Pain in the ED – does anyone manage it well?

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Introduction

Most patients presenting to the Emergency Department (ED) are in pain but previous work from the UK has shown that this is often not asked about, recorded, or treated effectively [1]. The Royal College of Emergency Medicine (RCEM) Best Practice Guidelines (BPG) on Management of Pain in Adults [2] and Children [3] advocate recording a pain score, delivering timely and adequate analgesia, then assessing the response. These guidelines recognise that pain management in the ED can be challenging and identify key barriers to the effective delivery of analgesia in the ED [4]. Based on previous work [1, 5, 6] that showed significant variation in pain management between EDs, this study aimed to identify EDs that perform consistently well in the management of pain so that others could learn from positive outliers.

Methods

The study was a secondary analysis of national RCEM data from audits reporting pain related outcomes (hip fracture and pain in children) in two time periods. UK EDs opt-in each year to provide data. Characteristics of audits and findings are described in table 1 for each topic alongside further description of the national datasets. EDs were only included if they submitted data for ≥10 patients to RCEM. We defined successful pain management according to standards set out in the RCEM BPGs: pain scoring within 15 minutes of ED arrival <u>and</u> the provision of analgesia within 30 minutes. EDs were then ranked in descending order of the proportion of cases receiving successful pain management. The highest performing EDs were compared to identify those that ranked highly across both time periods. We also report the proportion of patients who received analgesia at any time in the ED.

Table 1: Characteristics and findings from RCEM national datasets

Title	Data collection period	Inclusion criteria	Exclusion	Sampling	No. EDs reporting ≥10 cases.	% EDs meeting the standards* in ≥50% of cases	% patients receiving any analgesia whilst in ED
Pain in children audit	1st Jan 2017 – 31st Dec 2017	Aged 5-15y (inclusive) with a long bone fracture causing moderate or severe pain	Mild or no pain	Consecutive sample of cases (all/50/100) based on expected eligible numbers of <50/ 50-250/ >250 respectively seen within the data collection period	189 (range: 10-126 returns per ED)	22 (12%)	8440/12576 (67%)
Hip fracture audit	1st Jan 2017 – 31st Dec 2017	Adults (≥18y) who presented to ED with a fractured neck of femur.	Multiple injuries or other reason requiring resuscitation	As per 2017 Pain in children audit	185 (range: 10-234 returns per ED)	1 (<1%)	9609/12814 (75%)
Pain in children QIP^	5th Oct 2020 – 3rd Oct 2021	As per 2017 audit above	As per 2017 audit plus dislocation with no fracture	5 eligible cases/week and data entered at least monthly	150 (range: 11-561 returns per ED)	23 (15%)	16548/19769 (84%)
Hip fracture QIP	5th Oct 2020 – 2nd Apr 2021	As per 2017 audit, plus fracture visible on plain radiograph alone.	As per 2017 audit	As per 2020/21 Pain in children QIP	159 (range: 10-216 returns per ED)	0 (0%)	12597/14263 (88%)

^QIP Quality Improvement Project

* pain scoring within 15 minutes of ED arrival and the provision of analgesia within 30 minutes

Results

Across the four datasets (two topics for two separate time periods) there were records for 59,422 patients ranging from between 150 and 189 EDs, representing all areas of the United Kingdom (Table 1). The proportion of patients receiving any analgesia whilst in the ED improved from 2017 to 2020/21. However, the proportion of EDs that were able to meet the standards for over half their patients was very low (15% and below), with this proportion being much worse for adults with hip fracture (<1%) than for children with fractures (15%). Table 2 shows the rankings of hospitals (anonymised) that were ranked in the top ten for any of the four datasets. It demonstrates little consistency of hospital performance, either over time or between populations. Considering hospitals who see only adults or only children, there were none who ranked highly for both time periods, although not all submitted data in both time periods.

Table 2: Ranking of EDs (anonymised) for each dataset showing little consistency of performance, either over time or between populations. Grey shading represents top 10 ranking.

Emergency Department	Ranking for:			
	Pain in children 2017-18	**Pain in children 2020-21**	**Hip fracture 2017-18**	**Hip fracture 2020-21**
AA	9	43	84	35
AB	78	51	125	6
BB	7	7	52	80
BC	84	28	4	118
CC	64	72	69	3
CD	1	NA	2	NA
DD	45	130	11	8
DE	133	11	38	5
EE	88	NA	8	NA
EF	141	110	74	1
FF	152	73	20	8
FG	19	108	125	2
GG	141	9	125	118
GH	72	80	3	64
HH	18	31	93	8
HJ	5	3	131	80
JJ	152	NA	9	NA
JK	105	9	NA	35
KK	13	4	93	96
KL	10	1	48	118
LL	152	126	131	6
LM	98	106	46	8
MM	45	56	38	4
NN	54	129	6	118
PP	2	5	54	20
QQ*	152	8	NA	NA
RR	69	NA	1	118

SS	4	NA	5	NA
TT	152	6	131	20
UU	7	NA	6	20
VV	6	147	38	20
WW^	NA	NA	10	118
XX^	NA	NA	19	8
YY*	3	NA	NA	NA
ZZ*	150	2	NA	NA

* No adult data submitted
^ No paediatric data submitted

Discussion

No ED performed consistently well in such a way that they could be identified as a positive outlier worthy of emulation. A disappointing proportion of EDs were able to meet the definition of successful pain management for even half of their patients. These findings suggest that pain is not sufficiently assessed or managed in UK EDs.

Although two thirds of patients did receive some analgesia whilst in ED, in many cases this was not administered promptly and its adequacy is unknown in the absence of reassessment. Pain management in children with fractures was more reliable than for adults with hip fracture.

The strength of this study was the use of contemporary datasets from a large sample of UK EDs. Limitations include minor changes in methodology between the time periods and reliance upon accurate data submission by individual sites.

In conclusion, we were unable to identify any ED that performed consistently well in the assessment and management of pain. Prompt and effective pain management should be a focus for further research and quality improvement in UK acute care.

Competing interests: The RCEM grant supported JD for statistical input to this project. There are no other competing interests to declare.

Ethics: Secondary analysis of data pseudoanonymised by a third party and so not requiring ethics approval according to the NHS Health Research Authority Governance arrangements for research ethics committees (GAfREC):
https://www.hra.nhs.uk/documents/1958/GAfREC_Final_v2.0_26.03.2020.pdf.

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