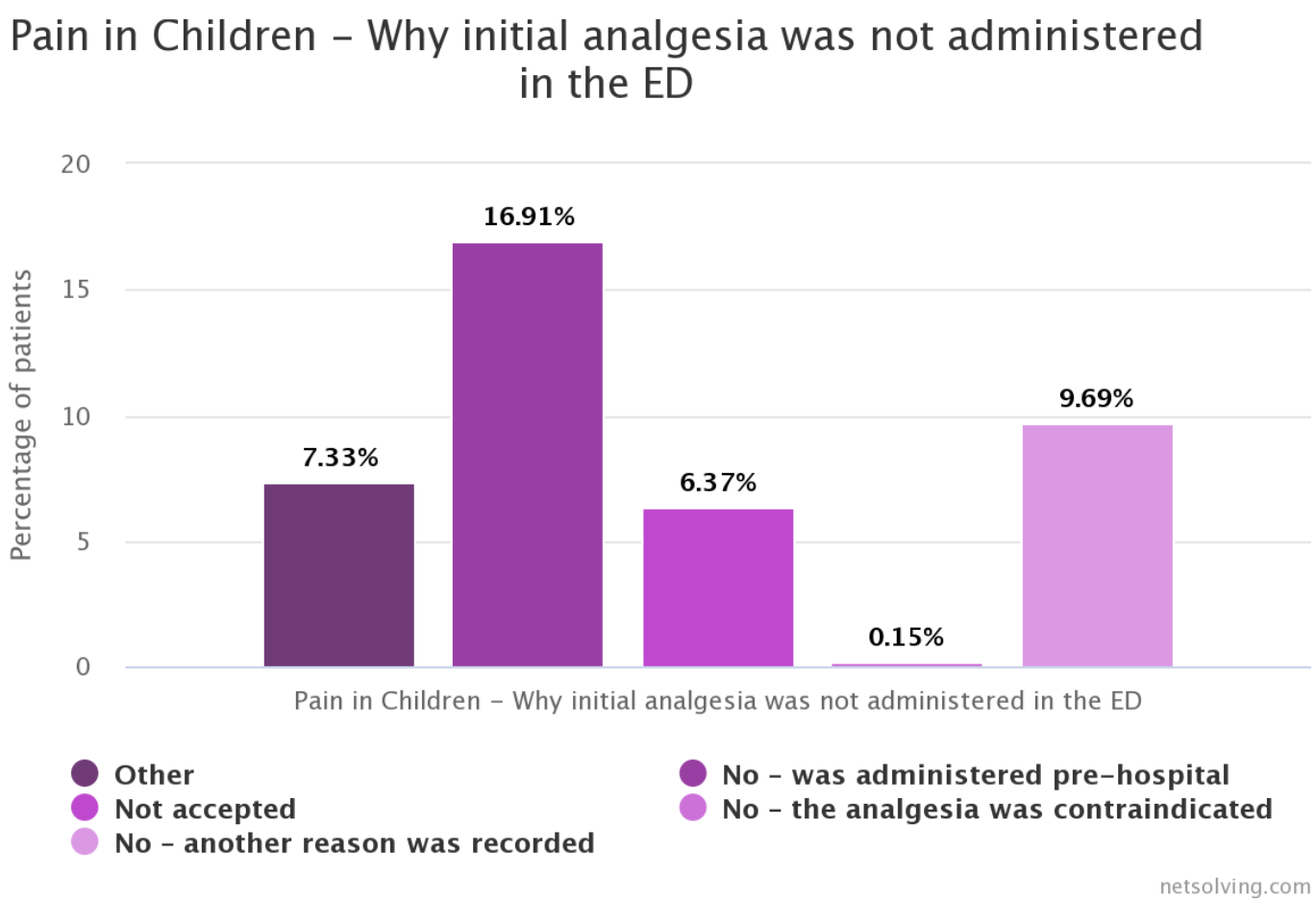
Commentary

The data shows that paracetamol and then ibuprofen remain the mainstay of initial analgesia for children with limb fractures, followed by opiates (oral > intranasal > IV).

Fascia Illicia blocks and Femoral Nerve blocks are specific analgesia methods for fractured femurs, involving local analgesia being injected close to the femoral nerve, usually under ultrasound and requires a skilled practitioner to perform this. It is not surprising that in this data set there are no nerve blocks being performed as first line analgesia. As more ED practitioners are trained in nerve blocks, the ultrasound equipment becomes more available in EDs and more analgesia is given pre-hospital by parents or paramedics, then more nerve blocks may be performed as first line analgesia.

Recommendation

Departments should consider whether they have the staff, training, and equipment in place to deliver timely nerve blocks to children with femur fractures.



Sample: All patients (n = 10,873)

What questions were used for this analysis?

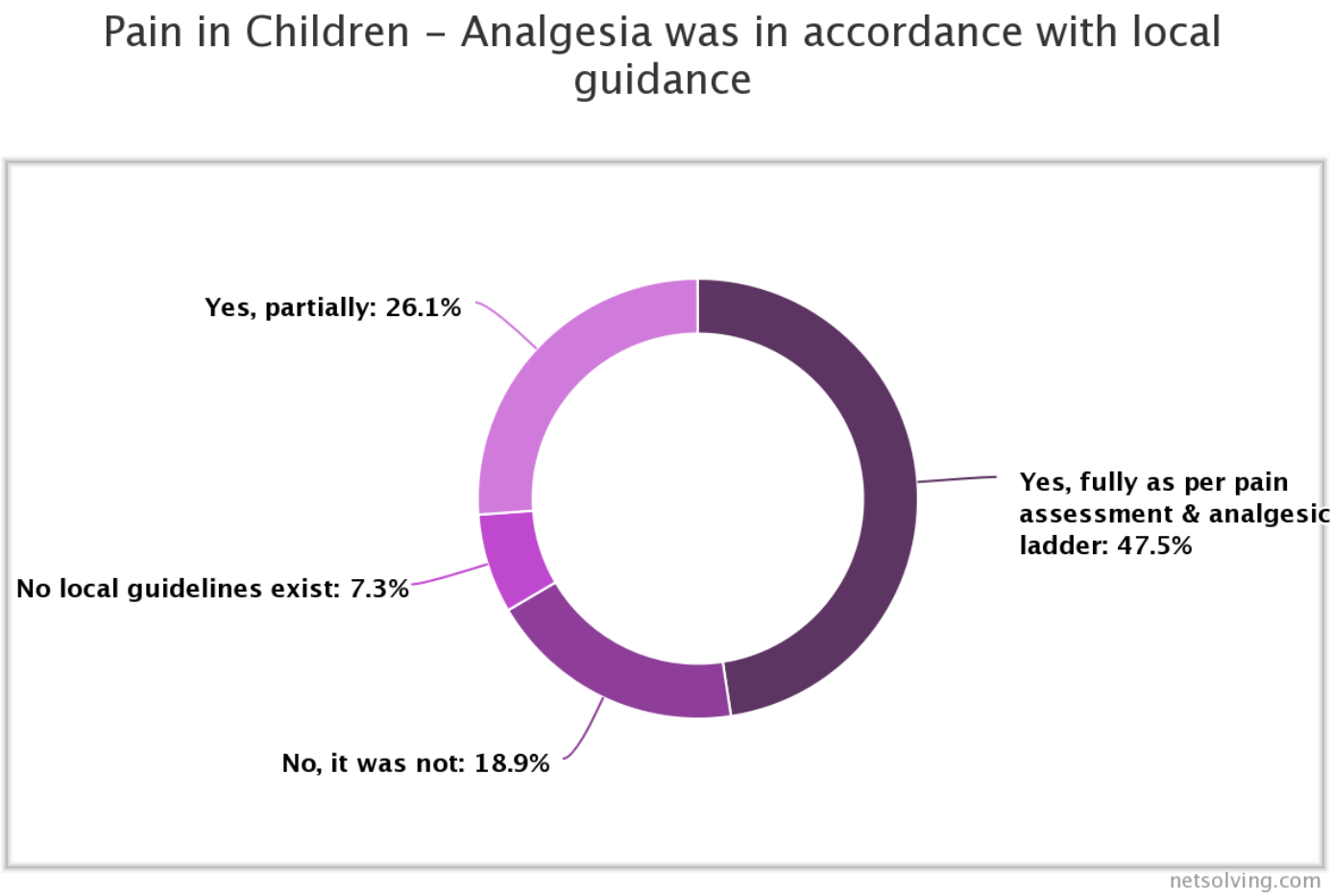
Q2.3: Was the analgesia administered in the ED?

Commentary

Following the 2017/18 report it was concerning that some children did not receive analgesia despite the severity of pain being assessed as moderate or severe (the criteria for data inclusion). The recommendation from that report was that if analgesia was not given, it should be documented why. The 'other' box in this chart, represents the percentage (9.7%), of children where there was no documentation of the reason why.

Recommendation

Documentation of pain assessment and analgesia given, offered, or not, should be part of the initial assessment. Departments could look at their systems for recording this information to enable this in an efficient way. Once recorded, exploration of the appropriateness of not providing analgesia could be further explored and where needed, teaching provided. For example, having analgesia pre-hospital, and remaining in pain, is not a reason to not provide additional analgesia.



Sample: All patients (n = 10,873)

What questions were used for this analysis?
Q2.7: Was the analgesia administered in accordance with local guidance?

Commentary
Almost half of children did not receive analgesia in keeping with their local guidelines, and in almost 10% of cases, no guidelines exist.

Recommendation
EDs should develop improvement projects for this chart. EDs without any local guidelines should consider developing these. In cases where guidelines exist but are not being followed, departments should look to identify any barriers and determine influences to make adherence easier.

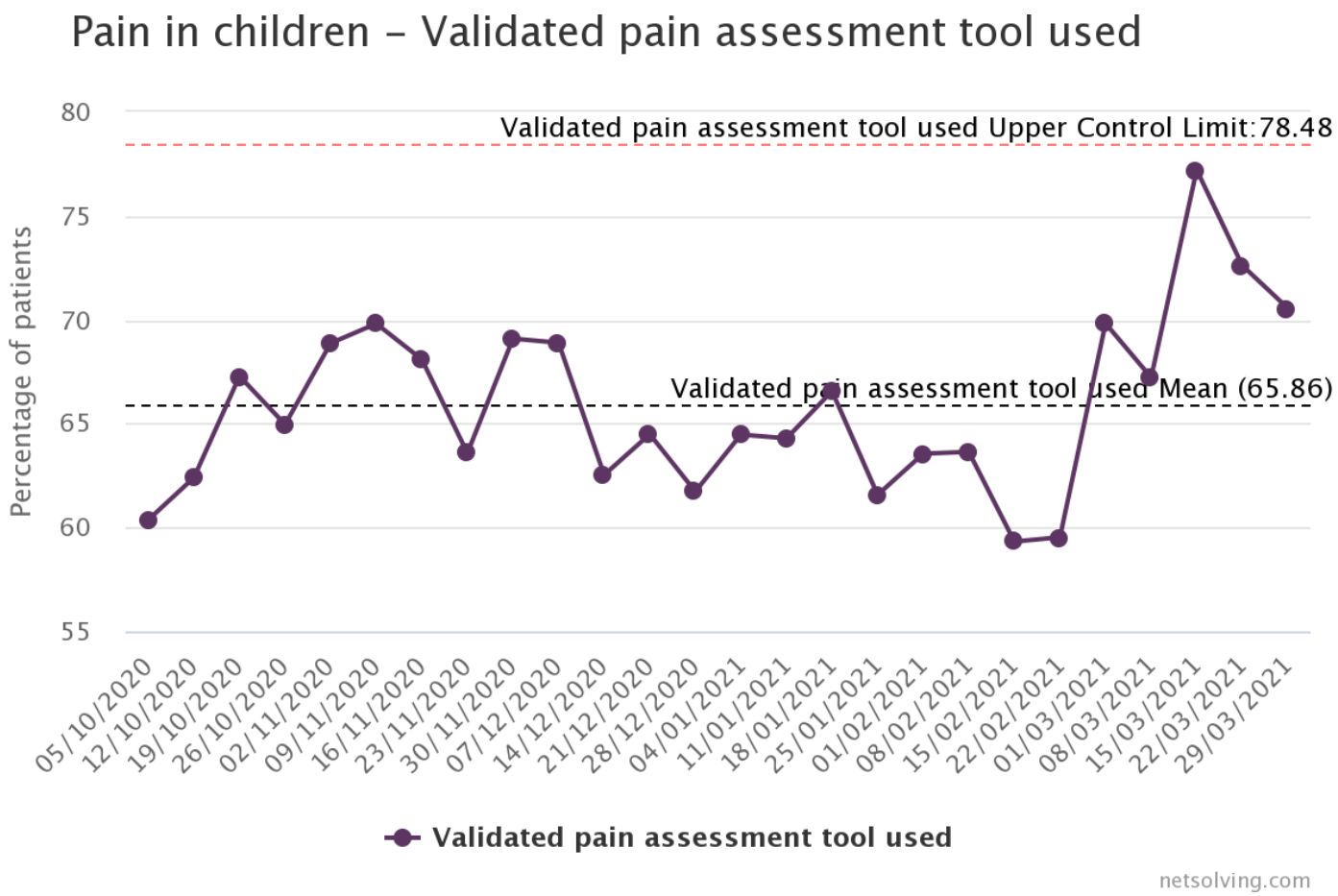
Sample: All patients (n = 10,873)

What questions were used for this analysis?
Q2.8: Was discharge analgesia advice given?

Commentary
Quality Improvement: Over the data collection period no improvement had been demonstrated at a national scale. Performance remained consistent demonstrating a maintenance of care quality despite pandemic and other service pressures.

Quality Assurance: Around half of the children (53%) leaving the Emergency Department are documented as receiving discharge advice, this could be written or verbal advice.

Recommendation
Discharge advice is a mainstay of good clinical practice. Improvements to this data chart would be possible by developing systems to ensure that there is easy access to relevant discharge advice. For instance, some departments have QR codes to reduce the impact of paper on the environment.



Sample: All patients (n = 10,873)

Understanding this data

This data shows the type of pain assessment used.

What questions were used for this analysis?

Q2.2: Was a validated pain assessment tool used?

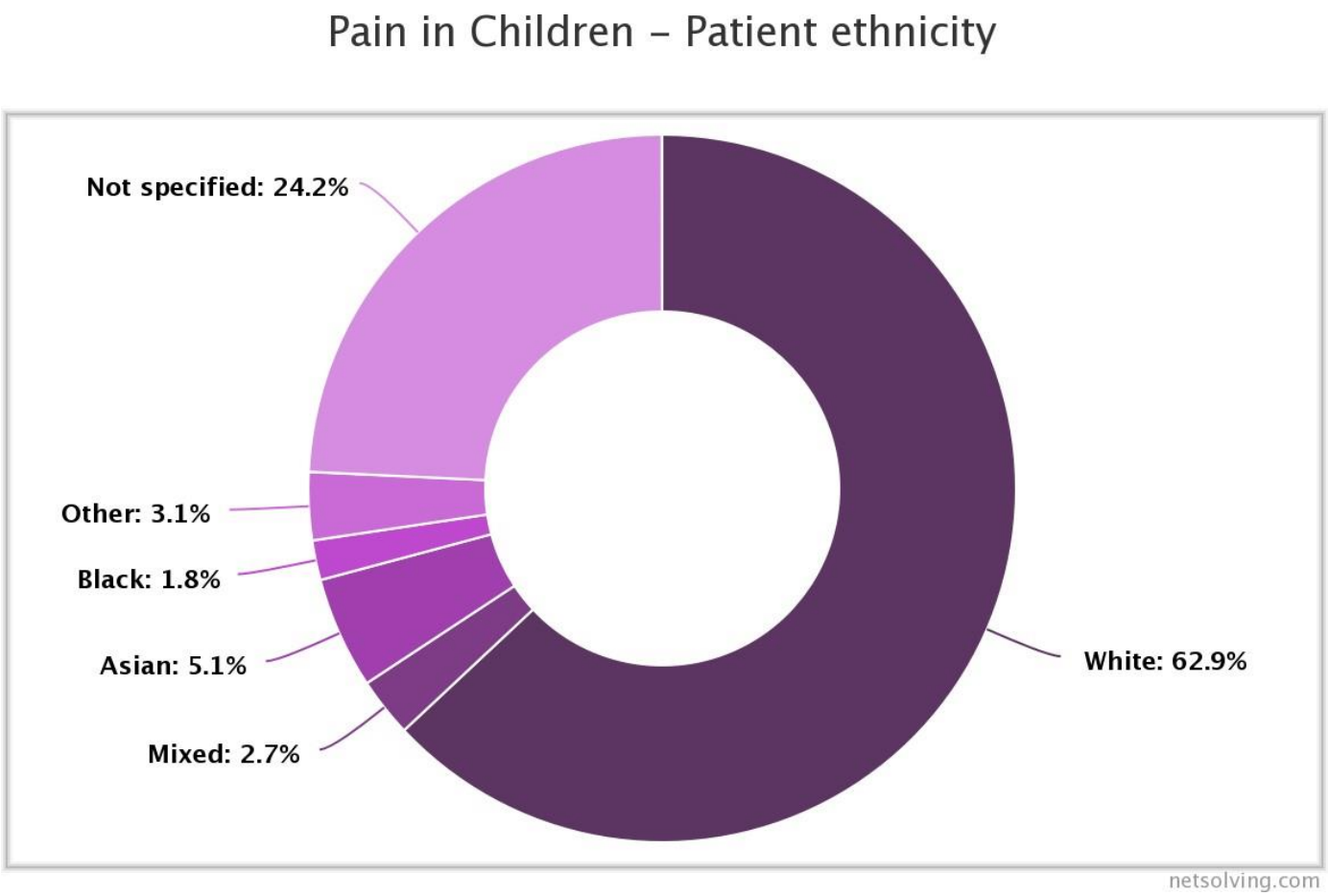
Commentary

Quality Improvement: Over the data collection period no improvement had been demonstrated at a national scale. During the winter months, the graph shows there is a shift downwards and pain assessment tools seem to have been used less often and then recovered. This is possibly due to workload pressures and the time involved in using the tool. Performance remained consistent overall, demonstrating a maintenance of care quality despite pandemic and other service pressures.

Quality Assurance: An average of 66% of cases had their pain assessed using a validated pain assessment tool. The pain assessment tools allow the initial pain assessment level to be determined but also importantly allow the reassessment of pain. The child, or parent/carer, can more reliably assess whether the analgesia has worked.

Recommendation

The use of pain assessment tools should be built into the systems used by EDs to do triage assessment and regular observations. Training could be offered to staff to ensure they are used reliably, and departments could consider other initiatives likes involving parent/carers in pain assessment.



Sample: All patients (n = 10,873)

What questions were used for this analysis?
Q1.4: Ethnic category

Commentary
In one quarter of cases, the ethnicity data was not specified, so we are unable to comment on whether the attendances to the ED follow the population data.

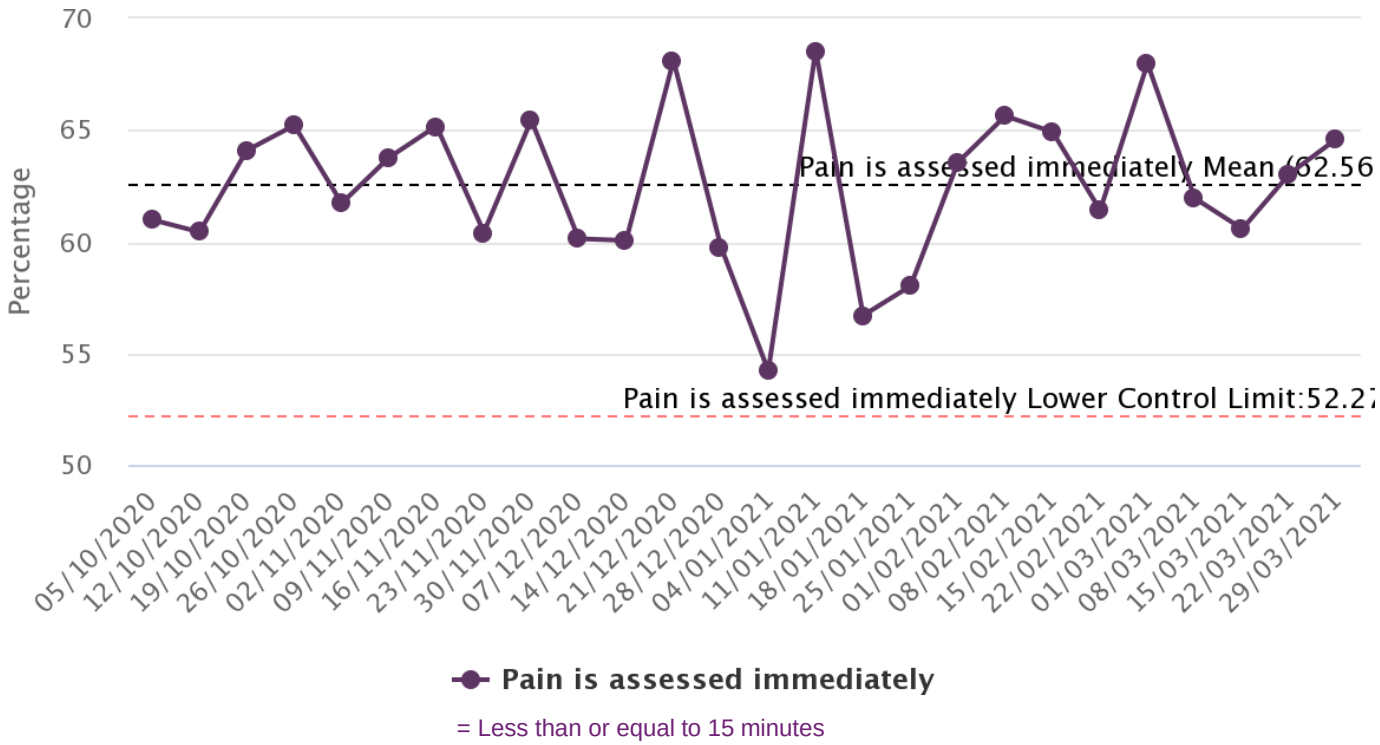
Recommendation
Improvements in the recording of ethnicity data are required locally so that monitoring of discrepancies of care between groups can be made possible.

Departments can review their ethnographic data against the national data and consider whether there are specific areas for improvement, such as providing discharge advice in more languages.

Fundamental standard

STANDARD 1

Pain is assessed immediately (within 15 minutes) upon presentation at hospital



Sample: All patients (n = 10,873) 6806 records conform to standard

What questions were used for this analysis?

Q1.2: Date and time of arrival or triage, whichever is earlier

Q2.1: Was pain assessed on arrival (within 15 mins)

Commentary

Quality Improvement: Over the data collection period no improvement had been demonstrated at a national scale. A consistent level of care was provided despite the pandemic and winter pressures as demonstrated by no special cause variation – either positively or negatively.

Quality Assurance: The national mean of 63% of patients, seen and assessed for pain within 15 minutes is reassuring. One-third of children in pain are still having a delay to pain assessment.

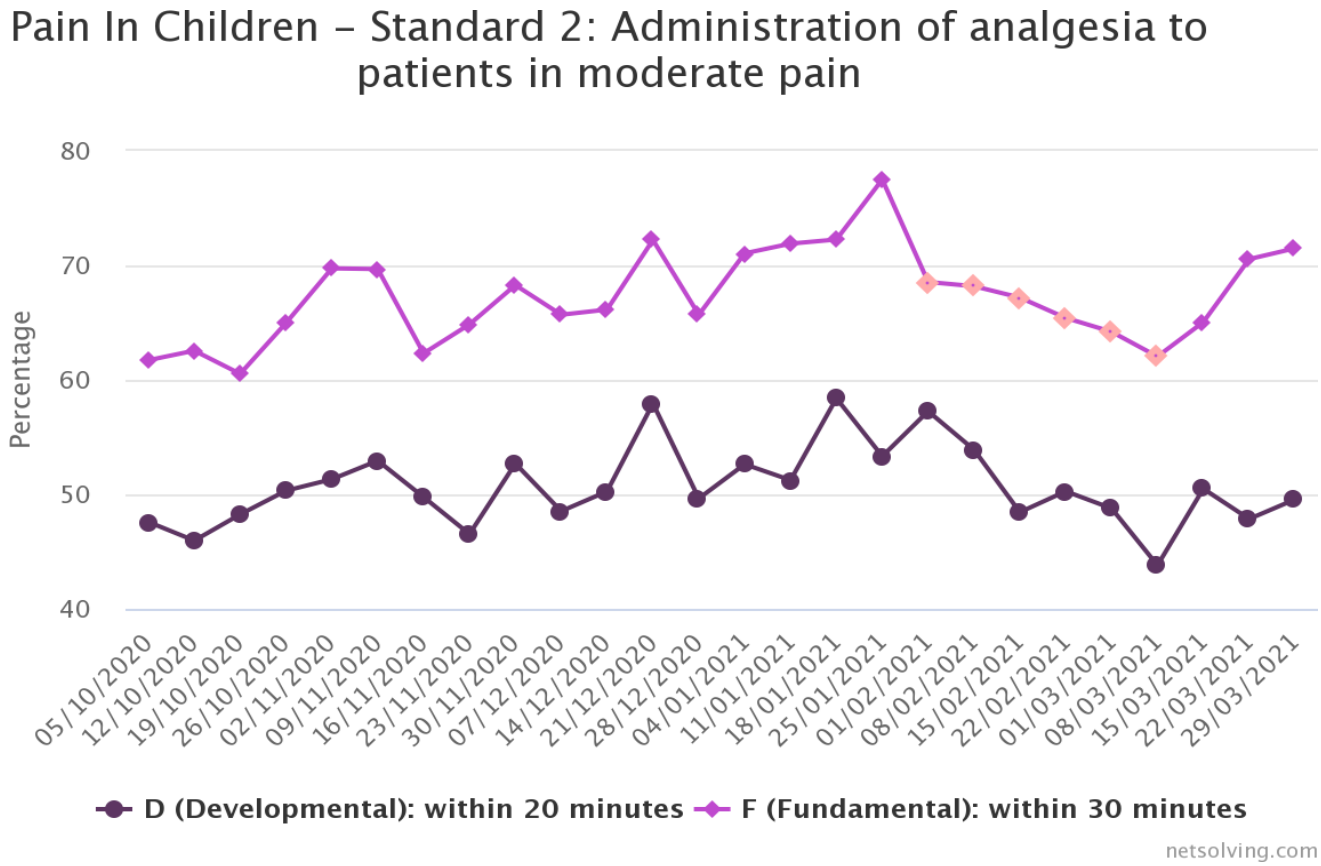
Recommendation

Departments should review their assessment and triage processes to ensure that there is no fall in this percentage and aim to improve the percentage reaching the standard with targeted interventions at a local level.

Fundamental standard

STANDARD 2

Patients in moderate or severe pain (e.g. pain score 4 to 10) should receive appropriate analgesia within 30 minutes of arrival (or in accordance with local guidelines) unless there is a documented reason not to*



Sample: Patients presenting with moderate pain = 4554. 3033 (67%) conformed to the fundamental standard. 2283, 50% conformed to the developmental standard.

What questions were used for this analysis?

Q2.1: Was pain assessed on arrival (within 15 mins)

Q2.3: Was analgesia administered in the ED?

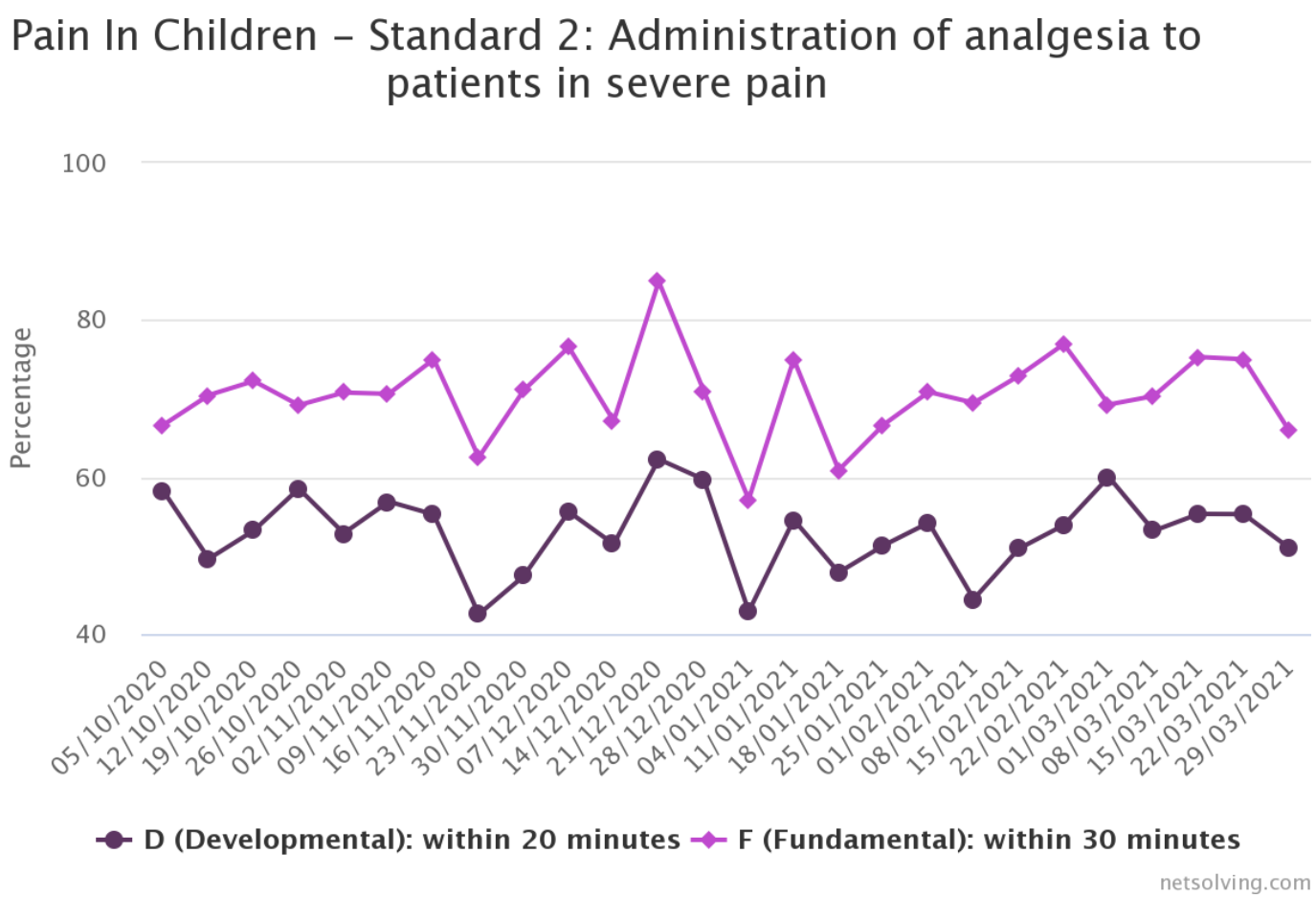
Q2.7: Was analgesia in accordance with local guidelines?

Commentary

Quality Improvement: Over the reporting period, no national level improvement had been demonstrated. There was a consecutive 6-week period of declining performance in the late winter, during a peak in coronaviruses cases which may have been the result of increased staff sickness and isolation requirements as well as demand. Overall, despite increasing pressures and the pandemic, the quality of care has been maintained.

Quality Assurance: two-thirds of children received analgesia within 30 minutes. One-third are still being underserved with delays to analgesia requiring action nationally and locally.

Please see below more commentary.



Sample: Patients presenting with severe pain n = 1936. Out of 1936 cases that presented with severe pain, 1376 (71%) met the fundamental standard and 1036 (54%) also met the developmental standard.

What questions were used for this analysis?

Q2.1: Was pain assessed on arrival (within 15 mins)
Q2.3: Was analgesia administered in the ED?
Q2.7: Was analgesia in accordance with local guidelines?

Commentary

This chart is looking at the percentage of children who arrived and were assessed with severe pain, that had both their pain assessed within 15 minutes and were given analgesia in accordance with local guidelines. Those in severe pain have a higher likelihood of receiving analgesia promptly than those in moderate pain, this suggests the system is capable of responding but may deprioritise those in moderate pain over other service needs.

Quality Improvement: Over the reporting period, no national level improvement had been demonstrated. Overall, despite increasing pressures and the pandemic, the quality of care has been maintained.

Quality Assurance: This chart suggests that though only around half of the children presenting with severe pain received analgesia within 20 minutes, 71 % received analgesia within 30 minutes.

This figure is influenced by inclusion of the need for the assessment to be within 15 minutes and in accordance with local guidelines. This suggests that the cases included here are patients that are seen in EDs that have good processes for pain assessment and analgesia prescribing and the struggle for them is with the process for administration of that analgesia.

It also means that those departments who have low numbers reaching those standards (pain assessment within 15 mins and in adherence to local guidelines) will only see small numbers on their charts and will need to make improvements to triage and guideline use to find this chart useful.

Looking at the chart earlier, showing that time to analgesia (for all groups of patients) has a mean of 32 minutes, it suggests that it is the component of 'adherence to guidelines' that may be the influencing factor, but further review at local level for each department would be needed to establish the underlying issues.

Lastly, this chart looks primarily at children in severe pain, and not those with moderate pain. This does not underestimate the importance of pain management for children with moderate pain, but the chart aims to be a proxy representation the efficiency of the departments pain management processes – which is greater for those in severe pain, compared to moderate.

Recommendation

Local EDs should look at their data and consider how improvements can be made to ensure those children in severe and moderate pain receive timely and effective analgesia. This could involve a specific look at the processes for prescribing and subsequent administration of analgesia where delays are most likely to occur such as the need efficiency for double sign off for opiate administration or insufficient nurses with PGD (Patient Group Directive) competencies for analgesia.

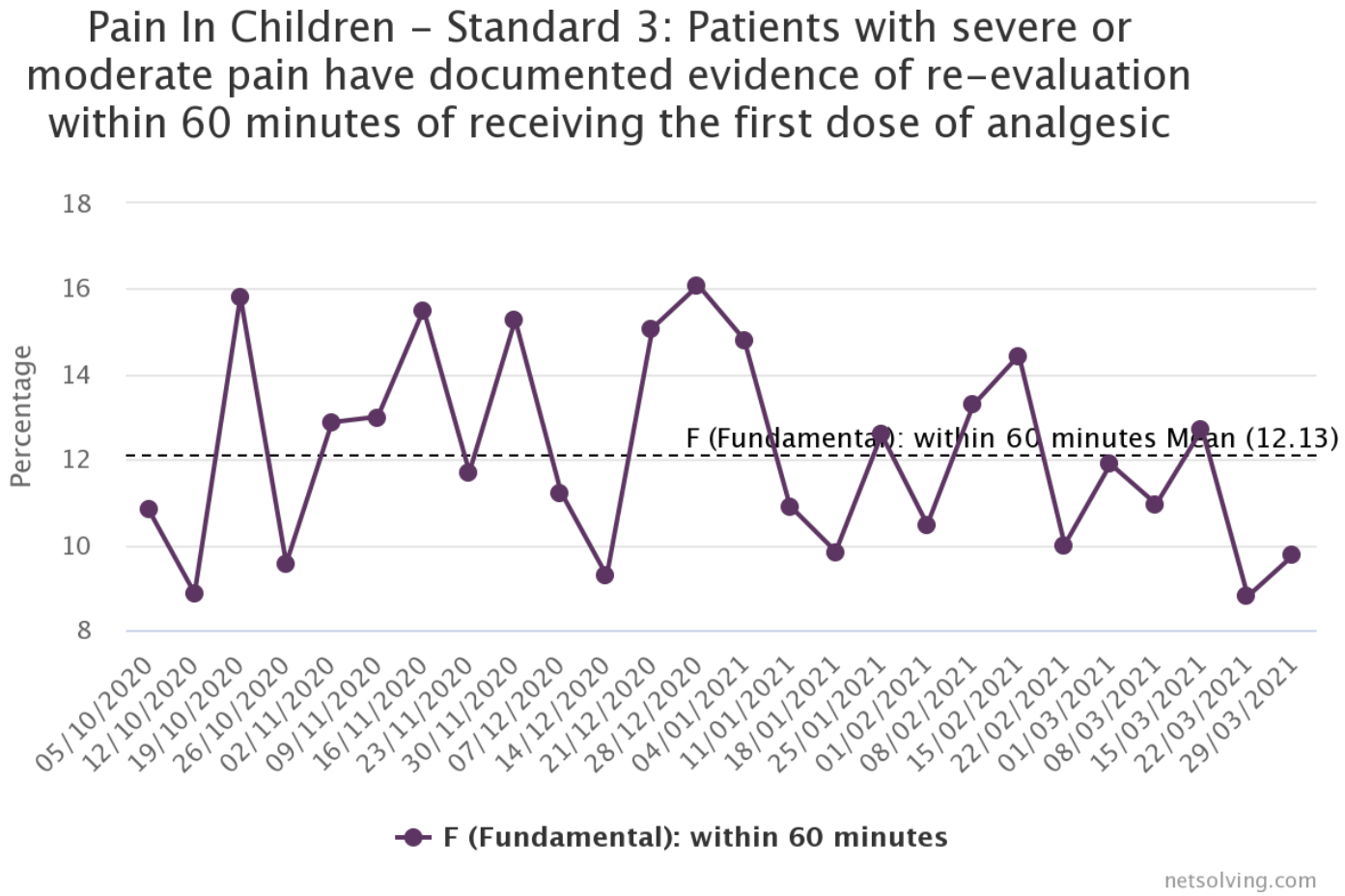
Alternative charts could look at the total time to receiving analgesia for all children presenting with severe pain or moderate pain regardless of the time to assessment or adherence to the guidelines as this would show the overall efficiency of the pain management processes for a department.

Further consideration should be given to a further chart for looking at the children with moderate pain. Are the gaps between fundamental and aspirational times for analgesia administration wider than in severe pain? Do those with moderate pain wait for many hours before receiving analgesia? Departments who wish to widen their understanding of their processes, beyond the charts in this report could download their data and perform in depth analyses.

Developmental **Standard**

STANDARD 3

Patients with severe or moderate pain should have documented evidence of re-evaluation and action within 60 minutes of receiving the first dose of analgesic



Sample: Patients presenting with severe or moderate pain (severe: 1936, moderate: 4554)

What questions were used for this analysis?
Q2.3: Was analgesia administered in the ED?
Q2.4: Was pain re- assessed in the ED?

Commentary
It is important for EDs to provide sufficient and timely analgesia to patients, especially when paediatric patients often do not receive the proper dosage of pain relief, or clinicians underestimate the proportionate analgesia for a paediatric patient.

Quality Improvement: Over the reporting period, no national level improvement had been demonstrated. Overall, despite increasing pressures and the pandemic, the quality of care has been maintained.

Quality Assurance: 12% of children with moderate and severe pain had their pain re-evaluated within 60 minutes of receiving their first dose of analgesia.

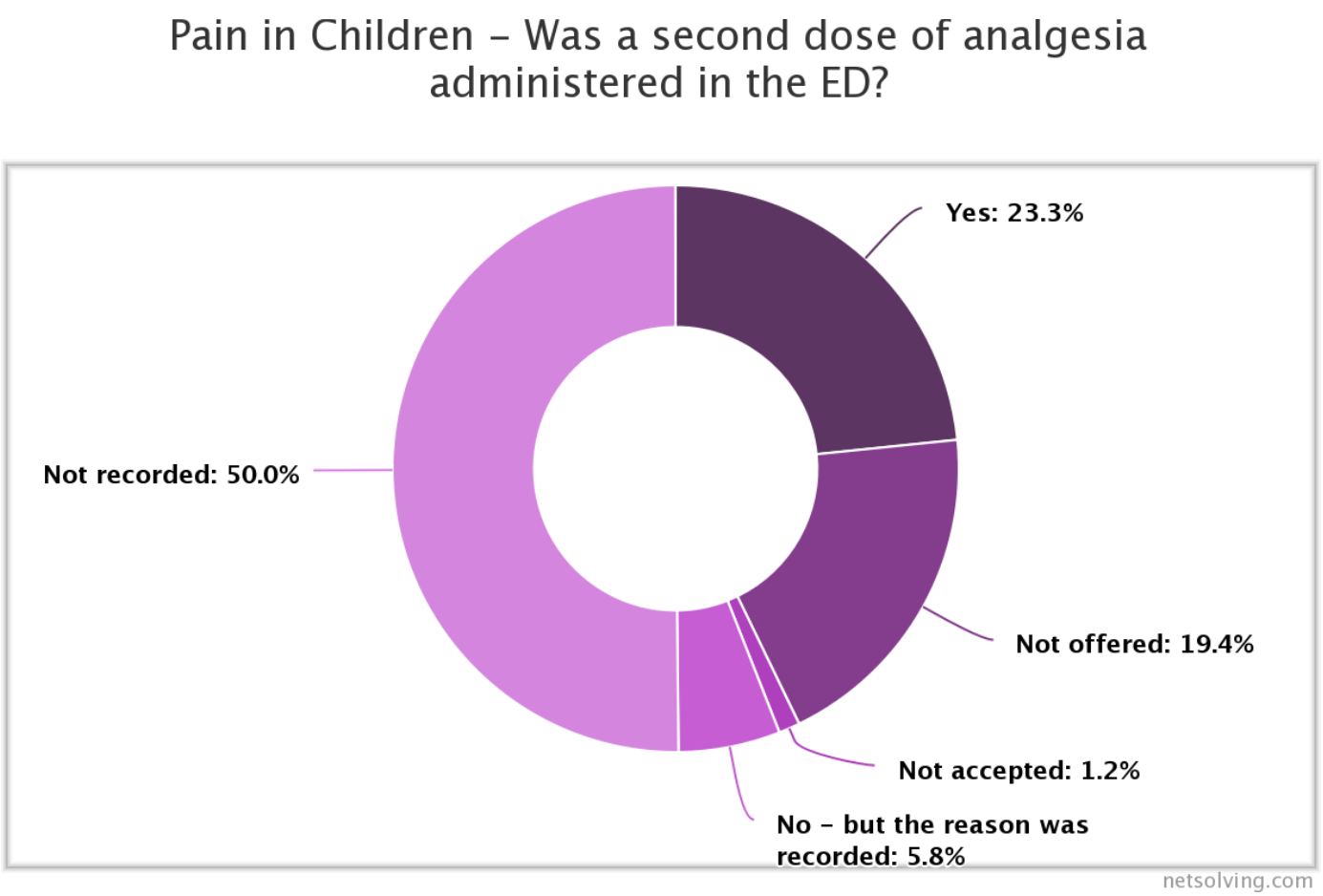
The reason for this could be multifactorial including staffing levels, busyness of the department, not documenting as child obviously better, timing of the day, etc.

Re-assessment of pain is vital as these provide an opportunity to re-visit appropriateness of initial analgesia provided and identification of training needs including blocks that could have provided better pain relief initially. There may be an element of missed reporting also, such as checking observations charts recording of pain rather than looking for a specific clinical entry.

Recommendation

Departments should review their processes to ensure appropriate documentation of re-evaluations. EDs should be looking to take advantage of every opportunity to re-evaluate pain i.e., set of obs, clinical assessments, interventions such as casts and splints – these should all be considered as forms of re-assessments and re-evaluations of pain.

Attending clinicians have a role in documenting how effective the initial analgesia provision has been, and this should not be considered as the sole responsibility of nursing colleagues. Further both patients and parents can be encouraged to inform staff, how comfortable they are, or their child is, following analgesia provision. This could include documenting on a pain scoring tool and feeding this back – see case example.



Sample: Patients presenting with severe or moderate pain (severe: 1936, moderate: 4554)

What questions were used for this analysis?
Q2.5: Was a second dose of analgesia administered in the ED?

Commentary
Following from the standard 3 graph above, this chart offers additional evidence that re-evaluations are occurring more than is being reported, as the Not Offered (19.4%) is typically a result of sufficient analgesia, and the Yes (23.3%) answer indicating a re-evaluation also took place for this to be administered. This suggests at least roughly 50% of patients did receive a re-evaluation, and furthermore, at least 23.3% of patients who were reassessed needed more analgesia.

Recommendation
Departments should be taking every opportunity to sufficiently re-evaluate for pain and assessing their documentation processes.

Discussion

Summary

This audit has accumulated **10,873** individual cases from **168** EDs nationwide (including the Isle of Man).

The results of this QI project should be shared widely with staff who have a responsibility for looking after paediatric patients. In addition to the clinical team, RCEM recommend sharing the report with the clinical audit and/or quality improvement department, departmental governance meeting, ED Clinical Lead, Head of Nursing and Medical Director. Without having visibility of the data and recommendations we cannot expect to see improvements in practice.

RCEM is committed to running this Pain in Children QIP for two years and is the first of this topic to do so. We do this in hopes of greater improvement over a longer time to address work towards standards, but most importantly improve within one's own system. **This extra time needs to focus on action over data – which we have plenty of already.** standards fully and efficiently, with more time allowed to effectively look at EDs processes.

For further QI advice and resources, please visit the RCEM Quality Improvement webpage.

Limitations

For the purposes of this QIP, the following patient populations were excluded (along with patient notes):

- Children aged 4 or under
- Children aged 16 or over
- Presenting to the ED with mild pain or no pain
- Dislocation with no fracture.

There is no RCEM control over the quality of the interventions as they are locally owned. However, simple tools like the WHO analgesic ladder are tried, tested and underutilised.

Conclusions

RCEM now has a picture of national and local level performance which is showing early signs of improvement as a result of the use of QIP methodology and encouraging staff of all levels to take part in improving care and help generate significant improvements that are maintained for years to come.

Recommendations – patient level

1. It is recommended that the administration of analgesia pre-hospital is documented in the notes, to prevent medication errors and ensure patient safety. Additional analgesia should be provided if the child remain in pain.

2. It is recommended that pain level is assessed and documented using a pain score and that staff are trained, and aware of, how to use pain scores.

3. It is recommended that departments investigate utilising patient group directions (PGDs) to allow registered health care staff to administer appropriate analgesia in a timely fashion to children with moderate or severe pain.

4. It is recommended that departments develop a system to ensure re-evaluation of pain after analgesia. Such mechanisms may be to empower parents and children to self-report pain and assist in re-evaluation of the efficacy of analgesia in a patient-centric timeframe – see case example.

Further Information

Thank you for taking part in this clinical audit and QIP. We hope that you find the process of participating and results helpful.

If you have any queries about the report, please e-mail quality@rcem.ac.uk.

Details of the RCEM clinical audit and national QIP Programmes can be found under the Current RCEM QIPs section of the RCEM website.

Feedback

We would like to know your views about this report and participating in this audit and QIP. Please let us know what you think by completing our feedback survey.
We will use your comments to help us improve our future topics and reports.

Useful Resources

- Site-specific report – available to download from the QIP portal (registered users only.
- Online dashboard charts – available from the QIP portal (registered users only). The dashboard remains open after the end of the national QIP project so you can keep monitoring local performance and doing PDSA cycles.
- Local data file – available from the QIP portal (registered users only).
- Guidance on understanding SPC charts
- RCEM Quality Improvement Guide - guidance on PDSA cycles and other quality improvement methods

Report authors and contributors

This report is produced by the Quality Assurance and Improvement Committee subgroup of the Quality in Emergency Care Committee, for the Royal College of Emergency Medicine.

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Appendices

Appendix 1: QIP questions

Patient details

Q1.1	Reference (do not enter identifiable data)	
Q1.2	Date and time of arrival or triage, whichever is earlier *(Use 24-hour clock e.g. 11.23pm = 23:23)*	dd/mm/yyyy HH:MM
Q1.3	Age of patient	
Q1.4	Ethnic category	• White British • White Irish • Any other White background • White and Black Caribbean • White and Black African • White and Asian • Any other mixed background • Indian • Pakistani • Bangladeshi • Any other Asian background • Caribbean • African • Any other Black background • Chinese • Any other ethnic group Not stated e.g. unwilling to state

		Yes (select option where applicable)	Time (leave blank if unknown)	Date (for use if different to date of admission)	No (select option where applicable)
Q2.1	Was pain assessed on arrival (within 15 mins?)	• Moderate • Severe	HH:MM	dd/mm/yyyy	
Q2.2	Was a validated pain assessment tool used? If yes, please specify what tool was used.	• Yes			• No

Q2.3	Was analgesia **administered** in the ED?	• Fascia Illicia Block • Femoral nerve block • Ibuprofen (NSAIDs) • Opiate (IV) • Opiate (oral) • Opiates (intranasal) • Paracetamol • Other (please specify): _____	HH:MM	dd/mm/yyyy	• No – was administered pre-hospital • Not accepted • No – the analgesia was contraindicated • No – another reason was recorded
Q2.4	Was pain re-assessed in the ED?	• No pain • Mild (1-3) • Moderate (4-6) • Severe (7-10)	HH:MM	dd/mm/yyyy	• Not recorded • Not able to re-assess pain or patient left ED
Q2.5	Was a second dose of analgesia administered in the ED?	• Yes	HH:MM	dd/mm/yyyy	• Not offered • Not accepted • No – but the reason was recorded • Not recorded
Q2.6	What analgesia was administered	• Fascia Illicia Block • Femoral nerve block • Ibuprofen (NSAIDs) • Opiate (IV) • Opiate (oral) • Opiates (intranasal) • Paracetamol • Other (please specify): _____			
Q2.7	Was analgesia in accordance with local guidelines?				• Yes, fully as per pain assessment & analgesic ladder • Yes, partially • No, it was not • No local guidelines exist
Q2.8	Was discharge analgesia advice given?				• Yes • No or not recorded

Notes
This section is for local use and will not be analysed by RCEM. Ensure you do not enter any identifiable data here.

Appendix 2: Participating Emergency Departments

England

Addenbrooke's Hospital
Airedale General Hospital
Alder Hey Hospital
Alexandra Hospital
Arrowe Park Hospital
Barnet Hospital
Barnsley Hospital
Basildon University Hospital
Basingstoke and North Hampshire Hospital
Bassetlaw Hospital
Bedford Hospital
Blackpool Victoria Hospital
Bradford Royal Infirmary
Broomfield Hospital
Calderdale Royal Hospital
Chelsea and Westminster Hospital
Chesterfield Royal Hospital
City Hospital
Colchester General Hospital
Conquest Hospital
Countess of Chester Hospital
County Hospital
Croydon University Hospital
Darent Valley Hospital
Darlington Memorial Hospital
Derriford Hospital
Diana, Princess of Wales Hospital
Doncaster Royal Infirmary
Dorset County Hospital
East Surrey Hospital
Eastbourne District General Hospital
Fairfield General Hospital
Frimley Park Hospital
Furness General Hospital
George Eliot Hospital
Gloucestershire Royal Hospital
Good Hope Hospital
Harrogate District Hospital
Heartlands Hospital
Hereford County Hospital
Hillingdon Hospital
Hinchingbrooke Hospital
Homerton University Hospital
Huddersfield Royal Infirmary
Hull Royal Infirmary
Ipswich Hospital
James Paget Hospital
Kettering General Hospital
King George Hospital
King's College Hospital
Kings Mill Hospital
Kingston Hospital
Leicester Royal Infirmary
Leighton Hospital
Lincoln County Hospital
Lister Hospital
Luton and Dunstable University Hospital
Medway Maritime Hospital
Milton Keynes Hospital
Musgrove Park Hospital
Royal Victoria Infirmary
Newham University Hospital
Norfolk and Norwich University Hospital
North Devon District Hospital
North Manchester General Hospital
North Middlesex Hospital
Northampton General Hospital
Northumbria Specialist Emergency Care Hospital
Northwick Park Hospital
Ormskirk and District General Hospital
Peterborough City Hospital
Pilgrim Hospital
Pinderfields Hospital
Princess Royal University Hospital
Queen Alexandra Hospital
Queen Elizabeth Hospital (King's Lynn)
Queen Elizabeth Hospital (Gateshead)
Queen Elizabeth Hospital (Woolwich)
Queen Elizabeth, The Queen Mother Hospital
Queen's Hospital (Barking)
Queen's Hospital (Burton)
Queen's Medical Centre
Rotherham District General Hospital
Royal Berkshire Hospital
Royal Blackburn Teaching Hospital
Royal Bournemouth Hospital
Royal Cornwall Hospital
Royal Derby Hospital
Royal Devon and Exeter Hospital
Royal Free Hospital
Royal Hampshire County Hospital
Royal Lancaster Infirmary
Royal Preston Hospital
Royal Stoke University Hospital
Royal Surrey County Hospital
Royal United Hospital
Russell's Hall Hospital
Salford Royal Hospital
Salisbury District Hospital
Sandwell General Hospital
Scarborough General Hospital
Scunthorpe General Hospital
Sheffield Children's Hospital
South Tyneside District Hospital
Southampton General Hospital
Southend Hospital
Southmead Hospital
St George's Hospital
St Mary's Hospital (HQ)
St Peter's Hospital
St Richard's Hospital
St Thomas' Hospital
Stepping Hill Hospital
Sunderland Royal Hospital
Tameside General Hospital
The Bristol Royal Hospital for Children
The Cumberland Infirmary
The Dewsbury and District Hospital
The Great Western Hospital
The James Cook University Hospital
The Princess Alexandra Hospital
The Princess Royal Hospital
The Queen Elizabeth Hospital
The Royal Bolton Hospital
The Royal London Hospital
The Royal Oldham Hospital
The Royal Shrewsbury
The Whittington Hospital
Torbay Hospital
University College Hospital
University Hospital
University Hospital Lewisham
University Hospital of North Durham
University Hospital of North Tees
Walsall Manor Hospital
Warrington Hospital

West Cumberland Hospital
West Middlesex University Hospital
West Suffolk Hospital
Weston General Hospital
Wexham Park Hospital
Whipps Cross University Hospital
Whiston Hospital
William Harvey Hospital
Worcestershire Royal Hospital
Worthing Hospital
Wythenshawe Hospital
Yeovil District Hospital
York Hospital

Northern Ireland

Antrim Area Hospital
Causeway Hospital
Craigavon Area Hospital
Daisy Hill Hospital

Scotland

Dr Gray's Hospital
Dumfries and Galloway Royal Infirmary
Hairmyres Hospital
Monklands Hospital
Wishaw General Hospital

Wales

Glan Clwyd Hospital
Morriston Hospital
Nevill Hall Hospital
Princess of Wales Hospital
Royal Gwent Hospital
The Royal Glamorgan Hospital
University Hospital of Wales
Wrexham Maelor Hospital
Ysbyty Gwynedd

Appendix 3: Definitions

Term	Definition
Pre-hospital analgesia	If the patient took their own analgesia pre-hospital, please tick yes.
Other analgesia	Include IM opiates here.
Pain assessment	Pain was assessed using a validated pain assessment or scoring tool (local, regional or national).
Discharge analgesia advice	Specific verbal or written advice on **analgesia** given.

Appendix 4: Calculations

This section explains how the RCEM team will be analysing your data. You are welcome to use this analysis plan to conduct local analysis if you wish. Analysis sample tells you which records will be included or excluded from the analysis. The analysis plan tells you how the RCEM team plan to graph the data and which records will meet or fail the standards.

STANDARD	Relevant questions	Analysis sample	Analysis plan – conditions for the standard to be met
[**1**] Pain is assessed immediately upon presentation at hospital	Q1.2 and Q2.3	All records	**Chart**: SPC **Title**: Standard 1: Pain is assessed immediately upon presentation at hospital **Analysis**: Q2.1 – Q1.2 < = 15 min (**met**) Q2.1 – Q1.2 > =15 min (**fail**)
[**2**] Patients in moderate or severe pain (e.g., pain score 4 to 10) should receive appropriate analgesia within 30 minutes (or in accordance with local guidelines) unless there is a documented reason not to	Q1.2, Q2.1, Q2.3	Q2.1 = Severe (7-10)	**Chart**: SPC **Title**: Standard 2: Administration of analgesia to patients in severe pain **Analysis**: Q2.3 = Yes AND Q2.3 – Q1.2 < = 20min (**D**) Or Q2.3 – Q1.2 < = 30min AND >20min (**F**)
[**3**] Patients with severe or moderate pain should have documented evidence of re-evaluation and action within 60 minutes of receiving the first dose of analgesic	Q1.2, Q2.1, Q2.3	Q2.1= Moderate (4-6)	**Chart**: SPC **Title**: Standard 3: Administration of analgesia to patients in moderate pain **Analysis**: Q2.1= Yes AND Q2.1 – Q1.2 <= 30min (**A**) **OR** Q2.1 – Q1.2 <= 60min AND >30min (**D**)

Appendix 5: Inclusion and exclusion criteria

Inclusion criteria

- Children between the ages of 5 and 15 (inclusive)
- Presenting to the ED in moderate or severe pain
- Presenting to ED with a fracture to the clavicle, shoulder, humerus, elbow, forearm, wrist, ankle, tibia, fibula, or femur
- Presenting with a single fracture but include related fractures (e.g., tibia & fibula, or radius & ulna)
- Includes both open and closed fractures
- Presenting to your ED between 5 October 2020 – 3 October 2021.

Exclusion criteria

- Children aged 4 or under
- Children aged 16 or over
- Presenting to the ED with mild pain or no pain
- Dislocation with no fracture.

Appendix 6: Understanding your results

Statistical process control (SPC) charts

The charts in this report and your new online dashboard can tell you a lot about how your ED is performing over time and compared to other EDs. If you're not used to seeing data in this way it can take a little time to get used to. This section of the report will help you understand the charts and interpret your own data.

The main type of chart is known as a **Statistical Process Control (SPC) chart** and plots your data every week so you can see whether you are improving, if the situation is deteriorating, whether your system is likely to be capable to meet the standard, and also whether the process is reliable or variable.

As well as seeing your actual data plotted each week you will see a black dotted average line, this is the **mean** percentage of patients. The SPC chart will point out if your data has a run of points above (or below) the mean by changing the dots to white. If your data is consistently improving (or deteriorating) the dots will turn red so the trend is easy to spot. If a positive run or trend of data happens when you are trying a PDSA/change intervention this is a good sign that the intervention is working.

As well as the dotted mean line, you will see two other lines which are known as the **upper and lower control limits**. The control limits are automatically determined by how variable the data is. Around 99% of all the data will fall between the upper and lower control limits, so if a data point is outside these lines you should investigate why this has happened.

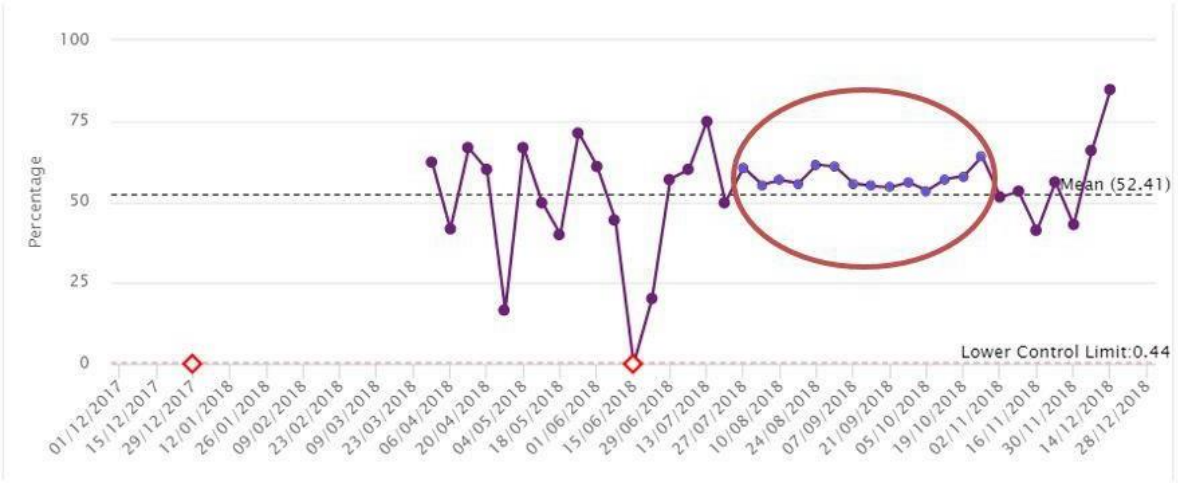
Interpreting your data

1. **Performance is improving (or deteriorating)**

A consistent run of data points going up or down with be highlighted with **red dots,** so they are easy to spot. A run of data going up is a good sign that your service is making improvements that are really working. If the data is going down this may indicate that service is deteriorating for some reason – watch out for a lack of resources or deterioration as a result of a change somewhere else in the system.

2. **Performance is consistently above (or below) the mean**

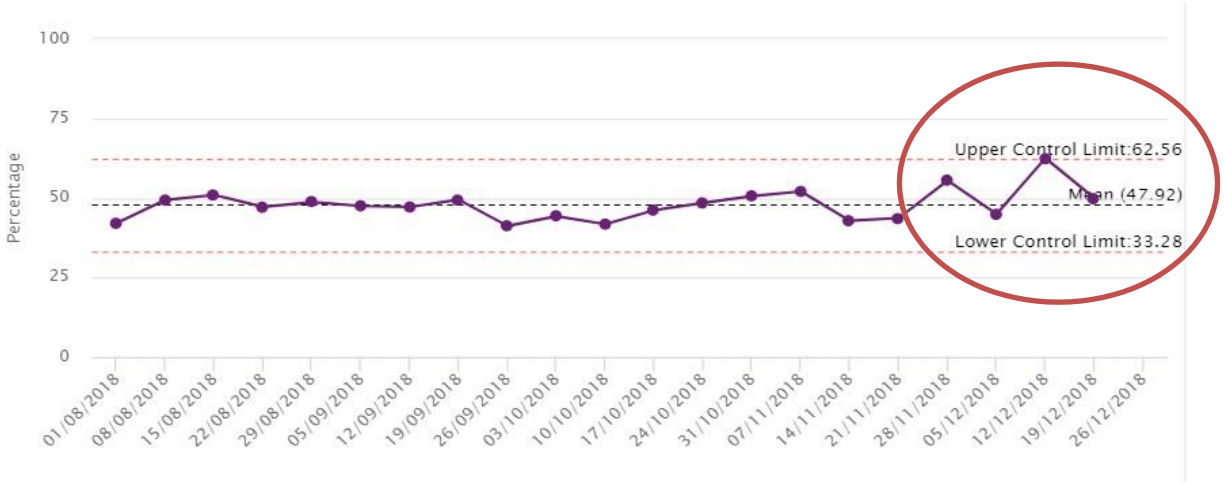
A consistent run of data that is above or below the mean will be highlighted with **blue dots** so they are easy to spot. If your data has been quite variable this is a good sign that the process is becoming more reliable.



3. Is your system likely to be capable of meeting the standard?

The **control limits** show where you can assume 99% of your data will be. If you find that the standard is outside your control limits, it is very unlikely that your system is set up to allow you to meet the standard. If you do achieve the standard, this will be an unusual occurrence and very unlikely to be sustained. If this is the case, it is recommended that you look at how the process can be redesigned to allow you to meet the standard.

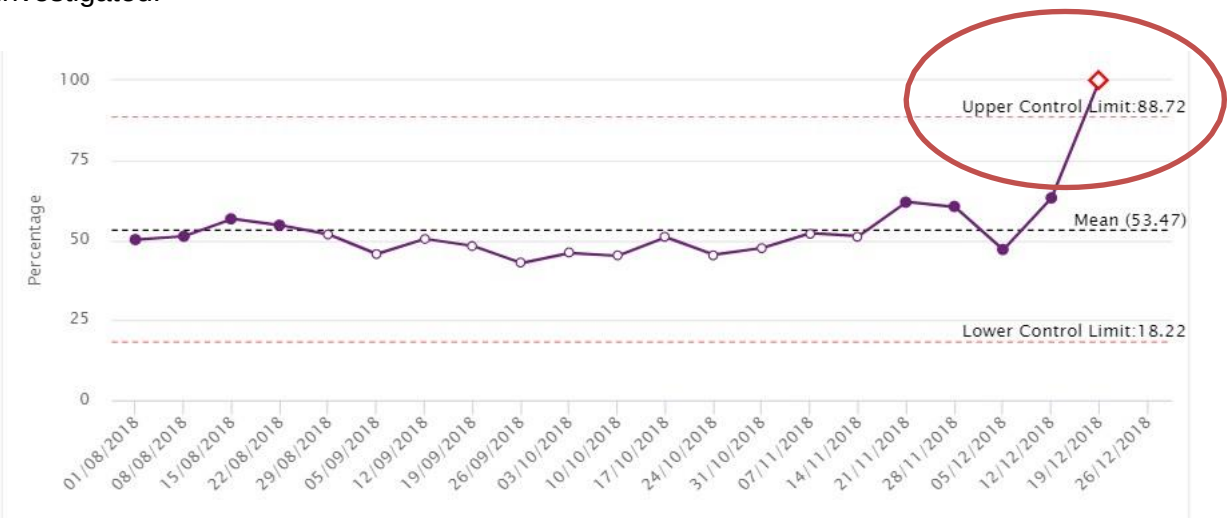
In the below example, the process is performing consistently at around 50%. The control limits show us that most of the time we would expect the process to be between 33% - 62%. If the standard for this process was 50%, then the process is well designed. If, however, the standard was 75% then the chart warns us that the system is not currently set up to allow the process to achieve the standard.



5. Something very unusual has happened!

The majority of your data should be inside the upper and lower control limits, these are automatically calculated by the system. If a single data point falls outside these limits, then something very unusual has happened. This will be flagged up with a **red diamond** so you can spot it.

In some cases, it may mean that the data has been entered incorrectly and should be checked for errors. It may also mean that something unexpected has had a huge impact on the service and should be investigated.



Appendix 7: Analysis plan for standards

This section explains how the RCEM team will be analysing your data. You are welcome to use this analysis plan to conduct local analysis if you wish. Analysis sample tells you which records will be included or excluded from the analysis. The analysis plan tells you how the RCEM team plan to graph the data and which records will meet or fail the standards.

STANDARD	Relevant questions	Analysis sample	Analysis plan – conditions for the standard to be met
[**1**] Pain is assessed immediately upon presentation at hospital	Q1.2 and Q2.1	All records	**Chart**: SPC **Title**: Standard 1: Pain is assessed immediately upon presentation at hospital **Analysis**: Q2.1 – Q1.2 < = 15 min (**met**) Q2.1 – Q1.2 > =15 min (**fail**)
[**2**] Patients in moderate or severe pain (e.g. pain score 4 to 10) should receive appropriate analgesia within 30 minutes (or in accordance with local guidelines) unless there is a documented reason not to	Q1.2, Q2.1, Q2.3	Q2.1 = Severe (7-10)	**Chart**: SPC **Title**: Standard 2: Administration of analgesia to patients in severe pain **Analysis**: Q2.3 = Yes AND Q2.3 – Q1.2 < = 20min (**A**) Or Q2.3 – Q1.2 < = 30min AND >20min (**D**) Or Q2.3 – Q1.2 < = 60min AND >30min (**F**)
[**3**] Patients with severe or moderate pain should have documented evidence of re-evaluation and action within 60 minutes of receiving the first dose of analgesic	Q1.2, Q2.1, Q2.3	Q2.1= Moderate (4-6)	**Chart**: SPC **Title**: Standard 3: Administration of analgesia to patients in moderate pain **Analysis**: Q2.1= Yes AND Q2.1 – Q1.2 <= 30min (**A**) **OR** Q2.1 – Q1.2 <= 60min AND >30min (**D**)

Appendix 8: Privacy policy, terms of website use and website acceptable use policy

Privacy policy

The Royal College of Emergency Medicine (RCEM) recognises the importance of protecting personal information and we are committed to safeguarding members, non-members and staff (known as "The User" in this document) privacy both on-line and off-line. We have instituted policies and security measures intended to ensure that personal information is handled in a safe and responsible manner. This Privacy statement is also published on the RCEM web site so that you can agree to the kind of information that is collected, handled and with whom this data is shared with.

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Terms of website use

For further information, click ***here***.

Website acceptable use policy

For further information, click ***here***.

Appendix 9: References

1. Emergency Triage, 2nd Ed. BMJ Publishing Group, 2005.
2. Lee JS. Pain measurement: Understanding existing tools and their application in the emergency department, Emergency Medicine 2001; 13: 279–287.
3. McGrath PJ et al, CHEOPS: A behavioural scale for rating postoperative pain in children. Advances in Pain Research and Therapy. Ed. Fields, Raven Press 1985; 9: 293-297.
4. Medicines and Healthcare Products Regulatory Authority (UK) (MHRA). Codeine: restricted use as analgesic in children and adolescents after European safety review (accessed10th July 2013).
5. NICE. Analgesia mild to moderate pain 2015 (accessed 10th June 2017).
6. NICE Fractures (non-complex): Assessment and management 2016 (accessed 11th June 2017).
7. Petrack EM, Christopher NC, Kriwinsky J. Pain management in the emergency department: patterns of analgesic utilisation. Pediatrics 1997; 99(5): 711-4.
8. Stahmer SA, Shofer FS, Marino A et al. Do Quantitative Changes in Pain Intensity Correlate with Pain Relief and Satisfaction? Academy of Emergency Medicine 2008; 5(9): 851-7.
9. The College of Emergency Medicine: Management of pain in children. Best Practice Guideline 2013; 1-12.
10. The Royal College of Anaesthetists: Core standards for pain management services in the UK. Faculty of Pain Management 2015 (accessed 6th June 2017).
11. The Royal College of Emergency Medicine: Management of pain in children. Best Practice Guideline 2017; 1-11.
12. Todd KH, Sloan EP, Chen C et al. Survey of pain etiology, management practices and patient satisfaction in two urban emergency departments. CJEM 2002; 4(4): 252-6.
13. Wong-Baker Faces Pain Scale. Adapted from Whaley L, Wong DL. Nursing care of infants and children
14. List of ethnic groups for data collection

Appendix 10: ECDS Search terms to support case identification

These codes will help you and your IT team to identify cases that may be eligible for the QIP. This is not an exhaustive list and other search terms can be used. All potential patients should then be reviewed to check they meet the definitions & selection criteria before inclusion in the QIP.

The ECDS codes below relate to CDS V6-2-2 Type 011 - Emergency Care Data Set (ECDS) Enhanced Technical Output Specification v3.0.

QIP question	ECDS data item name	ECDS national code	National code definition	Notes
Q1.1 Date and time of arrival or triage – whichever is earlier	EMERGENCY CARE ARRIVAL DATE EMERGENCY CARE ARRIVAL TIME	an10 CCYY-MM-DD an8 HH:MM:SS	Date Time	
Q1.3. Age of patient	AGE AT CDS ACTIVITY DATE	N/A	N/A	
Q1.4. Ethnic category	ETHNIC CATEGORY	A	White British	
		B	White Irish	
		C	Any other White background	
		D	White and Black Caribbean	
		E	White and Black African	
		F	White and Asian	
		G	Any other mixed background	
		H	Indian	
		J	Pakistani	
		K	Bangladeshi	
		L	Any other Asian background	
		M	Caribbean	
		N	African	
		P	Any other Black background	
		R	Chinese	
		S	Any other ethnic group	
		Z	Not stated e.g. unwilling to state	
		99	Not known e.g. unconscious	
Q2.1. Was pain assessed on arrival (within 15 mins)?	Does not directly map to an ECDS code			
Q2.2 Was a validated pain assessment tool used?	Does not directly map to an ECDS code			
Q2.3 Was analgesia administered in the ED?	1135110000	Analgesia	Anaesthesia: local anaesthetic	Treatments field: Medication including date time stamp is in ECDS, so could get date/time for first medication
	1135210000	Analgesia	Anaesthesia: entonox	
	1135410000	Analgesia	Anaesthesia: regional block	
	1135610000	Analgesia	Anaesthesia: sedation monitored	

<table>
<tr><td>Q2.4. Was pain re-assessed in the ED?</td><td colspan="3">Does not directly map to an ECDS code</td><td></td></tr>
<tr><td>Q9. Was a second dose of analgesia administered in the ED?</td><td><table><tr><td>1135110000</td></tr><tr><td>1135210000</td></tr><tr><td>1135410000</td></tr><tr><td>1135610000</td></tr></table></td><td><table><tr><td>Analgesia</td></tr><tr><td>Analgesia</td></tr><tr><td>Analgesia</td></tr><tr><td>Analgesia</td></tr></table></td><td><table><tr><td>Anaesthesia: local anaesthetic</td></tr><tr><td>Anaesthesia: entonox</td></tr><tr><td>Anaesthesia: regional block</td></tr><tr><td>Anaesthesia: sedation monitored</td></tr></table></td><td>Treatments field: Medication including date time stamp is in ECDS, so could get date/time for first medication</td></tr>
<tr><td>Q2.7 Was analgesia in accordance with local guidelines?</td><td colspan="3">Does not directly map to an ECDS code</td><td></td></tr>
</table>

Appendix 11: Template to submit your QI initiatives for publication on the RCEM website

If you would like to share details of your QI initiative or PDSA cycle with others, please complete this document and email it to audit@rcem.ac.uk.

Name: _____

Email address: _____

Hospital: _____

Trust: _____

Plan State the question you wanted to answer – what was your prediction about what would happen? What was your plan to test the change (who, what, when, where)? What data did you collect, how did you plan to collect it?	
Do How did you carry out the change? Did you come across any problems or unexpected observations? How did you collect and analyse the data?	
Study What did the analysis of your results show? How did it compare to your predictions? Summarise and reflect on what you learnt.	
Act Based on what you learnt, what did you adapt (modify and run in another test), adopt (test the change on a larger scale) or abandon?	

Did you prepare for another PDSA based on you learning?	
Reflection and learning What did you and the team learn from this QI initiative? What advice would you give to someone else in your position?	

Appendix 12: pilot methodology

A pilot of this QIP was carried out prospectively from 12 August 2020 – 24th August 2020. This tested the standards, questions, quality of data collectable, as well as the functioning of the online portal and reporting templates.

Several improvements were made to the final project based on feedback from the pilot sites.

RCEM were grateful to contacts from the following Trusts for helping with the development of the audit and integrated QIP:

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Frimley Health NHS Foundation Trust
Worcestershire Acute Hospitals NHS Trust
Sandwell And West Birmingham Hospitals Trust
Hull University Teaching Hospitals NHS Trust
Belfast Health and Social Care Trust