London Ambulance Service NHS Trust

Clinical Audit Annual Report 2013-14

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Acknowledgements

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For further Information

All documents referred to in this report are available on request from the Clinical Audit & Research Administrator on 0207 783 2504 or from CARU.enquiries@londonambulance.nhs.uk.

1.0 Preface

Since the Bristol Royal Infirmary Inquiry (Milburn, 2002) the NHS focus on clinical audit has increased, and over the last few years the importance of clinical audit has been brought further to the forefront of people's minds by the Mid Staffordshire Inquiry (Francis, 2010; 2013). The follow up reports by Keogh (2013) and Berwick (2013) continued to emphasise the importance of using data to drive quality improvement and not just for reassurance.

The London Ambulance Service NHS Trust (LAS) successfully uses clinical audit as a quality improvement method. This not only allows us to provide assurance and evidence of high standards of care to external monitoring regulatory bodies such as the Care Quality Commission, the NHS Litigation Authority and the Department of Health, but is also a proactive tool used to address areas of safety and effectiveness. The majority of clinical audit in the LAS is undertaken by the Clinical Audit & Research Unit (CARU). However, there are also more clinical staff than ever wanting to be involved in clinical audit, with nearly 350 members of staff receiving training and/or support from CARU in 2013-14. In addition, due to the LAS' excellent reputation, the number of staff and students from other NHS Trusts approaching CARU to undertake projects or assist with existing initiatives also increased.

CARU routinely review and facilitate staff feedback on the care provided to many different groups of patients through the Clinical Performance Indicators (CPIs) and clinical quality monitoring. Over the last year, CARU also conducted specific clinical audit projects responding to serious incidents (e.g. overdose) and drug administration errors (e.g. adrenaline).

This report allows us to reflect on the LAS's huge achievements in clinical audit influencing clinical practice and patient outcomes. Our audit activity in the last year has led to the implementation of new procedures in the Emergency Operations Centre (EOC) and on the road; clarification of national guidance; documentation changes to ensure accurate record keeping; revisions to the clinical training packages, and messages in LAS media. As a result of clinical audit the LAS is also considering two new pre-hospital drugs (activated charcoal and prednisolone).

We have worked hard to ensure the findings of our projects are fed back directly to staff through posters and newsletters and recommendations are reviewed at Trust Board level committees. Most importantly we have made sure that our patients and the public can be confident in the level of care we provide through publication of reports on the LAS external website and presentations at events involving the public.

One of Berwick's (2013) main recommendations is that learning from quality improvement, such as clinical audit, is shared through collaborative networks, and in 2013-14 CARU continued to actively contribute to the National Ambulance Service Clinical Quality Group to ensure a high standard of care is seen across the country. This collaboration included participation in National Clinical Performance Indicators, the National Ambulance Non-conveyance Audit, and the Ambulance Clinical Quality Indicators. We also continued to focus on promoting LAS achievements externally through publication of findings in peer reviewed journals and at various healthcare and clinical audit conferences.

2.0 Clinical Audit Projects

Listed below is a summary of project key findings and recommendations for change, all of which were communicated to staff and key stakeholders including other ambulance services (approved by the LAS Clinical Audit & Research Steering Group (CARSG)).

2.1 Adrenaline re-audit (June 2013)

In 2010 we examined the administration of intramuscular adrenaline to patients with severe asthma and anaphylaxis. We found two areas of care that needed clarification: (1) the dose to be given after a patient has used their own Epipen (a 300mcg dose of adrenaline), and (2) that adrenaline is not indicated for patients with Chronic Obstructive Pulmonary Disease (COPD).

The 2013 re-audit showed more patients received the correct dose of adrenaline compared to the original audit. However, there were still some instances of adrenaline being given to patients with COPD and some who received it intravenously. To address this, a training session with case studies has been developed highlighting features that differentiate between acute asthma and COPD, and a “Check and Challenge” system has been introduced to reduce the number of drug related errors.

2.2 Chronic Obstructive Pulmonary Disease (July 2013)

CPI data combined with the findings of the above audit showed that we need to improve the care we provide to our COPD patients. Working with the London Respiratory Team, the LAS sent questionnaires to staff asking about oxygen use for patients with COPD. Most staff correctly indicated that they usually determine oxygen saturation before starting oxygen therapy and that after administering salbutamol they usually switched to controlled oxygen. Several reasons were given why oxygen saturation may not be measured before administering oxygen, such as availability of equipment. To ensure that oxygen saturation is measured, the LAS purchased 500 portable oxygen saturation monitors with both adult and paediatric probes which will help ensure oxygen saturation is measured more often before oxygen is administered.

Staff were rarely concerned that carbon dioxide retention may be caused by oxygen driven nebulisers. While waiting for the release of the British Thoracic Society Guidelines recommending air driven nebulisers for ambulance services, a review of the current LAS training slides has been undertaken to ensure staff are able to recognise the signs of carbon dioxide retention.

2.3 Overdose (October 2013)

This audit was prompted by four recent serious incidents where we have been delayed reaching overdose patients. We found that almost half of the overdose patients triaged as the lowest priority (category C) waited more than 30 minutes for a response. Given this, and knowing that delays are more frequent in periods of high demand, overdose patients now receive an enhanced clinical assessment and, where necessary, are prioritised to ensure they get an ambulance quicker. We are also developing a study to see if we could administer activated charcoal pre-hospitally which would enable these patients to receive treatment sooner. This is especially important as activated charcoal is most effective if given within an hour of the overdose. Therefore, pre-hospital delays may impact whether activated charcoal can be given at all.

2.4 Hydrocortisone (November 2013)

There have been anecdotal concerns that, even when indicated, hydrocortisone (a steroid treatment for severe and life-threatening asthma) is being underused. We found that the concerns were warranted as only a very small number of patients in our audit with signs or symptoms of acute severe or life threatening asthma were administered hydrocortisone. There was confusion regarding whether hydrocortisone could be administered if the journey time to hospital was less than 30 minutes as the Joint Royal Colleges Ambulance Liaison Committee Guidelines for both 2006 and 2013 were not clear. This confusion could be part of the reason for underuse so we contacted the guideline authors who clarified that steroids (including hydrocortisone) should be given as early as possible – this was then communicated to staff. Staff will also be surveyed to determine any other reasons why hydrocortisone is being underused to allow us to get a better understanding of how we can address this. Oral prednisolone (another steroid) is currently being considered as an alternative to hydrocortisone.

2.5 Anaphylaxis (November 2013)

This project assessed whether adrenaline was indicated for patients with an allergic reaction or anaphylaxis. We found that all patients received adrenaline via the correct route; however there were some patients who received an incorrect dose and some who did not receive adrenaline at all, despite clear indications. More importantly, more than half of the patients who were given adrenaline should not have been. Posters were produced to remind staff of the indications for adrenaline and the risk to patients if it is not administered and a Clinical Update article has been written to remind staff of the correct dosage, including post-EpiPen use.

2.6 ROLE re-audit (December 2013)

A 2011 clinical audit found many areas needing improvement related to the documentation of ROLE. As a result, the ROLE guidance was consolidated and the LA3 (ROLE) form amended and reissued to staff. This re-audit looked at whether ROLE documentation had improved.

There were more appropriate resuscitation decisions made than in 2011 and a greater number of GPs were contacted where death was expected. However LA3 completion was worse; dramatically decreasing since the 2011 audit, with the LA3 often not left with the patient. "Purple +" (an anecdotal term meaning a patient is dead and beyond resuscitation) was also frequently used incorrectly as a condition unequivocally associated with death.

The LA3 has been revised again with guidance on the reverse reminding crews of the correct ROLE procedures and the illness code "Purple +" has been replaced by "obviously deceased". These areas for improvement have also been highlighted to Clinical Paramedic Managers and Team Leaders as part of the Clinical Development Module to pass on to their staff.

2.7 Diazepam (March 2014)

This clinical audit looked at administration of diazepam. We found several areas of good practice with diazepam being given to the majority patients who needed it. It was given via the correct route and in the correct dose. Blood glucose was also routinely measured before administration of diazepam to rule out hypoglycaemia as the cause of seizure. The clinical audit also found that after receiving diazepam, not all patients were assessed for signs of respiratory depression and hypotension which are both possible side effects of the drug.

Staff have been praised for the good practice demonstrated through a poster displayed in ambulance stations and a Clinical Update article has been written to remind staff of the importance of monitoring patients for side effects.

3.0 Continuous Clinical Audit Activity

3.1 Clinical quality monitoring

This year we continued to look at the quality of care we provide to our cardiac arrest, ST elevation myocardial infarction (STEMI - a type of heart attack), stroke and major trauma patients. We produced monthly reports for clinical staff and operational management teams to inform them of progress and enable them to assess local improvement initiatives. We also submit this data to the Department of Health for the Ambulance Quality Indicators (DH AQIs).

Please see the cardiac arrest, STEMI and stroke annual for more information.

3.2 Clinical Performance Indicators (CPIs)

With more than 3,500 front line staff at multiple locations, it is a challenge to ensure a consistently high level of care is provided to patients. So, in 2001 we created the CPIs. This ongoing clinical audit process means that every single member of staff is audited and receives personalised face-to-face feedback on their clinical practice from their Team Leader.

We produce monthly reports on: completion (the number of PRFs audited by Team Leaders); compliance (the level of care provided to patients), and feedback. In 2013-14 we also started reporting on the level of care provided by our voluntary and private ambulance services.

This year, for the first time, we found that overall completion and feedback decreased with compliance stabilising, or in the case of some CPIs decreasing. There is an obvious link between the reduced time Team Leaders have spent auditing and providing feedback, due to operational pressures, and the decline in compliance to clinical guidelines. This shows how crucial this process is for our patients. Figure one outlines a snapshot of the level of care provided for each patient group at the beginning of the last eight years.

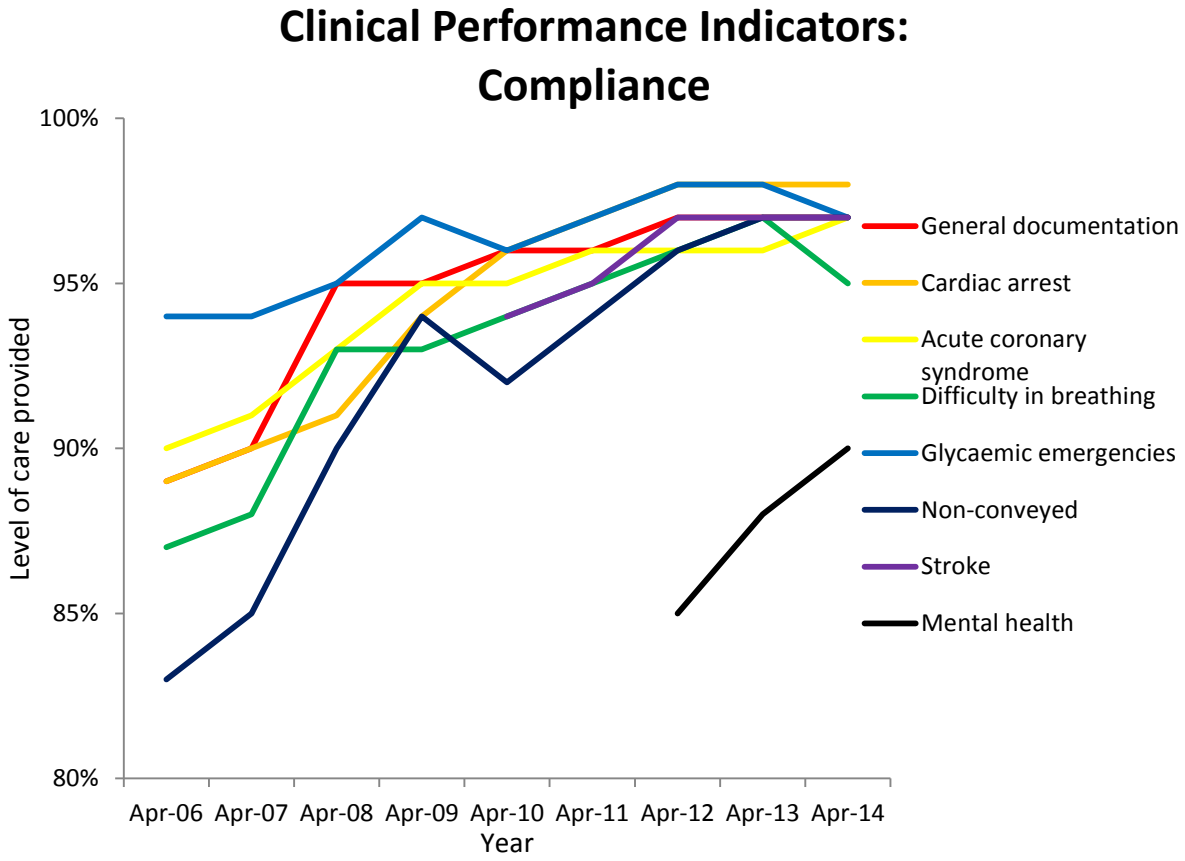

Figure one: CPI compliance rates from April 2006 to April 2014

4.0 National clinical audit

4.1 Myocardial Ischaemia National Audit Project (MINAP)

This project led by the Royal College of Physicians monitors the care provided to all patients with acute coronary syndrome by ambulance services and hospitals. In 2013-14 the LAS continued to supply data to MINAP and validate the pre-hospital data entered by hospitals.

4.2 National Clinical Performance Indicators (CPIs)

As well as our own CPIs, we also contribute to the National CPIs. These are used by the Care Quality Commission (CQC) to compare care across the country and to evidence national clinical audit participation to the Department of Health (DH) in the Quality Accounts Mandatory Assurance Statements. The LAS is currently doing well, meeting five of the six Quality and Risk Profiling targets set by the CQC (see appendix one).

We also submitted data to the two pilot National CPIs (Lower Leg Fracture and Febrile Convulsion). The Lower Leg Fracture National CPI shows the LAS is good at assessing and managing patients' pain but immobilisation and assessment of circulation distal to the fracture is poor. We looked in more detail at the PRFs and found that for some patients staff maybe treating a sprain rather than a suspected fracture (and therefore not immobilising the patient). Questionnaires sent to staff showed that most were confident immobilising patients, although some did not feel they had sufficient training (A&E Support and a first year Student Paramedic). Most staff agreed they would immobilise a fracture even if it was not obvious (including suspected sprains) and stated that immobilisation equipment was not always available when needed so would improvise using other kit.

4.3 Ambulance Service Cardiovascular Quality Initiative (ASCQI)

Although ASCQI finished in 2011-12, the benefits of this project have continued and we have seen successes in the creation of a pain assessment tool and heart attack flow chart, and the Direct to CT trial.

The Direct to CT trial (a collaborative service development with Northwick Park Hospital) aimed to speed up the assessment and therefore treatment for stroke patients by taking them directly from the ambulance to the CT scanner, avoiding potential delays going via the Emergency Department (ED). The findings showed further work is needed to ensure this process is feasible prior to implementation London-wide.

4.4 National Ambulance Non-conveyance Audit (NANA)

One of the areas of interest for us and the DH is how many patients call us back less than 24 hours after we've seen them and left them at home. This national project looked at links between this re-contact rate and how many patients are left at home. They found the ambulance services that left more patients at home also had higher re-contact rates (i.e. more patients called them again less than 24 hours later). Whereas the LAS, who has one of the lowest non-conveyance rates, also has a low re-contact rate, suggesting we are safely leaving patients at home.

About half of the patients who called again did so for the same reason and the most common reason for calling was because the patient had fallen. Just under half of the patients nationally who called back had refused help first time round with the LAS following similar trends, and for the LAS two fifths refused help a second time as well.

In 2014-15, NANA data will be submitted seven times to making a 'typical week'; however in the meantime the LAS is looking at more data to ensure that our decisions are safe.

5.0 Other initiatives

In addition to local and national clinical audit, we have also looked at other initiatives resulting from the continual clinical monitoring. These are shown below.

5.1 Violence related calls

To reduce community violence, the DH asked the LAS to explore whether data on violence related emergency calls could be shared with Community Safety Partnerships (CSPs). The LAS routinely shares data on violent incidents with the Greater London Authority (GLA) which is then shared with CSPs. We found that we may overestimate the number of violent incidents by including false alarms or calls involving no patient contact; however the GLA are content to include such calls as they may be indicative of risks in the local area.

5.2 Identification of stroke

FAST positive patients conveyed by the LAS to the Hyper Acute Stroke Unit (HASU) at St George's Healthcare NHS Trust were identified through CARU's clinical quality monitoring. This has allowed for comparison with the patients' final outcome and will help us to determine how frequently FAST positive patients are later diagnosed with a stroke mimic.

6.0 Engaging staff in clinical audit

As registered professionals, Paramedics must demonstrate they are able to reflect on and review their practice. One of the most widely recognised ways of doing this is through clinical audit. CARU deliver a number of different training sessions (as shown below) to show how clinical audit can be used to influence practice. Understanding evidence based practice is important for all staff in the LAS so we can provide the best possible care for our patients. In addition to formal training sessions, CARU also offer one-on-one training and support to staff who volunteer with CARU.

Session	Audience	Participants in 2013-14
Clinical Development Module: Evidence Based Practice	Paramedic Managers and Team Leaders	60
Clinical Hub Training: Evidence Based Practice	Newly recruited Team Leaders	30
MD Internship: Clinical audit & research in the LAS	University Student Paramedics	57
Emergency Operations Centre Induction: Clinical audit & research in the LAS	Newly recruited Emergency Medical Dispatchers	77
Clinical Performance Indicators (CPIs)	Team Leaders, Training Officers and Paramedics	88

6.1 Volunteering with CARU

In 2013-14 the number of clinical staff who approached CARU increased again. A further 26 members of staff received clinical audit support directly from CARU in 2013-14, with 16 of the 26 continuing on to work with CARU assisting in the department or leading on a clinical audit project in their own time.

In addition to LAS staff volunteering with CARU, in 2013-14 ten medical students and clinicians from other NHS Trusts wanted to work with and learn from CARU. Six of these medical students went on to lead a clinical audit project this year.

7.0 Patient and Public Involvement

As the NHS becomes more patient focussed and involves the public in how it is run, the patient perspective is ever more important. The LAS has had a patient representative helping to set the clinical audit work plan as part of the CARSG for more than ten years and in 2013-14 their role developed with visits to the department and the assurance process described in section 9.0 below.

In 2013-14 the work of the CARU was presented at a Patients' Forum meeting which was well received. In addition, the specific work CARU have undertaken surrounding Mental Health was presented at the LAS 'Mind Matters' evening which aimed to share with patients, staff and other organisations the work undertaken to improve care for these patients.

8.0 Clinical Audit Assurance

In 2013-14 CARU continued to evaluate all completed clinical audit projects, assessing whether the aims and objectives of the project were met and identifying learning points for future projects. A cost analysis for every project was also conducted to demonstrate value for money. This cost analysis has now been adopted by other ambulance services in England following the LAS's example.

To provide evidence that the clinical audit process is robust, in 2013-14 a further level of scrutiny was introduced in the form of an annual review of clinical audit working practices ensuring compliance to our clinical audit strategy ('The Strategy, Process and Application of Clinical Audit in the London Ambulance Service').

In addition, having reviewed the clinical audit work plans proposed by other ambulance services in England, the LAS can be assured that not only have we already undertaken many of the projects proposed for the upcoming year by other services, but the LAS are leading the way with our reports being shared and project ideas adopted by other ambulance services.

9.0 Spreading Best Practice

With most clinical audit undertaken in 2013-14 demonstrating excellent levels of care, it is important that staff are congratulated and this achievement recognised. These messages of good practice are communicated through posters displayed at ambulance stations and the LAS Clinical Update. The Clinical Update also provides the opportunity for communicating learning messages identified through clinical audit.

In addition to spreading best practice messages internally, CARU also took the opportunity to promote quality improvement through clinical audit externally in 2013-14 with ten abstracts accepted at six conferences and events and four papers published in peer-reviewed journals (as outlined in appendices three and four).

10.0 Directions for 2014-15

The clinical audit projects planned for 2014-15 will allow for a fuller investigation of areas of interest to the Service (see appendix five for the complete work plan) and we will undertake more work using hospital outcome data. We will also continue to participate in national clinical audit, including the expansion of the Lower Leg Fracture National CPI to include all suspected single limb fractures below the knee or below the elbow.

We will continue to promote clinical audit through training and publications, and encourage more front line staff to get involved. Next year we will also try to establish links with local University Student Paramedics so that clinical audit becomes embedded in clinical practice early on.

11.0 References

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London Ambulance Service NHS Trust, 2014. *Policy and Procedure on the Redeployment of Pregnant Operational Paramedics.* London: London Ambulance Service NHS Trust

Keogh, B., 2013. *Review into the quality of care and treatment provided by 14 hospital trusts in England: overview report.* London: NHS England.

Milburn, A., 2002. *Learning from Bristol: The Department of Health's Response to the Report of the Public Inquiry into children's heart surgery at the Bristol Royal Infirmary 1984-1995*. London: TSO (The Stationary Office).

Appendix one: National Clinical Performance Indicators

The National Clinical Performance Indicator (CPI) data for cycles ten (December 2012 – March 2013) and eleven (June 2013 - September 2013) show mixed results. There is a continuing upward trend for all aspects of care reported as part of the Care Quality Commission (CQC) Quality and Risk Profiling (QPR) targets under the Asthma National CPI. A high level of respiratory rate was measured in both cycles, with peak expiratory flow rate (PEFR) and oxygen saturation (SpO_2) recorded before treatment continuing to improve. PEFR continued to exceed the QRP target and oxygen saturation almost met the target in cycle eleven. This could be due to the introduction of 500 portable oxygen saturation monitors.

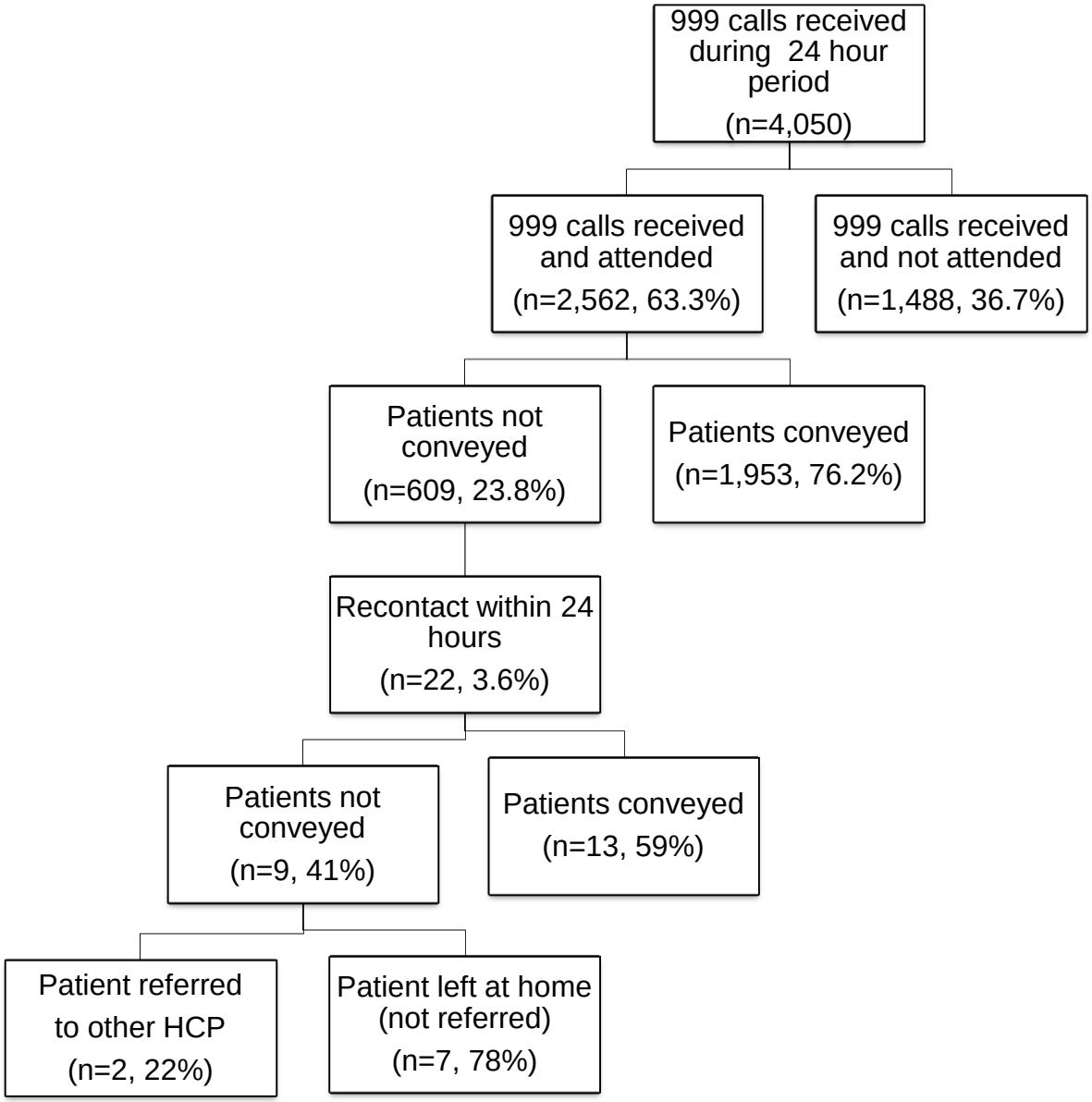
The downward trend continued for each of the three indicators under the Hypoglycaemia CPI in cycle ten however this trend was reversed in cycle eleven for blood glucose measurement before treatment, possibly as a result of this equipment becoming personal issue. Due to the high standard of care when the Hypoglycaemia CPI was introduced, the LAS continues to meet the QRP targets.

Cycle 10 (July 2013)	CQC target	LAS compliance	Rank	Direction of travel
Hypoglycaemia	**December 2012**			
Blood glucose level recorded prior to treatment	95%	100.0%	1st	↓
Blood glucose level recorded after treatment	95%	95.0%	9th	↓
Treatment recorded	95%	97.7%	11th	↓
Asthma	**January 2013**			
Respiratory rate measured	95%	99.7%	3rd	↑
Peak Expiratory Flow Rate (PEFR) measured before treatment	40%	67.7%	11th	↑
Oxygen saturation (SpO_2) recorded before treatment	90%	83.0%	12th	↑

Cycle 11 (January 2014)	CQC target	LAS compliance	Rank	Direction of travel
Hypoglycaemia	**June 2013**			
Blood glucose level recorded prior to treatment	95%	99.7%	7th	↑
Blood glucose level recorded after treatment	95%	97.3%	9th	↓
Treatment recorded	95%	99.0%	3rd	↓
Asthma	**July 2013**			
Respiratory rate measured	95%	100.0%	1st	↑
Peak Expiratory Flow Rate (PEFR) measured before treatment	40%	77.0%	10th	↑
Oxygen saturation (SpO_2) recorded before treatment	90%	89.0%	10th	↑

Appendix two: National Ambulance Non-conveyance Audit

LAS data for 24th October 2012



Appendix three: Abstracts accepted for conference presentations

Title:	Paediatric Pain Management by the London Ambulance Service
Authors:	J Shaw, G Virdi, R Fothergill
Conference:	British Medical Journal and Institute for Healthcare Improvement: International Forum for Quality and Safety in Healthcare, 17th – 19th April 2013
Title:	The management of sickle cell crisis by the London Ambulance Service
Authors:	J Shaw, G Virdi, R Fothergill
Conference:	British Medical Journal and Institute for Healthcare Improvement: International Forum for Quality and Safety in Healthcare, 17th – 19th April 2013
Title:	A clinical audit examining the use of furosemide by the London Ambulance Service
Authors:	J Shaw, G Virdi, R Fothergill
Conference:	Evidence Based Health Care International Joint Conference 2013, 30th October – 2nd November 2013
Title:	Does current pre-hospital care for patients with a mental illness reflect best practice guidance?
Authors:	J Shaw, G Virdi, R Fothergill
Conference:	Joint conference of the College of Paramedics combined with the Ninth Meeting of the International Roundtable on Community Paramedicine, 20th – 23rd May 2013
Title:	A clinical audit examining the use of furosemide by the London Ambulance Service
Authors:	J Shaw, G Virdi, R Fothergill
Conference:	Heart Failure Masterclass, 17th October 2013

Title:	Sustained clinical improvement in the London Ambulance Service NHS Trust
Authors:	J Shaw, G Virdi, H Salvidge, R Fothergill
Conference:	London Clinical Audit Networks Sharing Best Practice – Joint Event, 7th June 2013
Title:	Exercise-related sudden cardiac arrest in London: Incidence, survival, and bystander response
Authors:	Melanie J Edwards, Rachael T Fothergill
Publication:	999 EMS Research Forum Conference, 19th February 2014
Title:	Increases in survival from out-of-hospital cardiac arrest: A five year study
Authors:	Rachael T Fothergill Lynne R. Watson, Douglas Chamberlain, Gurkamal K. Virdi, Fionna P. Moore, Mark Whitbread
Publication:	999 EMS Research Forum Conference, 19th February 2014
Title:	Survival of resuscitated cardiac arrest patients with ST-Elevation Myocardial Infarction (STEMI) conveyed directly to a Heart Attack Centre by ambulance clinicians
Authors:	Rachael T Fothergill, Lynne R. Watson, Gurkamal K. Virdi, Fionna P. Moore, Mark Whitbread
Publication:	999 EMS Research Forum Conference, 19th February 2014
Title:	Clinical audit making a difference: Clinical Performance Indicators in the London Ambulance Service NHS Trust
Authors:	J Shaw, H Salvidge, G Virdi, R Fothergill
Conference:	Clinical Audit for Improvement, 26-27th February 2014

Appendix four: LAS publications resulting from clinical audit projects or the clinical quality databases

Title:	Increases in survival from out-of-hospital cardiac arrest: A five year study.
Authors:	R Fothergill, L Watson; D Chamberlain G Virdi, Virdi, F Moore, M Whitbread
Publication:	Resuscitation. Volume 84 Issue 8
Title:	Survival of resuscitated cardiac arrest patients with ST-elevation myocardial infarction (STEMI) conveyed directly to a Heart Attack Centre by ambulance clinicians
Authors:	R Fothergill, L Watson, G Virdi, F Moore, M Whitbread
Publication:	Resuscitation. Volume 85 Issue 1
Title:	A Clinical Audit of the Pre-Hospital Paediatric Respiratory Assessment in London
Authors:	S Clark, J Shaw, F Wrigley
Publication:	Journal of Paramedic Practice. Volume 6 No 2
Title:	Levels of consciousness on admission into a heart attack centre is a predictor of survival from out-of-hospital cardiac arrest
Authors:	C Deakin, R Fothergill, F Moore, L Watson, M Whitbread
Publication:	Resuscitation. Published online March 01, 2014

Appendix five: Clinical Audit Work Programme 2014 - 2015

In order to be responsive to the needs of the Service projects may change if the need arises.

Clinical Audit Projects

- Elderly fallers
- Appropriateness of Critical and Immediate Transfers
- IV Paracetamol
- Tranexamic acid
- Section 136
- Paediatric epilepsy
- Paediatric respiratory assessment

Clinical Performance Indicator Audits

- Acute Coronary Syndrome (all PRFs)
- Cardiac Arrest (all PRFs)
- Difficulty in Breathing (alternative months: 50% of all PRFs)
- Glycaemic Emergencies (alternative months: 50% of all PRFs)
- Mental Health (all PRFs)
- Stroke (all PRFs)
- Non-conveyed (50% of all PRFs and 100% of police arranging removal)
- General Documentation (1/40: 2.5% of all PRFs)

Clinical Performance Indicator Audit Activity

- Continuous monitoring of audit completion
- Continuous monitoring of compliance to care guidelines
- Continuous monitoring of feedback provision
- Monthly training delivery
- Quarterly traffic light posters disseminated to all stations
- Bi-annual quality assurance of audits

Clinical Quality Monitoring

- Cardiac Arrest (all PRFs)
- Major Trauma (all PRFs)
- ST Elevation Myocardial Infarction (STEMI: all PRFs)
- Stroke (all PRFs)

Routine Reporting of Audit Activity

- Cardiac Care Pack (consisting of Cardiac Arrest and ST Elevation Myocardial Infarction Monthly Complex Reports)
- Major Trauma Care Cack (consisting of Major Trauma Quarterly Complex Reports)
- Stroke Care Pack (consisting of Stroke Monthly Complex Reports)
- Clinical Performance Indicator Monthly Report
- Ambulance Operations Managers' objectives

- Department of Health Ambulance Clinical Quality Indicators
    - Outcome from cardiac arrest – Return of Spontaneous Circulation (ROSC)
    - Outcome from cardiac arrest – Survival to discharge
    - Outcome from acute STEMI
    - Outcome from stroke

Annual Reporting of Audit Activity

- Clinical Audit Annual Report
- Cardiac Arrest Annual Report
- ST Elevation Myocardial Infarction Annual Report
- Stroke Annual Report
- Strategy, Process and Application of Clinical Audit in the London Ambulance Service

National Clinical Audits

- Hypoglycaemia National Clinical Performance Indicator (bi-annual data submission)
- Asthma National Clinical Performance Indicator (bi-annual data submission)
- Trauma National Clinical Performance Indicator (bi-annual data submission)
- Febrile Convulsions National Clinical Performance Indicator (bi-annual data submission)

Additional reporting for Meetings

- Area Quality and Business Meetings
- Staff Officer Area Quality Reports
- Clinical Quality Safety and Effectiveness Committee
- Quality Committee

Miscellaneous Activity

- Facilitation of clinical audit – all clinical audit projects undertaken by front line staff will be registered with and receive support and guidance from the Clinical Audit & Research Unit
- Clinical Audit Database – all clinical audit projects will continue to be registered on this database, and the implementation of recommendations will continue to be monitored.
- Auditing Audit – clinical audit projects will be evaluated using the Health Services Management Centre's assessment tool and Best Practice in Clinical Audit evaluation tool.
- Cost analysis – each clinical audit will be assessed for its expenditure.