The College of
Emergency Medicine

CEM Clinical Audits 2012-13

Fractured Neck of Femur

Introduction

This report shows results from an audit of the treatment of patients presenting to Emergency Departments (EDs) with a fractured neck of femur (#NOF) against the clinical standards set by the College of Emergency Medicine (CEM) Clinical Effectiveness Committee (CEC). It compares your department with others that made audit returns and also against performance in previous audits.
Nationally, 7964 cases from 171 EDs (89% of relevant EDs in England) were included in the 2012-13 audit.

The CEM standards – Fractured Neck of Femur

1 Patients in severe pain (pain score 7 to 10) should receive appropriate analgesia, according to local guidelines:
50% within 20 minutes of arrival or triage whichever is the earliest.
75% within 30 minutes of arrival or triage whichever is the earliest.
98% within 60 minutes of arrival or triage whichever is the earliest.

2 Patients with moderate pain (pain score 4 to 6) should be offered or receive analgesia, according to local guidelines:

75% within 30 minutes of arrival or triage whichever is the earliest.
98% within 60 minutes of arrival or triage whichever is the earliest.

3 75% of patients should have an X-ray within 60 minutes of arrival or triage whichever is the earliest.

4 98% of patients should be admitted within 4 hours of arrival.

The audits

This audit of treatment of patients with a fractured neck of femur was first conducted in 2004 and was repeated in 2005, 2007, 2008 and 2009. It is one of three CEM clinical audit topics for 2012, the others being feverish children and renal colic.

In August 2012 letters were sent to nominated Consultant contacts and Audit Departments in each hospital asking them to participate in the latest round of audits. Audit tools were made available on the CEM website and sent directly by e-mail.

Participants were asked to collect data from ED notes on 50 or more patients arriving by ambulance presenting with a fractured neck of femur. The audit tool summarised the data entered automatically. The summaries were then e-mailed to the CEM for analysis.
It should be noted that from 2012 (including this audit) all data collected is shared with the Care Quality Commission (CQC) and placed in the public domain.

The format of this report

Tables 1 & 2 overleaf show your ED's audit results (in the bright yellow cells). Comparative results from previous audits are shown alongside (italicised in the paler shaded cells). National results are also shown (in the cells shaded blue) so that EDs can consider their performance against that of other departments.

By showing the lower and upper quartiles of performance as well as the median values, the table indicates the variations in performance between less well and better performing departments.

More detailed information about the distributions of key audit results and contextual information can be obtained from the charts on subsequent pages of the report. Please bear in mind the comparatively small sample sizes when interpreting the charts and results.

Results for this department since 2004

The CEM Fractured Neck of Femur Audit is now in its sixth round. The table below shows your department's results for each round in which it participated. It also includes national results for 2012 (in the cells shaded blue) so that EDs can consider their performance against that of other departments. The table on the next page summarises the national results for each round of the audit.

TABLE 1: Comparison of 2012 Fractured Neck of Femur Audit results against previous years

Chart No.		CEM Standard	National Results 2012			Results for this department					
			Lower quartile	Median ✠	Upper quartile	2012	2009	2008	2007	2005	2004
	How promptly after arrival was analgesia provided? (%)										
1 & 2	None in ED due to pre-hosp admin		0%	2%	6%	*	*	*	*		
	Within 20 minutes		8%	12%	20%	*	*	*	*	*	*
	Within 30 minutes		14%	20%	28%	*	*	*	*	*	*
	Within 60 minutes		32%	40%	51%	*	*	*	*	*	*
	How promptly after arrival was analgesia provided for patients in severe pain? (% relevant pts)										
	None in ED due to pre-hosp admin		0%	0%	0%	*	*	*	*		
	Within 20 minutes	50%	7%	15%	29%	*	*	*	*	*	*
	Within 30 minutes	75%	17%	29%	43%	*	*	*	*	*	*
	Within 60 minutes	98%	43%	56%	71%	*	*	*	*	*	*
	How promptly after arrival was analgesia provided for patients in moderate pain? (% relevant pts)										
	None in ED due to pre-hosp admin		0%	0%	7%	*	*	*	*		
	Within 20 minutes		4%	13%	21%	*	*	*	*		
	Within 30 minutes	75%	11%	22%	33%	*	*	*	*		
	Within 60 minutes	98%	30%	43%	60%	*	*	*	*		
	Was analgesia provided in accordance with need? (% of pts)										
3&4	Pain score recorded		50%	72%	84%	*	*	*	*	*	*
	Analgesia accepted		68%	76%	84%	*	*	*	*	*	*
5&6	In accordance with guidelines - wholly		40%	67%	84%	*	*	*	*	*	*
	In accordance with guidelines - wholly or partly		59%	78%	88%	*	*				
	Not offered, no reason recorded		2%	6%	12%	*	*	*	*		
	Provision of analgesia - context (%)										
7	Severe pain		21%	30%	42%	*	*	*	*	*	*
	Severe or moderate pain		52%	64%	76%	*	*	*	*		
8	Ambulance notes available		70%	88%	98%	*	*	*	*		
9	Pre-hospital analgesia given		42%	52%	66%	*	*		*		
	How soon was analgesia re-evaluated? (%)										
	Within 30 minutes		0%	4%	8%	*	*				
	Within 1 hour		4%	8%	16%	*	*				
10	Within 2 hours		8%	16%	28%	*	*				
11	Any time		19%	32%	48%	*	*				
	How soon was analgesia re-evaluated for patients in severe pain? (% relevant pts)										
	Within 30 minutes		0%	0%	13%	*	*				
	Within 1 hour		0%	14%	22%	*	*				
11	Within 2 hours		13%	24%	45%	*	*				
	How soon was analgesia re-evaluated for patients in moderate pain? (% relevant pts)										
	Within 30 minutes		0%	0%	9%	*	*				
	Within 1 hour		0%	7%	22%	*	*				
11	Within 2 hours		9%	19%	33%	*	*				
	Time to imaging and admission (%)										
12	X-ray within 30 minutes		4%	10%	22%	*	*				
	X-ray within 60 minutes	75%	29%	44%	58%	*	*	*	*	*	*
	X-ray within 2 hours		74%	83%	90%	*	*				
13	Admitted within 2 hours		0%	4%	10%	*	*	*	*	*	*
	Admitted within 4 hours	98%	73%	86%	92%	*	*	*	*	*	*
	Time from arrival to surgery (% of those patients for whom data was available)										
14	Same or next day		60%	76%	84%	*	*	*	*		
	2 days		85%	94%	97%	*	*	*	*		
	3 or more days		3%	6%	15%	*	*	*	*		

✠ The median value of each indicator is that where equal numbers of participating EDs had results above and below that value.
These median figures may differ from the "national" results quoted in the body of this report which are the mean values for all audited patients.

* Departments that audited less than 5 **relevant** cases are excluded.

Summarised National Results since 2004

The table below summarises the national results for the 2012 audit alongside those for previous rounds to show how performance has changed. It suggests that not all of the improvements achieved between 2004 and 2007 have been sustained. By showing the lower and upper quartiles of performance as well as the median values, the table indicates the wide variations in performance that still exist between less well and better performing departments.

TABLE 2: National results: 2004 to 2012

	CEM Standard	Lower Quartile						Median ✠						Upper Quartile					
		2012	2009	2008	2007	2005	2004	2012	2009	2008	2007	2005	2004	2012	2009	2008	2007	2005	2004
How promptly after arrival was analgesia provided? (%)																			
None in ED due to pre-hospital admin		0%	0%	2%	0%			**2%**	2%	6%	3%			6%	6%	14%	10%		
Within 20 minutes		8%	10%	12%	10%	7%	6%	**12%**	14%	18%	19%	13%	10%	20%	20%	27%	27%	21%	17%
Within 30 minutes		14%	16%	21%	20%	14%	13%	**20%**	22%	28%	28%	27%	19%	28%	32%	38%	38%	37%	27%
Within 60 minutes		32%	36%	40%	41%	35%	33%	**40%**	46%	50%	53%	53%	43%	51%	56%	60%	60%	63%	57%
How promptly after arrival was analgesia provided for patients in severe pain? (% relevant pts)																			
None in ED due to pre-hospital admin		0%	0%	0%	0%			**0%**	0%	0%	0%			0%	0%	9%	0%		
Within 20 minutes	50%	7%	10%	12%	10%	9%	10%	**15%**	17%	24%	21%	20%	17%	29%	30%	40%	37%	34%	24%
Within 30 minutes	75%	17%	20%	24%	20%	34%	18%	**29%**	33%	40%	40%	43%	30%	43%	50%	56%	59%	53%	45%
Within 60 minutes	98%	43%	50%	57%	57%	63%	45%	**56%**	67%	67%	71%	77%	66%	71%	75%	82%	86%	88%	75%
How promptly after arrival was analgesia provided for patients in moderate pain? (% relevant pts)																			
None in ED due to pre-hospital admin		0%	0%	0%	0%			**0%**	0%	4%	0%			7%	4%	12%	9%		
Within 20 minutes		4%	0%	10%	7%			**13%**	13%	17%	17%			21%	23%	35%	29%		
Within 30 minutes	75%	11%	14%	18%	17%			**22%**	22%	27%	29%			33%	40%	42%	42%		
Within 60 minutes	98%	30%	36%	40%	43%			**43%**	50%	54%	55%			60%	67%	70%	67%		
Was analgesia provided in accordance with need? (% of pts)																			
Pain score recorded		50%	40%	36%	33%	19%	7%	**72%**	62%	66%	65%	42%	28%	84%	82%	82%	87%	73%	70%
Analgesia accepted		68%	73%	68%	70%	73%	73%	**76%**	80%	77%	79%	81%	80%	84%	86%	85%	85%	90%	88%
In accordance - wholly		40%	51%	56%	53%	62%	43%	**67%**	72%	72%	70%	79%	70%	84%	84%	78%	80%	90%	83%
with guidelines - wholly or partly		59%	68%					**78%**	82%					88%	90%				
Not offered, no reason recorded		2%	2%	2%	0%			**6%**	6%	4%	3%			12%	10%	8%	8%		
Provision of analgesia - context (%)																			
Severe pain		21%	22%	18%	15%	23%	14%	**30%**	35%	35%	28%	43%	28%	42%	48%	45%	44%	53%	41%
Severe or moderate pain		52%	56%	57%	53%			**64%**	69%	70%	67%			76%	80%	83%	79%		
Ambulance notes available		70%	64%	51%	49%			**88%**	88%	85%	80%			98%	94%	96%	93%		
Pre-hospital analgesia given		42%	30%		10%			**52%**	40%		19%			66%	50%		30%		
How soon was analgesia re-evaluated? (%)																			
Within 30 minutes		0%	0%					**4%**	2%					8%	6%				
Within 1 hour		4%	2%					**8%**	8%					16%	13%				
Within 2 hours		8%	6%					**16%**	14%					28%	26%				
Any time		19%	12%					**32%**	26%					48%	40%				
How soon was analgesia re-evaluated for patients in severe pain? (% relevant pts)																			
Within 30 minutes		0%	0%					**0%**	0%					13%	12%				
Within 1 hour		0%	0%					**14%**	13%					22%	25%				
Within 2 hours		13%	8%					**24%**	22%					45%	41%				
How soon was analgesia re-evaluated for patients in moderate pain? (% relevant pts)																			
Within 30 minutes		0%	0%					**0%**	0%					9%	8%				
Within 1 hour		0%	0%					**7%**	8%					22%	17%				
Within 2 hours		9%	0%					**19%**	15%					33%	33%				
Time to imaging and admission (%)																			
X-ray within 30 minutes		4%	4%					**10%**	11%					22%	23%				
X-ray within 60 minutes	75%	29%	30%	28%	21%	15%	18%	**44%**	44%	42%	40%	35%	32%	58%	58%	53%	59%	48%	50%
X-ray within 2 hours		74%	78%					**83%**	84%					90%	90%				
Admitted within 2 hours		0%	2%	4%	3%	8%	4%	**4%**	8%	9%	8%	20%	13%	10%	15%	18%	18%	36%	27%
Admitted within 4 hours	98%	73%	80%	82%	79%	77%	53%	**86%**	90%	88%	90%	89%	72%	92%	97%	95%	96%	95%	85%
Time from arrival to surgery (% of those patients for whom data was available)																			
Same or next day		60%	47%	46%	38%			**76%**	56%	57%	55%			84%	70%	68%	69%		
2 days		85%	74%	73%	67%			**94%**	82%	83%	80%			97%	90%	89%	88%		
3 or more days		3%	10%	11%	12%			**6%**	18%	17%	20%			15%	26%	27%	33%		
Supplementary figures																			
Number of cases audited per ED		50	50	50	30	30	30	**50**	50	50	33	30	35	50	50	50	42	38	44
Number of EDs participating								**171**	142	113	143	62	189						

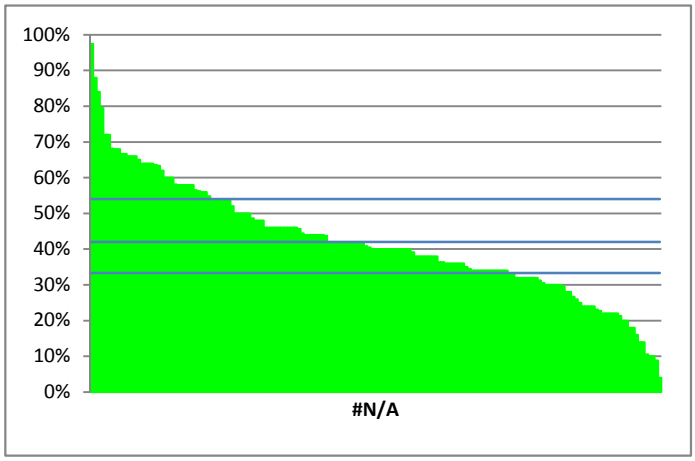
✠ The median value of each indicator is that where equal numbers of participating EDs had results above and below that value.
These median figures may differ from the "national" results quoted in the body of this report which are the mean values for all audited patients.

* Departments that audited less than 5 **relevant** cases are excluded.

How promptly was analgesia provided?

NOTE: See last page for explanation of charts

Chart 1: Percentage of patients offered analgesia within 60 minutes of arrival in the ED

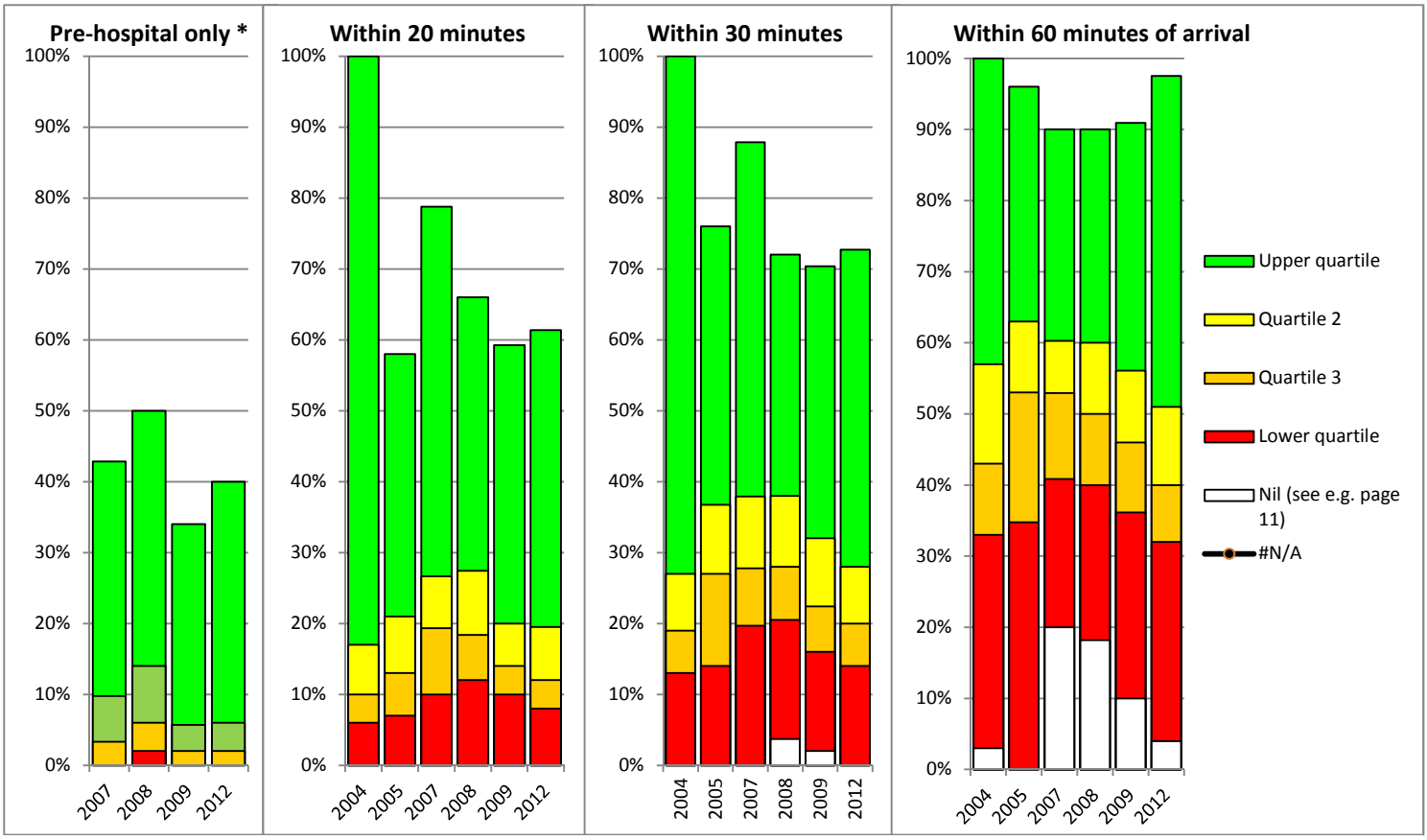


Nationally, **19%** of all audited patients received adequate pain relief within 20 minutes of arrival in the ED, **27%** within 30 minutes and **46%** within 60 minutes of arrival. (These figures include the **4%** of patients who were judged to have received adequate relief before arrival). No ED achieved the CEM targets of offering analgesia to 75% of patients in moderate or severe pain within 30 minutes and to 98% within 60 minutes of arrival (although some came close).

Analgesia was provided slightly more quickly for those judged to be in severe pain: **22%** within 20 minutes of arrival, **33%** within 30 minutes and **59%** within 60 minutes.

In **5%** of EDs at least half of the audited patients received analgesia within 30 minutes, but in **73%** of EDs at least half of the patients were still waiting for analgesia 60 minutes after arrival.

Chart 2: Trend over successive audits - Analgesia provided or offered within 20, 30 and 60 minutes of arrival in the ED



* The "pre-hospital only" category comprises cases where it was documented in the notes that adequate analgesia had been given prior to arrival in the ED. The percentages of patients receiving analgesia within 20, 30 and 60 minutes of arrival in the ED include cases where adequate analgesia was provided prior to arrival . The denominators of the percentages include all audited cases, whether or not the time when analgesia was provided was documented in the notes. If documentation was poor, this could have a significant effect on your results.

Chart 2 shows changes over successive rounds of the audit in the promptness with which analgesia was provided in your department (the **thick black lines**) compared to other EDs. The comparative set may vary from year to year as not all EDs participated in each round of the audit.

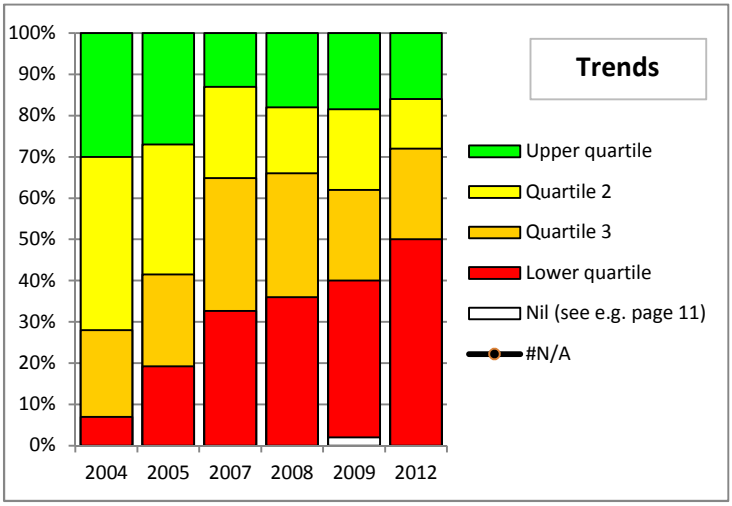
Nationally the promptness of analgesia in EDs improved between 2003 and 2007; for example, median performance for the percentage of patients receiving analgesia within 30 minutes of arrival improved from *19%* to **28%**. Since 2007 performance has deteriorated in many EDs; the median percentage receiving analgesia within 60 minutes fell from *53%* in 2007 to **40%** in 2012.

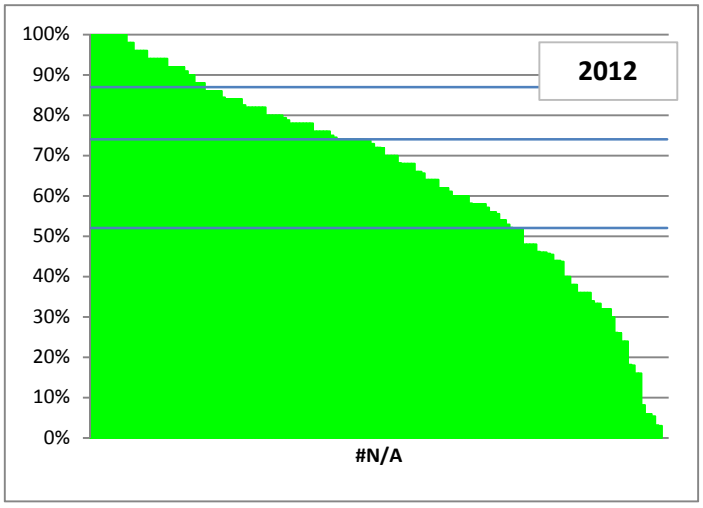
Recommendation:

• Using the above charts and table 1 (on page 3) which shows your performance against these standards, EDs should consider whether they are providing analgesia sufficiently promptly. If not, they should review and improve their procedures.

Was analgesia provided in accordance with need?

Charts 3 & 4: Pain score recorded



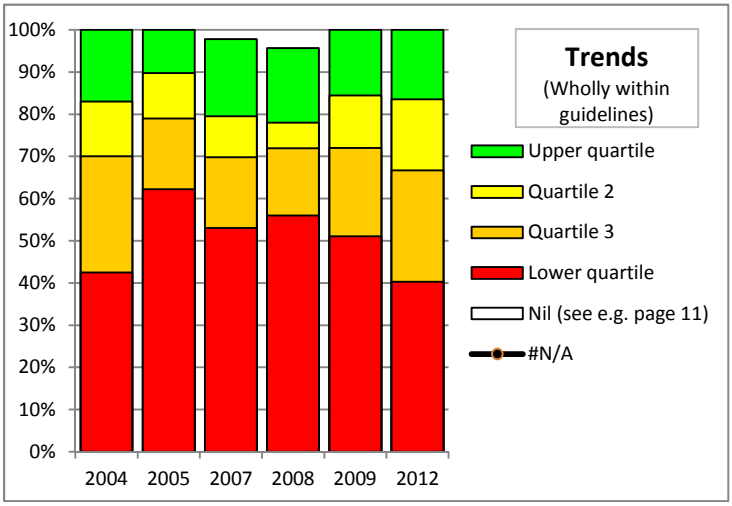


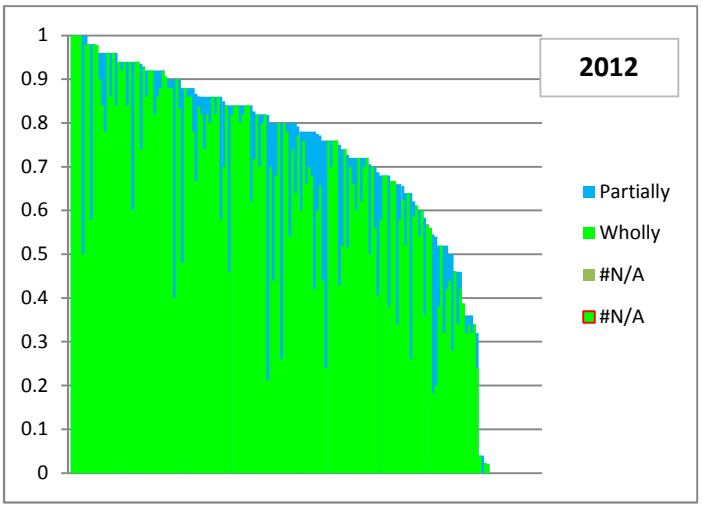
Across the audit, a pain score was recorded for **67%** of patients. Chart 3 illustrates the continuing improvement in median and lower quartile performance since the first audits in 2004. However, there is still a wide disparity in performance. In **18%** of EDs at least **90%** of audited patients had a pain score recorded, but in **25%** of EDs a pain score was recorded for less than half of the patients included in the audit.

Comment & recommendations:

• *Pain scoring is a clear area of improvement. However, if your ED is in the lower quartile you should review your processes.*

Charts 5 & 6: Analgesia within guidelines





There has been little overall change in the percentages of cases where analgesia was within national or local guidelines since the first audits in 2004. Nationally, **59%** of cases were wholly in accordance with guidelines and a further **9%** partially so. 31 EDs reported that they had no local guideline for analgesia.

The percentages of cases in which analgesia was accepted has fallen marginally since the earlier audits.

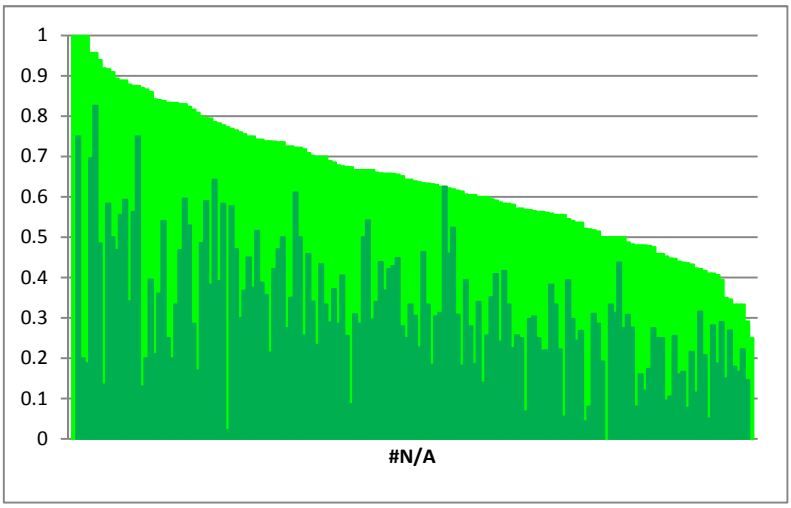
Nationally, there has been an increase in the percentage of cases where analgesia was not offered and no reason was documented from *5%* in 2007 to **7%** in the latest audits. This included a number of cases in which the patient was assessed as being in severe pain.

Recommendation:

• *If your departmental performance is deteriorating, you should consider possible causes.*

Provision of analgesia: context

Chart 7: Percentages of pa□ents in severe or moderate pain



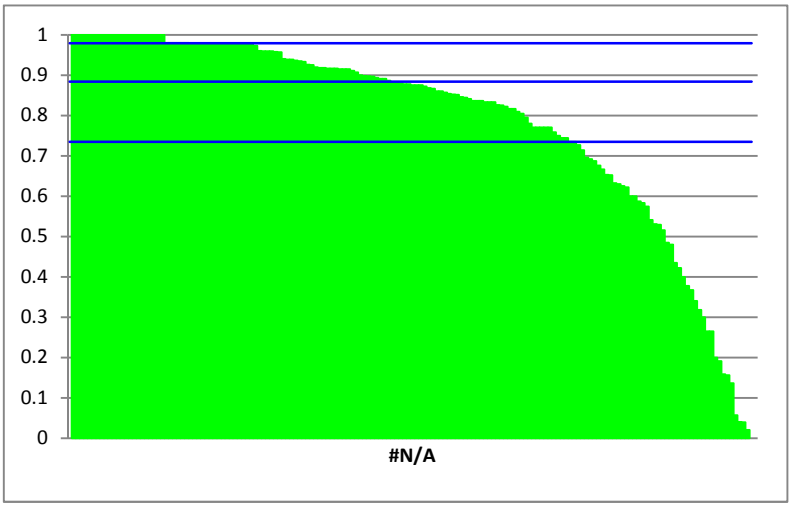
The lower (darker green) section of the bars on this chart shows the percentages of patients assessed to be in severe pain (with your department's result in red). The upper (lighter green) section shows the percentages in moderate pain (with your result in orange). EDs that assessed pain for less than five audited patients are excluded from this chart.

Nationally, **31%** of those audited #NOF patients for whom a pain score was recorded in the ED notes were judged to be in severe pain when first assessed in the ED. A further **33%** were in moderate pain. It is therefore assumed that the remaining **36%** of patients with a recorded pain score were assessed as being in little or no pain on arrival in the ED.

Comment:

• Reported variations in the proportion of patients in severe and moderate pain suggests that there may be significant differences in definition and/or casemix between EDs.

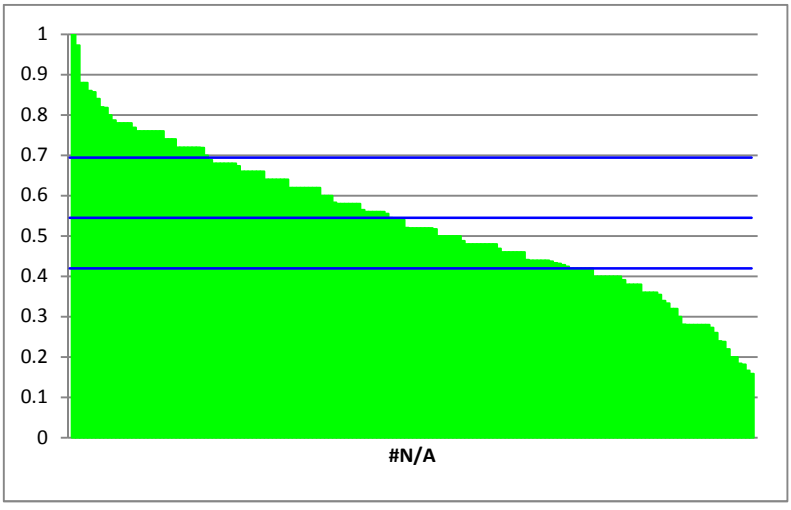
Chart 8: Ambulance notes available



All of the patients included in the audit should have arrived by ambulance. The ambulance notes form an integral part of the record of the patient's treatment.

Nationally, copies of the ambulance notes were available to EDs for **79%** of audited patients continuing a steadily rising trend (*70%* in 2008).

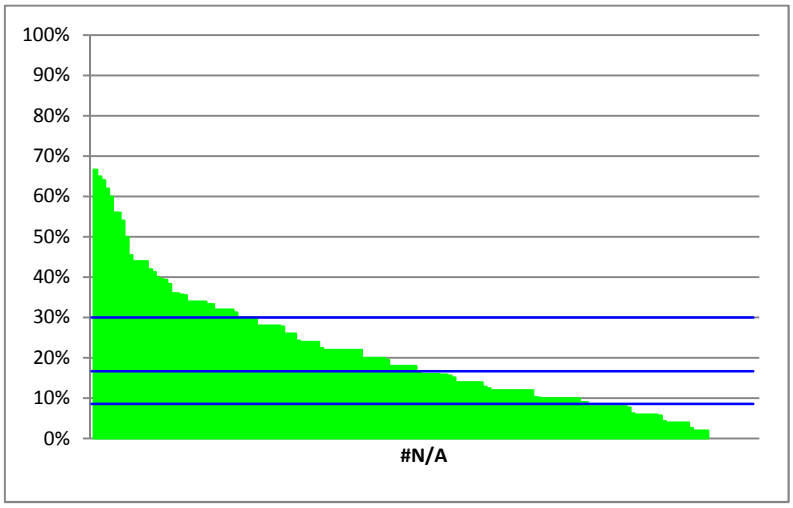
Chart 9: Pain relief provided before arrival in the ED



Nationally **53%** of audited #NOF patients had received some pain relief prior to arrival in the ED (*41%* in 2009), but there was considerable local variation.
Most of these patients received further analgesia in the ED.

Re-evaluation of analgesia

Chart 10: Analgesia re-evaluated within 2 hours



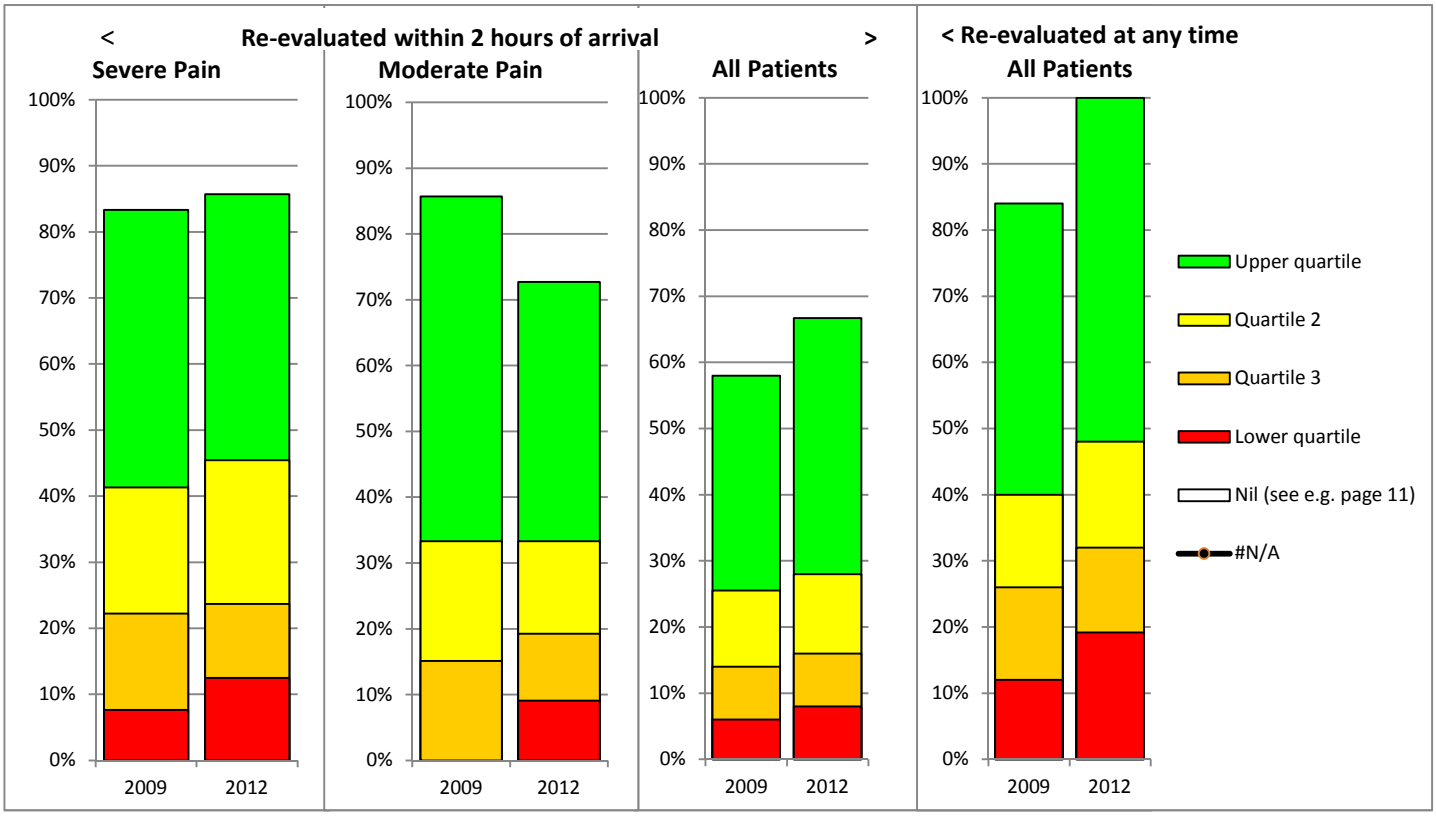
Nationally, **35%** of audited patients had their analgesia re-evaluated (*28%* in 2009). In **20%** of cases this re-evaluation took place within 2 hours of their arrival. **30%** of patients in severe pain had their analgesia re-evaluated within 2 hours and **23%** of those in moderate pain.

Only **5%** of EDs re-evaluated the analgesia of at least half of their audited patients within two hours.

Comment & recommendation:

• The re-evaluation of pain following analgesia remains challenging and requires further attention in most EDs.

Chart 11: Re-evaluation of analgesia - change since the previous audits

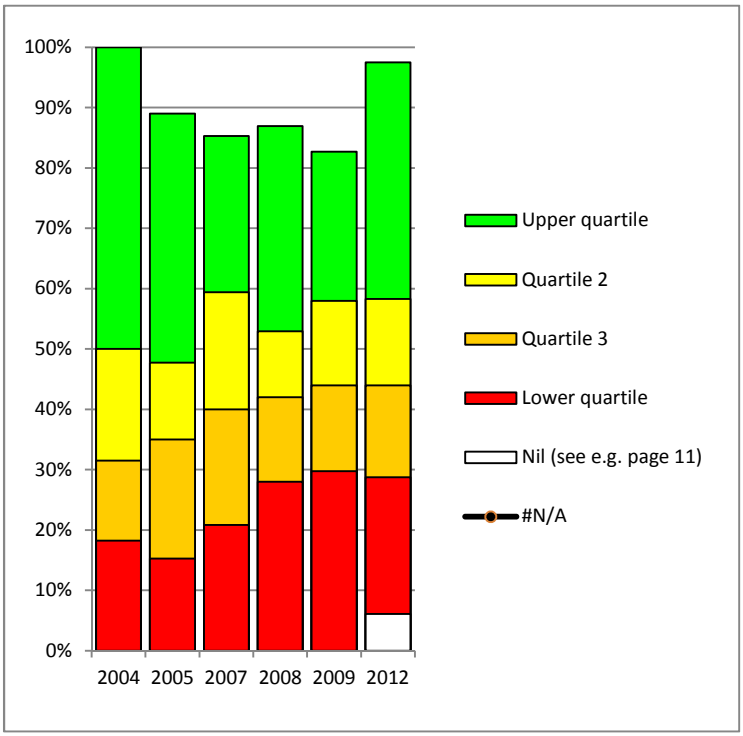


Comment & recommendation:

• If re-evaluation in your ED is either not improving or deteriorating this should be reviewed.

Trends in time to imaging and admission

Chart 12: X-rayed within 60 minutes of arrival in the ED - trend over successive audits



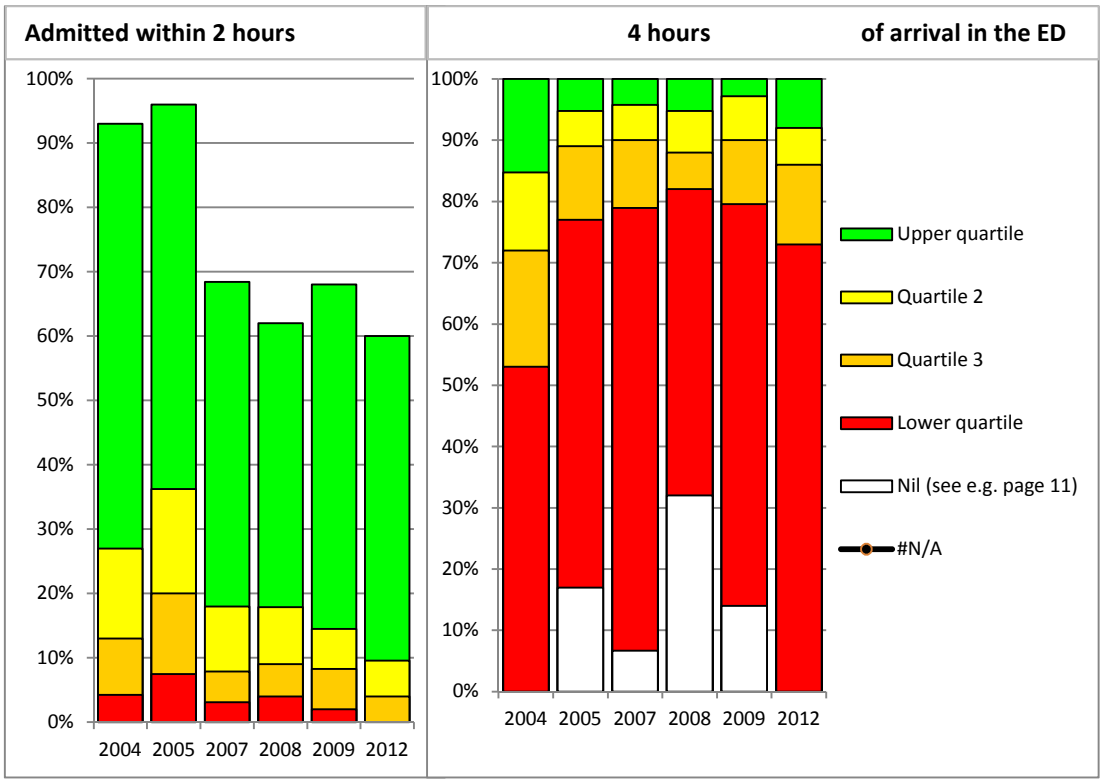
Nationally, **45%** of audited #NOF patients were recorded as going to X-ray within 60 minutes of arrival in the ED; (the same as in 2009, but up from *41%* in 2008).

There was considerable variation between EDs. The CEM standard is that **75%** of patients should have an X-ray within 60 minutes of arrival or triage. **6%** of EDs met this standard.

However, in **26%** of EDs, more than a quarter of the audited patients were still waiting for an X-ray two hours after their arrival.

No time to X-ray was recorded for **7%** of audited patients.

Chart 13: Time in the ED - trends over successive audits

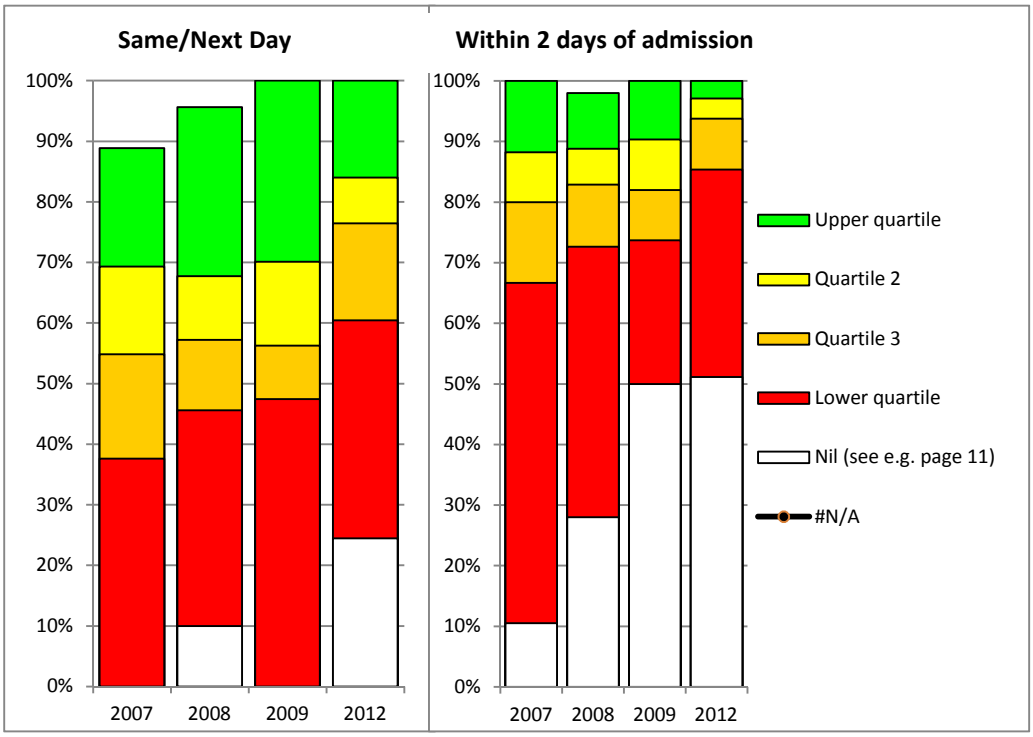


Overall in 2012, **7%** of patients were recorded as admitted within 2 hours (*13%* in 2008) and **79%** within 4 hours of arrival in the ED (*83%* in 2009). These figures may be unreliable as it is possible that no time of admission was recorded in the ED notes for some of the remaining **21%** of audited patients.

(Note: Inter-hospital comparisons of the time that fractured neck of femur patients spend in the ED prior to admission may reflect differing trust policies and practices.)

Time to surgery (from date of arrival to first operation)

Chart 14: Patients receiving their operation same/next day and within two days



The audit returns requested information on the date of the first operation compared to that of arrival where this could be ascertained. Nationally, this data was returned for **48%** of audited patients. **63%** of EDs were able to supply the information for some or all of all their audited patients.
The charts on this page include only those departments who reported the day of operation for 5 or more of their patients.
The denominators are numbers of cases for which the day of operation was reported.

Overall, **72%** of audited cases for which the data was available received an operation on the day of admission or the following day, compared to *56%* in both 2008 and 2009. **90%** were operated upon within two days, compared to *79%* in 2008 and *81%* in 2009.

Nationally, **10%** of those #NOF patients for whom the date of operation could be ascertained at the time of the audit waited three or more days for an operation, reducing their chance of full recovery. However, the additional **52%** of cases for which the operation date was not recorded on the audit returns is also likely to include substantial numbers of patients that waited excessive times for a first operation as it is these cases for which it will have been more difficult to ascertain the date of the operation.

Nationally, there appears to be continuing improvement in the proportions of #NOF patients operated upon within two days of their admission. This improvement has been particularly marked in the poorest performing hospitals, although there is still great variation.

Summary for the specialty

What has improved?

1 The most significant improvement has been in the recording of pain scores , from *32%* in 2004 to **67%** in 2012 (Chart 3)
2 Availability of the ambulance record increased from *70%* in 2008 and **79%** in 2012 (Chart 8)
3 Re-evaluation of pain has risen from *28%* in 2009 to **35%** in 2012 (Chart 11)
4 X-ray within 60 minutes has risen from *41%* in 2008 and **45%** in 2012 (Chart 12)
5 There has been a dramatic improvement in surgery within two days of admission from *79%* in 2008 to **90%** in 2012 (Chart 14)

What needs to improve?

1 In **25%** of EDs the pain score is recorded in less than **50%** of patients
2 In **73%** of EDs at least half of all #NOF patients were still waiting for analgesia 60 minutes after arrival
3 The median proportion of patients receiving analgesia within 60 minutes rose from *43%* in 2004 to *53%* in 2007 but has fallen back to **40%** in 2012
4 Prescribing according to guidelines has not improved across the specialty over time
5 In **26%** of departments, a quarter of patients waited more than 2 hours for an X-ray
6 In some departments the pain score was not recorded or re-evaluated for **any** patients

Comment and recommendations for the specialty:

Fractured neck of femur has been audited six times, which is more than any other condition. There have been some encouraging improvements in quality, which demonstrates what can be done when we focus on quality and use audit as a tool to improve care. It is also apparent that more could be done in many EDs to meet the CEM clinical standards effectively. Let us acknowledge our successes, while striving for more in coming years.

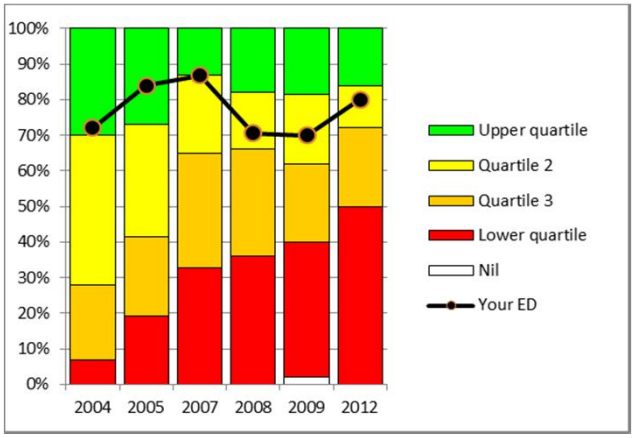
Thank you

for taking part in this national audit. We hope that you find the results useful.

Should you wish to comment on this report or feel that any of the figures or charts in this report misrepresent the results of your audit, please contact the CEM by e-mailing philip.mcmillan@collemergencymed.ac.uk or telephoning 020 7067 1269.

Details of CEM national audit programmes can be found at:
http://www.collemergencymed.ac.uk/Shop-Floor/Clinical Audit/Current Audits

Example Chart



The columns display the range of performance achieved by EDs in the 6 audits conducted on #NOF (2004 to 2012).

The coloured bands display the range of performance per quartile. In 2012 the lowest performing quartile (red) ranged from **0%** to **50%**. The upper quartile of performance (green) ranged from **84%** to **100%.**

You can see an overall improvement nationally in this example from 2004-2007, and then a drop in performance in 2008 and 2009, rising again in 2012.

The black line denotes your ED. In this example the ED has improved from *70%* in 2009 to **80%** in 2012.

The bottom of column 2009 is white (nil) and indicates that no EDs recorded the pain score in less than *2%* of patients.

NOTE: On some charts the upper quartile may not be visible. This means all EDs in the upper quartile achieved **100%.**