London Ambulance Service NHS Trust

Clinical Audit Annual Report 2016-17

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2016-17 Clinical Audit Annual Report

Contents

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

Throughout 2016-17, the Clinical Audit and Research Unit (CARU) of the London Ambulance Service NHS Trust (LAS) continued to deliver its comprehensive clinical audit programme to facilitate quality improvement within the Service.

To assess the quality of patient care, CARU undertakes clinical audit projects which can be prompted by changes in clinical guidelines, clinical incidents, complaints or patient feedback. After recommending and implementing actions to address areas of improvement, we re-audit the care to determine progress. Our re-audits this year have been able to demonstrate that actions such as introducing personal issue equipment, issuing laminated pain reference cards, and delivering face-to-face training, led to improved patient care.

Our engagement with frontline clinicians continued to grow, with over 50 members of staff assisting with audit throughout the year. Taking part in clinical audit is an invaluable mechanism for clinicians to learn about the audit process and reflect on their clinical practice.

We have also had very positive patient involvement working closely with the Sickle Cell Society, the LAS Patients' Forum, and patients themselves.

To complement our clinical audit projects, we continued to maintain and develop our programme of Clinical Performance Indicators (CPIs) and continuous data quality monitoring. We have also submitted data nationally through contributions to the NHS England Ambulance Quality Indicators and the National CPIs. In addition to sharing our findings internally, we have published papers and presented abstracts at a number of conferences.

The high standard of our clinical audit programme was recognised by the Care Quality Commission (CQC), whose recent re-inspection report[1] highlighted the importance of our work, including the impact of our clinical audit projects and how the Trust learns from national audits. Our unique CPI process and feedback mechanism was also acknowledged, in addition to how our CARU team members ensure the safety of patients during their day-to-day work by carrying out safeguarding referrals and flagging clinical concerns. Our commitment to monitoring care in areas such as cardiac arrest, STEMI, and stroke, together with how CARU have supported the Service in monitoring areas in need of improvement such as medicines management, was also recognised. Our work and it's recognition by the CQC contributed to the Trust being rated as outstanding for the 'caring' element of the re-inspection. In addition, the Trust's internal auditors, KPMG, inspected our clinical audit practices and we received an extremely positive report.

This report outlines all clinical audit activity within the Service in 2016-17 and the direction for the coming year.

2.0 Clinical Audit Projects

Our clinical audit work programme is steered and approved by the Clinical Audit and Research Steering Group (CARSG). Upon completion of each clinical audit, the findings and recommendations are shared with CARSG for their approval, prior to publication through our dissemination process.

In 2016-17, CARU published five clinical audit projects. This section outlines the key findings and recommendations from audits published in 2016-17.

2.1 Alcohol Intoxication Re-audit (September 2016)

Alcohol intoxicated patients can be challenging to clinically assess, but require close monitoring due to alcohol's depressant effect on the body. Our previous alcohol intoxication clinical audit (2012) reported that improvements were needed with measuring blood glucose levels and documenting a full history of the event. The findings of this audit contributed to the Trust's decision to provide each member of staff with personal issue blood glucose monitors, personal issue tympanic thermometers, and to ensure that all stations are stocked with pulse oximeters. We undertook the re-audit in 2016 to assess the impact of these initiatives.

Compared with the original audit, we found greater numbers of patients were having a full set of observations recorded (+7%), blood glucose levels measured (+15%) and a complete alcohol history documented (+5%).

An infographic congratulating clinicians on the improvements was sent to all ambulance stations, and shared on the Service's intranet (The Pulse) and Listening into Action (LiA) Facebook Page. The positive impact of personal issue equipment was shared with the LAS Quality Governance Committee and at local Quality Governance Meetings. To sustain improvements, CARU published a Clinical Update article highlighting the importance of obtaining a full alcohol history.

2.2 Oramorph (November 2016)

Paramedics can give Oramorph (an oral form of morphine) to patients in severe pain when intravenous (IV) morphine administration is either not possible or not required. From 2014 to 2016, three incidents were reported of paediatric patients being administered double the indicated dose of Oramorph. Whilst no harm was caused to these patients, due to the possible side effects of morphine (including respiratory and cardiovascular depression), the Trust decided to assess whether Oramorph is being used appropriately. This clinical audit supported the Service's work on medicines management, an area in need of improvement identified in Trust's CQC inspection in 2015.

Our clinical audit found that nearly all patients who were given Oramorph had their pain levels assessed prior to administration and most patients had all relevant observations documented. However, after administration, pain and other relevant observations were not re-assessed for nearly a third of patients. We also found that

while Oramorph was given largely when indicated, almost a quarter of those who received it could have been given an alternative form of analgesia. To remind staff of the indications for Oramorph and the importance of post-administration observations, we published an article in the LAS's Clinical Update. We sent an infographic highlighting the audit's key findings to all ambulance stations and shared it on the Service's Facebook page. We also shared the full report with the Trust's Medicines Management Group. To measure whether improvements are made, CARU will re-audit Oramorph administration in the future.

2.3 Sickle Cell Re-audit (December 2016)

We audited the care provided to patients in sickle cell crisis in 2004 and again in 2011, and although we found that improvements had been made, the LAS Patients' Forum and the Sickle Cell Society suggested there was room for further progress. This third clinical audit aimed to determine the extent to which improvements had been made since the earlier audits, and to gain a better understanding of patients' experiences via a patient questionnaire.

We found a number of improvements to patient care: there were increases in two pain assessments being recorded (+28%), improvements in both oxygen (+27%) and morphine (+16%) administration, more electrocardiograms (ECGs) being undertaken (+53%), more patients triaged to their usual treatment centre (+11%) and assisted to the ambulance (+7%). There was a slight decrease in patients administered Entonox from the 2011 audit (-3%) and most clinicians did not document whether or not the patient had a treatment plan.

Seventy-three patients responded to our questionnaire (a response rate of 33%). Whilst patients felt that waiting times required improvement, most were pleased with the care provided by the LAS, reporting that clinicians were courteous and had a good understanding of sickle cell disorder.

This clinical audit produced 12 actions, which included recommending that the Sickle Cell Society liaises with Sickle Cell Centres to explore the idea of patient held treatment plans. From the patient questionnaire, it was evident that patients would like more information on what response and treatment they can expect from the LAS therefore we are publishing an article providing this information in the Sickle Cell Society newsletter and on their website. Within the LAS, we have fed the audit findings directly into the face-to-face Core Skills Refresher (CSR) training on Sickle Cell, the Medicines Management Group, LAS Patient's Forum and Sickle Cell Society. We will also be sharing our findings in a Clinical Update article after receiving advice on pharmacology from a sickle cell specialist.

2.4 Paediatric Pain Management Re-audit (January 2017)

Our previous clinical audits (2006 & 2012) on the assessment and management of pain in children with a suspected fracture reported improvements were needed in analgesia provision and immobilisation. To address this, the LAS produced a personal issue laminated card featuring a face-based pain score system, included

paediatric pain management and immobilisation in clinical training sessions, and reviewed the paediatric immobilising equipment available to clinicians.

This audit assessed whether these actions led to improvements in patient care. We found that nearly all patients had a pain assessment recorded, as previously found in the 2012 clinical audit. We found increases in patients having their injury immobilised (+22%) and being given analgesia when required (+18%). Nonetheless this still left a third of patients did not have their pain managed appropriately. As a result, pain management will be included in CSR training in 2017-18. To complement this, we have recommended that the LAS pain tool is reviewed and that paediatric pain assessment methods are included in a future paediatric assessment web-tutorial.

2.5 Paediatric Abdominal Pain (March 2017)

The LAS often attends paediatric and adult patients with abdominal pain; however, children may experience higher levels of pain than adults due to their developing neurological pathways. We carried out a clinical audit to assess the level of care provided to patients aged 5-12 presenting with abdominal pain.

We found that while most patients had their pain assessed, only half of those in pain were administered analgesia. When analgesia was given, an alternative form to that provided would have been more suitable for over half of all children. Most patients had their pain re-assessed, but only 4% who were still in pain were given further analgesia. To address these findings, the management of paediatric abdominal pain will be included in the upcoming CSR training on pain management. The LAS Medicines Management Group will also review the current range of analgesia options available and we will survey clinicians to ascertain their awareness of pain management tools and attitudes towards pain relief for children.

3.0 Continuous Clinical Audit Activity

3.1 Clinical Performance Indicators (CPIs)

The Clinical Performance Indicators (CPIs) are a continuous method of quality audit used to drive forward improvements in patient care throughout the Trust. The proportion of CPI audits completed fluctuated throughout 2016-17, largely in line with Clinical Team Leader vacancies. Nonetheless, November 2016 saw the highest completion rate (94%) in over three years, demonstrating the commitment to this assurance process from Team Leaders and other staff assisting with undertaking CPIs. It is also reassuring that compliance levels in nearly every CPI improved, with the general documentation CPI remaining consistent with 2015-16. Figure 1 outlines the improvement in the level of care provided for each patient group since 2007.

More staff received two face-to-face feedback sessions this year (54%) than the previous year (47%). Other mechanisms for staff feedback are described in Section 8.0.

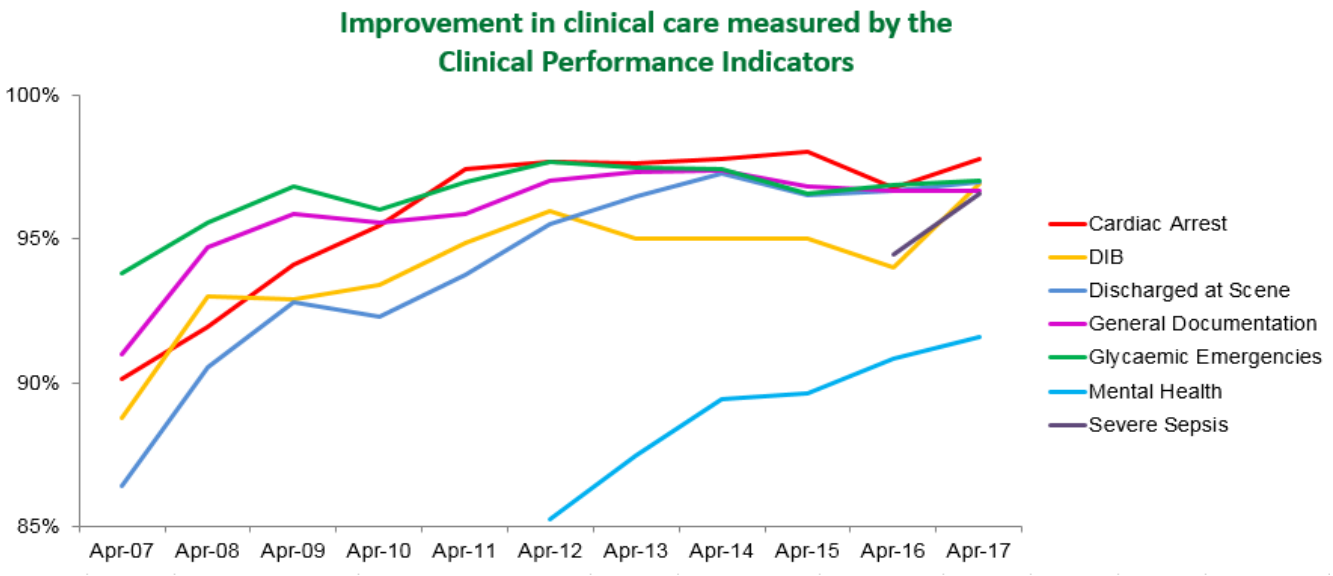

Figure 1: CPI compliance rates from April 2007 to April 2017

CPI Developments

We made a number of significant developments during the year to improve functionality and further enhance the quality assurance capabilities of the CPIs:

- In April 2016 we introduced the Severe Sepsis CPI with a starting compliance level of 94% that rose to 97% by the end of the year.

- We have been developing the Elderly Fallers CPI and a new Continuous Fitting CPI, both of which will be implemented during 2017-18.

- We have also developed a CPI specifically for Advanced Paramedic Practitioners (APPs) which assesses the management of adult non-traumatic cardiac arrest. This CPI includes specific skills held by the APPs, including the use of ultrasound. CPIs on the management of Acute Behavioural Disturbance and Major Trauma are also currently being developed for the APPs.

- We are trialling the use of a tick-box on the CPI database that auditors are required to check to indicate whether they have any clinical concerns. If the auditor identifies a clinical concern, they are required to make an entry on Datix (the Trust's incident reporting system) before they can close the audit. The aim of this development is to identify cases where the care provided meets the criteria necessary to score highly on a specific CPI, but may not necessarily have provided good quality care overall or where a clinical concern may exist that would not be captured by the CPI process. This function will facilitate timely investigations of possible incidents and is currently being trialled at one station, before being rolled out across the Service.

- The ability to reflect on clinical practice using past PRFs is an important aspect of the CPI feedback session. To encourage and facilitate this, we are trialling a function where upon completing an audit, the auditor can highlight, through a tick box, that the PRF would be interesting for discussion during the clinician's next feedback session. PRFs can be flagged either to congratulate the member of staff on thorough documentation and/or a well-handled situation, or where potential areas of improvement are needed. The PRF is highlighted on the clinician's feedback form so it is easily identifiable for any Team Leader delivering feedback.

- Feedback sessions are pivotal in enabling clinicians to reflect on their clinical practice and CPI feedback is now routinely delivered in conjunction with CISO (Clinical Information & Support Overview) sessions, for which staff have two hours of protected time per year.

- We are developing a webpage for Quality Governance and Assurance Managers (QGAMs) so they can see real time information on how stations in their sector are performing in the CPIs.

- We have been working with Training Stations to ensure that Trainee Emergency Ambulance Crews (TEACs) complete their documentation to a high standard. Following a trial, it proved difficult to deliver CPI feedback to TEACs, as they had often finished their five-week placement when feedback was due and there were only a handful of PRFs to feed back on. As a result, we are currently exploring the possibility of auditing mentors to assess how they trained the student to complete the PRF under their supervision. This trial will progress once Training Stations receive their own LAS cost centre, meaning they can be established as a complex on the CPI database.

We have introduced new CPI database enhancements:

- We amended the CPI database to support the Back to Basics way of working (whereby solo responders can write certain information on the crew's PRF in order to save job cycle time). When a solo responder's PRF is presented for CPI audit, the auditor can now generate and view the PRFs of the other vehicles on scene to cross reference the solo responder's documentation.

- We have also increased the number of PRFs eligible for audit by our Hazardous Area Response Team (HART) which is enabling them to have more constructive feedback sessions.

- In addition, we have undertaken developments to improve the number of feedback sessions delivered to Volunteer Responders (VRs). After some investigations, we found that while CPI audits were being undertaken, they weren't being assigned to the VRs because either the name on the PRF was illegible, or the auditor did not search the full list of LAS staff to find the responder's name. To rectify this, CARU manually re-allocated these unassigned PRFs to VRs. Furthermore, to prevent this occurring in the future, a personal ID number has been given to each VR which they now write on their PRF. We are also developing a link between the VR rostering system

and the CPI database so that the name of a potential responder appears in a shortlist, as it does with LAS staff on frontline vehicles. The link between the two systems will also enable Team Leaders on complex to know when VRs are going to be on shift so they can arrange a feedback session. This remains the main obstacle in providing feedback to VRs as their shift patterns aren't currently known to Team Leaders.

In 2016-17 we also worked to enhance the readability of our monthly reports, and ensure they meet the needs of the Service. For example:

- We introduced a medicines management specific page in the CPI monthly report which highlights compliance for all aspects of care related to medicines.

- In the latter part of 2016-17, we also consulted QGAMs on how they use the CPI monthly report and whether any improvements could be made. As a result we developed a new reporting format for use from 2017-18 which makes information available at a glance, provides clear key messages and is easier to read.

- In addition, we revised the Voluntary and Private Ambulance Service Provider's (VAS/PAS) quarterly CPI reports, presenting feedback against a trajectory so performance is visible at a glance.

Throughout 2016-17, the CPIs continued to support the Service's Quality Improvement Plan (QIP). We submitted data on drug pack code compliance and CPI completion for the QIP each month, whilst detailing reasons for any drops in CPI completion at individual complexes. Key CPI compliance figures were also entered in to the Trust's Quality Dashboard each month, with findings of note highlighted to the LAS's Executive Leadership Team (ELT) through the monthly Quality Report, for noting and action as appropriate. We also provided strong evidence for the CQC inspection of how the LAS monitors and assures good quality care through the CPIs.

3.2 Clinical Quality Monitoring Registries

Throughout 2016-17 we continued to monitor and demonstrate high quality clinical care to our cardiac arrest, ST elevation myocardial infarction (STEMI - a type of heart attack), stroke and major trauma patients through our registries. The Clinical Quality Monitoring monthly reports inform clinical staff, QGAMs, and operational management teams of the care provided in each sector, which enables them to assess and develop local improvement initiatives. Please see the cardiac arrest, STEMI, stroke and major trauma annual reports for more detailed information.

3.3 Continuous Re-contact Clinical Audit

CARU continued with the valuable continuous re-contact clinical audit in 2016-17. All re-contacts within 24 hours where the patient severely deteriorated (pre-alerted to hospital) or died unexpectedly were reviewed to assess the appropriateness of the decisions made. Following review, 30 cases were reported as clinical incidents using

Datix, with 19 reviewed by the Serious Incident Group (SIG), eight of which were declared Serious Incidents. We are producing a report that will combine two years' worth of data (2015-16 and 2016-17) for release in 2017-18. A large number of clinicians have received feedback as a result of this clinical audit, further details of which are in Section 8.0.

3.4 NICE Clinical Quality Standards

In 2016-17 we reviewed and measured our compliance to all National Institute for Health and Care Excellence (NICE) Quality Standards that are relevant to ambulance services and not already covered by existing audit work. A snapshot audit of 50 cases was carried out for specific statements within the following Quality Standards:

- Asthma
- Diabetes in Adults
- End of Life Care
- Fever in Under 5s
- Neonatal Care
- Self-Harm
- Stroke
- Transient Loss of Consciousness

Our findings were reported at Clinical Safety and Standards Committee meetings throughout the year. As a result, areas of improvement have been included in face-to-face CSR training and such areas will also be measured via our 2017-18 clinical audit work programme.

4.0 National clinical audit

4.1 National Clinical Performance Indicators (CPIs)

The National CPIs compare care across the country and evidence national clinical audit participation to the Department of Health (DH) in the Quality Accounts Mandatory Assurance Statements. In 2016-17, the National CPI Cycle 16 report (January 2016-June 2016) was released which reported that LAS compliance against each CPI continued to vary[2], as outlined below. In an attempt to improve certain aspects of care, CARU published two infographics on the Service's LiA Facebook page encouraging clinicians to immobilise single limb fractures, and another reminding staff to perform a peak flow on patients with difficulty in breathing. We also continue to develop our local Elderly Falls CPI to address areas in need of improvement.

At the end of Cycle 17 (August-September 2016), the National CPIs were put on hold to allow for development of new Ambulance Clinical Quality Indicators. We await the final report for Cycle 17.

4.1.1 Asthma National CPI

The LAS saw a decrease in the care provided to patients presenting with asthma, with fewer clinicians recording a peak flow and oxygen saturation before treatment. This impacted on performance against the overall care bundle, for which the LAS were ranked second from bottom.

4.1.2 Single Limb Fracture National CPI

A gradual improvement was seen in the care provided to patients with a single limb fracture, with more clinicians recording two pain scores, administering analgesia, documenting immobilising techniques, and assessing circulation distal to the fracture. Whilst provision of the full care bundle increased slightly (to 9th place nationally), it was delivered to less than half of patients.

4.1.3 Febrile Convulsion National CPI

The overall care provided to patients who had a febrile convulsion has gradually declined over the last three cycles, and the LAS were ranked bottom for the care bundle. Whilst the administration of an anticonvulsant and the use of appropriate discharge pathways remained high, there was a reduction in the number of patients who had their blood glucose and oxygen saturation measured. While the documentation of temperature management improved from the previous cycle, it still remained low.

4.1.4 Falls in Older People National CPI

Nationally, the LAS was ranked joint first for recording primary observations for older patients who had fallen. High compliance was also seen in documenting the cause of the fall; however, improvement was needed in documenting the patient's recent falls history; assessing their mobility and directly referring them to an appropriate healthcare professional. The LAS ranked in the middle for the overall care bundle.

4.1.5 Mental Health CPI

Compliance to the care bundle improved, with more clinicians documenting the mental state of the patient and history of events leading to the self-harm episode. Despite progression, the LAS ranked second from bottom compared with other Trusts. Recording the nature of the injury and use of drugs/alcohol requires improvement.

4.2 Out of Hospital Cardiac Arrest Registry

We have continued to contribute to the out of hospital cardiac arrest registry, submitting data for 4,389 patients in 2016-17. The registry is led by the University of

Warwick and it aims to understand variability in outcomes and contributory factors to survival.

4.3 Other National Clinical Audit

In 2016-17, the LAS continued to supply data to the Myocardial Ischaemia National Audit Project (MINAP) and validate the pre-hospital data entered by hospitals. Monthly submissions and six-monthly resubmissions were also made to NHS England for the Ambulance Quality Indicator (AQI) clinical outcome measures for cardiac arrest, STEMI and stroke.

5.0 Engaging Staff in Clinical Audit

We continue to encourage and facilitate clinician involvement in clinical audit through the following training and volunteering opportunities. As a result, clinicians are able to demonstrate they are able to reflect on and review their practice for their Health and Care Professions Council (HCPC) registration.

5.1 Training

To promote the importance of clinical audit and research in clinical practice, we delivered a number of training sessions in 2016-17 (as shown in Table 1). Sessions mainly covered the role of evidence-based practice and the impact of our work in CARU.

Session	Audience	Participants 2016-17
Clinical Performance Indicators (CPIs)	Team Leaders, Training Officers and Paramedics	161
Emergency Operations Centre Induction: Clinical Audit & Research in the LAS	New Emergency Medical Dispatchers	105
World Asthma Day	Clinicians of all skill levels	40
Clinical Development Module: Evidence Based Practice	Paramedic Managers and Team Leaders	30
Admission Avoidance Training Day	Clinicians of all skill levels	30
Greenwich Paramedic Science Society	Students	20
LAS Mentors Development Day	Mentors	15

Table 1: CARU training delivered in 2016-17

5.2 Volunteering

In 2016-17, a total of 53 members of front-line clinical staff worked with us on clinical audit projects.

- 47 assisted with a clinical audit (33 of whom provided clinical reviews for our Continuous Re-contact Clinical Audit throughout the year) by reviewing PRFs and collecting data for us to analyse.

- 6 members of front-line staff undertook their own clinical audit project, supported by CARU.

Volunteers have reported to us that they find this a rewarding process and it enables them to reflect on, and improve, their own clinical practice.

To raise awareness and encourage participation in clinical audit, during National Clinical Audit Awareness Week (from 22nd to the 30th November 2016) we published articles in the LAS Daily Communications Updates which are received by all members of staff. The articles were also uploaded on to the LAS intranet and LiA Facebook page. Topics included the general audit process, examples of how our clinical audits have changed clinical practice, and volunteers' accounts of carrying out their own clinical audits. Our articles generated a number of expressions of interest, showing excellent engagement with frontline staff.

6.0 Patient and Public Involvement

Our Sickle Cell Re-audit had considerable input from patients, including the LAS Patients' Forum and the Sickle Cell Society, whose assistance was invaluable when planning the audit. In addition to collecting data from PRFs, the audit included a patient questionnaire, for which we had a 33% response rate. Following the audit, CARU attended focus groups with members of The Merton Sickle Cell and Thalassaemia Group, where we were able to share the positive results of our audit and provide reassurance where members of the group had concerns.

From our patient questionnaire and focus groups, it was evident that individuals with sickle cell disorder wanted to know what to say when they phone the LAS while experiencing excruciating pain, how long they can expect to wait for an ambulance, and what pain relief our clinicians can give. As a result, we are producing an article for the Sickle Cell Society newsletter and website to provide this information for patients.

In addition, the patient representative on CARSG continued to review our clinical audit working practices, as outlined in section 8.0.

7.0 Clinical Audit Assurance

7.1 Audit of Audit

In 2016-17, the LAS clinical audit function was audited by KPMG as part of the Trust's internal audit programme. LAS practices were compared against the Healthcare Quality Improvement Partnership (HQIP) principles and good practice. Following review of our clinical audit strategy[3], reporting of clinical audits, and governance structures, KPMG concluded that the LAS's clinical audit function provided 'significant assurance with minor improvement opportunities'[4]. Areas of good practice included a clear clinical audit policy, oversight of CARSG, use of a trigger list for audits, and a recommendations progress tracker. Areas for improvement were mainly focused on governance in the Trust, particularly that there was, at the time of the audit, no regular reporting of clinical audit progress to a sub-committee of the Board, and the subgroup of the Quality Governance Committee responsible for clinical audit had not met for a year previous to the review. Since the audit the Trust has undergone a significant review of governance and reporting structures.

Our CPI data was submitted throughout the year for the Service's Quality Improvement Plan and played an important role in the CQC re-inspection in February 2017. Our clinical audit projects also supported areas in need of improvement identified by the CQC's original inspection, such as medicines management.

7.2 CARSG Review

For the fourth consecutive year, the patient representative on CARSG carried out an annual review of the Service's clinical audit working practices. The reviewer confirmed that all work was undertaken in line with our clinical audit strategy and no areas for improvement were highlighted.

8.0 Sharing and Learning

We continue to disseminate our findings and key messages to frontline staff in new ways, in addition to using the LAS intranet (The Pulse). For example, in 2016-17 we started using infographics to communicate the key findings of clinical audits to frontline staff, which are displayed as posters on complexes and uploaded on to LiA to facilitate discussion. We are also planning to present our clinical audit findings using animations and web-tutorials for web-based learning. To facilitate learning from experience, we have written articles for the LAS Insight magazine using interesting case studies identified in clinical audits.

As part of the clinical quality monitoring, CARU staff forwarded 345 cases to QGAMs or specialty leads for review and where necessary, feedback was delivered to the clinician in order to improve their clinical practice. In addition, over 250 clinicians have received constructive feedback identified by the Continuous Re-contact clinical audit to date.

As well as assessing the clinical care provided to patients, CARU made 113 safeguarding referrals in 2016-17 where a patient's clinical record suggested they may be vulnerable and the attending clinician did not record that a referral had been made. The majority of referrals were for patients under 18 years involved in major trauma.

CARU also identify areas for feedback related to specific groups of staff. For example, during routine review of PRFs, we identified cases where the PRFs of attending clinicians indicated Incident Response Officers (IROs) had been involved with the resuscitation of the patient, but the IRO had not completed a clinical record. IROs are primarily responsible for the safe management of incident scenes and liaising with other emergency services on scene. As a result, we forwarded the details to the relevant Assistant Director of Operations (ADO) for feedback to be given to the IROs and mitigate similar occurrences in the future.

CARU continues to ensure that clinicians are commended for excellent clinical practice, for example in 2016-17:

- 81 crews were given positive feedback on the care they provided as a result of the 2016-17 continuous re-contact audit.

- We sent out 1,307 letters to clinical staff that attended cardiac arrest patients to inform them that their patient had survived.

- Furthermore, we sent over 301 letters to our Emergency Medical Dispatchers to recognise their crucial role in early recognition of cardiac arrest and initiation of dispatcher assisted bystander CPR.

In addition to sharing our work internally, CARU have continued to promote the LAS and our clinical audit achievements to external audiences. In 2016-17, one paper was published using LAS clinical audit data (see appendix two). In addition, four LAS clinical audit abstracts were accepted at national conferences (appendix three).

9.0 Reflecting on 2016-17

This year, while we made very good progress against our clinical audit work plan, some projects experienced delays in completion. These delays largely resulted from our frontline volunteers struggling to find the necessary time to undertake the work. Our volunteers undertake clinical audits entirely in their own time and, as such, delays are often inevitable. Nonetheless their contributions, perspectives and insights are incredibly invaluable. In an attempt to efficiently utilise and facilitate our volunteers, we have developed a new volunteer audit process. Going forward, we will take a stepwise approach, evaluating progress at each stage of the project from design and data collection, to data analysis and report writing. This will enable us to provide support at each stage, ensure the clinician is aware of the work involved, and ultimately conclude in them having the opportunity to undertake their own project, supported by CARU.

10.0 Directions for 2017-18

In 2017-18, we will undertake a range of in-depth clinical audits (see appendix four for the complete work programme) and continue to develop our portfolio of CPIs, whilst supporting the Service's five-year Clinical Strategy[5]. We will also continue to participate in national clinical audit and promote LAS clinical audit through internal training and external publications.

11.0 References

[1]Care Quality Commission, 2017. London Ambulance Service NHS Trust Quality Report. London: Care Quality Commission.

[2]National Ambulance Service Clinical Quality Group, 2016. *Report on National Ambulance Service Clinical Performance Indicators – Cycle 16.* Lincoln: East Midlands Ambulance Service NHS Trust.

[3]London Ambulance Service NHS Trust, 2016. *Strategy, Process and Application of Clinical Audit in the London Ambulance Service.* London: London Ambulance Service NHS Trust.

[4]KPMG, 2017. *Clinical Audit London Ambulance Service NHS Trust Internal Audit 2016-17*. [pdf] KPMG.

[5]London Ambulance Service NHS Trust, 2017. Clinical *Strategy 2016-2021.* London: London Ambulance Service NHS Trust.

Appendix one: Glossary of abbreviations

ADO	Assistant Director of Operations
APP	Advanced Paramedic Practitioner
AQI	Ambulance Quality Indicator
CARSG	Clinical Audit & Research Steering Group
CARU	Clinical Audit & Research Unit
CISO	Clinical information & Support Overview
CPI	Clinical Performance Indicator
CQC	Care Quality Commission
CSR	Core Skills Refresher
DH	Department of Health
ECG	Electrocardiogram
ELT	Executive Leadership Team
HART	Hazardous Area Response Team
HCPC	Health and Care Professions Council
HQIP	Healthcare Quality Improvement Partnership
IRO	Incident Response Officer
LAS	London Ambulance Service NHS Trust
LiA	Listening in Action Facebook Page
MINAP	Myocardial Ischaemia National Audit Project
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
PAS	Private Ambulance Service
PRF	Patient Report Form
QGAM	Quality Governance and Assurance Manager
QIP	Quality Improvement Plan
ROSC	Return of Spontaneous Circulation
SIG	Serious Incident Group
STEMI	ST elevation myocardial infarction
TEAC	Trainee Emergency Ambulance Crew
VAS	Voluntary Ambulance Service
VR	Volunteer Responder

Appendix two: Papers accepted for journal publication

Title:	A Clinical Audit Examining the Use of Furosemide by the London Ambulance Service
Authors:	J Shaw, M Whitbread, R Fothergill,
Journal:	BMJ Open

Appendix three: Abstracts accepted for conference presentations

Title:	Elderly fallers: is increased ambulance response time associated with mortality?
Authors:	E Cannon, J Shaw, R Fothergill, J Lindridge
Conference:	EMS 2016, Copenhagen, May 2016
Title:	Use of Furosemide in the London Ambulance Service
Authors:	J Shaw, G Virdi, M Whitbread, R Fothergill
Conference:	EMS 2016, Copenhagen, May 2016
Title:	Use of Furosemide in the London Ambulance Service
Authors:	J Shaw, G Virdi, M Whitbread, R Fothergill
Conference:	Evidence Live, June 2016
Title:	Pre-hospital diagnosis and management of sepsis
Authors:	B Murphy-Jones, J Shaw, R Fothergill
Conference:	Sepsis: improving recognition and management, October 2016

Appendix four: Clinical Audit Work Programme 2017-2018

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

CARU Clinical Audit Projects

Projects in progress

- Mental Capacity Act
- Hydrocortisone re-audit
- Adrenaline (ADM) re-audit
- Undiagnosed psychiatric problems
- Paediatric conveyance review (continued from 2016/17)
- Heart failure (continued from 2016/17)
- Paediatric pyrexia management re-audit (continued from 2016/17)
- Exercise Unified Response (continued from 2016/17)
- Hypovolaemic shock (continued from 2016/17)
- Continuous re-contact

New Projects

- Management of overdose
- Obstetric emergencies re-audit
- TLOC re-audit
- EZIO re-audit
- The use of pre-alerts
- Missed spinal injuries
- Salbutamol

Clinical Performance Indicator Audits (all staff)

- 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)
- Severe Sepsis (all PRFs)
- Discharge at Scene (50% of all PRFs and 100% of police arranging removal)
- General Documentation (1/40: 2.5% of all PRFs)

Clinical Performance Indicator Audits (APPs)

- APP Adult Non-Traumatic Cardiac Arrest (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 on track posters disseminated to all stations

Clinical Quality Monitoring

- Cardiac Arrest (all PRFs)
- Major Trauma (all PRFs)
- Acute Coronary Syndromes (ACS: 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)
- Stroke Care Pack (consisting of Stroke Monthly Complex Reports)
- Major Trauma Care Pack (consisting of Major Trauma Quarterly Complex Reports)
- Clinical Performance Indicator Monthly Report

Annual Reporting of Audit Activity

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

National Clinical Audits

- National Pain Management Audit
- National Ambulance Non-Conveyance Audit

National Ambulance Clinical Quality Indicators

- Cardiac Arrest
- Stroke
- STEMI
- Sepsis (planned from Autumn 2017)
- Fallers (planned from Autumn 2017)

Additional reporting for Meetings

- Sector Governance Groups
- Clinical Effectiveness and Standards Group
- Quality Oversight Group

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