

RCEM Royal College of Emergency Medicine

PAIN IN CHILDREN (2021-2022)

NATIONAL QUALITY IMPROVEMENT PROJECT

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NATIONAL REPORT

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Foreword

Dr Adrian Boyle, RCEM President

I am pleased to report on the quality of caring for children with limb fractures in pain presenting to Emergency Departments during 2021-22.

This Quality Improvement Project (QIP) builds on previous Pain in Children work by the college and allows us to see that incremental 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.

The standards within this QIP focus on the key areas of paediatric pain management within Emergency Medicine – rapid pain assessment, appropriate initial analgesia, and analgesia re-evaluation and action. 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 Adrian Boyle, RCEM President

Dr Fiona Burton Co- Chair of Quality Assurance & Improvement Subcommittee

Dr James France Chair of Quality in Emergency Care Committee

Dr Dale Kirkwood Co- Chair of Quality Assurance & Improvement Subcommittee

30 minutes



20 minutes



Review triage processes and incorporate novel means to allow for flexibility to accommodate surges and consider methods of identifying children in pain early while they await triage





Education around appropriate pain assessment tools available should be given to all ED staff and routine monitoring of pain should be built into departmental clinical IT systems.

Target interventions to better key processes like time from assessment to provision of analgesia.





Improve access to technically demanding analgesic modalities e.g., femoral nerve blocks.

Have evidence based local guidelines for pain management.

2



Initial assessment of pain should include documentation of pain assessment and if analgesia was offered, denied or given

Encourage active involvement of parents and play specialists in re-evaluation of pain.





Look at data separately for reassessment of children presenting with severe pain vs moderate pain to help guide improvement interventions.

Provide detailed discharge advice where indicated with improvement to accessibility to generic advice e.g. via QR code.



Executive Summary

Overview

RCEM would like to thank every Emergency Department (ED) that took part in this Quality Improvement Project (QIP). Over a period of **24** months, this RCEM QIP has accumulated **17985** individual cases from **149** emergency departments nationwide. This report represents a large-scale national QIP delivered over a shared platform providing QI tools and real-time data, which individual departments could use.

The primary driver was to improve the care provided to paediatric patients in the ED who attend with moderate or severe pain over its 2-year national life cycle and beyond, via ongoing local improvements. The primary metric is improving effective analgesia. RCEM has identified current performance in EDs against nationally agreed clinical standards.

Key Findings

For the period 4 October 2021 – 3 October 2022, the National results demonstrated:

- Standard 1: Pain is assessed immediately upon presentation at hospital within 15 minutes of arrival or triage (whichever is earlier) - 54% of patients were seen and assessed for pain within 15 minutes. Patients waited an average of 23 minutes from arrival to pain assessment
- Standard 2 (severe pain): Administration of appropriate analgesia – Only 58% and 39% of children in severe pain received analgesia within 30 and 20 minutes respectively
- Standard 2 (moderate pain): Administration of appropriate analgesia - Only 47% and 34% of children in moderate pain received analgesia within 30 and 20 minutes respectively
- Standard 3: 45% of patients in moderate or severe pain had their pain re-evaluated within 60 minutes of having received their first doses of analgesia

Conclusion

In comparison to the interim report published in January 2022, there has been a fall in Standards 1 and 2 by around 10% to 15% which is likely a reflection of the mounting ED pressures nationally. Half of the children in pain are still facing delays in pain assessment and treatment, which leaves ample scope for improvement in these standards.

Standard 3 which has not seen a change over the past 5 years has finally showed a significant improvement this year. An improvement from 12% to 45% when compared to the interim report, is testament to the hard work put in by units nationally to address this problem. This is excellent work that needs to be built upon in coming years to ensure that there is sustained change.

Top 10 Recommendations

- Optimise staffing and availability of space for consultation during peak times (between 12pm to 8pm).
- Review triage processes and incorporate novel means to allow for flexibility to accommodate surges and consider methods of identifying children in pain early while they await triage.
- Education around appropriate pain assessment tools available should be given to all ED staff, and routine monitoring of pain should be built into departmental clinical IT systems.
- Target interventions to better key processes like time from assessment to provision of analgesia.
- 5) Improve access to technically demanding analgesic modalities e.g., femoral nerve blocks.
- 6) Have evidence based local guidelines for pain management.
- 7) Initial assessment of pain should include documentation of pain assessment and if analgesia was offered, denied or given.
- 8) Encourage active involvement of parents and play specialists in re-evaluation of pain.
- 9) Look at data separately for reassessment of children presenting with severe pain vs moderate pain to help guide improvement interventions.
- 10) Provide detailed discharge advice where indicated with improvement to accessibility to generic advice e.g., via QR code.

Introduction

Topic Team

- Sasidharan Sameer (Sam) Topic Lead, Consultant in EM, Northumbria Specialist Emergency Care Hospital, Northumbria NHS Foundation Trust
- Nirmal James Consultant in EM, The Grange University Hospital, Aneurin Bevan University Health Board.
- Mary Taiwo-Bello SAS/CESR Specialty Doctor, University Hospitals of North Midlands NHS Trust
- Simon Ross Deveau ACP (Nurse), Torbay Hospital, Torbay and South Devon NHS Foundation Trust
- Craig Short Audit and Improvement Lead, Sherwood Forest Hospitals NHS Foundation Trust
- Alison Ives Author, RCEM Quality Officer, and PIC lead secretariat

Background

Pain management is one of the most critical components in patient care. Pain is commonly under-recognised and under-treated with treatment often delayed. This is especially true in children. Reasons include challenges in assessing severity; the child may be very stoical when in pain, may withdraw and interact poorly and the child may have difficulty describing/admitting to pain. There is also evidence that pain relief is related to patient satisfaction. Uncontrolled pain can lead to deterioration in an already cardio-vascularly compromised child.

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. The emphasis should be on improving your own ED's current performance.

We hope this year's Pain in Children QIP will bring to light the key issues plaguing departments, enabling us to focus on innovative solutions to target these problems so that our little patients can have a positive experience during their ED attendance.

Problem description

Case Study

Becky (anonymised), a 7-year-old girl, presented to the ED with her mother after an incident at another child's birthday party. Becky had been knocked over while on a bouncy castle, injuring her left arm. After a 15-minute wait to book in due to the volume of patients waiting, it took another 45-minutes to be triaged. At triage, Becky wasn't answering questions apart from saying "yes" or "no". Becky allowed the triage nurse to feel from her fingers to her clavicle. During this assessment, she remained completely still and silent. Becky answered "no" when asked how much pain she was in and backed away when a syringe of paracetamol was offered. Nothing had been given pre-hospital as they had travelled directly from the incident site.

The triage nurse was newly qualified, and this was her first shift triaging. As Becky wasn't crying and obviously didn't want the syringe of paracetamol offered, the triage nurse took this to mean that Becky wasn't in any significant pain. The child was triaged to a category 3 'to be seen within one hour', despite the knowledge that these patients were being actually seen around 5 hours after triage.

4 hours after triage, Becky got up to go to the toilet and began to cry. She told her mother that her arm was on fire. The mother went to reception as the triage nurse was very busy with other patients and the receptionist alerted one of the minors' practitioners that this young girl was in severe pain. Becky was called through into minors immediately and her arm reviewed.

Becky's arm was pale, cool and tender from mid upper arm to fingers. She was unable to move her fingers or wrist. A concern of a fracture with neurovascular compromise was raised by the minor's practitioner to the ED consultant and the nurse in charge. No immediate space was available in resus so Becky returned to minors for a trial of Entonox and intranasal fentanyl. Becky was a Star Wars fan. A face mask was used as a distraction tool, roleplaying Darth Vader, which helped calm her and improved her compliance of using Entonox. After five minutes, the intranasal fentanyl had been drawn up and administered to good effect. There continued to be no resus space due to an inability to step anyone down so the ED consultant assisted the minor's practitioner to reduce the distal humerus into a more anatomically aligned position and apply a back slab. The Entonox was stopped, and Becky reported that the pain was much better. She could move her fingers and the pallor had resolved. An x-ray was taken confirming a supracondylar fracture and an orthopaedic referral was made.

The positives:

- Triage nurse had access to patient group directions (PGD) for paracetamol and ibuprofen – allowing simple analgesia to be given without involving a prescriber.
- 2. Receptionist felt they could escalate to an appropriate senior staff member.
- 3. Recognition of a potential complication with escalation to senior medical and nursing staff.
- 4. Play/distraction used as an adjunct to analgesia.

Scope for potential improvement:

- 1. Long waits: booking in, triage and assessment.
- 2. Review of the Triage process.
- 3. Lack of appropriate pain assessment.
- 4. Delay in consideration and provision of various analgesic modalities (e.g., early immobilisation/splint).
- 5. Lack of interim assessments during long waits to see a clinician.

Patient data findings from Pain in Children National Interim Report 2020/2021:

- For standard 1: Pain is assessed immediately (within 15 minutes of arrival or triage, whichever is earlier) upon presentation at the hospital
 - o 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 (fundamental standard) unless there is a documented reason not to
 - 67% of cases met the fundamental standard for moderate pain, with 50% meeting the developmental standard (20 minutes). For severe pain, 71% of cases met the fundamental standard with 53% meeting the developmental standard (20 minutes)
- For standard 3: Patients with moderate or severe pain should have documented evidence of re-evaluation of pain within 60 minutes of receiving the first dose of analgesic
 - 12% of patients had documented evidence of re-evaluation of pain within 60 minutes of their first dose of analgesia

The case study is one of many anecdotal evidences that we have all heard. Nationally over the past 5 years there has been minimal improvement against all standards, with reassessment of pain significantly lagging behind the other standards. This points towards an urgent need to strive for improvement in these areas.

Primary driver

This QIP aims to improve the care provided to paediatric patients in the ED who attend with moderate or severe pain over its 2-year national life cycle and beyond via ongoing local improvements. The primary metric is timely administration of effective analgesia.

Specific objectives

- Pain assessment
 - Pain is assessed immediately (within 15 minutes of arrival or triage, whichever is earlier).
- Administration of appropriate analgesia
 - Patients in moderate or severe pain (e.g., pain score 4 to 10) should receive appropriate analgesia within 30 minutes of arrival (fundamental); within 20 minutes of arrival (developmental) unless there is a documented reason not to
- Re-evaluation of pain
 - Following analgesia, patients with moderate or severe pain should have documented evidence of re-evaluation of pain within 60 minutes of 1st dose of analgesia

Patient demographics

RCEM has asked EDs to provide ethnicity data as part of its QIPs which allows the assessment of health inequalities relating to patient ethnicity.

RCEM's <u>National Ethnicity report</u> (June 2022), showed that whilst black children attending a department received the timeliest assessment of pain, they then waited the longest on average for analgesia to be administered at 1 hour and 31 minutes. This was in comparison to patients of Asian background who waited 1 hour and 8 minutes on average. This example shows the richness of this data and should be used by all departments to focus on bridging the gap in treatment time to ensure equitable care is provided to all.

Discussion

The interim report published in January 2022 had showed no significant improvement across the three standards over the reporting period as compared to the previous National report on pain in children (2017/2018). The data analysed was over a 6-month period. It was noted that despite pressures on services due to the pandemic the current standards of care in comparison to the previous report had not changed much.

One standard that was specifically looked into was standard 3 (Following analgesia, patients with moderate or severe pain should have documented evidence of reevaluation of pain within 60 minutes of 1st dose of analgesia). The consistently poor performance in this standard, was thought to be multifactorial (Interim report 2020/2021). We investigated the proportion of children who had re-evaluation after having received analgesia for moderate and severe pain irrespective of whether it was done within 60 minutes.

The reason was to:

- Understand if the stagnant data over the years was due to the 60 min target, when in reality children were having their pain reassessed outside that time frame
- Encourage participating departments to focus upon the actual process of reevaluation after initial analgesia for children with moderate and severe pain

The Quality Improvement Project (QIP) aimed to track the current performance in EDs against clinical standards in individual departments and nationally on a real time basis over the 8 months (January 2022 – September 2022). The aim 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.

National Drivers

RCEM has conducted a Pain in Children audit five times and this 2020-23 cycle is the first time it is being run as a QIP. This QIP will continue the work of the 2009/10, 2011/12, and the 2017/18 audits. It identifies performance against clinical standards put forth by RCEM and other Royal Colleges in relation to pain management in children.

- RCEM Initial Assessment of Emergency Department Patients: Service Design and Delivery (2017)
 - Triage within 15 minutes of arrival
- RCEM Quality in Emergency Care Committee (July 2017)
 - Analgesia for moderate & severe pain within 20 minutes of arrival in the ED should apply to children in all Emergency Departments
 - Patients in severe pain should have the effectiveness of analgesia reevaluated within 60 minutes of receiving the first dose of analgesia
- Royal College of Paediatrics and Child Health. Facing the future: Standards for children in emergency care settings (2018)
 - Analgesia delivered within 20 minutes of arrival for children with moderate or severe pain
 - Pain score reassessed and acted upon within 60 minutes
- Royal College of Nursing. Standards for Assessing, Measuring and Monitoring Vital Signs in Infants, Children and Young People: Clinical professional resource (2017)
 - Standardised validated pain assessment tool to be used
 - Pain assessment to be part of routine observations

Local objectives

- 1. To improve time to initial assessment of pain (within 15 minutes of arrival or triage, whichever is earlier) for all children on presentation to an ED irrespective of ethnicity to ensure equitable care is provided to all.
- To improve the provision of analgesia within 30 minutes for children in moderate or severe pain.
- 3. To improve the re-evaluation of pain within 60 minutes of receiving the first dose of analgesia.

Methodology

For a detailed description of the methodology used in the QIP, please see the *information pack*.

Intervention

All Type 1 EDs in the UK were invited to participate in September 2021. Data samples were submitted using an online data collection portal. The QIP was included in the NHS England Quality Accounts list for 2021/2022.

Participants were asked to collect data from ED patient records on cases who presented to the ED between 4 October 2021 – 3 October 2022 and encouraged to continue PDSA cycles and data collection beyond this locally to improve pain management in children.

Quality Improvement Project

This QIP has encouraged units to use the 'model for improvement methodology' employing PDSA cycles to drive changes to bring about better patient care. Measurement of the data against the standards enables monitoring of change in practice, with resultant improvement tracked using weekly SPC charts.

Measures

The national level data provides a benchmark so individual units who are below the national average can take steps to improve. Shifting towards a QI methodology focuses on improvement so even those above the mean are encouraged to act locally to further develop their service. The aim being trying to achieve the national standards and to reduce disparity in performance between the departments; creating a platform for us to learn from each other's successes.

Standards and Metrics

The following national guidance and latest evidence was used to select the standards to meet our primary driver. From these, metrics were devised to measure performance and a means to see what improvements are being made when implementing changes to your service.

Standard	Grade	Guidance
 Standard 1: Pain is assessed immediately upon presentation at hospital within 15 minutes of arrival or triage (whichever is earlier) 	Fundamental (F)	RCEM Initial Assessment of Emergency Department Patients: Service Design and Delivery. (2017) RCEM Best practice guidance: Management of pain in children (July 2017)
 Standard 2 (severe): Patients in severe pain (pain score 7 to 10) should receive appropriate analgesia within 30 minutes of arrival within 20 minutes of arrival 	Fundamental (F) Developmental (D)	RCEM Best practice guidance: Management of pain in children (July 2017) Royal College of Paediatrics and Child Health (2018). Facing the future: Standards for children in emergency care settings.
 Standard 2 (moderate): Patients in moderate (pain score 4 to 6) should receive appropriate analgesia within 30 minutes of arrival within 20 minutes of arrival 	Fundamental (F) Developmental (D)	RCEM Best practice guidance: Management of pain in children (July 2017) Royal College of Paediatrics and Child Health (2018). Facing the future: Standards for children in emergency care settings.
 Standard 3: Following analgesia, patients with moderate or severe pain should have documented evidence of re-evaluation. within 60 minutes of 1st dose of analgesia 	Developmental (D)	RCEM Best practice guidance: Management of pain in children (July 2017) Royal College of Nursing (2017). Standards for Assessing, Measuring and Monitoring Vital Signs in Infants, Children and Young People: Clinical professional resource, 2nd edition Royal College of Paediatrics and Child Health (2018). Facing the future: Standards for children in emergency care settings

Results

Participants

Nationally, 17,985* cases from 149 EDs were included in this QIP.

Ctrl + Click to access the interactive map pictured below of participating emergency departments.



Country	Number of relevant EDs	Number of cases *		
National total	149/239 (62%)	17,985		
England	135/184 (73%)	16,887		
Scotland	3/29 (10%)	217		
Wales	7/13 (54%)	544		
Northern Ireland	3/10 (34%)	281		
Isle of Man / Channel Islands	2/3 (67%)	56		
*Analysis includes complete cases only				

Performance against clinical standards



Pain In Children V2 - Time of arrival

Sample: All patients (n = 17,985)

What questions were used for this analysis?

Q1.2: Date and time of arrival.

Commentary:

This year's QIP shows a fairly consistent pattern between the days. An initial surge of patients occurs at 09:00 with a gradual increase in the number patients, peaking at 16:00 and 18:00. This is followed by a decline in the number of patients, reaching a dip at 23:00.

Comparing this with the previous report which was done at the beginning of the COVID pandemic, there has not been any significant changes in the pattern of patient arrival to hospital.

Recommendation:

Optimising staffing, allowing for increased staff presence, e.g., an additional triage nurse, during the peaks (between 12pm to 8pm), will help maintain quality and reduce waits and intervention times. Other anticipatory interventions during these peaks that include, ensuring availability of cubicles for consultation and involving of parents, and play specialists for re-evaluation.



Pain in Children V2 - Time from arrival to pain assessment

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NB: Charts without a lower or upper control limit are due to a lack of data or the limits are outside of the viewable limit.

Sample: All patients (n = 17,985)

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 minutes of arrival or triage, whichever is earlier)?

Commentary:

Over the data collection period no improvement was demonstrated at a national level.

There is little variance in the data through the year even during the winter months. The mean of 23 minutes indicates an increase of 7 minutes compared to the mean of 16 minutes seen in the interim report 2020/21. The upward trend seen here between March/April, corelates to the dip in performance seen between March and May in the previous graph. There was a period of consistently improved performance between July and August, which is also reflected in the upward trend seen during the same period in the Standard 1 graph (graph below)

The spike outside the upper control limit (red diamond) seen in the end occurred soon after comms, were sent out regarding closing dates for data entry. This has likely resulted in a rushed input of data. However, this can only be confirmed if there are further data points. Omitting this still gives a mean of 22 minutes.

Though in most EDs, children are being assessed close to the target of 15 minutes, there is an overall decline in the time to assessment compared to previous reports. The lack of variance in the data, likely reflects the constant pressures EDs have faced throughout the year and is likely to be the case in the near future.

Standard 1



Pain is assessed immediately upon presentation at hospital within 15 minutes of arrival or triage (whichever is earlier)

(For the time period: 9686 records conforming to standard; from a total of 17988 eligible.)



- Pain is assessed immediately

NB: The graphs will display 17,988 (instead of 17,985) as all eligible cases. This is due to the QIP portal calculating the end of the study period as 03/10/2022 at 23:59:59. Cases submitted use 04/10/2022 as it calculates to 04/10/2022 at 00:00.00.

Sample: All patients (n = 17,985) – 9685 conformed 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 minutes of arrival or triage, whichever is earlier)?

Commentary:

Over the data collection period no improvement had been demonstrated at a national level. In comparison with the data from the interim report 2020/21, which looked at data from October 2020 to March 2021, there is a decline in the mean from 63% to 54%.

Level of care provided appears relatively unchanged throughout the year. A period where performance was consistently below the mean, was seen between March and May and an upward trend noted towards the end of the cycle, between July and August.

The national mean of 54% of patients seen and assessed for pain within 15 minutes is less than desirable and leaves ample scope for improvement. Half of the children in pain are still facing delays in pain assessment.

Recommendation:

Triage times are a good yardstick in judging the overall ED performance. Though only around 50% of children were getting their pain assessed within 15 minutes of arrival or triage, the mean time to assessment is 22 minutes which is not far from the target. Given that the lower control limit is 7min, it implies that the target of 15 minutes is achievable with small changes in the system.

Triage systems can often get overwhelmed given the unpredictability of patient attendance during the course of the day, but the general trends can be anticipated as shown in 1st graph. Departments should review their triage processes attempting to incorporate novel means to allow for flexibility in this process to accommodate this anticipated surge, and consider methods of identifying children in pain early while they await triage.

Pain in Children V2 - Validated pain assessment tool used



(For the time period: 13484 records conforming to standard; from a total of 17988 eligible.)

Sample: All patients (n = 17,985)

What questions were used for this analysis?

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

Commentary:

Over the data collection period no sustained improvement was demonstrated at a national level. The mean of 75% is an improvement on the mean of 65% seen in the interim report 2020/21.

As with the previous graph, the final significantly improved data point may be due to the rush to submit last minute data. However, this point is only minimally higher than the best single point for the rest of the year, suggesting that further study is required to determine if this is error or improvement.

This data does not allow us to understand why a validated assessment tool was not used. Pain assessment tools are stratified by age, but without strong agreement in the literature as to appropriate ages for most tools, it is difficult to assess if a validated tool was used. This potentially implies that confounding factors, such as age of patients and use of adult scoring tools has influenced this graph.

Recommendation:

Literature supports that children eight years and older can be assessed with the same tools used for adults e.g., the verbal numeric rating scale. Most validated tools for use in children other than neonates, return a 0-10 score (e.g., FLACC, MAPS, Wong-Baker FACES scale, Faces Pain Scale - Revised), allowing ease of recording pain within computerised systems that may be built around adult. Education around tools available should be given to all ED staff and routine monitoring of pain should be built into departmental clinical IT systems.

Standard 2 (1 of 2)



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Patients presenting with severe pain: n = 3639. 2084 (58%) met the fundamental standard, of which 1410 (39%) met the developmental standard.

What questions were used for this analysis?

- Q2.1: Was pain assessed on arrival (within 15 minutes of arrival or triage, whichever is earlier)?
- Q2.3: Was analgesia administered in the ED?
- Q2.7: Was analgesia in accordance with local guidelines?

Commentary:

Over this data collection period no improvement was demonstrated at a national level, and there was an overall reduction of approximately 10% in the number of children receiving analgesia within both 20 and 30 minutes when compared with the interim report. This data shows a mean of 58% of children receiving analgesia within 30 minutes with only 39% receiving analgesia within 20 minutes. The decrease in performance likely results from the increased pressures and waiting times within EDs.

Recommendation:

In order not to miss out on improvement opportunities, we encourage organisations to review their local results for this standard and consider what the other potential root-causes of this drop in performance are; aside from increased pressure in the ED.

Standard 2 (2 of 2)



- D (Developmental): within 20 minutes - F (Fundamental): within 30 minutes

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Patients presenting with moderate pain: n = 10,282.4746(47%) met the fundamental standard, of which 3464(34\%) met the developmental standard.

What questions were used for this analysis?

Q2.1: Was pain assessed on arrival (within 15 minutes of arrival or triage, whichever is earlier)?

Q2.3: Was analgesia administered in the ED?

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

Commentary:

Similar to the graph above there has been no improvement at a national level across this data collection period. For children in moderate pain the mean number receiving analgesia within 20 minutes was 34% and within 30 minutes was 47%.

Recommendation:

Less than half of all children who had a pain assessment on arrival, and required analgesia, received analgesia within 20 minutes and only 58% of children in severe pain receive analgesia within 30 minutes. With a mean time to triage of 22 minutes this suggests that there is a significant delay from triage to analgesia administration. This is something that should be explored at a local level to identify the cause of these delays. Delays may potentially come from drug storage not being co-located with the triage nurse, lack of Patient Group Directions (PGDs), inability of a triage system to acknowledge children in severe pain who require urgent assessment.



Pain in Children V2 - Time from arrival to first analgesia

Sample: All patients (n = 17,985)

What questions were used for this analysis?

Q1.2: Date and time of arrival or triage

Q2.3: Was analgesia administered in the ED?

Commentary:

This year's QIP has shown a moderate increase in the time it takes for patients to receive a first dose of analgesia on arrival at the ED with a mean of 39 minutes compared to 32 minutes 12 months ago. The data demonstrates a larger variation in performance against this metric compared to the previous period of reporting. Approximately half of all children waited over 30 minute to receive analgesia.

However, there were 2 clear periods where there was statistically significant change in performance, which could be attributed to special cause variation. The first period was between the end of February 2022 and April 2022 with 7 consecutive points above the mean. Whilst it is not possible for this report to comment on the reasons for this change in performance, we can state that there was a decline in performance against the standard and we would encourage individual sites to consider their own data to see if this is mirrored.

Similarly, there is also a shift in performance between July 2022 and September 2022. 9 data points below the mean, which again, suggests that a special cause may be at play here. Again, we would encourage sites to review their local reports and see if they have seen a similar performance shift and to consider what factors could be attributed to this improvement.

Recommendation:

This target is dependent on demand and availability of staff to deliver the analgesia. The continuing impact of COVID and other issues with availability of staffing, may affect the ability of an ED to provide this timely care. Monitoring to ensure sustainability is crucial in the coming months. We would encourage departments to look outside their own organisations to create networks, share experiences and tackle any obstacles to improve their performance against this metric as it is clearly a challenge for many of us trying to meet this metric. This approach should lead to a more sustainable approach to QI and improve the overall consistency of care.

Pain in Children V2 - Initial analgesia administered in the ED



Sample: All patients (n = 17,985)

This percentage does not equal 100% as it is looking at the total population including those who did not receive analgesia.

Paracetamol (44%), Ibuprofen (36%), Opiates (intranasal) (5%), Fascia Illicia Block (0.2%), Femoral nerve block (0.03%), Opiate (oral) (2%), Opiate (IV) (0.52%)

What questions were used for this analysis?

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

Commentary:

This year's data shows that there was a significant increase in patients receiving analgesic in the ED, up from 60% to 91%. The makeup of this still 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 usually done 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 and as ultrasound equipment becomes more available in Eds, we might see more nerve blocks being performed as first line analgesia.

Recommendation:

Departments should consider what the barriers are for administering the lesser represented pain relief modalities and where possible, look to take steps to consider overcoming these.

Pain in Children V2 – Analgesia was in accordance with local guidance



Sample: All patients

What questions were used for this analysis?

Q2.7: Was the analgesia administered in accordance with local guidance?

Commentary:

In just under 50% of cases children were administered analgesia in accordance with a local guideline or a pain assessment tool. This was a slight improvement on the previous 12 months but still demonstrates that there is room for improvement in this area. Further to this, there was an increase in the number of departments not having local guidance in place or those that did not follow one.

Recommendation:

EDs should develop improvement projects for this chart. EDs without any local guidelines should consider developing these so evidenced based care is provided. In cases where guidelines exist but are not being followed, departments should look to identify any barriers and determine influences to improve adherence.



Pain in Children V2 – Why initial analgesia was not administered in the ED

100% is not achieved as 65.77% received analgesia, and the remaining 44.23% are represented in this graph. Not accepted (5%), No – Was administered pre-hospital (12%), No – the analgesia was contraindicated (0.06%), No – no reason documented (15%), No – another reason was recorded (2%)

Sample: All patients (n = 17,985)

What questions were used for this analysis?

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

Commentary:

15% of children had no documented reason for not receiving analgesia in the ED. This is an increase from the interim report where it was 7.3%. Documenting why analgesia has not been given is key in identifying potential areas of improvement, and identifying current barriers that exist.

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.

Standard 3



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



Sample: Patients presenting with severe or moderate pain. Severe cases: 382 met standard out of 802 (48%), moderate: 588 met standard out of 1361 (48%). These percentages have a mean of 45% as indicated in the graph.

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:

The interim report demonstrated a mean of only 12% which was similar to the previous years. This is the first time there has been a significant improvement in this standard, with 45% of patients in moderate or severe pain had their pain reevaluated within 60 minutes of having received their first dose of analgesia. The last data point probably was likely secondary to large data entry just prior to closure of the QIP and is also seen in previous graphs.

Between July 2022 and August 2022 there appears to be a sustained shift in data points above the mean. This trend needs to be compared to locally and, if mirrored, the cause interrogated further.

Re-evaluation is vital as it helps provide better patient care and improves patient experience. Re-evaluation also helps revisit appropriateness of initial analgesia provided and governance issues identified around this like training of clinicians for blocks, splint availability and its application along with appropriate analgesic provision based on pain score.

Recommendation:

EDs should be looking to take advantage of every opportunity to re-evaluate pain i.e., set of obs, clinical assessments, following interventions such as casts and splints – these should all be considered as opportunities for re-assessment and re-evaluation of pain. Units could also look at data separately for reassessment of children presenting with severe pain vs moderate pain, to help guide improvement interventions.

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 the nursing staff. Parents/carers should be encouraged to inform staff how comfortable their child is, following analgesia provision. Documenting this is vital.

Pain in Children V2 – Patients with severe or moderate pain who had re-evaluation of their pain



netsolving.com

Sample: Patients who had re-evaluation of their severe or moderate pain. Severe cases: 895 met standard out of 1070 (84%), moderate: 1936 met standard out of 2593 (75%). These percentages have a mean of 78% as indicated in the graph.

What questions were used in this graph?

Q2.1: Was pain assessed on arrival (within 15 minutes of arrival or triage, whichever is earlier).

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

Q2.4: Was pain re-assessed in the ED? *

*Excluding any cases that selected 'not recorded', 'not able to re-assess pain', or 'patient left ED'.

Commentary:

This chart was introduced following the interim report in order to capture the proportion of patients with an initial moderate to severe pain recorded, who then had their pain re-evaluated whilst still in the ED. The purpose of the new chart was to find out if these patients had any pain re-assessment at all (without the limitation of 60 minutes), given that their initial pain score was moderate or severe.

78% of patients who had their initial pain triaged as moderate or severe had their pain reassessed during their stay in ED. The last data point appears to be an anomaly and could be attributed to large data entry just prior to closure of the QIP. Without any further data it is difficult to comment on this.

A period of sustained improvement was seen between May 2022 and June 2022. Between July 2022 and August 2022 there appears to be a sustained shift in data points above the mean, which is also seen in the previous graph. The cause for both these trends ought to be explored further locally.

Recommendation:

This new chart shows that a reasonable proportion of children presenting with moderate or severe pain, were having their pain reassessed during their stay in ED. Moving forward, units might want to consider if they are performing well in terms of reassessment of pain in general first before looking at reassessment of pain 'in 60 minutes' – which certainly is the target that we should strive towards, eventually. The College also recommends capturing data on further course of action once pain has been re-evaluated.

Pain in Children V2 – Was a second dose of analgesia administered in the ED?



Sample: Patients presenting with severe or moderate pain (severe: 3517, moderate: 8327)

What questions were used for this analysis?

Q2.5: Was a second dose of analgesia administered in the ED?

Commentary:

There has been a change in wording between the interim report and this final report, as it was felt that the "not recorded" from the interim report may represent instances where additional analgesia was not required as pain was now controlled. In this graph, the "not offered" (67.4%) area is similar to the total of "not offered" and "not recorded" area (19.4% and 50.0% respectively, total 69.4%) of the 2020/21 interim report, suggesting no significant improvement in provision of additional analgesia has been made.

A non-significant increase in the number of patients requiring additional analgesia was shows (24.5% in interim 2020/21 report to 25.4%, including those requiring additional analgesia and those not accepting that additional analgesia). This was accompanied with a near doubling of patients not accepting analgesia (1.2% interim 2020/21 report to 2.6%).

The 67% of patients who were not offered a second dose of analgesia, included those whose pain had been reduced to mild through the provision of initial analgesia.

Recommendation:

Every available opportunity should be taken to assess and reassess pain. Clearer recording of data on patients who did not require additional analgesia as their pain was now controlled, would allow for better understanding of the subset of patients who were not offered further analgesia.

Pain in Children V2 - Discharge analgesia advice given



(For the time period: 10441 records conforming to standard; from a total of 17988 eligible.)

Discharge analgesia advice given

netsolving.com

Sample: All patients (n = 17,985)

What questions were used for this analysis?

Q2.8: Was discharge analgesia advice given?

Commentary:

Over this time period, no significant improvement was demonstrated. There is a general trend in reduction of provision of discharge advice for the periods October to December 2021, and July to September 2022. This may be due to volume of attendances over school winter and summer holidays. There was a non-significant improvement in the mean of patients being given discharge advice (53% interim 2020/21 report to 58%), showing consistency despite service pressure.

The last data point appears to be an anomaly and could be attributed to large data entry just prior to closure of the QIP. As in other charts, without any further data it is difficult to comment on this.

Limited deviation from the mean suggests consistent practice, with over half of all patients receiving discharge advice when leaving. This does not mean however, that there are not steps that can be taken to improve performance against this metric.

Recommendation:

Provision of appropriate advice on discharge is hugely important, as without advice on what and when analgesia should be administered, it is difficult for parents/guardians to manage pain at home. Departments should consider ways to streamline the process of discharge advice: generic advice may be provided via QR code and specific advice may be provided via leaflet, where nursing staff can include timings of hospital administered analgesia.



Pain in Children V2 - Patient ethnicity

Sample: All patients (n = 17,985)

What questions were used for this analysis?

Q1.4: Ethnic category

Commentary:

In approximately one fifth 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. There may also be a need to locally explore reasons why specific ethnicities do not get timely analgesia e.g., communication barrier and other local factors.

A Positive Patient Journey

Daniel (anonymised) is a 7-year-old boy with known sickle cell disease. Daniel's family had recently moved to the UK from Kenya about 2 years ago. He suffers from sickle cell crisis and has had many hospital presentations in crisis. He had a similar episode and was brought into the ED by his mother in severe pain and distress.

The triage nurse who initially assessed Daniel had documented a pain score and asked for appropriate analgesia to be prescribed. Daniel was placed in one of the side rooms, had bloods taken and had one of the play specialists assigned specifically to him. Daniel's pain was reassessed in 15 minutes and 60 minutes. His pain score was also assessed and documented every time he had his vital signs taken.

Appropriate analgesia was offered according to pain score and he was subsequently transferred to the ward after pain control and initial treatment.

The following was the PALS Feedback from Daniel's family:

"It has been quite distressing to watch Daniel in severe pain when he has his bouts of crisis, as he had struggled a lot with this. The last time he had crisis that brought him to A/E, He was prioritized as the nurse that initially attended to him asked about the pain and gave him pain relief almost immediately. We also had L, a play specialist who was assigned to us and kept checking him for pain. The constant checks made us feel very well cared for, especially the fact that they kept his pain under control before he was moved to the ward."

Celebrating Excellence

RCEM would like to acknowledge and celebrate the emergency departments that showed the best overall improvement per standard. Using this, we hope to explore best practices implemented in various departments and share any advice, resources, and tools nationwide.

We investigated by splitting the study data into 3 distinct time periods: the start, middle and end of the QIP study period, consisting of 120 days each with a minimum of 60 data entries within the study period. The average of each period was calculated as a percentage between the first and third period.

Standard 1: Pain is assessed immediately upon presentation at hospital within 15 minutes of arrival or triage (whichever is earlier).

- 1) Barnet Hospital percentage improved: 100%
- 2) Pinderfields Hospital percentage improved: 94%
- **3)** Epsom Hospital percentage improved: 79%

Standard 2 (moderate pain): Patients in moderate pain (e.g., pain score 4-6) should receive appropriate analgesia within 30 minutes (fundamental standard), unless there is a documented reason not to.

- 1) Basildon University Hospital percentage improved: 52%
- 2) The County Hospital (Wye Valley NHS Trust) percentage improved: 51%
- 3) Craigavon Area Hospital percentage improved: 49%

Standard 2 (severe pain): Patients in severe pain (e.g., pain score 7 to 10) should receive appropriate analgesia within 30 minutes (fundamental standard), unless there is a documented reason not to.

- 1) Northampton General Hospital percentage improved: 63%
- 2) Medway Maritime Hospital percentage improved: 54%
- **3)** University Hospital Coventry percentage improved: 46%

Standard 3: Patients with moderate or severe pain should have documented evidence of re-evaluation of pain within 60 minutes of receiving the first dose of analgesic.

- 1) The Royal Oldham Hospital percentage improved: 54%
- 2) Bradford Royal Infirmary percentage improved: 17%
- 2) Stepping Hill Hospital percentage improved : 17%

Discussion

Summary

This QIP has accumulated **17,985** individual cases from **149** EDs nationwide. Of the main standards addressed nationally, the results show:

- A light fall in performance with regards to standard 1 and 2 as compared to the interim report
- Significant improvement, for the 1st time, in standard 3
- Additional data showed that a reasonable proportion of children had their pain level reassessed during their stay in ED

Individual departments will have varying results that they will need to analyse and benchmark against national results. The emphasis remains on improving locally. Some areas may well be high performing and focus in these areas must sustainability. Departments performing above the national mean are encouraged to share their work (case studies / posters), by emailing the <u>Quality</u> <u>Team.</u> For departments performing below the national standards, priority should be given to undertaking improvement work to address these areas. Ideas and inspiration for interventions can be sought through the work shared by the trusts featured in the 'Celebrating Excellence' section above.

The results of this QI project should be shared widely with staff who have a responsibility for looking after children presenting with pain, especially the doctors and nurses directly involved in care provision. In addition to the clinical team, RCEM recommends sharing the report with the quality improvement department, at departmental governance meeting, ED Clinical Lead, and ED Matron as a minimum. Without having visibility of the data and recommendations, we cannot expect to see improvements in practice.

Limitations

For the purposes of this QIP, the following patient populations were excluded:

• Children aged 4 or under

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

There is no RCEM control over the quality of the interventions as they are locally owned.

Data excluded post-validation

The data used to create the charts in this report contains only the cases that have been submitted within the data entry period. The records submitted were also validated to ensure poor quality data was excluded to prevent distortion of the means and charts. Some of the cases submitted during the data collection period have been removed due to incomplete information and data entry errors that were not identified by the data entry system.

Conclusion

As the college moves towards addressing other key topics for improvement, the national QI platform for PIC will be closed with the completion of this cycle. RCEM would like to extend thanks to all the individuals and EDs who participated in this QIP. By participating, you have made the first step to making sustainable changes in care. A lot of you have made many more steps depending on how extensively you made use of the QI tools available.

RCEM now has a picture of national and local level performance, which is showing that there are areas where care provided has improved significantly (standard 3). However, there is still scope for improving care especially when it comes to early pain assessment and provision of appropriate analgesia in a timely manner for children in moderate and severe pain.

We strongly encourage units to continue improvement work locally and monitor performance against National Standards and Best Practice Guidelines. Stepping into the emergency department can often be a daunting experience for our "little patients". The best way to earn their trust, get them comfortable, and allay the fears of accompanying anxious parents, is to address their pain effectively and in a timely manner. Let's strive to continue to work on improvement initiatives to convert their cries to a smile as present to the emergency department in pain.

Recommendations – Patient level

- Patients should receive discharge advice that includes type and timing of analgesia to be taken
- Patients should be encouraged to alert the medical or nursing team if they continue to be in pain

Recommendations – Organisational level

- A review of demographics will be beneficial by individual trusts to determine factors involved in delayed administration of analgesia
- Training nursing staff appropriate means of pain assessment and timely administration of analgesia during triage
- Making appropriate analgesia PGDs available
 to nursing staff
- Training and retraining of clinicians on administering analgesia including nerve block
- ED's should explore reasons for delay between triage time and actual analgesia administration.

 Organisations should endeavour to upskill staff in QI tools and Methodology, to ensure that where performance is found to be sub-optimal that there is QI capacity in place to make improvements

Recommendations – National level

- Increasing the length of programme development and quality assurance prior to platform build
- Improve piloting methodology and platform testing prior to the launch of the programme.
- Early review of data after launch and updates to the survey and platform
- Build into the platform stronger protections against the entry of data that is likely inaccurate e.g., due to typos or misunderstanding of the question
- Develop a national network to promote best practice sharing during the QIP cycle
- Make a commitment to ensure that the ethnicity data being collected, is utilised in highlighting where health inequalities may exist in the treatment of children attending an ED

For further QI advice and resources, please visit the <u>RCEM Quality Improvement webpage</u>

Report authors and contributors

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

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Distribution

The QIP was included in the NHS England Quality Accounts list for 2020/2021 and 2021/2022.

Feedback

We would like to know your views about this report and participating in this QIP. Please let us know what you think by completing our feedback survey: <u>https://www.surveymonkey.co.uk/r/RCEM_QIP19</u>

Further Information

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

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

Details of the RCEM clinical audit and national QIP Programme can be found under the <u>Current QIPs section</u> of the RCEM website.

Useful Resources

- Site-specific report available to download from the <u>QIP portal</u> (registered users only)
- Online dashboard charts available from the <u>QIP portal</u> (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 <u>QIP portal</u> (registered users only)
- Guidance on understanding SPC charts
- <u>RCEM Quality Improvement Guide</u> guidance on PDSA cycles and other quality improvement methods
- Further information on Pain in Children is available from RCEM Learning here.

Appendices

Appendix 1: Glossary of terms and abbreviations

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 2: Inclusion and exclusion

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 4 October 2021 3 October 2022



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 3: Participating Emergency Department

England

Addenbrooke's Hospital Airedale General Hospital Alexandra Hospital Arrowe Park Hospital **Barnet Hospital Barnsley Hospital Basildon University Hospital** Basingstoke and North Hampshire Hospital **Bassetlaw Hospital Bedford Hospital Birmingham City Hospital** Blackpool Victoria Hospital Bradford Royal Infirmary Broomfield Hospital Calderdale Royal Hospital **Cheltenham General Hospital** Colchester Hospital Conquest Hospital **Countess of Chester Hospital** Cumberland Infirmary **Darent Valley Hospital** Dewsbury and District Hospital Diana, Princess of Wales Hospital **Doncaster Royal Infirmary** East Surrey Hospital Eastbourne District General Hospital Epsom Hospital Fairfield General Hospital Frimlev Park Hospital Furness General Hospital George Eliot Hospital Gloucestershire Royal Hospital Great Western Hospital Hillingdon Hospital Hinchingbrooke Hospital Homerton University Hospital Huddersfield Royal Infirmary Hull Royal Infirmary **Ipswich Hospital** James Cook University Hospital James Paget Hospital Kettering General Hospital King George Hospital King's College Hospital (Denmark Hill) King's Mill Hospital Kingston Hospital Leighton Hospital Lincoln County Hospital Lister Hospital Luton & Dunstable University Hospital Medway Maritime Hospital Milton Keynes University Hospital Musgrove Park Hospital New Cross Hospital Newham University Hospital

Norfolk and Norwich University Hospital North Devon District Hospital Northampton General Hospital Northwick Park Hospital Ormskirk & District General Hospital Peterborough City Hospital Pilgrim Hospital Pinderfields Hospital Poole General Hospital Princess Alexandra Hospital Princess Royal University Hospital (PRUH) Queen Alexandra Hospital Queen Elizabeth Hospital (Gateshead) Queen Elizabeth The Queen Mother Hospital Queen's Hospital (RBH) Rotherham District General Hospital Royal Berkshire Hospital Royal Blackburn Teaching Hospital Royal Bolton Hospital Royal Bournemouth Hospital Royal Cornwall Hospital Royal Derby Hospital Royal Hampshire County Hospital Royal Preston Hospital Royal Shrewsbury Hospital Roval Stoke University Hospital Royal Surrey County Hospital Royal United Hospital Royal Victoria Infirmary Russells Hall Hospital Salisbury District Hospital Sandwell General Hospital Scarborough Hospital Scunthorpe General Hospital Southmead Hospital St George's Hospital (Tooting) St Helier Hospital St Mary's Hospital (Isle of Wight) St Mary's Hospital (Imperial) St Peter's Hospital St Richard's Hospital Stepping Hill Hospital Stoke Mandeville Hospital Tameside General Hospital The County Hospital The County Hospital (Wye valley NHS Trust) The Maidstone Hospital The Princess Royal Hospital (Shrewsbury and Telford) The Queen Elizabeth Hospital (King's Lynn) The Royal Free Hospital The Royal Lancaster Infirmary

The Royal London Hospital The Royal Oldham Hospital The Tunbridge Wells Hospital **Torbay Hospital** University Hospital Coventry University Hospital of North Durham University Hospital of North Tees Walsall Manor Hospital Warwick Hospital Watford General Hospital West Cumberland Hospital West Middlesex University Hospital West Suffolk Hospital Wexham Park Hospital Whiston Hospital Whittington Hospital William Harvey Hospital Worcestershire Royal Hospital Worthing Hospital Wythenshawe Hospital Yeovil District Hospital York Hospital

Northern Ireland

Craigavon Area Hospital Daisy Hill Hospital Ulster Hospital

Scotland

University Hospital Hairmyres Royal Aberdeen Children's Hospital University Hospital Wishaw

<u>Wales</u>

Glan Clwyd Hospital Morriston Hospital Prince Charles Hospital Princess of Wales Hospital Royal Glamorgan Hospital Wrexham Maelor Hospital Ysbyty Gwynedd hospital

Crown Dependency

The Princess Elizabeth Hospital (Guernsey) St Mary's Hospital (Isle of Wight)

Appendix 4: 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.

RCEM strive to collect, use and disclose personal information in a manner consistent with UK and European law and under the General Data Protection Regulation (GDPR). This Privacy Policy states the principles that RCEM follows and by accessing or using the RCEM site you agree to the terms of this policy.

For further information, click *here*.

Terms of website use For further information, click <u>here</u>.

Website acceptable use policy For further information, click <u>here</u>.

Appendix 5: References

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- 13. Wong-Baker Faces Pain Scale. Adapted from Whaley L, Wong DL. Nursing care of infants and children.
- 14. List of <u>ethnic groups</u> for data collection.

Appendix 6: 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 this form by scanning the QR code or complete <u>here</u>.



Appendix 7: Pilot sites

A pilot of the QIP was carried out from the 9^{th} of October 2021 – 20^{th} of October 2021. 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:

Chelsea and Westminster Hospital NHS Foundation Trust Homerton University Hospital NHS Foundation Trust Hull University Teaching Hospitals NHS Trust Leeds Teaching Hospitals NHS Trust Queen Elizabeth Hospital Kings Lynn NHS Trust Royal Belfast Hospital for Sick Children St Helens and Knowsley Teaching Hospitals NHS Trust Stockport NHS Foundation Trust Worcestershire Acute Hospitals NHS Trust

Appendix 8: 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 will 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.



6. 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 hashappened. 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 9: 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) EnhancedTechnical Output Specification v3.0.

QIP	ECDS data item		ECDS national code		National code definition		Notes
question	name						
Q1.1 Date and time of arrival or	EMERGENCY C ARRIVAL DATE	ARE	an10 CCYY-MM-DD		Date		
triage – whichever is earlier	EMERGENCY C ARRIVAL TIME	ARE	an8 HH:MM:SS		Time		
Q1.3. Age of patient	AGE AT CDS ACTIVITY DATE		N/A		N/A		
•	ETHNIC CATEG	ORY	A		White British		
			В		White Irish		
			С		Any other white background		
			D		White and Black Caribbean		
			E		White and Black African		
			F		White and Asian		
			G		Any other mixed background		
			Н		Indian		
Q1.4 Ethnic			J		Pakistani		
category			K		Bangladeshi		
			L		Any other Asian background		
			М		Caribbean		
			N		African		
			Р		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	Does not directly	map to a	an ECDS code	_			
pain assessed on arrival (within							
15 minutes							
of arrival or							
triage, whichever is							
earlier)							
Q2.2 Was a validated	Does not directly	map to a	an ECDS code				
pain							
tool used?							
Q2.3 Was	1135110000		Analgesia		Anaesthesia: local anaesthetic	-	Treatments

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analgesia administered in the ED?	1135210000 1135410000 1135610000	Analgesia Analgesia Analgesia	Anaesthesia: Entonox Anaesthesia: regional block	field: Medication including date time
				stamp is in ECDS, so could get date/time for first medication

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

Appendix 10: Calculations and data analysis

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 (within 15 minutes of arrival or triage, whichever is earlier)	Q1.2 and Q2.1	All records	Chart: SPC Analysis: Q2.1 – Q1.2 < = 15 min (met) Q2.1 – Q1.2 > =15 min (fail)
[2] Administration of analgesia to patients in severe pain	Q1.2, Q2.1, Q2.3	Q2.1 = Severe (7-10)	Chart: SPC Analysis: <u>Q2.3</u> = Yes AND <u>Q2.3 - Q1.2</u> < = 30min AND >20min (D) OR <u>Q2.3 - Q1.2</u> < = 60 min AND >30min (F)
[2] Administration of analgesia to patients in moderate pain	Q1.2, Q2.1, Q2.3	Q2.1 = Moderate (4- 6)	Chart: SPC Analysis $\underline{Q2.3} = Yes AND$ $\underline{Q2.3 - Q1.2} < = 30min AND > 20min$ (D) OR $\underline{Q2.3 - Q1.2} < = 60min AND > 30min$ (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, Q2.4	Q2.1= Moderate (4-6) Severe (7-10)	Chart: SPC Analysis: Q2.1= Yes AND Q2.1 – Q1.2 <= 60min AND >30min (F)

