



London Ambulance Service  
NHS Trust



# ST Elevation Myocardial Infarction Annual Report 2012-2014

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## Introduction

The London Ambulance Service NHS Trust (LAS) attended 6,572 patients between April 2012 and March 2014 who were diagnosed as suffering an ST-Elevation Myocardial Infarction (STEMI) by ambulance staff following an emergency 999 call.

As ‘time is myocardium’<sup>[1]</sup>, patients experiencing a myocardial infarction should expect a prompt response to their 999 call, followed by an assessment by ambulance clinicians upon arrival and provision of treatment without delay. Rapid transport to a specialist Heart Attack Centre (HAC) for reperfusion treatment to unblock the artery is vital to ensuring good patient outcomes.

LAS staff will undertake a range of assessments, including a 12-Lead electrocardiogram (ECG) to diagnose the STEMI. The essential elements of care for STEMI patients are as follows: patients should receive a pain assessment both prior to and following treatment, in order to assess its effectiveness and to inform decisions as to the further care required to make the patient comfortable. In between the pain assessments, a range of medication should be offered. Patients should receive aspirin – an anti-platelet drug that thins the blood, and glyceryl trinitrate (GTN) – a vasodilator that allows blood to flow more easily through the vessels. If the patient has cardiac pain, analgesia in the form of Entonox or morphine (or a combination of the two) should be offered. Consideration of which form of analgesia is required should be in line with a step-wise pain management structured approach. The combination of these essential components of care for STEMI patients is referred to as a ‘care bundle’. In some instances there will be exceptions of clinically justifiable reasons why a particular element of care is not provided (e.g. contraindication to drugs, patient refusal) and these are considered when evaluating whether a patient has received optimum care.

This report presents the demographics of the STEMI patients attended by the LAS, our response to the emergency call, the clinical assessments and treatment provided by ambulance staff on scene, and our use of specialist pathways. We examine the outcome for patients including whether they received reperfusion treatment, survival and length of stay in hospital.

Clinical data in this report is sourced from the LAS Patient Report Forms (PRFs) and 12-Lead ECG rhythm strips, with data relating to response times taken from the Emergency Operations Centre (EOC) Call Log and the vehicle Mobile Data Terminals (MDTs). Patient outcomes data has been primarily obtained from the Myocardial Ischaemia National Audit Project (MINAP) database, with additional data obtained directly from hospitals where available.

A glossary of abbreviations and terms are included on page 11 for readers unfamiliar with the medical or operational terminology used in the ambulance service.

## Key findings

- The LAS attended 3,185 STEMI patients in 2012-13, and this rose to 3,387 in 2013-14 (an additional 202 patients).
- Three quarters of patients were male, usually in their sixties at the time of the STEMI and of a white race group.
- The most common location of the infarct was the anterior region of the heart (44%).
- The majority of calls were triaged as Category A (88%) and STEMI patients received a response within 7 minutes (median), well within the national target of 8 minutes<sup>[2]</sup>.
- The median on scene time increased slightly across the 2 year period, from 38 to 39 minutes.
- The percentage of patients receiving a full care bundle increased from 73% in 2012-13 to 76% in 2013-14, with provision of aspirin, GTN and two pain assessments remaining well over 90%, and analgesia administration over 80%.
- Around 99% of patients were conveyed to an appropriate facility, with over 95% conveyed to a specialist Heart Attack Centre in an average journey time of 16 minutes.
- Primary percutaneous coronary intervention (pPCI) treatment was undertaken at a Heart Attack Centre for nearly two thirds of patients. Reperfusion was achieved in 107 minutes or less - well within the national target of 150 minutes.

## Findings

The tables below present data from two years; April 2012 to March 2013, and April 2013 to March 2014.

Demographics		2012-2013	2013-2014
Number of patients		3,185	3,387
Gender	Male	2,392 (75.1%)	2,508 (74.0%)
	Female	793 (24.9%)	879 (26.0%)
Age (mean and range)	All patients	63 (15-105)	63 (17-102)
	Males	60 (15-100)	60 (17-97)
	Females	73 (21-105)	72 (21-102)
Race <sup>®</sup>	White	1,766 (55.4%)	1,908 (56.3%)
	Mixed	18 (0.6%)	19 (0.6%)
	Asian/British Asian	350 (11.0%)	390 (11.5%)
	Black/Black British	191 (6.0%)	245 (7.2%)
	Other	141 (4.4%)	180 (5.3%)
	Unable/Refused	458 (14.4%)	469 (13.9%)
	Not documented	261 (8.2%)	176 (5.2%)

Table 1: Demographics of STEMI patients

- Three quarters of patients were male.
- The average age was 63.
- Male patients were generally younger than female patients by over 10 years.
- The predominant race was of a white background.

<sup>®</sup> Due to the critical condition of patients, definitive race information is not always possible to obtain and therefore this data should be viewed with caution.

Response information		2012-2013	2013-2014
Calls by category	Category A	2,777 (87.2%)	2,997 (88.5%)
	Category C	408 (12.8%)	390 (11.5%)
999 Call to arrival on scene <sup>+</sup>	Overall	7 (9) Range: 0-161	7 (9) Range: 0-184
	Category A only <sup>◇</sup>	6 (7) Range: 0-105	6 (7) Range: 0-53
	Category C only <sup>◇</sup>	14 (21) Range: 0-161	16 (26) Range: 0-184
On scene <sup>+</sup>	From arrival of first attending vehicle	38 (40) Range: 9-131	39 (42) Range: 10-141
	From arrival of first ambulance	33 (35) Range: 7-120	33 (35) Range: 5-137

Table 2: Response and on scene times

- The majority of calls were categorised as Category A.
- The average overall response time was 7 minutes, with Category A patients receiving a faster response than Category C patients (6 versus 14 minutes in 2012-13 and 6 versus 16 minutes in 2013-14).
- On-scene times were fairly similar between 2012-13 and 2013-14 at 38 and 39 minutes respectively. When on-scene times were calculated from arrival of an ambulance (and therefore excluding the time that First Response Units awaited an ambulance to arrive on scene to convey the patient) the on-scene time was 33 minutes.

Location of infarct	2012-2013	2013-2014
Anterior	1,415 (44.4%)	1,469 (43.4%)
Anterior/Lateral	268 (8.4%)	314 (9.3%)
Inferior	1,149 (36.1%)	1,197 (35.3%)
Inferior/Lateral	94 (3.0%)	102 (3.0%)
Inferior/Posterior	7 (0.2%)*	19 (0.6%)
Posterior	21 (0.7%)*	54 (1.6%)
Lateral	132 (4.1%)	153 (4.5%)
STEMI only documented	99 (3.1%)	79 (2.3%)

Table 3: Location of infarct identified from 12-lead ECG

- The most common location of the infarct was the anterior region of the heart, followed by the inferior region.

<sup>+</sup> Median averages are presented with mean averages in brackets (in minutes).

<sup>◇</sup> Zero minute times in the range are due to running calls where a patient/passersby has flagged an ambulance.

\* Collection of Posterior MI data only commenced during the course of 2012-13, therefore full data is unavailable.

Assessment and treatment		2012-2013	2013-2014
Pain assessment	Pre and post treatment (or valid exceptions)	2,958 (92.9%)	3,201 (94.5%)
	Not undertaken	227 (7.1%)	186 (5.5%)
Aspirin	Administered or valid exception	3,005 (94.3%)	3,244 (95.8%)
	Not administered	180 (5.7%)	143 (4.2%)
GTN	Administered or valid exception	3,105 (97.5%)	3,340 (98.6%)
	Not administered	80 (2.5%)	47 (1.4%)
Entonox	Administered or valid exception	1,794 (56.3%)	1,934 (57.1%)
	Not administered	1,391 (43.7%)	1,453 (42.9%)
Morphine	Administered or valid exception	2,853 (89.6%)	3,152 (93.1%)
	Not administered	332 (10.4%)**	235 (6.9%)**
Analgesia	Administered or valid exception	2,618 (82.2%)	2,819 (83.2%)
	Not administered	567 (17.8%)	568 (16.8%)
Care bundle	Administered or valid exception	2,313 (72.6%)	2,579 (76.1%)
	Not administered	872 (27.4%)	808 (23.9%)

Table 4: Assessment and treatment of STEMI patients

- There were improvements in all aspects of assessment and treatment from 2012-13 to 2013-14, with the largest improvement seen in the administration or documentation of valid exceptions of morphine of 3.5%.
- The delivery of the care bundle (pain assessments pre- and post-treatment, administration of GTN, aspirin and analgesia) has also improved by 3.5% from 72.6% in 2012-13 to 76.1% in 2013-14.

\*\* Includes 128 cases and 61 cases in 2012-13 and 2013-14 respectively where the LAS did not dispatch a paramedic to the scene, and therefore morphine could not be given due to an inappropriate crew skill level in attendance.

Conveyance <sup>^</sup>		2012-2013	2013-2014
Destination	Patients conveyed to hospital	3,184	3,387
	Appropriate conveyance	Overall: 3,143 (98.7%) HAC: 3,025 (95.0%); ED: 118 (3.7%)	Overall: 3,357 (99.1%) HAC: 3,249 (95.9%); ED: 108 (3.2%)
	Inappropriate conveyance	Overall: 41 (1.3%) ED: 39 (1.2%); Unclear: 2 (0.1%)	Overall: 30 (0.9%) ED: 27 (0.8%); Unclear: 3 (0.1%)
Conveyed to HAC <sup>+</sup> #	Leave scene to arrive hospital time	16 (16) Range: 2-72	16 (16) Range: 2-63
	999 call to arrive hospital time	62 (64) Range: 21-232	63 (67) Range: 25-257
Conveyed to ED <sup>#</sup> #	Leave scene to arrive hospital time	10 (11) Range: 2-40	11 (12) Range: 1-57
	999 call to arrive hospital time	68 (72) Range: 30-192	66 (71) Range: 27-220

Table 5: Conveyance assessment and journey times

- The majority of patients were conveyed to an appropriate destination.
- Over 95% of patients were conveyed to a HAC.
- The average journey time was 16 minutes when conveyed to a HAC and around 10 minutes when conveyed to an ED.

<sup>^</sup> Data excludes two patients that refused to travel to hospital against the advice of the crew.

<sup>+</sup> Median averages are presented with mean averages in brackets (in minutes).

<sup>#</sup> Does not include patients where it was unclear whether the patient was conveyed to a HAC or ED.

Reperfusion		2012-2013	2013-2014
Patients with reperfusion information available		2,237 (70.2%)	2,501 (73.8%)
Reperfusion by type	Primary percutaneous coronary intervention (pPCI)	1,456 (65.1%)	1,501 (60.0%)
	Thrombolysis	7 (0.3%)	3 (0.1%)
	Reperused but method unknown	8 (0.4%)	15 (0.6%)
	No reperfusion	766 (34.2%)	982 (39.3%)
pPCI	Patients (with pPCI time available)	1,444	1,469
	'Call to Balloon' time <sup>+</sup>	107 (111) Range: 54-661	106 (113) Range: 45-486
	pPCI within 150 minutes of 999 call	1,344 (93.1%)	1,352 (92.0%)
	Patients with discharge data available	1,428	1,449
	Patients discharged alive	1,338 (93.7%)	1,358 (93.7%)
	Average hospital stay	5 days	5 days
Thrombolysis	Patients (with reperfusion time available)	5	1
	'Call to Needle' time <sup>+</sup>	123 (170) Range: 104-348	91
	Patients with discharge data available	7	2
	Patients discharged alive	5 (71.4%)	1 (50%)
	Average hospital stay	7 days	4 days

Table 6: Reperfusion and patient outcomes

- Nearly two thirds of patients received pPCI as the reperfusion treatment.
- The majority of patients had pPCI within the national target of 150 minutes from the time of the 999 call.
- 94% of patients that had pPCI were discharged from hospital alive, with an average hospital stay of 5 days.
- Only 5 patients in 2012-13 and 1 patient in 2013-14 had thrombolysis in hospital.

<sup>+</sup> Median averages are presented with mean averages in brackets (in minutes).



## Discussion

The LAS prides itself on delivering a world class service to the patients of London. This report demonstrates that for STEMI patients we provide a high standard of care – the majority of patients are treated rapidly with an optimum combination of appropriate observations and treatments, as well as conveyance to an appropriate centre for further intervention at hospital.

Compliance to the protocol for rapid conveyance of patients to the specialist HACs is excellent. It is a credit to the crews who undertake the clinical assessment required to diagnose a STEMI and pre-alert the team of experts at the cardiac catheter laboratories to ensure that they are ready to treat the patient immediately on arrival.

Overall, when combining the elements of the care bundle to assess the compliance as a whole, 76% of patients either received a full bundle or a combination of treatment with valid exceptions in the 2013-14 period. While this figure represents an increase of 10% across the past two years (from 66% in 2011-12), it is recognised that further improvement is required.

Of all the care bundle elements, attention should be focussed on increasing the delivery of analgesia. Although the number of patients receiving pain relief has continued to grow (by 7%) since 2012, a number of reasons for non-administration of analgesia can still be identified when exploring the data further. For example, the data shows that patients with lower pain scores often do not receive analgesia (see Appendix 3). Where a patient reports any pain score higher than zero following the administration of aspirin and GTN, analgesia should always be offered. Where a score of four or more is reported, morphine should be the initial consideration, while scores lower than this should lead to an offer of Entonox. Where an exception is present for one form of analgesia, the alternative form should always be offered (and any refusal documented).

The 2013-14 data shows that 95% of patients received both pre- and post-treatment pain assessments (or were classed as having an exception to assessment, such as being unconscious), which again has continued to rise from previous years. However, this is an area that can also be improved and staff should be encouraged to use the different forms of quantitative pain assessments provided to them (numerical rating scale, Wong-Baker faces, hot scale) and where these are not possible ensuring that a detailed qualitative assessment of the pain is undertaken.

Crews have continued the high level of administration of GTN and aspirin at 99% and 96% respectively. When examining the data for non-administration of aspirin, it is often patients that have reported no cardiac pain that do not receive the drug. While aspirin may provide pain relief as a secondary action, in the context of a STEMI it is its anti-platelet properties that patients will benefit from. Therefore, aspirin should still be administered to patients who report that they have no cardiac pain.

While treatment provided continues to be of a high standard, some other aspects of performance should be highlighted. The length of time spent on scene with patients is one such area. It is known that the more rapidly a patient is transported to hospital for potential reperfusion, the better the overall outcome is likely to be<sup>[3]</sup>. The time from the arrival of the first vehicle to leaving the scene has increased gradually over several years and, in 2013-14,

stands at a median of 39 minutes. In many cases this represents a First Response Unit arriving on scene followed by an ambulance who can convey the patient. However, the median on scene time when taken from the arrival of the ambulance is still excessive at 33 minutes. With the optimum time from 999 call to arrival at hospital considered to be 60 minutes<sup>[4]</sup>, spending over half of this time on scene constitutes a potential barrier to achieving this target. Clearly there are circumstances where a long time on scene cannot be avoided, such as complex presentations (e.g. where patients are in cardiac arrest, are reluctant to travel or where there is difficulty removing the patient to the ambulance), but wherever possible crews should look to minimise the length of time spent on scene and offer treatment while en route to hospital.

The data for patients conveyed to hospital who subsequently receive reperfusion treatment shows that the numbers undergoing a pPCI procedure have remained relatively consistent year-on-year (with 1,444 and 1,469 receiving it in 2012-13 and 2013-14 respectively). Patients who undergo this procedure are measured against a national target of less than 150 minutes from the 999 call until the time of the procedure ('call to balloon' time)<sup>[3]</sup>. Over 92% of patients receiving pPCI between 2012 and 2014 met this target. The median 'call to balloon' time was seen to be significantly within the target time, at 106 minutes. This demonstrates the contributions made by the whole system – the LAS with its swift response to the 999 call, recognition of a STEMI and appropriate conveyance directly to a HAC, and the sophisticated process at the HAC itself to allow for rapid reperfusion.

In conclusion, this report provides assurance that our care to patients who suffer a STEMI in London is of a high standard. While there are areas where improvement can be made, we have shown that our staff are able to respond rapidly, provide thorough assessment and treatment on scene, and convey to the specialist centre best equipped to treat the patient.

## **Points for Action**

The LAS needs to continue to focus future improvement work on:

- Enhancing analgesia provision with specific emphasis on undertaking a step-wise pain management approach. Staff should be encouraged to evidence clearly why a form of analgesia has not been provided.
- Examining reasons why time spent on scene is increasing, and work to reduce this where possible.

## **Acknowledgements**

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## References

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2. Department of Health National Service Framework for Coronary Heart Disease (2000), HMSO, London.
3. Treatment of Heart Attack National Guidance – Final Report of the National Infarct Angioplasty Project (NIAP), Crown, 2008.
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## **Glossary for abbreviations and terms**

Area – The LAS attends patients across the whole of the Greater London region. This is broken down into three operational Areas representing East, West and South London.

Aspirin – Aspirin thins the blood and improves its flow through the arteries.

Call to Balloon Time – The overall time taken from the initial 999 emergency call to the point of balloon inflation in a primary Percutaneous Coronary Intervention (pPCI) procedure performed at hospital.

Call to Needle Time – The overall time taken from the initial 999 emergency call to the point of needle insertion in a thrombolysis procedure performed at hospital.

Cardiac Catheter Laboratory (Cath Lab) – The area within a specialist Heart Attack Centre where patients receiving reperfusion will be treated.

Care Bundle – The optimum combination of observations and treatments that ambulance crews should perform so that the patient receives the best possible care.

Complex – Each of the three LAS Areas are subdivided into several smaller operational areas known as Complexes. Please note that these do not necessarily align with Clinical Commissioning Group areas. Some vehicles (such as special event vehicles, voluntary responders and private ambulance crews) are not assigned to a particular Complex; these are grouped under an overall heading of “No Complex”.

Entonox – A mix of 50% nitrous oxide and 50% oxygen (also known as “gas and air”), which is used for relief of mild to moderate pain, or while further analgesia is being prepared where pain is more severe.

First Response Unit – A resource dispatched to immediately life-threatening calls which can respond more rapidly than a full ambulance crew, ensuring that the patient begins to receive care as quickly as possible.

Glyceryl Tri-Nitrate (GTN) – A drug which allows blood vessels to relax and widen, thus allowing improved blood flow and reducing the workload of the heart.

Heart Attack Centre (HAC) – Specialist centres in London hospitals to which patients suffering a STEMI are taken directly for primary Percutaneous Coronary Intervention (pPCI).

Mobile Data Terminal (MDT) – The device used by clinical staff to receive incoming call information and navigate to the location.

Morphine – An analgesic which can be administered (usually intravenously) by a paramedic to patients in severe pain.

Myocardial Ischaemia National Audit Project (MINAP) – A large database maintained by hospitals containing details of patients who were taken to Heart Attack Centres, reperfusion treatment performed and patient outcomes.

Numerical rating scale – A method of rating a patient’s pain based on a score from zero (no pain) to 10 (the worst pain imaginable).

Pain assessment – An observation which should be taken both pre- and post-treatment to assess the patient’s level of pain.

Paramedic – A majority of clinical staff are paramedics and are able to perform advanced skills such as cannulation. Morphine may only be given by staff with a skill level of paramedic or higher.

Patient Report Form (PRF) – The document used by the LAS to record all aspects of patient care and treatment.

Primary Percutaneous Coronary Intervention (pPCI) – A surgical procedure performed at a Heart Attack Centre which seeks to unblock arteries by means of insertion of a catheter into the affected artery and inflating a small balloon to re-open it. The opened artery is then held in place with a small stent.

Response Category A – Category A calls are those classed as immediately life-threatening, and should receive a response within 8 minutes of the initial 999 emergency call. The vast majority of patients diagnosed with a STEMI receive a response of Category A.

Response Category C – Calls which are not deemed immediately life-threatening (based on the information given by the caller regarding the patient’s condition) are classed as Category C. Some patients subsequently diagnosed with a STEMI receive this response, primarily where the patient has not reported chest pain or any other typical symptoms of a heart attack.

ST-Elevation Myocardial Infarction (STEMI) – A type of myocardial infarction. ST-Elevation refers to a particular pattern seen on a 12-Lead ECG which indicates a complete blockage in a coronary artery.

Step-wise Pain Management – The process of using an appropriate form of analgesia to the patient’s level of pain throughout an acute event.

Thrombolysis – A form of reperfusion which breaks down blood clots by pharmacological means (also known as “clot busting”). It is now generally only used in a small number of patients who are not suitable for primary Percutaneous Coronary Intervention treatment and is undertaken at hospital.

Wong-Baker faces – A scale used for pain assessment based on a series of faces ranging from a happy face for no pain to a crying face for the worst pain imaginable. Patients select the face which best describes their level of pain. While primarily used for children, it can also be used for STEMI patients who are unable to describe pain in another manner (e.g. due to language barriers or being non-verbal).

## Appendix 1 – Median on scene times by Complex

Area	Complex	2012 – 2013		2013 - 2014	
		From arrival of first vehicle on scene	From arrival of first ambulance on scene	From arrival of first vehicle on scene	From arrival of first ambulance on scene
EAST	Chase Farm	40	32	41	34
	City & Hackney	39	35	38	32
	Edmonton	37	33	39	32
	Newham	34	28	37	32
	Romford	39	33	39	33
	Tower Hamlets	35	32	39	33
	Whipps Cross	38	33	40	31
WEST	Brent	37	31	38	31
	Camden	36	33	39	34
	Friern Barnet	38	34	39	31
	Fulham	37	33	40	32
	Hanwell	38	33	41	35
	Hillingdon	38	33	38	31
	Isleworth	38	31	40	36
	Kenton	36	31	38	33
SOUTH	Barnehurst	40	35	45	37
	Bromley	42	37	41	37
	Croydon	39	33	39	31
	Deptford	36	33	37	31
	Greenwich	41	35	42	34
	New Malden	38	34	40	34
	St Helier	37	32	37	31
	Wimbledon	35	32	36	29
<b>No Complex</b>		37	30	40	34
<b>East Area</b>		38	33	39	32
<b>West Area</b>		37	32	39	33
<b>South Area</b>		39	34	40	33

\*\* Due to Complex mergers during 2012-14, Islington Complex figures are included in Camden Complex. Waterloo and Oval Complex figures are included in Deptford Complex.

## Appendix 2 – Care bundle compliance by Complex

Area	Complex	2012 – 2013				2013 - 2014			
		Yes / exception		No		Yes / exception		No	
		%	n	%	n	%	n	%	n
EAST	Chase Farm	77%	51	23%	15	78%	43	22%	12
	City & Hackney	81%	101	19%	24	71%	117	29%	47
	Edmonton	77%	127	23%	39	76%	132	24%	42
	Newham	64%	69	36%	39	74%	87	26%	30
	Romford	76%	113	24%	36	80%	125	20%	31
	Tower Hamlets	69%	55	31%	25	80%	77	20%	19
	Whipps Cross	66%	142	34%	74	76%	179	24%	57
WEST	Brent	72%	109	28%	43	76%	118	24%	37
	Camden*	73%	146	27%	54	70%	128	30%	55
	Friern Barnet	66%	86	34%	44	73%	82	27%	30
	Fulham	71%	97	29%	39	73%	70	27%	26
	Hanwell	73%	98	27%	36	82%	119	18%	26
	Hillingdon	73%	125	27%	46	76%	114	24%	37
	Isleworth	79%	79	21%	21	81%	96	19%	23
	Kenton	79%	145	21%	39	82%	155	18%	34
SOUTH	Barnehurst	73%	110	27%	40	80%	118	20%	30
	Bromley	63%	70	37%	41	75%	91	25%	31
	Croydon	69%	85	31%	38	76%	130	24%	42
	Deptford*	71%	118	29%	48	71%	127	29%	53
	Greenwich	77%	103	23%	30	81%	109	19%	26
	New Malden	75%	86	25%	28	77%	101	23%	30
	St Helier	75%	104	25%	35	80%	83	20%	21
	Wimbledon	83%	54	17%	11	80%	66	20%	17
<b>No Complex</b>		60%	40	40%	27	68%	112	32%	52
<b>East Area</b>		72%	658	28%	252	76%	760	24%	238
<b>West Area</b>		73%	885	27%	322	77%	882	23%	268
<b>South Area</b>		73%	730	27%	271	77%	825	23%	250

\* Due to Complex mergers during 2012-14, Islington Complex figures are included in Camden Complex. Waterloo and Oval Complex figures are included in Deptford Complex.

### Appendix 3: Analgesia provision based on initial pain score given

Initial pain rating	2012-13					2013-14				
	Patients	Given / exception	%	Not given	%	Patients	Given / exception	%	Not given	%
Mild pain	298	200	67.1%	98	32.9%	288	177	61.5%	111	38.5%
Moderate pain	649	489	75.3%	160	24.7%	664	494	74.4%	170	25.6%
Severe pain	1,133	975	86.1%	158	13.9%	1,251	1,074	85.9%	177	14.1%
Pain of unknown severity	225	146	64.9%	79	35.1%	168	127	75.6%	41	24.4%
<b>TOTAL</b>	2,305	1,810	78.5%	495	21.5%	2,371	1,872	79.0%	499	21.0%