



Clinical Audit Annual Report 2017-18

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Authors: Joanna Shaw and Rachael Fothergill

Clinical Audit & Research Unit
Medical Directorate,
London Ambulance Service NHS Trust,
18-20 Pocock Street,
London
SE1 0BW

✉ CARU.enquiries@londonambulance.nhs.uk

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2017-18 Clinical Audit Annual Report

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Freya Leece	Mary Emery	
Garmin Austin Zhu	Matthew Birkenhead	

For further Information

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

1.0 Preface

Clinical audit continues to be a focus of attention in the National Health Service (NHS), most prominently this year from the Care Quality Commission in their report 'The state of care in NHS acute hospitals' (CQC, 2017). The report recognised that clinical audit is widely undertaken and, where used effectively, is an important tool for driving improvement in quality. It states "For a trust to be confident about the quality of its services there must be a comprehensive clinical audit programme supported by a programme of continuous quality improvement."

Effective clinical audit is vital to the NHS; it brings many benefits to an organisation, healthcare professionals, patients and the public. Clinical audit enables organisations and clinicians to demonstrate to themselves and to others the effectiveness and quality of their service. It provides reassurance that patients are receiving the best possible care and can increase confidence in the quality of the service as a whole. Where clinical audit identifies areas for improvement, it can aid clinicians and organisations by pinpointing where further education and training is needed, and so can provide opportunities for learning and development. It can also highlight to organisations areas where new investment and resources are needed to support clinical practices. Most importantly, clinical audit can reduce variability in practice and improve standards of clinical care.

Throughout 2017-18, the London Ambulance Service NHS Trust (LAS) Clinical Audit and Research Unit (CARU) continued to deliver its comprehensive clinical audit programme to facilitate clinical improvement within the Service. Assurance was provided internally via our programme of Clinical Performance Indicators (CPIs) and continuous data quality monitoring, and nationally benchmarking ourselves against other ambulance services in England through contributions to the NHS England Ambulance Quality Indicators (AQIs). The CPIs enable continuous audit of care in seven specific areas allowing for individualised face-to-face clinical feedback, with the data quality monitoring and AQIs focussing on a further four areas of clinical care.

In addition to the CPIs, and other areas of continuous audit, CARU also undertake specific clinical audit projects. This year's projects were prompted by changes in clinical guidelines and clinical incidents, and looked across a spectrum of clinical areas - from patients with a suspected mental health disorder to pain management and drug administration.

We ensure that learning is taken forward by forming recommendations where improvement needs are identified and sharing our findings with staff through training, infographics and Clinical Update articles. Once recommendations have been implemented, clinical care is re-audited to determine whether patient care has improved. As a direct result of clinical audit in 2015-17, ten serious incidents were declared and it was ensured that the most up to date forms used to assess a patient's capacity were available to clinicians. Clinical audit findings were also used to inform the mandatory training for clinicians on medicines and pain management.

Our engagement with frontline clinicians continued to grow, with over 80 members of staff assisting with clinical audit throughout the year. Taking part in clinical audit is an invaluable mechanism for clinicians to learn about the clinical audit process and reflect on their clinical practice.

Clinical audit played an important role during the Service's CQC inspection in March 2018 enabling us to demonstrate the high standard of care provided to patients by our clinicians and show that as an organisation we continuously learn from audit and strive to deliver the best possible care. The CQC were provided with evidence that the LAS routinely collect and monitor information on outcomes of people's care and treatment and how audits have changed practice through the use of action plans.

This report outlines all clinical audit activity undertaken by the LAS in 2017-18 and the direction for the next year.

2.0 Clinical Audit Projects

The LAS's clinical audit work programme is set and approved by the multidisciplinary Clinical Audit and Research Steering Group (CARSG). Upon completion of each clinical audit, reports are reviewed by CARSG to ensure recommendations are measurable, achievable and realistic, and have the potential to improve or inform patient care. Findings and recommendations are then published through our dissemination process to staff and key stakeholders, including other ambulance services. In 2017-18, CARU published eight clinical audit reports. This section outlines the key findings and recommendations from clinical audit reports published in 2017-18.

2.1 Documentation of mental capacity assessments (June 2017)

The 2015 CQC inspection report recommended that the LAS improve training for staff on Mental Capacity Act assessment due to varied staff confidence conducting mental capacity assessments. As such, all clinicians received face-to-face training on the Mental Capacity Act and the LA5 form (an internal tool within that guides clinicians through how to document mental capacity assessments). This clinical audit aimed to determine whether LAS clinicians are documenting mental capacity assessments thoroughly.

Nearly all clinicians documented an initial capacity assessment, whether or not the patient was free from coercion, and provided sufficient information for the patient to make a decision. All clinicians documented the proposed patient treatment plan and most recorded whether or not it was the least restrictive option. The majority of staff also recorded that they had considered the patient's best interests and whether or not a mental health assessment was needed.

Areas identified as being in need of improvement included: documenting whether not the patient's lack of capacity was temporary and attempts made to assist the patient to make a decision. In order to address this, we recommended that the current LA5 form be reviewed with a view to producing a more intuitive version. In the meantime,

the current version of the LA5 has been updated and old versions removed from circulation. Consultations with others also varied depending on who the consultation was with. As a result we have produced an animation highlighting the principles of the Mental Capacity Act and shared it on the Service's Listening into Action Facebook Page (LiA). We have also written a Clinical Update article highlighting the key findings of the clinical audit and will write a case study for the LAS Insight magazine including key learning points. The report has also been shared with clinicians in the Clinical Hub and Mental Health Nurses in the Control Room. Once all of the actions have had time to take effect, CARU will re-audit to see whether there has been an improvement in the documentation of mental capacity assessments for patients who lack capacity.

2.2 Use of adrenaline (1:1,000) re-audit (July 2017)

Previous LAS adrenaline and anaphylaxis clinical audits have recommended improvements in the distinction between allergic and anaphylactic reactions, as well as the correct administration of adrenaline. This re-audit aimed to determine whether reminders sent to staff have been effective in ensuring the correct patients are administered the appropriate route and dose of adrenaline.

We found that the majority of patients who needed adrenaline (1:1,000) were given it; however, less than half of patients were administered it appropriately (which was an increase from the previous audit). As a result, we will raise awareness of the indications for adrenaline (1:1,000), together with the stages of allergic reactions and asthma, via an allergic reactions and asthma tool for the LAS Digital Pocket Guide App and a short video on the Pulse and LiA. This tool will be shared with the Association of Ambulance Chief Executives (AACE) for consideration in future guidelines. We also produced a Clinical Update article and infographic summarising the key findings and reminding staff of the indications for adrenaline administration and drug documentation practices. All training materials related to adrenaline (1:1,000) have been reviewed to ensure they are clear and not leading to any potential confusion and this report was shared with the Medicines Management Group. CARU will re-audit adrenaline (1:1,000) administration in the future to assess if improvements are made

2.3 Care given to patients with a suspected mental health disorder (August 2017)

Patient Report Forms (PRFs) coded as 'psychiatric problem – diagnosed' are continuously audited as part of the LAS's CPI programme. Patients with undiagnosed psychiatric problems, however, are not subject to continuous clinical audit. Therefore, this clinical audit was undertaken to assure the standard of care delivered to the patients presenting with symptoms suspected to be related to mental health, but where there is no formal diagnosis. Results showed that whilst history taking and physical assessment were well completed, improvement is needed in documenting the correct illness code (as more than one-third of patients were incorrectly allocated as 'undiagnosed despite having a psychiatric diagnosis). To improve documentation, we will review the wording of the 'psychiatric problem –

undiagnosed' illness code with a view to replacing 'undiagnosed' with 'suspected' or 'possible'.

Assessment of the patient's mental state, consideration of their mental capacity and whether safeguarding was required were other areas for improvement. As such, we promoted the LA383 (Adult Mental Health Assessment Form) at Sector Quality Meetings to encourage use, and ensured copies of the form are available on stations for clinicians. We will also record a Question and Answer session with the Service's Mental Nurses outlining the importance of undertaking a thorough patient assessment. Findings will be shared with clinicians in the Clinical Update, together with physical conditions which may mimic a mental health condition. In addition, an infographic has been produced and displayed at all ambulance stations. We have introduced patients with an undiagnosed psychiatric problem into the CPI audit process.

2.4 Analgesia given to adult patients (September 2017)

The LAS recently audited pain management for children aged 12 years and younger, however a similar clinical audit had not been carried out for older children and adults therefore this clinical audit looked at analgesia given to adult patients. Our results show that clinicians often assess patients' pain and when analgesia is administered, it is given safely. However, a large number of patients did not receive adequate analgesia and not all patients given analgesia had their pain reassessed. These findings were shared with frontline staff and departments across the Service, including Clinical Education & Development, in order to inform the development of the Core Skills Refresher (CSR) training module on pain management. Key findings were also distributed in an infographic displayed at all ambulance stations. Once all actions have had time to take effect, CARU will re-audit analgesia use.

2.5 Care provided to the patients with a genuine illness or injury at Exercise Unified Response (October 2017)

In March 2016, the LAS participated in Exercise Unified Response (EUR), a large scale major incident exercise run on behalf of the London Resilience Partnership. As part of the exercise, the LAS provided mobile clinicians and set up the 'No Duff Medical Centre' for non-participating LAS clinicians and external Doctors and Nurses to provide care in the event of a genuine injury or illness. This clinical audit aimed to determine whether the clinical care provided to all genuine patients at EUR was appropriate.

Our results show that most patients had a full set of initial observations, but in contrast, just over half had a final set documented. History of the event and drugs given were well recorded, but many patients were not left with a responsible adult or given appropriate advice prior to discharge. To address these issues, clinicians not normally deployed on frontline duties will be assessed for their suitability to take part in such events and receive appropriate training in advance, including how to document the care they deliver. The key findings from this clinical audit were shared

with the LAS Department for Emergency Preparedness, Resilience and Response, the Medical Directorate, Cycle Response Unit and Community First Responders.

2.6 Administration of ondansetron (January 2018)

This clinical audit assessed whether clinicians are administering ondansetron (which was introduced into clinical practice in 2013) in accordance with the guidelines.

Results showed ondansetron was indicated for nearly every patient who received it. Nearly all patients had their heart rate and blood pressure measured before the drug was administered, and it was given in the correct dose and via the correct route for the majority of patients. However, the drug pack code was documented on the PRF for just over half of the patients. When given intravenously (IV), ondansetron should be administered slowly over two minutes, however PRF documentation indicated that a quarter of patients were given another IV drug within two minutes. It is not clear whether ondansetron was given quicker than recommended, if drugs were given concurrently via a three-way tap, or if ondansetron was partly administered before and after the other drug. To aid clarity, Clinical Tutors have been advised to ensure scenario based training takes place in real-time so students have practice accurately recording giving concurrent drugs. An additional infographic will also highlight how ondansetron and other drugs should be given.

A fifth of patients did not have their heart rate monitored or their blood pressure recorded after ondansetron administration. Clinicians were informed of the key clinical audit findings via a Clinical Update article, which included a reminder to administer IV ondansetron slowly over two minutes, conduct post-administration assessments and record the drug pack code. An infographic was also shared on the Pulse and LiA and displayed as a poster at ambulance stations.

2.7 Administration of dexamethasone (February 2018)

In 2013, guidance on the management of croup was included in the Joint Royal Colleges Ambulance Liaison Committee (JRCALC) national clinical practice guidelines for use in UK Ambulance Services. To complement this, dexamethasone, was introduced for oral administration by paramedics to relieve the symptoms of moderate-severe croup. Since its introduction, the use of dexamethasone has not been assessed, therefore, this clinical audit aimed to determine whether it is being given appropriately for croup.

Prior to the administration of dexamethasone, all patients had their respiratory rate measured, and the majority had their oxygen saturations recorded and chest auscultated. Dexamethasone was administered orally to all patients with most being given the correct dose. All patients who required hospital were conveyed.

All dexamethasone administrations were considered appropriate when compared with the National Institute for Health & Care Excellence (NICE) guidance, however where NICE includes mild croup as an indication for dexamethasone, JRCALC does not. So, whilst every patient who received dexamethasone had an indication

documented in line with NICE guidance, less than half of the patients had an indication documented in accordance with JRCALC meaning (according to JRCALC) we are administering dexamethasone to a large proportion of children without the appropriate signs and symptoms. As a result, we shared the findings of this clinical audit with the JRCALC Guideline Developers and Contributors and they have agreed to review the guidelines and decide if changes are needed regarding whether mild croup should be an indication for dexamethasone (as per NICE guidance). We have produced an infographic to share the key findings and emphasise the indications for dexamethasone to clinicians and will write a Clinical Update article. We will carry out a re-audit to determine whether the above actions have led to improvements in dexamethasone administration.

2.8 Assessment and transport decisions of patients with major head injuries (March 2018)

As the NICE Clinical Guidelines for head injuries and the JRCALC Clinical Practice Guidelines for use in UK Ambulance Services were updated in 2014 and 2016 respectively, we undertook this clinical audit to determine whether the assessment and transportation of patients with major head injuries is in line with current guidance.

A large number of PRFs were excluded that had an illness/injury code as “head injury – major” as there was no evidence of a clinically significant head injury. As a result, the Medical Directorate will encourage more consistent coding by providing a clear distinction between minor and major head injuries in the PRF User Guide.

This clinical audit found GCS was recorded for every patient and pupillary symmetry and reaction to light for most patients. However, assessment of the signs and symptoms indicating an urgent CT scan was infrequent, with assessments for the presence of blood or cerebrospinal fluid leaking from ears and focal neurological deficit recorded for just over a quarter of patients. We have re-iterated the importance of the recognition and appropriate management of clinically significant head injuries with an infographic and will write a Clinical Update article. The Department for Clinical Education and Standards will review training materials to ensure they reflect the findings of this clinical audit. In addition, the Medical Directorate have encouraged more consistent coding by making the distinction between minor and clinically significant head injuries more accessible with a list of red flag symptoms in a Medical Directorate Bulletin. Despite the low frequency of assessments, all patients were correctly taken to a Major Trauma Centre.

3.0 Continuous Clinical Audit Activity

3.1 Clinical Performance Indicators

The CPIs are a continuous method of clinical audit used to drive forward improvements in patient care throughout the Trust. The proportion of CPI audits completed fluctuated throughout 2017-18, largely in line with Clinical Team Leader vacancies. After a reduction in the percentage of CPI audits completed late spring 2017, the percentage of audits increased to 94% in August and November 2017, matching the peak in November 2016.

After seeing increases in the number of CPI feedback sessions being delivered over the last few years, 2017-18 saw a huge decline in feedback with only 35% of clinicians receiving two face-to-face feedback sessions by the end of the year. Other mechanisms for staff feedback are described in Section 9.0.

Despite fluctuating levels of completion and feedback, compliance levels in every CPI were maintained. Figure 1 outlines yearly snapshots, each April, of the level of care provided for each patient group in April since 2006.

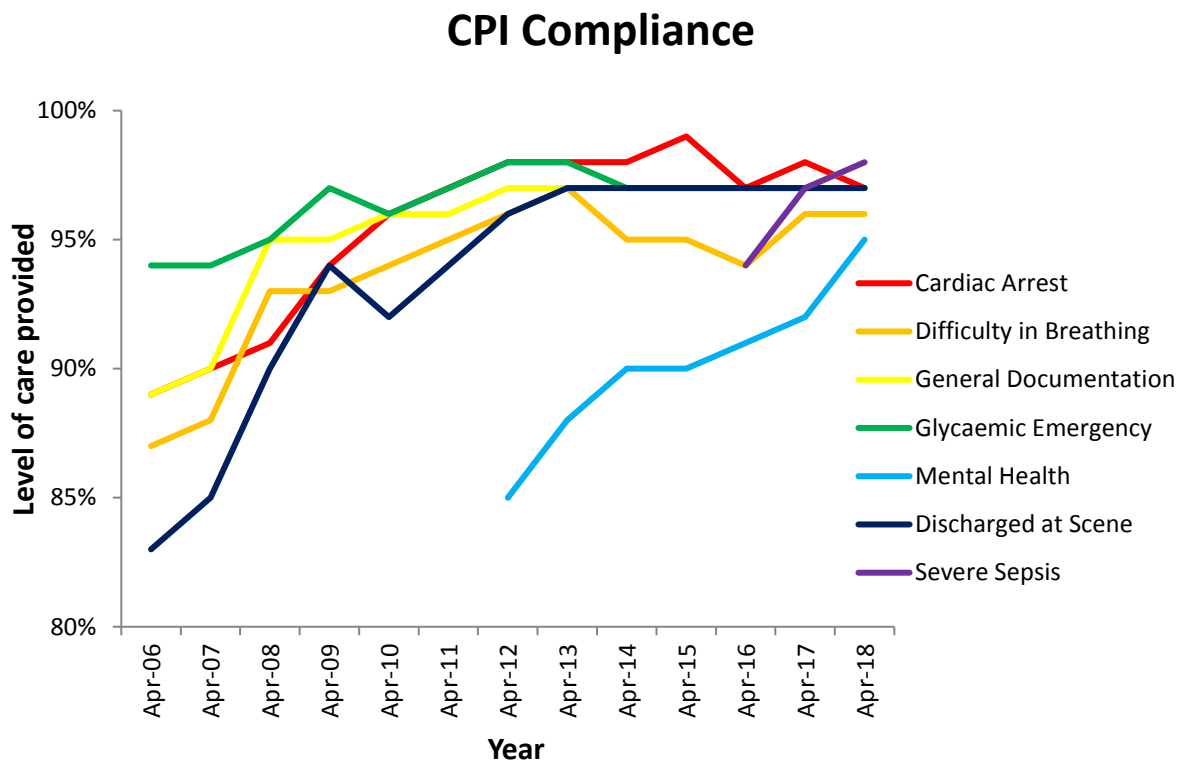


Figure 1: CPI compliance rates from April 2008 to April 2018

We continued to disseminate our monthly CPI reports across the Service and contribute key CPI compliance figures to the monthly Quality Report that is reviewed at internal and external committee meetings.

CPI Developments

In 2017-18 we undertook a comprehensive review of the clinical performance indicators to ensure that clinicians are not spending longer than necessary on scene completing paperwork. These changes went live on the 1st April 2018. We also introduced a new clinical performance indicator for our Advanced Paramedic Practitioners focussing on non-traumatic cardiac arrest.

We have developed additional CPIs (due to be introduced in 2018-19) for the Advanced Paramedic Practitioner groups concentrating on acute behavioural disturbance, major trauma and the specialised drugs they administer, and an Elderly Falls CPI for all clinicians. We are also establishing a process to allow auditors to highlight if they have a safeguarding or clinical concern for any patient audited.

3.2 Clinical Quality Monitoring Registries

In 2017-18, through our clinical registries, we continued to monitor and report on the care provided to cardiac arrest, ST elevation myocardial infarction (STEMI - a type of heart attack), stroke and major trauma patients. Our Clinical Quality Monitoring monthly reports informed clinical staff and operational management teams of the care provided in each sector, which enabled 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

The Continuous Re-contact Clinical Audit (2015-17) looked at patients who received a face-to-face assessment from the LAS, were discharged at scene, and then re-contacted the service within 24 hours either requiring a pre-alert to hospital or had died unexpectedly. The majority of the one and a half thousand genuine re-contacts were pre-alerted to hospital with 63 patients dying unexpectedly upon re-contact.

More than 90% of patients included in the audit were discharged appropriately on initial contact. Where this wasn't the case, it was often unclear from documentation how discharge decisions were made. To address this, we will publish an article in the Clinical Update and create a short animation to be uploaded on to the Pulse and LiA focusing on the importance of consistent discharge documentation. We will also write a case study for the LAS Insight Magazine demonstrating good patient assessment and discharge documentation. We will also continue to deliver the Discharged at Scene CPI to facilitate the provision of individualised feedback to clinicians on this patient group.

A fifth of patients initially contacted us for a fall, therefore to ensure that all elderly patients who have fallen are discharged safely, we will ensure that the Elderly Falls CPI contains aspects of care that assess the appropriateness of conveyance decisions and, for patient discharged at scene; whether an appropriate referral has been made.

We identified 43 potential incidents over the two year period, ten of which were declared as serious incidents by the Serious Incident Group (SIG). In addition, 282 crews were recommended for constructive or positive feedback.

4.0 National Clinical Audit

In addition to the Ambulance Clinical Quality Indicators described below, in 2017-18, the LAS continued to supply data to the Myocardial Ischaemia National Audit Project (MINAP) and validate the pre-hospital data entered by hospitals. We also supply data to the national OHCA registry for benchmarking.

4.1 Ambulance Clinical Quality Indicators

Throughout 2017-18, data was submitted each month to NHS England for the Ambulance Quality Indicator (AQI) clinical outcome measures for cardiac arrest, STEMI and stroke. This data is used nationally to benchmark ambulance services in England (as shown in Table 1). When benchmarked against the other ambulance services in England, the LAS attends and transports patients who have had a STEMI or stroke very quickly. However, we have a lower ROSC and survival to discharge rate for the Utstein comparator group than most other ambulance services in England and our delivery of the STEMI care bundle requires improvement.

Ambulance Clinical Quality Indicators	National average	LAS performance in 2017-18	LAS rank
Outcome from cardiac arrest – ROSC a) Overall group b) Utstein comparator group	a) 30.2% b) 55.1%	a) 30.9% b) 41.5%	a) 5 th b) 10 th
Outcome from cardiac arrest – Survival to discharge a) Overall group b) Utstein comparator group	a) 10.2% b) 28.3%	a) 9.5% b) 17.9%	a) 7 th b) 9 th
Outcome from acute STEMI a) Primary percutaneous coronary intervention (PPCI) delivered within 150 minutes of call. b) Care bundle delivered (includes provision of GTN, aspirin, two pain assessments and analgesia)	a) 84.3% b) 76.4%	a) 91.8% b) 74.2%	a) 3 rd b) 9 th
Outcome from stroke a) Face Arm Speech Test (FAST) positive stroke patients potentially eligible for thrombolysis, who arrive at a hyper acute stroke centre within 60 minutes of call. b) Care bundle delivered (includes assessment of FAST, blood pressure and blood glucose)	a) 49.3% b) 97.1%	a) 60.4% b) 96.4%	a) 2 nd b) 8 th

Table 1: LAS Ambulance Clinical Quality Indicator benchmarking for 2017-18.

Note: The data is not a complete year (up until December 2017) and the 'PPCI delivered within 150 minutes of call' and 'FAST positive stroke patients potentially eligible for thrombolysis, who arrive at a hyper acute stroke centre within 60 minutes of call' data is until November and has been replaced with new indicators.

5.0 Engaging Staff in Clinical Audit

Clinical audit has a direct effect on clinical care and is something clinicians are involved with on a daily basis. Everything a clinician does in practice is subject to the rigours of clinical audit, and the Health and Care Professions Council's *Standards of Proficiency for Paramedics* (HCPC, 2014) clearly identifies clinical audit as a key obligation and specifies that registrants 'must be able to assure the quality of their practice... be able to engage in evidence-based practice, evaluate practice systematically and participate in audit procedures'.

By participating in clinical audit, clinicians obtain first-hand experience of using evidence for change, and demonstrate a commitment to professional development. Clinical audit can provide a different view of clinical practice, contributing to improved skills and confidence. In addition, the insight gained into how information from clinical records is used can enhance the clinicians' own documentation.

5.1 Volunteering

In 2017-18, 80 LAS clinicians, two junior doctors and a medical student worked with us in their own time on clinical audit projects.

- 74 assisted with us with clinical audit by reviewing PRFs and collecting data (62 provided clinical reviews for the Continuous Re-contact clinical audit and 12 participated in other CARU led clinical audit projects)
- 6 members of front-line staff undertook their own clinical audit project with support and guidance from CARU.

To provide greater support to volunteers, we introduced a process to allow clinicians who participate in clinical audit to receive feedback on their auditing decisions, helping them with future audits and their clinical practice.

In addition, we have an LAS Senior Paramedic who works regularly with us in his own time as our Staff Engagement Facilitator helping us to get key messages across to staff through infographics, videos and discussion on LiA. The Senior Paramedic's contribution to clinical audit was recognised by the Healthcare Quality Improvement Partnership and he received a Clinical Audit Hero award.

5.2 Training

In 2017-18, we continued to deliver a number of different training sessions to a wide variety of staff groups across the organisation (as shown in Table 2). Each session was tailored to the specific staff group and the level of understanding of evidence based practice they required. CARU also offer one-on-one training and support to staff as needed.

Session	Audience	Participants 2017-18
CPIs	Team Leaders, Mentors and other Paramedics	147
Evidence based practice and the CPIs	New Team Leaders	40
Evidence based practice: Clinical audit	Academy Student Paramedics	27
Emergency Operations Centre Induction: Clinical Audit & Research in the LAS	New Emergency Medical Dispatchers	120
Re-contact clinical audit	Paramedic volunteer reviewers	42

Table 2: CARU training delivered in 2017-18

6.0 Patient and Public Involvement

Patient and public involvement continues to play an important role in clinical audit in the LAS. We have a patient representative who is a member of the Clinical Audit and Research Steering Group, helping to set the clinical audit work plan. She also visits our department annually to independently review our clinical audit working practices and provide assurance that our clinical audit process is in line with best practice (described in section 7.0 below).

7.0 Clinical Audit Assurance

In 2017-18 CARU continued to evaluate whether completed clinical audit projects met their aims and objectives, and identified learning points for future projects. A cost analysis for every project was also conducted to demonstrate value for money.

For the fifth consecutive year, a review was undertaken of the Service's clinical audit working practices by a patient representative to ensure compliance to our clinical audit strategy. The review found that clinical audits continued to be carried out in line with the clinical audit strategy.

8.0 Sharing and Learning

8.1 LAS Internal Engagement

CARU continued to engage with staff in new and innovative ways in 2017-18. Infographics outlining key findings and improvement messages were sent to ambulance stations and were shared on LiA, stimulating discussion amongst clinicians. In addition, we introduced Quick Response (QR) codes to our posters (a 2D coded image that when read by a QR reader take the user to an online destination) providing convenient access to the related LiA discussion. Messages from clinical audit projects are routinely communicated to staff via the Clinical Update, the Routine Information Bulletin (RIB) and in the LAS Insight magazine using interesting case studies identified via clinical audit.

CARU staff forwarded 459 PRFs to Quality Assurance and Governance Managers (QGAMs) or specialty leads for review where our clinical audit activity identified that clinicians may be able to improve their performance. Where it was deemed necessary from review, feedback was delivered to clinician.

CARU also made 159 safeguarding referrals where patients' clinical records 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.

As well as identifying areas for improvement, CARU also continues to ensure that excellent clinical practice is recognised through positive feedback and cardiac survival letters:

- 138 clinicians were given positive feedback on the care they provided
- 1,257 letters were sent to clinicians whose patient survived following a cardiac arrest, and
- 315 letters were sent to Emergency Medical Dispatchers to recognise their role in early recognition of cardiac arrest and initiation of dispatcher assisted bystander CPR.

8.2 Spreading Best Practice

As well as communicating key clinical audit findings and congratulating staff, CARU also promoted the LAS to an external audience. In 2017-18 two LAS papers were published using clinical audit data and one LAS clinical audit abstract was accepted at an international conference (as shown in appendices two and three).

Due to their expertise and experience of undertaking clinical audit in pre-hospital care, two members of the LAS clinical audit team were invited to author chapters in the third edition of Blaber's Foundations for Paramedic Practice: A theoretical perspective, due to be published in 2018-19.

9.0 Directions for 2018-19

The LAS's clinical audit programme for 2018-19 will look at a range of different areas to allow us to continue to look more closely at areas of clinical care related to declared serious incidents, or other areas that have potential clinical quality issues raised as feedback from staff, complaints or acknowledged risks. Clinical audit will focus on the LAS's strategic objectives: falls, mental health, maternity and end of life care, as well as medicines management. We will ensure that clinical audit focusses on areas that have not previously been audited. In addition, we will continue to participate in national clinical audit with the introduction of a Sepsis Registry and promote LAS clinical audit through internal training and external publications. See appendix four for the complete work programme.

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Appendix one: Glossary of abbreviations

AACE	Association of Ambulance Chief Executives
APP	Advanced Paramedic Practitioner
AQI	Ambulance Quality Indicator
CARSG	Clinical Audit & Research Steering Group
CARU	Clinical Audit & Research Unit
CPI	Clinical Performance Indicator
CQC	Care Quality Commission
CSR	Core Skills Refresher
EUR	Exercise Unified Response
HPCP	Health and Care Professions Council
IV	Intravenous
JRCALC	Joint Royal Colleges Ambulance Liaison Committee
LA383	Adult Mental Health Assessment Form
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
PRF	Patient Report Form
The Pulse	Intranet
QGAM	Quality Governance and Assurance Manager
QR	Quick Response code
RIB	Routine Information Bulletin
ROSC	Return of Spontaneous Circulation
SIG	Serious Incident Group
STEMI	ST elevation myocardial infarction

Appendix two: Papers accepted for journal publication

Title:	Can pre-hospital National Early Warning Scores identify patients most at risk from subsequent deterioration?
Authors:	Shaw J, Fothergill RT, Clark S, Moore FP
Publication	Emergency Medicine Journal. 2017 Aug;34(8):533-537
Title:	Double sequential defibrillation therapy for out-of-hospital cardiac arrests: the London experience
Authors:	Emmerson AC, Whitbread M, Fothergill RT
Publication	Resuscitation. 2017 Aug;117:97-101

Appendix three: Abstract accepted for conference presentation

Title:	Genuine illness and injury during Europe's largest emergency service major incident exercise
Authors:	E Cannon, R Fothergill, T Edwards
Conference:	EMS 2017, Copenhagen, May 2017

Appendix four: Clinical Audit Work Programme 2018 - 2019

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

CARU Clinical Audit Projects

- Healthcare professional calls
- Spinal injuries
- Tranexamic acid
- Maternity emergencies re-audit
- Re-contact

Facilitated Clinical Audit Projects

- Burns
- End of Life Care
- Emergency Arrhythmias
- Emergency Responder Drugs

Clinical Performance Indicator Audits

- Cardiac Arrest (all PRFs)
- Difficulty in Breathing (alternative months: 50% of all PRFs)
- Glycaemic Emergencies (alternative months: 50% of all PRFs)
- Diagnosed Mental Health (alternative months: 50% of all PRFs)
- Undiagnosed Mental Health (alternative months: 50% of all PRFs)
- Severe Sepsis (all PRFs)
- Elderly Falls (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)

- Critical Care APP Adult Non-Traumatic Cardiac Arrest (all PRFs)
- Critical Care APP Major Trauma (all PRFs)
- Critical Care APP Acute behavioural Disturbance (all PRFs)
- Urgent Care APP Co-Codamol (all PRFs)
- Urgent Care APP Naproxen (all PRFs)
- Urgent Care APP Prednisolone (all PRFs)
- Urgent Care APP Prochlorperazine (all PRFs)
- Urgent Care APP Salbutamol Inhaler (all PRFs)

Clinical Quality Monitoring

- Cardiac Arrest
- Major Trauma
- Acute Coronary Syndromes
- Stroke
- Sepsis

National Ambulance Clinical Quality Indicators

- Cardiac Arrest
- Stroke
- ST-elevation myocardial infarction (STEMI)
- Sepsis
- Falls